



भारत सरकार - रेल मंत्रालय
अनुसंधान अधिकल्प और मानक संगठन
लखनऊ - 226 011
FPMX (0522) 2451200
Fax (0522) 2458500

Government of India-Ministry of Railways
Research Designs & Standards Organisation
Lucknow - 226 011
BID (0522) 2450115
DID (0522) 2455310



TM/HM/BCM/PI-III

Date: 27.05.2020

- | | | |
|------|--|---|
| I- | मुख्य अभियन्ता (ट्रैक मशीन) सभी क्षेत्रिय रेलवे | Chief Engineer (Track Machines) All Zonal Railways |
| II- | मुख्य कार्यशाला प्रबन्धक (ट्रैक मशीन) | Chief Workshop Manager (Track Machines) |
| | सी.पी.ओ.एच. कार्यशाला इलाहाबाद, रायनापाडु, कचरापारा, अहमदाबाद, | CPOH WPRKSHOP, Allahabad, Rayanapadu, Kachrapara, Ahmedabad |
| III- | प्रधानाचार्य गाररेप.ग.प्र.के. पीपल गांव इलाहाबाद-211011 | Principal, IRTMTC, Pipal Gaon, Allahabad-211011 |

Detailed addresses are enclosed herewith.

विषय: बैलास्ट क्लिनिंग मशीन (आर.एम.-900) (प्लासर) की निरीक्षण जांच एवं अनुसंधान अनुसूची पुस्तिका सूची।


Sub: Inspection Check List and Maintenance Schedule for Ballast Cleaning Machine RM -900 (Plasser)

बैलास्ट क्लिनिंग मशीन (आर.एम. 900) की निरीक्षण जांच एवं अनुसंधान अनुसूची पुस्तिका तैयार की गई है जिसकी प्रति, आपके सूचनार्थ तथा मशीन के कर्मचारियों जो फ़ील्ड में कार्य कर रहे हैं, के मार्गदर्शन हेतु संलग्न है। यद्यपि उपरोक्त सूची बनाते समय सभी सावधानियों परती गई है, फिर भी, यदि कोई त्रुटि हो तो कृपया अपने सुझावों/टिप्पणियों को सुधार हेतु ई मेल /फ़ैक्स /पत्राचार द्वारा अधोदरक्षरी को अवगत करावें।

Inspection Check List and Maintenance Schedule for Ballast Cleaning Machine RM -900 (Plasser) have 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 preparation of the above list, the discrepancy noticed, if any, may be brought to the knowledge of the undersigned for further improvement, by email/fax/post.

E-mail Id- hmtmmrdsso@gmail.com

संलग्नक : उपरोक्त


27.5.2020
(ओम प्रकाश)

