This year has seen some dramatic developments in the high speed rail sector, with the opening of several new lines, including LGV Est–Européenne in France and THSRC in Taiwan. We have also seen the setting of a new world speed record for conventional rail, with 574·8 km/h achieved on April 3 as part of the V150 test programme.

Yet apart from one outstanding run on LGV Est, which has lifted the world’s fastest timetabled start-to-stop run to within a whisker of 280 km/h, this year’s survey shows no faster schedules on any passenger rail service than the best reported in our last review (RG 11.05 p699). In fact, both the league leaders France and Japan have seen their best timings fall back slightly.

This of course is only temporary. Maximum speeds in many countries are being raised, as operators actively plan for routes operating at 360, 400 and even 500 km/h in commercial service. How long, we wonder, before engineers may have to grapple with the possible effect of a sonic boom on a railway track? Speeds exceeding 1300 km/h may not be achieved in our day, but trains passing on adjacent tracks at a combined speed not far short of that must surely be approached with some trepidation.

New lines, dedicated to high speed trains, are increasingly showing the way to go. Tiltng trains on existing tracks have played their part in terms of shorter journey times, and will continue to do so. But the greatest improvements – and most recognisable to the passenger – are being achieved on lines designed exclusively for high speed travel. Our round-up of Europe’s high speed line construction programme (RG 12.06 p774) hints at what the future may hold.

More countries speed up
In the first Railway Gazette speed survey in 1975, the late Donald Steffee identified 10 countries which had advertised train services achieving start-to-stop averages of 120 km/h or more between any two stations. The crown went to Japan, which had launched the world’s first over 160 km/h a decade before. But Steffee commented that ‘promises and performance are sometimes hard to disentangle’ (RG 7.75 p269). Much the same was said in 2003 and could well be repeated today.

Nevertheless, the list of contenders has been growing steadily. In the two years after Steffee’s last review in 1985, when there were 11 countries, five newcomers joined the high speed club, including Spain, Australia, Finland and Ireland. By the end of the 20th Century the number had risen to over 20. So it was decided for the 2001 review to raise the threshold to 150 km/h, cutting the first division back to 11. Although some of those countries have not re-appeared, others have taken their place and the ‘League of Honour’ in Table I now boasts 15 members. The ‘new kid on the block’ is Taiwan, which has leapt astonishingly straight into third place, whilst the number of countries achieving scheduled point-to-point timings above 120 km/h has now risen to more than 25.

France and the Far East
As in our last review, France still leads the way. LGV Est allows faster journeys between Paris and cities in eastern France such as Nancy, Metz and even Mulhouse via Strasbourg and Colmar, a somewhat indirect 556 km route compared to the 491 km via Chaumont and Belfort. But as most trains leave the new line to serve existing city-centre stations, it is only the handful of sprints between the sparsely-served intermediate stations where the benefit of 320 km/h running really shows up in the point-to-point timings. The best of these now leads Table I with a blistering 279·3 km/h over the 167·6 km between Lorraine-Louvigny TGV and Champagne-Ardenne TGV. Some of the other LGV Est schedules feature in Table II, including a fascinating St-Pierre-des-Corps – Strasbourg run via Massy, skirting Paris via the Grande Ceinture. Japan still holds second place, though

TGV Est lifts the record
The opening of LGV Est-Européenne has seen the world’s fastest scheduled start-to-stop timing jump by 18 km/h to almost 280 km/h. The Taipei – Kaohsiung line has brought Taiwan straight into third place in the international speed league, and further improvements can be anticipated as more new lines open.
The N700 marks the latest evolution of the Shinkansen. The sets were launched in revenue service in July by JR Central and JR West between Tokyo, Daska and Hakata. JR East meanwhile continues to test its Fastech prototype, intended to operate in service at 360 km/h.

With a surprising slight drop in best performance, Japan’s entries are little changed in spite of the introduction of the Series N700 trainsets for Nozomi services on the Tokaido and Sanyo Shinkansens. Extensive high speed testing with the two Fastech 360 prototypes on JR East (RG 11.05 p693) has not yet been translated into faster schedules but there is little doubt that Japan is set to remain among the leaders.

After various delays and setbacks, it was only in January this year that fare-paying passengers enjoyed their first run in the Japanese-built Series 700T trainsets on Taiwan’s new high speed line (RG 2.07 p55). Yet less than five months later the initial timetable was revised to cut journey times, so that the 179·5 km run between Taichung and Zuoying now averages 244·7 km/h, over 15 km/h faster than at the outset. Zuoying, formerly Tsoying, is the line’s current southern terminuspending completion of the final 8·6 km into the centre of Kaohsiung.

With Taiwan overtaking both Germany and the International group, and with South Korea and now China not far behind, the Far East could be on track to dominate Table I in future years. This is a marked contrast with the other side of the Pacific, where the USA which once held third place has now fallen to 12th. Despite the resurgence of interest in high speed rail for the USA (p561), there seems little prospect of any return to the top of the table. Once lying in fourth place, Canada has now fallen out of Table I completely.

