



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

Government of India-Ministry of Railways  
Research Designs & Standards Organisation  
Lucknow - 226 011  
DID (0522) 2450115  
DID (0522) 2465310



टीएम/एच एम/बी सी एम पार्ट. III

दिनांक- -12-2023

TM/HM/BCM,Pt- III

Date- - 12-2023

I-	मुख्य अभियन्ता (ट्रैक मशीन) सभी क्षेत्रीय रेलवे	Chief Engineer (Track Machines) All Zonal Railways
II-	मुख्य कार्यशालाप्रबन्धक (ट्रैक मशीन) सी.पी.ओ.एच. कार्यशाला प्रयागराज , रायनापाडु, कंचरापारा, अहमदाबाद,	Chief Workshop Manager (Track Machines) CPOH Workshop, Prayagraj , Rayanapadu, Kachrapara, Ahmedabad
III-	प्रधानाचार्यभारेरे.प.म.प्र.के. पीपलगांव प्रयागराज-211011	Principal, IRTMTC, Pipalgaon, Prayagraj-211011
	Details of addresses are enclosed herewith.	

**विषय :** बैलास्ट क्लिनिंग मशीन माडल -आर एम-80-92यु ( मशीन क्रम सं- 57088.57105 - 57165. 57175 ) की अनुरक्षण अनुसूची पुस्तिका ।

**Sub :** Maintenance Schedule Manual of Ballast Cleaning Machine (RM-80-92U) (Machine Sr.No.57088-57105 & 57165-57175).

आईएम मैनुअल, आईआरटीएमएम-2019 एवं उत्तर रेलवे से प्राप्त सुझाव के आधार पर बैलास्ट क्लिनिंग मशीन माडल -आर एम-80-92यु ( मशीन क्रम सं- 57088-57105 & 57165-57175 ) की अनुरक्षण अनुसूची पुस्तिका का मसौदा तैयार कर टीएम/एच एम/ बी सी एम पार्ट. III दि. 14.06.2023 द्वारा 30 दिनों के लिये जारी किया गया था, और अन्तिम अनुरक्षण अनुसूची पुस्तिका पत्र सं. टीएम/एच एम/ बी सी एम पार्ट. III दि. 16.08.2023 द्वारा 15 दिनों के लिये सभी क्षेत्रीय रेलवे को, जारी किया गया था। इसके उपरान्त उत्तर मध्य रेलवे से प्राप्त सुझाव/टिप्पणी के आधार पर अंतिम रूप से तैयार किया गया है, जिसकी एक प्रति आपके सूचनार्थ तथा सभी मशीन के कर्मचारियों जो फील्ड में काम कर रहे हैं, के मार्गदर्शन हेतु संलग्न है। यद्यपि उपरोक्त सूची बनाते समय सभी सावधानियाँ बरती गई हैं, फिर भी यदि कोई त्रुटि हो तो कृपया अपने सुझावों/टिप्पणियों को सुधार हेतु ई-मेल/पत्राचार द्वारा अद्योहस्ताक्षरी को भेजे।

On the basis of OEM manual, IRTMM-2019 and suggestion received from Northern railway draft of maintenance schedule manual of Ballast Cleaning Machine (RM-80-92U) (Machine Sr.No.57088-57105 & 57165-57175) had been prepared and circulated vide letter no. TM/HM/BCM/Pt-III dated 14/06/2023 for 30 days and provisional maintenance schedule manual circulated vide letter no. TM/HM/BCM/Pt-III dated 16/08/2023 for 15 days respectively. After incorporating Suggestions/Comments received from North Central Railway, maintenance schedule manual has been finalized. 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 said list, the discrepancy noticed, if any, may be brought to the knowledge of the undersigned for further improvement by email/post.

