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2021/TRACK-III/TK/6

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**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. 2021/Track-III/TK/6

New Delhi, Dtd. 09.02.23

**Principal Chief Engineers,
All Zonal Railways.**

Sub: Tamping of turnouts by Points & Crossing Tamping (PCT) machines.

For proper and complete tamping of turnouts by PCT machines, signaling fixtures like motor, gears rods etc. are required to be disconnected before deployment of machine and connected after the machine working. These locations will be left un-tamped, if these fixtures are not opened. These left over sleepers are subsequently packed manually which does not have good quality packing resulting in frequent attention by Engg. as well as S&T staff. Also there is perceptible difference in riding quality at this manually packed location.

In this regard, JPO has been signed by Engg. & S&T departments of NR & WR for machine tamping of turnouts by PCT machines. The same are enclosed herewith for ready reference and adoption on Railways.

Action taken in this regard may be advised to the Board's office.

DA: as above

Vijay
09.02.2023
(Vijay Singh)
Director Track (MC)
Railway Board
Tel. +91 11 23388876
Email: dirtmcrb@gmail.com

Room No. 150, First Floor, Rail Bhawan, Raisina Road, New Delhi - 110 001

Task Force 10

GOVERNMENT OF THE STATE OF TEXAS
DEPARTMENT OF THE ATTORNEY GENERAL
OFFICE OF THE ATTORNEY GENERAL

Attorney General

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Western Railway
Headquarter Office,
Churchgate, Mumbai-20

No.W 641/4/4(L)

Date: 27.07.15

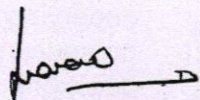
DRMs-BCT/BRC/RTM/ADI/RJT/BVP

Sub: Machine tamping of Turnouts by UNIMAT.

Since most of the turn outs are now on PSC lay out, maintenance of these vital assets using mechanized maintenance machine UNIMAT is a must. It is however observed that many a times signaling rod are not being opened while working with UNIMAT and the critical sleepers are left untamped in the switch portion which at a later date might result in loose packing and failure of points.

A joint procedure order (signed by CE/TMC, CSE and CPTM) for effective working of UNIMAT is sent herewith for strict implementation in field to ensure that proper packing at Turnouts is achieved .

Suitable instructions should be issued and implementation of provisions of JPO ensured in division.


(Sharad Mehta)
Chief Track Engineer

Copy to COM, CSTE for information.

Copy to Sr.DEN/CO-BCT/BRC/RTM/ADI/RJT/BVP

Copy to Sr.DOM-BCT/BRC/RTM/ADI/RJT/BVP

Copy to Sr.DSTE- BCT/BRC/RTM/ADI/RJT/BVP

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Joint Procedure Order

Sub: Machine packing of Turnouts by UNIMAT

1.0 Objective

To carry out the machine packing (with UNIMAT) of turnouts in order to improve the quality of running in yards and to improve the reliability performance of the associated Signalling gears.

2.0 Preamble

At many places, the turnout sleepers in Switch portion having Signalling fixtures are left without packing by UNIMAT machine. These sleepers are subsequently packed manually. The manual packing of PSC sleepers is banned and also manual packing do not have quality and retention It results in frequent attentions by Engineering and S&T staff apart from perceptible difference in riding quality over the switch portion of turnouts.

For tamping of sleepers in switch portion, Signalling fixtures are required to be disconnected before the tamping operation and later on reconnected. Therefore, disconnection and reconnection of points are additional activities involved if entire switch portion is required to be tamped by the machine.

Similarly, there are other locations like Axle counters, Track Circuits, Glued joints, Guard Rails in approached/on the bridges, level crossings etc. which also need to be opened before taking up the work of machine tamping.

3.0 Advance Planning by the division

3.1 Monthly advance programme for machine working shall include tamping of turnouts being prepared jointly by Sr.DSTE and Sr.DEN(CO) of the division. Advance weekly programme prepared for track machines shall include the respective station yards etc. and the same should be signed by Sr.DSTE, Sr.DEN(CO) and Sr.DOM for arranging adequate duration of traffic blocks. Division shall ensure the full utilization of blocks including works carried out in the shadow portion of the blocks.

3.2 Engineering and S&T department need to mobilize adequate strength of labour and supervisors for carrying out this activity. In case of non-availability of adequate labour, outsourcing of the same can be done. S&T department may consider creating and deploying special team for carrying out the Signalling activity.

3.3 As per the present tamping cycle on the concrete sleeper track is 9 months to 2 years depending on the track condition and traffic density. The plain track as well as turnout portion are tamped by CSM/ DUOMATIC and UNIMAT machines. therefore, the division should ensure deployment of both the machines together (as per the Tamping group working programme issued by HQ). in exceptional cases, there should be minimum time gap between the deployment of 2 types of machines. Subsequently, efforts should be made to match the same.

