क्रम २१०.90

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Date : 22 -03-2018

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Chief Engineer (Track Machines)

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2. फेयरली प्लेस, पूर्व रेलवे, कोलकाता–700 001 — Fairlie Place, E R. Kolkata-700 001.
3. बड़ौदा हाउस, उत्तर रेलवे, नयी दिल्ली–110 001 — Baroda House, N R, New Delhi-110 001.
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5. मालीगांव, उत्तरपूर्व सीमान्त रेलवे, गुवाहाटी–781 011 — Maligaon, N F R, Guwahati -781 011.
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11. पूर्व मध्य रेलवे, हाजीपुर–844 101 — E C R, Hazipur-844 101
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
15. पश्चिम मध्य रेलवे, जबलपुर–482 001 — WCR, Jabalpur-482 001
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Dy Chief Engineer (Track Machines)

1. सी.पी.ओ.एच. कार्यशाला पो0 धूमनगंज इलाहाबाद–221012 — CPOH WPRKSHOP,PO. Dhoomanganj Allahabad-221012
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विषय : वी पी आर .02 एम वर्कसाइट टैम्पिंग मशीन की अनुरक्षण अनुसूची पुस्तिका के संशोधन –1 ।

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

वी पी आर .02 एम वर्कसाइट टैम्पिंग मशीन की अनुरक्षण सूची (टीएम–रिर्पोट–187) पत्र सं. टीएम/एच/एम /डब्लुएसटी दि. 01.04.2015 का संशोधन – 1 तैयार किया गया है। जिसकी प्रति, आपके सूचनार्थ तथा मशीन के कर्मचारियों जो फील्ड में काम कर रहे हैं, के मार्गदर्भान 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 (TM Report-187) issued vide letter no.**TM/HM/WST dated 01-04-2015,** 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

(मुदित भटनागर)
कार्यकारी निदेशक/ रेलपथमशीन

भारत सरकार
रेल मंत्रालय

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

वी पी आर .02 एम वर्कसाइट टैम्पिंग मशीन की अनुरक्षण अनुसूची पुस्तिका

MAINTENANCE SCHEDULE MANUAL
FOR
WORKSITE TAMPING MACHINE,VPR-02M
(WITHOUT FLAT CAR)
"KALUGAPUTMASH"

रिपोर्ट संख्या–टी.एम.–187
Report No.TM - 187
(Revision-1 of 2018)

मार्च–2018

March-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 VPR-02M Worksite Tamping Machine 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.

March-2018

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

EXPLANATORY NOTES

While preparing text of schedules for maintenance of VPR-02M, WST, 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 VPR-02M WST 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