South Korea’s entries this year show some accelerations, but KTX remains in seventh place, having been overtaken by China, which has an aggressive programme of high speed line development (RG 8.07 p481). With new trains now entering service in increasing numbers, China’s first results can be seen on the Qinhuangdao – Shenyang line, which was designed for 250 km/h running back in 2002. With a leading non-stop entry at 197·1 km/h, China is now firmly established in Table I; some other significant fast runs including intermediate stops are shown in Tables II and III.

European developments
All the remaining Table I entries are from Europe, with Thalys and Eurostar again taking the honours in the International category. The summer Saturday Thalys Soleil from Brussels again leads with a 244·6 km/h average to Valence TGV. After another stop in Avignon, it reaches Marseille in 4 h 28 min at an overall average of 236 km/h as shown in Table II.

Table I. Fastest start-to-stop runs at 150 km/h or more with advertised trains between different station pairs*

<table>
<thead>
<tr>
<th>Train</th>
<th>From</th>
<th>To</th>
<th>Distance</th>
<th>Time</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>France (Maximum speed limit 320 km/h)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TGV 5422</td>
<td>Lorraine TGV</td>
<td>Champagne TGV</td>
<td>167·6</td>
<td>36</td>
<td>279·3</td>
</tr>
<tr>
<td>TGV 5102</td>
<td>Valence TGV</td>
<td>Avignon TGV</td>
<td>129·7</td>
<td>30</td>
<td>259·4</td>
</tr>
<tr>
<td>TGV 6129</td>
<td>Paris Lyon</td>
<td>Avignon TGV</td>
<td>657·0</td>
<td>154</td>
<td>255·6</td>
</tr>
<tr>
<td>TGV 9802</td>
<td>Massy TGV</td>
<td>St-Pierre-des-Corps</td>
<td>206·9</td>
<td>49</td>
<td>253·5</td>
</tr>
<tr>
<td>TGV 6133 &amp; 6137</td>
<td>Paris Lyon</td>
<td>Aix-en-Provence TGV</td>
<td>730·7</td>
<td>173</td>
<td>250·5</td>
</tr>
<tr>
<td>6 TGV</td>
<td>Paris Lyon</td>
<td>Marseille</td>
<td>749·4</td>
<td>180</td>
<td>249·8</td>
</tr>
<tr>
<td><strong>Japan (300 km/h)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Nozomi 1</td>
<td>Okayama</td>
<td>Hiroshima</td>
<td>144·9</td>
<td>34</td>
<td>255·7</td>
</tr>
<tr>
<td>4 Nozomi</td>
<td>Hiroshima</td>
<td>Kokura</td>
<td>192·0</td>
<td>46</td>
<td>250·4</td>
</tr>
<tr>
<td>5 Nozomi</td>
<td>Shin Kobe-Okayama</td>
<td></td>
<td>128·3</td>
<td>31</td>
<td>248·3</td>
</tr>
<tr>
<td>Hayate Komachi 2</td>
<td>Morioka</td>
<td>Sendai</td>
<td>171·1</td>
<td>43</td>
<td>238·7</td>
</tr>
<tr>
<td>11 Hayate</td>
<td>Omiya</td>
<td>Sendai</td>
<td>294·1</td>
<td>74</td>
<td>238·5</td>
</tr>
<tr>
<td><em>Subante 1</em></td>
<td>Shin Yatsushira</td>
<td>Kagoshima Chuo</td>
<td>137·0</td>
<td>35</td>
<td>234·9</td>
</tr>
<tr>
<td><strong>Taiwan (300 km/h)</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7 trains</td>
<td>Taichung</td>
<td>Zuoying</td>
<td>179·5</td>
<td>44</td>
<td>244·7</td>
</tr>
<tr>
<td>4 trains</td>
<td>Hsinchu</td>
<td>Taichung</td>
<td>93·6</td>
<td>23</td>
<td>244·1</td>
</tr>
<tr>
<td>26 trains</td>
<td>Taichung</td>
<td>Banciao¹</td>
<td>152·6</td>
<td>43</td>
<td>212·9</td>
</tr>
<tr>
<td>6 trains</td>
<td>Taichung</td>
<td>Chaiyí</td>
<td>85·9</td>
<td>24</td>
<td>214·6</td>
</tr>
<tr>
<td>6 trains</td>
<td>Tainan</td>
<td>Chaiyí</td>
<td>62·3</td>
<td>18</td>
<td>207·6</td>
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<tr>
<td><strong>International</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thalys Soleil</td>
<td>Brussels Midi</td>
<td>Valence TGV</td>
<td>831·7</td>
<td>204</td>
<td>244·6</td>
</tr>
<tr>
<td>Thalys 9884</td>
<td>Brussels Midi</td>
<td>Roissy-CDG</td>
<td>291·7</td>
<td>74</td>
<td>236·5</td>
</tr>
<tr>
<td>51 Thalys</td>
<td>Brussels Midi</td>
<td>Paris Nord¹</td>
<td>313·6</td>
<td>82</td>
<td>229·5</td>
</tr>
<tr>
<td>Eurostar 9053</td>
<td>Marne-la-Vallic</td>
<td>Ashford International</td>
<td>403·4</td>
<td>111</td>
<td>218·1</td>
</tr>
<tr>
<td>Eurostar 9051</td>
<td>Paris Nord</td>
<td>Ashford International</td>
<td>401·5</td>
<td>113</td>
<td>213·2</td>
</tr>
<tr>
<td>4 Eurostar</td>
<td>Paris Nord</td>
<td>Waterloo International¹</td>
<td>474·2</td>
<td>155</td>
<td>191·3</td>
</tr>
<tr>
<td><strong>Germany (300 km/h)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICE trains</td>
<td>Frankfurt Flughafen</td>
<td>Siegburg/Bonn</td>
<td>144·0</td>
<td>37</td>
<td>233·3</td>
</tr>
<tr>
<td>ICE 721</td>
<td>Montabaur</td>
<td>Frankfurt Flughafen</td>
<td>810</td>
<td>23</td>
<td>211·3</td>
</tr>
<tr>
<td>10 ICE trains</td>
<td>Siegburg/Bonn</td>
<td></td>
<td>163·8</td>
<td>18</td>
<td>210·0</td>
</tr>
<tr>
<td>15 ICE trains</td>
<td>Frankfurt Flughafen</td>
<td>Limburg Süd</td>
<td>590</td>
<td>17</td>
<td>208·3</td>
</tr>
<tr>
<td>ICE 225/629</td>
<td>Köln</td>
<td>Frankfurt Flughafen</td>
<td>169·3</td>
<td>52</td>
<td>195·3</td>
</tr>
<tr>
<td>4 ICE trains</td>
<td>Ingolstadt</td>
<td>Nürnberg Hbf</td>
<td>900</td>
<td>28</td>
<td>192·9</td>
</tr>
<tr>
<td><strong>Spain (300 km/h)</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 AVE trains</td>
<td>Madrid Atocha</td>
<td>Zaragoza Delicias</td>
<td>307·2</td>
<td>81</td>
<td>227·6</td>
</tr>
<tr>
<td>AVE 9886</td>
<td>Camp de Tarragona</td>
<td>Zaragoza Delicias</td>
<td>219·3</td>
<td>58</td>
<td>226·9</td>
</tr>
<tr>
<td>7 AVE trains</td>
<td>Madrid Atocha</td>
<td>Ciudad Real</td>
<td>170·7</td>
<td>50</td>
<td>204·8</td>
</tr>
<tr>
<td>12 AVE trains</td>
<td>Madrid Atocha</td>
<td>Córdoba</td>
<td>343·7</td>
<td>102</td>
<td>202·2</td>
</tr>
<tr>
<td>AVE 9616 &amp; 9617</td>
<td>Madrid Atocha</td>
<td>Sevilla¹</td>
<td>470·5</td>
<td>140</td>
<td>201·6</td>
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<tr>
<td>7 AVE trains</td>
<td>Córdoba</td>
<td>Puertollano</td>
<td>134·3</td>
<td>41</td>
<td>196·5</td>
</tr>
</tbody>
</table>

