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TM/HM/TRT/Pt-III

Date: 23-01-2020

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विषय: ट्रैक रिलेइंग ट्रेन (टी०आर०टी०) मशीन की अनुरक्षण अनुसूची सूची (संशोधन-1)

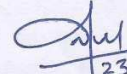
Sub: Maintenance Schedule Manual for Track Relaying Train (TRT) Revision-1

ट्रैक रिलेइंग ट्रेन (टी०आर०टी०) की अनुरक्षण अनुसूची सूची का (संशोधन-1) तैयार की गयी है। जिसकी प्रति, आप के सूचनार्थ तथा मशीन के कर्मचारियों जो फील्ड में कार्य कर रहे हैं के मार्गदर्शन हेतु संलग्न है। यद्यपि उपरोक्त संशोधन बनाते समय सभी सावधानियाँ बरती गई हैं, फिर भी यदि कोई त्रुटि हो तो, कृपया अपने सुझावों/ टिप्पणियों को सुधार हेतु ई-मेल धक्केस धन्नाचार द्वारा अद्योहस्ताक्षरी को भेजे।

Revision-1 of Maintenance Schedule Manual for Track Relaying Train (TRT) has been prepared. A copy of the same is being enclosed herewith for your information and guidance of the machine staff working in the field. However every care has been taken during revision of the above said list, the discrepancy noticed, if any, may be brought to the knowledge of the undersigned for further improvement, by email/fax/post.


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**GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS**

**MAINTENANCE SCHEDULES  
FOR  
TRACK RELAYING TRAIN  
(TRT)**



**REPORT NO. TM-104  
(Revision -1)  
(January-2020)**

**RESEARCH DESIGNS & STANDARDS ORGANISATION  
MANAK NAGAR, LUCKNOW-226011.**

## **PREFACE**

Maintenance of On-Track Machines is a challenging task. Maintenance of these machines is being done by Zonal Railways with the assistance of local trade available, zonal track machine workshops and RDSO/Lucknow, with experience over the years, the Railways engineers have developed adequate expertise in the maintenance of these machines. However, in absence of approved maintenance instructions, different maintenance practices have come into vogue. Therefore, it has become imperative to have a uniform maintenance standard throughout the Indian Railways.

Revise Maintenance Schedule Manual for Track Relaying Train (TRT) has been prepared on the basis of Maintenance instruction given by OEM and suggestions received from North Railway. Suggestions/instructions given by OEM from time to time are to be also followed in addition to this manual. The manual is prepared for those items which is required day to day maintenance. Apart from these instruction if any part of machine fails/breakdown that shall be attended immediately by the Railways. The oiling and greasing shall be done of every moving part where as required in addition to manual depending on discretion of machine In-charge. Some time machine modified/alterd on the basis of experience or OEM suggestion that shall be also undertaken in the maintenance practice. If the engine of machine is under AMC then maintenance/instruction schedule of repairing/alteration of engine may be followed as per term and condition of this manual.

While every care has been taken to make the maintenance schedules quite exhaustive, there is always scope for further improvement. Suggestions from the railways in this regard will be welcome and may be sent to the undersigned for future improvement.

January-2020

(Om Prakash)  
Director/Track Machine-III  
RDSO/Lucknow-226011

## EXPLANATORY NOTES

While preparing the text of Maintenance Schedule Manual (Rev-1) of Track Relaying Train P- 811S (TRT) the terms used and their meanings are explained below:

- CHECK - Ensure a specific condition does (or does not) exist.
- INSPECT - Look for damage and defects including breakage, distortion cracks, corrosion and wear, check for leaks, security and that all items are completed.
- CHANGE - Fit new or overhauled or reconditioned part in place of old parts and missing parts.
- OVERHAUL - Dismantle, examine, recondition or renew parts as necessary against given specifications, reassemble, inspect and test.

