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पश्चिम मध्य रेल
West Central Railway

महाप्रबंधक कार्यालय
इंजीनियरिंग विभाग, जबलपुर

General Manager's Office
Engineering Deptt., Jabalpur

No.: W-HQ/W-4/Track/Safety/45-XIII/1 **Date:** 17.09.2025

Sr. DEN / Co.
West Central Railway
JBP / BPL / KOTA

Sub.: Joint Procedure Order (JPO) for Deep Screening of Point & Crossing by BCM.

Ref.: Railway Board's letter No. 2024/Track-III/TK/17, dated 20.11.2024.

* * * * *

A Joint Procedure Order (JPO) for Deep Screening of Point & Crossing by BCM duly signed by CTE, CSE, CEDE and CPTM is hereby circulated for its implementation in field with immediate effect.

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(Anoop Kumar)
Chief Track Engineer

Copy to:

(i) Secy. to GM - for kind information of GM/WCR, please.
(ii) PCE, PCEE, PCSTE and PCOM - for kind information, please.
(iii) DRM / JBP, BPL & KOTA - for kind information, please.
(iv) All HODs of Engineering Department - for information, please.

JOINT PROCEDURE ORDER FOR DEEP SCREENING OF POINT & CROSSING BY BCM

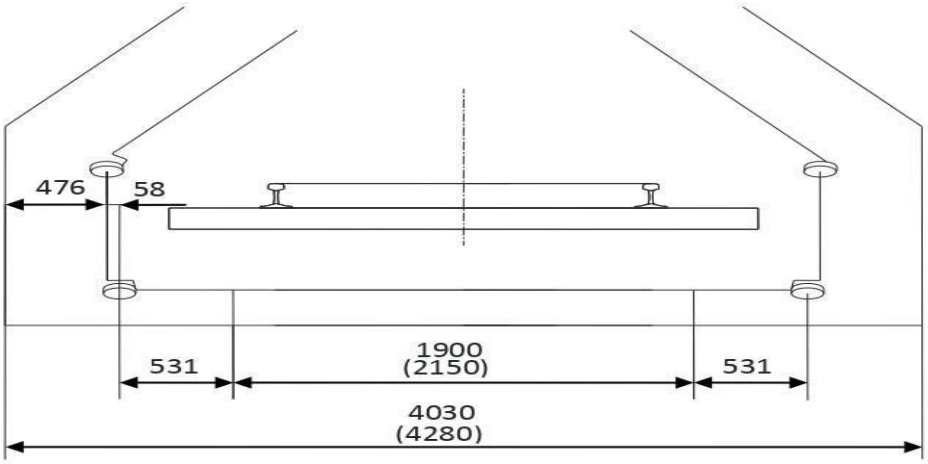
1.0 INTRODUCTION:

1.1 Point & Crossing is an important portion of track which requires systematic maintenance for safe running of trains. Over a period of time, due to traffic, the ballast cushion in these points and crossings become caked up warranting deep screening to restore the elasticity & drainage of the track and to avoid detention of trains due to failure of engineering/S&T gears. Deep screening of turnout by BCM is a multi-departmental task (Engineering, S&T, TRD and Operating) to be executed safely with detailed joint planning.

1.2 On IR, 1 in 8½, 1 in 12 & 1 in 16 Turnouts are used, with 1 in 12 type of turnouts being predominant on main line.

1.3 BCM machine has following width of cutter bar and cutting width:

Type of BCM	Width of cutter bar	Total cutting width available with elbow pieces (without extension pieces)	Extension
Old Type BCM Machines	1900 mm	4030 mm	Extension by maximum 7 pieces are possible, with each extension of 500mm, on Right Hand Side only (***with respect of working direction of BCM***)
New Type BCM Machines	2150 mm	4280 mm	



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1.4 Turnout sleepers have varying dimensions with summary as under:

Turnout type	Type and No. of sleepers	Length of important sleepers
1 in 12	Approach sleepers: 5 Nos. Turnout sleepers: 1-83 Exit sleepers: 4+4	Sleeper no. 3 & 4 = 3750 mm Other sleepers no. 1-16, except 3 & 4 = 2750 mm Sleeper no. 54 = 3710 mm Sleeper no. 55 = 3750 mm Sleeper no. 83 = 4900 mm Exit sleepers = 2550 mm
1 in 8½	Approach sleepers: 5 Nos. Turnout sleepers: 1-54 Exit sleepers: 4+4	Sleeper no. 3 & 4 = 3750 mm Other sleepers no. 1-10, except 3 & 4 = 2750 mm Sleeper no. 35 = 3720 mm Sleeper no. 36 = 3780 mm Sleeper no. 54 = 4900 mm Exit sleepers = 2550 mm
1 in 16	Approach sleepers: 5 Nos. Turnout sleepers: 1-101 Exit sleepers: 4+4	Sleeper no. 2 & 3 = 3750 mm Other sleepers no. 1-17, except 2 & 3 = 2750 mm Sleeper no. 64 = 3745 mm Sleeper no. 65 = 3780 mm Sleeper no. 101 = 5100 mm Exit sleepers = 2550 mm

1.5 Length of turnout sleepers increases gradually on turnout side. Extension pieces are attached to tackle the increased length of turnout sleepers. Drawings are placed as **Annexure-A** and summary is as under:

