



भारत सरकार
रेल मंत्रालय

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

**MAINTENANCE SCHEDULE MANUAL (REV.) FOR
UTILITY TRACK VEHICLE
(Phooltas)**

**Report No.TM –121
(Revision-1)
Oct-2017**

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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 Maintenance Schedule manual (Rev.) for Utility Track Vehicle (Phooltas) 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 these maintenance schedules (Rev.). 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/alterd on the basis of experience or OEM suggestion that shall be also undertaken in the maintenance practice.

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.

Oct-2017

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EXPLANTORY NOTES

While preparing text of schedules for maintenance of Utility Track Vehicle (Phooltas), 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 (Rev.) for Utility Track Vehicle (Phooltas)

S. N	Schedule	Periodicity	Duration	Location
1.	Schedule I	Daily/ before working and running	One hour	In the track Machine siding
2.	Schedule II	50 Engine hrs.	Two hrs.	-do-
3.	Schedule III	100 Engine hrs.	One day	-do-
4.	Schedule IV	200 Engine hrs.	Two days	-do-
5.	Schedule V	1000 Engine hrs.	7 days	In Satellite Depot/Zonal Workshop
6.	Schedule VI	2000 Engine hrs.	15 days	In Zonal Workshop
7.	Schedule VII	6000 Engine hrs.	1st POH-45 days, 2nd POH-60days	CPOH Workshop

INDEX

S.N.	DESCRIPTION	PAGE NO.
1.	Engine	1-4
2.	Power Transmission and Gear Box	4-5
3.	Crane	5
4.	Hydraulic	5-6
5.	Pneumatic	6
6.	Mechanical	6-8
7.	Electrical	8
8.	General	8
9.	Annexure-I	9
10.	Annexure-II	10
11.	Acknowledgement	11

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 NTA 855 L 400bhp at 2100 rpm							
I.	Visual check coolant level in radiator and top up if required.	√	x	x	x	x	x	x
II.	Visual check the engine oil level and top up if required.	√	x	x	x	x	x	x
III.	Check fuel level and top up if required.	√	x	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	x
V.	Check the leakage from hoses, water pump seal etc. and do the needful.	√	x	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	x
VII.	Visual check the tension and condition of V-belts and do needful.	√	x	x	x	x	x	x
VIII.	Clean the engine and premises.	√	x	x	x	x	x	x
IX.	Check the engine oil pressure at idle	√	x	x	x	x	x	x
X.	Check engine oil pressure on load after two hours working.	√	x	x	x	x	x	x
XI.	Check the oil level and leakage of compressor, if applicable	√	x	x	x	x	x	x
XII.	Check the battery charging system.	√	x	x	x	x	x	x
XIII.	Drain the Reservoir after the day's work.	√	x	x	x	x	x	x
XIV.	Record the maximum engine temperature of the day's work	√	x	x	x	x	x	x
XV.	Drain sediments from fuel tank.	√	x	x	x	x	x	x
XVI.	Apply petroleum jelly on battery terminal.	x	√	√	√	√	√	√
XVII.	Open and clean dust collector/pan,	x	√	√	√	√	√	√
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.	Check injector pipes for any rubbing and do needful.	x	√	√	√	√	√	√
XXIV.	Top up air oiler if required.	x	√	√	√	√	√	√
XXV.	Check engine temperature safety device.	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.
XXVI.	Check air cleaner element restriction .Clean/Change air cleaner element if required.	x	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	√*	√*	√*	√*	√*
XXXII.	Replace lube oil filter & bypass element.	x	x	√*	√*	√*	√*	√*
XXXIII.	Replace fuel filters.	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	√*	√*	√*	√*	√*
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	√	√	√
*Done after every 300 Engine hours								