Maintenance Schedule Manual (Rev.1) for Track Relaying Train P- 811S (TRT)

S. N	Schedule	Periodicity	Duration	Location
1.	Schedule I	Daily/ before working and running	One hour	In the track Machine siding
2.	Schedule II	50 Engine hrs.	Two hrs.	-do-
3.	Schedule III	100 Engine hrs.	One day	-do-
4.	Schedule IV	200 Engine hrs.	Two days	-do-
5.	Schedule V	1000 Engine hrs.	7 days	In Satellite Depot/Zonal Workshop
6.	Schedule VI IOH	2000 Engine hrs.	45 days	In Zonal Workshop
7.	Schedule VII POH	1 <sup>st</sup> – POH 8000 hrs 2 <sup>nd</sup> – POH 14000 hrs then after every 4000 hrs intervals	70 days 90 days	In Zonal Workshop

Note: - The entire maintenance schedule includes all previous maintenance schedules

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S.No	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
<b>1. ENGINE NTA-855 C, 360 hp, 2100 rpm.</b>								
1.1	Check coolant level of radiator and top up, as required.	√	√	√	√	X	X	X
1.2	Check the fuel level and top up if required.	√	√	√	√	X	X	X
1.3	Check level of engine oil & top up, as required.	√	√	√	√	X	X	X
1.4	Check the leakage from fuel pump, injectors, fuel supply and return pipes and do needful.	√	√	√	√	X	X	X
1.5	Check the leakage from hoses, water pump etc. and do the needful.	√	√	√	√	X	X	X
1.6	Check air cleaner filter choking indicator.	√	√	√	√	X	X	X
1.7	Clean the engine & premises.	√	√	√	√	X	X	X
1.8	Check engine oil pressure on load after two hours working.	√	√	√	√	X	X	X
1.9	Drain fuel water Separator before starting the engine.	√	√	√	√	X	X	X
1.10	Check the tension of V belt and correct if required.	√	√	√	√	X	X	X
1.11	Drain water from air receiver after day's work.	√	√	√	√	X	X	X
1.12	Open and clean dust collector/pan,	√	√	√	√	X	X	X
1.13	Record the maximum engine temperature of the day's work.	√	√	√	√	X	X	X
1.14	Check charging ammeter of batteries (it should be +ve)	√	√	√	√	X	X	X
1.15	Grease radiator fan drive.	X	√	√	√	X	X	X
1.16	Check electrolyte level of batteries, top up if required.	X	√	√	√	X	X	X
1.17	Check battery terminal and connection for tightness.	X	√	√	√	X	X	X
1.18	Apply petroleum jelly on battery terminal.	X	√	√	√	X	X	X
1.19	Clean the water separator of fuel supply system.	X	√	√	√	X	X	X
1.20	Check injector pipes for any rubbing and do needful.	X	√	√	√	X	X	X
1.21	Check water temperature safety device.	X	X	√	√	X	X	X
1.22	Check lube oil pressure safety device.	X	X	√	√	X	X	X
1.23	Inspect the fuel water separator for proper functioning.	X	X	√	√	X	X	X
1.24	Check the throttle control linkages & lubricate.	X	X	√	√	X	X	X
1.25	Examine the mounting bolts of engine.	X	X	√	√	X	X	X

S.No	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
1.26	Clean outer air cleaner element.(Cleaned after every 200 hrs or on dirt indication)	x	x	x	√	x	x	x
1.27	Change Engine oil.	x	x	x	√	x	x	x
1.28	Change lube oil filter element.	x	x	x	√	x	x	x
1.29	Change fuel filter element	x	x	x	√	x	x	x
1.30	Lubricate all the engine pulleys with grease.	x	x	x	√	x	x	x
1.31	Replace the super lube oil by- pass filter element.	x	x	x	√	x	x	x
1.32	Clean crank case breather.	x	x	x	√	x	x	x
1.33	Check for hub drive pulley and water pump.	x	x	x	√	x	x	x
1.34	Check fuel tank breather and clean if required.	x	x	x	√	x	x	x
1.35	Check/add Coolant additive concentrate	x	x	x	√	x	x	x
1.36	Check specific gravity of battery electrolyte if applicable.	x	x	x	√	x	x	x
1.37	Check foundation bolts of compressor, if applicable.	x	x	x	√	x	x	x
1.38	Replace the outer and inner engine air cleaner element.	x	x	x	√	√	√	√
1.39	Change worn out water hoses.	x	x	x	x	√	√	x
1.40	Check coolant for PH value (8.5-10.0).	x	x	x	x	√	√	x
1.41	Clean the engine radiator externally.	x	x	x	x	√	√	x
1.42	Check the condition and tightness of V-belt for water radiator fan & Alternators	x	x	x	x	√	√	x
1.43	Clean the diesel tank with lint free cloth.	x	x	x	x	√	√	x
1.44	Check the water pump idler and fan hub idler pulley	x	x	x	x	√	√	x
1.45	Calibrate the fuel injectors	x	x	x	x	x	√	x
1.46	Calibrate the fuel injector pump	x	x	x	x	x	√	x
1.47	Replace all water hoses	x	x	x	x	x	√	x
1.48	Overhaul /replace the engine on condition basis	x	x	x	x	x	√	x
1.49	Overhaul air compressor.	x	x	x	x	x	x	√
1.50	Change anti-vibration mounting pads of engine	x	x	x	x	x	x	√
1.51	Change the shut down valve on condition basis	x	x	x	x	x	x	√
1.52	Change inlet hoses.	x	x	x	x	x	x	√



