ट्रैक घटकों का स्नेहन
LUBRICATION OF TRACK COMPONENTS

For better maintenance practice and to prolong life of track components, periodic lubrication/ greasing of following track components must be ensured.-

(1) Lubrication of Elastic Rail Clip & MCI inserts.

(2) Greasing and Sealing Of Liner Contact Area.

(3) Lubrication of Switch Expansion Joints.

(4) Lubrication of Plate Screws and Rail Screws on PSC Sleepers on Turnouts, SEJs, Bridge Guard Rails & Level Crossings.

(5) Lubrication at Point and Crossings.

(6) Lubrication of Outer Rail of Curve.

(7) Lubrication of Rail Joint.

(8) Lubrication of Girder Bridges.

(9) Lubrication at the site of Deep Screening, TSR And TRR

With a view to increase awareness and ensure that correct procedures of lubrication/ greasing are followed in field, provisions available in IRPWM have been compiled as follows:

1. पेण्ड्रोल क्लिप का स्नेहन/ Lubrication of Elastic Rail Clips & MCI inserts *(Ref: Para-628(2) of IRPWM-2020)*:

To prevent corrosion and seizure of ERC with MCI insert, regular greasing and oiling of ERCs should be done.

a) Frequency of the lubrication of ERCs and inserts

The lubrication of ERCs and inserts at the time of initial Laying should be done and thereafter following schedule is prescribed.

i) In corrosion prone areas & platform lines: Once in a year.

ii) In other areas: Once in 2 years or more frequently as decided by PCE.

b) Material: Grease Graphite (Gr.0) of IS 408-1981

c) Instructions

i) Greasing shall not be done in extremes of summer & heavy rainfall,

ii) At a time, ERCs should not be removed from more than one sleeper.

iii) In case, mass lubrication of ERC is taken up, at least 15 sleepers shall be kept intact between any two sleepers taken up for lubrication of ERCs at the same time.

iv) ERC should be driven back up to correct length.

d) Procedure of lubrication at the time of Initial Laying

i) At the base depot, all the elastic rail clips and MCI Inserts should be thoroughly cleaned.

ii) Grease should then be applied on the central leg of the ERC and eye of the MCI insert.

iii) Then the clip should be driven at the time of assembly of the service panel.

e) Procedure of in-service lubrication

i) After removal of the ERC, the eye of the insert shall be cleaned with suitable brush. This brush may be used to clean inside of insert.



ii) The ERCs should be cleaned by wire brush & emery paper. The rail foot below the liner location should also be cleaned with wire brush and emery paper.





iii) After cleaning, grease graphite shall be applied to the inside surface of eye of insert and leg of ERC.

iv) Inside/outside ERCs should be interchanged and fixed again.

v) Central Railway has recommended that in routine Keyman is to do oiling & greasing of 20 sleepers (80 ERCs) per day. *(Ref: CR PCE Circular no 186-R1 dated 16.02.2022)*

2. लाइनर संपर्क क्षेत्र की ग्रीसिंग व सीलिंग/ Greasing and Sealing of Liner contact area *(Ref: Para-613(2)(c) of IRPWM-2020)*

a) In identified corrosion prone areas, the rail liner seat should be greased using graphite grease IS-408-1981 Gr. O specification after proper cleaning. The grease is also applied all around the liner on the rail foot on gauge face side to prevent the ingress of toilet droppings in the gap between the liner and rail foot.

b) Frequency of Greasing and sealing of liners contact area

i) In identified corrosion prone areas

- Once in a year for gauge face side and
- Once in two years on non-gauge face side of rail.

ii) In other areas- at least once in two years on gauge face & non gauge face side both may be adopted. *(Ref: NR PCE Circular no 283 dated 09.2023)*

3. एस. ई. जे. का स्नेहन/Lubrication of Switch Expansion joints

(Ref: Para 116(7)(a)& 345(6) of IRPWM-2020)

a) Frequency

i) Once in a fortnight SEJs shall be checked, packed and aligned if necessary. Oiling and greasing of tongue and stock rails of SEJ and tightening of fastenings shall be done simultaneously.

b) Instructions

i) Keyman will carry out oiling and greasing of SEJ.

ii) As a good practice, at the time of de-stressing of LWR, following procedure may be adopted for oiling and greasing of SEJ under traffic block. *(Ref: CE circular no.141 of SE Rly)*

c) Procedure: ***(****Ref: CE circular no.141 of SE Rly)*

1) Oiling and greasing of tongue and stock rails of SEJ and tightening of fastenings shall be done.



simultaneously. This periodical oiling and greasing shall be done by keyman without dismantling/interferring with the SEJ. Necessary oil/grease should be applied externally on the fishing planes of various parts of SEJ.