**DA:** As above  
**Email id -** hmtmmrds@gmail.com

(जैनेन्द्र कुमार सिंह)  
(J.K Singh)  
निदेशक रेल पथ मशीन -VI  
Director/Track Machine-VI

**I- मुख्य अभियन्ता (ट्रैक मशीन)**

- 1.0 मध्य रेलवे, सीएसटी, मुम्बई-400 001
- 2.0 पूर्वरेलवे, फेयरलीप्लेस, कोलकाता-700 001
- 3.0 उत्तररेलवे, बड़ौदा हाउस, नयी दिल्ली-110 001
- 4.0 उत्तर पूर्व रेलवे, गोरखपुर 273012
- 5.0 उत्तर पूर्व सीमान्त रेलवे, मालीगांव, गुवाहाटी-781 011
- 6.0 दक्षिण रेलवे, पार्कटाउन, चेन्नई-600 003
- 7.0 दक्षिण मध्य रेलवे, रेल निलयम, सिकन्दराबाद-500 025
- 8.0 दक्षिण पूर्व रेलवे, गार्डनरीच, कोलकाता-700 043
- 9.0 पश्चिम रेलवे, चर्चगेट, मुम्बई-400 020
- 10.0 उत्तर पश्चिम रेलवे, जयपुर-302 001
- 11.0 पूर्व मध्य रेलवे, हाजीपुर-844 101
- 12.0 दक्षिण पश्चिम रेलवे, हुवली-580 023
- 13.0 उत्तर मध्य रेलवे, प्रयागराज-211 015
- 14.0 पूर्व तट रेलवे, भुवनेश्वर-751 001
- 15.0 पश्चिम मध्य रेलवे, जबलपुर-482 001
- 16.0 दक्षिण पूर्व मध्य रेलवे, बिलासपुर-495 004

**II- मुख्य अभियन्ता ,सी.पी.ओ.एच,पश्चिम रेलवे, मंडल रेल प्रबंधक कार्यालय ,चामुंडा, माता मंदिर के पास , नरोड़ा रोड , पो0 सैजपुर बोधा, अहमदाबाद-382345**

**Chief Engineer (Track Machines)**

- C R, CST, Mumbai - 400 001.  
 E R, Fairlie Place, Kolkata-700 001.  
 N R, Baroda House, New Delhi-110 001.  
 N E R, Gorakhpur-273 012.  
 N F R, Maligaon, Guwahati -781 011.  
 S R, Park Town, Chennai -600 003.  
 SCR, Rail Nilayam, Secunderabad - 500 025.  
 S E R, Garden Reach, Kolkata-700 043.  
 W R, Churchgate, Mumbai-400 020  
 N W R, Jaipur-302 001.  
 E C R, Hazipur-844 101  
 SWR, Hubli-580 023  
 NCR, Prayagraj-211 015  
 East Coast Rly, Bhubaneshwar- 751 001  
 WCR, Jabalpur-482 001  
 South East Central Rly, Bilaspur-495 004

**Chief Engineer. C.P.O.H, Western Railway, Divisional Railway Manager Office, Near Chamunda Mata Mandir, Naroda Road, P.O. – Saijpur Bogha, Ahmedabad-382345**

**III- मुख्य कार्यशाला प्रबन्धक (ट्रैक मशीन)**

**Chief Workshop Manager (Track Machines)**

- 1.0 सी.पी.ओ.एच. कार्यशाला, उत्तर मध्य रेलवे, पो0 धूमनगंज, प्रयागराज-211012
- 2.0 सी.पी.ओ.एच. कार्यशाला, दक्षिण मध्य रेलवे, रायनापाडु,, विजयवाडा, जिला कृष्णा, आन्ध्रप्रदेश. 521241
- 3.0 सी.पी.ओ.एच. कार्यशाला, पूर्व रेलवे, भूतबागान ,रेलवेकॉलोनी, कंचरापाड़ा, पी.एस- बिजपुर पो0 कंचरापाड़ा ,पश्चिम बंगाल -743145

