Sr No. (1)

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TM/HM/WST/Pt.III

Date: 17 -10 -2018

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12.	दक्षिण पश्चिम रेलवे, हुबली–580 023	SWR, Hubli-580 023
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14.	पूर्व तट रेलवे, भुवनेश्वर–751 001	East Coast Rly, Bhubaneshwar-751 001
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विषय : वी पी आर .02 एम वर्कसाइट टैम्पिंग मशीन फ्लैट कार सहित की अनुरक्षण अनुसूची पुस्तिका का संशोधन –1 ।

Sub: Revision-1 of Maintenance schedule manual of **WST (VPR-02M)** with flat car.

वी पी आर .02 एम वर्कसाइट टैम्पिंग मशीन फ्लैट कार सहित की अनुरक्षण सूची (टीएम–रिर्पोट–141) पत्र सं. टीएम/एच/एम/डब्लुएसटी दि. 02.07.2010 का संशोधन – 1 तैयार किया गया है। जिसकी प्रति, आपके सूचनार्थ तथा मशीन के कर्मचारियों जो फील्ड में काम कर रहे हैं, के मार्गदर्शन हेतु संलग्न है । यद्यपि उपरोक्त संशोधन बनाते समय सभी सावधनियाँ बरती गईं है ,फिर भी यदि कोई त्रुटि हो तो ,कृपया अपने सुझावों/ टिप्पणियों को सुधार हेतु ई–मेल/ फैक्स /पत्राचार द्वारा अद्योहस्ताझरी को भेजे ।

Revision-1 of Maintenance schedule manual of **WST (VPR-**02M), Worksite Tamping Machine with flat car (TM Report-141) issued vide letter no.**TM/HM/WST dated 02-07-2010**, has been prepared. 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 revision of the above said list, the discrepancy noticed, if any, may be come to the knowledge of the undersigned for further improvement. by email/fax/post.

DA: As above

17.10.18

(ओम प्रकाश)
निदेशक रेलपथ मशीन –III

भारत सरकार
रेल मंत्रालय

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

वी पी आर .02 एम वर्कसाइट टैम्पिंग मशीन की अनुरक्षण अनुसूची पुस्तिका (फ्लैट कार सहित) "मेटेक्स"

MAINTENANCE SCHEDULE MANUAL FOR WORKSITE TAMPING MACHINE, (WITH FLAT CAR) "METEX"

रिपोर्ट संख्या–टी.एम.–141
Report No.TM - 141
(Revision-1 of 2018)

अक्टूबर–2018

October-2018

अनुसंधान अभिकल्प और मानक संगठन लखनऊ–**226011**

RESEARCH DESIGNS & STANDARDS ORGANISATION

LUCKNOW- 226 011

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 / Allahabad, CPOH / Rainapadu 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.

This Revision -1 of Maintenance Schedule manual for Worksite Tamping Machine(Metex) with flat car has been prepared on the basis of Maintenance instruction given by OEM and suggestions received from different railways. The suggestion and feedback from field has been taken and incorporated in this revision of maintenance schedules. Suggestion/instruction given by OEM from time to time to be also followed in addition to above instruction in 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.

October-2018

(Om Prakash)
Director/TrackMachine-III
RDSO/Lucknow-226011

EXPLANATORY NOTES

While preparing text of schedules for maintenance of WST (Metex) with flat car , 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 for WST(Metex) 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.	21 days	In Zonal Workshop
7.	Schedule VII	6000 Engine hrs.	1st POH-60 days, 2nd POH-75 days	In CPOH Workshop