T/o type	Extension pieces	Turnout sleepers that can be tackled
1 in 12	2 Nos	Approach + sleeper no. 1 to 54
	2+3 Nos (Total 5 Nos.)	From sleeper no. 55 to 83 3 Exit sleepers on line on which m/c is moving 2 Exit sleepers on other line (on which m/c is not moving)
1 in 8½	2 Nos	Approach + sleeper no. 1 to 35
	2+3 Nos (Total 5 Nos.)	From sleeper no. 36 to 54 3 Exit sleepers on line on which m/c is moving 2 Exit sleepers on other line (on which m/c is not moving)
1 in 16	2 Nos	Approach + sleeper no. 1 to 64
	2+3 Nos (Total 5 Nos.)	From sleeper no. 65 to 101 3 Exit sleepers on line on which m/c is moving 2 Exit sleepers on other line (on which m/c is not moving)

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1.6 Working direction of BCM machine is fixed. It can be changed on turn-table or triangle, but it is not practically possible to change the working direction frequently. Moreover, extension pieces can be extended only on right hand side of working direction of BCM. Hence, working direction of BCM is not changed in a yard and based upon the available working direction of BCM, direction of working (SRJ to Xing or Xing to SRJ) is fixed and working line (mainline or turnout) is selected. Thus, by proper selection of working line, the above limitation can be overcome and BCM can be utilized for deep screening of both (M/L and T/O line) lines.

1.7 **Special note regarding deep screening of specific sleepers**

It is very vital that some sleepers at special locations cannot be deep screened by BCM. For homogeneous ballast bed and uniform running, such sleepers should not be left without deep screening. Such sleepers are to be invariably deep screened by special means as under:

1.7.1 **Point motor sleepers**

(a) Sleeper Nos. 3 & 4 for 1 in 8½ & 1 in 12 T/Os and sleeper nos. 2 & 3 for 1 in 16 T/O are of longer length for fixing S&T motor. Extra length of these sleepers is extended on LH or RH side of turnout and may/may not be laid in favorable direction. If extension of point motor sleepers is on RH side w.r.t. working direction of BCM, then these sleepers are in favorable direction and it is possible to deep screen them by BCM without any need of removing the point motor sleepers (however, point motor disconnection will be required).

(b) If extension of point motor sleepers is on Left Hand side of working direction of BCM, then these sleepers are in unfavorable direction and it is not possible to deep screen them by BCM. In such case, if feasible, direction is to be corrected in a prior advance joint block with S&T, so that for future deep screening such problem does not arise. If correction of direction is not feasible due to site/space constraint, these sleepers are to be removed during same traffic block of BCM and reinserted after BCM working. If done in same block, it will require additional time. Typical situations are explained in **Annexure-B**.

1.7.2 **Exit Sleepers/Sleepers behind exit sleepers:** Due to obstruction by infringing sleepers of other line (turnout side/main line as the case may be), deep screening with- 5 extension pieces can be done maximum upto exit sleepers for 1 in12 & 1 in 8½ T/o and upto sleeper no. 101 for 1 in 16 T/O. As per site conditions, few infringing exit and normal sleepers may be required to be temporarily shifted to carry out the deep screening of entire turnout. Behind turnout (Back of Xing side), due to sleepers obstructing the trough of BCM, deep screening of one rail length is not possible with 5 extension pieces. Main line sleepers behind Back of Xing can be deep screened by either:

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(a) Attaching 2 more extension pieces (total 7 extension pieces). However, Traffic block and BCM are costly resources and working with 7 extension pieces, that too for only few sleepers, may not be a universally efficient solution.

OR

(b) By temporarily removing/lateral shifting of around 20 infringing sleepers of T/O side during BCM block (Refer **Annexure-A** with regard to lateral shifting of infringing sleepers) & carryout deep screening of main line by normal cutter width (without any extension pieces). After deep screening of Main line by BCM, the sleepers on T/O side may be restored.

OR

(c) Manually deep screening of infringing sleepers. Judgment is to made by field officers with regard to most effective option as per site conditions, availability of traffic blocks, progress etc. Deep screening of Turnout side sleepers may be done manually.

1.7.3 **Crossover:** In case of cross-overs, due to infringing sleepers of X-over portion & main lines, there is not sufficient space (depending upon track centre) to accommodate the trough of BCM and due to this space constraint, all the sleepers (turnouts as well as cross over portion) cannot be deep screened by BCM. Few more main line sleepers can be deep screened by BCM by adopting methodology mentioned in Para 1.7.2(b), provided simultaneous block for other main line is also available. Even after this, few turnout and crossover sleepers will be left out (depending upon track centre) and such sleepers are to be deep screened manually for homogeneous bed and uniform riding quality. **Annexure-C** may be referred in this regard.

Note (For item no. 1.7.2 and 1.7.3)-

a) Sr. DEN of the section should decide, point-wise, which method is to be used for deep-screening. Sr. DEN should also ensure availability of required manpower (min. 35-40 workmen) at site for manual deep-screening of infringing sleepers. Proper initial manual packing and thereafter machine packing of the same shall be ensured by site supervisor before clearing the block.

b) Invariably, the competent supervisor should be available at site to ensure proper packing after manual deep-screening before clearance of block. He needs to ensure minimum required labour before taking block.

1.8 Based upon traffic block available, the turnout can be deep screened in one block or two separate blocks. When two separate blocks are obtained, care should be taken to deep screen the complete switch portion in one block (either first or second block, depending upon working of machine from SRJ to Xing or Xing to SRJ) only.

1.9 The depth of cutting by BCM is around 300mm. If overall cushion (clean + caked up) is less than 300mm, then BCM will cut the existing formation and to avoid such condition, suitable lifting of turnout is required to be done by UNIMAT in advance.

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1.10 Engineering Department will give monthly calendar of proposed activity sufficiently in advance to all the concerned departments.

2.0 PRE-BLOCK ACTIVITIES:

2.1 **Joint inspection, assessment of work and finalization of scheme of work:** Detailed Joint survey of all the points and crossings of the station/yard and preparation of joint assessment report at least 7 days in advance by the inspectors in-charge of Engineering (P.Way), S&T, TRD, Electric(G) & TI/ASM/SS to assess:

(i) The activities involved including any additional/typical site-specific activities. In case, any special assistance from higher authorities is required, same may be identified.