- CPOH Workshop, North Central Railway, PO. Dhoomanganj] Prayagraj-211012  
 CPOH Workshop,South Central Railway, Rayanapadu, Vijaywada, Dist.-Krishna, Andhra Pradesh- 521241  
 CPOH Workshop, Eastern Railway, Bhutbagan Railway Colony, Kanchrapara, P.S: Bizpur, P.O.: Kanchrapara, West Bengal-743145

**IV- प्रधानाचार्य भा.रे.रे.प.म.प्र.के. पीपलगांव प्रयागराज-211011**

**Principal, IRTMTC, Pipal Gaon, Prayagraj- 211011**

**MAINTENANCE SCHEDULE MANUAL FOR  
BALLAST CLEANING MACHINE (RM-80-92U)  
(Machine Sr.No.57088-57105 & 57165-57175)**



**Report No.TM -279  
December -2023**

**इंफ्रास्ट्रक्चर निदेशालय (रेलपथ मशीन एवं मानीटरिंग)  
अनुसंधान अभिकल्प और मानक संगठन, लखनऊ-226011**

**DIRECTORATE OF INFRASTRUCTURE (TRACK MACHINE & MONITORING)  
RESEARCH DESIGNS & STANDARDS ORGANISATION,  
LUCKNOW-226011**

## **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 / Prayagraj & 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-80- 92U) machine sr.no. 57088-57105 & 57165-57175 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 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.

December-2023

(J.K.Singh)  
Director/Track Machine-VI  
RDSO/Lucknow-226011

### EXPLANTORY NOTES

While preparing text of schedules for maintenance of **Ballast Cleaning Machine (RM-80-92U)**, 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-80-92U) (Machine Sr.No.57088-57105, 57165-57175)

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	1st -8000 Engine hrs. 2 <sup>nd</sup> -14000 Engine hrs. and then after at every 4000 Engine hrs.	1st POH-90 days, 2nd POH-105days	CPOH Workshop

## INDEX

S. N.	DESCRIPTION	PAGE NO.
1.	Schedule-I	1-2
2.	Schedule -II	3-4
3.	Schedule-III	5
4.	Schedule -IV	6-7
5.	Schedule -V	8-9
6.	Schedule-VI	10-11
7.	Schedule-VII	12-13
8.	Annexure-I	14
9.	Annexure-II	15
10.	Acknowledgement	16

**SCHEDULE -- I**  
**(TO BE DONE DAILY)**  
**DURATION ONE HOUR**

<b>1.0</b>	<b>ENGINE (Model- Deutz BF6M-1015CP -2 NOS.)</b>
1.1	Check the engine oil level and top up if required.
1.2	Check coolant level in radiator and top up if required.
1.3	Check fuel level and top up if required.
1.4	Visual Check the leakage from fuel pump, injectors, fuel supply and return pipes and do needful.
1.5	Check the leakage from hoses, water pump seal etc. and do the needful.
1.6	Visual check the tension and condition of V-belts and do needful.
1.7	Check mounting bolts & eye bolt of self-starter for tightness.
1.8	Check mounting bolts of engine for tightness.
1.9	Open and clean dust collector/pan of air cleaner.
1.10	Clean the engine and premises.
1.11	Check the engine oil pressure at idle (3.2 bar) & on load (6.7 bar) after two hours working.
1.12	Check the battery charging system.
1.13	Record the maximum engine temperature of the day's work.
1.14	Visual check both air cleaner filter choking indicator. If indicator is red, the outer filter is to be cleaned by dry air.
1.15	Drain sediment from water separator of fuel supply system.
<b>2.0</b>	<b>Hydraulic</b>
2.1	Check hydraulic oil level in tank and top up if required.
2.2	Clean the slots next to the joint of the hydraulic cylinders.
2.3	Check hydraulic oil level in both tanks and top up if required.
2.4	Record the maximum temperature of hydraulic fluid during the day's work.
2.5	Visual check filters choking indication if provided.
2.6	Check oil level in vibration screen drum.
2.7	Check for any rubbing of hoses & loose clamping etc. and correct it.
2.8	Check hydraulic system operating pressure.
2.9	Check Hydac filter unit, if the gauge indication is within the red range, the filter element has to be changed
<b>3.0</b>	<b>Mechanical</b>
3.1	Inspect wear plates on ascending & descending side and change badly worn-out plates.
3.2	Visual check the sieve, sieve fastenings, ballast stop flips & ballast guiding device and do needful.
3.3	Visual check the all screws for tight seat & wear and reliable fastening of screen.
3.4	Visual check the scrapers of all conveyor belts, re-adjust, if necessary.
3.5	Visual check the pulleys and stretcher of all conveyor belts.
3.6	Visual check of the conveyer belt suspensions.
3.7	Visual check the belt for any damage.
3.8	Visual check the tight seat of all screws of all conveyor belts.
3.9	Visual check the covering cap of excavation chain for wear and do needful.
3.10	Check proper locking of all units.
3.11	Excavation chain: <ul style="list-style-type: none"> <li>• Check the connection between connecting elbow and cutter bar.</li> <li>• Clean and lubricate the clamped joints before assembly.</li> </ul>
3.12	Excavation chain guide: <ul style="list-style-type: none"> <li>• Check for wear.</li> <li>• Check all screws for tightness.</li> </ul>

