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टीएम/एच एम/टी,एल,ई पार्ट.– III
TM/HM/TLE/Pt.III

दिनांक–01-03-2024
Date - 01-03-2024

I-	मुख्य अभियन्ता (ट्रैक मशीन) सभी क्षेत्रिय रेलवे	**Chief Engineer (Track Machines) All Zonal Railways**
II-	मुख्य कार्यशाला प्रबन्धक (ट्रैक मशीन) सी.पी.ओ.एच. कार्यशाला प्रयागराज , रायनापाडु, कंचरापारा, अहमदाबाद,	**Chief Workshop Manager (Track Machines) CPOH Workshop, Prayagraj , Rayanapadu, Kachrapara, Ahmedabad**
III-	प्रधानाचार्य भा.रे.रे.प.म.प्र.के. पीपलगांव प्रयागराज–211011	**Principal, IRTMTC, Pipalgaon, Prayagraj-211011**
	Details of addresses are enclosed herewith.	

विषय : ट्रैक लेइंग इक्युपमेन्ट (सिमप्लैक्स मशीन क्रम सं– **17039- 17044 &18045 -18068**) की अनुरक्षण अनुसूची पुस्तिका।

Sub: Maintenance schedule manual of Track Laying Equipment (Make- Simplex, Machine S.No. **- 17039- 17044 &18045 -18068).**

ओईएम मैनुअल, आइआरटीएमएम–2019 एंव उत्तर रेलवे तथा उत्तर मध्य रेलवे से प्राप्त सुझाव के आधार पर ट्रैक लेइंग इक्युपमेन्ट (सिमप्लैक्स मशीन क्रम सं– . 17039. 17044 –18045 .18068) की अनुरक्षण अनुसूची पुस्तिका का मसौदा तैयार कर टीएम/एच एम/ टी,एल,ई. III दि. 16.08.2023 द्वारा 30 दिनों के लिय जारी किया गया था, और अनंतिम अनुरक्षण अनुसूची पुस्तिका पत्र सं. टीएम/एच एम/ टी,एल,ई. III दि. 02.11.2023 द्वारा 15 दिनों के लिये सभी क्षेत्रीय रेलवे को, जारी किया गया था। इसके उपरान्त उत्तर रेलवे से प्राप्त सुझाव/टिप्पणी के आधार पर अंतिम रूप से तैयार किया गया है, जिसकी एक प्रति आपके सूचनार्थ तथा सभी मशीन के कर्मचारियों जो फील्ड मे काम कर रहे हैं, के मार्गदर्शन हेतु संलग्न है।यद्यपि उपरोक्त सूची बनाते समय सभी सावधनियाँ बरती गईं है, फिर भी यदि कोई त्रुटि हो तो कृपया अपने सुझावों/टिप्पणियों को सुधार हेतु ई–मेल/पत्राचार द्वारा अद्योहस्ताक्षरी को भेजे।

On the basis of OEM manual, IRTMM-2019 and suggestion received from Northern railway & North Central Railway draft of maintenance schedule manual of Track Laying Equipment (Simplex Machine S.No. – 17039- 17044 &18045 -18068) had been prepared and circulated vide letter no. TM/HM/TLE/Pt-III dated 16/08/2023 for 30 days and provisional maintenance schedule manual circulated vide letter no. TM/HM/TLE/Pt-III dated 02/11/2023 for 15 days respectively. After incorporating Suggestions/Comments received from Northern Railway, maintenance schedule manual has been finalized. A copy of the same is enclosed herewith for your information and guidance of the machine staff working in the field. However, every care has been taken during preparation of the above said list, the discrepancy noticed, if any, may be brought to the knowledge of the undersigned for further improvement by email/post.

DA: As above
Email id - hmtmmrdso@gmail.com

Digitally Signed by Amar Dev Maurya
Date: 04-03-2024 13:02:00
Reason: Approved

(ए•डी•मौर्य)
(A.D.Maurya)
निदेशक रेल पथ मशीन –VI
Director/Track Machine-VI

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III-	**प्रधानाचार्य भा.रे.रे.प.म.प्र.के**. पीपल गांव प्रयागराज**–211011**	**Principal,IRTMTC,Pipal Gaon,Prayagraj-211011**

भारत सरकार
रेल मंत्रालय
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

ट्रैक लेइंग एक्युपमेंट (सिम्पलेक्स –12 T) मशीन की अनुरक्षण अनुसूची पुस्तिका

MAINTENANCE SCHEDULE MANUAL FOR TRACK LAYING EQUIPMENT (SIMPLEX-12T)