INDEX

SR.NO	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.V 2000 HRS.	SCH.VII 6000 HRS.
1.	**Engine (Deutz,Model-BF06M1015C)**							
1.1	Check coolant level in radiator and top up if required.	√	√	x	x	x	x	x
1.2	Check the engine oil level and top up if required.	√	√	x	x	x	x	x
1.3	Check fuel level and top up if required.	√	√	x	x	x	x	x
1.4	Visual check the air cleaner chocking indicator. If indicator is red, the outer filter is to be cleaned by dry air pressure not more than 2.5kg/$cm^{2.}$	√	√	x	x	x	x	x
1.5	Check the leakage from hoses, water pump seal etc. and do the needful.	√	√	x	x	x	x	x
1.6	Visual Check the leakage from fuel pump, injectors, fuel supply and return pipes and do needful.	√	√	x	x	x	x	x
1.7	Visual check the tension and condition of all V-belts and do needful.	√	√	x	x	x	x	x
1.8	Clean the engine and premises.	√	√	x	x	x	x	x
1.9	Check the engine oil pressure at idle RPM (1.5 kg/cm^2 to 2.5 kg/cm^2)	√	√	x	x	x	x	x
1.10	Check engine oil pressure on load after two hours working(2.5 kg/cm^2 to 4.0 kg/cm^2)	√	√	x	x	x	x	x
1.11	Drain the air reservoir after the day's work.	√	√	x	x	x	x	x
1.12	Record the maximum engine temperature of the day's work.	√	√	x	x	x	x	x
1.13	Drain water separator before starting the engine.	√	√	x	x	x	x	x
1.14	Check the battery charging system.	√	√	x	x	x	x	x
1.15	Drain sediments from fuel tank.	x	√	√	√	√	√	√
1.16	Lubricate the radiator fan shaft with grease.	x	√	√	√	√	√	√
1.17	Check electrolyte level & specific gravity of batteries , top up if required.	x	√	√	√	√	√	√
1.18	Check battery terminal and connection for tightness & apply petroleum jelly on battery terminal.	x	√	√	√	√	√	√
1.19	Check engine temperature safety device.	x	√	√	√	√	√	√
1.20	Check lube oil pressure safety device.	x	√	√	√	√	√	√
1.21	Change engine lube oil.	x	x	√*	√*	√*	√*	√*
1.22	Replace lube oil filter(01174420)	x	x	√*	√*	√*	√*	√*
* Done after every 250 Engine hours								

SR.NO.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.V 2000 HRS.	SCH.VII 6000 HRS.
1.23	Change pre fuel filter element(04297812) .	x	√*	√*	√*	√*	√*	√*
1.24	Change secondary fuel filter(01181245).	x	√*	√*	√*	√*	√*	√*
1.25	Change the compressor oil.	x	√*	√*	√*	√*	√*	√*
1.26	Inspect the water separator for proper functioning.	x	x	√	√	√	√	√
1.27	Check the throttle control linkages.	x	x	√	√	√	√	√
1.28	Check fuel tank breather and clean if required.	x	√*	√*	√*	√*	√*	√*
1.29	Check/add Coolant additive concentrate	x	√*	√*	√*	√*	√*	√*
1.30	Clean outer air cleaner element(Cleaned after every 200 hrs or on dirt indication) .	x	x	x	√	√	√	
1.31	Lubricate all the engine pulley bearings with grease.	x	x	x	√	√	√	√
1.32	Change clutch shaft flange locking bolts if required.	x	x	x	√	√	√	√
1.33	Clean crank case breather.	x	√*	√*	√*	√*	√*	√*
1.34	Examine the mounting bolts of the engine.	x	x	x	x	√	√	√
1.35	Change worn out water hoses.	x	x	x	x	√	√	√
1.36	Check coolant for PH value.	x	x	x	x	√	√	√
1.37	Overhaul the self-starter.	x	x	x	x	√	√	√
1.38	Overhaul the alternator.	x	x	x	x	√	√	√
1.39	Overhaul the injectors.	x	x	x	x	√	√	√
1.40	Overhaul the fuel injection pump.	x	x	x	x	√	√	√
1.41	Overhaul the air compressor, If required	x	x	x	x	√	√	√
1.42	Clean the engine radiator externally.	x	x	x	x	√	√	√
1.43	Change the batteries on condition basis.	x	x	x	x	√	√	√
1.44	Clean the diesel tank., with lint free cloth	x	x	x	x	√	√	√
1.45	Replace/Clean the cooling coil as required	x	x	x	x	√	√	√
1.46	Replace the outer and inner engine air cleaner element.	x	x	√**	√**	√**	√**	√**
1.47	Replace minor repair kit for air compressor.	x	x	x	x	√	√	√
1.48	Descaling cooling system.	x	x	x	x	x	√	√
1.49	Change coolant of radiator	x	x	x	x	x	√	√
1.50	Replace the rocker cover gaskets (after 1000 engine hrs. of commissioning/POH)	x	x	x	x	x	√	√
1.51	Overhaul fuel injection pump.	x	x	x	x	x	√	√