निदेशक/रेलमथ मशीन-III

<p>I- मुख्य अभियन्ता (ट्रैक मशीन)</p> <p>1.0 मध्य रेलवे, सीएसटी, मुम्बई-400 001</p> <p>2.0 फेयरली प्लेस, पूर्व रेलवे, कोलकाता-700 001</p> <p>3.0 बड़ौदा हाउस, उत्तर रेलवे, नयी दिल्ली-110 001</p> <p>4.0 उत्तरपूर्व रेलवे, गोरखपुर 273012</p> <p>5.0 मालीगांव, उत्तरपूर्व सीमान्त रेलवे, गुवाहाटी-781 011</p> <p>6.0 पार्क टाउन, दक्षिण रेलवे, चेन्नई-600 003</p> <p>7.0 रेल निलयम, दक्षिण मध्य रेलवे, सिकन्दराबाद-500 371</p> <p>8.0 गार्डन रीच, दक्षिणपूर्व रेलवे, कोलकाता-700 043</p> <p>9.0 चर्चगेट, पश्चिम रेलवे, मुम्बई-400 020</p> <p>10.0 उत्तर पश्चिम रेलवे, जयपुर-302 001</p> <p>11.0 पूर्व मध्य रेलवे, हाजीपुर-844 101</p> <p>12.0 दक्षिण पश्चिम रेलवे, हुबली-580 023</p> <p>13.0 उत्तर मध्य रेलवे, इलाहाबाद-211 015</p> <p>14.0 पूर्व तट रेलवे, भुवनेश्वर-751 001</p> <p>15.0 पश्चिम मध्य रेलवे, जबलपुर-482 001</p> <p>16.0 दक्षिण पूर्व मध्य रेलवे, बिलासपुर-495 004</p> <p>II- मुख्य कार्यशाला प्रबन्धक (ट्रैक मशीन)</p>	<p>Chief Engineer (Track Machines)</p> <p>CST, C R, Mumbai - 400 001.</p> <p>Fairlie Place, E R, Kolkata-700 001.</p> <p>Baroda House, N R, New Delhi-110 001.</p> <p>N E R, Gorakhpur-273 012.</p> <p>Maligaon, N F R, Guwahati -781 011.</p> <p>Park Town, S R, Chennai -600 003.</p> <p>Rail Nilayam, SCR, Secunderabad-500 371.</p> <p>Garden Reach, S E R, Kolkata-700 043.</p> <p>Churchgate, W R, Mumbai-400 020</p> <p>N W R, Jaipur-302 001.</p> <p>E C R, Hazipur-844 101</p> <p>SWR, Hubli-580 023</p> <p>NCR, Allahabad-211 015</p> <p>East Coast Rly, Bhubaneshwar-751 001</p> <p>WCR, Jabalpur-482 001</p> <p>South East Central Rly, Bilaspur-495 004</p> <p>Chief Workshop Manager (Track Machines)</p>
<p>1.0 सी.पी.ओ.एच. कार्यशाला पो0 धूमनगंज इलाहाबाद-221012</p> <p>2.0 सी.पी.ओ.एच. कार्यशाला, दक्षिण मध्य रेलवे, रायनापाडु,, विजयवाडा, जिला कृष्णा, आन्ध्र प्रदेश. 521241</p> <p>3.0 सी.पी.ओ.एच., कार्यशाला, पूर्व रेलवे, भूतबागान रेलवे कॉलोनी, कांचरापारा, पी. एस.- बिजपुर, पी. ओ.- कांचरापारा, पश्चिम बंगाल-743145</p> <p>4.0 मुख्य अभियन्ता, सी.पी.ओ.एच., पश्चिम रेलवे, मंडल रेल प्रबंधक कार्यालय, चामुंडा माता मंदिर के पास, नरोड़ा रोड, पोस्ट सैजपुर बोधा, अहमदाबाद-382345</p> <p>III- प्रधानाचार्य भारे.रे.प.म.प्र.के. पीपल गांव इलाहाबाद-211011</p>	<p>CPOH Workshop, PO. Dhoomanganj Allahabad-221012</p> <p>CPOH Workshop, South Central Railway, Rayanapadu, Vijaywada, Dist.-Krishna, Andhra Pradesh-521241</p> <p>CPOH Workshop, Eastern Railway, Bhutbagan Railway Colony, Kanchrapara, P.S: Bizpur, P.O.: Kanchrapara, West Bengal-743145</p> <p>Chief Engineer. C.P.O.H, Western Railway, Divisional Office, Near Chamunda Mata Mandir, Naroda Road, Post- Saijpur Bogha, Ahmedabad-382345</p> <p>Principal, IRTMTC, PipalGaon, Allahabad-211011</p>



भारत सरकार
रेल मंत्रालय

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

**MAINTENANCE SCHEDULE MANUAL
FOR
BALLAST CLEANING MACHINE (RM-900)**



**Report No. TM –236
May-2020**

**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, Rayanapadu, Kachrapara & Ahmedabad 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 Ballast Cleaning Machine (RM-900) has been prepared on the basis of Maintenance instruction given by OEM. 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 parts 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 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.

May -2020

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

EXPLANTORY NOTES

While preparing text of schedules for maintenance of Ballast Cleaning Machine (RM-900), 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 Ballast Cleaning Machine (RM-900)

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.	45 days	In Zonal Workshop
7.	Schedule VII CPOH	1 st 8000 Engine hrs. 2 st 14000 Engine hrs.	1st POH-90 days, 2nd POH-105 days	CPOH Workshop

INDEX

S.N.	DESCRIPTION	PAGE NO.
1.0	Engine	1-2
2.0	Hydraulic	3-4
3.0	Mechanical & Stabilizer Unit	5-8
4.0	Power Transmission and Gear Box	9-10
5.0	Electrical	11
6.0	Pneumatic	12
7.0	General	13
8.0	Annexure-I	14
9.0	Annexure-II	15
10.0	Acknowledgement	16