3.13	Check and lubricate the corner roller (at the top of left side) of the Excavation chain.
3.14	Check operation of safety devices.
3.15	Visual check the wear plates of ballast distributing chutes.
3.16	Visual check the tight seat of all screws of ballast distributing chutes.
3.17	Check anti-collision devise of waste conveyors.
3.18	Check the functioning of emergency backup system.
<b>4.0</b>	<b>Power Transmission and Gear Box</b>
4.1	Check the oil leakage from all gear boxes and do the needful.
4.2	Check for proper axle clutch pressure.
<b>5.0</b>	<b>Pneumatic</b>
5.1	Check air brake system pressure.
5.2	Check for any air leakages.
5.3	Drain air reservoirs/drip cups at regular intervals to protect the air drier from contamination.
5.4	Check brake parts of all bogies.
5.5	Check emergency brake operation.
5.6	Check function of horns.
5.7	Check oil level of pneumatic lubricator.
5.8	Check auto drain valve for proper function.
<b>6.0</b>	<b>General</b>
6.1	Check for any unusual sound from machine.
6.2	Check safety items, emergency tools & spares.
6.3	Check hooter and both sides flasher light.
6.4	Check the function of all working light.
6.5	Check all the functions of machine before block working.



**SCHEDULE -- II**

**(TO BE DONE AFTER EVERY 50 HOURS OF ENGINE  
RUNNING) DURATION- TWO HOURS  
(TO BE DONE IN ADDITION TO SCHEDULE-I)**

<b>1.0</b>	<b>Engine</b>
1.1	Drain the diesel fuel filter.
1.2	Check battery terminal and connection for tightness.
1.3	Check injector pipes for any rubbing and do needful.
1.4	Open and clean dust collector pan of both air cleaner.
1.5	Apply petroleum jelly on battery terminals.
1.6	Top up air oiler if required.
<b>2.0</b>	<b>Hydraulic</b>
2.1	First time change the dredger drum gear box filter.
2.2	Visual check, clean and lubrication of piston rod, bolts, and joints of hydraulic cylinders (Shell Rimula R6LM 10W-40).
2.3	Check leakage in hydraulic circuit and do needful.
2.4	Lubricate track lifting cylinder pivots with grease.
2.5	Check all hyd. pressures for proper settings.
<b>3.0</b>	<b>Mechanical</b>
3.1	Check clearance of lifting roller disc below the rail head in lowered condition.
3.2	Lubricate rotation track assembly of swivel conveyor belt.
3.3	Check oil level of tensioning cylinder, top up if necessary.
3.4	Check oil level of screen drive, top up if necessary (Shell omala S2 G 68).
3.5	Lubricate all conveyor belt deflecting pulleys (Shell Gadus S2 V 100 2).
3.6	Lubricate lifting unit guide columns with grease (Shell Gadus S3 V 220 C2).