S.No	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
<b>2. HYDRAULICS</b>								
2.1	Check and top up hydraulic oil tank.	√	√	√	√	X	X	X
2.2	Record the maximum temperature of hydraulic fluid during the day's work.	√	√	√	√	X	X	X
2.3	Check rubbing of hydraulic hoses and attend if required	√	√	√	√	X	X	X
2.4	Check all filters for chocking indicator.	√	√	√	√	X	X	X
2.5	Check the leakage from hydraulic hoses and do needful.	√	√	√	√	X	X	X
2.6	Change oil of drive gear box.	X	X	X	√**	√**	√**	√**
2.7	Change oil of reduction gear box.	X	X	X	√**	√**	√**	√**
2.8	Change oil of conveyor gear box.	X	X	X	√**	√**	√**	√**
2.9	Change oil of disconnect gear box.	X	X	X	√**	√**	√**	√**
2.10	Change oil of hydraulic pump drive gear box.	X	X	X	√**	√**	√**	√**
2.11	Change oil of shifter gear box.	X	X	X	√**	√**	√**	√**
2.12	Change the oil of hydraulic working drive reduction box.	X	X	X	√**	√**	√**	√**
2.13	Change suction filters.	X	X	X	√	X	X	X
2.14	Clean the breather filter of hyd. Tank.	X	X	X	√	X	X	X
2.15	Check all pressure controls for rated settings	X	X	X	√	X	X	X
2.16	Clean and repair the hydraulic oil cooler, if it is blocked more than 20% or badly leaking.	X	X	X	X	√	√	X
2.17	Clean the hydraulic reservoir and fill laboratory tested / new oil as required.	X	X	X	X	√	√	X
2.18	Replace the hydraulic hoses which are damaged by external abrasion.	X	X	X	X	X	X	√
2.19	Check the hydraulic pumps & motors for proper function and do need full.	X	X	X	X	X	X	√
2.20	Check the D.C. valves for internal leakage and do need full.	X	X	X	X	X	X	√
2.21	Replace the seals of all hydraulic cylinders along with gland seals.	X	X	X	X	X	X	√
(*) Done after every 250 Engine hours (**) Done after every 500 Engine hours								

S.No	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
<b>3.</b>	<b>PNEUMATIC</b>							
3.1	Drain the pneumatic reservoir.	√	√	√	√	X	X	X
3.2	Check the all pneumatic gauges for rated settings	√	√	√	√	X	X	X
3.3	Check air brake pressure(3.8 bar on locking condition)	√	√	√	√	X	X	X
3.4	Check pneumatic system for any air leakage.	√	√	√	√	X	X	X
3.5	Check the brake application before entering in the block section.	√	√	√	√	X	X	X
3.6	Check all the pneumatic hoses.	X	√	√	√	X	X	X
3.7	Check and clean the air oiler and fill up with the new oil.	X	√	√	√	X	X	X
3.8	Check pneumatic cylinders for air leakage.	X	√	√	√	X	X	X
3.9	Clean all the cylinder piston rod & lubricate the clavicles.	X	√	√	√	X	X	X
3.10	Check brake lining and brake block play & adjust.	X	X	X	√	X	X	X
3.11	Check air unloaded for proper functioning & pressure.	X	X	X	√	√	X	X
3.12	Change of air drier filter cartridge, if applicable.	X	X	X	X	√	√	X
3.13	Overhaul the air unloader or replaced as required.	X	X	X	X	√	√	X
3.14	Clean the cooling coil.	X	X	X	X	√	√	X
3.15	Replace the damaged and chocked pneumatic pipes.	X	X	X	X	√	√	√
3.16	Replace the seals of all pneumatic cylinders.	X	X	X	X	√	√	√
3.17	Clean the air reservoir.	X	X	X	X	√	√	√
3.18	Change pneumatic pipes leading to brake cylinders.	X	X	X	X	√	√	√
3.19	Change the seals of brake cylinders.	X	X	X	X	√	√	√
3.20	Change Granulated cartridges.	X	X	X	X	√	√	√
3.21	Replace all pneumatic hoses.	X	X	X	X	X	X	√
3.22	Replace all pneumatic regulators valves on need basis.	X	X	X	X	X	X	√
3.23	Replace all pneumatic valves on need basis.	X	X	X	X	X	X	√
3.24	Replace the pneumatic cylinders on condition basis, which were creating the frequent trouble during work. Otherwise replace seals	X	X	X	X	X	X	√
3.25	Clean and check the air reservoir for rated air pressure.	X	X	X	X	X	X	√

