

S&C – Detailed inspection of Switches

- Scope**
- Includes: Switches identified as requiring inspection in accordance with NR/L2/TRK/053
- Excludes: Catch points, unless used in a facing direction, half-sets of trap points which are in the open position for ordinary running, switch diamonds, visual inspection of switches during supervisors visual track inspections.

Preparation

Tools, equipment and plant items required but not limited to:

- Wire brush
- Gauge 1
- Gauge 2
- NR4 stepped side wear gauge
- Metric stepped gauge
- Switch blade radius gauge
- S&C Maintenance gauge
- Combination track gauge with Wheel profile gauge (WPG)
- Scraper
- Tape measure or ruler
- Rail marking paint
- Protractor gauge (Welders gauge)
- TEF/3029 Detailed Switch Inspection Report
- Copy of minimum actions from NR/L2/TRK/053 and NR/SP/TRK/001

Work planning considerations:

- There are five potential hazards associated with switches as detailed in NR/L2/TRK/053.

Method

THERE ARE FIVE POTENTIAL HAZARDS ASSOCIATED WITH SWITCHES, THE TABLE BELOW DETAILS THEM AND THE TELL TALE SIGNS

Hazard	Details	Tell Tale Signs
No1	Sideworn stock rail associated with a little used switch blade	• The switch tip projects above the top of the sidewear scar • The switch tip has been struck by wheels • The switch tip has been deformed by wheels into the sideworn stock rail
No2	Stock rail and switch blade both sideworn	• The switch blade may be worn and display a flatter sidewear angle than the stock rail • The wheels have formed a ramp on the switch blade • Markings have been left by the wheel flange as it has begun to climb the switch blade and then slip back (look for grease shavings)

S&C – Detailed inspection of Switches

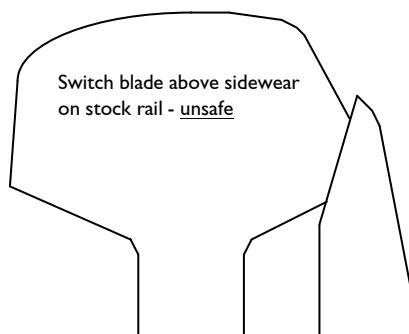
No3	Stock rail headwear associated with a less headword switch	The switch tip has been struck by wheels
No4	Switch blade damage	- Lipping is present on the gauge face of the stock rail and or the back edge of the switch blade - There is evidence of: ❖ Horizontal longitudinal cracking under the lipping on the switch blade ❖ Small pieces of metal starting to lift out of the switch blade ❖ Numerous pies of metal having broken out of the switch blade ❖ Hogged switch blade associated with lipped components
No5	Switch blade with a sharp gauge corner profile	- Normally associated with AMS and MHT rail steels but could occur on other rail steels - Any profile forming a noticeable sharp corner/lip - Thin slivers of steel in the proximity of the switch - Bright marking indicating wheel contact with the lip

1. If it is necessary to carryout a detailed inspection of switches, the following method shall be adopted for each ½ set.
2. Using a scraper remove any oil/grease that may have built up.
3. Check that the switch blade is in the closed position.
4. Using the metric stepped gauge check switch toe seating condition and record any clearance.
5. Using the WPG (Wheel Profile Gauge) check to visualise the behaviour of the wheel flange traversing the switch and estimate the wheel flange contact angle (from 1000mm in front of the switch toe to 2000mm into switch rail (4000mm on RT60 and longer switches).

S&C – Detailed inspection of Switches



6. Check and record the sidewear on the stock rail front using the NR4 stepped sidewear gauge for a distance of 1m from the switch toe if a reading of 12 or less is recorded then apply actions in accordance with NR/L2/TRK/053.
7. Check that the switch within the first 200mm from the toe is not level nor does it project above the top of the bottom of the sidewear scar on the stock rail.



8. Check that the switch tip has not been struck or deformed by wheels onto the stock rail.