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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.
1.	**Engine (QSM-11 Industrial)**							
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 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.	√	√	x	x	x	x	x
1.10	Check engine oil pressure on load after two hours working.	√	√	x	x	x	x	x
1.11	Check the oil level and leakage of compressor, if applicable.	√	√	x	x	x	x	x
1.12	Check the battery charging system.	√	√	x	x	x	x	x
1.13	Drain the air reservoir after the day's work.	√	√	x	x	x	x	x
1.14	Record the maximum engine temperature of the day's work	√	√	x	x	x	x	x
1.15	Top up air oiler if required.	√	√	x	x	x	x	x
1.16	Drain sediments from fuel tank.	x	√	√	√	√	√	√
1.17	Open and clean dust collector/pan,	x	√	√	√	√	√	√
1.18	Lubricate the radiator fan shaft with grease.	x	√	√	√	√	√	√
1.19	Drain water separator.	x	√	√	√	√	√	√
1.20	Check electrolyte level of batteries, top up if required.	x	√	√	√	√	√	√
1.21	Check battery terminal and connection for tightness.	x	√	√	√	√	√	√
1.22	Apply petroleum jelly on battery terminal.	x	√	√	√	√	√	√
1.23	Top up air oiler if required.	x	√	√	√	√	√	√
1.24	Check engine temperature safety device.	x	√	√	√	√	√	√
1.25	Check lube oil pressure safety device.	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.
1.26	Examine the mounting bolts of the engine.	x	x	√	√	√	√	√
1.27	First time change of lube oil is being done, 100 hrs after commissioning.	x	x	√	√	√	√	√
1.28	First time change of lube oil filter and by pass filter is being done after commissioning.	x	x	√	√	√	√	√
1.29	Change engine lube oil.	x	x	√*	√*	√*	√*	√*
1.30	Replace lube oil filter & bypass element.	x	x	√*	√*	√*	√*	√*
1.31	Replace fuel filters.	x	x	√*	√*	√*	√*	√*
1.32	Inspect the water separator for proper functioning.	x	x	√	√	√	√	√
1.33	Check the throttle control linkages.	x	x	√	√	√	√	√
1.34	Check fuel tank breather and clean if required.	x	x	√*	√*	√*	√*	√*
1.35	Check/add Coolant additive concentrate	x	x	√*	√*	√*	√*	√*
1.36	Check air piping.	x	x	√*	√*	√*	√*	√*
1.37	Check hyd. Governor oil.	x	x	√*	√*	√*	√*	√*
1.38	Clean outer air cleaner element.(Cleaned after every 200 hrs or on dirt indication)	x	x	x	√	√	√	
1.39	Lubricate all the engine pulley bearings with grease.	x	x	x	√	√	√	√
1.40	Clean crank case breather.	x	x	x	√	√	√	√
1.41	Check and change radiator hoses, if required.	x	x	x	√	√	√	√
1.42	Check specific gravity of battery electrolyte if applicable.	x	x	x	√	√	√	√
1.43	Check coupling disc of injection pump.	x	x	x	√	√	√	√
1.44	Change worn out water hoses.	x	x	x	x	√	√	√
1.45	Check coolant for PH value.	x	x	x	x	√	√	√
1.46	Overhaul the air compressor. If required.	x	x	x	x	√	√	√
1.47	Clean the engine radiator externally.	x	x	x	x	√	√	√
1.48	Clean the diesel tank with lint free cloth.	x	x	x	x	√	√	√
1.49	Clean/Replaced the cooling coil as required.	x	x	x	x	√	√	√
1.50	Replace the outer and inner engine air cleaner element.	x	x	√*	√*	√*	√*	√*
1.51	Check the condition and tightness of V-belt for radiator fan.	x	x	x	x	√	√	√
1.52	Replace minor repair kit for air compressor.	x	x	x	x	√	√	√
1.53	Descaling cooling system.	x	x	x	x	x	√	√
1.54	Change coolant of radiator	x	x	x	x	x	√	√
* Done after every 300 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.
1.55	Replace fuel pump filter screen and magnet.	x	x	x	x	x	√	√
1.56	Check fuel pump calibration	x	x	x	x	x	√	√
1.57	Replace Aneroid belows & calibrate.	x	x	x	x	x	√	√
1.58	Clean turbocharger compressor wheel and diffuser if required.	x	x	x	x	x	√	√
1.59	Check turbocharger bearing clearance.	x	x	x	x	x	√	√
1.60	Replace the batteries on condition basis.	x	x	x	x	x	√	√
