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TM/HM/UNI/pt.IV

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विषय : Unimat 08-275 & 08-275 3S की अनुरक्षण अनुसूची पुस्तिका के संशोधन -1

Sub: Revision-1 of Maintenance schedule manual of Unimat 08-275 & 08-275 3S

Unimat 08-275 & 08-275 3S की अनुरक्षण सूची (टीएम-रिपोर्ट-175) पत्र सं. टीएम/एच/एम /15 दि. 02.06.2017 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 सावधानियाँ बरती गई हैं, फिर भी यदि कोई त्रुटि हो तो, कृपया अपने सुझावों/ टिप्पणियों को सुधार हेतु ई-मेल/ फ़ैक्स/ पत्राचार द्वारा अद्योहस्ताक्षरी को भेजे।

Revision-1 for the Maintenance Schedule(TM Report-175) of Unimat 08-275 & 08-275 3S, issued vide letter no. TM/HM/15 dated 02-06-2017, 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 sent to the knowledge of the undersigned for further improvement, by email/fax/post.

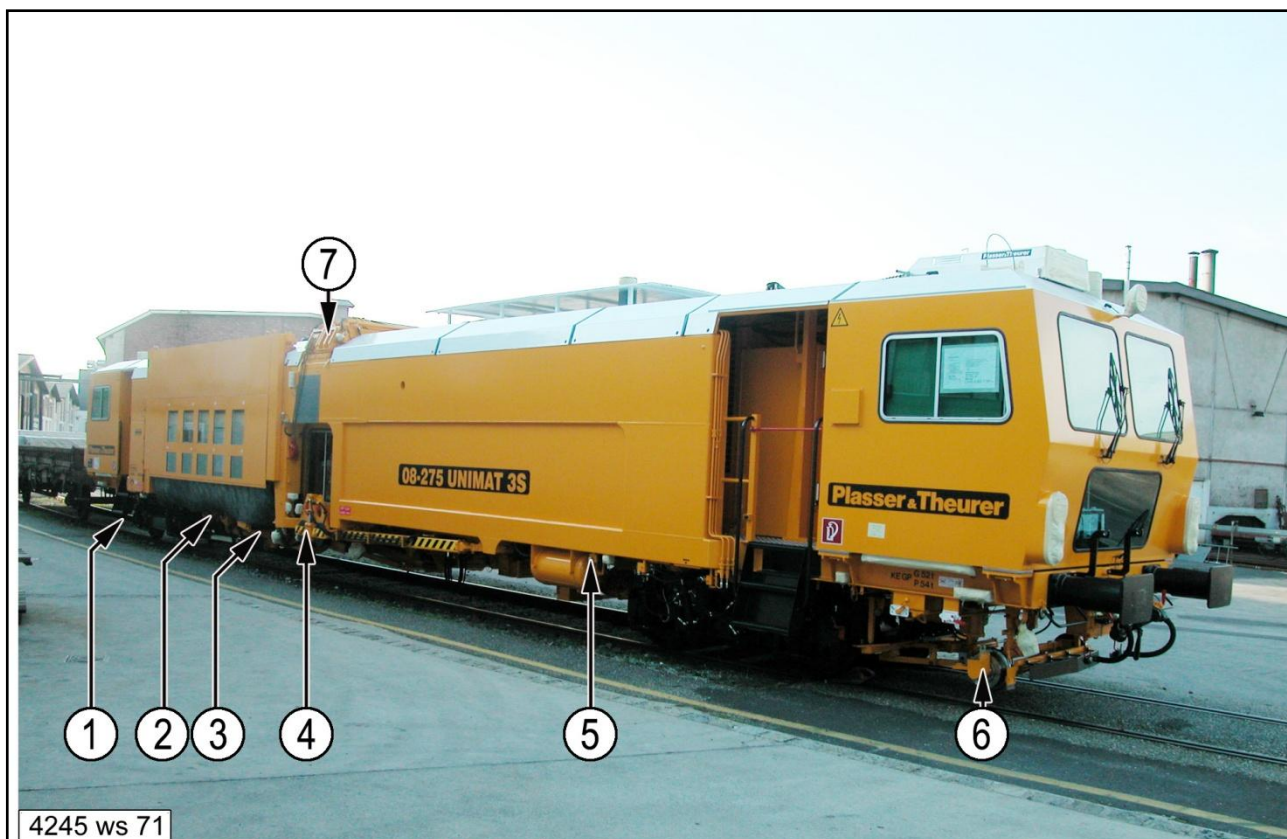
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(मुदित भट्टनागर)
कार्यकारी निदेशक, रेलपथमशीन



GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

MAINTENANCE SCHEDULE MANUAL FOR UNIMAT
(08-275 & 08-275-3S)



Report No.TM - 175
(Revision-1 of 2017)
November 2017

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 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 (UNIMAT (08-275 & 08-275-3S) 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.

(OM PRAKASH)
Director/Track Machine
RDSO/Lucknow-226011

EXPLANATORY NOTES

While preparing text of schedules for maintenance of 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 UNIMAT (08-275 & 08-275-3S)

S.N.	Schedule	Periodicity	Duration	Location
1.	Schedule I	Daily/ Before working & running	One hour.	In theTrack 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.	1 st POH-60 days, 2 nd POH-75 days	In CPOH Workshop

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SR.NO.	ITEM	SCH.I Daily	SCH.II 50HR.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000HRS	SCH.VII 6000 HRS.
1.	Engine CUMMINS							
I.	Check coolant level in radiator and top up if required.	√	√	x	x	x	x	x
II.	Check the engine oil level and top up if required.	√	√	x	x	x	x	x
III.	Check fuel level and top up if required.	√	√	x	x	x	x	x
IV.	Visual check the air cleaner chocking indicator. If indicator is red, the outer filter is to be cleaned.	√	√	x	x	x	x	x
V.	Check the leakage from hoses, water pump seal etc. and do the needful.	√	√	x	x	x	x	x
VI.	Visual Check the leakage from fuel pump, injectors, fuel supply and return pipes and do needful.	√	√	x	x	x	x	x
VII.	Visual check the tension and condition of V-belts and do needful.	√	√	x	x	x	x	x
VIII.	Clean the engine and premises.	√	√	x	x	x	x	x
IX.	Check the engine oil pressure at idle	√	√	x	x	x	x	x
X.	Check engine oil pressure on load after two hours working.	√	√	x	x	x	x	x
XI.	Check the oil level and leakage of compressor, if applicable	√	√	x	x	x	x	x
XII.	Check the battery charging system.	√	√	x	x	x	x	x
XIII.	Drain the Reservoir after the day's work.	√	√	x	x	x	x	x
XIV.	Record the maximum engine temperature of the day's work	√	√	x	x	x	x	x
XV.	Drain sediments from fuel tank.	√	√	x	x	x	x	x
XVI.	Check air cleaner element restriction .Clean/Change air cleaner element if required.	√	√	x	x	x	x	x
XVII.	Open and clean dust collector/pan,							
XVIII.	Lubricate the radiator fan shaft with grease.	x	√	√	√	√	√	√
XIX.	Check the leakage from fuel line.	x	√	√	√	√	√	√
XX.	Drain water separator	x	√	√	√	√	√	√
XXI.	Check electrolyte level of batteries, top up if required.	x	√	√	√	√	√	√
XXII.	Check battery terminal and connection for tightness.	x	√	√	√	√	√	√
XXIII.	Apply petroleum jelly on battery terminal.	x	√	√	√	√	√	√
XXIV.	Check injector pipes for any rubbing and do needful.	x	√	√	√	√	√	√
XXV.	Top up air oiler if required.	x	√	√	√	√	√	√

