

SOUTH CENTRAL RAILWAY

Safety. 387 / Fly Leaf / 06 / 2026

Fly Leaf No. 06 / 2026

SUMMER PRECAUTIONS.

(CTE Lr. No. N.W.T-5 / SP-WP / Vol.-VI dated 23.02.2026)

Summer is fast approaching. In fact, when the weather changes from winter to summer, variations in the rail temperature are higher. It becomes essential to take summer precautions especially in Long Welded Rails (LWR) territory. The sections are required to be inspected with a view to identify deficiencies in the form of missing fittings, ballast deficiency and consolidation etc. De-stressing must be carried out for the stretches of LWR based on their behaviour.

Necessary precautions to be taken as prescribed in IRPWM 2024 Para 320 & 324 for free rail/SWR track and Para 345, 346, 353 & 354 (1) & (2) for LWR track. Hot weather patrolling should be introduced, wherever required as per Para 1005(1) & (2) (Necessary Para copies enclosed).

Salient points calling for your special and immediate attention are highlighted below in LWR territory.

1. Shortage of ballast in long welded rails and newly welded rail sections should be made good before on-set of summer.
2. Ensure proper profile of ballast on LWR section. This may need balancing of ballast. Gangs to be directed to carryout shoulder ballast compaction to improve the lateral stability especially outside of all curves to increase lateral ballast resistance.
3. De-stressing of LWRs based on behavior of LWR, stretches of LWR where renewals/deep screening has been carried out in recent past, stretches where new LWRs have been laid.
4. Recoupmnt of fittings to ensure zero missing fittings and renewal of ineffective fittings to ensure adequate toe load.
5. Ensuring enough ballast in shoulder and crib portion in general and on bridge approaches, LC approaches and trespass locations in particular. Track should be boxed up before break for lunch.
6. De-stressing shall be done when rail temperature falls between the range provided for t_d . If required temperature cannot be obtained in field, de-stressing can be done at a little lower temperature than the targeted stress-free temperature to with the use of rail tensors (Para 339 of IRPWM-2024).
7. Planning for Hot Weather patrolling (As per Para 1005 of IRPWM-2024)

Hot Weather Patrolling: Period of hot weather patrolling shall be laid down by the Chief Track Engineer for each section and patrol charts prepared where necessary. Patrolling shall be organized by JE/SSE/(P.Way) accordingly. In addition, the JE/SSE(P.Way) and the Gangmate shall be vigilant during summer and on hot days. Patrolling will be introduced, when the rail temperature rises above.

- (a) (i) $t_d + 30^\circ \text{C}$ on Wider Base PSC sleeper track with sleeper density 1660 nos. per Km and above.
(ii) $t_d + 25^\circ \text{C}$ on PSC sleeper track with sleeper density 1540 nos./KM and above.
- (b) $t_d + 20^\circ \text{C}$ on PSC sleeper track with sleeper density less than 1540 nos./KM and above.

Patrolling equipment should always be handy and Hot weather patrolling should be introduced.

Patrolman shall patrol the track during the hottest part of the day, to look for prominent kinks, incipient buckles or tendency towards buckling. He shall protect the track at the site of the prominent kinks, incipient or actual buckles and report the same to nearest Station

Master and JE/SSE/P.Way immediately. The patrolman shall be preferably be provided with a GPS tracking device, to monitor his movements so as to ensure effective patrolling.

Patrolman will walk over his beat slowly over one rail/on sleeper non gauge side of rail in one direction and on the other rail/on sleeper non gauge sleeper side of rail in the return direction. On double lines, he will repeat this procedure alternately on UP and DN tracks. He will be vigilant and look out for kinks in the rail especially during the hottest part of the day. When a kink is observed, he shall immediately examine at least 100 sleepers ahead and in the rear of the kink for any floating condition of track. He should meticulously sound each and every sleeper, 100 sleepers on either side of the kink, to determine any floating condition. The amount of rebound will be noted by dropping a Canne-a-boule on each end of the sleeper to determine the extent of void under the sleeper should the amount of rebound reveal a floating condition, under which a buckle may be anticipated or the patrolman has detected actual buckling of track, he will take immediate steps to protect the affected part by display of hand signals as per rules in force. After protecting the track, the patrolman will arrange to advise the Gangmate, JE/SSE/P.Way of his apprehension of a buckle/actual buckle.