(ii) Engineering Department will conduct cushion survey and implantation measurement of existing OHE masts/portals in the affected length. Existing rail level and rail level after completion of work with final tamping and relaxation of speed to full sectional speed will be worked out by engineering department to assess the requirement of lifting, lowering and slewing of track and conveyed to TRD Department for assessing the need of OHE adjustment and deployment of tower wagon to adjust OHE i.e. implantation and OHE height measurement under wheel movement of Stock/TW, at appropriate stage, if any. It may be noted that work of deep screening of turnout and first tamping will be done on day 1 (if complete turnout is deep screening in one long traffic block) or on day 1 and day 2 (if turnout is deep screened in two traffic blocks of shorter duration) and thereafter with picking of slacks and additional machine tamping, speed will be gradually raised from 20kmph -> 45kmph -> 75kmph -> Full sectional speed in about 10 days period (details in para 4.1) and accordingly deployment of tower wagon whenever required, will be planned by TRD Department along with engineering block, before raising the speed to 75kmph/full sectional speed. It may be noted that lifting of rod operated point is very difficult and cumbersome activity and hence to be avoided. Any lateral shifting/slewing of the track, if done, should be corrected by suitable means.

(iii) Selection of working line (main line/loop line) is to be decided based upon working direction of BCM and turnout layout (RH/LH).

(iv) Point sleepers may be inspected and if are in unfavorable direction, scheme to correct the sleepers and point motor on favorable side may be worked out.

(v) To assess any infringement to BCM working due to S&T location box, Axle counters and other S&T installations/gears, signal mast, OHE mast, foundation etc.

(vi) To the extent possible, hidden obstacles like rail pieces, sleeper pieces, old S&T foundations, old drain, S&T cables (live/dead), electrical general cables (live/dead) etc. may be identified. Cable locator may be utilized for locating the cables. Upcoming GPR based technologies may be developed to identify the other hidden obstructions like rails, sleepers, foundations etc.

(vii) Assess the resource planning of manpower, machine, T&P.

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(viii) Assess the requirement of artisan staff during block including engineering & S&T blacksmith.

(ix) It may be ascertained whether BCM working, muck disposal etc. will infringe the adjacent line or not. If yes, traffic block of adjacent line will also be required. Corridor for simultaneous block in opposite direction does not exist. Block on adjacent line will be provided as per the traffic flow on the day, as decided by the Sr DOM, which shall be intimated one day in advance. For working near Crossing portion of turnout, block on adjacent line is necessary and shall be provided according to the flow of traffic.

(x) If tractor trolleys are required for simultaneous disposal of muck, same may be ascertained during joint inspection.

(xi) It may be decided whether work will be done in one block or two blocks. Detailed requirement of traffic block may be assessed. Typical requirement of traffic block is given in **Annex-D/1-2**. However, actual requirement of traffic block may vary depending upon site specific complexities. Traffic block duration, tentative block timings, regulation of trains including single line working etc. may be decided based upon joint inspection. Assessment is to be made whether due to S&T disconnection of turnout/X-over, signaled movement on adjoining lines will be affected and movement of trains on paper authority will be required.

(xii) Power and Traffic Block must include Tower Wagon checking by TRD Department enabling final fitment of OHE parameters, after BCM working at crossovers/turnouts. The additional block period shall be assessed as per requirement and informed to Engineering Department by TRD to add in total block period.

(xiii) Nominate competent official not below the rank of supervisors from Engineering, S&T, TRD, Electrical (G) and operating department.

2.2 **Pre-Block activities by Engineering Department**

(i) Wherever required, lifting is to be carried out by UNIMAT in advance by obtaining separate traffic block, so as to achieve minimum cushion (clean + caked up) of 300mm.

(ii) If changing direction of point motor is required as per item No. 19.3.1(a) of IRSEM and feasible, same may be preferably carried out in a joint operation with S&T department in a separate and advance block. While S&T department will provide competent supervisory staff, required Gr 'D' staff by S&T department are to be provided by Engineering Department.

(iii) Identified hidden obstructions like rail, sleepers, drains, CC foundations etc. are to be removed in advance.

(iv) Polarity bonds, L-bonds, structure bonds, cross bonds required to be disconnected and reconnected during BCM/UNIMAT block are to be identified in advance. Alteration to electrical track bonding, if required, is to be done by Engineering department in terms of para 664(2)(b) of IRPWM- 2024.

(v) Before disconnecting structure bonds, necessary temporary

connection by rail jumpers/8 SWG GI wire is to be made from the nearest track/mast/earth pit. When the OHE is alive, no structure bond should be disconnected without arranging temporary earthing. The work of disconnecting/reconnecting structure bond is to be done under supervision of Electrical supervisor/staff.

(vi) Rail jumpers/wires required for arranging temporary connection as well as wires/bonds/insulation sleeves to be used for post BCM/UNIMAT work are to be arranged well in advance.

(vii) Engineering department shall provide required funds to S&T department for procurement of cable route cum depth locator (Two per Division) to measure the cable depth without digging. This will reduce requirement of labour in future.

(viii) Arrange, required quantity of ballast nearby turnout to facilitate quick ballasting and tamping of switch portion, lead portion & crossing portion.

(ix) Arrange adequate labour with crowbar, beaters, Jim crow, wooden blocks, hydraulic/mechanical jack to lift the point zone in case of sinking requiring major correction of X-levels.

(x) Arrange C.C breaker, Gas cutter, ropes etc. to break and remove any obstruction like old concrete pedestal/rail peg/sleepers found during the block.