* Done after every 250 Engine hours ** Done after every 500 Engine hours

SR.NO.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.V 2000 HRS.	SCH.VII 6000 HRS.
1.52	Adjust tappet clearance (after 1000 engine hrs. of commissioning/POH)	x	x	x	x	x	√	√
1.53	Change all the water hoses on condition basis .	x	x	x	x	√	√	√
1.54	Check crank shaft end clearance.	x	x	x	x	x	√	√
1.55	Check the vibration damper for dynamic balance.	x	x	x	x	x	√	√
1.56	Overhaul self-starter.	x	x	x	x	x	√	√
1.57	Clean and calibrate injectors if required.	x	x	x	x	x	√	√
1.58	Overhaul the engine, if there is lack of compression on low lube oil pressure otherwise de- carbonize the engine.	x	x	x	x	x	√	x
1.59	Check bearing and shaft of radiator fan drive and do needful.	x	x	x	x	x	√	√
1.60	Overhaul water pump.	x	x	x	x	x	√	√
1.61	Check turbocharger compressor and turbine wheels. Check radial and end clearances & do needful.	x	x	x	x	x	√	√
1.62	Overhaul or replace the engine. on the condition basis.	x	x	x	x	x	x	√
1.63	Overhaul the radiator fan drive assembly.	x	x	x	x	x	x	√
1.64	Change the engine mounting pads.	x	x	x	x	x	x	√
1.65	Check cooling coil replace if required, otherwise clean it.	x	x	x	x	x	x	√
2.	**Power Transmission**							
2.1	Visual check the leakage from all gear boxes.	√	√	x	x	x	x	x
2.2	Check the engaging/disengaging of clutch in travelling and working mode.	√	√	x	x	x	x	x
2.3	Check pressure on friction clutches.	√	√	x	x	x	x	x
2.4	Check the clearance between wheel and brake block (3-5 mm), adjust if required.	x	√	√	√	√	√	√
2.5	Lubricate bearing and splined joints of axle gear box flange cover with grease and also check condition of cardon shaft i.e. any play in cardon joints.	x	√	√	√	√	√	√
2.6	Check the oil level of drive intermediate shaft and top up if required.	x	√	√	√	√	√	√
2.7	Grease torque arm pivots of driving bogie.	x	√	√	√	√	√	√
2.8	Grease link rods & rocker bearings.	x	√	√	√	√	√	√
2.9	Check brake linkage and oil the pivots.	x	√	√	√	√	√	√
2.10	Grease king pin pivot of driving & idle bogies.	x	√	√	√	√	√	√

SR.NO.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.V 2000 HRS.	SCH.VII 6000 HRS.
2.11	Greasing of all cardon shafts.	x	√	√	√	√	√	√
2.12	Check the oil level of all gear boxes and top up if required.	x	√	√	√	√	√	√
2.13	Check the tightness of cardon shaft bolts and do the needful	x	x	√	√	√	√	√
2.14	Change oil of axle gear boxes.	x	x	√**	√**	√**	√**	√**
2.15	Change oil of power transmission gear box.	x	x	√**	√**	√**	√**	√**
2.16	Change oil of intermediate drive shaft.	x	x	√**	√**	√**	√**	√**
2.17	Change oil of Pump gear box.	x	x	x	√	√	√	√
2.18	Inspect all cardon shafts for any crack.	x	x	x	√	√	√	√
2.19	Check the condition of meggi springs and replace them if required.	x	x	x	x	√	√	√
2.20	Check Transmission units (the reduction gear of the pump drive, the intermediate support, the cardan shafts) for any wear or defect & do needful.	x	x	x	x	√	√	√
2.21	Check operation of lubrication pump for bearing of axle Gear boxes	x	x	x	x	x	√	√
2.22	Overhaul all the gear boxes.	x	x	x	x	x	x	√
2.23	Overhaul the cardan shafts.	x	x	x	x	x	x	√
3.	**TAMPING UNITS**							
3.1	Lubricate the arm bearing(35mm) with grease after every 2-3 hours of working	√	√	x	x	x	x	x
3.2	Check & fill the reservoir for lubrication of tamping arm bearing (55 mm pin) up to the mark after every 2-3 hours of working.	√	√	x	x	x	x	x
3.3	Check the locking arrangement of tamping units (LHS &RHS).	√	√	x	x	x	x	x
3.4	Lubricate guide columns (LHS &RHS).with grease.	√	√	x	x	x	x	x
3.5	Check the hydraulic oil of reservoir for lubrication of vibration shaft main bearing. Top up if required.	√	√	x	x	x	x	x
3.6	Greasing of vibration shaft bearing is to be done after every 2-3 hours of working.	√	√	x	x	x	x	x
3.7	Check tightness and infringement of tamping tools with one another (LHS &RHS).	√	√	x	x	x	x	x
** Done after every 500 Engine hours								