(S.No. – 17039- 17044 &18045 -18068 Contract no.-2016/track-III/MC/5-13-1-2017)

रिपोर्ट संख्या टी एम–**283**
Report No.TM - 283
(February–2024)
इंफ्रास्ट्रक्चर निदेशालय (रेलपथ मशीन एंव मानीटरिंग)
अनुसंधान अभिकल्प और मानक संगठनए लखनऊ–226011

DIRECTORATE OF INFRASTRUCTURE (TRACK MACHINE & MONITORING)
RESEARCH DESIGNS & STANDARDS ORGANISATION,
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, CPOH / Prayagraj, Rayanapadu, Kachrapara & Ahmedabad and RDSO / Lucknow. With experience over the years, the railway 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.

Maintenance schedule manual for Track Laying Equipment (Simplex-12T) for machine sr.no.– 17039- 17044 & 18045 -18068 has been prepared on the basis of Maintenance instruction given by OEM,IRTMM-2019 and suggestions received from NCR, NR & NER railways. The suggestion and feedback from field has been taken and incorporated in this maintenance schedules. Suggestion/instruction given by OEM time to time 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 railway. 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/altered 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 instruction/maintenance 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.

Mar.-24

(A.D.Maurya)
Director/Track Machine-III
RDSO/Lucknow-226011

EXPLANATORY NOTES

While preparing text of schedules for maintenance of TLE (Simplex- 12T), theterms 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 partsand missing parts.

OVERHAUL - Dismantle, examine, recondition or renew parts as necessary against given specifications, reassemble, inspect and test.

Maintenance Schedule for TLE (Simplex- 12T) Machines

S.N.	Schedule	Periodicity	Duration	Location
1.	**Schedule I**	Daily/ Before working & 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**	2000 Engine hrs.	15 days	In Zonal Workshop
7.	**Schedule VII**	1st - 8000 Engine hrs. 2nd-14000 Engine hrs. and then after at every 4000 Engine hrs.	1st POH-45 days, 2nd POH-60 days	In CPOH or Zonal Workshop

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SCHEDULE - I
(TO BE DONE DAILY)
Duration one hrs.

1.0	**ENGINE (Kirloskar- HA 694 T)**
1.1	Check level of lube oil and top up if required.
1.2	Visual Check & ensure that all V-belts are tight and in good condition.
1.3	Check fuel level and top up, if required.
1.4	Record the maximum engine temperature of the day's work.
1.5	Visual Check for any leakage from fuel pump, injectors, filters, and fuel supply and return pipes and do needful.
1.6	Engine oil pressure in idle run (minimum 0.8-2 kg/cm^2).
1.7	Check all engine parameter monitoring gauges after starting the engine.
1.8	Clean the engine and its premises.
1.9	Damaged hose/clips must be replaced immediately.
1.10	Engine oil pressure on load after two hours working.
2.0	**POWER TRANSMISSION**
2.1	Check the brake application.
2.2	Check lever and linkages for free movements.
2.3	Check the all driving system of the machine.
3.0	**HYDRAULIC**
3.1	Check the level of hydraulic oil in tank and recoup, if required.
3.2	Check the leakage in hydraulic circuit and rectify if required.
3.3	Check the choking indication of suction line filter.
4.0	**MECHANICAL**
4.1	Grease or oil all moving parts and pins.
4.2	Check the simplex and duplex chain tension and adjust if required.
4.3	Adjust the tension of driving chain.
4.4	Inspect the complete crane for any visual crack in main frame by magnifying glass.
4.5	Examine the whole machine for loose parts.
4.6	Check the condition of synchronizing chain and replace the defective length.
4.7	Check the condition of locks of duplex and synchronizing chain by physical inspection with magnifying glass.
4.8	Check and lubricate extension system of rail clamps.
4.9	Check the parking brake.
5.0	**ELECTRICAL**
5.1	Check the function of horn, lights and all switches.
5.2	Check working of flasher light
5.3	Check the battery charging system
5.4	Check the all safety limit switches.
5.5	Check the emergency backup system
6.0	**GENERAL**
6.1	Examine the whole machine for loose parts and other abnormal sound.
6.2	Clean the machine before starting of work.
6.3	Check all functions of portal in base depot.