The Gangmate on receipt of advice of a danger of buckle will proceed to the site quickly with all available men. On arrival at site, he will first ensure protection of affected portion. He should then inspect the condition of track 100m on either side of this suspected zone and commence heaping of surplus ballast, if available, on the shoulders and upto the rail head and keep on compacting the ballast with available means. No attempt should be made to slew or align the track or disturb the existing ballast section. The Gang Mate should continue to remain at site till the arrival of JE/SSE/P.Way. The rail temperature will also be noted by one of these officials at the place of apprehended/actual buckle. The rail facing the sun will be covered upto the level of rail head on the outside by ballast or leaves etc. to bring down the temperature of the rail.

Planning for hot weather patrolling, monitoring of rail temperature record and availability of requisite contingent of tools and plants of Patrolman.

All the P.Way Staff including the Mates, Key men and P.Way Supervisors should be educated/counseled regularly in regard to DO's and DON'T's for working in LWR and SWR territory.

They should be well trained and should hold a Competency certificate to work in LWR territory. The provisions of Manual regarding maintenance, especially such as the items which are prohibited are explained in person by the concerned ADENs to all the Key men, Mates, P.Way Supervisors at the work spot during trolley inspection and an assurance taken in writing. Assurance certificate signed by Sr.DENs/DENs (para no 354 (2) (d) are to submitted to Headquarters office, so as to reach by 31-03-2026.

All the Gangs should have rail thermometers in working condition and their accuracy should be checked frequently by the inspecting officials. Knowledge of the Gangs in rules should be tested particularly with regard to the limit of rail temperature in different color painted in (Green, yellow & Red) for normal gang work and for introducing hot weather patrolling, also action to be taken after maintenance when the rail temperature goes high. In case of any faulty Rail Thermometer the same is to be replaced with good rail Thermometer in working condition.

Inspection by Sr.DEN/DEN ((vide Director civil Engg. (Plg.) Rly. Bd. Lr. No. 2019/CE-II/TK/ROI dt. 23.12.2020), ADEN (vide Table-1A (Para 103) of IRPWM-2024), SSE/P.Way (In-charge) (vide Table-1B (Para 106) of IRPWM 2024) & JE/SSE/P.Way (Other than in-charge or Sectional) (vide Table-1C (Para 110) of IRPWM 2024).

LWR details fed into tMS should be immediately scrutinized, if not already done. De-stressing of LWR/CWR undertaken wherever necessary based on Inspection of SEJ as per schedule.

Sr.DEN/DEN will scrutinize TMS records of LWR/CWR and shall countersign certificate given by ADEN and an exception report to this effect should be submitted to the Headquarters office by 31-03-2026 (Para 354 of IRPWM 2024).

(ADEN will analyze the observation of each LWR/CWR in his jurisdiction and give a certificate at the end of LWR/CWR register before onset of summer regarding satisfactory behavior of all LWRs/CWRs. DEN/Sr.DEN will scrutinize observations of each LWR/CWR, initial each page and send exception report to Territorial Chief Engineer (THOD) for his decision/orders).

Switch Expansion Joints (SEJ) should be oiled & greased once in 15 days (As per ESO No. 86).

SWR TERRITORY : It is essential to look after the Short welded Rails (SWR) track and free rail track to ensure proper gaps at joints, Gap Survey, pulling back creep and adjusting of gaps along with the lubrication of rail joints before the onset of summer i.e. by the end of February 2026. Else misalignment or buckling may also take place in such stretches (Para 320, 322, 324 & 351 (1) (C) of IRPWM 2024).

1.0 GENERAL :

- (a) For ready reference a brief list of instructions in the form of DO's and DON'T's in LWR and SWR territory are enclosed. All the JE/SSE/P. Way under your control should be thoroughly conversant with the above instructions and adhere to the same meticulously. They may be counselled during the Line Inspection besides periodical meetings in the Divisional Headquarters. Similarly, Safety Meetings may also be conducted in the ADENs Office to high light the summer precautions to be taken by the field staff.
 - (b) SSE/P. Way in charge of section to ensure Mate/Keyman working in LWR territory should have a valid Competency Certificate issued by Divisional Training Centre (valid for 5 years) or by ADEN after examining the level of competence (valid for 1 year) Para 1402 (4) of IRPWM 2024.
- 1.1 Check the accuracy of the rail thermometer supplied to the gangs and those installed at the SSE/JE/P. Way Headquarters station and other places.
 - 1.2 Educate the Gang Mates, Keymen and Trackmen during trolley inspections about the provisions of LWR Manual regarding maintenance, especially such as the items which are prohibited at work spot.
 - 1.3 JEs/SSEs (P.Way)/ADEN and the other inspecting Officials should trolley their Sections during the hottest part of the day for noticing the behavior of the track.

