

SOUTH CENTRAL RAILWAY

Safety.387/Fly Leaf/1/2024

Fly Leaf No. 1 / 2024

Attention..... Engineering Officials

DEFECTS NOTICED IN DIFFERENT LOCATIONS OF POINTS & CROSSINGS WHICH NEED RECTIFICATION.

SWITCH PORTION (Conventional Over Riding Switches) :

1. Condition of SRJ sleepers, Machine sleepers and approach sleepers i.e., Entry (1-AS, 2-AS, 3-A, 4-A & 60-S) and Exit (1-E, 2-E, 3-E & 4-E on both Main line and turn-out side) sleepers.
2. Welding of avoidable Joints in Points & Crossing portion.
3. The condition of stock & tongue rails should be carefully examined and badly worn and damaged stock and tongue rails should be replaced. Condition of tongue rails chipped /cracked over small lengths aggregating to 200 mm within a distance of 1000 mm from its toe. Chipped length will be the portion where tongue rail has worn out for a depth of more than 10 mm over a continuous length of 10 mm. (The tongue rail can, however, be reused after reconditioning).
4. The condition of tongue rail badly twisted or bent and does not house properly against the stock rail causing a gap of 5 mm or more at the toe, the limit described in the IRSEM.
5. Rail Gauge ties, rodding etc., hinder proper packing and hence at the time of packing points and crossing the signal staff should take out the rods and stretcher bars etc. to facilitate proper tamping.
6. Check the housing of the tongue rail and also the throw of the switch, all non-interlocked points should be operated by hand lever and other Points from the signal frame, when traffic permits doing so.
7. If the tongue rail is found to be not housing properly against the stock rail, the defect must be rectified by the Permanent Way Staff in case of non- interlocked points and jointly with signal and telecommunication staff, in case of interlocked or partially interlocked points.
8. Condition of tongue rail, should preferably bear evenly on all the slide chairs.
9. When the tongue rail is in closed position, it must bear evenly against slide blocks.
10. The Stretcher bar connected to the pull rod shall be maintained jointly by the Permanent Way Staff and the Signalling Staff. The gap between the top of the leading stretcher bar and bottom of stock rail should be between 1.5 mm to 5 mm.
11. Ensure all other stretcher bars shall be maintained by the JE / SSE / P. Way. Stretcher bars insulated for track circuit purposes shall not be interfered with unless signal staff are present.
12. Wear on switches can be reduced by lubrication of the gauge face of tongue rail.
13. Reconditioning of tongue rail shall be done on level cess / depot along with stock rail.

14. Failure in renewal of thin head bolt at sleeper No.3, otherwise breakage of head, drop in between tongue rail and stock rail and cause failure of point.
15. Missing of plate screws in switch portion due to breakage of head and obstruction of broken pieces in dowel holes.
16. Missing / Loose stud bolts, stretcher bar bolts & fastenings.
17. Correct spacing of sleepers should be ensured according to the standard lay-out drawings.
18. Gauge of track on either side of the points & crossings is maintained wider / tighter than the gauge on the points and crossings, the gauge on either side of the track should be brought to same gauge as in the points and crossings, as a good maintenance practice.
19. *Ensure for Cleaning and Lubrication of Points* - At all interlocked and partially interlocked stations, the Signal staff will be responsible for the periodical cleaning and lubrication of those slide chairs in which signaling and interlocking gears are connected (generally up to third sleeper from toe of switch) in all points interlocked with signals or provided with locks. The SSE / JE / P. Way shall be responsible for the cleaning and lubrication of slide chairs of all hand operated points on their sections and remaining slide chairs of all points interlocked with signals or provided with locks.

SWITCH PORTION (Thick Web Switches with SSD) :

1. Ensure to maintain minimum flange way clearance of not less than 57 mm at JOH between the open tongue rail and its stock rail.
2. The butting of closed tongue rail against its stock rail from ATS to JOH.
3. Whether insulation plate is provided between the two links and fixed through nuts and bolts with nylon washers to prevent track circuit failures.
4. Check the insulation for the (a) point machine is insulated from ground connection. (b) Spring setting device – Insulated from both the rails. (c) Clamp lock assembly- Check that it is insulated from both the rails. (d) Leading and following stretcher bar (If point is operated without clamp point locking arrangement). They are insulated from both the rails.
5. Ensure that insulated gauge tie plate is provided on sleeper No. 3.
6. Ensure distance between sleeper No.3 and 4 to 685 mm. (centre-line to centre-line). (As per Drawing No. RDSO/S 3454 Sleeper spacing has been modified as 685 mm instead of 745 mm vide ALT 4 dated 28.12.2001).