SCHEDULE - II
(TO BE DONE AFTER 50 HRS)
Duration two Hrs.
(TO BE DONE IN ADDITION TO SCHEDULE-I)

1.0	**ENGINE (Kirloskar- HA 694 T)**
1.1	Clean the outer air cleaner element (06.246.02.0.00) when restriction indicator shows a red signal.
1.2	Daily check the connection of rubber hose and the hose clips between the manifold and the air cleaner before starting the engine.
1.3	Check tension of V-belts & do needful.
1.4	Clean the air cooling system.
1.5	Check the mounting bolts of self-starter and alternator.
1.6	Check the level of electrolyte and specific gravity of batteries
1.7	Check and clean battery terminals and apply petroleum jelly or soft grease, if applicable.
2.0	**POWER TRANSMISSION**
2.1	Check the brake application.
2.2	Examine all the chains and if necessary, adjust the tension and grease.
	Grease the following parts (a) Pipe pulleys. (b) Driving motors. (c) Sprocket gears. (d) Lateral movement trellises. (e) Parking brake linkages
3.0	**HYDRAULIC**
3.1	Check the hydraulic return filter and replace on condition based.
3.2	Check the suction line filter.
3.3	Check the charging pressure.
4.0	**MECHANICAL**
4.1	Check the tension of duplex chains.
4.2	Check the tension of synchronizing chain.
4.3	Check the oil cooler fan bearing.
4.4	Check the tightness of top plates bolts.
4.5	Check the tightness of bottom plate bolts
4.6	Check the tightness of bolts of synchronizing shaft.
4.7	Brake pressure should be 30-50 bar.
4.8	Clean all the vertical guide columns for wear and apply grease
4.9	Check clearance between brake blocks and running wheel should be within 3 to 5 mm.
4.10	Lubricate all the guide rollers wheel bearing grease.
4.11	Grease the following parts after cleaning. (a) Synchronizing chain. (b) Duplex Chain. (c) Driving chain.

SCHEDULE - III
(TO BE DONE AFTER 100 HRS)
Duration one day
(TO BE DONE IN ADDITION TO SCHEDULE-I & II)

1.0	**ENGINE (Kirloskar- HA 694 T)**
1.1	Change fuel filter insert (Pre filter element).
1.2	Change the engine oil.
1.3	Change the engine oil filter.
1.4	Clean fuel strainer (button filter at Feed pump inlet).
1.5	Check the engine and surroundings for any unusual occurrence.
1.6	Check the condition of smoke, it should be colorless during running.
2.0	**POWER TRANSMISSION**
2.1	Inspect the synchronizing shaft for any bend or crack and do the needful.
2.2	Check the driving system for any defect or abnormal sound.
3.0	**HYDRAULIC**
3.1	Check the hydraulic return filter and replace on condition base.
3.2	Change the return line filter.
3.3	Change the suction line filter.
4.0	**MECHANICAL**
4.1	Lubricate the turn table with grease.
4.2	Check the bridge lifting lowering cylinders mountings.
4.3	Check all lateral movements for any defects.
5.0	**ELECTRICAL**
5.1	Check the entire limit switches.
5.2	Check the light, horn, electric connection.
5.3	Check the operation of relays.
5.4	Check the alternator and self-starter
5.5	Check the emergency backup system.

SCHEDULE - IV
(TO BE DONE AFTER 200 HRS)
Duration two Days
(TO BE DONE IN ADDITION TO SCHEDULE-I, II & III)

1.0	**ENGINE (Kirloskar- HA 694 T)**
1.1	Lubricate all the engine pulley bearings with grease.
1.2	Clean the air cleaner element.
1.3	Clean diesel tank.
1.4	Adjust the Tappet clearance as per OEM schedule.
1.5	Check for any abnormal sound.
1.6	Check the mounting pads.
1.7	Check the engine and hydraulic pump coupler.
2.0	**POWER TRANSMISSION**
2.1	Check the teeth of adopter plate shaft.
2.2	Check the synchronizing shaft.
2.3	Check all mounting and clean joints for any defect.
2.4	Check chain and sprocket for driving system of all wheelss.
3.0	**HYDRAULIC**
3.1	Check all hydraulic hoses and replace if required.
3.2	Check and adjust all hydraulic pressure for proper setting.
3.3	Check bridge lifting and lowering cylinders.
3.4	Check all check valves and relief valves for proper setting.
3.5	Check Emergency pump for proper working.
4.0	**MECHANICAL**
4.1	Lubricate the turn table with grease.
4.2	Check all moving assemblies and clamps for proper function and movement for proper setting.
4.3	Check all the components and repair as required.