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3.4 On an average about 6500 turnouts are required to be tamped on Western Railway per year. This works out to about 550 turnouts per month. Therefore, this exercise should be taken as a project by both the departments and the opportunity should be fully utilized for attending of the turnouts as a whole w.r.t. the fittings, assembly, gears etc. The provisions of Para 237 of IRPWM (Maintenance of points & crossing), Para 3.1 and 3.2 of IRTMM and Para nos-12.40 to 12.42, 12.161 to 12.176, 19.119 to 19.135 of IRSEM Pt.II should be taken care of while carrying out this exercise of tamping of turnouts.

4.0 As per the experience of tamping of turnouts by UNIMAT machines, the cycle of activities under has been studied and the major activities are listed below:

4.1 Pre Traffic Block activities.

- i) Oiling & greasing of P.Way connections.
- ii) Oiling & greasing of S&T connections.
- iii) Oiling & greasing of S&T gears of point machine.
- iv) Application for disconnections by S&T Deptt.
- v) Application for Traffic Block by Engg. Deptt.

4.2 During – Traffic Block

- i) Machine movement for site & setting up of machine.
- ii) Removal of S&T gears during the disconnections of point.
- iii) Start of Tamping Work.
- iv) Tamping of switch portion should generally be taken up first so that while tamping work is in progress, S&T reconnection work can go ahead.
- v) Reconnection of S&T gears after tamping of switch portion.
- vi) Completion of tamping, S&T reconnections & remaining work.
- vii) Clearance of traffic block.

4.3 Analysis

Approx. time for Turnout tamping is as under:-

Sr. No	Item	Approx Time	Activity
1.	Pre-traffic Block Activity	15 minutes	Disconnection, movement of machine and pre block preparation (5 mins. Engg & 10 mins. S&T)
2.	During Traffic Block	45 / 75 * minutes	Tamping by UNIMAT for straight & turnout portion and fixing of leading stretcher bar & proper setting of point.
3.	After traffic block	45 minutes	Reconnection by S & T (after fixing of leading stretcher bar & proper setting of point).

* During traffic block if only straight portion is to be tamped the time required for machine working will be 45 min. and if full turnout is to be tamped (i.e. straight as well as turnout portions) the total machine working time required will be 75 minutes. The total block requirement for full turnout shall accordingly be 2'15" and for straight portion will be 1'45".

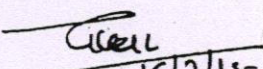
NOTE: The average time indicated above for individual activities may be slightly different as per site conditions.

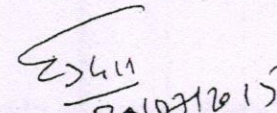
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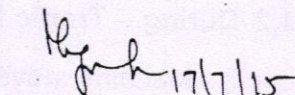
4.4 The parallel activities are as under:

- i) Oiling and greasing of P.Way & Signalling Gears during the pre-traffic block period.
- ii) Disconnection of the switch area takes 30 min on an average, therefore the travelling of UNIMAT machine to the site and setting up of the work i.e. the activity of disconnecting the S&T gears is a parallel activity for initial 15 min of the traffic block. In case of turnout being tamped from the trailing direction, the activity of disconnection of S&T gears is completely a parallel activity.
- iii) After Tamping of point Machine area, Reconnection of S&T gears in the switch area while the machine tamps the remaining portions of turnout take about 45 minutes.

5.0 The above JPO shall be implemented on Western Railway for other than thick web switches and shall be reviewed after 6 months. Divisions should provide a feedback to improve the same further. The timings required for carrying out tamping at Thick Web Switches shall be incorporated upon laying TWS on Western Railway system and experience thereupon.


(Vivek Kumar Gupta)
CE/TMC


(Harish Gupta)
CSE


(Manijit Singh)
CPTM

CETMC NOTE No.2/13

NORTHERN RAILWAY

HEADQUARTERS OFFICE,
BARODA HOUSE, NEW DELHI.

No. 219-W/61/TMC/Pt-9/UNIMAT

Dated: 16.04.13.

Divisional Railway Manager,
Northern Railway,
DLI, FZR, LKO MB & UMB.

Sub: **Machine Packing of Turnouts and other locations.**

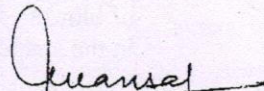
General Manager, Northern Railway had desired to issue a Joint Procedure Order (JPO) on the above referred subject. Trials have been done on the divisions and feedback were obtained for the various activities involved. The Prime objective of the JPO is as under:

"To carry out the machine packing of turnouts in order to improve the quality of running in yards and to improve the reliability performance of the associated Signalling gears."

Copy of the said JPO signed by CSE, CFTM & CE/TMC is enclosed. This JPO is required to be implemented with immediate effect.

You are requested to issue suitable directions to the concerned branch officers in order to achieve the above objective.

DA: As above.


(Alok Kansal) 16.4.13.
Chief Engineer/TMC

Copy to:

1. Secy. to Pr.CE for kind information of Pr.CE.
2. CSTE & COM for information.
3. CTE, CE/TSP, CE/G, CE/RC & CE/MRTS for information.
4. Sr.DEN/C,N.Rly. DLI, FZR, LKO, MB & UMB for information and compliance.

JOINT PROCEDURE ORDER

Sub: MACHINE PACKING OF TURNOUTS AND OTHER LOCATIONS.

