

MAINTENANCE SCHEDULE MANUAL FOR UTILITY TRACK VEHICLE (SAN)



Report No.TM –217
March-2019

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 & Rayanapadu and RDSO / Lucknow. With experience over the years, the railway engineers have developed adequate expertise in the maintenance of these machines. However, in absence of approved maintenance instructions, different maintenance practices have come into vogue. Therefore, it has become imperative to have a uniform maintenance standard throughout the Indian Railways.

Maintenance schedule manual for Utility Track Vehicle (SAN) 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 maintenance schedules. Suggestion/instruction given by OEM time to time also followed in addition to this manual. The manual is prepared for those items which is required day to day maintenance. Apart from these instruction if any part of machine fails/breakdown that shall be attended immediately by the railway. The oiling and greasing shall be done of every moving part where as required in addition to manual depending on discretion of machine in charge. Some time machine modified/alterd on the basis of experience or OEM suggestion that shall be also undertaken in the maintenance practice. If the engine of machine is under AMC then instruction/maintenance schedule of repairing/alteration of engine may be followed as per term and condition of AMC along with instructions of this manual.

While every care has been taken to make the maintenance schedules quite exhaustive, there is always scope for further improvement. Suggestions from the railways in this regard will be welcome and may be sent to the undersigned for future improvement.

March-2019

(Om Prakash)
Director/Track Machine-III
RDSO/Lucknow-226011

EXPLANATORY NOTES

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

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 IOH	2000 Engine hrs.	15 days	In Zonal Workshop
7.	Schedule VII POH	6000 Engine hrs.	1st POH-45 days, 2nd POH-60days	In Zonal Workshop

Maintenance Schedule for Utility Track Vehicle (SAN)

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S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000HRS.	SCH.VII 6000HRS.
1. ENGINE MODEL:-CUMMINS, NTA 855L (BC)								
1.1	Visual check coolant level in radiator and top up if required.	√	x	x	x	x	x	x
1.2	Visual check the engine oil level and top up if required.	√	x	x	x	x	x	x
1.3	Check fuel level and top up if required.	√	x	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.	√	x	x	x	x	x	x
1.5	Check the leakage from water hoses, water pump seal etc. and do the needful.	√	x	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	x
1.7	Visual check the tension and condition of V-belts and do needful.	√	x	x	x	x	x	x
1.8	Clean the engine and premises.	√	x	x	x	x	x	x
1.9	Check the engine oil pressure at idle	√	x	x	x	x	x	x
1.10	Check engine oil pressure on load after two hours working.	√	x	x	x	x	x	x
1.11	Check the oil level and leakage of compressor, if applicable	√	x	x	x	x	x	x
1.12	Check the battery charging system.	√	x	x	x	x	x	x
1.13	Drain the air Reservoir after the day's work.	√	x	x	x	x	x	x
1.14	Record the maximum engine temperature of the day's work	√	x	x	x	x	x	x
1.15	Clean and apply petroleum jelly on battery terminal.	x	√	x	x	x	x	x
1.16	Open and clean dust collector/pan of air cleaner.	x	√	x	x	x	x	x
1.17	Lubricate the radiator fan shaft with grease.	x	√	x	x	x	x	x
1.18	Check the leakage from fuel line.	x	√	x	x	x	x	x
1.19	Drain water separator of fuel supply system	x	√	x	x	x	x	x
1.20	Check electrolyte level of batteries, top up if required.	x	√	x	x	x	x	x
1.21	Check battery terminal and connection for tightness.	x	√	x	x	x	x	x
1.22	Check injector pipes for any rubbing and do needful.	x	√	x	x	x	x	x
1.23	Top up air oiler if required.	x	√	x	x	x	x	x
1.24	Check engine temperature safety device.	x	x	√	x	x	x	x
1.25	Check air cleaner element restriction .Clean/Change air cleaner element if required.	x	x	√	x	x	x	x
1.26	Check lube oil pressure safety device.	x	x	√	x	x	x	x
1.27	Examine the mounting bolts of the engine.	x	x	√	x	x	x	x