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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	√	√	√
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	x	√	√
LX.	Replace Aneroid bellows & 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(after 1000 hrs. of commissioning/POH)	x	x	x	x	x	√	√
LXV.	Adjust injectors and valve (after 1000 hrs. of commissioning/POH)	x	x	x	x	x	√	√
LXVI.	Change all the water hoses.	x	x	x	x	x	√	√
LXVII.	Overhaul the air unloader.	x	x	x	x	x	√	√
LXVIII.	Check crank shaft end clearance.	x	x	x	x	x	√	√
LXIX.	Overhaul self starter.	x	x	x	x	x	√	√
LXX.	Overhaul alternator.	x	x	x	x	x	√	√
LXXI.	Clean and calibrate injectors if required.	x	x	x	x	x	√	√
LXXII.	Overhaul the engine, if there is lack of compression on low lube oil pressure otherwise de- carbonize the engine.	x	x	x	x	x	√	√
LXXIII.	Check bearing and shaft of radiator fan drive and do needful.	x	x	x	x	x	√	√
LXXIV.	Check turbocharger compressor and turbine wheels. Check radial and end clearances & do needful.	x	x	x	x	x	√	√
LXXV.	Overhaul water pump.	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.
LXXVI.	Tightened manifold nuts or cap screws.	x	x	x	x	x	√	√
LXXVII.	Overhaul or replace the engine.	x	x	x	x	x	√	√
LXXVIII.	Overhaul the radiator fan drive assembly.	x	x	x	x	x	√	√
LXXIX.	Change the engine mounting pads.	x	x	x	x	x	x	√
LXXX.	Change the water separator and air oiler	x	x	x	x	x	x	√
LXXXI.	Replace the air unloader on condition basis.	x	x	x	x	x	x	√
LXXXII.	Check & clean the cooling coil. Replace if required.	x	x	x	x	x	x	√
LXXXIII.	Change oil of FIP.	x	x	x	x	x	x	√
2 Power Transmission and Gear box								
I.	Visual check the oil leakage from all gear boxes and do the needful.	√	x	x	x	x	x	x
II.	Check supply pressure in transmission in gear box.	√	x	x	x	x	x	x
III.	Check supply pressure in lubrication system.	√	x	x	x	x	x	x
IV.	Check oil level of axle gear box and do needful.	√	x	x	x	x	x	x
V.	Check the tightness of cardon shaft bolts.	x	x	√	√	√	√	√
VI.	Greasing the cardon shafts.	x	√	√	√	√	√	√
VII.	Grease axle gear box flange cover of bogies.	x	√	√	√	√	√	√
VIII.	Check oil level of cardan shaft power divider/power distribution.	x	√	√	√	√	√	√
IX.	Check nut bolts of transmission gear box.	x	√	√	√	√	√	√
X.	Lubricate all dirt repelled with grease (shell Alvania RL-2).	x	√	√	√	√	√	√
XI.	Check air breather of gear boxes and clean if required.	x	√	√**	√**	√**	√**	√**
XII.	Check leaking oil lines or wet split lines of transmission gear box	x	√	√	√	√	√	√
XIII.	Check oil level of Pump drive gear box (at 1000 rpm), and top up after stopping engine if required.	x	√	√	√	√	√	√
XIV.	Grease all brake linkages.	x	√	√	√	√	√	√
XV.	Lubricate the axle torque support with grease.	x	√	√	√	√	√	√
XVI.	Check the transmission shift control linkage and the Directional linkage.	x	x	√	√	√	√	√
XVII.	Change the oil of transmission gear box.	X	√*	√*	√*	√*	√*	√*
*Done after every 300 Engine hours ** Done after every 500 Engine hours Note: final decision for maintenance of engine may be followed as per OEM guide lines of engine manual. Maintenance of engine shall be exercise as per advice by OEM time to time.								