SR.NO.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.V 2000 HRS.	SCH.VII 6000 HRS.
3.8	Check tightness of shoe plate bolts of guide Column (LHS &RHS).	√	√	x	x	x	x	x
3.9	Check the worn out tamping tools (limit 20% on area basis), and change if exceed the limit.	√	√	x	x	x	x	x
3.10	Lubricate hinge joints.	√	√	x	x	x	x	x
3.11	Clean the tamping unit.	√	√	x	x	x	x	x
3.12	Check the leakage through hoses & seals of all cylinders tamping unit.	√	√	x	x	x	x	x
3.13	Lubricate the supporting area of slider with grease.	x	√	√	√	√	√	√
3.14	Lubricate the tamping unit frame guide bushes with grease.	x	√	√	√	√	√	√
3.15	Check the tightness of tamping cylinders holding bracket bolts (LHS& RHS).	x	√	√	√	√	√	√
3.16	Check the condition of the flexible coupling, splined joints with hydraulic motor.	x	√	√	√	√	√	√
3.17	Check squeezing cylinder cover plate bolts for tightness (LHS& RHS).	x	√	√	√	√	√	√
3.18	Check the nuts of 55 mm and 35 mm pin for tightness (LHS& RHS).	x	√	√	√	√	√	√
3.19	Clean the air breather of vibration shaft main bearing & guide column housing.	x	√	√	√	√	√	√
3.20	Check nut & bolts of suspension block of tamping unit.	x	√	√	√	√	√	√
3.21	Check the Calibration of tamping units up/down function.	x	x	√	√	√	√	√
3.22	Lubricate the tamping unit lateral adjusting cylinder with grease.	x	x	√	√	√	√	√
3.23	Check the play on guide bush of tamping unit it should not be mo than 1mm.	x	x	x	√	√	√	√
3.24	Change the hydraulic oil of reservoir for lubrication of vibration sha main bearing.	x	x	x	√	√	√	√
3.25	Overhaul/ Replace the tamping units, if required.	x	x	x	x	√	√	√
3.26	Change Tamping unit Up/Dn cylinders.	x	x	x	x	x	x	√
4.	**TRACK LIFTING & LINING UNIT**							
4.1	Check locking arrangement of lifting/lining units.	√	√	x	x	x	x	x
4.2	Check the condition of lining roller and gripping rollers.	√	√	x	x	x	x	x
4.3	Check the adjustment of grip rollers (3-5mm,according to rail head)	√	√	x	x	x	x	x