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000HRS.	SCH.VII 6000HRS.
1.28	First time change of lube oil is being done, 100 hrs after commissioning.	x	x	√	x	x	x	x
1.29	First time change of lube oil filter and by pass filter is being done after commissioning.	x	x	√	x	x	x	x
1.30	Check the throttle control links .and adjust if required.	x	x	√	x	x	x	x
1.31	Change engine lube oil.	x	x	√*	x	x	x	x
1.32	Replace lube oil filter & lube oil bypass filter element.	x	x	√*	x	x	x	x
1.33	Replace fuel filters.	x	x	√*	x	x	x	x
1.34	Check fuel tank breather and clean if required.	x	x	√*	x	x	x	x
1.35	Check/add Coolant, additive concentrate	x	x	√*	x	x	x	x
1.36	Clean/change crank case air breather.	x	x	√*	x	x	x	x
1.37	Clean outer air cleaner element. (Cleaned after every 200 hrs or on dirt indication, by dry air at 2.5 bar pr.)	x	x	x	√	x	x	x
1.38	Check and change radiator hoses, if required.	x	x	x	√	x	x	x
1.39	Check specific gravity of battery electrolyte if applicable.	x	x	x	√	x	x	x
1.40	Change worn out water hoses.	x	x	x	x	√	x	x
1.41	Check coolant for PH value.	x	x	x	x	√	x	x
1.42	Overhaul the air compressor. If required.	x	x	x	x	√	x	x
1.43	Clean the engine radiator externally.	x	x	x	x	√	x	x
1.44	Clean the diesel tank with lint free cloth.	x	x	x	x	√	x	x
1.45	Clean the air cooling coil.	x	x	x	x	√	x	x
1.46	Replace the outer and inner engine air cleaner element.	x	x	x	x	√	x	x
1.47	Check the condition and tightness of V-belt for radiator fan.	x	x	x	x	√	x	x
1.48	Replace minor repair kit for air compressor.	x	x	x	x	√	x	x
1.49	Decaling cooling system.	x	x	x	x	x	√	x
1.50	Change coolant of radiator	x	x	x	x	x	√	x
1.51	Replace fuel pump screen filter and magnet.	x	x	x	x	x	√	x
*Done after every 300 Engine hours								

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000HRS.	SCH.VII 6000HRS.
1.52	Clean and calibrate fuel pump if required.	x	x	x	x	x	√	x
1.53	Clean and calibrate injectors if required.	X	x	x	x	x	√	x
1.54	Clean turbocharger compressor wheel and diffuser if required.	x	x	x	x	x	√	x
1.55	Check turbocharger bearing clearance.	x	x	x	x	x	√	x
1.56	Replace the batteries on condition basis.	x	x	x	x	x	√	x
1.57	Replace the rocker cover gaskets(after 1000 hrs. of commissioning/POH)	x	x	x	x	x	√	x
1.58	Adjust injectors and valve (after 1000 hrs. of commissioning/POH)	x	x	x	x	x	√	x
1.59	Change all the water hoses.	x	x	x	x	x	√	x
1.60	Change all the air inlet rubber hoses	x	x	x	x	x	√	x
1.61	Check crank shaft end clearance.	X	x	x	x	x	√	x
1.62	Overhaul self starter.	X	x	x	x	x	√	x
1.63	Overhaul alternator.	X	x	x	x	x	√	x
1.64	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
1.65	Check bearing and shaft of radiator fan drive and do needful.	X	x	x	x	x	√	x
1.66	Check turbocharger compressor and turbine wheels. Check radial and end clearances & do needful.	X	x	x	x	x	√	x
1.67	Overhaul water pump.	X	x	x	x	x	√	x
1.68	Tightened manifold nuts or cap screws.	X	x	x	x	x	√	x
1.69	Overhaul the radiator fan drive assembly.	X	x	x	x	x	√	x
1.70	Overhaul or replace the engine.	X	x	x	x	x	x	√
1.71	Change the engine mounting pads.	X	x	x	x	x	x	√
1.72	Change the water separator and air oiler	x	x	x	x	x	x	√
1.73	Replace the air unloader on condition basis.	X	x	x	x	x	x	√
1.74	Check & clean the air cooling coil. Replace if required.	X	x	x	x	x	x	√
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.								