SR.NO.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000HRS	SCH.VII 6000 HRS.
XXVI.	Check engine temperature safety device.	x	x	√	√	√	√	√
XXVII.	Check lube oil pressure safety device.	x	x	√	√	√	√	√
XXVIII.	Examine the mounting bolts of the engine.	x	x	√	√	√	√	√
XXIX.	First time change of lube oil is being done , 100 hrs after commissioning.	x	x	√	√	√	√	√
XXX.	First time change of lube oil filter and by pass filter is being done after commissioning.	x	x	√	√	√	√	√
XXXI.	Change engine lube oil.	x	x	√*	x	x	x	x
XXXII.	Replace lube oil filter & bypass element.	x	x	√*	x	x	x	x
XXXIII.	Replace fuel filters.	x	x	√*	x	x	x	x
XXXIV.	Inspect the water separator for proper functioning.	x	x	√	√	√	√	√
XXXV.	Check the throttle control linkages.	x	x	√	√	√	√	√
XXXVI.	Check fuel tank breather and clean if required.	x	x	√*	x	x	x	x
XXXVII.	Check/add Coolant additive concentrate	x	x	√*	√*	√*	√*	√*
XXXVIII.	Clean/change crank case air breather.	x	x	√*	√*	√*	√*	√*
XXXIX.	Check air piping.	x	x	√*	√*	√*	√*	√*
XL.	Check hyd. Governor oil.	x	x	√*	√*	√*	√*	√*
XLI.	Clean outer air cleaner element.(Cleaned after every 200 hrs or on dirt indication)	x	x	x	√	√	√	
XLII.	Lubricate all the engine pulley bearings with grease.	x	x	x	√	√	√	√
XLIII.	Clean crank case breather.	x	x	x	√	√	√	√
XLIV.	Check and change radiator hoses, if required.	x	x	x	√	√	√	√
XLV.	Check specific gravity of battery electrolyte if applicable.	x	x	x	√	√	√	√
XLVI.	Check coupling disc of injection pump.	x	x	x	√	√	√	√
XLVII.	Change worn out water hoses.	x	x	x	x	√	√	√
XLVIII.	Check coolant for PH value.	x	x	x	x	√	√	√
XLIX.	Overhaul the air compressor. if required.	x	x	x	x	√	√	√
L.	Clean the engine radiator externally.	x	x	x	x	√	√	√
LI.	Clean the diesel tank with lint free cloth.	x	x	x	x	√	√	√
LII.	Clean the cooling coil.	x	x	x	x	√	√	√
LIII.	Replace the outer and inner engine air cleaner element.	x	x	x	x	√	√	√
* Done after every 300 Engine hours								

SR. 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.
LIV.	Check the condition and tightness of V-belt for radiator fan.	x	x	x	x	√	√	√
LV.	Replace minor repair kit for air compressor.	x	x	x	x	√	√	√
LVI.	Decaling cooling system.	x	x	x	x	x	√	√
LVII.	Change coolant of radiator	x	x	x	x	x	√	√
LVIII.	Replace fuel pump filter screen and magnet.	x	x	x	x	x	√	√
LIX.	Check fuel pump calibration	x	x	x	x	√	√	√
LX.	Replace Aneroid belows & calibrate.	x	x	x	x	x	√	√
LXI.	Clean turbocharger compressor wheel and diffuser if required.	x	x	x	x	x	√	√
LXII.	Check turbocharger bearing clearance	x	x	x	x	x	√	√
LXIII.	Replace the batteries on condition basis.	x	x	x	x	x	√	√
LXIV.	Replace the rocker cover gaskets	x	x	x	x	x	√	√
LXV.	Adjust injectors and valve	x	x	x	x	x	√	√
LXVI.	Change all the water hoses.	x	x	x	x	x	√	√
LXVII.	Overhaul the water separator and air oiler.	x	x	x	x	x	√	√
LXVIII.	Overhaul the air unloader.	x	x	x	x	x	√	√
LXIX.	Check crank shaft end clearance.	x	x	x	x	x	√	√
LXX.	Check the vibration damper for dynamic balance.	x	x	x	x	x	√	√
LXXI.	Change fuel pump screen filter.	x	x	x	x	x	√	√
LXXII.	Overhaul self starter.	x	x	x	x	x	√	√
LXXIII.	Overhaul alternator I.	x	x	x	x	x	√	√
LXXIV.	Overhaul alternator II.	x	x	x	x	x	√	√
LXXV.	Clean and calibrate injectors if required.	x	x	x	x	x	√	√
LXXVI.	Overhaul the engine, if there is lack of compression on low lube oil pressure otherwise de- carbonize the engine.	x	x	x	x	x	√	√
LXXVII.	Check bearing and shaft of radiator fan drive and do needful.	x	x	x	x	x	√	√
LXXVIII.	Overhaul water pump.	x	x	x	x	x	√	√
LXXIX.	Check turbocharger compressor and turbine wheels. Check radial and end clearances & do needful.	x	x	x	x	x	√	√
LXXX.	Tighten manifold nuts or cap screws.	x	x	x	x	x	√	√

