Signalling Lockout Systems to Protect Railway Undertaking Personnel

Synopsis
This document mandates the technical parameters that apply to signalling lockout systems provided for railway undertaking personnel to use.

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Signalling Lockout Systems to Protect
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Issue record

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Superseded documents

This Railway Group Standard does not supersede any other Railway Group documents.

Supply

Controlled and uncontrolled copies of this Railway Group Standard may be obtained from the Corporate Communications Department, Rail Safety and Standards Board, Evergreen House, 160 Euston Road, London NW1 2DX, telephone 020 7904 7518 or e-mail enquiries@rssb.co.uk. Railway Group Standards and associated documents can also be viewed at www.rgsonline.co.uk.
# Signalling Lockout Systems to Protect Railway Undertaking Personnel

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Part 1 Purpose and Introduction

1.1 Purpose

1.1.1 This document mandates requirements for signalling lockout systems that are provided by the infrastructure manager for the particular use of railway undertaking personnel, typically persons requiring protection when work is taking place on stationary rail vehicles.

1.2 Introduction

1.2.1 Background

1.2.1.1 The Rule Book (GE/RT8000) sets out requirements for a safe system of work applicable to railway undertaking personnel who need to work on stationary rail vehicles, while on or near the line. Signalling lockout systems are in some cases provided by the infrastructure manager for use by the railway undertaking as part of a safe system of work.

1.2.1.2 The measures contained within this standard, when read in conjunction with the system operating requirements for signallers and track workers that are set out in the Rule Book, mitigate the risk that arises at the interface between infrastructure managers and railway undertakings for signalling lockout systems.

1.2.1.3 The scope of protection provided by each signalling lockout system and the safe method of operation is subject to an agreement between the railway undertaking and the infrastructure manager before it is taken into operational use. The agreement includes the limits of protection, the scope of work and the personnel that need to be protected.

1.2.2 Principles

1.2.2.1 The design intention of a signalling lockout system is to prevent the issue of signalled movement authorities within, into or out of a defined protection area, as set out in the mandatory requirements of this standard (see Part 2).

1.2.2.2 The infrastructure manager makes the defined protection available to the railway undertaking when the signaller operates a control to release a key from a key release device. The lockout system is interlocked with the signalling system so that a release can only be given when it is safe to do so.

1.2.2.3 The railway undertaking takes the available protection by extracting one or more keys from the key release device, when it is safe to do so, as set out in the system operating instructions.

1.2.2.4 When a key is removed from the key release device, the protection afforded by the system is established and maintained by the signalling interlocking.

1.2.2.5 The protection cannot be withdrawn by the infrastructure manager until the railway undertaking confirms that the protection is no longer being used. This is done when all of the keys are replaced into the key release device.

1.2.2.6 When all of the keys are correctly replaced in the key release device, the signaller can operate a control to cancel the release. This locks the keys into the key release device, by which means the infrastructure manager withdraws the protection available to the railway undertaking.
1.2.3 Related requirements in other documents

1.2.3.1 The following Railway Group Standards contain requirements that are relevant to the scope of this document:

- GE/RT8000 The Rule Book
- GI/RT7006 Prevention and Mitigation of Overruns – Risk Assessment
- GI/RT7033 Lineside Operational Safety Signs
- GK/RT0025 Signalling Control Centres
- GK/RT0206 Signalling and Operational Telecommunications Systems: Safety Requirements

1.2.4 Supporting documents

1.2.4.1 The following Railway Group documents support this Railway Group Standard:

- GK/GN0612 Guidance on Signalling Lockout Systems to Protect Railway Undertaking Personnel
Part 2 Requirements for signalling lockout systems

2.1 Signalling lockout system parameters

2.1.1 Signalling lockout system identification

2.1.1.1 The infrastructure manager shall provide a lineside operational safety sign at the point of use of each signalling lockout system. The sign shall clearly identify the lockout system to the authorised user.

2.1.1.2 The sign shall include:

a) A lockout system identity that is unique to the signalling control area, which includes the wording: 'Lockout system for system identity', and

b) An engraved diagram that depicts the limits of protection provided by the lockout system when the defined protection is taken (the movements, lines and locations).

2.1.1.3 The sign shall be legible to the authorised user when the lockout system key release device is used to establish or give up the defined protection.

2.1.2 Signalling lockout system controls

2.1.2.1. The interlocking shall only transmit a ‘lockout available’ control to the key release device when all of the following conditions are true:

a) The signaller has requested the particular release by operating the relevant control device on the signalling control system

b) The interlocking provided for all signal routes into, within and out of the defined protection area is normal and free of approach locking

c) The train detection system has detected that (see Figure 1):

   i) There are no trains between the protecting signals and the boundaries of the defined protection area, and

   ii) Any train that has been admitted into the defined protection area is detected to be stationary in a position agreed with the railway undertaking

d) The signal overrun mitigation arrangements associated with the signalling lockout system are effective, for example, points that provide trapping protection are locked and detected in the required position.

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Figure 1 Train detection system
2.1.2.2 The interlocking for all signal routes into, within and out of the protection area shall be normal and locked from the time that a ‘lockout available’ control is transmitted to the key release device, until the interlocking for the lockout release control is normal.

