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Mr Andrew Hall
Deputy Chief Inspector of Rail Accidents
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Hampshire GU11 2HP

Dear Andrew,

RAIB Report: Person trapped in doors and pulled along platform at Kings Cross station

I write to provide an update¹ on the action taken in respect of recommendation 1 addressed to ORR in the above report, published on 30 May 2012.

Annex A to this letter provides details of the action taken. The status of this recommendation is '**Implemented**'. We do not propose to take any further action in respect of this recommendation unless we become aware that any of the information provided becomes inaccurate, in which case I will write to you again.

We will publish this response on the ORR website on 11 December 2015.

Yours sincerely,

Andrew Eyles

¹ In accordance with Regulation 12(2)(b) of the Railways (Accident Investigation and Reporting) Regulations 2005

Recommendation 1

The intent of this recommendation is that the practicability of providing a modified door seal arrangement on Class 365 trains, when the existing seals are replaced during the major overhaul due between 2013 and 2015, should be assessed. If such modifications are practicable for Class 365 trains, consideration should be given to:

- *modifying any similar doors on other classes of trains; and*
- *using modified seals if these are available when seal replacement is undertaken before the next major overhaul (e.g. following damage).*

As some trains with similar doors are owned by other organisations, the owner of Class 365 trains should make available to these organisations the information needed for them to determine whether they should consider modifying doors on any of their trains.

Eversholt Rail UK (Ltd) should determine whether the next planned replacement of Class 365 door seals provides an opportunity to modify the seal arrangements to reduce the risk associated with trapping of objects and people to be as low as reasonably practicable. If such modification is found to be reasonably practicable, Eversholt Rail UK (Ltd) should:

- determine whether a similar modification is appropriate for other classes of train owned by the Eversholt Rail Group;
- determine whether such modifications should be applied if seals require replacement before the scheduled date; and
- make available to other train owners suitable and sufficient information for these owners to establish whether a similar approach should be considered for any of their train doors

ORR decision

1. Having considered the information provided by Eversholt Rail and Govia Thameslink Railway (GTR), ORR is content that Eversholt Rail has:

- determined that the C6X repair programme presented an opportunity to implement a modification to fit a new sensitive edge detection system to the Class 365 fleet, and that this modification programme is now ongoing;
- considered whether similar modifications are appropriate for fitment to its Class 465 fleet and confirmed that this is its intention, but that the decision on the exact modification and timescales will be considered further once the Class 365 modifications have been trialled;
- determined that the more complex sensitive edge solution proposed by Knorr Bremse – IFE should be fitted to its entire Class 365 fleet; and

- has made available to Angel Trains and Porterbrook the findings from its Rail Door Solutions (RDS) review into the feasibility of making changes to door systems. ORR reported to RAIB on 4 June 2013 that Porterbrook had confirmed that none of its trains had similar door seals to the Class 365 trains and that Angel Trains was considering the reasonable practicability of fitting sensitive edge door seals to its Class 165 and 166 fleets
2. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Eversholt Rail has:
- taken the recommendation into consideration; and
 - has taken action to implement it.

Status: Implemented.

Previously reported to RAIB

3. On 4 June 2013 ORR reported to RAIB that Eversholt Rail had been working with Rail Door Solutions (RDS) to review existing door system design and consider if an alternative door seal design could optimise the safety, reliability and functionality of the door system. Eversholt Rail had also informed ORR that it was working with Knorr Bremse-IFE (the successor to the original equipment manufacturer for elements of the existing door system) who had proposed a more complex solution involving the use of a pressure sensitive control strip on the door seal combined with a new door control unit to provide drag detection. At that stage KB-IFE had not been able to provide costs or timescales for a feasibility study.

Update

4. We requested further information from Eversholt Rail on 3 specific issues.

(i) In its letter dated 28 March 2013 Eversholt Rail explained that the C6X repair programme had commenced in February 2013 and this was viewed as an opportunity to implement any changes identified as being reasonably practicable. As no decision on modifications had been made by 28 March 2013 we asked Eversholt Rail to explain how modifications, when decided upon, would be made to those units that had undergone C6X repair in the meantime.

The following response was received from Eversholt Rail on 4 September 2013:

C6X commenced in February 2013 and based on the current programme will be complete by December 2016. Units 1 to 6 will require to be returned for remedial works associated with TSI PRM modifications. The exact timing of these remedial works within the programme has yet to be clarified. Any modifications that cut in after a unit has visited works will therefore either have the modification applied when returns for remedial work or be modified in depot.

(ii) In its letter dated 28 March 2013 Eversholt Rail provided an appendix describing a number of actions in relation to recommendations from the Rail Door Services (RDS) review. The actions were grouped into short term, medium term and long term. We asked Eversholt Rail to provide more detailed timescales.

The following response was received from Eversholt Rail on 4 September 2013

The timescales suggested by RDS in its report can be more discreetly defined as:

- *Short term: as soon as possible and likely to be part of maintenance or a discreet package of works carried out on depot in the next 12 months;*
- *Medium term: to be carried out as part of the C6X (Feb 2013 to Dec 2016);*
- *Long term: to be considered as part of future modifications beyond the C6X, internal refresh and TSI PRM modifications.*

(iii) Action 10.1.1 of the appendix provided by Eversholt Rail on 28 March 2013 stated that the recommendation to a change in detection to reduce the obstacle cut off zone was not considered to be achievable in the short term due to the down time required and the level of interference with the door system. We asked Eversholt Rail to provide more detail on how this decision was made including costing.