1.0 OBJECTIVE:

To carry out the machine packing of turnouts in order to improve the quality of running in yards and to improve the reliability performance of the associated Signalling gears.

2.0 BACK GROUND:

Presently the turnout sleepers in Switch portion are having Signalling fixtures which are being left without packing by UNIMAT machine. These sleepers are subsequently packed manually. The manual packing of these sleepers do not have quality and retention which results in frequent attentions by Engineering & S&T staff apart from perceptible difference in riding quality over the switch portion of turnouts.

For tamping of sleepers in switch portion, Signaling fixtures are required to be disconnected before the tamping operation and later on reconnected. Therefore, disconnection and reconnection of points are additional activities involved if entire switch portion is required to be tamped by the machine.

Similarly, there are other locations like Axle counters, Track Circuits, Glued joints, Guard Rails in approaches/on the bridges, level crossings etc. which also need to be opened before taking up the work of machine tamping.

3.0 Advance Planning by the division:

- 3.1 Monthly advance programme for machine working shall include tamping of turnouts being prepared jointly by Sr. DSTE and Sr.DEN/C. Advance weekly programme prepared for track machines shall include the respective station yards etc. and the same should be signed by Sr DSTE, Sr DEN/C and Sr. DOM for arranging adequate duration of blocks. Division shall ensure the full utilization of blocks including works carried out in the shadow portion of the blocks.
- 3.2 Engineering & S&T department need to mobilize adequate strength of labor and supervisors for carrying out this activity. In case of non availability of adequate labor, outsourcing of the same can be done. S&T Deptt. may consider creating and deploying special team for carrying out this activity. S&T provisions contained in Track Renewal works may be utilized for carrying out Signalling activity.
- 3.3 As per the present tamping cycle on concrete sleeper track of once in two years, the plain track as well as the turnout portion are tamped by CSM and UNIMAT machines. Therefore, the division should ensure deployment of both the machines together. In exceptional cases, there should be minimum time gap between the deployments of 2 types of machines. Subsequently, efforts should be made to match the same.

3.4 On an average 800 to 1200 turnouts are required to be tamped per division per year. This works out to 80 to 120 turnouts per division per month. Therefore, this exercise should be taken as a project by both the departments and the opportunity should be fully utilized for attending of the turnouts as a whole w.r.t. the fittings, assembly, gears etc. The provisions of Para 237 of IRPWM (Maintenance of points & crossings), Para 3.1 and 3.2 of IRTMM and Para nos-12.40 to 12.42, 12.161 to 12.176, 19.119 to 19.135 of IRSEM Pt.II should be taken care of while carrying out this exercise of tamping of turnouts.

4.0 Trials have been ordered vide letter No. 219-W.61/TMC/Pt-9 dated 13.2.13 on the 5 divisions for carrying out the tamping of turnouts in joint presence of S&T and Engg. Officials. Feed backs have been received from the divisions. Based on the feedback, the major activities are listed below:

4.1 Pre-Traffic Block activities

- i) Oiling & greasing of P.Way connections.
- ii) Oiling & greasing of S&T connections.
- iii) Oiling & greasing of S&T gears of point machine.
- iv) Application for disconnection by S&T Deptt.
- v) Application for Traffic Block by Engg. Deptt.

4.2 During – Traffic Block

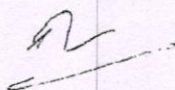
- i) Machine movement for site & setting up of machine.
- ii) Removal of S&T gears during the disconnection of point.
- iii) Start of Tamping Work.
- iv) Tamping of switch portion should generally be taken up first so that while tamping work is in progress, S&T reconnection work can go ahead.
- v) Reconnection of S&T gears after tamping of switch portion.
- vi) Completion of tamping, S&T reconnections & remaining work.
- vii) Clearance of traffic block.

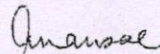
4.3 Analysis

Approx. time for Turnout tamping is as under:-

S.No.	Item	Approx. Time
1.	Pre-traffic Block Activity	60 minutes.
2.	During Traffic Block	120 minutes.

NOTE: The average time indicated above for individual activities may be slightly different as per site conditions.

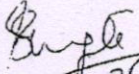


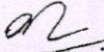


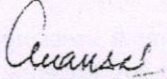
4.4 The parallel activities are as under:

- i) Oiling and greasing of P.Way & Signalling Gears during the pre-traffic block period.
- ii) Disconnection of the switch area takes 30 min on an average, therefore the travelling of UNIMAT machine to the site and setting up of the work i.e. the activity of disconnecting the S&T gears is a parallel activity for initial 15 min of the traffic block. In case of turnout being tamped from the trailing direction, the activity of disconnection of S&T gears is completely a parallel activity.
- iii) After Tamping of point Machine area, Reconnection of S&T gears in the switch area while the machine tamps the remaining portion of turnout take about 60 mins

5.0 The above JPO shall be implemented on Northern Railway w.e.f. 1.4.13 and shall be reviewed after 6 months. Divisions should provide a feedback to improve the same further.


(Sunil Gupta) 26/3/13
CSE


(Manoj Srivastava)
CFTM


(Alok Kansal) 28.3.13
CE/TMC