S. No	Officer Concerned	Schedule of Inspection
1.	Sr.DEN/DEN	As and when required (vide Director civil Engg. (Plg.) Rly. Bd Lr. No. 2019/CE-II/TK/ROI dt. 23.12.2020)
2.	ADEN	When introduced; should check the work of Patrolmen during day time (preferably between 12.00 to 16.00 hrs) once in a month either by Train/Push trolley/Motor Trolley. (vide Table-1A (Para 103) of IRPWM 2024)
3.	SSE/P.Way (In-charge)	SSE/P.Way (In-charge): When introduced should check the work of Patrolmen during day time (preferably between 12.00 to 1.00 hrs.) once in a month either by Train/Push trolley/Motor Trolley. (vide Table-1B (Para 106) of IRPWM 2024)
4.	JE/SSE/P.Way (Other than In-charge or Sectional)	Should check the work of Patrolmen during day time (preferably between 12.00 to 16.00 hrs.) once in fortnight with on foot inspection covering his entire jurisdiction.

1.4 Identify locations where continuous falling of keys, ERCs are predominant like loosening/missing of fastenings in sabotage prone area i.e. station approaches and take appropriate action.

1.5 Regular Maintenance

(a) Short Welded Rails (SWR) (Para 324 of IRPWM 2024)

- (1) Regular track maintenance operations like packing, lifting, alignment, local adjustment of curves, screening of ballast other than deep screening and scattered renewal of sleepers may be carried out without restriction when the rail temperature is below $t_m + 25^\circ \text{C}$ in the case of zone I & II and $t_m + 20^\circ \text{C}$ in the zone III IV. However, on curves of less than 875metre radius in Broad Gauge or yielding formation, the above temperature limit shall be restricted to $t_m + 15^\circ \text{C}$ in the case of Zone I and II and $t_m + 10^\circ \text{C}$ in case of Zone III and IV.
- (2) If the maintenance operations have to be undertaken at temperature higher than that mentioned above in Sub-Para (1) above, not more than 30 sleeper spaces in one continuous stretch shall be opened, leaving at least 30 fully boxed sleeper spaces between adjacent lengths which are opened out. Before the end of the day's work, it shall be ensured that the ballast is boxed up.
- (3) As an additional precaution, during summer months, to be specified by the Chief Engineer, for attention to run down track, even if temperature is less than the temperature specified in Sub-Para (1) above, not more 30 sleeper spaces in one continuous stretch shall be opened, leaving at least 30 fully boxed sleeper spaces between adjacent lengths which are opened out. Further, if joint gaps are not available at the time of opening of the track even when rail temperature are less than those specified in clause Sub-Para (1) above not more than 30 sleepers in one continuous stretch should be opened leaving at least 30 boxed sleeper spaces between adjacent length which are opened up.
- (4) Major lifting, major alignment of track, deep screening and renewal of sleepers in continuous length. Each of these operations shall be done under suitable precautions and normally when the rail temperature is below $t_m + 15^\circ \text{C}$ in the case of Zone I and II, and $t_m + 10^\circ \text{C}$ in the case of Zone III and IV. if it becomes necessary to undertake such works at rail temperature exceeding the above values, adequate speed restrictions shall be imposed.
- (5) Adequate number of jogged fishplates with special clamps shall be provided to the gangs for use in emergencies.
- (6) In case of any fracture in the weld or in the rail, the portion of rail with fracture is cut, and removed for a length of not less than 5.5m to carry out the re-welding duly introducing a rail peace of equivalent length, also ensuring that no weld lies closer than 4 m from the fish-plated joint.