*Tables II and III.
Intermediate stops are shown in other significant fast runs including

¹Numbers, China’s first results can be seen on the Qinhuangdao – Shenyang line, which was designed for 250 km/h running back in 2002. With a leading non-stop entry at 197·1 km/h, China is now firmly established in Table I; some other significant fast runs including intermediate stops are shown in Tables II and III.
## Speed Survey

### China (250 km/h)

- **Trains D24 & D28**
  - From: Shenyang Bei
  - To: Qinhuangdao
  - Distance: 404.0 km
  - Time: 123 min
  - Speed: 197.1 km/h

- **Trains D1 & D2**
  - From: Beijing
  - To: Shenyang Bei
  - Distance: 703.0 km
  - Time: 239 min
  - Speed: 193.9 km/h

- **D’ trains**
  - From: Shenzhen
  - To: Guangzhou Dong
  - Distance: 139.0 km
  - Time: 52 min
  - Speed: 160.4 km/h

- **Trains D27 & D26**
  - From: Beijing
  - To: Harbin
  - Distance: 1249.0 km
  - Time: 470 min
  - Speed: 159.4 km/h

- **Trains D507 & D515**
  - From: Beijing
  - To: Qinhuangdao
  - Distance: 299.0 km
  - Time: 119 min
  - Speed: 150.8 km/h

### South Korea (300 km/h)

- **KTX trains 410 & 411**
  - From: Seoul Yongsan
  - To: Seodaejeon
  - Distance: 161.0 km
  - Time: 50 min
  - Speed: 193.2 km/h