S.No.	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.I V 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
<b>4.</b>	<b>MECHANICAL</b>							
4.1	Check all the machine for proper locking.	√	√	√	√	x	x	x
4.2	Check conveyor chains for looseness and cracks.	√	√	√	√	x	x	x
4.3	Check rollers of the sled.	√	√	√	√	x	x	x
4.4	Check sprocket and chains of sled.	√	√	√	√	x	x	x
4.5	Check condition of fingers of pick up unit.	√	√	√	√	x	x	x
4.6	Grease old sleepers pick up mechanism.	√	√	√	√	x	x	x
4.7	Grease new sleepers drop mechanism.	√	√	√	√	x	x	x
4.8	Grease magazine rollers.	√	√	√	√	x	x	x
4.9	Grease dynamic plow.	x	√	√	√	x	x	x
4.10	Grease conveyor shaft bearings.	x	√	√	√	x	x	x
4.11	Lubricate conveyor chain with oil.	x	√	√	√	x	x	x
4.12	Lubricate conveyor drive chain with oil.	x	√	√	√	x	x	x
4.13	Lubricate other points as per requirement.	x	√	√	√	x	x	x
4.14	Grease and drive shaft and universals Joints.	x	√	√	√	x	x	x
4.15	Apply lube oil on bush bearing.	x	√	√	√	x	x	x
4.16	Inspect rubber pads on sleeper conveyor chains and replace as per requirement.	x	√	√	√	x	x	x
4.17	Grease all cardan shafts.	x	√	√	√	x	x	x
4.18	Check all conveyor chain for wear and tension, replace as per requirement.	x	√	√	√	x	x	x
4.19	Lubricate conveyor drive chain with oil.	x	√	√	√	x	x	x
4.20	Lubricate other points as per requirement.	x	√	√	√	x	x	x
4.21	Grease and drive shaft and universals Joints.	x	√	√	√	x	x	x
4.22	Apply lube oil on bush bearing.	x	√	√	√	x	x	x
4.23	Inspect rubber pads on sleeper conveyor chains and replace as per requirement.	x	√	√	√	x	x	x

S.No.	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
4.24	Grease all cardan shafts.	x	√	√	√	x	x	x
4.25	Check all conveyor chain for wear and tension, replace as per requirement.	x	√	√	√	x	x	x
4.26	Lubricate all thread in and thread out rollers with grease.	x	√	√	√	x	x	x
4.27	Lubricate linkage on pump control with grease.	x	√	√	√	x	x	x
4.28	Check oil level of disconnect gear box and fill up to required level.	x	√	√	√	x	x	x
4.29	Check oil level of hydraulic pump drive gear box and fill up to required level.	x	√	√	√	x	x	x
4.30	Check oil level of all axle gear boxes and fill up to required level.	x	√	√	√	x	x	x
4.31	Check oil level of planetary gear box and fill up to required level.	x	√	√	√	x	x	x
4.32	Check oil level of shifter gear box and fill up to required level.	x	√	√	√	x	x	x
4.33	Check condition of rail alignment rollers.	x	√	√	√	x	x	x
4.34	Recondition vibration plate of dynamic plow.	x	√	√	√	x	x	x
4.35	Recondition wear plate of side plow.	x	√	√	√	x	x	x
4.36	Recondition skids.	x	√	√	√	x	x	x
4.37	Check universal joints for play and replace, if required.	x	√	√	√	x	x	x
4.38	Grease all brake linkages.	x	√	√	√	x	x	x
4.39	Check oil level of all gear boxes and fill up-to the mark, if required.	x	√	√	√	x	x	x
4.40	Grease flange covers of gear boxes.	x	√	√	√	x	x	x
4.41	Check foundation bolts of brake cylinder.	x	x	√	√	x	x	x
4.42	Grease bogie turning pin.	x	x	√	√	x	x	x
4.43	Inspect and Grease all cardon shafts.	x	x	√	√	x	x	x
4.44	Grease torque arm pivot.	x	x	√	√	x	x	x
4.45	Grease hand brake gear.	x	x	√	√	x	x	x
4.46	Check shock absorbers and do needful.	x	x	x	x	√	√	x
4.47	Check bearings of all axles and grease them.	x	x	x	x	√	√	x
4.48	Check meggie springs and replace, if required.	x	x	x	x	√	√	x