SR.NO.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
4.4	Clean the Lifting/Lining unit.	√	√	x	x	x	x	x
4.5	Lubricate the lifting/lining units with grease	x	√	√	√	√	√	√
4.6	Lubricate the hinge joints of the Lifting, lining and grip closing (Rail clamp) hydraulic cylinder.	x	√	√	√	√	√	√
4.7	Check the tightening of threaded connections.	x	√	√	√	√	√	√
4.8	Clean & lubricate guide rod of lining trolley with oil.	x	√	√	√	√	√	√
4.9	Check the condition of lining and leveling chords and clean them with kerosene oil or replace on condition basis.	x	x	√	√	√	√	√
4.10	Calibration of lining.	x	x	√	√	√	√	√
4.11	Overhaul/Replace the lifting units, if required.	x	x	x	x	√	√	√
5.	**Hydraulic**							
5.1	Check and top up the hydraulic oil tank, If required.	√	√	x	x	x	x	x
5.2	Record the maximum hydraulic temperature of the day's work.	√	√	x	x	x	x	x
5.3	Check for any leakages in hydraulic system.	√	√	x	x	x	x	x
5.4	Clean the hydraulic cylinder piston rods.	√	√	x	x	x	x	x
5.5	Check for any clogging of filter indication in hydraulic system	√	√	x	x	x	x	x
5.6	Check the condition of hydraulic hoses for any rubbing, ruptures, cracks, inflections and other defects & do the needful.	x	√	√	√	√	√	√
5.7	Replace the servo filter(DL-40-60-3E-2NOS.)	x	√*	√*	√*	√*	√*	√*
5.8	Change the filter elements (MHT 802 FV 1CB6Y2X-2nos.)	x	x	√**	√**	√**	√**	√**
5.9	Replace Drain filter (RSC 410FV 1FS-1no.).	x	x	√**	√**	√**	√**	√**
5.10	Inspect the Hyd. Pumps & motors for any abnormal sound.	x	x	√	√	√	√	√
5.11	Check and recharge the hydraulic accumulators.	x	x	x	√	√	√	√
5.12	Clean the hydraulic oil tank.	x	x	x	x	√	√	√
5.13	Send the hydraulic oil for chemical testing for viscosity, water content, purity and acid content etc.	x	x	x	x	√	√	√
5.14	Clean the hydraulic oil through 10µ, if found OK in chemical testing otherwise fill the new oil.	x	x	x	x	√	√	√
5.15	Change the hydraulic hoses, which are damaged.	x	x	x	x	√	√	√
5.16	Change the seals of leaking hydraulic cylinders, If any	x	x	x	x	√	√	√
5.17	Change the seal of working brake cylinders if required.	x	x	x	x	√	√	√
5.18	Check and adjust system pressure, vibration pressure, high pressure, squeezing pressure, and Working brake pressure.	x	x	x	x	√	√	√
* Done after every 250 Engine hours** Done after every 500 Engine hours								

SR.NO.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
5.19	Clean and repair the hydraulic oil cooler, if it is blocked more than 20% or badly leaking.	x	x	x	x	x	√	√
5.20	Change all hydraulic pumps on condition basis.	x	x	x	x	x	x	√
5.21	Change all hydraulic motors on condition basis.	x	x	x	x	x	x	√
5.22	Change the hydraulic cylinders on condition basis otherwise replace all the seals.	x	x	x	x	x	x	√
5.23	Change all the D.C. and pilot operated valves on condition basis.	x	x	x	x	x	x	√
5.24	Get calibrated the proportional valve, if possible; otherwise replace it with new one.	x	x	x	x	x	x	√
5.25	Change all pressure control valves.	x	x	x	x	x	x	√
5.26	heck the functioning of all stopcock and flow control valves, if anyone found defective then replace it with new ones.	x	x	x	x	x	x	√
5.27	Change all hydraulic hoses along with crimped fittings.	x	x	x	x	x	x	√
5.28	Clean the hydraulic tank. Inside to be painted with approved quality paint.	x	x	x	x	x	x	√
5.29	Flush the complete hydraulic system.	x	x	x	x	x	x	√
5.30	Change Axle support cylinders & Cabin support cylinder.	x	x	x	x	x	x	√
6.	**PNEUMATIC**							
6.1	Check the functioning of pneumatic system.	√	√	x	x	x	x	x
6.2	Check for any leakages in pneumatic system.	√	√	x	x	x	x	x
6.3	Check air brake pressure (3.8 bar).	√	√	x	x	x	x	x
6.4	Top up air oiler with hydraulic oil if required.	√	√	x	x	x	x	x
6.5	Check the brake application.	√	√	x	x	x	x	x
6.6	Check the oil level of compressor & top up if required.	√	√	x	x	x	x	x
6.7	Drain the water from air tank.…	√	√	x	x	x	x	x
6.8	Clean the air oiler & fill new hydraulic oil.	x	√	√	√	√	√	√
6.9	Check foundation bolts of brake cylinders.	x	√	√	√	√	√	√
6.10	Check the condition of brake shoe.	x	√	√	√	√	√	√
6.11	Check the functioning of hand brake.	x	√	√	√	√	√	√
6.12	Check and adjust auxiliary brake valve and safety valves.	x	√	√	√	√	√	√
6.13	Lubricate the brake linkages of powered bogie with grease.	x	√	√	√	√	√	√
6.14	Check bolts & nuts of pneumatic assembly.	x	√	√	√	√	√	√