1.61	Replace the rocker cover gaskets (after 1000 engine hrs. of commissioning/POH)	x	x	x	x	x	√	√
1.62	Adjust tappet clearance (after 1000 engine hrs. of commissioning/POH)	x	x	x	x	x	√	√
1.63	Change all the water hoses.	x	x	x	x	x	√	√
1.64	Overhaul the water separator and air oiler.	x	x	x	x	x	√	√
1.65	Overhaul the air unloader.	x	x	x	x	x	√	√
1.66	Check crank shaft end clearance.	x	x	x	x	x	√	√
1.67	Check the vibration damper for dynamic balance.	x	x	x	x	x	√	√
1.68	Change fuel pump screen filter.	x	x	x	x	x	√	√
1.69	Overhaul self-starter.	x	x	x	x	x	√	√
1.70	Overhaul alternator I.	x	x	x	x	x	√	√
1.71	Overhaul alternator II.	x	x	x	x	x	√	√
1.72	Clean and calibrate injectors if required.	x	x	x	x	x	√	√
1.73	Overhaul the engine, if there is lack of compression on low lube oil pressure otherwise de- carbonize the engine.	x	x	x	x	x	√	√
1.74	Check bearing and shaft of radiator fan drive and do needful.	x	x	x	x	x	√	√
1.75	Overhaul water pump.	x	x	x	x	x	√	√
1.76	Check turbocharger compressor and turbine wheels. Check radial and end clearances & do needful.	x	x	x	x	x	√	√
1.77	Tightened manifold nuts or cap screws.	x	x	x	x	x	√	√
1.78	Replace the air unloader on condition basis.	x	x	x	x	x	√	√
1.79	Overhaul or replace the engine on the condition basis.	x	x	x	x	x	x	√
1.80	Change the engine mounting pads.	x	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.
1.81	Check the engine vibration damper for dynamic balance.	x	x	x	x	x	x	√
1.82	Change the water separator and air oiler	x	x	x	x	x	x	√
1.83	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 supply pressure in hydraulic transmission.	√	√	x	x	x	x	x
2.3	Check pressure on the friction clutches.	√	√	x	x	x	x	x
2.4	Check supply pressure in lubrication system.	x	√	√	√	√	√	√
2.5	Check the oil level of hydraulic working drive reduction gear box and top up if required.	x	√	√	√	√	√	√
2.6	Check the oil level of power shift gear box and top up, if required	x	√	√	√	√	√	√
2.7	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	√	√	√	√	√	√
2.8	Check the oil level of axle gear boxes and top up if required.	x	√	√	√	√	√	√
2.9	Check the oil level of drive intermediate shaft and top up if required	x	√	√	√	√	√	√
2.10	Check the clearance between wheel and brake block (3-5 mm), adjust if required.	x	√	√	√	√	√	√
2.11	Check the tightness of cardon shaft bolts and do the needful	x	√	√	√	√	√	√
2.12	Grease torque arm pivots of driving bogie.	x	√	√	√	√	√	√
2.13	Grease link rods.	x	√	√	√	√	√	√
2.14	Check brake linkage and oil the pivots.	x	√	√	√	√	√	√
2.15	Grease king pin pivot of driving & idle bogies.	x	√	√	√	√	√	√
2.16	Grease axle gear box flange cover of driving bogie.	x	√	√	√	√	√	√
2.17	Lubricate all dirt repelled with grease (shell Alvania RL-2/RR-3).	x	√	√	√	√	√	√
2.18	Greasing of all cardon shafts.	x	√	√	√	√	√	√
2.19	Change oil of axle gear boxes.	x	x	√**	√**	√**	√**	√**
2.20	Change oil of power transmission gear box.	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.VI 2000 HRS.	SCH.VII 6000 HRS.
2.21	Change the oil of cardan shaft distribution gear box.	x	x	√**	√**	√**	√**	√**
2.22	Change oil of intermediate drive shaft.	x	x	√**	√**	√**	√**	√**
2.23	Inspect all cardon shafts for any crack.	x	x	x	√	√	√	√
2.24	Check the bearings of all the axles and lubricate with grease.	x	x	x	x	√	√	√
2.25	Check the condition of meggie springs and replace them if required.	x	x	x	x	√	√	√
2.26	Install the unit of power drive on machine and test operate them if defect are detected in some unit it should be repaired	x	x	x	x	x	√	√
2.27	Overhaul all the gear boxes.	x	x	x	x	x	x	√
2.28	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 working.	√	√	x	x	x	x	x