2.1.2.3 The interlocking for the release shall only be normalised when:

a) The ‘lockout cancellation’ control has received information that the required number of keys are locked in the key release device, and

b) The signaller has operated a system-specific control device provided on the signalling control system to cancel the release.

2.1.3 Signalling lockout system key release device configuration

2.1.3.1 The infrastructure manager shall provide a single key release device at the point of use of each signalling lockout system. Each key release device shall be configured so that:

a) Keys are captive within the device at all times that the defined protection area is not available to the railway undertaking

b) The railway undertaking personnel can only withdraw keys from the key release device when the ‘lockout available’ control is transmitted by the controlling interlocking

c) Only correctly configured keys can be replaced into the device.

2.1.3.2 The construction of the key release device shall prevent unauthorised adjustment of the device configuration and key release mechanism.

2.1.4 Signalling lockout system key configuration

2.1.4.1 The infrastructure manager shall provide each signalling lockout system with a defined number of keys. The total number of keys within the operational signalling lockout system shall not exceed the minimum number of keys required to cancel the release.

2.1.4.2 The keys for each signalling lockout system shall be uniquely configured to their associated key release device.

2.1.4.3 The infrastructure manager shall securely retain all spare keys and keep a register of keys in use.

2.1.5 Signalling control system

2.1.5.1 The signalling control system used to operate the signalling lockout system and the protecting signals shall include an indication of the status of the lockout system.

2.1.6 Safety integrity level

2.1.6.1 The safety integrity level for the technical part of the signalling lockout system shall be commensurate with that of the interlocking at that location.
Part 3  Application of this document

3.1  Application – infrastructure managers

3.1.1  Scope

3.1.1.1  The requirements of this document apply to all new and existing equipment used for the protection of railway undertaking personnel who require access to stationary rail vehicles.

3.1.1.2  The requirements of this document apply to all work that affects signalling lockout systems to protect persons working on trains on Network Rail controlled infrastructure, whether new or alteration.

3.1.1.3  Where it is known, or becomes known, that existing signalling lockout systems to protect persons working on trains do not comply with the requirements of this document, action to bring them into compliance is required by 31 December 2008.

3.1.2  Exclusions from scope

3.1.2.1  There are no exclusions from the scope specified in sub-section 3.1.1 for infrastructure managers.

3.1.3  General compliance date for infrastructure managers

3.1.3.1  This Railway Group Standard comes into force and is to be complied with from 6 October 2007, except as specified in sub-section 3.1.4. Where the dates specified in sub-section 3.1.4 are later than the above date, this is to allow infrastructure managers sufficient time to achieve compliance with the specified exceptions.

3.1.3.2  After the compliance dates or the date by which compliance is achieved, if earlier, infrastructure managers are to maintain compliance with the requirements set out in this Railway Group Standard. Where it is considered not reasonably practicable to comply with the requirements, authorisation not to comply should be sought in accordance with the Railway Group Standards Code.

3.1.4  Exceptions to general compliance date

3.1.4.1  There are no exceptions to the general compliance date specified in sub-section 3.1.3 for infrastructure managers.

3.1.4.2  Existing signalling lockout systems to protect persons working on trains shall be checked for compliance with the requirements of this document. Action shall be taken to bring all key release protection systems into compliance by 31 December 2008.

3.2  Application – railway undertakings

3.2.1  There are no requirements applicable to railway undertakings.

3.3  Health and safety responsibilities

3.3.1  Users of documents published by RSSB are reminded of the need to consider their own responsibilities to ensure health and safety at work and their own duties under health and safety legislation. RSSB does not warrant that compliance with all or any documents published by RSSB is sufficient in itself to ensure safe systems of work or operation or to satisfy such responsibilities or duties.
Signalling Lockout Systems to Protect Railway Undertaking Personnel

Definitions

Defined protection area
The defined area within which users are to be provided with protection by the signalling lockout system.

Key
A form of guaranteed permission provided by the infrastructure manager to the railway undertaking to use the defined protection, issued by the signaller to the user via the signalling lockout system in the form of a removable, portable key (token or similar physical authority).

Key release device
A device that includes a mechanism to lock and unlock a defined number of keys available to the user, which is controlled via an interface with the controlling interlocking.

‘Lockout available’ control
The function of the interlocking, which transmits a control to the key release device to unlock a key.

Protection system
Any system that allows a user to prevent or restrict the signalling of rail traffic in some way to provide for the protection of persons on or near the line.

Signaller
For the purposes of this document, the signaller is understood to be a person in charge of train movements.

Signalling lockout system
A type of protection system that is interlocked with the signalling system to ensure that movement authorities cannot be issued into the defined protection area when the protection is being used.

User
The railway undertaking personnel requiring the protection afforded by the protection system.
References

The Catalogue of Railway Group Standards and the Railway Group Standards CD-ROM give the current issue number and status of documents published by RSSB. This information is also available from www.rgsonline.co.uk.

Documents referenced in the text

RGSC 01 The Railway Group Standards Code
Railway Group Standards
GE/RT8000 The Rule Book
GI/RT7006 Prevention and Mitigation of Overruns – Risk Assessment
GI/RT7033 Lineside Operational Safety Signs
GK/RT0025 Signalling Control Centres
GK/RT0206 Signalling and Operational Telecommunications Systems: Safety Requirements

RSSB documents
GK/GN0612 Guidance on Signalling Lockout Systems to Protect Railway Undertaking Personnel