SR. 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.
LXXXI.	Overhaul or replace the engine.	x	x	x	x	x	x	√
LXXXII.	Overhaul the radiator fan drive assembly.	x	x	x	x	x	x	√
LXXXIII.	Change the engine mounting pads.	x	x	x	x	x	x	√
LXXXIV.	Change the water separator and air oiler	x	x	x	x	x	x	√
LXXXV.	Replace the air unloader on condition basis.	x	x	x	x	x	x	√
LXXXVI.	Check cooling coil. replace if required otherwise clean it.I	x	x	x	x	x	x	√
2.	Power Transmission and ZF gear box							
I.	Check ZF pressure at idle and rated at 2100 RPM.	√	√	x	x	x	x	x
II.	Check the oil leakage from all gear boxes and do the needful.	√	√	x	x	x	x	x
III.	Grease torque arm pivots of driving bogie and satellite.	x	√	√	√	√	√	√
IV.	Grease link rods.	x	√	√	√	√	√	√
V.	Adjust the clearance of all brake shoes.	x	√	√	√	√	√	√
VI.	Check brake linkage and oil the pivots.	x	√	√	√	√	√	√
VII.	Grease king pin pivot of driving & idle bogies.	x	√	√	√	√	√	√
VIII.	Grease axle gear box flange cover of driving bogie.	x	√	√	√	√	√	√
IX.	Check oil level of power shift gear box.	x	√	√	√	√	√	√
X.	Check oil level of all gear boxes & top up if required.	x	√	√	√	√	√	√
XI.	Check oil level of ZF gear box (at 1000 rpm), and top up after stopping engine if required.	x	√	√	√	√	√	√
XII.	Grease hand brake gear.	x	√	√	√	√	√	√
XIII.	Grease all cardon shafts.	x	x	√	√	√	√	√
XIV.	Change oil of intermediate drive shaft.	x	x	√**	x	x	x	x
XV.	Change oil of axle gear boxes.	x	x	√**	x	x	x	x
XVI.	Change oil of distribution gear box.	x	x	√**	x	x	x	x
XVII.	Change gear oil of hydraulic drive reduction gear box.	x	x	√**	x	x	x	x
XVIII.	Change ZF filter.	x	x	√**	x	x	x	x
XIX.	Check meggy springs and replace, if required.	x	x	x	x	√	√	√
** Done after every 500 Engine hours								