3.7	Lubricate screen unit guide plates with grease (Shell Gadus S2 V 100 2).
3.8	Lubricate locking device pivots with grease (Shell Gadus S3 V 220 C2).
3.9	Lubricate bearings of main conveyor with grease (Shell Gadus S3 V 220 C2).
3.10	Lubricate bearing of both side distributing conveyor chain and adjust if required.
3.11	Check the wear of the turret drum area.
3.12	Visual check of tensioning cylinder piston rod, cleaning and lubrication.
3.13	Clean excavating conveyor sliding frame.
3.14	Check the tension of excavating conveyor chain and adjust if required.
<b>4.0</b>	<b>Power Transmission And Gear Box</b>
4.1	Check the pressure gauges of dredger drum and screen drive while working.
4.2	Check the oil level of conveyor belt gear box A1 and B1.
4.3	Clean and grease the cardan shafts.
4.4	Check the tightness of both cardan shafts bolts.
4.5	Visually examine the cardan shaft safety guard.
4.6	Visual check the oil level of all axle gear boxes.
4.7	Visual check the axle gear box filter if the contamination indication is within the warning range, immediately replace the filter.
4.8	Lubricate all dirt repelling agents of axle gear box.
4.9	Visual Check oil level in dredger drum gear box, top up if necessary.
4.10	Visual check and lubricate the spherical roller bearing of the driving station of

	all conveyor belts.
<b>5.0</b>	<b>Electrical</b>
5.1	Check all sensors and limit switches for proper function.
5.2	Check brake parking lights.
5.3	Check fire alarm system.
<b>6.0</b>	<b>Pneumatic</b>
6.1	Clean water separator.
6.2	Check all pneumatic hoses for any defects and leakage.
6.3	Check all pneumatic hoses for any rubbing and proper clamping
<b>7.0</b>	<b>Under frame</b>
7.1	Visually inspect the centre pivot, pivot bolts and do needful.
7.2	Visually inspect all the welding locations.
7.3	Examine the rubber stopper/stop screw of axle gear boxes.
7.4	Inspect the axle gear box safety straps/ loops for damage/breakage/missing.
7.5	Visually examine the equalizing stay rods and pins.
7.6	Examine the vertical shock absorbers for damages.
7.7	Check the brake-rigging arrangement for any defects/deficiencies and lubricate.
7.8	Visually inspect the brake hangers, brake gear pins and cotters/split pins. Replace, if necessary.
7.9	Check CBC/Screw coupling for any damage.
7.10	Visually inspect the axle box covers.
7.11	Examine the buffer mounting bolts and attend if necessary.

**SCHEDULE III**

**(TO BE DONE AFTER EVERY 100 HOURS OF ENGINE  
RUNNING)DURATION- ONE DAY  
(TO BE DONE IN ADDITION TO SCHEDULE-I & II)**