- **9 KTX expresses**
  - From: Seoul Main
  - To: Daejeon
  - Distance: 160.0 km
  - Time: 52 min
  - Speed: 184.6 km/h

- **13 KTX expresses**
  - From: Daejeon
  - To: Cheonan Asan
  - Distance: 64.0 km
  - Time: 22 min
  - Speed: 174.5 km/h

- **KTX 155**
  - From: Daejeon
  - To: Dongdaegu
  - Distance: 133.0 km
  - Time: 46 min
  - Speed: 173.5 km/h

### United Kingdom (200 km/h)

- **1 IC225**
  - From: London King’s Cross
  - To: York
  - Distance: 303.2 km
  - Time: 105 min
  - Speed: 173.3 km/h

- **1 IC225**
  - From: London King’s Cross
  - To: Doncaster
  - Distance: 250.9 km
  - Time: 87 min
  - Speed: 173.0 km/h

- **1 IC225**
  - From: York
  - To: Stevenage
  - Distance: 259.0 km
  - Time: 90 min
  - Speed: 172.7 km/h

- **1 IC225**
  - From: York
  - To: Peterborough
  - Distance: 180.5 km
  - Time: 63 min
  - Speed: 171.9 km/h

- **1 IC225**
  - From: London King’s Cross
  - To: Retford
  - Distance: 222.9 km
  - Time: 78 min
  - Speed: 171.5 km/h

- **1 Pioneer**
  - From: Stevenage
  - To: Grantham
  - Distance: 125.4 km
  - Time: 44 min
  - Speed: 171.0 km/h

### Sweden (200 km/h)

- **X2000 543**
  - From: Alvesta
  - To: Hässleholm
  - Distance: 98.0 km
  - Time: 34 min
  - Speed: 172.9 km/h

- **X2000 436**
  - From: Skövde
  - To: Södertälje
  - Distance: 277.0 km
  - Time: 97 min
  - Speed: 171.3 km/h

- **X2000 424**
  - From: Skövde
  - To: Flemingsberg
  - Distance: 297.0 km
  - Time: 106 min
  - Speed: 169.7 km/h

- **X2000 435**
  - From: Flemingsberg
  - To: Hallsberg
  - Distance: 183.2 km
  - Time: 66 min
  - Speed: 169.1 km/h

- **7 X2000 Katrineholm**
  - From: Skövde
  - To: Södertälje
  - Distance: 179.3 km
  - Time: 64 min
  - Speed: 168.1 km/h

- **X2000 443**
  - From: Södertälje
  - To: Töreboda
  - Distance: 272.0 km
  - Time: 125 min
  - Speed: 167.3 km/h

### Italy (250 km/h)

- **Eurostar 9484**
  - From: Roma Termini
  - To: Firenze SMN
  - Distance: 261.0 km
  - Time: 92 min
  - Speed: 170.3 km/h

- **Eurostar 9421**
  - From: Arezzo
  - To: Roma Termini
  - Distance: 198.7 km
  - Time: 76 min
  - Speed: 156.9 km/h

- **TrenBiz 9301**
  - From: Bologna
  - To: Roma Termini
  - Distance: 357.9 km
  - Time: 143 min
  - Speed: 150.2 km/h

### USA (340 km/h)

- **7 Acela Expresses**
  - From: Baltimore
  - To: Wilmington
  - Distance: 110.1 km
  - Time: 41 min
  - Speed: 161.1 km/h

- **15 Acela Expresses**
  - From: Philadelphia
  - To: Wilmington
  - Distance: 506.0 km
  - Time: 19 min
  - Speed: 159.8 km/h

### Finland (200 km/h)

- **10 Pendolinos**
  - From: Tikkurila
  - To: Tampere
  - Distance: 177.0 km
  - Time: 67 min
  - Speed: 158.5 km/h

- **4 expresses**
  - From: Salo
  - To: Karjaa
  - Distance: 53.1 km
  - Time: 21 min
  - Speed: 151.7 km/h

### Austria (200 km/h)

- **Eurocity 62 & ICE 766**
  - From: St Pölten
  - To: Linz Hbf
  - Distance: 122.7 km
  - Time: 48 min
  - Speed: 153.4 km/h

### Norway (180 km/h)

- **Airport trains**
  - From: Lillestrøm
  - To: Gardermoen
  - Distance: 30.2 km
  - Time: 12 min
  - Speed: 151.2 km/h

- **Non-stop trains**
  - From: Oslo Sentral
  - To: Gardermoen
  - Distance: 47.8 km
  - Time: 19 min
  - Speed: 150.9 km/h

*subject to a maximum of six entries per country 1. Runs in both directions*
Table II. Other notable or interesting advertised runs at 140 km/h or more

