

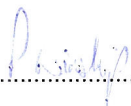
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Level 3

Re-gauging of switch units – Field face to field face method

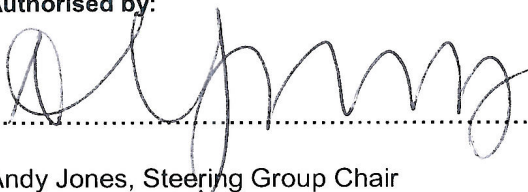
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User information

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

Red requirements – *No deviations, could stop the railway*

- **Red requirements shall** always be complied with and achieved.
- Red requirements shall be presented in a red box **with the word “shall” or expressed as a direct instruction**.
- Accountability for the efficacy of red requirements lies with the Professional Head/Standard Owner.
- Red requirements are monitored for compliance.
- Corrective actions shall be enforced if deviations are discovered through functional checks (e.g. engineering verification visits, audit or Operations Self-Assurance).

Amber requirements – *Controlled deviations, approved risk analysis and mitigation*

- **Amber requirements shall** be complied with unless deviation has been approved in advance.
- Amber requirements shall be presented with an amber sidebar **and with the word “shall” or expressed as a direct instruction**.
- Accountability for the efficacy of these requirements lies with the Professional Head/Standard Owner, or their nominated Delegated Authority.
- Amber requirements are monitored for compliance.
- Deviations **may** be permitted. Deviations are approved by the Standard Owner or through existing Delegated Authority arrangements.
- Corrective actions shall be enforced if **non-approved** deviations are discovered through functional checks (e.g. engineering verification visits, audit or Operations Self-Assurance).

Green – *Guidance*

- Guidance is based on good practice. Guidance represents supporting information to help achieve **Red** and **Amber** requirements.
- Guidance shall be presented with a dotted green sidebar **and with the word “should” (usually in notes) or as a direct instruction**.
- 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.

Issue record

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Issue	Date	Comments
1	June 2012	First Issue.

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 31 March 2013.

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

NR/L2/TRK/001/Mod5, *Switches and Crossings (S&C)*

NR/L2/TRK/3011, *Continuous Welded Rail (CWR) Track*

NR/L3/SIG/10179, *The Installation & Maintenance of 35mm square section Adjustable Stretcher Bars*

NR/L3/TRK/1202, *S&C Systems – Flat bottom full depth switches – Management of fixed stretcher bar assemblies, lock stretcher bars, fastenings and the associated Defects.*

NR/L3/TRK/1202/A, *Action Tables*

TEF 3239 A – H Management of gauge field face to field face dimensions of switches

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1 Purpose

This standard specifies the methodology for re-gauging switch panels using the field face of each switch stock rail as the datum points.

2 Scope

This Network Rail standard specifies how to re-gauge switch panels.

It is applicable to:

- 113A (CEN56) Full Depth Vertical S&C
- 109/110A/113A (CEN56) Inclined S&C
- 113A (CEN56)/ UIC54 (CEN54) Vertical Shallow Depth S&C
- NR/RT60 S&C.

3 Definitions

For the purpose of this standard, the following terms and definitions apply.

cable avoidance tool scanner

CAT scan

electronic tool used to detect buried cables

critical rail temperature

CRT

rail temperature to which CWR may be allowed to rise before measures to protect traffic are taken. The CRT will depend on the stress-free temperature of the rail and the quantity and degree of consolidation of the ballast

field face

face of the rail head on the non-gauge side which is not in contact with wheel flanges

field face track gauge

track gauge designed specifically to measure the field face to field face dimension within a switch panel

free wheel clearance

FWC

dimension between the gauge face of the stock rail and the back of the switch rail of the open switch side to allow a wheel to pass the open switch rail

free wheel passage

FWP

dimension between the back of the open switch rail and the gauging point on the opposite switch rail

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half-set (of switches)

assembly for one side of a switch, which comprises of a stock rail and a switch rail together with chairs or slideplates, blocks and rail fastenings

head cut or planing

length of the switch blade and or stock rail that has been machined to form the required shape to allow both components to close correctly and form the required switch geometry in the closed position

heel block

a metal spacing block, secured by a bolt or multi-groove locking pin, fitted between the switch rail and stock rail of a switch half set at the switch heel, to maintain the two rails in the correct relationship and to maintain the correct switch geometry

off-set dimensions

distance from the field face of the stock rail to the back of the switch rail

re-gauging tie bar

tie bar designed with shoes to fit over the rail head of both switch stock rails and is used to secure the unfastened switch half-set in position during re-gauging prior to screwing down

