A Review of Passenger Train Dispatch from Stations

Passenger trains depart from a station stop on approximately 40 million occasions a year.

Train dispatch is safely completed in the vast majority of cases, but incidents do occur, which can lead to serious injury or even fatalities, and represent about 1% of overall railway risk. The question of accidents at the platform/train interface has been identified by the RSSB Board as an area of risk that is of concern and this has been picked up by the Operations Focus Group, (OFG) which commissioned the research.

Several methods are used for train dispatch, as defined in the Rule Book. The choice of method depends on a number of factors, such as whether driver only operation applies, whether there is a guard, whether platform staff are involved and the type of rolling stock.

The research project was undertaken with two aims:

> To provide a clear rationale for the rules and guidance on train dispatch of passenger trains

> To assist duty holders in deciding how to improve the effectiveness and safety of passenger train dispatch.

The analysis undertaken as part of this research showed no significant difference in risk between the various dispatch methods, confirming that the different arrangements are suitable for different circumstances.

A significant finding has been that there can be improvements to the interpretation and understanding of the arrangements surrounding dispatch, with evidence that staff sometimes incorrectly place reliance on equipment to control risk that can only be managed procedurally. The report looked at the hardware involved in train dispatch (Right Away Indicators, Train Ready to Start equipment etc) and the human factors issues relating to such equipment. The dispatch of empty coaching stock was also investigated, as were communication issues affecting station staff.
Overall, there are likely to be safety and performance benefits from reducing the variety of train dispatch methods used. However, it is only justifiable to do this when other infrastructure changes are implemented.

Recommendations for the industry to consider cover three main areas:

> Training
> Hardware - including clear labelling, location and consistency of layout for dispatch equipment
> Rule Book - clarification of several issues.

The key finding from the research is that the industry now has evidence that the existence of a variety of train dispatch systems does not increase risk and that harmonisation, whilst desirable, is only as part of planned investment schemes. So the research does not create a rationale for major change. However, small reductions in risk can be achieved pragmatically, by addressing the rules, training and reporting processes.

Longer term benefits of harmonisation will arise through the progressive investment in modern systems and the application of good practice in design.

**See the full research report T743 A review of passenger train dispatch from stations**

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**Industry Shared Risk Database**

The Industry Shared Risk Database identifies those shared risks that require a collaborative approach to risk control, clarifies the types of operators involved including the main duty holder with responsibility for each main task area and contains a ‘one stop shop’ facility to access the relevant control measures (including Railway Group Standards, research, incident reports).

The database features an easy to use search function to access individual risks, categorised risks, and types of duty holder or control measures.

Sponsored by the Safety Policy Group and available to RSSB members, the Industry Shared Risk Database went live on 6 January 2010 at http://isrd.rssb.co.uk/

The project has been developed by RSSB and utilises risk data from Version 6.0 of the Safety Risk Model.

**Access is restricted to RSSB members only as is to be arranged with**

Stuart Parsons, SMS programme manager on 020 3142 5385 or at stuart.parsons@rssb.co.uk

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**The strategy for TPWS**

The Train Protection and Warning System (TPWS) was implemented in the UK as an interim measure to reduce the consequences of Signals Passed at Danger (SPADs), pending implementation of full protection through systems that monitor driver performance continuously. In the 2001 Uff-Cullen report it was envisaged that this higher level of protection would be delivered by the roll out of ERTMS within ten years. In the intervening period it has become clear that the roll out of ERTMS will take considerably longer and hence TPWS will be the primary means of mitigating SPAD risk for a period significantly beyond that originally envisaged.

At the operational risk conference held in July 2008 the ORR gave a presentation on ‘Managing and Reducing Operational Safety Risk’. In this presentation a concern was highlighted that there is no clear strategy for the long term future of TPWS.

In response to these issues the RSSB Board asked the Vehicle/Train Control & Communications System Interface Committee (V/TC&C SIC) to develop a long term strategy for TPWS. The strategy, developed by a cross-industry working group including RSSB, was approved by the RSSB Board on 12 November 2009.

The strategy and the associated RSSB Board paper can be viewed on:
Opsweb revamped

Following a survey of users, Operations Focus Group (OFG) has sponsored a major re-vamp of this well used site, to make it smaller, brighter and easier to use. The new site went live in December 2009.

Opsweb is an on line resource centre designed for the rail industry to access and share information and resources on operational safety, in a secure environment. It supports the rail industry in the provision of information on relevant operational safety matters, and is aimed at personnel engaged in the physical operation of the railway including train driving, signalling, station management, and those working on the track. The site includes details of publications, industry groups, SPAD and TPWS data, training and briefing tools and resources on safety critical communications and SPAD management.

RSSB led the work on behalf of OFG, combining the input and knowledge of a cross-industry editorial group of operational safety specialists with the resources of a specialist web development company and RSSB’s own in-house IT development team, to make improvements to the both the look-and-feel and the system and security that sits behind it.