<table>
<thead>
<tr>
<th>Country</th>
<th>Train</th>
<th>From</th>
<th>To</th>
<th>Distance km</th>
<th>Time h min</th>
<th>Speed km/h</th>
<th>Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>International</td>
<td>Thalys Soleil</td>
<td>Brussels Midi</td>
<td>Marseille</td>
<td>1054</td>
<td>4.2</td>
<td>236</td>
<td>2</td>
</tr>
<tr>
<td>France</td>
<td>12 TGV</td>
<td>Paris Est</td>
<td>Metz</td>
<td>315</td>
<td>1.23</td>
<td>227/227</td>
<td>0</td>
</tr>
<tr>
<td>France</td>
<td>TGV 9864</td>
<td>Marseille</td>
<td>Lille Europe</td>
<td>996</td>
<td>4.31</td>
<td>220/220</td>
<td>4</td>
</tr>
<tr>
<td>France</td>
<td>23 TGV</td>
<td>Paris Est</td>
<td>Nancy</td>
<td>330</td>
<td>1.30</td>
<td>220/220</td>
<td>2</td>
</tr>
<tr>
<td>Taiwan</td>
<td>26 trains</td>
<td>Zuoying</td>
<td>Taipei</td>
<td>339</td>
<td>1.36</td>
<td>212/212</td>
<td>2</td>
</tr>
<tr>
<td>France</td>
<td>TGV 9295</td>
<td>Paris Est</td>
<td>Strasbourg</td>
<td>450</td>
<td>2.17</td>
<td>197/197</td>
<td>1</td>
</tr>
<tr>
<td>France</td>
<td>11 TGVs</td>
<td>Paris Est</td>
<td>Reims</td>
<td>147</td>
<td>45</td>
<td>196/196</td>
<td>0</td>
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<tr>
<td>Taiwan</td>
<td>13 trains</td>
<td>Taichung</td>
<td>Taipei</td>
<td>159</td>
<td>50</td>
<td>191/191</td>
<td>0</td>
</tr>
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<td>Germany</td>
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<td>190/190</td>
<td>1</td>
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<tr>
<td>Germany</td>
<td>5 ICE trains</td>
<td>Braunschweig</td>
<td>Berlin Spandauį</td>
<td>203</td>
<td>1.05</td>
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<tr>
<td>France</td>
<td>TGV 9295</td>
<td>Paris Est</td>
<td>Mulhouse</td>
<td>556</td>
<td>2.59</td>
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<td>1</td>
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<td>Spain</td>
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<td>Madrid Atocha</td>
<td>Huesca</td>
<td>386</td>
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<td>184/0</td>
<td>0</td>
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<td>International</td>
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<td>Paris Est</td>
<td>379</td>
<td>2.05</td>
<td>181/9</td>
<td>2</td>
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<td>France</td>
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<td>St-Pierre-des-Corps</td>
<td>Strasbourg</td>
<td>697</td>
<td>4.02</td>
<td>172/5</td>
<td>5</td>
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<tr>
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<td>2 TGV</td>
<td>Paris Est</td>
<td>Basel SNCF</td>
<td>590</td>
<td>3.26</td>
<td>171/8</td>
<td>2</td>
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<td>Watford Junction</td>
<td>Rugby</td>
<td>104</td>
<td>7.37</td>
<td>169/8</td>
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</tr>
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<td>Watford Junction</td>
<td>Lichfield TV</td>
<td>159</td>
<td>57</td>
<td>167/4</td>
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<tr>
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<td>X2000 400</td>
<td>Göteborg</td>
<td>Stockholm</td>
<td>456</td>
<td>2.45</td>
<td>165/9</td>
<td>0</td>
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<td>London Euston</td>
<td>Rugby</td>
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<td>48</td>
<td>165/9</td>
<td>0</td>
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<td>München Hbf</td>
<td>Nürnberg Hbfį</td>
<td>171</td>
<td>1.02</td>
<td>165/5</td>
<td>0</td>
</tr>
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<td>Ammington</td>
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<td>20</td>
<td>155/2</td>
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<td>Madrid Atocha</td>
<td>Barcelona Sants</td>
<td>602</td>
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<td>153/9</td>
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<td>Busanį</td>
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<td>2.40</td>
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<td>2</td>
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<td>Reading</td>
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<td>150/4</td>
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<td>Roma Termini</td>
<td>Napoliį</td>
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<td>1.27</td>
<td>147/6</td>
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<td>Reading</td>
<td>171</td>
<td>1.13</td>
<td>141/2</td>
<td>0</td>
</tr>
</tbody>
</table>

1. runs in both directions

take 39 min for 111-1 km, an average of 170·9 km/h.

Other Spanish developments – and there will be many more to come – include Avant high speed shuttle services from Madrid to Puertollano and Córdoba to Sevilla. A branch of the high speed line from La Sagrara now serves the ancient city of Toledo, covering the 75-1 km from Madrid in 30 min at a creditable average of 150·2 km/h.

The Neubaustrecke between Nürnberg and Ingolstadt opened last year and adds another route to Germany’s high speed tally, with the four fastest non-stop ICE trains taking only 28 min to cover the 90 km at an average of 192.9 km/h. The new route cuts the journey time between Nürnberg and München to just over 1 h each way, with trains averaging 165·5 km/h.