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.
XVIII.	Change the filter of transmission gear box.	X	√*	√*	√*	√*	√*	√*
XIX.	Grease king pin pivot of driving & idle bogies.	x	x	x	x	x	√	√
XX.	Change transmission oil filter.	x	x	x	x	√	√	√
3.	Crane							
I.	Check locking and unlocking device of crane.	√	x	x	x	x	x	x
II.	Lubricate all lubrication points of crane.	x	√	x	x	x	x	x
III.	Check bolts/welding of holding brackets of crane.	x	√	x	x	x	x	x
IV.	Clean the jib extension ram and grease it properly.	x	√	x	x	x	x	x
V.	Lubricate all individual parts of crane after cleaning	x	x	√	√	√	√	√
4.	Hydraulic							
I.	Check and top up hydraulic oil tank if required.	√	x	x	x	x	x	x
II.	Check hydraulic hoses and other components for any leakage and do Needful.	√	x	x	x	x	x	x
III.	Record the maximum temperature of hydraulic fluid during the day's work.	√	x	x	x	x	x	x
IV.	Check hydraulic system operating pressure.	x	√	x	x	x	x	x
V.	Check wear of sliding pads of telescopic cylinder.	x	√	x	x	x	x	x
VI.	Change return line filter element.	x	x	√**	√**	√**	√**	√**
VII.	Send sample of hydraulic oil for physical & chemical test & if found 'OK' refill through 10u sieve filter otherwise with new oil.	x	x	x	x	√	√	√
VIII.	Clean the hydraulic reservoir and fill laboratory Tested /new oil as required.	x	x	x	x	√	√	√
IX.	Replace the hydraulic hoses which are damaged by external abrasion.	x	x	x	x	√	√	√
X.	Clean the hydraulic tank, inside to be painted with approved quality of paint.	x	x	x	x	√	√	√
XI.	Replace the seals of all hydraulic cylinders along with gland bushes /piston.	x	x	x	x	x	√	√
XII.	Provide the missing clamps	x	x	x	x	x	√	√
XIII.	Clean and repair the hydraulic oil cooler, if required.	x	x	x	x	x	√	√
XIV.	Overhaul all pressure controls and replace their kits, if required.	x	x	x	x	x	√	√
XV.	Replace all the stop cocks and flow control valves.	x	x	x	x	x	√	√
*Done after every 300 Engine hours ** 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.
XVI.	Check the D.C. valves for leakage and do needful.	x	x	x	x	x	√	√
XVII.	Change all hydraulic pumps on condition basis.	x	x	x	x	x	x	√
XVIII.	Fill new oil after replacing return line and suction filters.	x	x	x	x	x	x	√
XIX.	Change all the pressure control valves.	x	x	x	x	x	x	√
XX.	Flush the complete system.	x	x	x	x	x	x	√
5.	PNEUMATIC							
I.	Check air brake pressure at locking position.	√	x	x	x	x	x	x
II.	Check pneumatic system for any air leakage.	√	x	x	x	x	x	x
III.	Check emergency brake operation.	√	x	x	x	x	x	x
IV.	Check function of horns.	√	x	x	x	x	x	x
V.	Clean & lubricate all link rods, pivots and rocker bearing of brake assemblies.	x	√	√	√	√	√	√
VI.	Check the functioning of backup system.	x	x	√	√	√	√	√
VII.	Check the mounting bolts of all valves.	x	x	x	√	√	√	√
VIII.	Check the functioning of auto drain valve.	x	x	x	√	√	√	√
IX.	Clean cooling coil.	x	x	x	√	√	√	√
X.	Check the operation of SA-9 valve and reset, if required.	x	√	√	√	√	√	√
XI.	Check air unloader for proper functioning.	x	x	x	√	√	√	√
XII.	Clean the air reservoir.	x	x	x	x	√	√	√
XIII.	Overhaul the air unloader.	x	x	x	x	√	√	x
XIV.	Overhaul water separator.	x	x	x	x	x	√	√
XV.	Change the seals of all pneumatic cylinders.	x	x	x	x	x	√	√
XVI.	Change all pneumatic hoses.	x	x	x	x	x	x	√
XVII.	Manufacturer on their recommendation, these may be condemned and provide the new valves	x	x	x	x	x	x	√
XVIII.	Overhaul the brake cylinder and replace the seals if cylinder is O.K	x	x	x	x	x	x	√
XIX.	Replace air unloader.	x	x	x	x	x	x	√
XX.	Replace water separator.	x	x	x	x	x	x	√
XXI.	Change all pneumatic cylinders on condition basis, which were creating the frequent trouble work. Otherwise replace seals only.	x	x	x	x	x	x	√
6.	MECHANICAL							
I.	Check the crane operation in all respects.	√	x	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.
II.	Lubricating the slewing system and its bushing.	√	x	x	x	x	x	x
III.	Greasing of sliding pads.	√	x	x	x	x	x	x
IV.	Greasing of hinge pin.	√	x	x	x	x	x	x
V.	Greasing of dual slide control.	√	x	x	x	x	x	x
VI.	Apply lube oil on bush bearing.	√	x	x	x	x	x	x
VII.	Check universal joints for play and replace, if required.	x	x	√	√	√	√	√
VIII.	Check oil level of all gear boxes and fill up-to the mark, If required.	x	√	√	√	√	√	√
IX.	Check condition of hook.	x	√	√	√	√	√	√
X.	Adjust the clearance of all brake shoes.	x	√	√	√	√	√	√
XI.	Check brake linkage and oil the pivots.	x	√	√	√	√	√	√
XII.	Check foundation bolts of brake cylinder.	x	x	√	√	√	√	√
XIII.	Check the condition of brake shoes, replace if required.	x	x	√	√	√	√	√
XIV.	Replace the bushing of the hinge pins on condition basis.	x	x	x	x	√	√	√
XV.	Inspect all cardon shafts for any crack.	x	x	x	√	√	√	√
XVI.	Change the all cardon shafts on condition basis.	x	x	x	x	x	x	√
XVII.	Grease torque arm pivot.	x	x	x	√	√	√	√
XVIII.	Check shock absorbers and do needful.	x	x	x	√	√	√	√
XIX.	Check Allen bolts of clapper bracket distance piece for tightness	x	x	x	√	√	√	√
XX.	Check bearings of all axles and lubricating with grease.	x	x	x	x	√	√	√
XXI.	Overhaul the suspension assembly	x	x	x	x	x	x	√
XXII.	Grease draw and Buffing gear at both ends.	x	x	x	x	√	√	√
XXIII.	Check grease filling of Parking brake and do as Required.	x	x	x	x	√	√	√
XXIV.	Check the wheels for tyre defects re profile or replace, if require	x	x	x	x	x	√	√
XXV.	Overhaul all the gear boxes.	x	x	x	x	x	x	√
XXVI.	Replace the shaft coupling and holding nuts & bolts.	x	x	x	x	x	x	√
XXVII.	Overhaul the bogies and replace the defective parts.	x	x	x	x	x	x	√

