

## **New Trains for Rural/Scenic Routes**

Many features of current rolling stock are standard and do not need to be listed here. This is a list of features we regard as essential to attract passengers to use Scotland's long rural/tourist routes. The journeys taken on these trains often take as long as those on intercity routes, so comfort needs to be equivalent. Uncomfortable, noisy trains may prevent modal shift and the railway also needs to be aware of the standards offered on competing bus services.

For an excellent example of what can be done, see the Stadler Class 755 currently in use on Great Anglia rural lines.

- 1) Comfortable seats lined up with windows. No seats without a window. Invite passenger testing of proposed seats by actual users of the lines.
- 2) Windows as large and tall as possible. Being able to view the spectacular scenery from all seats is essential on these routes which attract tourist traffic.
- 3) An even mix of 'airline seats' and tables.
- 4) More leg-room than is found on suburban trains.
- 5) Ride quality as good as Mk 3 carriages. Comfort is essential to persuade travellers to use the train instead of their cars.
- 6) Quiet air conditioning.
- 7) Ingress of cold air during station stops in cold weather should be mitigated by warm air control.
- 8) Good sound insulation, especially beneath the floor.
- 9) We endorse the recommendations in section 3.21 of KTR v6, "Lighting levels are to be sufficient to facilitate typical passenger activities such as reading, whilst not being so bright as to become intrusive", and "Passengers welcome the ability to influence the lighting levels of their immediate environment."
- 10) Catering: Trolley service is sometimes found wanting where hot water and supplies run out in long journeys and/or during long delays - base facilities on trains which are only to be used on these lines would provide a more reliable service.
- 11) At least two toilets per train.
- 12) Wheelchair and cycle provision tailored to the expected needs of passengers on these routes.
- 13) Platform heights vary widely so an access solution for wheelchair users which doesn't involve assistance is needed.

## **Rail Delivery Group – KTR v6**

Excerpts from Section 3 of the Rail Delivery Group's *Key Train Requirements – Version 6* document which cover the points in our list of requisites.

Our comments below are in italics.

### **3.1 Heating, Ventilation and Air Conditioning (HVAC)**

*[A crucial element of this equipment is the amount of noise it generates. This is not mentioned in KTR v6, nor in the EuroSpec Specification document referenced therein.]*

### **3.3 Passenger Ergonomics & Seats**

“3.3.1.4 The comfort expectation of passengers depends upon the type of service and anticipated average journey time on a train.”

In the EuroSpec Seat Comfort Appendices [referenced in KTR v6] there is an extremely detailed questionnaire to be used by procuring company to determine the manufacturer's spec offer. Perhaps stakeholders could see the completed questionnaire before it is sent to the manufacturer?

“3.3.2.2 The passenger seats shall attain a level of comfort appropriate for the journey type and seating class as shown in Figure 3.3.” The 'Inter-City' category is appropriate here.

### **3.4 Ride Quality**

“3.4.1 A Mean Comfort Index (MCI) shall be defined and agreed with the customer. Examples of MCI value on route-defined reference track are for intercity routes 1.5”

### **3.5 Sound, Noise and Vibration Levels**

“3.5.3 For all vehicle types when stationary, with traction supply available, auxiliary systems (including air conditioning) running and all doors closed, the A-weighted sound level measured inside the seating area of passenger vehicles shall not exceed  $L_{pAeq,T} = 62$  dB”

“3.5.7 The A-weighted equivalent continuous sound pressure level ( $L_{pAeq,T}$ ), measured in accordance with ‘prBS EN ISO 3381: 2019, Railway applications. Acoustics. Measurement of noise inside railbound vehicles’, measured while the vehicle is operating in the open, at maximum speed, on reference track as defined in prBS EN ISO 3381: 2019, shall not exceed the following:

New Intercity, long-distance train equipped with pressure sealing and designed for maximum speeds up to 140mph (225kph):

- Seating Areas – 72 dB (measured according to pr BS EN ISO 3381: 2019, section 5.3.1),
- Vestibules – 77 dB (measured according to pr BS EN ISO 3381: 2019, section 5.3.2).”

*[NB an increase of 3dB represents an approximate doubling of perceived volume. The 72 dB quoted for inter-city seating areas is therefore much quieter than the 74 dB listed in the examples for suburban trains.]*

“3.5.10 The rolling stock design shall ensure that vibrations generated by vehicle-mounted

equipment are isolated from the vehicle bodyshell.

Vibrations generated from equipment such as diesel engines and air compressors are a frequent source of complaint.”

### **3.6 Bodyshell Design and Windows**

“3.6.3 Deadlights (the vehicle structure between window apertures) shall be as narrow as practicable.

Minimising the size of deadlights increases flexibility with seating position and improves comfort.”

“3.6.4 The rolling stock design should endeavour to align passenger seats with bodyside windows.

There is much comment about seats not aligning well or at all with windows. Many passengers do like to look out of the window.

Where there are no windows as a result of the vehicle structure, other passenger amenities such as luggage stacks and toilet modules should make use of this space.”

### **3.12 Provision of Luggage Storage**

“3.12.4 Passengers perceive that there is inadequate provision of luggage storage facilities on board recent designs of rolling stock.”

“3.12.7 Overhead luggage racks should be able to safely store items of dimensions up to 56cm x 35cm x 45cm.

This requirement reflects current airline limits with respect to hand baggage and should deter large items being placed there.”

*[Musical instrument cases are up to about 80 cm long. If they don't fit in the overhead racks they occupy a seat. No musician will use the separate luggage stacks. Musicians are frequent travellers.]*

### **3.21 Lighting**

“3.21.1 Lighting levels in passenger areas shall comply with ‘BS EN 13272 ‘Railway applications. Electrical lighting for rolling stock in public transport systems’ and not exceed 500 lux at 750 mm above floor level.

Lighting levels are to be sufficient to facilitate typical passenger activities such as reading, whilst not being so bright as to become intrusive and on some existing trains are seen by passengers as being either too bright and clinical, or too dim.”

“3.21.3 Passenger-controlled reading lights should be provided, featuring the following:

- Modular design, able to facilitate a flexible interior layout,
- Train crew and maintenance staff are easily, and from a single location, able to override the local controls to force them all to be lit, to facilitate the identification of defective lighting components,
- A means provided to switch all lights off from a single location.

Passengers welcome the ability to influence the lighting levels of their immediate environment.”

### **3.30 Platform Train Interface**

“3.30.2 The gap (stepping distance) from train to platform shall be minimised.”

“3.30.4 The provision of deployable steps should be considered.

A deployable step means the step can protrude further reducing the gap and may even be between the train floor and the platform, so providing an intermediate ‘step’.”

“3.30.5 Where fixed steps are used, consideration should be given to provisions that enable the steps to be easily changed in case of route changes.

This gives a route specific height to the step but does not limit the fleet being cascaded.

Many platforms for historical reasons are higher than the preferred 915mm above rail level. The footsteps on trains are often positioned as high as possible to give the vehicles a go-anywhere status, but this means on some routes there is a big step.”

*[The platform height on the Far North Line stations is inconsistent, with an extreme height difference occurring at Fearn. An on-train solution is very desirable, if practicable.]*