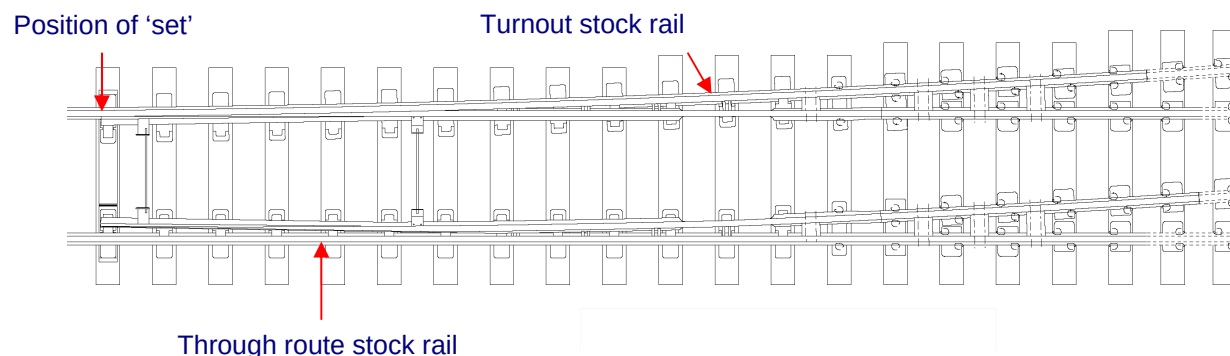
residual switch opening

RSO

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

stock rail set

slight 'bend or set' in the stock rail near the switch toes that determines the hand of the switch



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4 Re-gauging procedure

- The procedure is illustrated in Figure 2.

Step 1: Confirm the design type of the S&C unit that is planned to be re-gauged. Markings stamped into the cast blocks at the heel of the switch can often be used to identify the switch design type.

Eg. C – C switch size. For inclined switches rail branding will be 109 or 110A. 113A or CEN56 rail may have been used for maintenance replacements.

CV – C switch size, V – vertical. Rail branding will be 113A or CEN56

CVS - C switch size, V – vertical, S – shallow depth. Rail branding will be 113A or CEN56 on the stock rail and UIC54 or CEN54 on the switch blade.

RT/NR60C – RT60 or NR60 will be stamped on the baseplates or castings. The switch size will can be only be determined by measuring the plained length of the switch blade and referring to the plained length dimensions on the NR60 diagrams in Appendix A.

This will allow the required dimensioned diagram in Appendix A to be identified.

Step 2: Check that the position and squareness of the switch toes are within limits for the switch design type. If the switches are not in the correct position, adjust the switches prior to carrying out re-gauging.

The dimensions for the position and squareness of the switch toes are specified in NR/L2/TRK/001.

Step 3: Carry out an initial check of the actual geometry of the S&C, specifically the alignment. Record all dimensions on the relevant switch re-gauging form TEF 3239.

- Check and record the field face to field face dimension 100 mm in front of the switch toes. Nominal dimensions for the different S&C designs are:

- 113A (CEN56) Full Depth Vertical S&C 1572 mm
- 109/110A/113A (CEN56) Inclined 1575 mm
- 113A/UIC54 Shallow Depth Vertical S&C 1572 mm
- NR/RT60 1579 mm.

- Check and record the same dimension at each subsequent bearer up to the last heel block or distance block, depending upon the S&C design.
- Check and record the field face to field face dimensions at each stretcher bar position.
- Check and record the “off-set dimensions” at the centre of each heel define, distance and, where present, stress transfer block.
- With the switches in the normal position, check and record the Free Wheel Clearance (FWC) gap between the back of the open switch blade and the field face of the associated stock rail and the switch opening dimension at each stretcher bar position.

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- f) On the closed switch, check and record the Residual Switch Opening (RSO) at each stretcher bar position.
- g) Compare the recorded dimensions with the design dimensions on the relevant switch design diagram in Appendix A. This will confirm the extent of gauge variation and the adjustment required during the re-gauging of the switch panel.

Step 4: Identify the through route stock rail to use as the datum for re-gauging the S&C unit.

