ट्रैक घटकों का स्नेहन
LUBRICATION OF TRACK COMPONENTS

Lubrication of different components of track prolongs their life by reducing wear and tear. With a view to increase awareness and ensure that correct procedures are followed in field. Following instructions on lubrications are to be followed.

1. पेण्ड्रोल क्लिप का स्नेहन/ LUBRICATION OF ERC CLIPS

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

a) Frequency the lubrication of ERCs and inserts at the time of initial Laying should be done 100 % 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.

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

c) Instructions

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

ii) Not more than one ERC should be removed at any time. To ensure this Keyman should carry one pre-greased matching ERC greased with '0' number graphite grease.

iii) Keyman should do oiling & greasing @ 20 sleepers (80 ERCs) per day. To supplement the efforts of Keyman, extra men shall also be engaged to grease ERCs as it may not be possible for keyman alone to complete the work.

iv) In case mass lubrication of ERC is taken up, at least 15 sleepers shall be kept intact between two sleepers on which ERC has been removed.

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

d) Procedure

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.



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





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

iii) Inside/outside ERC should be interchanged.

2. लाइनर संपर्क क्षेत्र की ग्रीसींग व सीलिंग/GREASING AND SEALING OF LINER CONTACT AREA

In identified corrosion prone areas, the rail liner seat should be greased using graphite grease to the RDSO 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, greasing and sealing of liner contact areas shall be done once in year for gauge face side and once in two year on non- gauge face of rail.

3. एस. ई. जे. का स्नेहन/ LUBRICATION OF SEJs :

a) Frequency



i) Fortnightly

ii) At the time of distressing of LWR

b) Instructions

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

ii) Keyman will check and also tighten fasternings at SEJ if necessary.

iii) At the time of distressing of LWR, following procedure shall be adopted for oiling and greasing of SEJ under traffic block.

c) Procedure:

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:

3) 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 of tongue rails shall be reset.
v) Bolts of chairs shall be oiled and nuts tightened after replacing the chairs.

4. प्लेट स्क्रू व रेल प्लेट ग स्नेहन/ LUBRICATION OF PLATE SCREWS AND RAIL SCREWS



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 condition. Due to the excessive corrosion of Plate/Rail Screws, maintenance has been badly affected as the thickness of screws gets reduced and interim 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. Grease graphite used for this purpose shall be as per IS Specification number IS: 408, Grade '0'.

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) Once a year in areas not prone to corrosion.
(iii) Once in six months in corrosion prone areas.
b) Instruction
i) Prior survey shall be done to ascertain number of corroded Screws.
ii) New Screws shall be procured as per assessed numbers and 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 स्क्रू व रे स्नेहन/ LUBRICATION AT POINT AND CROSSINGS



a) Tongue rail
Greasing of gauge face of tongue rails, outer rail of turn-in-curve and emergency cross-over should be carried out once a week.
b) Cleaning and lubrication of points: Periodical cleaning and lubrication of slide chairs is to be done by –
i) Signal staff for points interlocked with signals or provided with locks. (generally up to third sleeper from toe of the switch).
ii) SSE/P.Way on hand operated points and remaining slide chairs of all points interlocked with signals or provided with locks.
iii) Frequency: Once in fortnight.
iv) In addition to above, oiling of brackets and lugs should also be done simultaneously, as contact area of these members with stretcher bar is getting corroded resulting in thickness of stretcher bar bolts reduced and get jammed.

6. गोलाई की बाहरी रेल का स्नेहन/ LUBRICATION OF OUTER RAIL OF CURVE



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) Gauge face of outer rail of curve having radius 600 m and less should be lubricated to avoid Rail face wear.

b) Frequency: i)

Radius of curve	Frequency of greasing when traffic is up to 20 GMT per year	Frequency of greasing when traffic exceeds 20GMT per year
Curve sharper than 350 m radius	Once in two days	Daily
Curve sharper than 600 m radius	Once a week	Twice a week
Curve with radius 600 m or more	Once in two week	Every week

ii) At other location such as on straight track at location of rail wear caused due to sinusoidal movement : To be lubricated once in a month.

For this purpose grease lubricator may be installed.

Care must be taken to ensure that the grease does not touch the rail top so as to avoid wheel slip.

7. रेल ज्वाइंट का स्नेहन/ LUBRICATION OF RAIL JOINT



a) Purpose: To facilitate the expansion of rail joint and to retard wear on the fishing planes of the rails and fish plate. Enable visual examination of rail ends for any crack/defects. Reduced wear on the fishing planes is one of the preventives of the low joints.

b) Frequency:

i) Once in a year during the cold weather month after the monsoon (i.e. from October to February)

ii) Joints in buffer rails shall be lubricated twice in a year when the rail temperature is between td+15^{0}C and td-15^{0}C and when the average gap value is between 3 mm and 12 mm.

iii) Spare joggle fishplates provided to use in emergency: Once in a month by keyman.

iv) Joggle fishplates: Once in a year after monsoon.