In sixth place last time, Sweden has now been overtaken by the UK, though only just, and not through any better performances on either part. SJ’s fastest timing is now X2000 543 on the Stockholm – Malmö route. This retains the same timing as in 2005, whereas none of the trains on the faster Göteborg line quite match the speeds attained two years ago.

Sweden’s former fastest schedule was the non-stop X2000 from Falköping to Katrineholm, but this now calls at Skövde instead. Apart from a morning commuter run to Göteborg, Falköping is now without any express service that does not call also at Skövde or Hörnljunga. The Stockholm – Göteborg line has long been one where almost every train has a different stopping pattern, providing an attractive service for most intermediate stations.

The result is that Sweden’s fastest timing is now 0·4 km/h behind the UK’s best. A notable entry in Table II, however, is a non-stop run from Göteborg to the capital which averages 165·891 km/h. This compares with Britain’s 18.08 Pendolino from London Euston to Rugby, which achieves 165·875 km/h.

Capacity not speed

For the commentary on the UK scene I am once again indebted to John Heaton FCILT. In suggesting that a commitment to a radical expansion of capacity would be preferable to overcrowding more traffic onto a mixed-traffic railway, John writes:

‘Extra time has been added to some of the fastest East Coast Main Line schedules to accommodate extra services that include standard daytime half-hourly Leeds trains and a second open-access operator, Grand Central. Although four operators provide 10 off-peak passenger trains each way per hour through the two-track Welwyn bottleneck and across the flat junction at Hitchin, the ECML remains at the head of the year’s rankings.

‘The former Scottish Pullman, now the anonymous 15.00 King’s Cross – Edinburgh [extended to Glasgow Central on some dates] has survived the timetable tinkering to take the top spot with an average of 173·3 km/h for the first 303·2 km to York, yet the 105 min schedule includes 5 min recovery time that frequently results in the train standing outside York awaiting a path into the station.

‘Second place falls to the 18.00 King’s Cross – Glasgow Central, which reaches its first stop at Doncaster in 87 min at 173 km/h. In the Up direction, recovery time padding before King’s Cross means that no East Coast trains into London exceed the 159·6 km/h average of GNER’s 07.00 from Newcastle. Now that GNER’s IC125 diesel sets are all timed for 2+9 formations, they no longer challenge the electric IC225 timings, although their better paths normally result in shorter journey times than those allocated for Grand Central’s planned short-formation IC125s.

‘Two more flyers from the north-
east, the York – Stevenage and Peterborough sections of the 06.30 and 06.00 from Newcastle, average 172.7 and 171.9 km/h respectively to take third and fourth places. Stevenage has the advantage over many other ECML stations in having platform faces on the main lines, allowing faster approaches within the 200 km/h line speed.

‘The first non-GNER service in Table I is the off-pattern Stevenage – Grantham leg of Hull Trains’ 09.48 King’s Cross – Hull service, taking just 44 min for the 125.4 km at an average speed of 171 km/h. Virgin CrossCountry’s Voyager DEMUs nose into seventh place on the York – Darlington section with 170.3 km/h. The Up journey takes only 1 min longer but the average drops to 163.8 km/h, showing the vulnerability of short sections to minor changes. Another interesting short hop for the Voyager is the 51.9 km from Berwick-upon-Tweed to Alnmouth, along the North Sea coast. This is advertised as 20 min at 155-2 km/h, but the working time is just 18½ min at a startling 167-7 km/h. GNER’s electrics are also advertised to take 20 min but have a 19 min working time at 163-3 km/h.

‘Just outside the cut-off for Table I are the first entries for the West Coast Main Line, where progress with the route modernisation has allowed Virgin to accelerate some services, although West Coast schedules at present include a 65 km/h slowing for the remodelling of Rugby station. In eighth place is the Watford Junction – Rugby leg of the Watford Junction – Lichfield Trent Valley, which features in Table II.

‘Disappointingly, other lines in the UK fail even to challenge these figures. First Great Western’s best is 150-4 km/h between Paddington and Reading, achieved by the 16.52 Ascotante to Oxford. This is advertised at 23 min, although it could be a timetabled error as the working time is 1 min longer. Many regular IC125 trains are booked from Swindon to Reading at 142-5 km/h but the working net time is 3½ min less, corresponding to a 162-8 km/h average.

‘All Up IC125s from Cardiff and Bristol now call at both Swindon and Reading and only one Down train, the 17.00 Paddington – Weston-super-Mare, omits the Reading stop. The only express to pass Swindon non-stop is the 17.45 Paddington – Carmarthen, which achieves a 140-8 km/h average from Reading to Bristol Parkway. Surprisingly, one Berks & Hants line service beats this figure; the 06.55 (Saturdays) Plymouth – Paddington Adelante manages 141-2 km/h, being allowed 73 min from Taunton to Reading including 3 min recovery time.

