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Issue:	2
Date:	4 September 2010
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Level 3 Module

Signalling Installation – Signals: General

Endorsement and Authorisation

For endorsement and authorisation, please refer to NR/L3/SIG/11303.

This module is a reformatted version of the previous Signalling Installation Handbook with no change to the content other than correction of terminology.

It represents historic best practice which may no longer be relevant.

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Issue record

Issue	Date	Comments
2	September 2010	Reformatted version of previous document incorporating the text of the installation handbook.
1	August 2000	First issue.

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 4 December 2010.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 4 to continue to comply with the Issue of any relevant Network Rail Standards current when GRIP Stage 4 was reached and not to comply with requirements contained herein, unless the designated Standard Owner has stipulated otherwise in the accompanying Briefing Note.

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1 Introduction

New or repositioned signals shall be erected strictly in accordance with the approved sighting form or sighting committee memorandum. Particular attention needs to be paid to any special conditions noted in the “remarks” section of the sighting form.

Signals should be installed so that they do not infringe the construction gauge (shown in Module 2G05) unless the sighting form indicates that specific authority to infringe the construction gauge has been given.

In overhead electrification areas, the required clearances from overhead live equipment needs to be maintained - see “Electrical Clearances ” below.

When preparing for the erection of signals, it may be necessary to arrange for a possession or isolation to protect against possible infringement of clearances during erection even though the completed structure will be clear. The requirements of Module G1 of the Rule Book relating to your safety, when on or near the line, need to be observed.

2 Electrical Clearances

The specified clearances between signals and 25 kV overhead live equipment allow staff to carry out normal maintenance tasks on the signals in safety without requiring isolation of any part of the traction system. Protective metal mesh screens are fitted where necessary to provide a safe working area. However, this applies only to normal maintenance tasks; before carrying out any other work, including installation, wiring or painting of a signal, which will require any person, tool or material to approach nearer than 2.75 metres (9 feet) to the live equipment, you need to make arrangements with the Route Electrification and Plant Engineer as required by Module AC2 of the Rule Book.

No part of any signal structure should normally be within 270mm of any live part of the 25kV overhead equipment, unless reduced clearances have been specially authorised.

Protective metal mesh screens need to be provided wherever any part of the live equipment may come within the following distances from the working place, ladders, platform or signal face. (See electrification specification EHQ/SP/S/002.) The maximum possible variation in the position of the live equipment should be taken into account.

- 1830mm in any horizontal plane.
- 3350mm in any vertical plane.

NOTE The 1830mm dimension in the horizontal plane is to be taken to a height of 1520mm and then continued as a 1830mm radius up to 3350mm in the vertical plane.

Where the working place or access walkway passes over live equipment, the floor needs to be close boarded for 1 metre on either side of the maximum lateral position

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of the live equipment, and the sides need to be screened up to a height of 1200mm. In addition, the close boarding needs to extend at least 200mm outside each side screen, unless the screen is of close mesh netting (maximum 10mm x 10mm) with no gap between the netting and the boarding.

Further details of the clearance requirements can be found in the HMRI Railway Safety Principles and Guidance and in Railway Group Standard GE/RT8037, Signal Sighting.

3 Colour Light Signals

Signals are generally positioned on the left hand side of the line to which they apply. Where there is not enough space between adjacent lines for separate posts, special structures such as brackets or gantries are used.

Colour light main signal outer lenses include a segment known as a “hot strip” which gives a side beam for close viewing by a train driver stationary at the signal. A signal at standard height to the left of the line will normally require the hot strip in the lower right quadrant when viewed from the front. If the signal is to the right of the line or ground mounted, then the hot strip position will be varied accordingly. The signal sighting form will state the required position. If adjustment is needed, carefully loosen (or remove) the mount, rotate the lens to the correct position, and re-tighten the mount. Do this for all the outer lenses.

Junction indicators (five white lights) also have hot strips which have to be correctly positioned. Position light signals do not have hot strips.

On sharp curves, “spreadlight” lenses may be used to give a wider beam. In areas subject to vandalism, polycarbonate lenses are fitted. These special requirements will be stated on the sighting form.

4 Installation

Before erecting a signal on a concrete base, seal the base with a generous coating of bitumastic compound.

It is recommended that you should use an erecting pole and hinges to erect a straight post signal. The procedure for this is given below. Larger signals may require the use of cranes.

Whilst erecting a signal to a foundation, washers are placed on the fixing bolts beneath the signal base plate and may be used to adjust the alignment of the post. The fixing bolts are subsequently wrapped with self-amalgamating tape.

When cables are run on the outside of the signal post or other parts of the structure, they should be run neatly and held in position by plastic zip ties well clear of any moving parts.

All cables running into signal heads, route indicators, etc. should be properly secured, for example using a suitable cable clamp or heat-shrink cable grip.

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