(xi) Arrange JCB/Tractor trolleys if required.

(xii) Temporary Speed Restriction (TSR) of 30 kmph to be imposed at least one day in advance for preliminary works. The trenches for insertion of cutter bar and chain are required to be dig in advance after imposition of TSR. The size of the pit should be 1 m wide (along direction of turnout) for which necessary readjustment of sleeper spacing/removal of sleeper and placement of wooden blocks may be done before block, preferably on same day of traffic block. Length of pit will be based on number of extension piece proposed to be used for that particular section of turnout. The depth of the pit should be up to formation level. Location and number of pits will depend upon number and location of extension pieces and scheme of work (single block/two blocks).

Manually deep screen those turnouts' exit and normal sleepers behind Back of Crossing & Cross over portions, which cannot be deep screened by BCM.

2.3 **Pre-Block activities by S&T department**

(i) If changing direction of point motor is required as per item No. 19.3.1(a) of IRSEM and feasible, same may be preferably carried out in a joint operation with S&T department in a separate and advance block. While S&T department will provide competent supervisory staff, required Gr 'D' staff by S&T department are to be provided by Engineering Department.

(ii) Identified, hidden S&T cables are to be removed in advance. Cables having less than 1.0 meters depth from the rail level and coming in

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cutting width of BCM are to be identified and relocated/or fresh cable should be laid appropriately in advance block.

(iii) To carry out S&T preliminary works, supervisory staff and S&T Blacksmith will be provided by S&T and Engineering department shall provide required trackmen/contractor labour to assist S&T supervisors sufficiently in advance of the traffic block. This staff will be continued under S&T supervisor until completion of the line block.

(iv) Any infringing location box, axle counters and other S&T installations/gears, signal mast etc. if essentially required to be relocated, it shall be done in advance. Engineering department will provide necessary trackmen/contractual labour for this activity. If any major new S&T installation is required, engineering department will also provide required funds for arranging such new major S&T installations.

(v) If any cable shifting is required during the work, same shall be done by S&T Department.

(vi) S&T staff should fully equip themselves to attend the block with adequate tools, drilling machines, cable bits, wired TLJBs, cable termination boxes etc. Required S&T Supervisors i.e. SSE/JE/ESM/MSM and S&T Blacksmith are to be arranged by S&T department in time.

2.4 **Pre-Block activities by TRD/Electric(G) Department**

(i) Electrical (TRD) supervisor will be deputed for guiding the engineering department for disconnection and reconnection of electrical bonds.

(ii) In case, any electric cable is infringing, same may be relocated by Electrical(G) department in advance.

(iii) Based upon the lifting/lowering/slewing of track advised by engineering department, need of OHE adjustment and deployment of tower wagon, if any, will be assessed by TRD Department. It may be noted that in most of the cases, the raising/lowering/lifting of track will be minor and hence tower wagon will be required only in few cases.

3.0 ACTIVITIES DURING BLOCK PERIOD

3.1 Prior to traffic block, Machine should be brought in position (main line/loop line) at nearest possible location of work place (point to be deep screened).

3.2 Obtain the necessary traffic block of concerned lines. As per Operating Deptt., the maintenance corridor of 3 hrs is generally available in most of the section of WCR. If adjacent line is infringing, then traffic block of adjacent line is to be obtained. If power block is also required, same may also be obtained. Corridor for simultaneous block in opposite direction does not exist. Block on adjacent line will be provided as per the traffic flow on the day, as decided by the Sr DOM, which shall be intimated one day in advance. For working near Crossing portion of turnout, block on adjacent line is necessary and shall be provided according to the flow of traffic.

3.3 Block requirement should be jointly signed by Engineering, S&T and TRD supervisors and block cancellation should be jointly given by all the three departments.

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3.4 Prompt acceptance of block / power block, disconnection memo and speedy communication regarding grant of block is required in writing from ASM/SM to PWI, SI, Machine staff, TRD staff. SM/ASM should issue necessary documents as early as possible for proper utilization of traffic block.

3.5 Work in electrified area is to be carried out as per para 663-666 of IRPWM-2024.

3.6 The deep screening of turnout will be from 1.5 rail length before SRJ to 1.5 rail length beyond Back of Crossing (BOC). This will include around 18 normal sleeper 5 approach sleepers before SRJ, all sleepers of Turnout (1 to 83 for 1 in 12 & 1 to 54 for 1 in 8½) & 4 exit sleepers + normal sleepers. Sleepers not possible to be deep screened by BCM are to be attended as described in Para 1.7.2 (a) to (c) and 1.7.3.

3.7 Disconnection of a X-over point will make the entire X-over dysfunctional and concerned SM/ASM shall arrange for clamping the points, issue of appropriate paper authority for train operation & piloting of trains as required from time to time. SM/ASM will place necessary collars to mark the affected points and crossings and affected lines.

3.8 Whenever required, Engineering department shall arrange trained/ authorized trackmen/contractor staff for disconnection/refixing of traction bonds (Structure bonds, Polarity Bonds, L-bonds and cross bonds) and insulation sleeves. Such staff will work under direction and supervision of Electrical (TRD) supervisor/staff. For smooth working during traffic block, preferably this activity is to be done prior to block along with necessary temporary connections.

3.9 S&T shall arrange for disconnection and removal of S&T gears such as axle counter, track circuit including TLJB boxes, rodding, S&T cables etc. immediately on start of block duly informing traffic staff under acknowledgment.

3.10 Cutter bar, including necessary extension pieces may be inserted at proper place in pre-dug trench prior to traffic block.

3.11 Deep screening of turnout to be started and carried out with BCM as per agreed scheme. During block, addition/removal of extension piece may be carried out as per pre-planned scheme.