‘First Great Western’s series of short-distance sprints reflects the GWML’s transformation from a long-distance inter-city route to a high-density commuter route serving growing intermediate towns. Whilst some prestige long-distance headline timings continue to exist on GNER, it remains to be seen how many will survive the re-franchising of the East Coast inter-city business and the growing focus on maximising capacity rather than speed.’

Lower order

There is little change among the remaining countries in Table I. Italy and Finland have each produced some faster times, albeit marginally in the former case. VR has seen more substantial improvements with new Pendolino timings between Tikkurila, the station serving Helsinki airport, and Tampere. Italy is on the verge of producing faster times on the partially-completed Roma – Napoli and Torino – Milano high speed lines. Interesting newcomers to the Italian scene are the business-class TrenBiz services, making their debut on the Roma – Firenze – Milano artery. The fastest of these takes third place in the Table I entry, with a 150 km/h run from Bologna to Roma. Austria has not featured in these reviews since 1997, after one train between St Pölten and Amstetten had scrapped Table I at 120 km/h in 1983. At that time, ÖBB’s line speed limit was 140 km/h. By 1991, Supercity 189 had a scheduled 125-8 km/h timing between Linz and St Pölten, but by 1999 Austria’s place at the tail end of Table I had been usurped by a host of comparative

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Table III. Comparison of journey times from 30 years ago between selected places

<table>
<thead>
<tr>
<th>Country</th>
<th>From</th>
<th>To</th>
<th>1977 train</th>
<th>Journey time</th>
<th>2007 train</th>
<th>Journey time</th>
<th>% cut*</th>
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<tr>
<td>Taiwan</td>
<td>Taipei</td>
<td>Kaohsiung</td>
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<td>13 trains</td>
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<td>Sevilla</td>
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<td>6 8</td>
<td>ICE 225/629</td>
<td>2 52</td>
<td>60.0</td>
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<td>Köln</td>
<td>Frankfurt</td>
<td>Prinz Eugen</td>
<td>2 10</td>
<td>3 Pendolino</td>
<td>2 21</td>
<td>54.3</td>
</tr>
<tr>
<td>Finland</td>
<td>Salo</td>
<td>Karjaa</td>
<td>Express 132</td>
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<td>TGV 6129</td>
<td>2 34</td>
<td>54.2</td>
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<td>Paris Lyon</td>
<td>Avignon</td>
<td>Le Rhodanien</td>
<td>5 36</td>
<td>6 TGV</td>
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<td>54.2</td>
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<td>Taegu</td>
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<td>52</td>
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<td>Shanghai</td>
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<td>12 Z express</td>
<td>11 28</td>
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<td>Hiroshima</td>
<td>7 Hikari</td>
<td>58</td>
<td>Nozomi 1</td>
<td>3 34</td>
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<td>Prinz Eugen</td>
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<td>2 expresses</td>
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<td>The Talsman</td>
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<td>15.00 ex KX</td>
<td>1 45</td>
<td>30.5</td>
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<td>6 56</td>
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<td>Settebello</td>
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<td>T-Biz 9303</td>
<td>1 34</td>
<td>6.0</td>
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<tr>
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<td>St Petersburg</td>
<td>Aurora</td>
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<td>5 30</td>
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<td>Train 61</td>
<td>3 49</td>
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</table>

* Note: A minus figure in the last column indicates a percentage INCREASE in journey time. # from RG 1975 Speed Review
newcomers including Hungary, Israel, Ireland, Saudi Arabia and Morocco. All of these countries disappeared with the raising of the threshold to 150 km/h.

In 2005, diligent observer Daniel Kemery of Hungary noted that since that year’s survey four trains had been scheduled to cover the realigned Westbahn between Linz and St Pölten in 48 min, bringing Austria back into the first division with 153.3 km/h (RG 3.06 p126).

So far, none of the other countries which in the last review had scheduled runs over 120 km/h have yet reached the 150 km/h threshold. Likely contenders include Denmark, where German ICE trains are set to run north as far as Arhus from December (RG 4.07 p190). Delays at the opening of HSL-Zuid have prevented the 121.3 km/h achieved once-weekly in 1983 by a train between Amersfoort and Zwolle (RG 9.83 p701). Because of capacity limitations, this may not be the same the future. The Netherlands’ fastest timings this year even fail to match the 106-9 km/h achieved by ICE trains between Utrecht and Anhem as recorded in our 2005 survey.

Another country where the introduction of the broad-gauge Velaro RUS may well permit 150 km/h start-to-stop runs on lines which are to be upgraded for 250 km/h running. Despite a report of a 3 h 55 min timing between Moscow and St Petersburg last year (RG 9.83 p 11.06 p 717), the current timetable shows nothing better than the 129-5 km/h average achieved by the famous Aurora express over the 164 km between Bologn and Tver.