S.No.	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
4.49	Replace the missing and defective hand tools.	x	x	x	x	x	√	x
4.50	Strengthen machine frame where cracks have developed.	x	x	x	x	x	x	√
4.51	Check the wheels for tyre defects, repro-file or replace.	x	x	x	x	x	x	√
4.52	Overhaul all the gear boxes	x	x	x	x	x	x	√
4.53	Overhaul the X-bearing of all propeller shaft or replace if required.	x	x	x	x	x	x	√
4.54	Replace the shaft coupling and holding nuts & bolts.	x	x	x	x	x	x	√
4.55	Overhaul the driving and idle bogies and replace the defective parts.	x	x	x	x	x	x	√
4.56	Complete machine may be painted with approved paint.	x	x	x	x	x	x	√
<b>5. ELECTRICAL</b>								
5.1	Clean alternator and check connections.	√	√	√	√	x	x	x
5.2	Check operation of emergency / traction stop switch.	√	√	√	√	x	x	x
5.3	Check electrical system for proper functioning.	√	√	√	√	x	x	x
5.4	Check auto functioning of relays, limit switches etc.	√	√	√	√	x	x	x
5.5	Check all limit switches.	√	√	√	√	x	x	x
5.6	Check function of horns	x	√	√	√	x	x	x
5.7	Check all lights and do needful.	x	x	√	√	x	x	x
5.8	Replace defective switches and potentiometers.	x	x	x	x	√	√	x
5.9	Repair or replace the defective relays.	x	x	x	x	√	√	x
5.10	Replace the limit switches.	x	x	x	x	√	√	x
5.11	Replace defective indicative instruments.	x	x	x	x	√	√	x
5.12	Get insulation test of main cables and replace the defective ones.	x	x	x	x	√	√	x
5.13	Overhaul the panel boxes.	x	x	x	x	x	x	√
5.14	Defective switches and indicative lights may be replaced.	x	x	x	x	x	x	√
5.15	Check the LED of all the solenoids.	x	x	x	x	x	x	√

S.No.	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
<b>6.</b>	<b>GANTRY (CUMMINS model- 6BT.5.9,152 hp at 2500 rpm )</b>							
6.1	Check engine oil level.	√	√	√	√	x	x	x
6.2	Check fuel level.	√	√	√	√	x	x	x
6.3	Check hydraulic oil level.	√	√	√	√	x	x	x
6.4	Check coolant level in radiator.	√	√	√	√	x	x	x
6.5	Check the condition and tension of V- belts of engine.	√	√	√	√	x	x	x
6.6	Check pick up frame level, if required adjust with turn-buckles.	√	√	√	√	x	x	x
6.7	Check brakes application of gantry (after every block).	√	√	√	√	x	x	x
6.8	Check the lube oil pressure of engine on load.	√	√	√	√	x	x	x
6.9	Check tightness of nuts and bolts.	√	√	√	√	x	x	x
6.10	Lubricate the gantry wheel with grease (to be done after every block).	√	√	√	√	x	x	x
6.11	Check all functions of sleeper gripper.	x	√	√	√	x	x	x
6.12	Grease the clutch.	x	√	√	√	x	x	x
6.13	Clean the battery terminals and apply petroleum jelly.	x	√	√	√	x	x	x
6.14	Check electrolyte level and gravity of batteries and top up the electrolyte if required.	x	√	√	√	x	x	x
6.15	Grease intermediate gear bearing and gantry wheel bearing.	x	√	√	√	x	x	x
6.16	Lubricate cardan shafts with grease.	x	√	√	√	x	x	x
6.17	Check condition of sprocket and chain and apply grease.	x	√	√	√	x	x	x
6.18	Adjust the brakes and check brake oil level.	x	√	√	√	x	x	x
6.19	Check lock pins of all bridges and gantry rails of all BRH's	x	√	√	√	x	x	x
6.20	Clean air filter.	x	x	√	√	x	x	x
6.21	Check the tension of V-belts.	x	x	√	√	x	x	x
6.22	Check oil level of drive gearbox and fill up to required level.	x	x	√	√	x	x	x
6.23	Check water hoses of engine, replace if required.	x	x	√	√	x	x	x