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000HRS.	SCH.VII 6000HRS.
2. HYDRAULIC								
2.1	Check and top up hydraulic oil tank if required.	√	x	x	x	x	x	x
2.2	Check hydraulic hoses and other components for any leakage and do needful.	√	x	x	x	x	x	x
2.3	Record the maximum temperature of hydraulic fluid during the day's work.	√	x	x	x	x	x	x
2.4	Check hydraulic system operating pressure (210 bar).	x	√	x	x	x	x	x
2.5	Check wear of sliding pads (fiber) of telescopic cylinder of the crane.	x	√	x	x	x	x	x
2.6	Check emergency power pack of crane.	x	x	√	x	x	x	x
2.7	Clean and check the transmission oil cooler.	x	x	x	√	x	x	x
2.8	Change suction line filter element.	x	x	x	x	√	x	x
2.9	Change return line filter element.	x	x	x	x	√	x	x
2.10	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	√	x	x
2.11	Replace the hydraulic hoses which are damaged by external abrasion.	x	x	x	x	√	x	x
2.12	Clean the hydraulic tank, inside to be painted with approved quality of paint and fill laboratory tested/new oil as required.	x	x	x	x	√	x	x
2.13	Replace the seals of all hydraulic cylinders along with gland bushes /piston.	x	x	x	x	x	√	x
2.14	Provide the missing clamps	x	x	x	x	x	√	x
2.15	Overhaul all pressure controls and replace their kits, if required.	x	x	x	x	x	√	x
2.16	Replace all the stop cocks and flow control valves.	x	x	x	x	x	√	x
2.17	Check the D.C. valves for leakage and do needful.	x	x	x	x	x	√	x
2.18	Change all hydraulic pumps on condition basis.	x	x	x	x	x	x	√
2.19	Fill new oil after replacing return line and suction filters.	x	x	x	x	x	x	√
2.20	Change all the pressure control valves.	x	x	x	x	x	x	√
2.21	Flush the complete system.	x	x	x	x	x	x	√
2.22	Change the hydraulic hoses	x	x	x	x	x	x	√
2.23	Calibrate the pressure settings.	x	x	x	x	x	x	√

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3. MECHANICAL								
3.1	Check the crane operation in all respects.	√	x	x	x	x	x	x
3.2	Lubricating the slewing system and its bushing.	√	x	x	x	x	x	x
3.3	Grease the sliding pads.	√	x	x	x	x	x	x
3.4	Grease the hinge pin.	√	x	x	x	x	x	x
3.5	Grease the dual slide control.	√	x	x	x	x	x	x
3.6	Apply lube oil on bush bearing.	√	x	x	x	x	x	x
3.7	Check condition of hook.	x	√	x	x	x	x	x
3.8	Check locking arrangements	x	√	x	x	x	x	x
3.9	Check all linkage and oil the pivots.	x	√	x	x	x	x	x
3.10	Check condition of wire rope of crane.	x	√	x	x	x	x	x
3.11	Check piston travel of brake cylinders and adjust for max. 30 mm	x	x	√	x	x	x	x
3.12	Check universal joints for play and replace, if required.	x	x	x	x	√	x	x
3.13	Inspect the wheel tread for shattered rim, spread rim, shelled tread, thermal cracks, heat checks according to the 'procedure for inspection of wheels of 'on' track machines' issued by RDSO.	x	x	x	x	√	x	x
3.14	Visually examine the wheel tyre profile and thickness of tyre and check with tyre profile gauge as mentioned in 'procedure for inspection of wheels of 'on' track machines' issued by RDSO if they appear to be near the condemning limit.	x	x	x	x	√	x	x
3.15	Overhaul suspension assembly.	x	x	x	x	√	x	x
3.16	Overhaul all the gear boxes.	x	x	x	x	x	x	√