Opsweb is only available to companies engaged in operating the running railway and is accessed via a log-in email address and password. As a contributor-based website, it relies on content and material submitted from a wide range of industry organisations - from passenger operators to regulatory bodies. Input from these companies keeps the site fresh and relevant.

For more information contact Catherine Gallagher, programme manager, operational safety on 020 3142 5374 or at catherine.gallagher@rssb.co.uk

News from RISAS

RISAS approval for Northern Rail’s Heaton Depot

Northern Rail’s Heaton Depot in Newcastle has been awarded Rail Industry Supplier Approval Scheme (RISAS) approval for heavy mileage-based maintenance making Northern Rail the first train operating company to obtain certification for vehicle maintenance including overhaul of autocouplers.

The assessment was conducted by RIQC.

Speaking about the RISAS approval, John Abbott, director of national programmes at RSSB said ‘Northern has worked hard to achieve the exacting standards required for the RISAS assurance scheme and in doing so have become the first train operating company to achieve this recognition’.

Ruud Haket, Engineering Director at Northern Rail said

‘We are incredibly proud of the achievements made by the team at our York HQ and Heaton Depot and recognition of delivering the highest level of quality assurance in the industry’.

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Karen Engineering Limited is RISAS Certified

RSSB is also pleased to announce that Karen Engineering Limited, a RISAS Approved Body (RISAB), has approved Karen Engineering Limited for the manufacture of torsion bars and anti roll bars, used in the overhaul of rolling stock bogies under the Railway Industry Supplier Approval Scheme (RISAS).

The company, based in Aylesbury UK, has been producing torsion bars since 2007 and are highly respected for the quality of the finished product. The key to Karen Engineering’s success has been their development of a special process for turning the length of the torsion bars in one cut whilst at the same time achieving the finished dimensions and high surface finish requirements of the customer specification.

For more information visit the RISAS website or contact Andy Tandy, schemes administrator on 0203 142 5376.

Ergonomics: Real Design

As part of The Ergonomics Society’s 60th anniversary celebrations, the Design Museum in London is hosting an exhibition called *Ergonomics: Real Design*. There is a selection of exhibits grouped by domain of application: home, work, transport and medical.

The Rail industry is represented through an exhibit showing the outputs from two projects funded through the RSSB-managed rail industry research programme. These research projects supported the GSM-R programme (a cross-industry programme led by Network Rail) in terms of developing a method to identify the optimum position of the radio within the train cab and the assessment of some of its alarms and alerts.

The exhibition contains the actual artefacts that have been designed in conjunction with ergonomists. Some of these are very simple, everyday products (tape measures, mobile phones, remote controls) and some are more complex, safety-critical systems such as rail (the GSM-R example) as well as exhibits about control rooms and patient safety. Between them, these exhibits serve to highlight the recognised areas of ergonomics - physical, psychological, and organisational, and everything in between.


To view the research see:

*T352 Providing human factors input to cab fitment of GSM-R*

Route mapping – 30 year horizon strategic research

Establishing the way the railway develops in the long term requires high level systems thinking and cooperation within the industry, with input from the Department for Transport.

As part of its remit to support the development, challenge, communication and delivery of the Rail Technical Strategy, the Technical Strategy Advisory Group (TSAG) has completed a substantial route mapping exercise to identify technology gaps and opportunities over the next 30 years.

TSAG is a cross-industry group facilitated by RSSB and is the industry client group for strategic research, funded by the Department for Transport, to support this aim. TSAG is distinct in having a remit to address the future over a 30-year horizon.

In support of its role TSAG has undertaken a major Route mapping exercise involved nine full day workshops, with input from around 150 senior experts from industry, government and academia. They identified over 200 strategic issues which could be relevant to delivering the 30 year technical vision for rail; 50 of these have been prioritised as offering the greatest potential and research has already been commissioned for some of these.

The report from this project has been published.

TSAG, and are in the process of developing further specifications for research projects. These will generally be managed by RSSB on behalf of steering groups, but...
other ways of doing research will also be used – such as funding more pure research through universities and larger more speculative projects. A new arrangement with the Engineering and Physical Sciences Research Council; will mean that every pound put into universities will generate two pounds of research.

The strategic issues include ‘Traffic management’, which considers the role of radical signalling and traffic optimisation. Another example is ‘Improved hubs’ which examines how to get more trains or people through congested bottlenecks.

Key to realising long-term technical opportunities is getting them into the industry planning process at the right time. There is intense activity at the moment assembling TSAG’s input to the Planning Oversight Group, the strategic planners for the industry, co-ordinated by Network Rail, ATOC, and the Rail Freight Group.

Looking forward to how the £14.75m strategic research budget will be deployed to 2014, we envisage the following broad categories of activity:

- Programme management and TSAG support
- Project management of research
- Join funding of calls with the Engineering and Physical Science Research Council EPSRC
- Specific Research Scoping Studies
- Major research calls
- Trials/development projects

Industry makes a lot of investment in measures designed to assist front-line staff in dealing with conflict and aggression. But are there things which could improve the relationship between them and the majority of passengers who, while they may from time-to-time behave inconsiderately or irrationally, are on the whole law-abiding people?