SR.NO.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
6.15	Replace the filter granule cartridge of air dryer on condition basis at least once in a year.	x	x	√*	√*	√*	√*	√*
6.16	Check brake lining and brake block play & do needful.	x	x	**√**	√	√	√	√
6.17	Check and lubricate hand brake.	x	x	√	√	√	√	√
6.18	Check air unloader for proper functioning.	x	x	x	√	√	√	√
6.19	Overhaul /replace water separator and air oiler as required.	x	x	x	x	√	√	√
6.20	Change the brake shoes on condition basis.	x	x	x	x	√	√	√
6.21	Change lubricant of hand brake gear.	x	x	x	x	√	√	√
6.22	Overhaul the air unloader.	x	x	x	x	√	√	x
6.23	Clean the air reservoir.	x	x	x	x	√	√	x
6.24	Change the damaged pneumatic pipes.	x	x	x	x	x	√	√
6.25	Overhaul the pneumatic valves, if required and change unserviceable ones.	x	x	x	x	x	√	x
6.26	Clean the air reservoir.	x	x	x	x	x	√	√
6.27	Change the seals of all pneumatic cylinders .	x	x	x	x	x	√	√
6.28	Change the seal of brake cylinders.							
6.29	Change all pneumatic hoses.	x	x	x	x	x	x	√
6.30	Test the air tanks for rated air pressure.	x	x	x	x	x	x	√
6.31	Change the pneumatic cylinders on condition basis, which were creating the frequent trouble during work. Otherwise replace seals only.	x	x	x	x	x	x	√
6.32	Overhaul the brake cylinders and replace the seals if cylinder is o.k.	x	x	x	x	x	x	√
6.33	Change all pneumatic valves.	x	x	x	x	x	x	√
6.34	Change the air unloader.	x	x	x	x	x	x	√
7.	**MECHANICAL**							
7.1	Clean front, middle and rear feeler rod.	√	√	x	x	x	x	x
7.2	Lubricate bush & hinge of feeler rod with oil	√	√	x	x	x	x	x
7.3	Check the brake rod, wheel &spring of all the bogies.	√	√	x	x	x	x	x
7.4	Check the locking pin of consolidator.	x	√	√	√	√	√	√
7.5	Lubricate the pivot of middle feeler with grease.	x	√	√	√	√	√	√
* Done after every 500 Engine hours								

SR.NO.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
7.6	Lubricate all ball & socket and pivot joints with oil.	x	√	√	√	√	√	√
7.7	Check flat car's axle boxes, shock absorbers, brake shoes, hooks & buffers & do needful.	x	√	√	√	√	√	√
7.8	Lubricate with grease pre load cylinder of Front tightening lining and measuring trolleys.	x	√	√	√	√	√	√
7.9	Check shock absorbers and do needful.	x	x	x	√	√	√	√
7.10	Grease Draw and Buffer gears at both ends.	x	x	x	x	√	√	√
7.11	Recondition the worn out wheels of all sensing trolleys, if required.	x	x	x	x	√	√	√
7.12	Check bearing of sensing trolley wheels and lubricate them with grease.	x	x	x	x	√	√	√
7.13	Check the bearing of all the axles & grease them.	x	x	x	x	√	√	√
7.14	Check the machine wheels for tyre defects. Reprofile or replace as required.	x	x	x	x	x	√	√
7.15	Replace the missing and defective hand tools.	x	x	x	x	x	√	√
7.16	Do patch painting where paint has peeled off or blistered and where welding work has been done.	x	x	x	x	x	√	x
7.17	Replace the axle bearings.	x	x	x	x	x	x	√
7.18	Re-profile/replace all the trolley wheels as required.	x	x	x	x	x	x	√
7.19	Replace the cardon shaft holding nuts & bolts.	x	x	x	x	x	x	√
7.20	Overhaul the X-bearing of all cardon shaft or replace if required.	x	x	x	x	x	x	√
7.21	Overhaul the driving and idle bogies and replace the defective parts.	x	x	x	x	x	x	√
8	**ELECTRICAL**							
8.1	Check the function of hooter& flasher light.	√	√	x	x	x	x	x
8.2	Check all lights & horn & do needful.	√	√	x	x	x	x	x
8.3	Check the functioning of intercom system.	√	√	x	x	x	x	x
8.4	Check the functioning of computer.	√	√	x	x	x	x	x
8.5	Check all lights for proper functioning.	x	√	√	√	√	√	√
8.6	Clean the all depth transducers for free movement of chord wire carrier.	x	√	√	√	√	√	√