The following response was received from Eversholt Rail on 4 September 2013:

Changing the obstacle detection cut off point was originally considered to be linked to the work required to re set the doors. We have now reconsidered this position following a detailed review with RDS.

During C6X the treadplate, lower door guides and rollers at all but one doorway were found to be badly corroded on unit 1 and a similar level of corrosion was seen on unit 2. The time associated with remedying this corrosion to re set the doors and achieve non-synchronous plugging was considered to be excessive and precluded the activity being carried out on depot (at least 5 hours per doorway based on RDS experience, equating to 18 months to complete the fleet, £350,000 and significant disruption to fleet availability)

However, in most cases we believe changing obstacle detection cut-off can be de-linked from re-setting the doors provided that adequate clearance exists to adjust the actuator mounted bracket. The ability to consistently achieve 10mm detection cut off in this case was discussed with RDS and their view was that is achievable on some but not all doors.

First Capital Connect (FCC) has informed Eversholt Rail that it is reviewing how to implement any change in cut off as part of a 'door code of practice' that is being developed, but that they do not have a firm implementation plan at present. [Note: GTR has now superseded FCC in respect of the Thameslink Great Northern franchise.]

5. ORR also met with Eversholt Rail on 1 July 2013 at which time we requested the following information

- Greasing periodicity of door rubbers from depot maintenance: Every E Exam; and
- Periodicities for depot maintenance activities on doors.

In response Eversholt Rail provided the following information on 4 September 2013:

VMI AC 8.13	All external doors – Lubricate	E Exam 240k miles
VMI AC 8.16	Saloon body side doors function -Test	B & C Exam 30k miles
VMI AC 8.19	Saloon body side doors full sequence – Test	D Exam 120k miles
VMI AC 8.38	Saloon bodyside doors full sequence - Test	E Exam 240 k miles

- Copy of door set up procedure (C6X Version): EV/VI3656 V 02412 (this has been supplied to ORR).
- An assessment of a change to the entire door control system. This is currently being reviewed with Bode and we await their response.

6. Eversholt Rail also provided updates on the original actions from its letter dated 28 March 2013.

10.1.3 Introduction of driver announcement at crowded platforms

The FCC operations team have implemented driver briefings and implemented a measure as part of their weekly review cycle for on board announcements.

10.1.4 Improvements to VMI/VMP

These are being implemented following the introduction of the VOI at C6X. The updates were expected to be completed by the end of September 2013.

10.1.5 Greasing of nosing and bodyside rubbers

FCC grease nosing and bodyside rubbers on every E Exam. A trial was recently implemented to understand the impact of this grease on withdrawal forces and how long the grease remains in situ. The results of the trial were expected to be available at the end of September

10.1.6 *Removal of emergency device covers*

FCC expects to have removed these covers from the fleet by the end of September 2013

10.2.1 *Improved signage inside and out*

The signage has been reviewed, taking consideration of the RDS recommendations, as part of the schedule for finishes for C6X and internal refresh and will be implemented on the entire fleet before December 2016.

10.2.2 *Improved audible warnings*

External sounders remain in the scope of TSI PRM modifications and will be implemented pre December 2016

10.2.3 *Implementation of Body Indicator Light flashing*

The requirement for this modification will be reviewed by Eversholt Rail and FCC following a period of in service experience having completed 10.1.6

10.4.1 *Door closure inhibit and vigilance indicator*

Eversholt Rail has been in close dialogue with IFE regarding their sensitive edge solution which has resulted in a proposal for class 365. A trial fitment to one doorway on a non-service unit demonstrated the capability of the system and provided a good indication of long installation might take.

Prior to 30 July 2013 Eversholt Rail was in discussion with Railcare to identify the cost of installing the IFE solution across the fleet. Unfortunately Railcare entered administration on this date and the C6X and associated works have been paused. At the end of this pause a full cost of implementing the modifications will be identified and assessed. Eversholt Rail hopes to be in a position to understand the full modification costs within 6 – 8 weeks from 4 September.

10.4.2 *Experiments of new nosing rubber design*

It remains our position that changes to the nosing rubber design will not reduce the risk of entrapment on this door system.

7. On 19 June 2014 ORR reported that Eversholt Rail had obtained financial approval for the business case to fit the sensitive edge detection system to its Class 365 fleet and that an order had been placed to introduce the modification into the current C4/C6X programme.

8. On 17 December 2014 ORR reported to RAIB that Eversholt Rail had reported a delay to its modification programme due to the failure of the equipment at RIA12 testing and operator concerns in respect of interoperability, system reliability and other door set up issues.

9. On 6 October 2015 GTR provided the following update:

The door sensitive edge programme still remains on schedule to be 1st unit trialled for 3 months from January:

- *Hazard ID to latest proposal was held September 8th (with attendees from ket GTR functions). This picked up the addition of the re-release functionality.*
- *Intermediate design review was held 29th September.*
- *Final design review/approval is planned for 2nd November.*
- *Unit goes in for works (C6X overhaul + PRM + sensitive edge) 7th December.*
- *Unit released from works 8th January.*
- *12 week trial period from January.*
- *Fleet fitment from April 2016 aligned with the C6X programme.*

10. On 9 November 2011 Eversholt Rail provided the following update regarding its Class 465 fleet:

Currently, the intention is to fit sensitive edge to Class 465 but the decision as to exactly 'what and when' will be made after completion of the trial on Class 365.

Eversholt Rail also provided the following overview of the Networker door system modifications.



Networker Door
System Overview.docx