SR. 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.
3.	TAMPING UNIT							
I.	Clean the tamping banks.	√	√	x	x	x	x	x
II.	Check & fill the reservoir for lubrication of tamping arm bearing (55 mm pin) up to the mark.	√	√	x	x	x	x	x
III.	Check working of centralized lubrication unit if used	√	√	x	x	x	x	x
IV.	Check & fill the reservoir for lubrication of vibration shaft bearings up to the mark.	√	√	x	x	x	x	x
V.	Grease guide columns.	√	√	x	x	x	x	x
VI.	Greasing of connecting rod bearing (35mm pin) and vibration shaft bearing is to be done after every 2-3 hours of working.	√	√	x	x	x	x	x
VII.	Check tightness of tamping tools(LHS).	√	√	x	x	x	x	x
VIII.	Check tightness of tamping tools.(RHS).	√	√	x	x	x	x	x
IX.	Check tightness of shoe plate bolts of guide Column	x	√	√	√	√	√	√
X.	Check tightness of shoe plate bolts of guide Column (RHS).	x	√	√	√	√	√	√
XI.	Check squeezing cylinder cover plate bolts for tightness (LHS).	x	√	√	√	√	√	√
XII.	Check squeezing cylinder cover plate bolts for tightness(RHS)	x	√	√	√	√	√	√
XIII.	Check tamping unit cylinder holding bracket bolts for tightness (LHS).	x	√	√	√	√	√	√
XIV.	Check tamping unit locking device (LHS).	x	√	√	√	√	√	√
XV.	Check tamping unit locking device (RHS) .	x	√	√	√	√	√	√
XVI.	Check tamping unit cylinder holding bracket bolts for 60mm, 55mm&35mm tightness (RHS).	x	√	√	√	√	√	√
XVII.	Check the nuts of 60 mm ,55 mm and 35 mm pin for tightness (LHS).	x	√	√	√	√	√	√
XVIII.	Check the nuts of 60 mm ,55 mm and 35 mm pin for tightness (RHS).	x	√	√	√	√	√	√
** Done after every 500 Engine hours								

SR. NO.	ITEM	SCH.I Daily	SCH.I 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
XIX.	Check tamping unit locking device (LHS).	x	√	√	√	√	√	√
XX.	Check tamping unit locking device (RHS) .	x	√	√	√	√	√	√
XXI.	Check calibration of tamping unit depth.	x	x	√	√	√	√	√
XXII.	Change oil of Vibration shaft main bearing.	x	x	x	x	√**	x	x
XXIII.	Overhaul/replace tamping unit, if required.	x	x	x	x	√	√	√
4.	TRACK LIFTING & LINING UNIT							
I.	Check locking device of lifting and lining unit..	√	√	x	x	x	x	x
II.	Lubricate the clamp carrier pivots with oil.	x	√	√	√	√	√	√
III.	Inspect clamp roller locking bracket bolts for tightness.	x	√	√	√	√	√	√
IV.	Examine the clamp roller for wear and free movement and do the needful.	x	√	√	√	√	√	√
V.	Oiling lining cylinder pivots.	x	√	√	√	√	√	√
VI.	Grease lifting unit guide columns.	x	√	√	√	√	√	√
VII.	Grease roller clamp housing.	x	√	√	√	√	√	√
VIII.	Oiling locking device pivots.	x	√	√	√	√	√	√
IX.	Lubricate the track lifting cylinder pivots with lube oil.	x	√	√	√	√	√	√
X.	Oiling rail clamp pivot pins.	x	√	√	√	√	√	√
XI.	Check and lubricate all moving part of lifting and lining unit.	x	√	√	√	√	√	√
XII.	Check gap between chord wire and carrier of lining transducer and do needful.							
XIII.	Check feeler rollers of middle trolley for play.	x	x	√	√	√	√	√
XIV.	Check clearance of lifting roller disc below the rail head in lowered condition.	x	x	√	√	√	√	√
XV.	Check guide rod of transducers for bends and tightness of bolts.	x	x	√	√	√	√	√
XVI.	Check nuts & bolts of measuring devices for tightness.	x	x	√	√	√	√	√
XVII.	Check calibration of lining.	x	x	√	√	√	√	√
XVIII.	Check calibration of leveling.	x	x	√	√	√	√	√
XIX.	Check bearing play and clamp bolt and change if necessary.	x	x	x	√	√	√	√
XX.								
Note : All movable parts other than not mentioned in this schedule to be lubricated with grease/ oil								

