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## ROLLING STOCK DESIGN PANEL

### REPORT ON RAILFUTURE VISIT TO THE HITACHI IEP MOCK UP AT DCA DESIGN

Railfuture is a national voluntary organisation structured in England as twelve regional branches and two national branches in Wales and Scotland. Railfuture is independent of all political parties, trade unions and commercial interests and is Britain's foremost rail campaign group with affiliations to a large number of rail user groups.

The visit to the IEP mock up took place on 10th September 2014. Railfuture was represented by Norman Bradbury and Keith Dyll.

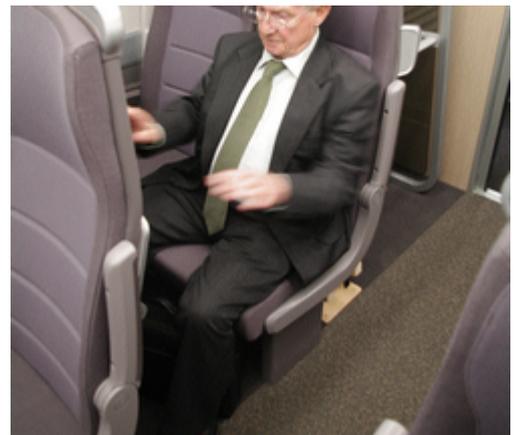
Others present were: Andy Rogers, IEP Project Manager at Hitachi; Paul Fishwick, Project Director at Department for Transport; Chris Green, former Managing Director of Inter City and Railfuture Vice President; Murray Hughes, Railway Gazette.

The IEP mock up was located in warehousing belonging to DCA Design in Warwick and was in three parts as there was insufficient room for a complete vehicle in the warehouse. These parts were: the cab, part of a first class vehicle with universal toilet and part of a second class vehicle with standard toilet.

**FIRST IMPRESSIONS:** The objective of this display was to show examples of design features that are intended to be incorporated in the finished train. The driving cab displayed all controls with adjustable driving seat complete with compressor to power the lifting mechanism - one could have been sitting in the real thing. On entering the carriage section one gained the impression of a bright interior with neutral but pleasing colour scheme (this will no doubt change to reflect individual TOC requirements). Wood finishes at the saloon ends and in the vestibule area were light in colour which helped the impression of brightness and were somewhat reminiscent of a DB ICE3 interior.

The mock up was intended to represent a bi-mode train with an under floor diesel engine provided on alternate cars. This requires the floor height on powered vehicles to be raised and on passing into the non powered vehicle the slope to the lower floor level was noticeable but should not present any problems.

**SEATS:** Both the First and Standard class seats were very firm which now seems to be a fairly common feature and is connected with fire retardant objectives. However, the First class seat was well designed with contoured backs giving good lumbar support. The Standard class seat seemed too upright by comparison and it remains to be seen if they will survive long distance journeys without generating complaints from passengers.



Standard class seating



first Class seats

As is normal, seats in First class are arranged in two plus one, mainly arranged in bays with tables for the pairs but mostly airline style with individual tables for the single seats. Standard class seats are arranged two plus two mostly in airline style and this is regrettable given that surveys have shown a strong passenger preference for bay seating and tables. In order to maintain the same ratio of bay to airline style seating as that provided in the BR Mk4 coach we would urge provision of a fifth bay to be installed on each side of the standard class IEP carriages.

We would again mention that a predominance of airline seats creates an imbalance between passenger space and luggage space as the space between seat backs is lost. Passengers also prefer to have their luggage near to them and are reluctant to use luggage racks at the vehicle ends. In consequence, heavy luggage is placed on overhead racks and this practice is potentially hazardous in the event of a train accident or emergency brake application. Use of airline seats can also increase station dwell times as it is impossible to get out of a window seat without disturbing a person sitting in the aisle seat who may also have drinks and or lap tops etc placed on the seat back pull down flap provided for this purpose.

It was noted that two seats at the end of the standard class saloon faced the end wall and it was felt they should be turned to face into the saloon area<sup>1</sup>. It was also noted that the bay seats in standard class did not line up with the windows satisfactorily with one pair of seats aligned with the wall (deadlights) instead. We would again reiterate the importance of seat to window alignment and that all seats in a long distance inter city train should provide a view through a window.

We felt all arm rests should be hinged including those adjacent to the carriage sides in order to maximise use of the available width and aid access into and out of the seats.

**HAND GRIPS:** We had some concerns about the hand grips mounted on the side of the seat backs in First class which could be potentially hazardous as hand bag shoulder straps or short sleeved clothes, for example, could possibly become caught on them. In an emergency someone being thrown against these hand grips could suffer injury. In Standard class the solid ear type grips were again unsatisfactory because it would be necessary to twist ones arm to grip them when walking along the aisle and we would have preferred D shaped grips through which a hand could obtain a better grip.



D Handle easy to grip

grip for contortionists

The baggage hook or a hand grip ?

**TABLES:** We would have preferred the use of hinged tables in the style of those found in Eurostar trains to aid movement into or out of window seats.

**RESERVATIONS:** A traffic light system is used to indicate which seats are free (green), which seats are reserved (red) and which are reserved for part of the journey (amber). It was felt this would be well received by passengers.