Retro-fitment of 1 in 12 turnouts with 10125 mm ZU-1-60/60E1A1 (Thick-Web Switch (Curved) :

The following items to be ensured for newly laid TWS and even for the ones which were laid prior to RB letter No. CT/PTX/TWS/Design dated 27.06.2023 by the concerned departments.

1. New M. S. Flat tie bar to Drg. No. RDSO/T-9650 with bend between sleeper No.03 to 04 has been developed for retro fitment for use on opposite side of point machine.

2. ERC's MK-V to Drg. No. RDSO/T-5919 added and existing ERC's MK-III to Drg. No. RDSO/T-3701 deleted in drawing from sleeper No. 01 to 27.
3. Metal liner to Drg. No. RDSO/T-3740 added and existing insulating liner to Drg. No. RDSO/T-3706 deleted in drawing from sleeper No. 03 to 27.
4. New Cast Steel Slide chair to Drg. No. RDSO/T-9636 from sleeper No. 04 to 20 has been developed for retro fitment purpose only.
5. New Cast Steel Special Bearing plate to Drg. No. RDSO/T-9637 to RDSO/T-9649 from sleeper no. 21 to 27 has been developed for retro fitment purpose only.
6. New Nylon Cord Reinforced to Drg. No. RDSO/T-9630 from sleeper No. 25 to 27 has been developed for retro fitment only.

Do's & Don'ts in switch portion of TWS with SSD :

Do's :

1. Get disconnection of point, before carrying out any work.
2. Always ensure schedule maintenance.
3. Test the working of friction clutch.
4. Do ensure that track locking, route locking, crank handle release locking are effective.
5. Do test the correspondence of the points with indication at panel or cabin.
6. Always use proper lubricant. Wipe away excessive oil or grease.
7. Always use proper rating of fuse.
8. ***Metal liner in switch portion to be ensured scrupulously as per the Drg. No. RDSO/T-3740 from sleeper No. 03 to 27.***

Don'ts :

1. Do not operate the point manually except through specific crank handle.
2. Forget to exercise safety checks initially, during and after disconnection.
3. Forget to carry necessary tools while attending the failure.
4. Leave any discrepancies noticed in the point machine.
5. Use too much lubricant.
6. Allow un-squared notches on slides.

Leading portion :

1. Correct spacing of sleepers should be ensured according to the standard lay-out drawings.
2. Missing GFN liners, GR rubber pads, seized / missing ERCs should be recouped.
3. Provision of 'J' type ERCs at prescribed locations i.e., GJ / Block Joint locations.
4. Failure of Greasing of Gauge Face side Turn-in, Turn-out curves.

Crossing Portion :

1. Provision of standard crossing bolts with proper tapered washers (one meter fish plate with 6 bolts)
2. Dropping of ERCs in crossing portion.
3. Provision of 'J' type ERCs at prescribed locations Fish plate Joint locations i.e., at toe / Heel of crossing joints.
4. Wide gaps in toe / Heel of crossing joints instead of Gapless (Machine Joints).
5. Common defects
 - a. Condition of Rubber Pads
 - b. Depth of ballast.
 - c. Drainage of Point & Crossings
 - d. Deep screening due or not.

Inherent defects while laying Points & Crossings :

1. Laying of Points & Crossings without ensuring it overall lengths of cross over resulting permanent kinks in cross over portion.
2. Laying of Non-standard 1 in 8 ½ Turn-outs in passenger running lines.
3. Laying of similar flexure on curves sharper than one degree.
4. No change of cant super elevation between Points 20 m on BG outside the toe of switch and nose of the crossing.
5. There should be no Junction fish plate at the stock rail joint heel of crossing. At least 1 rail length on all the three side of points & crossing should have the same rail section as of Points & crossing assembly.

Precautions to be taken while tamping of Turnouts in track circuited portion with Machines :

1. Ensure that sufficient length (at least 50 m) of approach track, taking into account the special track features, in either side are also tamped in continuation.
2. It should be ensured that S&T and OHE/TrD (in electrified sections) are associated during the work. S&T connections and stretchers bars shall be renewed.
3. Pre and Post tamping operations should be carried out as per stipulated instructions i.e., Para 224 of IRTMM.
4. While attending deep screening work with BCM in Turn-outs, Instructions given in the para 306 of IRTMM to be followed.
5. In electrified sections, the earth / structure / cross bonds should either be removed temporarily or properly adjusted for unobstructed tamping.
6. S&T connections and stretcher bars shall be removed by S&T department.

PRINCIPAL CHIEF SAFETY OFFICER

SAFETY ORGANISATION

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