



# Railway Safety Principles on Driver Controlled Operation

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## Definition:

Driver Controlled Operation (or DCO) is a method of working where the driver is responsible for door operation and determining that it is safe to start the train. How the driver determines whether the train is safe to start will be dependent upon the method of train dispatch and whether the supporting risk assessment requires other safety critical staff to be involved.

## Introduction

### Our role

ORR's role is to make sure that the health and safety of everyone associated with the railway is protected. This is achieved by encouraging railway businesses to have excellent health and safety management, ensuring that they identify and assess risks properly, control them effectively, and comply with the law. We take account of health and safety in all of our activities as an integrated safety and economic regulator. Duty holders are responsible for ensuring they comply with health and safety legislation.

### Wider railway safety principles

We produced *'Principles for health and safety on the railway'* in January 2017 to help duty holders understand how to meet our expectations for the high-level goals that should be achieved by the railway when complying with the health and safety legislation. The principles highlight the factors which should be addressed by anyone designing and putting into use new railway infrastructure or rail vehicles from the earliest stage of such projects. The principles replaced and updated Part 1 of HMRI's Railway Safety Principles and Guidance (often referred to as "the Blue Book"), which was discontinued in 2005.

## Safety principles for driver-controlled operation

Safety at the Platform Train Interface (PTI) is one of our top safety priorities. Duty holders need to have the right equipment, processes and procedures in place to ensure their trains are dispatched safely at all times. This requires proactive monitoring and regular risk assessment and review of the controls used, staff behaviours and the resourcing applied.

The introduction of new forms of rolling stock and wider use of driver controlled operation requires a careful assessment of the different risks caused and controls needed to dispatch trains safely and efficiently.

To encourage continuous improvement in the safety of driver controlled operation, and with the support of the industry and the Department for Transport, we have developed six principles which we expect duty holders to have regard to when:

- introducing or extending driver controlled operation in their business; and
- reviewing the operation of existing driver controlled operation services.

ORR inspectors may refer to this publication when looking to secure compliance with the law.

# Section 1

## Principle

Where driver controlled operation is used, or planned to be used, trains should be compatible

## Overview

Trains need to be compatible with the platforms that they use and the method of operation at these platforms.

Different methods of operation can be used at different platforms but consideration should be given to the cost and risk associated with increased complexity and inconsistency.

### Factors:

- a) Train length, number of doors and relative position of doors (end doors or mid-bodyside)
- b) On-board equipment such as cameras/mirrors.
- c) Consideration should be given to the quantity, quality of images and size of on-board monitors.
- d) Camera positioning to reduce the number of monitors/images required to be observed by the driver.
- e) The driver's ability to monitor the Platform Train Interface (PTI) along the whole length of the train during departure.
- f) The provision of sensitive door edge and obstacle detection protection with partial release and re-close functionality.
- g) Systems that are capable of detecting obstacles trapped in the doors that have the potential to cause harm.
- h) The driver's ability to manage the PTI at unstaffed stations. Consideration should be given to the following:
  - i. The ability for the driver to make announcements on the platform as well as on the train
  - ii. Consideration of additional bodyside lighting
- i) Consideration of the provision of unaided access/egress for passengers that require special assistance
- j) Bodyside cameras should have the ability to operate in all reasonably foreseeable lighting and environmental conditions
- k) The design and installation of bodyside cameras should seek to maintain a minimum specified image quality, taking into consideration environmental factors and without the need for manual intervention.
- l) Assistance in an emergency

# Section 2

## Principle

Where driver controlled operation is used, or planned to be used, platforms should be compatible

## Overview

Station platforms need to be compatible with the trains using them and they must support the methods of operation.

Different methods of operation can be used at different platforms and/or different trains in a given station, but consideration should be given to the cost and risk associated with increased complexity and inconsistency.

### Factors:

- a) Station design and construction
  - i. Platform length
  - ii. Platform lighting
  - iii. Platform signage
  - iv. Platform markings to facilitate safe train dispatch
  - v. Gap between train and platform (height and offset) along whole platform
  - vi. Under platform recess
  - vii. Provision of equipment to support dispatch (e.g. Close Door/Right Away (CD/RA) indicators)
  - viii. Platform curvature
  - ix. Platform furniture, location of access and egress points and other factors that affect movement along the platform
- b) Platform cameras should have the ability to operate in all reasonably foreseeable lighting and environmental conditions
- c) Consideration should be given to the quantity, quality and size of platform monitors/mirrors

# Section 3

## Principle

Where driver controlled operation is used, or planned to be used, the method of operation should be compatible

## Overview

The nature of the operation with the train and platform need to be assessed. This includes consideration of passenger needs and behaviour.