**WINDOWS:** It was noted the windows seemed rather small and this would not help seat to

window alignment as the deadlights (wall space between the windows) were rather wide. The windows were fitted with blinds which do not permit individual control in the event of one person wishing to keep the sun out of their eyes while another person sitting opposite might wish to gaze at the passing scenery. Curtains would therefore be preferable.

**DOORS:** Hitachi have fitted internal sliding doors instead of the more usual external plug doors found on the great majority of inter city rolling stock. This is disappointing as the door pockets occupy valuable space at the saloon ends and windows are not fitted in this area. On entering the saloon, the lack of windows at the ends was immediately noticeable and the mock up displayed a luggage rack to one side of the central isle with two seats to the other side. Due to the cramped space these two seats had no central arm rest.

It was universally agreed by the visitors that the area adjacent to the door pockets was therefore most unsuitable for seating and should be confined to accommodation for luggage or cycle racks only. However, the decision on this issue will be the responsibility of the train operators. We assumed the claimed capacity of 88 seats in Standard class includes these unsuitable end seats and it is therefore more realistic to consider that capacity would be 84 seats in practice. With the longer coach bodies and increased passenger numbers there is a strong possibility of longer station dwell times.

It was felt the recesses in the coach sides, made necessary by internal sliding doors, could become a dirt trap at high speed and they detracted from the air smoothed appearance of the train.

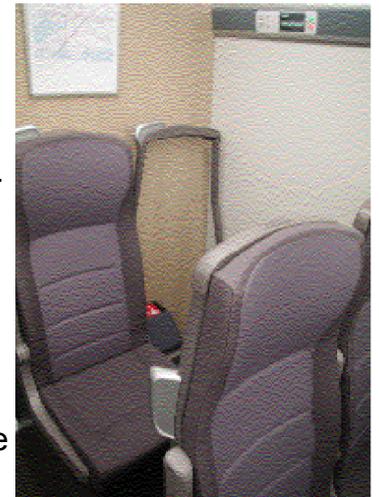
**INFORMATION DISPLAYS:** We cannot comment on these as they were not illuminated.

**HEATING & AIR CONDITIONING:** Carriage heating was unobtrusive and allowed more foot space. One aspect about heating/air conditioning that did not get mentioned during the visit concerned the method of control which is usually set by depot staff or automatic. It was felt desirable that this should be under the control of train staff so that they could respond to passengers requests to alter it (it is more often than not set too cold).

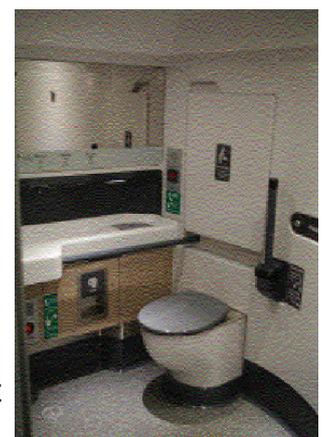
**TOILETS:** The universal toilet was excellent and contained all the features now common in such facilities. The standard toilet was reminiscent of those found in BR Mk4 coaches complete with sliding door. The tendency for these doors to be left open was mentioned as this presents an unpleasant aspect on entering the train. This toilet also seemed very narrow and more so than that in the Mk4 coach but this may have been an illusion. We also felt it was not always clear what the numerous push buttons with yellow surrounds operated which are identical to the ones that open external doors on other types of stock.



**CYCLES:** The compartment for bicycles was neat and unobtrusive but we ask the question is it possible to remove the cycle nearest the coach side without removing the other?



Standard Class seats by door pocket



Universal toilet

CATERING: The mock up did not display kitchen or buffet facilities. However, the seating plan diagrams for both the 5 car and 9 car trains did show a kitchen area at the outer end of the First class driving vehicle which would cater for First class passengers only. There appeared to be no buffet counter located in any of the Standard class vehicles and we assume it is intended that a trolley service will be the only means by which these passengers' needs would be catered for.

We consider this to be unsatisfactory as it can take a very long time for a trolley to reach all passengers on crowded train. We therefore suggest that a small buffet counter should be provided in one of the windowless areas at the end of a Standard class vehicle as this would minimise the number of seat spaces that would be required for such a facility, particularly since much of this area would be unsuitable for seating anyway. This would enable passengers to obtain refreshments as and when required.

CONCLUSION & ASPIRATIONS: With the exception of those issues mentioned above, this promises to be an excellent train with superior performance to the existing East Coast IC225 and HST trains when on electrified routes.

However, if we were starting from scratch, we would be asking for external plug doors, larger windows and windows along the full length of the saloon area. We acknowledge however, that it is too late to make such radical changes but given that fleet production is still some time away, Railfuture would ask for serious consideration to be given to making some changes to address the issues noted above, particularly the seat layout in Standard class with provision for a greater proportion of bay seats with tables to maintain the same ratio as that found in the East Coast Mk4 stock, luggage space between seat backs and optimised seat to window alignment. Other doable changes could include hinged tables and improved hand grips on seat backs.

We would suggest that in future users should be invited to comment at an earlier stage so that their views can if relevant, be incorporated into the scheme before the production stage.

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<sup>1</sup> Since writing this report we have been advised by the DfT that the two seats facing the wall in the mock up were originally intended to face a mirror to give the impression of a full length carriage but in the event the mirror was not fitted. The seats will not be facing into a wall as the impression given in the mock up.