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.
XXI.	Check guide rod of transducers for bends and tightness of bolts.	x	x	√	√	√	√	√
XXII.	Grease pendulum bridge pivots.	x	x	x	√	√	√	√
XXIII.	Check height transducer carrier rod, for wear or damage.	x	x	x	√	√	√	√
XXIV.	Check transducer fittings for measuring and lining trolleys	x	x	x	√	√	√	√
XXV.	Check wires of all transducers and do needful.	x	x	x	x	√	√	√
XXVI.	Calibrate the sensing equipments.	x	x	x	x	√	√	√
XXVII.	Overhaul/ replace the lifting unit, if required.	x	x	x	x	x	√	√
5.	Hydraulic							
I.	Check and top up hydraulic oil tank.	√	√	x	x	x	x	x
II.	Record the maximum temperature of hydraulic fluid during the day's work.	√	√	x	x	x	x	x
III.	Check the leakage from hydraulic hoses and do needful.	√	√	x	x	x	x	x
IV.	Change proportional valve filter element.	x	√*	x	x	x	x	x
V.	Change servo valve filter element, if applicable	x	√*	x	x	x	x	x
VI.	Change return line filter element ,or if hydraulic oil changed	x	x	√**	x	x	x	x
VII.	Change suction filters.	x	x	√**	x	x	x	x
VIII.	Check all pressure controls for rated settings.	x	x	x	√	√	√	√
IX.	Clean hydraulic oil through 10 micron porta filter.	x	x	x	x	√	√	√
X.	Send sample of hydraulic oil for physical & chemical test.	x	x	x	x	√	x	x
XI.	Change hydraulic oil if found unserviceable after cleaning tank.	x	x	x	x	√	√	√
XII.	Replace the hydraulic hoses which are damaged by external abrasion.	x	x	x	x	√	x	x
XIII.	Check the hydraulic motors for proper function and do the needful.	x	x	x	x	x	√	√
XIV.	Provide the missing clamps.	x	x	x	x	x	√	√
XV.	Check the D.C. valves for leakage and do needful.	x	x	x	x	x	x	√
* To be done after every 250 engine hours** To be done after every 500 engine hours.								

SR. NO.	ITEM	SCH.I Daily	SCH.II 50HRS	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
XVI.	Replace the seals of all hydraulic cylinders along with gland bushes /piston.	x	x	x	x	x	x	√
XVII.	Check the hydraulic pumps for proper function and do the needful.	x	x	x	x	x	x	√
XVIII.	Change all hydraulic pumps and motors.	x	x	x	x	x	x	√
XIX.	Overhaul/Replace all hydraulic cylinders.	x	x	x	x	x	x	√
XX.	Clean the hydraulic tank, inside to be painted with approved quality of paint.	x	x	x	x	x	x	√
XXI.	Clean hydraulic oil cooler.	x	x	x	x	x	x	√
XXII.	Check the hydraulic accumulators and recharge, if required	x	x	x	x	x	x	√
XXIII.	Replace all hydraulic hoses.	x	x	x	x	x	x	√
XXIV.	Change all the direct acting and pilot operated D.C. valves.	x	x	x	x	x	x	√
XXV.	Proportional valves and servo valves may be calibrated /replaced.	x	x	x	x	x	x	√
XXVI.	Change all the pressure control valves.	x	x	x	x	x	x	√
XXVII.	Replace all the stop cocks and flow control valves.	x	x	x	x	x	x	√
XXVIII.	Flush the complete system.	x	x	x	x	x	x	√
XXIX.	Overhaul all pressure controls and replace their kits, if required.	x	x	x	x	x	x	√
6.	PNEUMATIC							
I.	Check air brake pressure.	√	√	x	x	x	x	x
II.	Check pneumatic system for any air leakage.	√	√	x	x	x	x	x
III.	Top up the air oiler.	√	√	x	x	x	x	x
IV.	Check brake lining and brake block play.	x	x	√	√	√	√	√
V.	Overhaul the air unloader.	x	x	x	x	√	√	x
VI.	Check air unloader for proper functioning.	x	x	x	√	√	√	√
VII.	Change of air drier filter cartridge, if applicable.	x	x	√	x	x	x	x
VIII.	Clean the air reservoir.	x	x	x	x	x	√	√
IX.	Overhaul water separator and air oiler.	x	x	x	x	x	√	√
X.	Change pneumatic pipes leading to brake cylinders.	x	x	x	x	x	√	√
XI.	Overhaul all pneumatic valves and change the unserviceable ones.	x	x	x	x	x	√	√
XII.	Check/Change the seals of all pneumatic cylinders.	x	x	x	x	x	√	√