### Factors:

- a) Staffed and unstaffed station management of the PTI. At staffed stations, staff should maintain an awareness of the PTI risks at all times.
- b) Passenger
  - I. Mobility
  - II. Security
- c) Station usage
  - I. Crowding and bunching on the platform
  - II. Availability of staff to manage the PTI and their relative positioning
- d) Information to passengers about the dangers at the PTI and the importance of obeying platform markings. Consideration should be given to the following:
  - I. Automatic station and on-board announcements
  - II. Improved signage
  - III. Poster campaigns and train bodyside markings

# Section 4

## Principle

Where driver controlled operation is used, or planned to be used, affected staff should be trained and competent

## Overview

The duty holder has a legal responsibility to ensure that their staff receives the necessary training to ensure that they are competent to safely carry out their duties. It is also important that they fully understand their roles and responsibilities in relation to driver controlled operation.

### Factors:

- a) The guidance 'Developing and maintaining staff competence: Railway Safety Publication 1', November 2016 should be considered
- b) Identify what safety critical activities are required to be carried out, and by who (task analysis)
- c) Identify which, if any, safety critical activities are non-essential for train operation in exceptional circumstances taking into consideration the 'knock-on' risk of service cancellation
- d) Use of simulation and hazard perception tools/techniques
- e) Staff must be trained and competent to undertake new/additional tasks in advance of any implementation (for example a competence disposition analysis)
- f) Consider the limitations of the control measures are fully understood (such as small objects may still be trapped in doors, defective cameras, operation with loss of interlock)

# Section 5

## Principle

Where driver controlled operation is planned to be used, the implementation should be planned

## Overview

Before a driver controlled operation is introduced or changed at a location, there are a number of factors that need to be taken into consideration to ensure that the method of operation being considered is suitable and that any safety issues have been identified and suitable controls put in place.

It is important to ensure that once it has been decided to implement any new or extended scheme, a robust process is agreed by all affected parties and put into place to ensure successful implementation.

## Factors:

- a) Undertake a suitable risk assessment; e.g. if the change is significant Common Safety Method on Risk Assessment (CSM RA) must be applied
- b) Realistic timescales set for introduction
- c) Consultation with Trade Union Health and Safety representatives
- d) Consultation and cooperation with other duty holders affected by the change
- e) Identification of relevant standards e.g. Railway Group Standards (RGS's) and Railway Industry Standards (RIS's) and agree interpretation before any compatibility testing is carried out
- f) Testing protocols should be formulated in consultation with Trade Union Health & Safety representatives
- g) Staff on test trains should be trained and competent on the testing protocols to be carried out
- h) In advance of implementation, staff should be given suitable advance notice of when and where the change is being implemented
- i) An issues log should be maintained and outstanding items tracked until it is agreed by the parties involved that they have been resolved or otherwise closed
- j) Application of Health and Safety by Design principles
- k) Application of Taking Safe Decisions
- l) Consider the relevant requirements defined in RIS-3703-TOM Rail Industry Standard for Passenger Train Dispatch and Platform Safety Measures
- m) Involvement of the Trade Union Health and Safety Representatives to validate the effectiveness of the proposed controls
- n) Consideration of the use of bodyside or station borne cameras to ensure that the optimum view of the PTI is achieved
- o) Existing dispatch arrangements for other trains
- p) Dwell times (increase or reduction)

# Section 6

## Principle

Where driver controlled operation is used, the system should be managed through its whole life with improvements adopted subject to an assessment of the benefits

## Overview

There are a number of factors and safety improvements that should be considered that can not only be applied to new schemes but should be considered for existing DCO schemes in order to deliver additional/improved safety benefits. This takes into account improvements in the availability of technology as it is developed and where it is reasonably practicable to introduce.

Any equipment provided for driver controlled operation should be kept under review to ensure that any advances in technology are taken into consideration to ensure that there is continued safety improvement.

## Factors:

- a) Share lessons learned from incidents and revise arrangements in the light of new knowledge
- b) Improvements with door obstruction detection and door interlocking
- c) Step free, unassisted access for passengers with mobility needs
- d) Platform edge lighting to warn passengers and staff of approaching trains
- e) Smart train steps to reduce the gap between the train and the platform
- f) Provision of an external alarm adjacent to doors for passengers
- g) Capability to quickly stop a train at station platforms in an emergency.
- h) Schemes should consider the availability of novel presence sensing technologies to reduce the opportunity for human error e.g. Pattern/image recognition software.



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