3.12 Any hidden obstructions, if found during deep screening work is to be immediately removed by the engineering staff using gas cutter/CC breaker/any other tool.

3.13 If due to any unforeseen reason, block is not likely to be cleared within allotted time period, immediate intimation along with likely time of clearance to be jointly advised to SM/ASM by concerned P.Way/S&T/Electrical supervisor, for information and planning of train operation.

3.14 After deep screening of point zone, Engineering Department is to ensure manual packing/UNIMAT packing.

3.15 Engineering supervisor will ensure proper setting/housing of tongue rail and working of points to the satisfaction of S&T supervisor at work site & will obtain written acknowledgment from S&T supervisor on the fit memo to be

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given to operating staff.

3.16 S&T department will re-fix their assets and connections. However, refixing of traction bond will be done by Engineering in terms of para 664 (2)(h) of IRPWM-June 2020. Confirmation of completion of bonding work is to be done jointly by S&T, TRD and Engineering staff before giving joint fit memo of points and crossings.

3.17 If the block is taken during night hours, adequate lighting is to be provided by Engineering department. The lighting arrangements should be continued till completion of engineering work and to facilitate completion of S&T/Electrical works for reconnection adjustment and restoration of normal working of points, track circuits and axle counters, refixing of electrical bonds, OHE adjustment etc.

3.18 After completion of work, joint fitness by Engg., S&T & TRD of turnout point is to be conveyed to ASM at the earliest. In exceptional cases, where due to some technical reasons, refixing of S&T installations is taking more time, to avoid detention of trains, engineering fitness may be given first and trains may be passed by clamping of point and issue of appropriate paper authority by ASM/SM. However, joint fitness of turnout is to be given at the earliest in all cases.

3.19 After the point has been tested and found working normally, the SM/ASM shall record the same in the station diary with proper date and time and accept the Block Clear memo.

4.0 ACTIVITIES DURING POST BLOCK PERIOD

4.1 Proposed schedule for speed relaxation after deep screening of points and crossing shall be as per Table-II of para 637 of IRPWM considering tamping of turnout by UNIMAT which is reproduced below:

Day of Work	Details of Work	Speed Restriction
1	Deep screening of turnout and initial manual packing, housing re-fixing of S&T and electrical installations.	20 Kmph
2	First Machine packing	20 Kmph
3rd to 5th	Picking up slacks as required	45 Kmph
6	Second machine packing	45 Kmph
7th to 8th	Picking up slacks as required and deployment of tower wagon adjustment of OHE wherever required	75 Kmph
9	Third machine packing.	75 Kmph
10		Normal sectional speed
Note: If turnout is deep screened in two blocks, then first machine packing will be done on 3rd day while all other block activities will shift by one additional day.		

4.2 In case, setting of tongue rail gets disturbed/signal flashes then SM/ASM will immediately inform both Engineering & S&T department for immediate attention. Supervisors of both Engineering and S&T Departments, who had been associated with the said BCM Block, shall depute competent staff for

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restoration work.

4.3 Depending upon the lifting/lowering/slewing of track involved, there shall be need of deployment of tower wagon, which will be assessed by TRD Department during planning stage. It may be noted that in most of the cases, the raising/lowering/lifting of track will be minor and hence tower wagon will be required only in few cases. Wherever required, the deployment of tower wagon will be preferably done on 7th day in joint traffic and power block for 3rd machine packing, to be taken by engineering department. Tower wagon will work once tamping machine is removed from turnout area and for working of tower wagon additional 30-45 minutes will normally be required.

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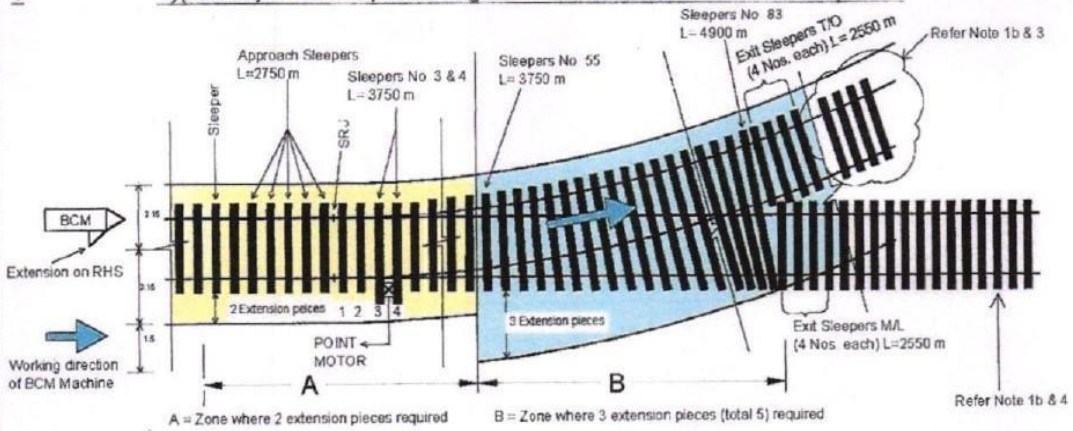
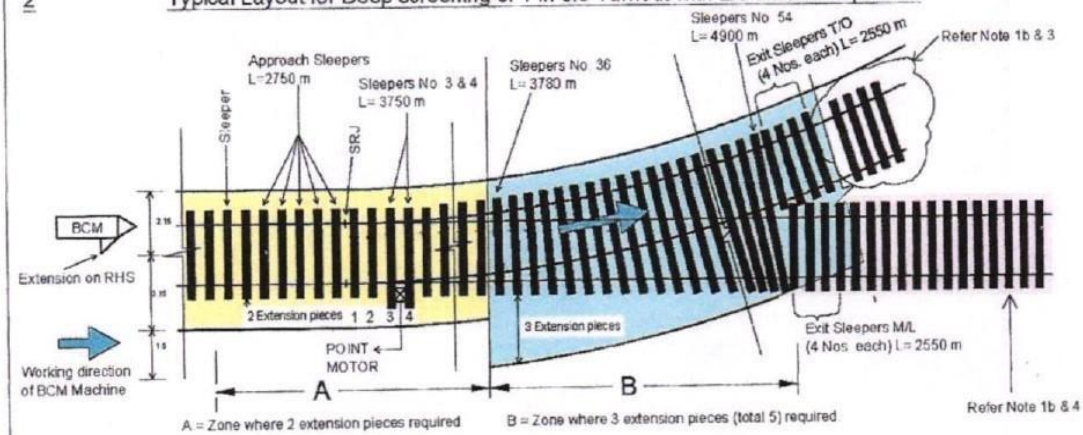
ANNEXURE-A