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS	SCH.VI 2000HRS.	SCH.VII 6000/8000 HRS.
1. ENGINE MODEL NO. Caterpillar C-27 (ATW-1,ATW-2) & Generator Engine								
1.1	Visual check fuel reserves level and top up if required.	√	√	√	√	X	X	X
1.2	Visual Check the leakage from fuel supply and do needful	√	√	√	√	X	X	X
1.3	Clean the engine and premises.	√	√	√	√	X	X	X
1.4	Check engine lube oil level, top up if required.	√	√	√	√	X	X	X
1.5	Check the functioning of engine clutch.	√	√	√	√	X	X	X
1.6	Check cooling agent levels.	√	√	√	√	X	X	X
1.7	Check the battery charging system.	√	√	√	√	X	X	X
1.8	Visual check the tension after (15 minutes working) and condition of V-belts and do needful.	√	√	√	√	X	X	X
1.9	Open and clean dust collector/pan of air cleaners.	√	√	√	√	X	X	X
1.10	Clean the fins of engines cooler.	√	√	√	√	X	X	X
1.11	Visual check the air cleaner chocking indicator. If indicator is red, The outer filter is to be cleaned by dry air.	√	√	√	√	X	X	X
1.12	Check the engine oil pressure at idle.	√	√	√	√	X	X	X
1.13	Check engine oil pressure on load after two hours working.	√	√	√	√	X	X	X
1.14	Drain all air receiver	√	√	√	√	X	X	X
1.15	Drain all drip cups.(according Pilot lamp indication)	X	√	√	√	X	X	X
1.16	Check battery terminals and connection for tightness.	X	√	√	√	X	X	X
1.17	Apply petroleum jelly on battery terminals.	X	√	√	√	X	X	X
1.18	Check frame inclination mechanism for operability.	X	√	√	√	X	X	X
1.19	Check all hose lines and pipings.	X	√	√	√	X	X	X
1.20	Change engine oil Shell Rimula R4 (15W40). (First replace lube oil & filters of all engines after 100 hrs working)	X	√*	√*	√*	X	X	X
1.21	Replace lub. oil filters.	X	√*	√*	√*	X	X	X
1.22	Check engine temperature safety device.	X	X	√	√	X	X	X
1.23	Check lube oil pressure safety device.	X	X	√	√	X	X	X
1.24	Examine the mounting bolts of the engine.	X	X	√	√	X	X	X
*Done after every 250 Engine hours.								

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS.	SCH.IV 200 HRS.	SCH.V 1000 HRS.	SCH.VI 2000HRS.	SCH.VII 6000/8000 HRS.
1.25	Change diesel fuel filters. ATW1 & ATW2 (First time change fuel filters after 100 hrs).	x	x	√**	√**	x	x	x
1.26	Inspect the water separator for proper functioning of fuel system.	x	x	√	√	x	x	x
1.27	Replace the outer and inner engine air cleaner element.	x	x	√**	√**	x	x	x
1.28	Replace V-Belts on condition basis.	x	x	x	√	x	x	x
1.29	Clean outer air cleaner element.	x	x	x	√	x	x	x
1.30	Check fuel tank breather and clean if required.	x	x	x	√	x	x	x
1.31	Check specific gravity of battery electrolyte if applicable.	x	x	x	√	x	x	x
1.32	Change aeration filters of fuel tanks.	x	x	x	x	√	√	√
1.33	Clean the crank case breather element.	x	x	x	x	√	√	√
1.34	Clean the diesel tank with lint free cloth.	x	x	x	x	√	√	√
1.35	Replace minor repair kit for air compressor.	x	x	x	x	√	√	√
1.36	Lubricate the accelerating mechanism with oil.	x	x	x	x	√	√	√
1.37	Check high pressure fuel pipes lines.	x	x	x	x	√	√	√
1.38	Clean the cooler fins of air compressor cylinders.	x	x	x	x	√	√	√
1.39	Check the air compressor ATW1&2 for elastic support.	x	x	x	x	√	√	√
1.40	Replace filter cartridge air compressor ATW1&2	x	x	x	x	√	√	√
1.41	Change the batteries on condition basis.	x	x	x	x	√	√	√
1.42	Overhaul self starter on condition basis.	x	x	x	x	√	√	√
1.43	Overhaul alternator ATW1&2.	x	x	x	x	√	√	√
1.44	Check the air compressor ATW1&2. Overhaul if necessary.	x	x	x	x	x	√	√
1.45	Check anti vibration mounting pads of the engines and change, if req.	x	x	x	x	x	√	√
1.46	Overhaul or replace the engine.	x	x	x	x	x	x	√
1.47	Check the exhaust manifold for any defect and clean the same.	x	x	x	x	x	x	√
1.48	Change all the high pressure fuel pipes, pipe clamp, flexible fuel hoses and rubber hoses.	x	x	x	x	x	x	√
1.49	Change air inlet hoses.	x	x	x	x	x	x	√
*Done after every 250 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.