3.3	Check the locking arrangement of tamping units (LHS &RHS).	√	√	x	x	x	x	x
3.4	Check & top up the wick lubricator for lubrication of guide columns.	√	√	x	x	x	x	x
3.5	Greasing of vibration shaft bearing is to be done after every 2-3 hours of working.	√	√	x	x	x	x	x
3.6	Check tightness and infringement of tamping tools with one another (LHS).	√	√	x	x	x	x	x
3.7	Check tightness and infringement of tamping tools with one another (RHS).	√	√	x	x	x	x	x
3.8	Check tightness of shoe plate bolts of guide Column (LHS).	√	√	x	x	x	x	x
3.9	Check tightness of shoe plate bolts of guide Column (RHS).	√	√	x	x	x	x	x
3.10	Grease guide columns.	√	√	x	x	x	x	x
3.11	Check the worn out tamping tools (limit 20% on area basis), and change if exceed the limit.	√	√	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.VI 2000 HRS.	SCH.VII 6000 HRS.
3.12	Check for chocking of pipe lines/distributor block of automatic greasing.	√	√	x	x	x	x	x
3.13	Lubricate hinge joints.	√	√	x	x	x	x	x
3.14	Clean the tamping unit.	√	√	x	x	x	x	x
3.15	Clean and lubricate the front and rear feeler rod with grease.	x	√	√	√	√	√	√
3.16	Lubricate the guide bushing of front, middle and rear feeler rod with suitable lubricant.	x	√	√	√	√	√	√
3.17	Check the upper hinges for radial play and also condition of upper and central hinges.	x	√	√	√	√	√	√
3.18	Check the condition of the flexible coupling, splined joints with hydraulic motor.	x	√	√	√	√	√	√
3.19	Check the hinge joints of the rod of hydraulic cylinder for the movable frames movement.	x	√	√	√	√	√	√
3.20	Check squeezing cylinder cover plate bolts for tightness (LHS).	x	√	√	√	√	√	√
3.21	Check squeezing cylinder cover plate bolts for tightness(RHS)	x	√	√	√	√	√	√
3.22	Check tamping unit cylinder holding bracket bolts for tightness (LHS).	x	√	√	√	√	√	√
3.23	Check tamping unit cylinder holding bracket bolts for tightness (RHS).	x	√	√	√	√	√	√
3.24	Check the nuts of 55 mm and 35 mm pin for tightness (LHS).	x	√	√	√	√	√	√
3.25	Check the nuts of 55 mm and 35 mm pin for tightness (RHS).	x	√	√	√	√	√	√
3.26	Check the Calibration of tamping units up/down function.	x	x	√	√	√	√	√
3.27	Lubricate the tamping unit lateral adjusting cylinder with grease.	x	x	√	√	√	√	√
3.28	Check the play on guide bush of tamping unit it should not be more than 1mm.	x	x	x	√	√	√	√
3.29	Check the fitness of flywheels .	x	x	x	√	√	√	√
3.30	Change oil of Vibration shaft main bearing.	x	x	x	√*	√*	√*	√*
3.31	Overhaul/ Replace the tamping units, if required	x	x	x	x	√	√	√
3.32	Recondition the worn out wheels of all sensing trolleys, if required.	x	x	x	x	√	√	√
3.33	Check bearing of sensing trolley wheels and lubricate them with grease.	x	x	x	x	√	√	√
*Done at every 300 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.
3.34	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
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 raising, lining and grip closing hydraulic cylinder.	x	√	√	√	√	√	√
4.7	Check the tightening the threaded connections	x	√	√	√	√	√	√
4.8	Check the condition of lining and leveling chords and replace on condition basis.	x	x	√	√	√	√	√
4.9	Calibration of lining.	x	x	√	√	√	√	√
4.10	Check the wear grips roller and lining rollers.	x	x	x	√	√	√	√
4.11	Lubricate the bushing of guiding columns OF LIFTING CHORD.	x	x	x	√	√	√	√
4.12	Lubricate the axles of lining rollers.	x	x	x	√	√	√	√
4.13	Overhaul/Replace the lifting units, if required	x	x	x	x	√	√	√
4.14	Overhaul the sensing trolleys.	x	x	x	x	x	x	√
4.15	Re-profile all the trolley wheels	x	x	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 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, reputes, cracks, inflections and other defects & do the needful.	x	√	√	√	√	√	√
