

Letter of instruction

Information for users

The following document:

NR/L2/SIG/11704 Issue 3

has had changes made to it, most recently, with effect from **24 November 2014**.

Instructions for use

It is essential that you first read and understand each letter of instruction pertaining to the standard before proceeding to use the standard. You must then apply the requirements of each letter to the standard.

NR/BS/LI/308	Issue 2	24 November 2014	Proceed to letter ►
NR/L2/SIG/11704	Issue 3	03 September 2011	Proceed to standard ►

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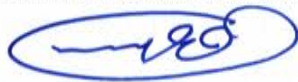
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Level 2

Signalling Requirements for the Application Design and Management of Points

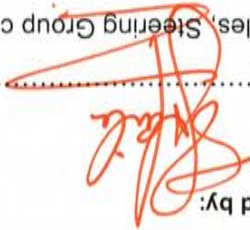
Endorsement and Authorisation

Endorsed by:



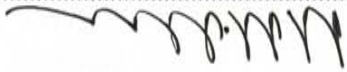
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Issue record

Issue	Date	Comments
1	March 2008	New Standard - To capture the Signalling requirements of withdrawn Railway Group Standard GI/RT7004 and the content of TI/070.
2	June 2009	Updated to include additional requirements for stretcher bar installation and preventative maintenance actions
3	September 2011	Maintenance of document, no change to requirements (CCMS document number 61387112)

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 03/09/2011.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 3 (Option Selection) to continue to comply with the issue of any relevant Network Rail standards current when GRIP Stage 3 was completed and not to comply with requirements contained herein, unless stipulated otherwise in the scope of this standard.

Reference documentation

GC/RT5021	Track System Requirements
GK/GN0802	Glossary of Signalling Terms
GK/RT0039	Semaphore and Mechanical Signalling
GK/RT0060	Interlocking Principles
GK/RT0061	Shunters Releases, Ground Frames, Switch Panels and Gate Boxes
NR/L2/SIG/10016	Requirement for an Asset Maintenance Process.
NR/L2/SIG/10661	Signalling Maintenance Task Intervals.
NR/L2/SIG/11400	HPSS Manual
NR/L3/SIG/10663	Signalling Maintenance Specifications.
NR/L3/SIG/10665	Reliability Centred Maintenance on Signalling Equipment (RoSE)
NR/L3/SIG/10179	The Installation & Maintenance of 35mm Square Section Adjustable Stretcher Bars
NR/PS/SIG/2001	Requirement for Powered Point Operating Equipment.
NR/L2/SIG/11201	Signalling Design Handbook
NR/GN/SIG/11772	Supplementary Point Drives and Detection
NR/L2/TRK/001	Inspection and Maintenance of Permanent Way
NR/L2/TRK/070	S&C System Specification - Design of Switches & Crossings
NR/L3/TRK/1202	S+C systems - Flat bottom full depth switches - Management of

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fixed stretcher bar assemblies, lock stretcher bars fastenings
and the associated defects

[NR/L2/ELP/40045](#)

Electric Point Heating

[BRS-SM 837](#)

Point Identification Plates

Disclaimer

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Supply

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1 Purpose

This standards defines the signalling requirements for the application design and management of points used on Network Rail controlled infrastructure.

2 Scope

The contents of this document are for use by signalling personnel involved with the application design and management of points.

3 Definitions

All technical terms used in this document, other than those given below, have the meanings defined in GK/GN0802 - Glossary of Signalling terms.

External Command

An instruction sent to the point operating mechanism by the interlocking to move the point ends to the Normal or Reverse position.

Facing Point Lock

A mechanical means of physically locking points so that they cannot be moved other than in response to an external command or manual operation. The lock may be provided independently or incorporated into a point operating mechanism.

Free Wheel Clearance (FWC)

The gap between the switch and stock rail, which will allow the flange of a train wheel to pass through. A reduction in this gap may result in flange trapping.

Free Wheel Passage (FWP)

The dimension provided to allow a wheelset to pass through a set of switches or a swing nose crossing, without undesirable contact being made with the wheel flange back and the open switch rail or crossing. In switches this dimension is taken from the back edge of an open switch rail and the running edge of the closed switch rail.