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4. UNDER FRAME								
4.1 Under frame								
4.1.1	Visually examine center pivot mounting bolts and attend if needed.	√	x	x	x	x	x	x
4.1.2	Check condition of head stock/sole bar.	√	x	x	x	x	x	x
4.1.3	Visually inspect center pivot cover	√	x	x	x	x	x	x
4.1.4	Visually examine and attend safety loops of bolster.	√	x	x	x	x	x	x
4.1.5	Visually examine the shock absorbers for damages.	√	x	x	x	x	x	x
4.1.6	Examine trough floor, turn under and other frame members from underneath for corrosion.	x	√*	x	x	x	x	x
4.2 Brake rigging & Brake System								
4.2.1	Visually examine brake beams breakages/damages.	√	x	x	x	x	x	x
4.2.2	Check brake gear and adjust so that the piston stroke is within the limit.	√	x	x	x	x	x	x
4.2.3	Check and attend brake shoe head and key & replace if necessary.	√	x	x	x	x	x	x
4.2.4	Visually inspect brake hangers, brake gear pins and cotters/split pins and replace if necessary.	√	x	x	x	x	x	x
4.2.5	Visually inspect damaged/missing brake gear bushes, lever hanger pins replace if necessary.	√	x	x	x	x	x	x
4.2.6	Visually inspect for damage on brake pipe.	√	x	x	x	x	x	x
4.2.7	Check and attend brake beam safety wire rope / safety straps.	√	x	x	x	x	x	x
4.2.8	Check and replace worn brake blocks.	√	x	x	x	x	x	x
4.2.9	Check and attend brake block adjuster.	x	√*	x	x	x	x	x
4.3 Bogie Frame & Suspension								
4.3.1	Visually examine the condition of bogie frame and welded locations.	√	x	x	x	x	x	x
4.3.2	Inspect axle box safety straps/loops for damage/broken/missing.	√	x	x	x	x	x	x
4.3.3	Examine bolster safety straps/loops for damage/broken/missing	√	x	x	x	x	x	x
4.3.4	Visually examine the condition of suspension system (Coil spring) for any damage/loose/breakage.	√	x	x	x	x	x	x
4.3.5	Visually examine the condition of suspension system (Coil spring) for any damage/loose/breakage.	√	x	x	x	x	x	x
4.3.6	Visually examine the condition of suspension system (Coil spring) for any damage/loose/breakage.	x	√*	x	x	x	x	x
4.3.7	Examine condition of the wearing plates.	x	x	√**	x	x	x	x
4.3.8	Examine corrosion of sole bar and other under frame members with torch light or inspection lamp.	x	x	√**	x	x	x	x
*Done after every 250 Engine hours ** Done after every 500 Engine hours								

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4.4 Draw Gear								
4.4.1	Check and replace damage/missing split pins.	√	x	x	x	x	x	x
4.4.2	Examine draw hook, draw bars, rubber pads for damages.	√	x	x	x	x	x	x
4.4.3	Check condition of the CBC coupling and its components and replace as required	√	x	x	x	x	x	x
4.4.4	Examine visually draft key locking pins.	√	x	x	x	x	x	x
4.4.5	Check condition of draw beam and locating pins on it.	√	x	x	x	x	x	x
4.4.6	Ensure that wear on screw coupling shackle pins, trunion pins, shackle/link holes and draw hook holes should not exceed 3 mm.	x	x	√**	x	x	x	x
4.4.7	Ensure that wear at any section on draw hook should not exceed 10 mm.	x	x	√**	x	x	x	x
4.5 Buffing Gear								
4.5.1	Visually examine buffer plungers for damages/drooping/stroke length.	√	x	x	x	x	x	x
4.5.2	Examine buffer mounting bolts and attend if necessary.	√	x	x	x	x	x	x
4.5.3	Examine visually buffer casing for cracks/damages	√	x	x	x	x	x	x
4.5.4	Ensure the length is within 584-635 mm.	x	x	√**	x	x	x	x
4.5.5	Inspect buffer plunger false plate for wear and profile.	x	x	√**	x	x	x	x
4.6 Running Gear and Wheels								
4.6.1	Examine visually axle box for grease oozing out, warm box if any	√	x	x	x	x	x	x
4.6.2	Visually inspect axle box covers.	√	x	x	x	x	x	x
4.6.3	Inspect wheel tread for shattered rim, spread rim, shelled tread, thermal cracks, heat checks	√	x	x	x	x	x	x
4.6.4	Visually examine wheel tyre profile and thickness of tyre and check with tyre profile gauge if they appear to be near condemning limit	√	x	x	x	x	x	x
4.6.5	Inspect wheel tread for shattered rim, spread rim, shelled tread, thermal cracks, heat checks	√	x	x	x	x	x	x
4.6.6	Check with wheel distance gauge for loose or tight wheels.	x	x	√**	x	x	x	x
*Done after every 250 Engine hours ** Done after every 500 Engine hours								

