



Special Inspection Notice

Inspection of Tubular Stretcher Bars fitted to switch diamond S&C layouts

Endorsement and Authorisation

Endorsed by:

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Neal Lawson, Director Maintenance and Operations Services

User information

This Network Rail special inspection notice contains colour-coding according to the following Red–Amber–Green classification.

Red – Critical limits – *No variations, could stop the railway*

- Red indicates critical limits to be complied with and achieved at all times.
- Critical limits are presented in a red box and expressed as a direct instruction.
- Accountability for the efficacy of critical limits lies with the Professional Head/special inspection notice owner.
- Critical limits are monitored for compliance.
- If non-compliance is identified, this will be investigated under the Network Rail fair culture process.
- Corrective actions are to be enforced if variations are discovered through functional checks (such as engineering verification visits, audit or operations self-assurance).

Amber – Baseline limits – *Controlled variations, approved risk analysis and mitigation*

- Amber indicates baseline limits to be complied with unless variation has been approved in advance.
- Baseline limits are presented with an amber sidebar and expressed as a direct instruction.
- Accountability for the efficacy of baseline limits lies with the Professional Head/special inspection notice owner, or their nominated delegated authority.
- Baseline limits are monitored for compliance.
- Variations may be permitted. Variations are approved by the process owner or through existing delegated authority arrangements.
- Corrective actions are to be enforced if non-approved variations are discovered through functional checks (such as engineering verification visits, audit or operations self-assurance).

Green – Guidance

- Green indicates guidance. This is presented with a dotted green sidebar and with the word 'should' (usually in notes) or expressed as a recommendation.
- Guidance is based on good practice and represents supporting information to help achieve critical and baseline limits.
- Guidance is not mandatory and is not monitored for compliance.
- Alternative solutions may be used. Alternative solutions do not need to be formally approved.
- Decisions made by a competent person to use alternative solutions should be backed up by appropriate evidence or documentation.

Contents

1	Introduction	2
1.1	Purpose.....	2
1.2	Scope.....	2
1.3	Background.....	2
2	Terms and abbreviations	2
3	Responsibilities.....	3
4	Types of motion unit and associated rail fastenings fitted to switch diamonds ...	4
5	Check of motion unit fastenings on switch diamonds	5
6	Tooling and Materials	6
7	Progress reporting	7
8	References.....	7
9	Timescales.....	7
10	SIN Close Out Arrangements	7
11	Contact details	7
	Appendices.....	8
	Appendix A – SIN149 SINAC Action complete form	8
	Appendix B SIN149 Switch Diamond Defect Form	9
	Appendix C List of Switch Diamonds fitted with Tubular Stretcher Bars.....	10

Figures

Figure 1 - Web Mounted Motion Units fitted to switch diamonds.....	4
Figure 2 Foot Mounted Motion Units fitted to switch diamonds	4
Figure 3 – Stretcher Bar numbering convention	9
Figure 4 – Tubular Stretcher Bar bolt numbering convention	9

Tables

Table 1 – Terms	2
Table 2 – Abbreviations.....	2



1 Introduction

1.1 Purpose

- 1.1.1 The purpose of this SIN is to check the tubular stretcher bar rail fastenings on all switch diamond installations.

1.2 Scope

- 1.2.1 All tubular stretcher bars fitted to full and shallow depth switch diamonds.

1.3 Background

- 1.3.1 There have been 4 instances of loose or detached tubular stretcher bars on switch diamond layouts

2 Terms and abbreviations

- 2.1.1 Terms and abbreviations used in this document are described in the tables below.

Term	Definition
Shakeproof fastening	Shakeproof are the manufacturer of the fastenings used to secure the foot mounted motion units to the switch rail.

Table 1 – Terms

Abbreviation	Description
RAM[S]	Route Asset Manager [Signals]
SIN	Special Inspection Notice
SM[S]	Section Manager [Signals]
STME	Signal & Telecoms Maintenance Engineer
TSB	Tubular Stretcher Bar

Table 2 – Abbreviations

3 Responsibilities

3.1.1 The Route Asset Manager [Signalling] shall brief this SIN to their route team and the Delivery Unit STMEs.

3.1.2 The STME shall:

- brief this SIN to the SM[S] and the Infrastructure Maintenance Engineer
- identify all assets within the scope of the SIN and arrange for work orders to be created in Ellipse for each inspection
- manage the delivery of all of the actions associated with this SIN
- arrange for competent staff to undertake the actions required by this SIN

3.1.3 The SM[S] shall brief this SIN to all technicians who undertake installation and maintenance of tubular stretcher bars.

4 Types of motion unit and associated rail fastenings fitted to switch diamonds

Tubular Stretcher Bars are fitted to both full and shallow depth switch diamonds. The fastenings for the motion units found on switch diamonds can either be mounted through the web of the rail or through the foot of the rail.. An overview of the fastening arrangements for the different types of motion unit fitted to switch diamonds is detailed below.

Web Mounted Motion Units

The web mounted motion units that are fitted to switch diamonds are either coloured yellow or red. Yellow motion units are fitted to full depth switch diamonds. Red motion units are fitted to shallow depth switch diamonds.



Figure 1 - Web Mounted Motion Units fitted to switch diamonds

Foot Mounted Motion Units

The foot mounted motion units fitted to shallow depth switch diamonds are coloured orange.

There are two different types of Shakeproof fastenings fitted to the foot mounted motion units. These can be identified by the colour of the head of the fastening. For one version the head of the fastening is coloured pink, the other version both the head and the length of the fastening is coloured blue.



Figure 2 Foot Mounted Motion Units fitted to switch diamonds

5 Check of motion unit fastenings on switch diamonds

For foot mounted motion units only,

- 5.1.1 Check the colour of each of the Shakeproof fastenings fitted to the foot mounted motion unit and record it on the record form in Appendix B.

For all types of motion unit:

- 5.1.2 Check the security of each of the fastenings that secure the motion units to the switch rail through the application of 350Nm torque to the fastening.
The 350Nm torque is achieved by using the 30mm socket from the tubular stretcher tool kit and having the torque wrench set to 270Nm.
- 5.1.3 Record any fastenings that have 1/8th turn or more using the defect form in Appendix B.
- 5.1.4 Where a fastening has been found to be loose – renew the fastening and tighten to 440Nm (achieved by setting the torque wrench to 340Nm).
- 5.1.5 Measure and record the switch opening at each stretcher bar position.