Residual Switch Opening (RSO)

The dimension between the gauge face of the stock rail and the back of the switch rail on the closed switch side

Normal and Reverse

The two defined positions of a point end or associated signaller's control device.

Plain-lining of Points

Where redundant or defective switch and / or crossings and / or associated point components are replaced with plain line rails.

Point Operating Mechanism

On track equipment for the powered or mechanical movement of points.

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Point Operating Time

The time taken from receipt of an external command by the point operating mechanism to release the facing point lock, move the switch rails or equivalent to the opposite position and reapply the facing point lock.

Switches

A set of switches consists of two fixed stock rails with one or more associated moveable switch rails. A set of switches counts as one point end.

Track Gauge

The distance between the running edges of the rails measured without load at right angles to the running edges of the rails in a plane 14 mm below their top surface.

Unworked Points

Points available for use but not controlled from a Signal Box or Ground Frame, other than Train Operated Points. Hand points, runaway catch points and spring operated points (usually only used as trap or catch points) are examples of unworked points. S&C installed but not commissioned or disconnected from their operating mechanism but not recovered are not classed as unworked.

Worked Points

Points which are controlled by a Signal Box or Ground Frame.

4 Identification of Points

4.1 Point Identity

Worked points, train operated points and unworked points that are detected in the signalling system, shall have an identity that is unique to a Signal Box or Ground Frame.

Points worked by Signal Box or Ground Frame levers shall be identified by the lever number. Other points shall be individually numbered within a logical sequence. The sequence shall be distinct from other functions such as signals and lockout systems. Where practicable, the sequence of numbers for new layouts shall ascend in the down direction. It is permissible to follow established numbering sequences where existing layouts are modified.

Two or more point ends that are required to be operated together shall be identified by a common identity and a unique suffix for each end. Each Signal Box or Ground Frame shall have a convention for the allocation of suffixes. Where practicable, the suffixes for new layouts shall increment alphabetically in the down direction. It is permissible to follow established conventions where existing layouts are modified.

The two ends of a Switch Diamond shall have the same common identity and a unique suffix for each point end.

Swing Nose Crossings shall have the same common identity as the associated switch panel with a unique suffix.

Unworked points in running lines that are not detected in the signalling system shall have an identity in a distinct sequence similar to that for worked points.

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The rationale for the numbering sequence and the convention for suffixes shall be recorded as part of the signalling design documentation.

4.2 Point End Identification Plates

Where a point identity is required, all associated point ends shall have identification plates to [BRS-SM 837](#) or equivalent markings.

The identification plates shall display the point identity and any additional suffix. Point identification plates shall include a Signal Box, Ground Frame or locality code prefix where necessary to avoid confusion.

At each point end the identification plate shall be fixed to the first bearer in front of the toes. The plate shall be oriented so that it can be read when looking at it in the same direction as the points would be if passed over in the facing direction.

Where possible, the identification plate shall be fixed on the same side as the switch rail that is closed when the points are in the Normal position. Where this is not possible or where the intended switch rail is not obvious, the identification plate shall incorporate an arrow pointing to the switch rail that is closed in the Normal position.

At point ends without a switch rail that is closed in the Normal position (for example a trap point with a single switch rail that is open in the Normal position) the identification plate shall incorporate an arrow pointing in the direction of operation for the Normal position.

At swing nose crossings, the identification plate shall be fixed on the side of the nose that is closed in the Normal position, adjacent to the crossing nose. The identification plate shall incorporate an arrow pointing in the direction of operation for the Normal position.

4.3 Point Operating Mechanism Identification Plates

Each point operating mechanism unit shall have an identification plate or equivalent marking. The display on the plate or marking shall match the point end identification plates and, where practicable, shall be readable from a position of safety.

5 Control of Points

5.1 Requirements for Worked Points

The interlocking shall command the two point ends of a switch diamond to operate together.

The interlocking shall command a swing nose crossing to operate together with its associated switches.

It is permissible to operate other point ends together where there is an advantage in doing so (for example, provision of inherent flank protection or economy of control equipment). In such cases, the signaller's control shall be from a single device. Usually no more than two point ends shall be operated together.

Where it is intended to operate point ends together, consideration shall be given to any secondary hazards arising from equipment failure.

Unusual combinations of points ends operated together shall only be used where they have been subject to a risk assessment.