S.No.	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
6.24	Replace engine oil.	x	x	x	√	x	x	x
6.25	Replace oil filter.	x	x	x	√	x	x	x
6.26	Replace fuel filter.	x	x	x	√	x	x	x
6.27	Check all belts for tension and wear. Replace as per requirement.	x	x	x	√	x	x	x
6.28	Check oil level of hydraulic pump drive gearbox and fill up to required level.	x	x	x	√	x	x	x
6.29	Check gantry for any wear and tear.	x	x	x	√	x	x	x
6.30	Replace air filter outer element.	x	x	x	√	x	x	x
6.31	Replace oil of drive gearbox	x	x	x	√	x	x	x
6.32	Reset tappet clearance.	x	x	x	x	√	√	x
6.33	Check exhaust vent for leakage.	x	x	x	x	√	√	x
6.34	Attend turbocharger if required.	x	x	x	x	√	√	x
6.35	Clean engine radiator.	x	x	x	x	√	√	x
6.36	Check rope and replace if strands found broken forming bird cage or any core failure noticed.	x	√	√	√	x	x	x
6.37	Replace oil of pump drive gearboxes.	x	x	x	x	√	√	x
6.38	Inspect gantry for any wear and tear.	x	x	x	x	√	√	x
6.39	Replace bearings of pulleys intermediate gear, toothed wheel and other bearings.	x	x	x	x	x	x	√

S.No.	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
<b>7.</b>	<b>CLIP APPLICATOR: (If applicable)</b>							
7.1	Check lube oil level.	√	√	√	√	x	x	x
7.2	Check fuel level.	√	√	√	√	x	x	x
7.3	Check tension of V-belts	√	√	√	√	x	x	x
7.4	Check battery connections.	√	√	√	√	x	x	x
7.5	Check the condition and tension of V-belts.	√	√	√	√	x	x	x
7.6	Check electrolyte level and gravity of batteries and top up the electrolyte if required.	x	√	√	√	x	x	x
7.7	Check battery terminal connections.	x	√	√	√	x	x	x
7.8	Clean air cleaner.	x	√	√	√	x	x	x
7.9	Check driving chain for tightness.	x	√	√	√	x	x	x
7.10	Check condition of V-belts.	x	√	√	√	x	x	x
7.11	Clean engine and premises.	x	√	√	√	x	x	x
7.12	Replace engine oil.	x	x	x	√	x	x	x
7.13	Replace lube oil filter.	x	x	x	√	x	x	x
7.14	Replace fuel filter.	x	x	x	√	x	x	x
7.15	Check battery connection and apply petroleum jelly on terminals	x	x	x	√	x	x	x
7.16	Replace air cleaner outer element.	x	x	x	x	√	x	x
7.17	Clean radiator by pressurized air from opposite side.	x	x	x	x	√	x	x
7.18	Reset tappet clearance.	x	x	x	x	x	√	√
7.19	Replace V- belts.	x	x	x	x	x	√	√
7.20	Overhaul the engine	x	x	x	x	x	x	√
7.21	Change the hydraulic pump	x	x	x	x	x	x	√
7.22	Replace all hydraulic cylinders	x	x	x	x	x	x	√