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS	SCH.VI 2000HRS.	SCH.VII 6000/8000 HRS.
2. HYDRAULIC								
2.1	Check hydraulic oil level in tanks ATW-1,ATW-2 and top up if required.	√	√	√	√	X	X	X
2.2	Check leakages all Hyd. cylinders and do needful	√	√	√	√	X	X	X
2.3	Check hydraulic oil level in auxiliary (emergency) tank and top up if required.	√	√	√	√	X	X	X
2.4	Record the maximum temperature of hydraulic fluid during the day's work.	√	√	√	√	X	X	X
2.5	Visual check filters chocking indication if provided.	√	√	√	√	X	X	X
2.6	Check oil level in vibration screen drum.	√	√	√	√	X	X	X
2.7	Check for any rubbing of hoses & loose clamping etc. and correct it.	√	√	√	√	X	X	X
2.8	Check hydraulic system operating pressure.	√	√	√	√	X	X	X
2.9	First time change the dredger drum gear box filter 50 hrs.	X	√	√	√	X	X	X
2.10	Clean the slots next to the joint of the hydraulic cylinders	X	√	√	√	X	X	X
2.11	Check & lubricate all hyd. Cylinders piston rod, bolts,joints(R4x15W40)	X	√	√	√	X	X	X
2.12	Check Crane (Palfinger) for working.	X	√	√	√	X	X	X
2.13	Replace suction filters.ATW1 & ATW2	X	√*	√	√	X	X	X
2.14	Visual check and lubrication the drag bearing of both screen units.	X	X	√	√	X	X	X
2.15	Check the condition and position of the hydraulic hoses.	X	X	√	√	X	X	X
2.16	Check the cover plate bolts of all hydraulic cylinders.	X	X	√	√	X	X	X
2.17	Replace Hyd. Return filters.	X	X	√**	√**	X	X	X
2.18	Replace high pressure filter AHM	X	X	√**	√**	X	X	X
2.19	Replace superfine filters of ATW1 & ATW2	X	X	√**	√**	X	X	X
2.20	Replace all Hydraulic Return filters.	X	X	√**	√**	X	X	X
2.21	Replace proportional filter DGS	X	X	X	√	X	X	X
*Done after every 250/500 Engine hours ** Done after every 500 Engine hours.								

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS	SCH.VI 2000HRS.	SCH.VII 6000/8000 HRS.
2.24	Clean the filler ventilation filter of the hydraulic oil tank.	x	x	x	√	x	x	x
2.25	Check all pressure controls for rated settings.	x	x	x	√	x	x	x
2.26	Clean fins of hydraulic oil cooler.	x	x	x	√	x	x	x
2.27	Check and clean breathing filter of hydraulic tank.	x	x	x	√	x	x	x
2.28	Screen drive ventilation filter: visual check and cleaning.	x	x	x	√	x	x	x
2.29	Test hydraulic oil for quality (viscosity) check and do needful.	x	x	x	x	√	√	√
2.30	Replace all aeration filters.	x	x	x	x	√	√	√
2.31	Clean the hydraulic tank before changing hyd. Oil if required.	x	x	x	x	√	√	√
2.32	Replace worn or damaged v-belts of drive system of screen units.	x	x	x	x	√	√	√
2.33	Slewing conveyor belt live ring: oil level check.	x	x	x	x	√	√	√
2.34	Clean the hydraulic oil cooler externally.	x	x	x	x	√	√	√
2.35	Replace the seals of all hydraulic cylinders along with gland bushes /piston.	x	x	x	x	√	√	√
2.36	Check the hydraulic motors for proper function and do needful.	x	x	x	x	x	√	√
2.37	Check the D.C. valves for leakage and do needful.	x	x	x	x	x	√	√
2.38	Check all pressure settings.	x	x	x	x	x	√	√
2.39	Check hydraulic accumulator pressure	x	x	x	x	x	√	√
2.40	Clean the hydraulic oil tank. Paint the surface of tank with approved quality of paint and fill new oil.	x	x	x	x	x	√	√
2.41	Check all the stop cocks and flow control valves and change if required.	x	x	x	x	x	x	√
2.42	Replace all the hydraulic hoses along-with clamps as required.	x	x	x	x	x	x	√
2.43	Check all hydraulic cylinders, change/repair, need basis.	x	x	x	x	x	x	√
**Done after every 500 Engine hours								