SR.NO.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
8.7	Clean alternator and check connections.	x	√	√	√	√	√	√
8.8	Checking of gauges and display.	x	x	x	√	√	√	√
8.9	Replacement of Relay/Fuse if required.	x	x	x	√	√	√	√
8.10	Calibrate all input potentiometers for zero correction.	x	x	x	x	√	√	√
8.11	Overhaul all the transducers.	x	x	x	x	√	√	√
8.12	Change the defective transducer fork.	x	x	x	x	√	√	√
8.13	Change defective or missing lights.	x	x	x	x	√	√	√
8.14	Check the wire connections in panel boxes.	x	x	x	x	√	√	√
8.15	Calibrate the sensing trolleys.	x	x	x	x	√	√	√
8.16	Check the limit switches and replace on condition basis	x	x	x	x	x	√	√
8.17	Change the defective switches, potentiometer and indicator lights.	x	x	x	x	x	√	√
8.18	Renew the complete wiring of the machine if existing wiring found more than 40% damaged otherwise replace only the damaged circuits.	x	x	x	x	x	x	√
8.19	Overhaul the pendulum and calibrate.	x	x	x	x	x	x	√
8.20	Overhaul the panel boxes and provide thimbles as required.	x	x	x	x	x	x	√
8.21	Check and replace the defective LED's of solenoids if required.	x	x	x	x	x	x	√
9.	**GENERAL**							
9.1	Check for any unusual sound from tamping units, gear boxes, engine & hydraulic pumps.	√	√	x	x	x	x	x
9.2	Check all the functions of machine before block working.	√	√	x	x	x	x	x
9.3	Keep machine neat and clean.	√	√	x	x	x	x	√
9.4	Examine the fire extinguisher regarding expiry date.	x	x	√	√	√	√	√
9.5	Thoroughly clean all the panel boxes with pressurized air.	x	x	x	x	√	√	√
9.6	Strengthen the machine frame where cracks have been developed.	x	x	x	x	√	√	√

SR.NO.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
9.7	Calibrate the machine on track for all functions.	x	x	x	x	√	√	√
9.8	Visual and Physical inspection of wheel & axles shall be done at a frequency of once in a year or after every 1000 running hours whichever is earlier.	x	x	x	x	√	√	√
9.9	Ultrasonic testing of axles of machine shall be done between 40,000 to 45,000 kms of running or three years, whichever is earlier.	x	x	x	x	x	√	√
9.10	Paint the complete machine with approved quality paint.	x	x	x	x	x	x	√

Note-During POH, Machine Supervisor and CPOH Inspecting Authority jointly inspect the Machine. Any part of Machine is to be repaired or replaced; final decision is to be taken by CPOH Inspecting authority.