S.No.	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.I V 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
<b>8. UNDER FRAME</b>								
8.0.1	Visually examine center pivot mounting bolts and attend if needed.	√	x	x	x	x	x	x
8.0.2	Check condition of head stock/sole bar.	√	x	x	x	x	x	x
8.0.3	Visually inspect center pivot cover	√	x	x	x	x	x	x
8.0.4	Visually examine and attend safety loops of bolster.	√	x	x	x	x	x	x
8.0.5	Visually examine the shock absorbers for damages.	√	x	x	x	x	x	x
8.0.6	Examine trough floor, turn under and other frame members from underneath for corrosion.	x	√*	x	x	x	x	x
<b>8.1 BRAKE RIGGING &amp; BRAKE SYSTEM</b>								
8.1.1	Visually examine brake beams breakages/damages.	√	x	x	x	x	x	x
8.1.2	Check brake gear and adjust so that the piston stroke is within the limit.	√	x	x	x	x	x	x
8.1.3	Check and attend brake shoe head and key & replace if necessary.	√	x	x	x	x	x	x
8.1.4	Visually inspect brake hangers, brake gear pins and cotters/split pins and replace if necessary.	√	x	x	x	x	x	x
8.1.5	Visually inspect damaged/missing brake gear bushes, lever hanger pins replace if necessary.	√	x	x	x	x	x	x
8.1.6	Visually inspect for damage on brake pipe.	√	x	x	x	x	x	x
8.1.7	Check and attend brake beam safety wire rope / safety straps.	√	x	x	x	x	x	x
8.1.8	Check and replace worn brake blocks.	√	x	x	x	x	x	x
8.1.9	Check and attend brake block adjuster.	x	√*	x	x	x	x	x
8.1.10	Visually examine the condition of bogie frame and welded locations.	√	x	x	x	x	x	x
8.1.11	Inspect axle box safety straps/loops for damage/broken/missing.	√	x	x	x	x	x	x
8.1.12	Examine bolster safety straps/loops for damage / broken /missing	√	x	x	x	x	x	x
8.1.13	Visually examine the condition of suspension system (Coil spring) for any damage /loose / breakage.	√	x	x	x	x	x	x
8.1.14	Visually examine the condition of suspension system (Coil spring) for any damage /loose / breakage.	√	x	x	x	x	x	x
(*)Done after every 250 Engine hours								

S.No.	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.I V 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
8.1.15	Visually examine the condition of suspension system (Coil spring) for any damage /loose / breakage.	x	√*	x	x	x	x	x
8.1.16	Examine condition of the wearing plates.	x	x	√**	x	x	x	x
8.1.17	Examine corrosion of sole bar and other under frame members with torch light or inspection lamp.	x	x	√**	x	x	x	x
<b>8.2 DRAW GEAR</b>								
8.2.1.	Check and replace damage/missing split pins.	√	x	x	x	x	x	x
8.2.2.	Examine draw hook, draw bars, rubber pads for damages.	√	x	x	x	x	x	x
8.2.3.	Check condition of the CBC coupling and its components and replace as required	√	x	x	x	x	x	x
8.2.4.	Examine visually draft key locking pins.	√	x	x	x	x	x	x
8.2.5.	Check condition of draw beam and locating pins on it.	√	x	x	x	x	x	x
8.2.6.	Ensure that wear on screw coupling shackle pins, trunion pins, shackle/link holes and draw hook holes should not exceed 3 mm.	x	x	√**	x	x	x	x
8.2.7.	Ensure that wear at any section on draw hook should not exceed 10 mm.	x	x	√**	x	x	x	x
<b>8.3 BUFFING GEAR</b>								
8.3.1.	Visually examine buffer plungers for damages/drooping/stroke length.	√	x	x	x	x	x	x
8.3.2.	Examine buffer mounting bolts and attend if necessary.	√	x	x	x	x	x	x
8.3.3.	Examine visually buffer casing for cracks/damages	√	x	x	x	x	x	x
8.3.4.	Ensure the length is within 584-635 mm.	x	x	√**	x	x	x	x
8.3.5.	Inspect buffer plunger false plate for wear and profile.	x	x	√**	x	x	x	x
(*)Done after every 250 Engine hours (**) Done after every 500 Engine hours								