SR. NO.	ITEM	SCH.I Daily	SCH.II 50HRS	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
XIII.	Change the seals of brake cylinders.	x	x	x	x	x	√	√
XIV.	Replace air unloader.	x	x	x	x	x	x	√
XV.	Replace water separator and air oiler.	x	x	x	x	x	x	√
XVI.	Change all pneumatic hoses.	x	x	x	x	x	x	√
XVII.	Change all pneumatic valves.	x	x	x	x	x	x	√
XVIII.	Change brake cylinders seal	x	x	x	x	x	x	√
XIX.	Change pneumatic cylinders on need basis..	x	x	x	x	x	x	√
7.	MECHANICAL							
I.	Grease all lining roller pins.	√	√	x	x	x	x	x
II.	Apply lube oil on bush bearing.	√	√	x	x	x	x	x
III.	Check leveling cord tensioning arrangement.	x	√	x	x	x	x	√
IV.	Check oil level of all gear boxes and fill up-to the mark, if required.	x	√	x	x	x	x	x
V.	Check foundation bolts of brake cylinders.	x	√	√	√	√	√	√
VI.	Grease all brake linkages.	x	x	√	√	√	√	√
VII.	Check the condition of brake shoes, replace if required.	x	x	√	√	√	√	√
VIII.	Grease hand brake gear.	x	x	x	√	√	√	√
IX.	Check shock absorbers and do needful.	x	x	x	x	√	√	√
X.	Check meggy springs and replace, if required.	x	x	x	x	√	√	√
XI.	Check bearings of trolley wheel and grease them.	x	x	x	x	√	√	√
XII.	Change the brake shoes.	x	x	x	x	√	√	√
XIII.	Grease Draw and Buffing gear at both ends.	x	x	x	x	√	√	√
XIV.	Check grease filling of Parking brake and do as required.	x	x	x	x	√	√	√
XV.	Replace the missing and defective hand tools.	x	x	x	x	x	√	√
XVI.	Strengthen machine frame where cracks have developed.	x	x	x	x	x	√	√
XVII.	Check the wheels for tyre defects, reprofile or replace.	x	x	x	x	x	√	√
* To be 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.
XVIII.	Check the shock absorbers.	x	x	x	x	x	√	√
XIX.	Do patch painting where paint has peeled off or blistered and where welding work has been done.	x	x	x	x	x	√	√
XX.	Overhaul the trolleys, wheels & feeler rollers.	x	x	x	x	x	x	√
XXI.	Check the axle bearings and grease them.	x	x	x	x	x	x	√
XXII.	Overhaul all the gear boxes except ZF gear box.	x	x	x	x	x	x	√
XXIII.	Replace the shaft holding nuts & bolts.	x	x	x	x	x	x	√
XXIV.	Complete machine may be painted with approved paint.	x	x	x	x	x	x	√
XXV.	Check the bogie coil springs and replace, if broken.	x	x	x	x	x	x	√
XXVI.	Check the pivot, replace if required.	x	x	x	x	x	x	√
XXVII.	Remove and check the bogie frame and do needful.	x	x	x	x	x	x	√
XXVIII.	Overhaul/replace Tamping unit Up/Dn cylinders.	x	x	x	x	x	x	√
XXIX.	Change Axle support cylinders .	x	x	x	x	x	x	√
8. ELECTRICAL								
I.	Clean the depth transducers for free movement of chord wire carrier.	x	√	x	x	x	x	x
II.	Check function of horns	x	√	x	x	x	x	x
III.	Clean alternator and check connections.	x	√	x	x	x	x	x
IV.	Check all limit switches/Proximity switches and do needful.	x	x	x	x	x	√	√
V.	Calibration of Driving circuit.	x	x	√	√	√	√	√
VI.	Checking of gauges and display.	x	x	√	x	x	x	√
VII.	Check all lights and do needful.	x	x	√	x	x	x	x
VIII.	Replacement of Relay/Fuse if required .	x	x	x	x	x	x	√
IX.	Replace defective switches and potentiometers.	x	x	x	x	x	√	√
X.	Repair or replace the defective PCBs.	x	x	x	x	x	x	√
XI.	Replace the limit switches/proximity switches.	x	x	x	x	x	x	√
XII.	Replace defective indicative instruments.	x	x	x	x	x	x	√
XIII.	Overhaul the pendulums.	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.
XIV.	Get insulation test of main cables and replace the defective ones.	x	x	x	x	x	x	√
XV.	Overhaul the panel boxes.	x	x	x	x	x	x	√
XVI.	Defective switches and indicative lights may be replaced.	x	x	x	x	x	x	√
XVII.	Check the LED of all the solenoids.	x	x	x	x	x	x	√
XVIII.	Check the calibration of digital potentiometers and replace the defective ones.	x	x	x	x	x	x	√
XIX.	Calibrate the machine for lifting and lining.	x	x	x	x	x	x	√
XX.	Digital Potentiometer shall be calibrated, Replace if found defective.	x	x	x	x	x	x	√
9.	GENERAL							
I.	Check for any unusual sound from tamping units, gear boxes, engine & hydraulic pumps.	√	√	x	x	x	x	x
II.	Check all the functions of machine before block working.	√	√	x	x	x	x	x
III.	Check all spares & tools for emergency as per Annexure - I.	√	√	x	x	x	x	x
IV.	Clean the complete machine	x	√	x	√	x	x	√
V.	Thoroughly clean all panel boxes.	x	x	x	x	x	√	√
VI.	Check the function of all assemblies after IOH.	x	x	x	x	x	√	x
VII.	Commissioning of machine for one week near the workshop, before it is put for work in regular section.	x	x	x	x	x	x	√
VIII.	Ultrasonic testing of axles of machine shall be done between 40,000 to 45,000 kms of running engine hours or three years whichever is earlier.	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.