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 50 HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000 HRS.	SCH.VII 6000 HRS.
XXVIII.	Complete machine may be painted with approved paint.	x	x	x	x	x	x	√
XXIX.	Check the bogie coil springs and replace, if broken.	x	x	x	x	x	x	√
7.	ELECTRICAL							
I.	Clean alternator and check connections.	x	√	√	√	√	√	√
II.	Check all lights and do needful.	x	x	√	√	√	√	√
III.	Replace the missing or defective lights.	x	x	x	x	√	√	√
IV.	Replace defective switches.	x	x	x	x	x	√	√
V.	Replace defective indicative instruments.	x	x	x	x	x	x	√
VI.	Overhaul the panel boxes and provide thimbles as required.	x	x	x	x	x	x	√
VII.	Defective switches and indicative lights may be replaced.	x	x	x	x	x	x	√
VIII.	Check the wire connections in panel boxes.	x	x	x	x	x	x	√
8.	GENERAL							
I.	Check for any unusual sound from crane, gear boxes, engine & hydraulic pumps.	√	x	x	x	x	x	x
II.	Check all spares & tools for emergency as per Annexure - I.	√	x	x	x	x	x	x
III.	Check all the functions of machine before block working.	√	x	x	x	x	x	x
IV.	Clean the complete machine	x	√	√	√	√	√	√
V.	Strengthen the machine frame, where cracks have developed on condition Basis	x	x	x	x	√	√	√
VI.	Thoroughly clean all panel boxes with pressurized air.	x	x	x	x	x	√	√
VII.	Check the function of all assemblies after IOH.	x	x	x	x	x	√	√
VIII.	Calibrate the machine on track for all functions	x	x	x	x	x	√	√
IX.	Replace the missing and defective hand tools.	x	x	x	x	x	√	√
X.	Check the function of all assemblies	x	x	x	x	x	x	√
XI.	Check the expiry of first Aid box.	x	x	x	x	x	x	√
XII.	Check the expiry of fire extinguisher/ may be done on regular basis.	x	x	x	x	x	x	√
Note-During CPOH, Machine Supervisor and CPOH Inspecting Authority jointly inspect the Machine. Any part of Machine is to be repaired or replaced; this decision is taken by CPOH Inspecting authority.								

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.	20 t jack	1 no.
8.	Crow bars	2nos.
9.	Wooden blocks off sizes	8 nos.
10.	Gauge cum level	1 no.
11.	Rail thermometer (dial type)	1 no.
12.	Banner flag	2 nos.
13.	Walki talki	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	Machine staff
21.	Protective clothing, safety shoes and safety gloves	Machine staff
22.	Track Machine Manual	1 no.
23.	Accident Manual	1 no.
24.	Fire extinguisher	1 no.
25.	Hooter (Manual/ 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.

IMPORTANT

- i) CUMMINS VOLVOLINE 15W40 lube oil to be used in engine.
- ii) 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.
- iii) Gear oil for all gear boxes will be 80W 90.
- iv) Pump gear box oil will be 15W 40.
- v) Air brake pressure should be Min. 4 bar at lock position.
- vi) Adjust the brake shoe clearance between 3 to 5 mm.
- vii) Brake shoes will be changed when minimum thickness at any point will become 13 mm or less.
- viii) RPM of engine radiator fan should not be less than 1600 for proper cooling.
- ix) The length of the hoses between clamps or adapter should be 4% more than required to provide allowance for shortening of hose under pressure.
- x) Radiator may be replaced if it is blocked more than 20% during service or badly leaking and not economical to repair.
- xi) Tension of V-belt will be checked at center of belt and it should not be more than 15mm.
- xii) Hydraulic oil should be sent for physical and chemical test after every 1000hrs.

ACKNOWLEDGEMENT

Following officers and staff have made their valuable contributions in finalization of the Maintenance Schedule manual (Rev.) for Utility Track Vehicle (Phooltas)

Railway

1.	S/SRI	R P Verma	SSE/TMC/NR/LKO
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RDSO

1.	S/SRI	Muslim Ahmad	ARE/TM
2.	“ ”	Ravi Kumar	SSRE/TM