This can be done by checking which stock rail has the “set” in it. The set can be identified (see Figure 1) as a slight “kink or bend” in the stock rail close to the switch toe where the rail geometry has been adjusted to take into account the required stock rail radius. The through route stock rail is the opposite stock to the one with the set in it.



Figure 1 – ‘Set’ of the stock rail

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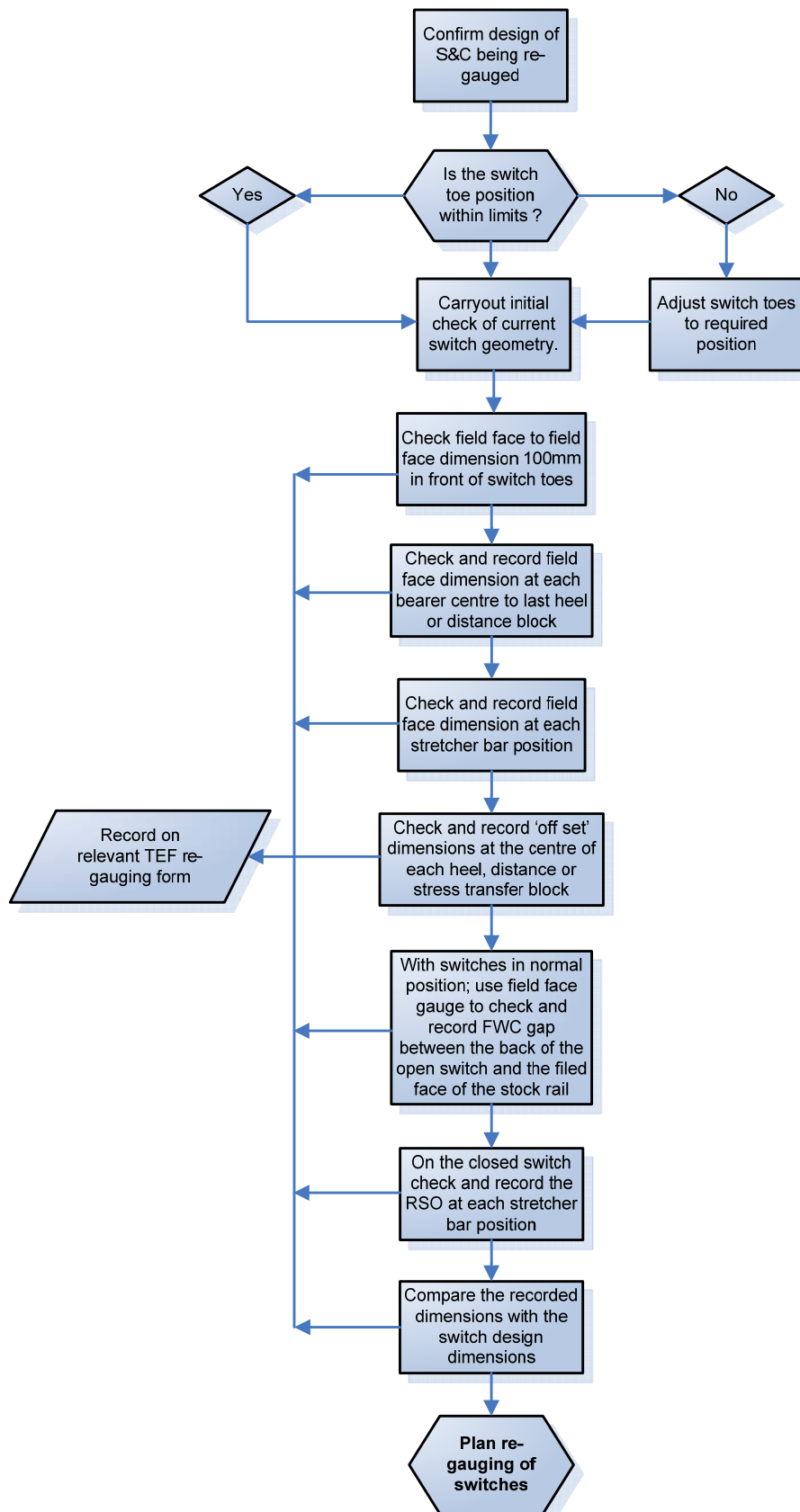


Figure 2 – Checking the gauge of the switches