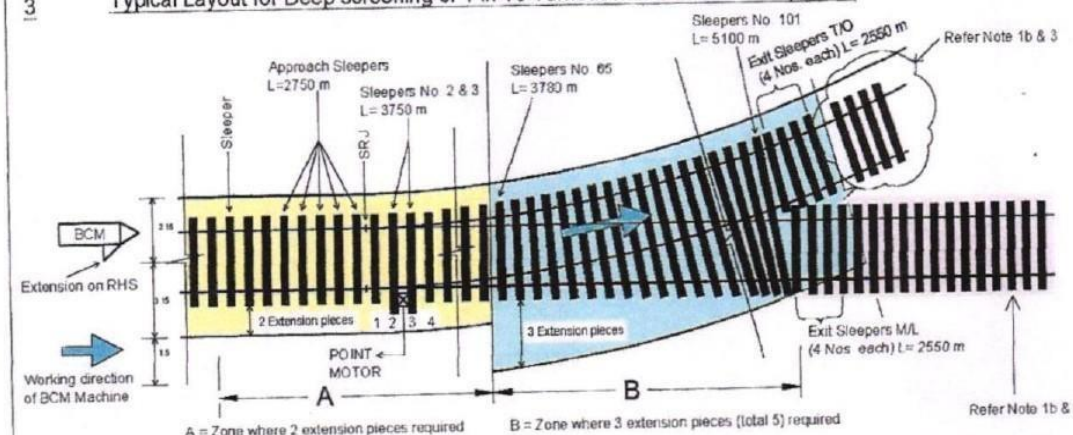
1 Typical Layout for Deep screening of 1 in 12 Turnout with 2/5 extension peices.



2 Typical Layout for Deep screening of 1 in 8.5 Turnout with 2/5 extension peices.



3 Typical Layout for Deep screening of 1 in 16 Turnout with 2/5 extension peices.



Note:-

1 Due to obstruction by sleepers of other line (turnout side/ main line as the case may be), with 5 extension pieces, deep screening can be done maximum upto exit sleepers for 1 12 & 1 8 5 T/O and upto sleeper no 101 for 1 16 T/O. Behind these sleepers, due to sleepers infringing the trough of BCM, deep screening of one rail length is not possible with 5 extension peces. Same can be done by either (a) attaching 2 more extension pieces (total 7 extension pieces) or (b) by removing/lateral shifting of around 20 infringing sleepers of other line during BCM block & carry out deep screening by normal cutter width (without any extension pieces), or (c) manually. Deep screening of main line sleepers behind crossing is to be compulsorily done by any of 3 methods.

2 The point motor sleepers, shown in the above drawings are on favorable side i e. extended on right side of BCM with respect to working direction. If point motor sleeper are on other side, it will be required to either (a) Disconnect point motor & correct the direction of sleeper no 3 & 4 to favorable side in a prior joint block with S&T or (b) Disconnect point motor, remove point motor sleepers during BCM block but prior to deepscreening by BCM and reinsert during block after deep screening by BCM & reconnect point motor.

3 For deep screening of M/L sleepers by BCM without any extension piece, these sleepers on T/O side can be manually deep screened.

4 BCM may deep screen mainline sleepers without any extension piece by shifting infringing sleepers of T/O side.

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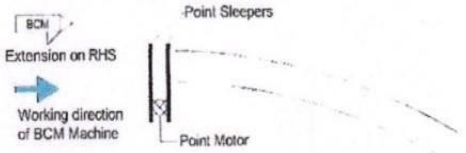
Annexure B

DEEP SCREENING OF T/O BY BCM

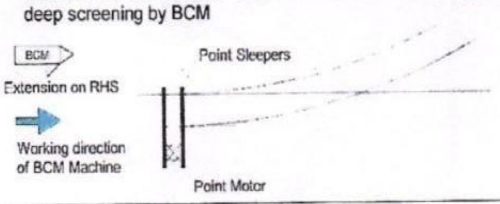
1A

1. T/O is Right Hand T/O.
2. BCM will work from SRJ side.
3. BCM will move on Mainline & will deepscreen T/O side by extension pieces.
4. Direction of point motor is on RH side w.r.t to BCM working direction i.e. on favorable direction. Removal is not required for deep screening by BCM



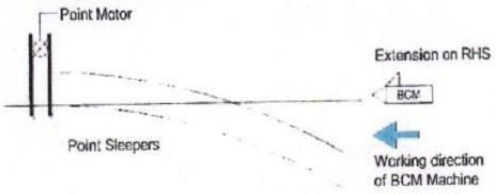
1B

1. T/O is Left Hand T/O.
2. BCM will work from SRJ side
3. BCM will move on turnout & will deepscreen mainline side by extension pieces.
4. Direction of point motor is on RH side w.r.t to BCM working direction i.e. on favorable direction. Removal is not required for deep screening by BCM



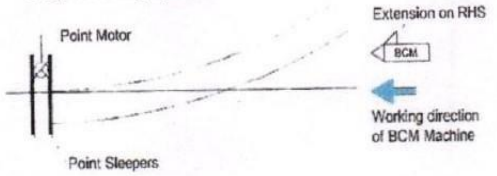
1C

1. T/O is Right Hand T/O.
2. BCM will work from crossing side.
3. BCM will move on turnout & will deepscreen mainline side by extension pieces.
4. Direction of point motor is on RH side w.r.t to BCM working direction i.e. on favorable direction. Removal is not required for deep screening by BCM.