<b>1.0</b>	<b>Engine</b>
1.1	Check engine temperature safety device.
1.2	Check lube oil pressure safety device.
1.3	Examine the mounting bolts of the both engines.
1.4	Inspect the fuel water separator for proper functioning of fuel system.
1.5	Check the throttle control linkages, clean and lubricate.
<b>2.0</b>	<b>Mechanical</b>
2.1	Check movement of sliding plate of chain trough.
2.2	Check guide rollers and bushes of cutter chain.
2.3	Check foundation bolts of brake cylinders.
2.4	Check all wear plates for any repair.
2.5	Oil the pivot bearings.
2.6	Visual check and lubricate the drag bearing of the screen unit (Shell Gadus S2 V 100 2) / equivalent #.
<b>3.0</b>	<b>Electrical</b>
3.1	Check whether the ground wires are properly connected to the machine body.
3.2	Check that the sound light alarm system for the emergency brake or auxiliary brake is working properly.
3.3	Check that all the panel boxes are in good condition and free from distortion.
<b>4.0</b>	<b>Pneumatic</b>
4.1	Check the pneumatic pressure setting of relief valves.
4.2	Check the pneumatic pressure setting of unloader valves.
4.3	Check brake lining and brake block play.
4.4	Check the mounting bolt of air compressor.
<b>5.0</b>	<b>Under frame</b>
5.1	Check and attend brake block adjuster on need basis.
5.2	Check all brake system linkage.
5.3	Check the condition of brake shoe, replace if required
5.4	Visual check the rubber elements of converter torque bearing & do needful.
<b>6.0</b>	<b>General</b>
6.1	Check the expiry of first Aid box.
# Approved by RDSO	

## SCHEDULE IV

**(TO BE DONE AFTER EVERY 200 HOURS OF ENGINE RUNNING)**  
**DURATION-TWO DAYS**  
**(TO BE DONE IN ADDITION TO SCHEDULE- I, II AND III)**

<b>1.0</b>	<b>Engine</b>
1.1	Check fuel tank breather and clean if required.
1.2	Clean the water radiator fins.
1.3	Check the water hoses.
<b>2.0</b>	<b>Hydraulic</b>
2.1	Clean the ventilation filter of the hydraulic oil tank.
2.2	Check all pressure controls for rated settings.
2.3	Clean fins of all hydraulic oil coolers.
2.4	Change oil in the oil chamber of tension cylinder (Shell Tellus S2 VX 68 )/ equivalent #.
2.5	Visual check Screen drive ventilation filter and clean if required.
<b>3.0</b>	<b>Mechanical</b>
3.1	Check the excavation chain sprocket and change if required.
3.2	Recondition/Replace the cutter bar.
3.3	Replace excavating fingers if required.
3.4	Repair ballast screens.
3.5	Check rubber bearing fitted under screen meshes and change if broken.
3.6	Replace scraper shovel and intermediate links, if required.
<b>4.0</b>	<b>Electrical</b>
4.1	Check function of all limits switches/Proximity switch and do needful.
4.2	Clean alternators and self starters.
4.3	Check the main supply cable.
4.4	Check condition of cable connections.
4.5	Check the cable of Firefighting monitoring system and do needful.
<b>5.0</b>	<b>Pneumatic</b>
5.1	Clean filter element of pneumatic system as per required.
5.2	Check tightness of foundation bolts of brake cylinders.
5.3	Check the mounting bolts of all pneumatic valves.
5.4	Check the function of auto drain valve.
5.5	Clean cooling coil.
5.6	Check air unloader for proper functioning.
<b><u>Done after 250 engine hrs. (one day for all these items) ( In addition to above )</u></b>	
<b>1.0</b>	<b>Engine</b>
1.1	Clean outer element of filter cartridge.
1.2	Replace lube oil filter.
1.3	Change engine oil (SHELL RIMULA R6 LM 10W-40).
1.4	Change diesel filter.
1.5	Clean battery poles (+/-) and terminals and lubricate with petroleum jelly.
1.6	Check Electrolyte level of all batteries, if necessary, add distilled water.
1.7	Check specific gravity of all batteries.
<b>2.0</b>	<b>Mechanical</b>
2.1	Lubricate all pivoting bearing and bolts of rail clamps housing with grease (Shell

