

JPO FOR LAYING AND TESTING FOR THICK WEB SWITCHES AND POINT MACHINE.

1. Activities to be done before laying of TWS points:

- a. Traffic block for a duration of minimum 02:30 hours should be planned for replacing an IRS point with a TWS point. (Engineering 1hr 15 min, S & T 1 hr 15 min, First 15 min for S&T for disconnection/ disassembling point connections followed by 75 min for Engg to place the switches in their final position followed by 60 min for S&T to make connections and testing.)
- b. Switches can be assembled Complete on new sleepers (if T28 is being used) or on a bare minimum no. of sleepers (usually 5 to 9) on a temporary stage on cess alongside the point to be converted or renewed for fixing the ground connections & point machine with all setting/ testing with required fittings carried out as a pre block activity by S&T & Engg. Primary adjustment of SSD can be done on temporary stage itself with crank handle.
- c. Ensure that the position of Toe of switch is 32mm towards sleeper no.4 from the centre line of sleeper No. 3.
- d. For:-
 - i. 1/12 turnout both switch rails should be placed at distance 1144mm from SRJ.
 - ii. 1-8-1/2 turnout both switch rails should be placed at distance 1500mm from SRJ.
- e. If the point conversion is from ordinary overriding curved switches to TWS then:- It is to be ensured that the gap between 3rd and 4th sleeper (centre to centre) on which Point machine is installed should be increased by 50 mm i.e. from existing 695 mm to 745mm. For achieving this:-
 - i. sleeper no. 4 should be shifted by 45 mm towards sleeper no. 5 &
 - ii. sleeper no. 3 should be shifted towards sleeper no. 2 by 5mm.
- f. Distance between nearest stock rail to point machine from outermost surface of stock rail to inner most surface of point machine should be 866mm.
- g. Holes to be done by S&T department:
 - i. Stock rail lock clamp bracket 1st hole should be on 450mm from toe of switch rail at 76mm. height from bottom of the stock rail.
 - ii. Stock rail lock clamp bracket 2nd hole should be on 530mm from toe of switch rail.
 - iii. Switch rail lock clamp bracket 1st hole should be on 428mm from toe of switch rail at 55mm height from bottom of the switch rail.
 - iv. Switch rail lock clamp bracket 2nd hole should be on 498mm from toe of switch rail.
- h. After fixing, adjustment and testing of point during staging, inner-side nuts of the lock slide and detection slide should not be disturbed during dismantling the ground connection for laying the turnout, for easier & quick adjustment during the block. Similar precaution shall be taken for packing for both side clamp lock brackets.
- i. For better housing, it should be ensured that the insulated arm of SSD and insulation side gauge tie plate are on curved tongue rail side.
- j. Speed restriction of 30 kmph should be imposed for pre-block activities of TWS replacement till welding of all joints on main line.
- k. TWS switches (tongue and stock) should be dimensionally cross-checked with drawing before taking up the installation work.

2. Laying of thick web points:

- a. Lock assembly bar from clamp should be removed and then this clamp should be fixed on one side of stock rail and tightened with nut bolts.
- b. Then, the switch rail lock assembly clamp should be fixed on same side switch rail and its nut bolt tightened.
- c. After this fish tail bar setting should be done in lock assembly bracket which was fixed and tightened in above steps. At this point, one of the normal or reverse setting is complete.
- d. Now same procedure should be adopted for the other side of the point i.e. normal or reverse (if initially normal side switch/stock rail is set, then this time reverse side switch rail/stock rail should be set and vice versa).
- e. When lock assembly bracket is intact in switch rail and stock rail of both sides, then connect both side P-brackets with insulation and insert proper rodding connection.
- f. Point machines operating bar should be connected with point main lock assembly bar by nut bolt of size of 50mm through which opening of point is adjusted.
- g. All the nut-bolts of the point fitting should be properly tightened.
- h. Gauge should be maintained to 1676 +/- 6 mm. However during laying of new points initial setting must be ensured within 1676 + 5mm /- 3 mm. If gauge is more, thick liners may be used to adjust gauge.

- i. The packing of the point sleepers should be in good condition so that during the operation, the housing of the switch rail is proper and the collar of switch rail slides in the stock rail profile properly else, the point will not get locked (collar obstruction). The opening of point switch rail should be in range between 160mm to 163mm.
- j. Oiling and greasing should be done properly.
- k. SSD should be installed in TWS point by keeping all 4 hinges of SSD in a straight line and then tightening the bolts of base plate.
- l. In case of cross-over, speed restriction of 30 kmph should be imposed during the block on adjacent line and clamping of point on that line should be ensured by Operating department.
- m. Following must be ensured on all TWS:-
 - i. On all new installations MS flat tie bar with downward bend as per RDSO DwgNo. T 9010 is provided over sleeper Nos. 2AS, 1AS, 1, 2, 3 & 4 on non-point machine end.
 - ii. On all existing installations MS flat tie bar with upward bend as per RDSO Dwg No. T 9010 is provided over sleeper Nos. 2AS, 1AS, 1, 2, 3 & 4 on non-point machine end.
 - iii. On older installations MS flat tie bar as per RDSO Dwg No. T 9010/1 is provided over Sleeper Nos. 2AS, 1AS, 1, 2 & 3 plus an additional MS Flat tie is provided over sleeper Nos. 4 & 5 on non- point machine end.
 - iv. On point machine end MS Flat tie bar as per RDSO Dwg No. T 9010/1 is providedover sleeper Nos. 2AS, 1AS, 1, 2 & 3.
 - v. All GFN liners from sleeper Nos. 3 to 27 are replaced with Metal Liner RDSO T3740.
 - vi. All ERC Mark III is replaced with ERC Mark V from sleeper no. 1 to 27.

3. SSD Installation:

- a. The SSD should be installed on 13th no sleeper when point is 1/12 and on 8th no sleeper when point is 1/8½.
- b. SSD fixing spike crew should be kept fully tight at both ends to arrest any movement of SSD sleeper.
- c. SSD arm length and crank arm stop bolts should be adjusted such that gap at junction of rail head (JOH) remain 57 to 62mm for open switch and full set at JOH for close switch.

4. Testing of Point:

- a. Initially point should be tested manually by crank handle as soon as point machine and ground connection fixing work is complete.
- b. Point should be tested electrically and correspondence test should be performed on both end of point. Obstruction test should be performed in both normal and reverse side. Pressure of the contact assembly should be properly checked.
- c. All insulation in the point assembly should be checked properly so that DC track circuit failure can be avoided.
- d. It is responsibility of S&T and Operating departments to ensure proper correspondence testing of the point. Suitable communication media should be used between site and VDU/Panel to ensure testing is completed properly. Concerned SSE/JE(Signal), SSE/JE(P-Way) and TI are jointly responsible for above.
- e. Re-connection of point should only be given after all 3 have certified jointly that all works are complete and point correspondence test has been completed satisfactorily.
- f. It is also required that correspondence testing is verified by divisional Signal Control through data logger check and concerned SSE/JE Signal will record in reconnection memo that Signal Control has verified the same.
- g. Divisional Signal Controller should keep a record of this in his log book explicitly highlighting such check and attaching copy of data logger print out.

NOTE- In case when extra sleepers for temporary staging is not available, entire assembly has to be done during one block. For such extreme situation, 45 min extra time will be required and with the personal permission of DRM, total block time permitted may be 3.15 hrs.

**MUKESH
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