(b) LWR/CWR (Para 345 of IRPWM 2024)

- (i) Tamping/Packing
 - (ii) Lifting
 - (iii) Aligning including minor realignment of curves
 - (iv) Shallow screening/shoulder cleaning
 - (v) Renewal of fastenings required lifting
 - (vi) Maintenance of SEJ
- (1) General
- (a) The regular track maintenance in LWR/CWR shall be confined to hours when the rail temperature is between $t_d + 10^\circ \text{C}$ and $t_d - 30^\circ \text{C}$ and shall be completed well before onset of summer. However, for LWR on wider base sleepers, regular

track maintenance shall be confined to hours when the rail temperature is between $t_d + 15^\circ \text{C}$ and $t_d - 30^\circ \text{C}$.

- (b) If the rail temperature after maintenance operation exceeds $t_d + 20^\circ \text{C}$ for conventional PSC sleeper and $t_d + 25^\circ \text{C}$ for wider base sleepers during the period of consolidation, then the speed restriction of 50 Km/h shall be imposed.
 - (c) Ballast section shall be properly maintained, especially on pedestrian & cattle crossings, curves and approaches to level crossings and bridges. Cess level should be correctly maintained. Dwarf walls may be provided on pedestrian and cattle crossing to prevent loss of ballast.
 - (d) Replenishment of ballast shall be completed before onset of summer. Shortage of ballast in the shoulder at isolated places shall be made up by the Gang Mate by taking out minimum quantity of ballast from the centre of the track between the two rails over a width not exceeding 600 mm and a depth not exceeding 100 mm.
 - (e) Sufficient quantity of ballast shall be collected to provide full Ballast section before commencing any maintenance operation specially lifting.
 - (f) When Crowbars are used for Slewing, care shall be taken to apply these in a manner as to avoid lifting of track. In this connection, the instructions, in Para 607 (d) shall be followed.
 - (g) Special attention shall be paid to maintenance of track at following locations
 - SEJs/ Breathing lengths
 - Approaches of Level Crossings, Points & Crossings and Un-ballasted deck bridges
 - Horizontal and Vertical curves
 - (h) All fastenings shall be completed and well secured in position.
- (2) Mechanized Maintenance
- (a) Tamping in LWR/CWR with general lift not exceeding 50mm including correction of alignment shall be carried out during the period when prevailing rail temperatures are as per para 345 (1) (a) & (b) together with precautions laid down therein.
 - (b) Lifting where needed, in excess of 50mm shall carried out in stages with adequate time gap in between successive stages such that full consolidation of the previous stage is achieved prior to taking up the subsequent lift.
 - (c) Mechanized cleaning of shoulder ballast shall be undertaken when prevailing rail temperatures are within the limits prescribed together with the precautions mentioned therein.
- (3) Manual Maintenance
- (a) At no time, not more than 30 sleeper spaces in a continuous stretch shall be opened for manual maintenance or shallow screening with at least 30 fully boxed sleeper spaces left in between adjacent openings. Maintenance of in between lengths shall not be undertaken till passage of traffic for at least 24 hrs. in case of BG carrying more than 10 GMP or 2 days in case of other BG routes.
 - (b) For correction of alignment, the shoulder ballast shall be opened out to the minimum extent necessary and that too, just opposite the sleeper end. The ballast in shoulders shall then be put back before opening out crib ballast for packing.
 - (c) In exceptional circumstances when more than 30 sleeper spaces have to be opened for any specific work, like through screening of ballast etc. during the period of the year when minimum daily rail temperature is not below $t_d - 30^\circ \text{C}$ on maximum does not go beyond $t_d + 10^\circ \text{C}$, upto 100 sleeper spaces may be opened under the direct supervision of JE/SSE/P.Way