SCHEDULE - V
(TO BE DONE AFTER 1000 HRS)
Duration 7 days
(TO BE DONE IN ADDITION TO SCHEDULE-I, II, III & IV)

1.0	**ENGINE (Kirloskar- HA 694 T)**
1.1	Tightened exhaust manifold.
1.2	Change inner air cleaner element (06.246.03.0.00) after every three changes of the outer air cleaner element. or at 1000 engine hours whichever is earlier.
1.3	Adjust the tappet clearance with the help of service representative of engine OEM.
1.4	Adjust/replace all v-belts on condition basis.
1.5	Check engine mounting bolts and pads for any defects.
2.0	**POWER TRANSMISSION**
2.1	Inspect the gear drive mechanism and overhaul/replace, as required.
2.2	Replace the brake blocks and assembly if necessary.
2.3	Change the bearing of synchronizing shafts.
3.0	**HYDRAULIC**
3.1	Pumps to be checked and replace if required.
3.2	Motors to be checked and replace if required.
3.3	Check and replaced Emergency back-up if required.
4.0	**MECHANICAL**
4.1	Change the side rollers with bearings.
4.2	Replace the duplex chain on condition basis.
4.3	Replace the synchronizing chain on condition basis.
4.4	All driving wheels to be re-profile on condition basis.
4.5	Replace the wheel drive chains on condition basis.
4.6	Check the critical weld joint by DP/MP test, when found ok apply just preventives.
4.7	Bearings of all wheels to be replaced on condition basis.
5.0	**ELECTRICAL**
5.1	All minor electrical fittings, fuses, bulbs must be renewed.
5.2	Clean the panel box.
5.3	Check battery condition and replace as required.
5.4	Check alternator, self-starter for any defects.
6.0	**GENERAL**
6.1	Inspect thoroughly the complete portal crane for any damage.
6.2	Check all welding joints for any defects.
6.3	Check and repair for any abnormal sound.

SCHEDULE - VI
(TO BE DONE AFTER 2000 HRS)
Duration 15 days

(TO BE DONE IN ADDITION TO SCHEDULE-I, II, III, IV & V)

1.0	**ENGINE (Kirloskar- HA 694 T)**
1.1	Overhaul the engine on condition basis.
1.2	Check the alternator for proper working, get overhauled if required.
1.3	Check the self-starter for proper working, get overhauled if required.
1.4	Calibrate the fuel Injectors.
1.5	Calibrate the fuel injection pump on condition basis.
1.6	Clean the fuel tank.
1.7	All V- belts must be renewed on condition basis.
1.8	Replace the batteries on condition basis.(at least after 2 years)
2.0	**POWER TRANSMISSION**
2.1	Check all chains (clean and lubricant).
2.2	Check all cylinders piston rod for any defects.
2.3	Check rail clamps for any defects.
3.0	**HYDRAULIC**
3.1	All hydraulic hoses to be replaced on condition basis.
3.2	Pumps to be checked and replace if required.
3.3	Motors to be checked and replace if required.
3.4	Check all hydraulic cylinders replace on condition basis.
3.5	Clean hyd. Tank, replace oil if required.
3.6	Check all solenoid valves, pressure selling valves.
3.7	Check clamps for any rubbing.
4.0	**MECHANICAL**
4.1	All roller guides to be taken out and built up by welding the profile.
4.2	Check turn table for defects and over haul.
4.3	Check all driving chains, sprockets for any defect replace on condition basis.
4.4	Check, repair lateral and vertical movements of rail clamp assembly
4.5	Check all cylinders mountings and repair if required.
5.0	**ELECTRICAL**
5.1	Panel wiring and external wiring should be changed.
5.2	Check all lights, switches, limit switches and replaced as required.

SCHEDULE - VII
(TO BE DONE AFTER 8000/6000 HRS)
Duration 45 days
(TO BE DONE IN ADDITION TO SCHEDULE-I, II, III, IV, V & VI)

1.0	**ENGINE (Kirloskar- HA 694 T)**
1.1	Overhaul or replace the engine on condition basis.
1.2	Overhaul or replace the self-starter.
1.3	Overhaul or replace the alternator
1.4	Change the engine mounting pads.
2.0	**HYDRAULIC**
2.1	Replace seals of all hydraulic cylinders.
2.2	Replace all hydraulic filters.
2.3	Clean hydraulic oil cooler along with required repairs.
2.4	Change all D.C. valves, flow control valves.
2.5	Change all pilot operated valves.
2.6	Replace the hydraulic cylinders on condition basis.
2.7	Replace relief valves on condition basis
2.8	Replace flow control valves on condition basis.
3.0	**ELECTRICAL**
3.1	Change the cables and wires of electrical circuit on condition basis.
3.2	Replace all defective lights.
3.3	Change the cables and wires of electrical circuit on condition basis.
3.4	Change all relays, limit switches, horns on condition basis.
3.5	Change rotatory switches on condition basis.
3.6	Replace 4-way, 2-way spring return joystick switches on condition basis.
4.0	**MECHANICAL**
4.1	Side frame should be attended for any cracks.
4.2	Replace/repair the top plate of side frame, bushes, pins as required.
4.3	Contact surface of side frame with rollers should be checked.
4.4	For any dips and wear, welding should be done.
4.5	Replace/repair the lateral movement trolleys, as required.
4.6	Check the condition of sleeper gripper and strengthen it if required.
4.7	Side frame should be attended for any cracks.
4.8	All rollers to be replaced.
4.9	Repair or replace all brake cylinders, Boom extension cyl. Rail clamp cylinders and assembly on condition basis.
4.10	Repair overhaul re-rail arrangements.
4.11	Repair turn table assembly.
5.0	**GENERAL**
5.1	Check the proper functioning of portal in all respect.
5.2	Paint the complete portal crane.