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000HRS.	SCH.VII 6000HRS.
5. POWER TRANSMISSION AND GEAR BOX								
5.1	Visual check the oil leakage from all gear boxes and do the needful.	√	x	x	x	x	x	x
5.2	Check oil level of axle gear box and do needful.	√	x	x	x	x	x	x
5.3	Check supply pressure in transmission gear box.	√	x	x	x	x	x	x
5.4	Check torque converter / transmission oil cooler & pipelines for visual defects & leaks	√	x	x	x	x	x	x
5.5	Check fluid level in sump at idle and top up if required.	√	x	x	x	x	x	x
5.6	Check flexible coupling screws for tightness.	√	x	x	x	x	x	x
5.7	Check nut bolts of transmission gear box.	x	√	x	x	x	x	x
5.8	Lubricate all dirt repelled with grease.	x	√	x	x	x	x	x
5.9	Check air breather of gear boxes and clean if required.	x	√	x	x	x	x	x
5.10	Check leaking oil lines or wet split lines of transmission gear box.	x	√	x	x	x	x	x
5.11	Grease all brake linkages.	x	√	x	x	x	x	x
5.12	Lubricate the axle torque supports with grease.	x	√	x	x	x	x	x
5.13	Change the filter of transmission gear box.	x	√*	x	x	x	x	x
5.14	Grease the cardan shafts.	x	x	√	x	x	x	x
5.15	Check the tightness of cardan shafts bolts.	x	x	√	x	x	x	x
5.16	Check the transmission shift control linkage and the Directional linkage.	x	x	√	x	x	x	x
5.17	Grease king pin pivot of bogies.	x	x	√	x	x	x	x
5.18	Check final drive breather element and change if necessary.	x	x	√**	x	x	x	x
5.19	Change the oil of transmission gear box.	x	x	x	x	√	x	x
5.20	Change final drive oil (first change of oil to be done for initial 300 Engine hours)	x	x	x	x	√***	x	x
5.21	Change the all cardon shafts on condition basis	x	x	x	x	√***	x	x
*Done after every 250 Engine hours ** Done after every 300 Engine hours *** Done after every 3000 Engine hours								

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6. ELECTRICAL								
6.1	Clean alternator and check connections.	√	x	x	x	x	x	x
6.2	Check all lights and do needful.	√	x	x	x	x	x	x
6.3	Check horns	√	x	x	x	x	x	x
6.4	Replace defective switches.	x	x	√	x	x	x	x
6.5	Check all electrical connections for good control and rectify defects.	x	x	√	x	x	x	x
6.6	Replace the missing or defective lights.	x	x	x	x	√	x	x
6.7	Replace defective switches.	x	x	x	x	√	x	x
6.8	Replace defective indicative instruments.	x	x	x	x	√	x	x
6.9	Clean the panel boxes with pressurized air.	x	x	x	x	x	√	x
6.10	Overhaul the panel boxes and provide thimbles as required.	x	x	x	x	x	x	√

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7. PNEUMATIC								
7.1	Check air brake pressure at locking position.	√	x	x	x	x	x	x
7.2	Check pneumatic system for any air leakage.	√	x	x	x	x	x	x
7.3	Check emergency brake operation.	√	x	x	x	x	x	x
7.4	Check function of horns.	√	x	x	x	x	x	x
7.5	Check brake rigging for loose parts etc.	√	x	x	x	x	x	x
7.6	Operations of independent loco air brake & adjust max. brake cylinder pressure to 2.8 – 3.0 kg / cm ²	√	x	x	x	x	x	x
7.7	Check and adjust pressure of main reservoir (between 7 to 8 kg / cm ²).	√	x	x	x	x	x	x
7.8	Safety valves blow at 8.5 kg / cm ²	√	x	x	x	x	x	x
7.9	Un-loader cuts in at about 7.8 to 8.0kg / cm ² connecting the compressor output to atmosphere & cuts out at 7.0 – 7.2 kg / cm ² connecting the compressor output to the reservoir.	√	x	x	x	x	x	x
7.10	Clean & lubricate all link rods, pivots and rocker bearing of brake assemblies	x	√	x	x	x	x	x
7.11	Check the operation of SA-9 valve and reset, if required.	x	√	x	x	x	x	x
7.12	Check the mounting bolts of all valves.	x	x	x	√	x	x	x
7.13	Check air unloader for proper functioning.	x	x	x	√	x	x	x
7.14	Overhaul the air unloader.	x	x	x	x	√	x	x
7.15	Inspect all brake valves, cocks and flanges for any leaks and signs of wear.	x	x	x	x	x	√	x
7.16	Change all pneumatic hoses.	x	x	x	x	x	x	√
7.17	Clean the air reservoir.	x	x	x	x	x	x	√
7.18	Overhaul the brake cylinder and replace the seals, if cylinder is O.K.	x	x	x	x	x	x	√
7.19	Replace air unloaded.	x	x	x	x	x	x	√
7.20	Replace water separator.	x	x	x	x	x	x	√
7.21	Replace the cooling coil.	x	x	x	x	x	x	√
7.22	Change all pneumatic cylinders on condition basis, which were creating the frequent trouble. Otherwise replace seals only.	x	x	x	x	x	x	√