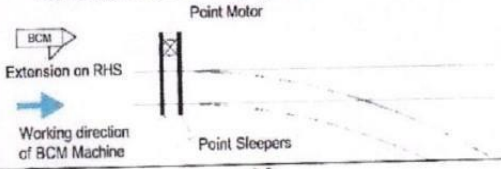
1D

1. T/O is Left Hand T/O.
2. BCM will work from crossing side.
3. BCM will move on mainline & will deepscreen T/O side by extension pieces.
4. Direction of point motor is on RH side w.r.t to BCM working direction i.e. on favorable direction. Removal is not required for deep screening by BCM



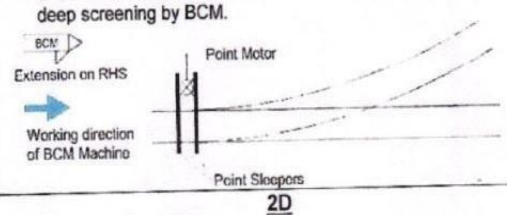
2A

1. T/O is Right Hand T/O.
2. BCM will work from SRJ side.
3. BCM will move on Mainline & will deepscreen T/O side by extension pieces.
4. Direction of point motor is on LH side w.r.t to BCM working direction i.e. on unfavorable direction. Correction of point sleeper direction or removal and reinsertion during block is required for deep screening by BCM.



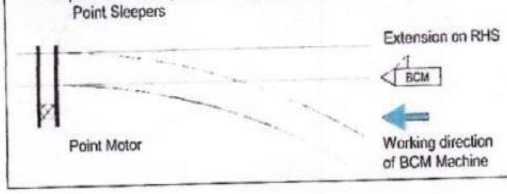
2B

1. T/O is Left Hand T/O.
2. BCM will work from SRJ side.
3. BCM will move on turnout & will deepscreen mainline side by extension pieces.
4. Direction of point motor is on LH side w.r.t to BCM working direction i.e. on unfavorable direction. Correction of point sleeper direction or removal and reinsertion during block is required for deep screening by BCM.



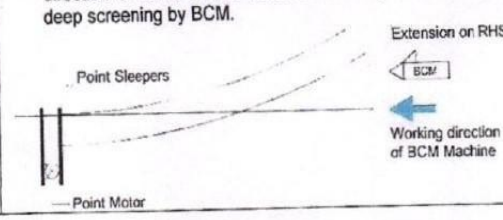
2C

1. T/O is Right Hand T/O.
2. 1BCM will work from crossing side.
3. BCM will move on turnout & will deepscreen mainline side by extension pieces.
4. Direction of point motor is on LH side w.r.t to BCM working direction i.e. on unfavorable direction. Correction of point sleeper direction or removal and reinsertion during block is required for deep screening by BCM.



2D

1. T/O is Left Hand T/O.
2. BCM will work from crossing side.
3. BCM will move on mainline & will deepscreen T/O side by extension pieces.
4. Direction of point motor is on LH side w.r.t to BCM working direction i.e. on unfavorable direction. Correction of point sleeper direction or removal and reinsertion during block is required for deep screening by BCM.



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Annexure - C

TYPICAL POSITION OF X-OVER FOR TRACK CENTRE 4.72 m

Note: -

1. In X-over, due to infringement by sleepers of other main line, deep screening by BCM is not possible of complete x-over.
2. Few more sleepers of x-over can be deep screened by lateral shifting of sleepers of other main line (necessary TSR shall be imposed on other Main Line) but still complete X-over can not be deep screened by BCM.
3. Such left over sleepers can be deep screened manually.

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Annexure-D/1

Ideal requirement of block duration for deep screening of Turnout by BCM in Single Traffic Block

SN	Activities	BCM work from SRJ end	
		Duration (hrs)	ΣDuration (hrs)
1	Movement of BCM to work site	00:15	00:15
2	a) Setting of BCM including fixing of cutter bar with required extension pieces (2 nos). Cutter bar & extension pieces to be inserted in trench in advance. b) Disconnection & Removal of S&T Gears & Installations, cables etc. by S&T. c) Disconnection and removal of Traction bonds and Sleeves bonds by Engineering Department under supervision of TRD staff.	00:45	01:00
3	Working of BCM with 1st set of extension pieces	00:30	01:30
4	1st Extension/1st Reduction of extension pieces	00:45	02:15
5	Working of BCM with 2nd set of extension pieces.	00:30	02:45
6	Shifting of BCM from turnout zone, ballasting and Packing by UNIMAT. Note: Point Zone should be ballasted and packed first irrespective of the fact whether BCM has worked from SRJ side or from Crossing side.	00:45	03:30
7	a) Reconnection of stretcher bars by Engineering. Packing of balance crossing portion without keeping UNIMAT machine is switch portion. b) Reconnection of S&T gears and Installation by S&T & Testing of Point by S&T. c) Reconnection of all Traction bonds & Insulation sleeves by Engineering department under supervision of TRD staff. Confirmation of completion of bonding work is to done jointly by Engineering and TRD.	01:15	04:45
	Note: 1. Above is ideal estimated time required for various activities for deep screening of turnout from SRJ in single traffic block. Actual time may vary as per site specific conditions and additional site-specific activities like removal and refixing of unfavourable point sleepers, working of tower wagons etc. Wherever possible, Division shall make efforts to reduce the time period by detailed advance planning, deployment of sufficient resources and supervisors and real time coordination. In exceptional cases, where		