The cross-industry Rail Personal Security Group (RPSG) asked RSSB to research the factors that contribute to trust and respect between passengers and front-line staff, and how these can be used to foster shared expectations, to contribute to positive perceptions of personal security through a more positive environment based on trust and respect where conflict is less likely to occur. This would increase both customer satisfaction with the service and staff satisfaction with their jobs.

RSSB has now published the full suite of new resources, designed to help a range of levels and functions within the rail industry build trust and respect between passengers and frontline staff, as well as the product of research that underpins this.

The resources all appear under the banner Trust and Respect and include:

- An introductory guide to building shared expectations - a concise A5 guide aimed at senior decision makers in railway undertakings
- A guide for operations managers in the rail industry - A more comprehensive guide aimed at senior operations managers who will be in a better position to apply some of the tangible techniques out in the field.
- Trainers Notes and PowerPoint Slides - Aimed at personnel responsible for making training decisions and trainers themselves.
- Poster templates and examples - Designed to be placed in locations where both staff and passengers will see them, such as on trains and on stations.
Packs of these materials have been sent to operations directors at all train operating companies, and route directors at Network Rail. They are also available to download from the R&D section of the RSSB website – www.rssb.co.uk – the project carries reference T703 – Facilitating shared expectations between passengers and front-line staff.

For more information about the research, contact Jill Moore, research manager on 020 3142 5417 or at jill.moore@rssb.co.uk, or for more information about how to access the materials, contact the Enquiry Desk, enquirydesk@rssb.co.uk, or telephone 020 3142 5400.

Research helps train operators raise the profile of safety with children

Children are often cited as an important group to influence when it comes to promoting positive behaviour on the railway. In response to a request from two train operating companies, and endorsement from the cross-industry Operations Focus Group, research by RSSB has investigated what works when communicating important safety messages to young children (aged five to ten) and has developed concept signage for use on trains.

A number of other non-emergency safety signs are already displayed on board trains, but these are all aimed at adults.

Data from the Safety Management Information System (SMIS) indicated that the use of vestibule doors contributed most to the total number of accidents occurring to children on board trains (37%), followed by ‘strike against object’ (19%), and accidents involving the use of seats (16%).

In response, the research – conducted in collaboration with Loughborough University – used classroom discussions to establish the comprehension levels of children between five and ten years of age with regard to current non-emergency signs on board trains, and the types of signs, language, illustrations and colours that work best when communicating safety messages to children of this age group.

In addition, the research found that the use of ‘safety characters’ helped reinforce messages, particularly as children felt that they could relate to them – for example a super hero - as they are generally understood to be moral individuals who help keep children safe. Conversely, the children were not very responsive to the concept of using a train guard as the ‘safety character’ as they felt this is too authoritarian eg ‘he tells you off’.

Sample safety labels that can be displayed on trains have been developed and a number of train operators are considering displaying these.

For more information on this research including the safety labels, please contact Jill Moore, research manager on 020 3142 5417 or at jill.moore@rssb.co.uk, or go to the Research and Development section of www.rssb.co.uk and search for project T826.
Industry improving SMIS data quality

The Safety Management Information System (SMIS) is the central industry repository for safety accident and incident data. It is used by our Safety Management System (SMS) holding members for a range of purposes including Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR), safety performance reporting, inquiry recommendations management, research, risk modelling and planning.

To ensure that the data is fit for all these purposes, the SMIS programme board, which consists of senior members from the user community and RSSB, initiated a programme to review and enhance data quality. The programme involves RSSB working with colleagues across the industry to monitor reporting, data quality and the timeliness of reports.

This work is targeted to raise levels of reporting; increase consistency; and minimise omissions and errors. The data quality initiative includes an annual health check visit for each company that enters data into SMIS, a suite of data quality indicators, manual reviews and checks of SMIS data leading to a data quality ranking for each company. These activities have shown significant signs of success through collaborative working between staff involved in inputting data and RSSB staff involved in collecting and monitoring data.

For further information contact: Paul Sizer, safety intelligence delivery manager on 020 3142 5481 or email paul.sizer@rssb.co.uk

Events

21 April 2010 - Risk Management Forum - London

The Risk Management Forum is changing its format in 2010. A one-day seminar has been put together to continue to give the industry an opportunity for risk management learning while networking with colleagues and other safety professionals.

The seminar will focus on key issues affecting the railway in the following areas:

• Safety Management Systems
• Emerging European Legislation
• Managing Change
• Human Factors

Speakers, from the air and rail industries and the Office of Rail Regulation, will demonstrate how good safety management is sound business management, bring you up-to-date on the latest thinking and illustrate new tools to help you effectively manage safety.

To receive the programme and registration form please supply your contact details to conferences@rssb.co.uk

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