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 check 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°C
For upper level at 80°C
11. When greasing and lubricating, remove excessive grease or oil before re-greasing and re-lubrication the machine parts
12. Nal cool 2000 to be added in radiator water @ 500 ml for every 15 litre of water.
13. API CF-4 15W40 lube oil 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.
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

GENERAL SAFETY NOTES.

1. The machine has to be operated according to existing Indian Railways Rules & Regulations.
2. The safety of yourself and other people is most important consideration in the operation and maintenance of the machine.
3. Remember, the machine is a working unit, carrying delicate instruments. Therefore, the machine should not be driven at excessive speed over bad track or crossing.
4. Always keep your eyes open for other men working close to the machine.
5. Do not forget to look out for signals, switches and track obstructions.
6. 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.
7. Always keep the machine clean. Excessive oil or grease on the machine can cause you to slip and fall and is also to potential fire hazard.
8. Always lock the machine before you leave. Make sure that the machine is protected in accordance with railway regulations.
9. Whenever you have the 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.
10. Do not permit unauthorized persons to operate the machine.
11. It is prohibited to use fire on or near the machine.
12. When ever going for working on or near the tamping bank area, operate the emergency push button and ensure latching position.
13. Do not tow the machine if the final drive is engaged.

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	2 nos.
5.	Chain & Padlock	1 set
6.	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 flag	2 nos.
13.	Walky talky	2 nos.
14.	First Aid Box	1 no
15.	Skids	4 nos.
16.	Working time table of section where machine working	1 copy
17.	G&SR book with up to date amendment slips	1 copy
18.	4 cell flasher light/ LED torch,6watt	1 no.
19.	LED Petromax	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	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.	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 **MAINTENANCE SCHEDULE MANUAL FOR UNIMAT (08-275 & 08-275-3S)**

RAILWAYS

- | | | |
|----|------------------|-------------|
| 1. | SHRI Vijay Kumar | SSE/TMC/NCR |
|----|------------------|-------------|

RDSO

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|----|--------------------|--------------|
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