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	deployment of tower wagons is required, additional time for checking by tower wagon will be assessed and provided by Division. 2. To deep screen beyond exit sleepers, additional extension pieces are to be added. For using 3 set of extension pieces, extra 00.45 hrs will be required. if due to site specific issues, it is not feasible then such left over sleepers are to be deep screened manually or infringing sleepers of other side are to be temporarily opened, shifted laterally in block for BCM working and restored after BCM working. 3. The time for activity 1 can be saved if BCM is brought near the turnout in advance on main/loop line. 4. In case point sleepers are not in favourable directions, then these may be rectified in advance block. Otherwise, these sleepers are to be removed and re-inserted during block period, requiring additional time. 5. In case, any hidden obstruction is found during block, additional time period will be required depending upon size and complexity of obstruction. Engineering /S&T department to do advance identification to minimize such cases. Necessary arrangements of gas cutter, CC breaker, ropes, labour etc may be made at site to remove such obstructions expeditiously. 6. For tamping and speed raising, separate traffic blocks will be taken.

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Annexure-D/2

Ideal requirement of block duration for deep screening of Turnout by BCM in Two Traffic Block

SN	Activities	BCM work from SRJ end	
		Duration (hrs)	Σ Duration (hrs)
	1st TRAFFIC BLOCK (DAY-1)		
1	Movement of BCM to work site	00:15	00:15
2	a) Setting of BCM including fixing of cutter bar with required extension pieces (2 nos). Cutter bar & extension pieces to be inserted in trench in advance. b) Disconnection & Removal of S&T Gears & Installations, cables etc. by S&T. c) Disconnection and removal of Traction bonds and Sleeves bonds by Engineering Department under supervision of TRD staff.	00:45	01:00
3	Working of BCM with 1st set of extension pieces	00:30	01:30
4	Shifting of BCM from turnout zone, ballasting and Packing by Manual/UNIMAT Note: Point Zone should be ballasted and packed first irrespective of the fact whether BCM has worked from SRJ side or from Crossing side.	00:45	02:15
5	a) Reconnection of stretcher bars by Engineering. Packing of balance crossing portion without keeping UNIMAT machine is switch portion. b) Reconnection of S&T gears and Installation by S&T & Testing of Point by S & T. c) Reconnection of all Traction bonds & Insulation sleeves by Engineering department under supervision of TRD staff. Confirmation of completion of bonding work is to done jointly by Engineering and TRD.	01:15	03:30
	2nd TRAFFIC BLOCK (DAY-2)		
1	Movement of BCM to work site	00:15	00:15
2	a) Setting of BCM including fixing of cutter bar with required extension pieces (5 nos). Cutter bar & extension pieces to be inserted in trench in advance. b) Disconnection of S&T installations (if required), S&T cables etc. by S&T. c) Disconnection and removal of Traction bonds and Sleeves bonds by Engineering Department under supervision of TRD staff.	00:45	01:00
3	Working of BCM with 5 nos extension pieces	00:45	01:45

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SN	Activities	BCM work from SRJ end	
		Duration (hrs)	Σ Duration (hrs)
4	Shifting of BCM from T/O zone, ballasting & Packing manual/UNIMAT.	00:45	02:30
5	Reconnection & Testing of Point by S&T. Reconnection of all Traction bonds & Insulation sleeves by Engineering department under supervision of TRD staff. Confirmation of completion of bonding work is to done jointly by Engineering S&T and TRD.	00:30	03:00

Note:

1. Above is ideal estimated time required for various activities for deep screening of turnout from SRJ in two traffic blocks. Actual time may vary as per site specific conditions and additional site-specific activities like removal and refixing of unfavourable point sleepers, working of tower wagons etc. Wherever possible, Division to endeavor to reduce the time period by detailed advance planning, deployment of sufficient resources and supervisors and real time coordination. In exceptional cases, where deployment of tower wagons is required, additional time for checking by tower wagon will be assessed & provided by Division.
2. To deep screen beyond exit sleepers, additional extension pieces are to be added. For using 3rd set of extension pieces, extra 00:45 hrs will be required. If due to site specific issues, it is not feasible then such left over sleepers are to be deep screened manually or infringing sleepers of other side are to be temporarily opened, shifted laterally in block for BCM working and restored after BCM working.
3. The time for activity 1 can be saved if BCM is brought near the turnout in advance on main/loop line.
4. In case point sleepers are not in favourable directions, then these may be rectified in advance block. Otherwise, these sleepers are to be removed & re-inserted during block period, requiring extra time.
5. In case, any hidden obstruction is found during block, additional time period will be required depending upon size and complexity of obstruction. Engineering /S&T department to do advance identification to minimize such cases. Necessary arrangements of gas cutter, CC breaker, ropes, labour etc. may be made at site to remove such obstructions expeditiously.
6. For tamping and speed raising, separate traffic blocks will be taken.
7. As remarked by Operating Department of WCR, “03 hours maintenance corridor is generally available in most of the sections and will be provided in WCR. Each point should be completed in two blocks of 03 hours duration.” In such case where Deep-screening of turnout is to be carried out in 2 days with blocks with duration 0330 & 0300 Hrs, and it is not possible to provide the first block of 0330 Hrs, a block of 0300 Hrs will be accepted and efforts will be made to complete the first block within 03 hrs, with reduced time of 02:00 Hrs and 01:00 Hr for BCM working and Reconnection works, respectively.

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