2) The complete oiling and greasing of SEJ shall be done by dismantling the SEJ only at the time of de-stressing of the concerned LWR. The work shall be done in sequence described below under traffic block:

i) The nuts and chairs of SEJ shall be removed.

ii) A gap shall be created between tongue and stock rail and their interfaces shall be greased after cleaning the faces with wire brush.

iii) Similarly interfaces of chairs and tongue rails and that of chair and stock rail shall be greased after cleaning.

iv) The stock and tongue rails shall be reset.

v) Bolts of chairs shall be oiled and nuts tightened after replacing the chairs.



4. टर्नआउट, एसईजे, ब्रिज गार्ड रेल और लेवल क्रॉसिंग पर पीएससी स्लीपरों पर प्लेट स्क्रू और रेल स्क्रू का स्नेहन / Lubrication of Plate Screws and Rail Screws on PSC Sleepers On Turnouts, SEJs, Bridge Guard Rails & Level Crossings

(Ref: NR PCE Circular no 283 dated 09.2023 & 261 R-1 dated 03.06.2015)



The Plate Screws & Rail Screws provided on PSC sleepers on Turnouts, Switch Expansion Joints, Bridge guard rails & Level crossings are getting corroded due to either aggressive environmental conditions or in stretches where passenger trains reach major destinations in the early morning hours.

Due to the excessive corrosion of Plate/Rail Screws, maintenance has been badly affected as the thickness of screws gets reduced and in turn they get jammed/ loosened, resulting in loosing grip with plates and sleepers become useless. To minimize the occurrence of this problem, as a preventive measure, Lubrication of Plate Screws and Rail Screws should be done.

In this regard following procedure as recommended by Northern Railway may be adopted.

a) Frequency

i) At new Turnout/SEJ/Bridge guard rail/Level crossing renewal sites, the greasing of new Plate/Rail Screws should be done while providing in the track.

ii) In corrosion prone areas

- Once in six months.

iii) In areas not prone to corrosion

- Once a year

b) Material

i) Grease graphite used for this purpose shall be as per IS Specification number IS: 408, Grade '0'.

ii) Only galvanized plate screw/rail screw should be provided in place of corroded ones after applying '0- Graphite Grease/Black oil.

c) Procedure

i) Plate/Rail Screws should be removed one by one from track.

ii) Screw as well as Dowel be properly cleaned for corroded material from the surface with the help of wire brush and then dipped in Black oil uniformly both on the surface of Plate/Rail Screw and Dowel and fixed back.

iii) Head of Plate/Rail screw should also be either coated with hot Bitumen or other suitable anticorrosive paint to avoid corrosion.

5. प्वाइंट व क्रॉसिंग पर स्नेहन/ Lubrication at Point And Crossings



a) Tongue rail *(Ref: Para 429(2)(l) of IRPWM-2020)*

Wear on switches can be reduced by lubrication of the gauge face of tongue rail.

b) Cleaning and lubrication of points *(Ref: Para 429(6) of IRPWM-2020)*

i) 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.

ii) 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.

c) Frequency

Once in fortnight. *{Ref: Annexure: 19-MS2 (Appendix-I, Maintenance Schedule Booklet, IRSEM-2021}*

6. गोलाई की बाहरी रेल का स्नेहन/ Lubrication of Outer Rail of Curve

(Ref: Para 424 & 613 of IRPWM-2020)



It is well known that rail lubrication increases the wheel and rail life by preventing friction and decreasing the wear between the rail-wheel interfaces, saves energy, and can reduce wheel noise. It can also reduce lateral forces and flange climb forces that can lead to flange climb derailments.

a) Reducing side wear on rails-(Gauge face of outer rails)

On sharp curves where the tendency of wear on the outer rail is noticeable, lubricators should be installed or hand lubrication of gauge face should be done, care being taken not to apply the lubricant on the top of the table.

b) In case of hand lubrication, the Divisional Engineer may decide frequency of lubrication duly considering local conditions and traffic on the line. Northern Railway has recommended the frequency at once in a week using hand operated machines or by manual means by keyman/ trackman. *(Ref: NR PCE Circular no 283 dated 09.2023)*

c) Track mounted automatic Gauge Face Lubricators should be provided on curves of radius 875 m (2°) and sharper to reduce rail gauge face wear.

d) On routes where rail grinding is in practice, track mounted automatic Gauge Face lubricators should be provided on curves of radius 1400 m (1.25°) and sharper.

e) Lubrication should be done on new rails or on old rails, which do not have Gauge Corner Cracking or head checks.