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100 HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000HRS.	SCH.VII 6000HRS.
8. GENERAL								
8.1	Check for any unusual sound from crane, gear boxes, engine & hydraulic pumps.	√	x	x	x	x	x	x
8.2	Check all the functions of machine before block working.	√	x	x	x	x	x	x
8.3	Clean the complete machine	√	x	x	x	x	x	x
8.4	Check the functioning of backup system.	√	x	x	x	x	x	x
8.5	Strengthen the machine frame, where cracks have developed on condition Basis	x	x	x	x	√	x	x
8.6	Check the expiry of first Aid box.	x	x	x	x	√	x	x
8.7	Check the expiry of fire extinguisher/ may be done on regular basis.	x	x	x	x	√	x	x
8.8	Visual and Physical inspection of wheel & axles shall be done at a frequency of once in a year or after every 1000 engine running hours whichever is earlier.	x	x	x	x	√	x	x
8.9	Check the function of all assemblies after IOH.	x	x	x	x	x	√	x
8.10	Calibrate the machine on track for all functions	x	x	x	x	x	√	x
8.11	Replace the missing and defective hand tools.	x	x	x	x	x	√	x
8.12	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	√	x
8.13	Test the machine for one week near the workshop, before it is put for work in regular section.	x	x	x	x	x	√	x
8.14	Check the function of all assemblies after POH.	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

Sr. No.	Description	Quantity	Available Yes (✓) / No (x)
1.	Red hand signal flags	2 Nos	
2.	Green hand signal flags	1 Nos	
3.	Tri- colour hand signal lamps/LED torch	2 Nos	
4.	Chain with Padlock	2 Nos.	
5.	Point clamp with Padlock	2 Nos.	
6.	Fire Extinguisher	Each per cabin	
7.	Hooter (Manually/Remote)	2 Nos.	
8.	Jack 50t	1 Nos.	
9.	Jack 10t with triffor	2 Nos.	
10.	Wooden Blocks of different sizes	4 Nos.	
11.	Crow bars	4 Nos.	
12.	Hydraulic hand pump	1 No.	
13.	Emergency Pneumatic / Hydraulic hose off sizes (complete with end fitting)	As per requirement	
14.	Machine Specific Equipment if any.	As per requirement	
15.	Fog signals (detonators) in a tin case	10 No.	
16.	A copy of working time table of this section where the machine is working	1 No	
17.	G & SR book with up to date amendment slips	01 No.	
18.	4 cells flasher light LED lamp cum flasher light (rechargeable)	1 No.	
19.	Banner flags	2 Nos.	
20.	First aid Box	1 No	
21.	Skids	2 Nos	
22.	Safety Helmet for all machine staff	All staff	
23.	Protection clothing , safety shoes and safety gloves	All staff	
24.	Walkie talkie with frequency of SM, guard and loco pilots	01 No.	
25.	Track machine manual with up to date correction slip	1	
26.	Accident manual	1	
27.	Tail Lamp	1	

Note: Inspecting official should wear the protective equipment when doing the inspection.

General safety notes

1. The machine has to be operated according to existing Indian Railways rules and regulations.
2. The safety of all machine staffs is most important in the operation and maintenance of the machine.
3. Always alert the 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 Railways regulations.
8. Wherever there is an opportunity while waiting to go out for a job, do some of the smaller maintenance job, such as tightening loose nut & 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 cutting chain, operate the emergency push button and ensure latching position.
12. Always wear proper dress, safety shoes and helmet while operation of the machine.

ACKNOWLEDGEMENT

Following officers and staff have made their valuable contributions in finalization of the Maintenance Schedule Manual for Utility track vehicle (SAN)

RAILWAY

- | | | | |
|----|------|------------|--------------|
| 1. | SHRI | RAJA VERMA | SSE//TMC/SWR |
| 2. | SHRI | RAVI KUMAR | SSE//TMC/SWR |

SAN ENGG

- | | | | |
|----|------|--------------|----------|
| 1. | SHRI | DURGA PRASAD | ENGINEER |
|----|------|--------------|----------|

RDSO

- | | | | |
|----|------|------------------------|---------|
| 1. | SHRI | MUSLIM AHMAD | ARE/TM |
| 2. | SHRI | VED PRAKASH SRIVASTAVA | SSE/TM |
| 3. | SHRI | SURENDRA KUMAR | SSRE/TM |