30-year comparison

Donald Steffee’s second review in 1977 featured a new table that compared the fastest point-to-point timings of 1977 with those of 1970, a year which had marked the introduction of high speed trains in several countries. Table III this year attempts to compare the fastest runs today with as near as possible the same runs when the first of these surveys appeared, and the fastest runs then with the fastest between the same places as they are today. However, since many of the current fastest runs are between places not included in the 1975 survey, most of the current runs have been compared with timings from the Thomas Cook International Timetable of March/April 1977.

Although speed is easily compared it is rarely the passenger’s main concern. Speed may thrill some but frighten others; journey time is generally more important to the traveller. Table III therefore sets out the station-to-station comparisons in order of travel time saving, the percentage reduction (or increase) over the last 30 years.

The figures give a fair comparison only to the extent that the distances have remained approximately the same, which is clearly not the case in some examples. This is one reason why speed comparisons alone could be misleading. Stations may not be in the same place, routes may be realigned or entirely replaced, sometimes making the distance longer, sometimes shorter. As noted, trains between Paris and Mulhouse now travel 65 km further via LGV Est than on the former route, but take less time. Conversely, the first example in the table, with a 69% reduction in travel time, is by a new route of 339 km, compared to 376 km in 1977, to a station nearly 9 km away from the former terminus. The apparent 82% increase in average speed from 116-4 km/h to 212 km/h in 2007 is of little real meaning.

Apart from some surprising changes in journey times, especially those of Canada and Russia, this table also brings back memories of the days when the ‘crack’ expresses on a railway were known by name rather than a mere number or train type and time of departure. Flying Scotsman, Settebello, and more recently Scottish Pullman are more recognisable and memorable than the way most of today’s UK entries had to be depicted in the tables.

Acknowledgements

A review such as this could not be the work of one person alone. Apart from John Heaton’s extensive coverage of the UK scene, I am grateful for his assistance with many other aspects including contacts with members of the Railway Performance Society. I should like to acknowledge in particular the vital information supplied by George Harris, Mike Baxter, and most recently, Alan Varley, whose phenomenal knowledge of the French rail system was freely given.

Jose-Ramon Suarez

Le TGV Est enregistre un nouveau record mondial de vitesse

La lutte entre l’Europe et l’Extrême-Orient continue dans notre tour d’horizon bisannuel et mondial des plus grandes vitesses des trains réalisées entre départs et arrêts figurant sur les horaires commerciaux. Colin Taylor fait apparaître que l’ouverture de la première section de ligne à grande vitesse entre Paris et Strasbourg permet à la France de réaliser un nouveau record de vitesse de presque 280 km/h, tandis que la nouvelle ligne Taipeh – Kaohsiung propulse Taiwan directement à la troisième place au sein du club international de la vitesse. Les temps de parcours entre paires de villes ont chuté jusqu’à 70% au cours des 30 dernières années, bien que, ici ou là, offrir plus de capacité plutôt que des vitesses maximales, soit la stratégie dominante lors de l’établissement des horaires.

TGV Est setzt neuen Geschwindigkeits-Weltrekord

Der Wettkampf zwischen Europa und Fernost geht in unserer aller zwei Jahre erscheinenden Übersicht über die höchsten Reisegeschwindigkeiten in seine nächste Runde. Colin Taylor stellt fest, dass die Einführung des ersten Abschnitts der Hochgeschwindigkeitsstrecke zwischen Paris und Strasbourg Frankreich zu einem neuen Weltrekord mit knapp unter 280 km/h verholf, während die neue Strecke zwischen Taipeh und Kaohsiung Taiwan direkt auf Platz 3 in der internationalen Geschwindigkeitsliga gebracht hat. Die Reisezeit auf einzelnen Städteverbindungen hat sich in den letzten 30 Jahren um bis zu 70% verkürzt, obwohl anderswo mehr Kapazität gegenüber Höchstgeschwindigkeit die Fahrplanstrategien dominiert.

TGV Est establece un nuevo récord mundial de velocidad

La batalla entre Europa y el Lejano Oriente continúa en nuestro análisis biannual de los horarios de los trenes con velocidades más altas de arranque o parrada. Colin Taylor opina que, en la apertura del primer tramo de la línea de alta velocidad entre París y Strasbourg, Francia ha conseguido un nuevo récord mundial de casi 280 km/h. La nueva línea entre Taipeh y Kaohsiung ha llevado a Taiwán directamente al tercer puesto en la liga internacional de velocidad. El tiempo de tránsito entre algunas ciudades ha disminuido hasta un 70% en los últimos 30 años, aunque en la mayoría de casos, la prioridad es ofrecer mayor capacidad en lugar de mayor velocidad.

Muñoz, as always, supplied a wealth of information on the Spanish scene. I cannot conclude without recalling at this time the extensive contributions to previous surveys by Peter Simmons of York, and of Peter Tremlett of Thomas Cook Timetables, both of whom have sadly passed away since the 2005 survey. Their contribution will long be remembered. Fortunately, Peter Bass, John Potter and others at Cook’s Timetables continue to offer unstinting help, without which surveys of this kind would scarcely be possible.