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS	SCH.VI 2000HRS.	SCH.VII 6000/8000 HRS.
3. MECHANICAL								
3.1	Inspect wear plates on ascending & descending side and change badly worn-out plates.	√	√	√	√	X	X	X
3.2	Visual check the oil level of both the screen drive units.	√	√	√	√	X	X	X
3.3	Visual check the both screen units.	√	√	√	√	X	X	X
3.4	Visual check the covering cap of excavation chain.	√	√	√	√	X	X	X
3.5	Check proper locking of all units.	√	√	√	√	X	X	X
3.6	Check the function and condition of conveyor belt, tension, safety switch.	√	√	√	√	X	X	X
3.7	Check locking screws, round shaft chisel of excavation chain and do needful.	√	√	√	√	X	X	X
3.8	Excavation chain guide: - check for wear, check the wear strips. - Visual check of the entire chain suspension. - check all locking devices for proper locking and indication. - Operability - check all screws for tightness.	√	√	√	√	X	X	X
3.9	Check the connection between connecting elbow and cutter bar.	√	√	√	√	X	X	X
	Check operation of safety device.	√	√	√	√	X	X	X
	Check anti collision devise of waste conveyors.	√	√	√	√	X	X	X
3.10	Greasing of sliding pads. Grease Shell Gadus S3 V220C 2	√	√	√	√	X	X	X
3.11	Check clearance of lifting roller clamp-1&2 disc below the rail head in lowered condition.	X	√	√	√	X	X	X
3.12	Check all axle gear boxes oil level & top up if req..Shell Tellus S2 V 68.	X	√	√	√	X	X	X
3.13	Check all axle gear boxes Filters chocking indication, replace if required.	X	√	√	√	X	X	X
3.14	Check all axle gear boxes oil level	X	√	√	√	X	X	X
3.15	Greasing of all gear boxes cover plates.(Shell Gadus S3 V220C 2)	X	√	√	√	X	X	X
3.16	Check main gear boxes (ATW1 & 2) oil level & top up if req..Shell Tellus S2 V 68	X	√	√	√	X	X	X
3.17	Check conveyor belts GB oil levels (B1,C1,C3) Shell Ga. S3 V220C 2	X	√	√	√	X	X	X
3.18	Check Rotating track GB (B3)oil level .Shell Omala S2 G 100	X	√	√	√	X	X	X
3.19	Check & Lubricate rotating track by grease.	X	√	√	√	X	X	X

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS	SCH.VI 2000HRS.	SCH.VII 6000/8000 HRS.
3.20	Visual check of tensioning cylinder piston rod, cleaning and lubrication.	x	√	√	√	x	x	x
3.21	Clean excavating conveyor sliding frame.	x	√	√	√	x	x	x
3.22	Check the tension of excavating conveyor chain and adjust if required.	x	√	√	√	x	x	x
3.23	Check brake shoe clearance and adjust if required.	x	√	√	√	x	x	x
3.24	Lubricate all pivoting bearing and bolt.	x	√	√	√	x	x	x
3.25	Visual check and lubricate the tension bearing of the deflection Pulley of all conveyor belts.	x	√	√	√	x	x	x
3.26	Check Rail clamp 1 & lubricate lining rollers, clamp bolts, guide columns, pivot bearings, suspension & telescopic links.	x	√	√	√	x	x	x
3.27	Check Rail clamp 2 & lubricate clamp bolts & gauge roller.	x	√	√	√	x	x	x
3.28	Check sleeper scraper for wear & lubricate suspension.	x	√	√	√	x	x	x
3.29	Check Sabilizer unit & lubricate link rod, satabilizer rollers & clamp pivot pins. (S3 V 220 C2)	x	√	√	√	x	x	x
3.30	Check vibration gear box oil level & top up if necessary (R4x 15W-40)	x	√	√	√	x	x	x
3.31	Check converter torque bearing rubber elements condition, deformation,	x	x	√	√	x	x	x
3.32	Lubricate intermediate bearing ATW1 & ATW2(Shell Gad. S3 V 220 C2)	x	x	√	√	x	x	x
3.33	Check all brake block lining & Brake block play.	x	x	√	√	x	x	x
3.34	Check brake linkages.	x	x	√	√	x	x	x
3.35	Check movement of sliding plate of chain trough.	x	x	√	√	x	x	x
3.36	Check guide rollers and bushes of cutter chain.	x	x	√	√	x	x	x
3.37	Check foundation bolts of all brake cylinders.	x	x	√	√	x	x	x
3.38	Check the excavation chain sprocket and change if required.	x	x	x	√	x	x	x
3.39	Recondition/Replace the cutter bar.	x	x	x	√	x	x	x
3.40	Replace excavating fingers if required.	x	x	x	√	x	x	x
3.41	Repair both ballast screens.	x	x	x	√	x	x	x
3.42	Check brake lever bearing & brake rods.	x	x	x	√	x	x	x
3.43	Check the clutch pressure and adjust if required.	x	x	x	√	x	x	x
3.44	Check & lubricate stabilizer unit cross shifting(Shell Gad. S3 V 220 C2)	x	x	x	√	x	x	x