5.7	Replace the servo filter.	x	√*	√*	√*	√*	√*	√*
5.8	Check the nitrogen pressure in hydraulic accumulator.	x	x	√	√	√	√	√
5.9	Check and adjust system pressure, vibration pressure, high pressure, squeezing pressure, and Working brake pressure	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.VI 2000 HRS.	SCH.VII 6000 HRS.
5.10	Replace all pressure line filters (2nos.).	x	x	√**	√**	√**	√**	√**
5.11	Replace return line filters (1nos.).	x	x	√**	√**	√**	√**	√**
5.12	Check for hydraulic oil quality.	x	x	x	x	√	√	√
5.13	Clean the hydraulic oil through 10µ Porta filter, if found OK in chemical testing otherwise fill new oil.	x	x	x	x	√	√	√
5.14	Clean the hydraulic oil tank	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 recharge the hydraulic accumulators	x	x	x	x	√	√	√
5.19	Clean and repair the hydraulic oil cooler.	x	x	x	x	x	√	√
5.20	Change all hydraulic pumps condition basis.	x	x	x	x	x	x	√
5.21	Change all hydraulic motors 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 condition basis.	x	x	x	x	x	x	√
5.24	Change/ Overhaul all pressure control valves.	x	x	x	x	x	x	√
5.25	Change stopcock and flow control valves, on need basis.	x	x	x	x	x	x	√
5.26	Change all hydraulic hoses along with crimped fittings.	x	x	x	x	x	x	√
5.27	Flush the complete hydraulic system.	x	x	x	x	x	x	√
5.28	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 the air oiler with engine oil.	√	√	x	x	x	x	x
6.5	Check the brake application.	√	√	x	x	x	x	x
6.6	Check foundation bolts of brake cylinders.	x	√	√	√	√	√	√
6.7	Check the condition of brake shoe	x	√	√	√	√	√	√
6.8	Check the functioning of hand brake	x	√	√	√	√	√	√
6.9	Check and adjust auxiliary brake valve and safety valves.	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.
6.10	Replace the filter granule cartridge of air dryer on condition basis at least once in a year.	x	x	√*	√*	√*	√*	√*
6.11	Check brake lining and brake block play & do needful.	x	x	√	√	√	√	√
6.12	Lubricate the brake linkages of powered bogie with grease	x	x	x	√	√	√	√
6.13	Adjust the compressed air pressure in the braking pipe-line of safety valves.	x	x	x	√	√	√	√
6.14	Check air unloader for proper functioning.	x	x	x	√	√	√	√
6.15	Overhaul water separator and air oiler.	x	x	x	x	√	√	√
6.16	Grease/lubricate hand brake gear.	x	x	x	x	√	√	√
6.17	Overhaul the air unloader.	x	x	x	x	√	√	x
6.18	Change the damaged pneumatic pipes	x	x	x	x	x	√	√
6.19	Overhaul the pneumatic valves, if required and change unserviceable ones.	x	x	x	x	x	√	√
6.20	Clean the air reservoir.	x	x	x	x	x	√	√
6.21	Change the seals of brake cylinders.	x	x	x	x	x	√	√
6.22	Change all pneumatic hoses.	x	x	x	x	x	x	√
6.23	Test the air tanks for rated air pressure.	x	x	x	x	x	x	√
6.24	Change the air unloader on need basis.	x	x	x	x	x	x	√
6.25	Overhaul the brake cylinders and replace the seal	x	x	x	x	x	x	√
6.26	Replace the pneumatic cylinders on condition basis, which were creating the frequent trouble during work. Otherwise replace seals only.	x	x	x	x	x	x	√
7.	**MECHANICAL**							
7.1	Clean and lubricate the thrust plate of front and rear feeler with grease.	√	√	x	x	x	x	x
7.2	Check shock absorbers and do needful.	x	x	x	√	√	√	√
7.3	Grease Draw and Buffing gear at both ends..	x	x	x	x	√	√	√
7.4	Check the machine wheels for tyre defects. Reprofile or replace if required.	x	x	x	x	x	√	√
7.5	Replace the missing and defective hand tools.	x	x	x	x	x	√	√
7.6	Do patch painting where paint has peeled off or blistered and where welding work has been done.	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.VI 2000 HRS.	SCH.VII 6000 HRS.
7.7	Replace the axle bearings.	x	x	x	x	x	x	√
7.8	Replace the shaft holding nuts & bolts.	x	x	x	x	x	x	√