Annexure- I

IMPORTANT DATA AND INSTRUCTIONS FOR MAINTENANCE OF MACHINE

1. Working pressure 130-140bar
2. Tamping unit vibration pressure 150 bar
3. Squeezing pressure 90-135 bar
4. Minimum thickness of brake block 13 mm
5. Minimum clearance between brake block and wheel 3-5mm
6. For examination of fire extinguisher shall be examined as per instruction of manufacturer (seal should be intact and nozzle should be free from obstructions).
7. Oil used as damping oil in pendulums silicon oil (M200/12500)
8. Never operate the engine with oil level below low mark or above the high mark.
9. Keep the oil level as near high mark as possible.
10. Check the oil level of power shift gear box at 1200RPM
    For lower level at 40℃
    For upper level at 80℃
11. While greasing and lubricating, remove excessive grease or oil before re-greasing and re-lubrication the machine parts
12. Nal cool 2000 is to be added in radiator water @ 500 ml for every 15 litre of water.
13. API CF-4 15W40 lube oil is to be used in engine.
14. Engine oil pressure should be minimum 1.5 kg/sq.cm at idle & 2.5 kg/sq.cm on load at rated RPM after two hours working.
16. Gear oil for all gear boxes will be SAE -90.
17. Maximum 20% wear on area basis is permitted for changing the worn out tamping tools.
18. Air brake pressure should be Min. 3.8 bar at lock position.
19. Clearance of lifting roller disc below the rail head will be 5 mm for rear and 12 mm for front in lowered condition.
20. Gap of carrier of lining transducer should be 0.1 mm more than the dia. of chord wire (2mm).
21. RPM of engine radiator fan should not be less than 1600 for proper cooling.
22. The length of the hoses between clamps or adopter should be 4% more than required to provide allowance for shortening of hose under pressure.
23. Radiator may be replaced if it is blocked more than 20% during service or badly leaking and not economical to repair.
24. Tension of V-belt will be checked at center of belt and it should not be more than 15mm.
25. Complete set of tamping tools should be changed at a time instead of replacement of individual worn out tools as far as possible to obtain better quality of packing.
26. Hydraulic oil should be sent for physical and chemical test after every 1000hrs.

Annexure-II

GENERAL SAFETY NOTES.

1. The machine has to be operated according to existing Indian Railways Rules & Regulations.

2. The safety of all machine staffs is most important consideration in the operation and maintenance of the machine.

3. Always be alert for other men working close to the machine.

4. Do not forget to look out for signals and obstructions on track.

5. Make sure that all protection equipment and safety devices are in place on the machine and in working order especially when it is being driven from site to site.

6. Always keep the machine clean. Excessive oil or grease on the machine can make surface slippery and is also potential fire hazard.

7. Always lock the machine before leaving. Make sure that the machine is protected in accordance with railway regulations.

8. Whenever there is in opportunity while waiting to get out on a job, do some of the smaller maintenance job, such as tightening loose nuts and bolts and cleaning the machine.

9. Do not permit unauthorized persons to operate the machine.

10. It is prohibited to use fire on or near the machine.

11. Whenever going to work near the tamping bank area, operate the emergency push button and ensure latching position.

12. Do not tow the machine if the final drive is engaged.

13. Always wear proper dress, safety shoes & helmet while operating the Machine.

Annexure - III

List of Safety Equipments

S.No.	Description	Quantity
1.	Detonators in a tin case	1 box
2.	H.S. flag red	2 nos.
3.	H.S. flag green	1 nos.
4.	H.S. Tri colour Lamps/LED torch	2 nos.
5.	Chain & Padlock	1 set
6.	Point Clamp with Padlock	2 nos.
7.	10 t jack	2 no.
8.	Crow bars	4nos.
9.	Wooden blocks of different sizes	4nos.
10.	Gauge cum level	1 no.
11.	Rail thermometer (dial type)	1 no.
12.	Banner flags	2 nos.
13.	Walky talky with frequency of SM,guard and loco pilots	2 nos.
14.	Portable telephone	1 no.
15.	Internal communication system walky talky and /or head mounting system	1 set
16.	First Aid Box	1 no
17.	Skids	4 nos.
18.	Working time table of section where machine working	1 copy
19.	G&SR book with up to date amendment slips	1 copy
20.	4 cell flasher light/ LED torch,6watt() (rechargeable)	1 no.
21.	Safety helmets	For each Machine staff
22.	Protective clothing, safety shoes and safety gloves	For each Machine staff
23.	Track Machine Manual with up to date correction slip	1 no.
24.	Accident Manual	1 no.
25.	Fire extinguisher	2 nos.
26.	Hooter (Manually/ Remote)	2 nos.
27.	Hydraulic Hand Pump	1 no.
28.	Tail Lamp	1 no.
29.	Emergency pneumatic/Hydraulic hose of sizes suiting to different machines(complete with end fittings)	1 no.

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RAILWAYS

1.	SHRI Ravi Prakash	SSE/TM/NCR
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