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS	SCH.VI 2000HRS.	SCH.VII 6000/8000 HRS.
3.45	Inspect all cordon shafts for any crack.	x	x	x	√	x	x	x
3.46	Clean and grease the axle bearings of the bogies.	x	x	x	x	√	√	√
3.47	Check, clean & lubricate draw and buffing gear.	x	x	x	x	√	√	√
3.48	Check, clean & lubricate all coupling bolts.	x	x	x	x	√	√	√
3.49	Check & grease parking brake.	x	x	x	x	√	√	√
3.50	Clean and lubricate sliding surfaces and bolts of torque supports.	x	x	x	x	√	√	√
3.51	Change the chute wear plates.	x	x	x	x	√	√	√
3.52	Change worn out screen meshes and chute plates, if required.	x	x	x	x	√	√	√
3.53	Check shock absorber for proper functioning and do needful.	x	x	x	x	√	√	√
3.54	Overhaul the complete plow.	x	x	x	x	√	√	√
3.55	Overhaul extension pices.	x	x	x	x	√	√	√
3.56	Change the worn out rubber pads.	x	x	x	x	√	√	√
3.57	Check condition of trough plates and replace if required.	x	x	x	x	√	√	√
3.58	Replace distributing conveyors and waste conveyor belts.	x	x	x	x	√	√	√
3.59	Replace main conveyor.	x	x	x	x	√	√	√
3.60	Check condition of both roller disc clamp devices and do needful.	x	x	x	x	√	√	√
3.61	Lubricate chain trough bearings with grease. Grease.	x	x	x	x	√	√	√
3.62	Check the function of the lifting device, Clean and lubricate.	x	x	x	x	√	√	√
3.63	Check foundation and bracket bolts of both compressors.	x	x	x	x	√	√	√
3.64	Check up rubber element of all torque plate suspension and do needful.	x	x	x	x	√	√	√
3.65	Check grease filling of Parking brake and do as Required.	x	x	x	x	√	√	√
3.66	Overhauling of screen vibration unit on need basis.	x	x	x	x	x	√	√
3.67	Overhauling/replacement conveyer belt/chain guide.	x	x	x	x	x	√	√
3.68	Change all the brake shoes.	x	x	x	x	x	√	√
3.69	Check the wheels for tyre defects re profile or replace, if required.	x	x	x	x	x	x	√
3.70	Check the all bogie pivot for wear and attend as necessary.	x	x	x	x	x	x	√
3.71	Change the scraper pads and scraper rubbers of all conveyors.	x	x	x	x	x	x	√

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS	SCH.VI 2000HRS.	SCH.VII 6000/8000 HRS.
3.72	Check the all axle bearing and grease them. Change if required.	x	x	x	x	x	x	√
3.73	Overhaul the complete ascending and descending side chain trough.	x	x	x	x	x	x	√
3.74	Overhaul the lifting unit.	x	x	x	x	x	x	√
3.75	Overhaul the stabilizing units.	x	x	x	x	x	x	√
3.76	Strengthen the machine frame where cracks have developed.	x	x	x	x	x	x	√
3.77	Repair/replace screen frame.	x	x	x	x	x	x	√
3.78	Overhaul both screen vibration drum and replace bearings.	x	x	x	x	x	x	√
3.79	Replace bearing of excavating unit.	x	x	x	x	x	x	√
3.80	Overhaul the cutting unit.	x	x	x	x	x	x	√

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS	SCH.VI 2000HRS.	SCH.VII 6000/8000 HRS.
4. POWER TRANSMISSION AND GEAR BOX								
4.1	Check the oil leakage from gear boxes (Drive Axle-1,2,3,4,11,12,13 &14) and do the needful.	√	√	√	√	X	X	X
4.2	Check for proper axle clutch pressure.	√	√	√	√	X	X	X
4.3	Visual check the oil level & filters of all drive axle gear boxes.	√	√	√	√	X	X	X
4.4	Check main gear box ATW-1 & ATW-2 oil levels	√	√	√	√	X	X	X
4.5	Check the oil level of conveyor belts gear box C1 and B1.	√	√	√	√	X	X	X
4.6	Check and top up the lubrication of all conveyor belt system.	√	√	√	√	X	X	X
4.7	Check the tightness of cardon shaft bolts.	√	√	√	√	X	X	X
4.8	Visual check the oil level of all gear boxes B3.	√	√	√	√	X	X	X
4.9	Check oil level in rotatery track gear box.	√	√	√	√	X	X	X
4.10	Check all conveyor belts A1-A3,B1-B3,C1-C3	√	√	√	√	X	X	X
4.11	Check and Lubricate (Stabylan Fluid ECO 7) the all track rollers bearing of the driving station of all conveyor belts and its paths.	√	√	√	√	X	X	X
4.12	Check clean and lubricate swivel bearings.	X	√	√	√	X	X	X
4.13	Check and lubricate locking devices of all conveyor belts.	X	√	√	√	X	X	X
4.14	Check and lubricate the cardan safts. (Shell Gadus S3 V 220 C2).	X	X	√	√	X	X	X
4.15	Check and top up B3 belt drive GB.(Shell Tellus S2 MX 32).	X	X	√	√	X	X	X
4.16	Clean the energy-carrying chain, conv. belt B3 (using compressed air).	X	X	√	√	X	X	X
4.17	Change main gear box oil ATW1 &ATW2 (Shell Tellus S2 V 68).	X	X	√**	√**	X	X	X
4.18	Change axle Gear Boxes (1,2,3,4,11,12,13, & 14)	X	X	√**	√**	X	X	X
4.19	Change oil of conveyor belt GB B1 &C1(Shell Omala S4 GX 220)	X	X	√**	√**	X	X	X
4.20	Change oil of Rotating track GB B3 (Shell Omala S2 G 100)	X	X	√**	√**	X	X	X
4.21	Change oil of all conveyor gear box.	X	X	√**	√**	X	X	X
4.22	Change aeration filters of main GB ATW1 & ATW2	X	X	X	X	√	√	√
4.23	Change aeration filters of axle GB (1,2,3,4,11,12,13,&14)	X	X	X	X	√	√	√
4.24	Change oil of multiple-disc brake of conveyor belt B3	X	X	X	X	√	√	√
4.25	Replace all conveyor belts and overhaul the driving stations.	X	X	X	X	√	√	√
**Done after every 500 Engine hours								