f) While deciding the location of lubricators, following should be considered:-

i) It is located on tangent track at the beginning of transition curve where wheel flanging is just beginning to occur.

ii) On single lines, the lubricator shall be located in the direction of heaviest traffic.

iii) Lubricators should be located away from switches, crossings and other areas where discontinuity in LWR track may exist.

g) Weekly Hand Lubrication of gauge face of rails may also be done on work sites such as deep screening, PQRS, BCM & CTR works and other locations where heavy side wear of rails is observed. *(Ref: NR PCE Circular no 283 dated 09.2023*

7. रेल ज्वाइंट का स्नेहन/ Lubrication of Rail Joint *(Ref: Para-619 of IRPWM-2020)*

The lubrication of rail joints retards the wear on the fishing planes of the rails and the fishplates. It also facilitates expansion of rails.



During lubrication of rail joints, opportunity should be taken to observe the rail ends carefully for presence of fine cracks. Non-lubrication of rail joints may induce buckling in the track.

a) Material

A stiff paste of plumbago and Kerosene oil made in the proportion of 3 kg of plumbago and 2 kg of Kerosene oil.

Black oil or reclaimed oil is used for fishbolts and nuts.

(b) Frequency

Once a year after monsoon from October to February. Lubrication should not be carried out in extremes of weather both hot and cold.

On non-running lines, this period may be extended to two years with the approval of the Chief Engineer.

During all works such as relaying, rail renewals and renewals of turnouts, etc. rail joints should be lubricated. Fishing surfaces of rail and fish-plates should be greased before putting the fishplates in position. All such joints those have been lubricated by the gang should be checked and retightened by Keyman during his routine patrolling. Insulated joint fishplates should not be greased.

(c) Pre-requisites

i) Creep in excess of 150 mm should be adjusted before the work of lubrication of rail joints is undertaken.

ii) The work should normally be carried out by gangs working under the direct supervision of at-least JE/P.Way.

iii) The work should be carried out under caution order arranged to be issued daily by the JE/SSE(P.Way).

iv) The work should be carried out under protection of engineering signals or under traffic block.

v) Spare fish-plates and bolts should be available for replacement of cracked ones.

(d) Procedure

i) The nuts are unscrewed and the fish bolts and fish-plates are removed.





ii) The fishing surfaces of the fish-plates and rails are then cleaned with a wire brush.



iii) The rail ends and fish plates are inspected for cracks with the help of magnifying glass and a small mirror is helpful in examining the underside of rails.



iv) The fishing surfaces of rails and fish-plates are checked for wear. The fracture normally starts as a fine crack from the fish bolt or bond holes. During lubrication of rail joints, opportunity should be taken to observe the rail ends carefully for presence of fine cracks. If cracks are noticed, rails should be replaced.

v) The fishing surfaces of the rails and fish-plates are then lubricated.



vi) The fish-bolts are then put back in reverse position, the inner two bolts being tightened first, then other two bolts tightened with standard fish-bolt spanner.




vii) While tightening overstressing of bolts should be avoided.



8. गर्डर पुलों का स्नेहन/ Lubrication of Gider Bridges



a) Greasing of Sliding and Roller & Rocker bearings of girder bridges: once in three years. *(Ref: Para 222(2) (a) of IRBM)*

b) Lubrication of the bearings of bridges provided with rail-free fastenings and partly box- anchored (with single span not exceeding 30.5 metre and having sliding bearings at both ends) and LWR/CWR has been continued over such bridges- once in two years. *(Ref: Para 331(2)(d)of IRPWM-2020)*

c) Hook bolts, if not galvanised, should be oiled periodically to prevent rusting. *(Ref: Para 631 of IRPWM-2020)*

9. डीप स्क्रीनिंग, टीएसआर और टीआरआर के स्थल पर स्नेहन/ Lubrication at the Site of Deep Screening, TSR And TRR

(Ref: CR PCE Circular no 186-R1 dated 16.02.2022)

On the work site where work of disturbance of ballast bed such as deep screening, TSR or work of TRR is being done, it may be advisable to apply grease to gauge face of both rails.

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संदर्भ / REFERENCE

IRPWM-2020 & CE Circulars.

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हमारा उद्देश्य /OUR OBJECTIVE

To upgrade maintenance technologies and methodologies and achieve improvements in productivity and performance of all railway assets and manpower which inter alia would cover reliability, availability for use, utilisation and efficiency.

Disclaimer

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ट्रैक घटकों का स्नेहन

LUBRICATION OF TRACK COMPONENTS



कैमटेक/सि/2024/एल टी सी/2.0

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जून / JUN - 2024

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