- (d) It should however, be ensured that rail to sleeper fastening on the entire length of LWR including SEJs are functioning satisfactorily.
- (4) Casual Renewal of Sleepers:
Not more than one Sleeper in 30 consecutive sleepers shall be replaced at a time. Should it be necessary to renew two or more consecutive sleepers in the same length, they may be renewed one at a time after packing the sleepers renewed earlier duly observing the temperature limits specified in para 345(1)(a) & (b) together with precautions mentioned therein.
- (5) Renewal of fastening:
The work of renewal of fastening shall be carried out when rail temperature is within the limits specified in Para 354 (1) & (b) with following additional precautions: -
 - (a) Renewal of fastenings not requiring lifting of rail: (Back to Para **116(7) (b))**
Fastening not requiring lifting of rails, shall be renewed on not more than one sleeper at a time. In case fastenings of more than one sleeper are required to be renewed at a time, then at least 15 sleepers in between shall be kept intact. Work shall be done under supervision of Keyman.
 - (b) Renewal of fastenings requiring lifting of rail: Fastening requiring lifting of rails i.e. grooved rubber pads, etc. shall be renewed on not more than one sleeper at a time. In case fastenings of more than one sleeper are required to be renewed at a time, then at least 30 sleepers in between shall be kept intact. Work shall be done under supervision of Gang Mate. Alternatively, if prevailing rail temperature is lower than $t_d - 10$, fastening up to 5 sleepers on either side may be removed for replacement of rubber pad under the rail.
- (6) Maintenance of SEJs:
 - (a) 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 fastening shall be done simultaneously.
 - (b) During his daily patrolling, Keyman shall keep special watch on the SEJs falling in his beat.
- (7) Renewal of defective rails/welds: The procedure laid down in **Para 349(2)** of this manual for repairs to track after rail fracture shall be followed.

1.6 Special Track Maintenance in LWR/CWR (Para 346 of IRPWM 2024)
Includes following operations:

- (a) Through fitting renewal
 - (b) Deep screening/mechanized cleaning of ballast
 - (c) Lowering/Lifting of track
 - (d) Major realignment of curves
 - (e) Sleeper renewal other than causal renewals
 - (f) Rehabilitation of bridges and formation causing disturbance to track
- (1) Through fitting renewal:
Whenever it decided to carry out through renewal of fittings, the LWR shall be destressed with immediately after the TFR is completed of complete or part LWR.
 - (2) Deep screening/mechanized cleaning of ballast:
 - (a) Provisions laid down in Para 637 (2) shall apply to LWR/CWR regarding the sequence of operations of Ballast Cleaning Machine (BCM).
 - (b) Ballast Cleaning Machine (BCM), Tamping Machine and Dynamic Track Stabilizer (DTS) shall, as far as possible, be deployed in one consist.
 - (c) Temperature records of the section where the Deep Screening is to be under taken shall be studied for the previous and current year. The maximum and Minimum rail temperature attainable during the period of deep screening and

during period of consolidation shall be estimated. Any of the following two methods may be adopted for carrying out work of Deep Screening/ Mechanized cleaning.

- (i) If the range of the rail temperature falls within $t_d + 10^\circ \text{C}$ to $t_d + 20^\circ \text{C}$, Deep Screening may be done without cutting or temporary De-Stressing.
- (ii) If the range of rail temperature falls outside (a) above, temporary De-Stressing shall be carried out 10°C below the maximum rail temperature likely to be attained during the period of work.
- (d) Constant Monitoring of rail temperature shall be done during the progress of work. Should the temperature raise more than 10°C above t_d / temporary De-stressing temperature, adequate precautions shall be taken including another round of temporary de-Stressing as required.

Note: Deep Screening shall be under taken within reasonably short period of temporary de-stressing so as ensure that the temperature range is as prescribed at sub **para (2) (c) (ii) above** is ensured, failing which temporary de-stressing may become due again.

- (e) During the period of deep Screening, if there is any possibility of minimum temperature falling 20°C below t_d / temporary de-stressing temperature, cold weather patrol as per para 1005 (3) should be introduced to detect / guard against rail fractures.
- (f) Sequence of operation: -
 - (i) Deep Screening of LWR may be done from one end of LWR to other end.
 - (ii) After Deep Screening and consolidation, de-stressing of LWR shall be under taken as per para 340 / 341
- (3) Other Special Maintenance:
 - (a) Other types of Special track maintenance constitute jobs like lowering of track, major realignment of curves, renewal of large number of sleepers or rehabilitation of formation / Bridges causing disturbance to track.
 - (b) For carrying out such maintenance, the affected length of track may be isolated from LWR/CWR by introducing SEJ as needed.
 - (c) After completion of work, the affected length of track shall be de-stressed at the required de-stressing temperature and joined with the rest LWR/CWR in accordance with **para 342**.

SAFETY ORGANISATION

SOUTH CENTRAL RAILWAY

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