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS	SCH.VI 2000HRS.	SCH.VII 6000HRS.
4.26	Ultrasonic examination of axle shall be between 40,000 to 45,000 kms of running or three years, whichever is earlier.	x	x	x	x	x	√	√
4.27	Replace the shaft of gear boxes for which splices have twisted or worn out.	x	x	x	x	x	x	√
4.28	Change mounting pad of all gear boxes.	x	x	x	x	x	x	√
4.29	Overhaul the gear boxes.	x	x	x	x	x	x	√
4.29	Replace bearing of cutting chain drive gearbox if required.	x	x	x	x	x	x	√

5. ELECTRICAL								
S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS	SCH.VI 2000HRS.	SCH.VII 6000/8000 HRS.
5.1	Check battery voltage	√	√	√	√	X	X	X
5.2	Check charging current	√	√	√	√	X	X	X
5.3	Check all lights and do needful.	X	√	√	√	X	X	X
5.4	Check fire alarm	X	X	√	√	X	X	X
5.5	Check function of all limits switches/Proximity switch and do needful.	X	X	X	√	X	X	X
5.6	Clean alternator & Generators.	X	X	X	√	X	X	X
5.7	Check the main supply cable.	X	X	X	√	X	X	X
5.8	Check condition of the battery electrolyte level and cable connections.	X	X	X	√	X	X	X
5.9	Check temperature switch and sensor.	X	X	X	X	√	√	√
5.10	Check the LED of all solenoids & replace if required.	X	X	X	X	X	X	√
5.11	Overhaul all the panel boxes.	X	X	X	X	X	X	√
5.12	Replace the defective PCBs.	X	X	X	X	X	X	√
5.13	Change/replace defective cable/wiring.	X	X	X	X	X	X	√
5.14	Replace defective switches and potentiometers.	X	X	X	X	X	X	√

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS	SCH.VI 2000HRS.	SCH.VII 6000/8000 HRS.
6. PNEUMATIC								
6.1	Check air brake system pressure.	√	X	X	X	X	X	X
6.2	Check for any air leakage.	√	X	X	X	X	X	X
6.3	Drain air reservoirs/Drip cups after the day's work.	√	X	X	X	X	X	X
6.4	Check the contamination indicators (pilot lamps) for dry type air filter.	√	X	X	X	X	X	X
6.5	Check brake parts of idling bogie and powered bogie.	√	X	X	X	X	X	X
6.6	Check emergency brake operation.	√	X	X	X	X	X	X
6.7	Check function of horns.	√	X	X	X	X	X	X
6.8	Check oil level of pneumatic lubricator (air oiler).	√	X	X	X	X	X	X
6.9	Clean water separator.	X	√	X	X	X	X	X
6.10	Check the pressure setting of relief valve.	X	X	√	X	X	X	X
6.11	Replace the filter cartridge of air dryer.	X	X	√*	X	X	X	X
6.12	Clean filter element of pneumatic system as per required.	X	X	X	√	X	X	X
6.13	Check tightness of foundation bolts of brake cylinders.	X	X	X	√	X	X	X
6.14	Check the mounting bolts of all pneumatic valves.	X	X	X	√	X	X	X
6.15	Check the functioning of auto drain valve.	X	X	X	√	X	X	X
6.16	Clean cooling coil.	X	X	X	√	X	X	X
6.17	Check air unloader for proper functioning.	X	X	X	√	X	X	X
6.18	Check condition of pneumatic hoses and replace as required.	X	X	X	X	√	X	X
6.19	Overhaul the air unloader.	X	X	X	X	√	X	X
6.20	Overhaul the water separator and air oiler.	X	X	X	X	√	X	X
6.21	Replace pneumatic cylinder seals or cylinders as required.	X	X	X	X	X	X	√
6.22	Clean air tank.	X	X	X	X	X	X	√
6.23	Check all pneumatic valves and change if necessary.	X	X	X	X	X	X	√
6.24	All pneumatic pipes to be replaced.	X	X	X	X	X	X	√
6.25	Change the water separator and air oiler.	X	X	X	X	X	X	√
6.26	Replace air unloader, need basis.	X	X	X	X	X	X	√
6.27	Change all the pressure control valves, need basis	X	X	X	X	X	X	√
6.28	Overhaul the brake cylinder and replace the seals if required.	X	X	X	X	X	X	√
6.29	Check the brake system.	X	X	X	X	X	X	√
*Done after every 500 Engine hours								