c) Material: A stiff paste of plumbago (graphite) and kerosene oil. Black of or reclaimed oil may be used for fish bolts and nuts. Material requirement for 100 single joints in kg will be as under:

Material	Quantity in kg.
Plumbago (Dry graphite powder)	5
Kerosine oil (second quality)	3.5
Black or reclaimed oil (only for bolts and nuts)	2.75

d) Instructions:

i) The lubrication should not be carried out in extreme hot or cold weather, or during rainy season.

ii) Creep where heavy, must be adjusted before lubrication of joints.

ii) Lubrication of rail joint should be normally carried out by permanent way gang under the direct supervision of at least qualified permanent way supervisor.

iii) The lubrication work should be carried out under caution order and under protection of engineering signals, as per para 806 (2) of IRPWM.

iv) Two consecutive joints on the same rail or two opposite joints should not be opened for lubrication at any time. Two gangmen should sit on diagonally opposite joints facing the direction of train while doing the work.

v) Each gangmen doing the lubrication of rail joints should also carry magnifying glass and a mirror for inspection of rails to detect cracks/defects.

vi) Lubrication should be carried out in such a way that all bolts head must come on inner side in even year and on outer side in odd year after lubrication.

e) Procedure for Lubrication of Rail Joints:

Lubrication of rail joints involved greasing of the fishing planes of rails and fish-plates and oiling of fish-bolts. This should be carried out as follows:-

i) Unscrew the nuts and place them opposite each bolt to ensure that they are not inter-changed while being replaced in position.

ii) Lightly tap and remove the inside fish-plate.

iii) Clean the fishing surface of the rails and fish-plate with wire brush and wipe off the rust by waste cotton.

iv) Examine the cleaned surface of rails and fish plate for any crack with the help of magnifying glass and mirror.

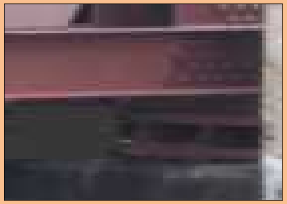
v) Apply a thin layer of a mixture of plumbago and kerosene oil mixed to form a fine paste on the fishing-planes of the rail and fish-plates.
vi) Remove the fish-bolts one at a time and after oiling put each back in the reverse direction.
vii) Lightly tap and remove the out-side fish plate.
viii) Treat the other fish plate and fishing surface of the rails similarly.
ix) Replace fish-plate and nuts. Tighten to the extent possible with the standard fish-bolts spanner, the inner two bolts being tightened first without overstraining the bolts.
x) Care should be taken to ensure that all the time there is one fish plate and not less than three fish-bolts without connecting the two rails.
Both the fish-plates should be fitted and at least one fish-bolts and nut on either side of each joint should be tightened when a train is approaching the site of work. This must be done before the banner flag protecting the site of work is, ordered to be removed.
xi) Particular of work of lubrication done with dates should be recorded in the section Register of Permanent Way Inspector.

f) Certificate of Lubrication: - Every year in April, SSE/P.Way should submit to the Assistant engineer, Certificate of lubrication of fish-plated joints with exceptions, if any, giving reason. Copies of these certificates should be forwarded by AENs, with comments to the DEN/Sr. DEN/DSE for scrutiny and record.

8. ट्रैक नवीकरण के समय स्नेहन/ LUBRICATION AT THE TIME OF TRACK RENEWAL

Fishing surface of rail and fish plate should be greased before putting the fish plate in position.

9. गर्डर पुलों के स्नेहन/ LUBRICATION OF GIDER BRIDGES



a) Bearing of girder bridges: Sliding and roller rocker bearings should be cleared and greased once in three years.
b) LWR/CWR on 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)
The sliding bearings shall be inspected during the months of March and October each year and cleared of all foreign materials. Lubrication of the bearings shall be done once in two years.
c) Fitting on channel sleepers should be oiled periodically.
d) Hook bolts: Hook bolts on girder bridges should be oiled periodically to prevent rusting.

10. डीप स्क्रीनिंग, टीएसआर और टी आर आर के स्थल पर स्नेहन/ LUBRICATION AT THE SITE OF DEEP SCREENING, TSR AND TRR

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

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Disclaimer

The contents of this pamphlet are for guidance only and are not statutory. If you have any suggestion & comments on contents of the pamphlet, please write to: Dy.Director (Civil), CAMTECH, Maharajpur, Gwalior (M.P) – 474 005

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भारत सरकार – GOVERNMENT OF INDIA
रेल मंत्रालय – MINISTRY OF RAILWAYS

ट्रैक घटकों का स्नेहन

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कैमटेक/सि/2014/एल टी सी/1.0

CAMTECH/C/2014/LTC/1.0

दिसम्बर / December- 2014

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महाराजपुर, ग्वालियर – 474 005 (म.प्र.)

Maharajpur, Gwalior – 474 005 (M.P.)

✆ : 0751-2470869, Fax: 0751- 2470841

E-Mail : dircivilcamtech@gmail.com