7.9	Complete machine may be painted with approved paint.	x	x	x	x	x	x	√
7.10	Overhaul the X-bearing of all propeller shaft or replace if required	x	x	x	x	x	x	√
7.11	Overhaul the driving and idle bogies and replace the defective parts.	x	x	x	x	x	x	√
7.12	Remove and check the bogie frame and do needful.	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 for proper functioning.	x	√	√	√	√	√	√
8.3	Clean the all depth transducers for free movement of chord wire carrier.	x	√	√	√	√	√	√
8.4	Clean alternator and check connections.	x	√	√	√	√	√	√
8.5	Calibration of Driving circuit.	x	x	√	√	√	√	√
8.6	Change the defective transducer fork.	x	x	√*	√*	√*	√*	√*
8.7	Checking of gauges and display.	x	x	x	√	√	√	√
8.8	Replacement of Relay/Fuse if required.	x	x	x	√	√	√	√
8.9	Calibrate all input potentiometers for zero correction.	x	x	x	x	√	√	√
8.10	Overhaul all the transducers.	x	x	x	x	√	√	√
8.11	Check the wire connections in panel boxes.	x	x	x	x	√	√	√
8.12	Calibrate the sensing trolleys for level.	x	x	x	x	√	√	√
8.13	Change the defective switches and potentiometer	x	x	x	x	x	√	√
8.14	Overhaul the pendulums and calibrate.	x	x	x	x	x	x	√
8.15	Overhaul the panel boxes and provide thimbles as required	x	x	x	x	x	x	√
8.16	Change the defective switches and indicator lights.	x	x	x	x	x	x	√
8.17	Check and replace the defective LED's of solenoids if required.	x	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.VI 2000 HRS.	SCH.VII 6000 HRS.
8.18	Check the calibration of digital potentiometers and replace the defective ones.	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	√	√	√	√	√	√
9.4	Lubricate all ball & socket and pivot joints with oil	x	√	√	√	√	√	√
9.5	Examine the fire extinguisher regarding expiry date.	x	x	√	√	√	√	√
9.6	Lubricate the plain bearing, screw and gear pairs of the braking Column of the manual brake	x	x	x	√	√	√	√
9.7	Thoroughly clean all the panel boxes with pressurized air.	x	x	x	x	√	√	√
9.8	Strengthen the machine frame where cracks have been developed.	x	x	x	x	√	√	√
9.9	Calibrate the machine on track for all functions.	x	x	x	x	√	√	√
9.10	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	√	√	√
9.11	Check the machine wheels for tyre defects, reprofile or replace if required.	x	x	x	x	x	√	√
9.12	Ultrasonic testing of axles of machine shall be done between 40,000 to 45,000 kms of running hours or three years, whichever is earlier.	x	x	x	x	x	√	√
9.13	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. 4 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.	Internal communication system walky talky and /or head mounting system	
15.	First Aid Box	1 no
16.	Skids	4 nos.
17.	Working time table of section where machine working	1 copy
18.	G&SR book with up to date amendment slips	1 copy
19.	4 cell flasher light/ LED torch,6watt() (rechargeable)	1 no.
20.	Safety helmets	For each Machine staff
21.	Protective clothing, safety shoes and safety gloves	For each Machine staff
22.	Track Machine Manual with up to date correction slip	1 no.
23.	Accident Manual	1 no.
24.	Fire extinguisher	1 no.
25.	Hooter (Manually/ Remote)	2 nos.
26.	Hydraulic Hand Pump	1 no.
27.	Tail Lamp	1 no.
28.	Emergency pneumatic/Hydraulic hose of sizes suiting to different machines(complete with end fittings)	1 no.

ACKNOWLEDGEMENT

Following officers and staff have made their valuable contributions in finalization of the Revision-1 of maintenance schedule manual of WST (VPR-02 M), without flat car.

RAILWAYS

1.	SHRI Rais Ahmad	SSE/TM/NR
2.	SHRI S.N.Pandey	SSE/TM/NR

RDSO

1.	SHRI Muslim Ahmad	ARE/TM
2	'' '' Ved Prakash Srivastava	SSE//TM
3	'' '' D.G.Sharma	SSE/ENGG/TM

22-03-18