S. N.	ITEM	SCH.I Daily	SCH.II 50HRS.	SCH.III 100HRS	SCH.IV 200 HRS.	SCH.V 1000 HRS	SCH.VI 2000HRS.	SCH.VII 6000/8000 HRS.
7. GENERAL								
7.1	Check for any unusual sound from machine.	√	X	X	X	X	X	X
7.2	Check safety items, emergency tools & spares.	√	X	X	X	X	X	X
7.3	Check all the functions of machine before block working.	√	X	X	X	X	X	X
7.4	Check the early fire detection system.(ATW1 & ATW2)	√	X	X	X	X	X	X
7.5	Check the expiry of first Aid box.	√	X	X	X	X	X	X
7.6	Check the expiry of fire extinguisher/ may be done on regular basis.	√	X	X	X	X	X	X
7.7	Clean complete machine.	X	√	X	X	√	X	X
7.8	Thoroughly clean all panel boxes with pressurized air.	X	X	X	X	X	√	X
7.9	Check the function of all assemblies after IOH.	X	X	X	X	X	√	X
7.10	Calibrate the machine on track for all functions	X	X	X	X	X	√	X
7.11	Replace the missing and defective hand tools.	X	X	X	X	X	√	X
7.12	Overhaul the bogies/recondition.	X	X	X	X	X	X	√
7.13	Check the calibration of all the indicative instruments and replace the defective ones.	X	X	X	X	X	X	√
7.14	Flush the complete system.	X	X	X	X	X	X	√
7.15	Check the function of all assemblies.	X	X	X	X	X	X	√
7.16	Test the machine for one week before it is put for actual working in section on regular basis.	X	X	X	X	X	X	√
7.17	Overhaul the A.C. unit.	X	X	X	X	X	X	√
7.18	Complete machine may be painted with approved paint.	X	X	X	X	X	X	√
*Done after every 500 Engine hours								
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
1.	Red and hand signal flags	2 Nos.
2.	Green hand signal flags	1 No.
3.	Tri- colour hand signal lamps/LED torch	2 Nos.
4.	Chain With Padlock	2 Nos.
5.	Fire Extinguisher	One per cabin
6.	Hooter (Manually Controlled)	2 Nos.
7.	Jack 50 t Traverse type	2 Nos.
8.	Wooden Blocks	4 Nos.
9.	Crow bars	4 Nos.
10.	Hydraulic hand pump	1 No.
11.	Emergency Pneumatic / Hydraulic hose off size suiting to different machines (complete with end fitting)	As per requirement
12.	Wire rope with close loops at both ends 2 meters and 9 meters long one of each length	As per requirement
13.	Machine Specific Equipment if any.	As per requirement
14.	Fog signals (detonators) in a tin case	10 Nos.
15.	A copy of working time table of this section where the machine is working	1 No.
16.	G & SR book with up to date amendment slips	1 No.
17.	4 cells flasher light LED lamp cum flasher light (rechargeable)	1 No.
18.	Banner flags	2 Nos.
19.	First aid Box	1 No.
20.	Skids	2 Nos.
21.	Safety Helmet	All machine staff
22.	Protection clothing , safety shoes and safety gloves	All machine staff
23.	Walkie talkie with frequency of SM, guard and loco pilots	2 Nos.
24.	Internal communication system walkie talkie and /or head mounting system	-
25.	Track machine manual with up to date correction slip	1 No.
26.	Accident manual	1 No.
27.	Tail Lamp	1 No.

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 Ballast cleaning machine (RM-900).

RDSO

1.0	SHRI MUSLIM AHMAD	ARE/TM
2.0	SHRI VED PRAKASH SRIVASTAVA	SSE/TM
3.0	SHRI D.G.Shrma	SSE/TM