ANNEXURE- I

SAFETY

1. Maintenance works in principle have to be carried out when the machine is stationary.
2. It is strictly prohibited to go on the machine's bridge under OHE line during maintenance and block working. Before beginning of repair and maintenance works it must be ensured that theOHE line is properly switched off and earthed. These safety measures have to be carried outand supervised by the machine in-charge.
3. Always pay attention to trains passing on adjacent tracks.
4. se skids when parking the vehicle.
5. Never change the settings of safety valves.
6. Before disassembling hydraulic system elements make sure that the equipment is unpressurized.
7. When draining engine oil or hydraulic oil at working temperature you might scald yourself.
8. Always ensure that on or in the vehicle no body works with naked flames.
9. No smoke when refueling the vehicle or checking the acid level of the batteries.
10. Never check the acid level of the battery or the fuel level in the tank with a naked flames.
11. Before beginning welding works (electric arc welding) particularly make sure that the machine has been secured against rolling, the engine has been switched off; the main switch has been switched "OFF"; the program control switch has been switched "OFF, if existing; the battery sets have been entirely disconnected, the earth electrode fastened at the vehicle has been connected as close to the weld as possible.
12. The earth electrode must never be mounted on the rail.
13. Never connect the earth electrode to cylinder piston rods, hydraulic accumulators, hydraulic pumps, batteries, earth cable, loose connections, or to hydraulic oil or fuel tanks.
14. Do not direct any high-pressure cleaning and lubricating devices to man or animal.
15. Do not use any easily flammable fluids or caustic cleansing agents to clean the machine.
16. Before carrying out any repair work on the machine the following safety instructions must be observed:

(a) Turn off the engine.
(b) Turn off the working-mode main switch and protect it from unauthorized Operation.
(c) Turn off the battery main switch and protect it from unauthorized operation
(d) If repair works are carried out in closed workshops the batteries have to be disconnected.
(e) The battery terminals have to be secured accordingly.
(f) Deactivate hydraulic pressure.
(g) Deactivate the air system.

17. Protect the machine from rolling away (Use skid-pans etc.)
18. Furthermore, the machine crew and all persons having access to the machine must be informed of the intended repair work.
19. Furthermore, the machine crew has to be informed of the repair work completed before the operating mode of the machine is restored.
20. Only professionally competent and trained persons are allowed to restore the working mode of the machine.

Annexure - II

LIST OF SAFETY EQUIPMENTS

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	One per cabin
6.	Hooter (Manually Controlled)	2 Nos.
7.	Jack 10 t* traverse type	2 Nos.
8.	Wooden Blocks	4 Nos.
9.	Crow bars	4 Nos.
10.	Hydraulic hand pump	1 No.
11.	Emergency Hydraulic hose off size suiting with end fittings.	As per requirement
12.	Wire rope with close loops at both ends 2 meters and 9 meters long one of each length.	As per requirement
13.	Machine Specific Equipment if any.	As per requirement
14.	Fog signals (detonators) in a tin case.	10 Nos.
15.	A copy of working time table of this section where the machine is working.	1 No.
16.	G & SR book with up to date amendment slips.	1 No.
17.	4 cells flasher light LED lamp cum flasher light (rechargeable).	1 No.
18.	Banner flags	2 Nos.
19.	First aid Box	1 No.
20.	Skids	2 Nos.
21.	Safety Helmet	All machine staff
22.	Protection clothing, safety shoes and safety gloves.	All machine staff
23.	Walkie talkie with frequency of SM, guard and loco pilots.	2 Nos.
24.	Track machine manual with up to date correction slips.	1 No.
25.	Accident Manual	1 No.
26.	Tail Lamp	1 No.

*List of jacks sent to railway bd. vide l no.TM/HM/1, Vol-II dated 22.08.2019 for approval which is awaited.

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