S.No.	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
<b>8.4 RUNNING GEAR AND WHEELS</b>								
8.4.1.	Examine visually axle box for grease oozing out, warm box if any	√	x	x	x	x	x	x
8.4.2.	Visually inspect axle box covers.	√	x	x	x	x	x	x
8.4.3.	Inspect wheel tread for shattered rim, spread rim, shelled tread, thermal cracks, heat checks	√	x	x	x	x	x	x
8.4.4.	Visually examine wheel tyre profile and thickness of tyre and check with tyre profile gauge if they appear to be near condemning limit	√	x	x	x	x	x	x
8.4.5.	Inspect wheel tread for shattered rim, spread rim, shelled tread, thermal cracks, heat checks	√	x	x	x	x	x	x
8.4.6.	Check with wheel distance gauge for loose or tight wheels.	x	x	√**	x	x	x	x
<b>9. GENERAL</b>								
9.1.	Check for any unusual sound from gear boxes, engine & hydraulic pumps etc.	√	x	x	x	x	x	x
9.2.	Check the welding generator set for lub oil, fuel level & water level in radiator if applicable.	√	x	x	x	x	x	x
9.3.	It is necessary to clean the machine before starting the work	√	x	x	x	x	x	x
9.4.	Check all spares & tools for emergency as per Annexure - I.	√	x	x	x	x	x	x
9.5.	Check all the functions of machine before block working.	√	x	x	x	x	x	x
9.6.	Do the patch work painting.	x	x	x	x	√	√	√
9.7.	Change all defective clamps of hoses for proper clamping.	x	x	x	x	x	√	√
9.8.	Repair/ replace missing and defective hand tools.	x	x	x	x	x	√	√
9.9.	Check function of all assemblies after IOH.	x	x	x	x	x	√	√
9.10.	Thoroughly clean all panel boxes.	x	x	x	x	x	√	√
(*) Done after every 250 Engine hours (**) Done after every 500 Engine hours								

S.No.	ITEM	SCH.I Daily	SCH.II 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
9.11.	Check calibration of all the indicative instruments.	x	x	x	x	x	x	√
9.12.	Test the machine for one week near the workshop, Before it is put for work in regular section.	x	x	x	x	x	√	√
9.13.	Strengthen the machine frame, where cracks have developed on condition Basis	x	x	x	x	x	x	√
9.14.	Replace the missing and defective hand tools.	x	x	x	x	x	x	√
9.15.	Check the function of all assemblies	x	x	x	x	x	x	√
9.16.	Check the expiry of first Aid box.	x	x	x	x	x	x	√
9.17.	Check the expiry of fire extinguisher./ may be done on regular basis.	x	x	x	x	x	x	√
<b>Note-During CPOH, Machine Supervisor and CPOH Inspecting Authority jointly inspect the Machine. Any part of Machine is to be repaired or replaced; this decision is taken by CPOH Inspecting authority.</b>								



**LIST OF SAFETY TOOLS**

S.No.	Description	Quantity
1	Red hand signal flags	2 Nos
2	Green hand signal flags	1 No
3	Tri- colour hand signal lamps/LED torch	2 Nos
4	Chain With Padlock	2 Nos.
5	Fire Extinguisher	1 No
6	Hooter ( Manually Controlled)	2 Nos.
7	Jack 50t Traverse type	2 Nos.
8	Wooden Blocks	10 Nos.
9	Crow bars	4 Nos.
10	Hydraulic hand pump	1 No.
11	Emergency Hydraulic hose off size suiting to different machines (complete with end fitting )	-
12	Machine Specific Equipment if any.	-
13	Fog signals ( detonators ) in a tin case	10 Nos.
14	A copy of working time table of this section where the machine is working	1 No
15	G & SR book with up to date amendment slips	1 No.
16	4 cells flasher light LED lamp cum flasher light (rechargeable )	1 No.
17	Banner flags	2 Nos.
18	First aid Box	1 No
19	Skids	2 Nos
20	Safety Helmet for all machine staff	For all Staff
21	Protection clothing , safety shoes and safety gloves	For all Staff
22	Willkie talkie with frequency of SM, guard and loco pilots	2 Nos
23	Internal communication system Walkie talkie and / or head mounting system	For all Staff
24	Track machine manual with up to date correction slip	1 No
25	Accident manual	1 No
26	Tail Lamp	1 No
27	Wire rope 2 meters and 9 meters with close loop	01 No each

## **ACKNOWLEDGEMENT**

Following officers and staff have made their valuable contributions in finalization of the maintenance schedules Manual for Track Relaying Train (P811S).

### **RAILWAYS**

- |    |                    |           |
|----|--------------------|-----------|
| 1. | SRI P.K. Mishra    | SSE/TM/NR |
| 2. | SRI Vibhuti Sharma | SSE/TM/NR |
| 3. | SRI B.D.S. Rawat   | SSE/TM/NR |

### **RDSO**

- |    |                     |         |
|----|---------------------|---------|
| 1. | SRI Om Prakash      | DTM-III |
| 2. | SRI Muslim Ahmad    | ARE/TM  |
| 3. | SRI Prem Kumar      | SSRE/TM |
| 4. | SRI V.P. Srivastava | SSE/TM  |