	Gadus S2 V 100 2).
2.2	Clean and lubricate the guide ways.
2.3	Visual check and lubricate the tensioning devices of the deflection pulley of all conveyor belts.
<b><u>Done after 500 engine hrs</u></b>	
<b>1.0</b>	<b>Engine</b>
1.1	Change the filter cartridge of diesel fuel filter/water separator or, in case of decreasing engine power, check for contamination and replace, if necessary.
1.2	Replace the fuel pre filters.(when using poor quality diesel fuel: increase intervals of change)
<b>2.0</b>	<b>Hydraulic</b>
2.1	Change the filters of axle gear box clutch.
2.2	Replace the filter cartridge (2 pcs) of main gear box 1 & 2 .
2.3	Change oil of axle gear boxes (axle 1,2,3,4). Shell Tellus S2 VX 68 / equivalent #
2.4	Change oil of main gear boxes 1 & 2 (Shell Tellus S2 VX 68) / equivalent #
2.5	Change oil of screen drive (Shell Omala S2 G 68) / equivalent #.
2.6	Change oil of Tensioning cylinder (Shell Tellus S2 VX 68 )/ equivalent #.
2.7	Change return filter of dredger drum gear box.
2.8	Visual check and lubricate the lifting cylinder & chain guide of excavation chain (Shell Gadus S2 V 100 2) / equivalent #.
2.9	Visual check and lubricate the slewing arm bearing of the ballast distributing conveyor belt (Shell Gadus S2 V 100 2) / equivalent #.
2.10	Check the condition and position of the hydraulic hoses.
2.11	Check the cover plate bolts of all hydraulic cylinders.
2.12	Visual check and lubricate the hydraulic cylinder and swivel pin of swivel conveyor belt (Shell Gadus S2 V 100 2) / equivalent #.
2.13	Check oil level of swivel conveyor belt Gear box, top up if required.
2.14	Change the superfine filter cartridge.
<b>3.0</b>	<b>Underframe</b>
3.1	Lubricate each of the spherical roller bearings (a total of 8 pieces) with Grease (Shell Gadus S3 V 220 C2).
# Approved by RDSO	

**SCHEDULE-V****(TO BE DONE AFTER EVERY 1000, HOURS OF ENGINE RUNNING)****DURATION- 7 DAYS****(TO BE DONE IN ADDITION TO SCHEDULE- I, II, III AND IV)**

<b>1.0</b>	<b>Engine</b>
1.1	Clean the crank case breather element.
1.2	Overhaul the air compressor, If required.
1.3	Clean the diesel tank with lint free cloth.
1.4	Replace minor repair kit for air compressor.
1.5	Lubricate the accelerating mechanism with oil.
1.6	Check high pressure fuel pipes clamps.
1.7	Replace the outer and inner engine air cleaner element.
1.8	Replace V-Belts on condition basis.
1.9	Clean the water radiator internally & externally.
1.10	Check concentration of coolant /replace radiator coolant .
<b>2.0</b>	<b>Hydraulic</b>
2.1	Check & replace return filters (2nos.) if the pilot lamp is lightening, but at the latest after 2 years.
2.2	Change of Hydraulic Suction filters (16pcs).
2.3	Check & replace conveyor belt gearbox filter, if the pilot lamp is lightening, but at the latest after 2 years.
2.4	Check & replace filter cartridge of driving pump line filter (2pcs), if the pilot lamp is lightening, but at the latest after 2 years.
2.5	Change of Hydraulic passage through filter (2Pcs) if the pilot lamp is lightening, but at the latest after 2 years.
2.6	Check & replace filter cartridge of Control Pressure Line Filter (2pcs), if the pilot lamp is lightening, but at the latest after 2 years.
2.7	Change the hydac filter every 1000h or annually or If the gauge indication is within the red range,the filter element has to be changed.
2.8	Replace the dredger drum gear box filter.
2.9	Replace the screen drive filter (2pcs).
2.10	Test hydraulic oil for quality (viscosity) check and do needful.
2.11	Replace the oil of turn table, Tellus Oil –T 68 (Shell)/equivalent#
2.12	Clean the hydraulic tank before changing hyd. Oil if required.
2.13	Check the action of float switch in the hydraulic oil tank.
2.14	Replace the seals of all hydraulic cylinders along with gland bushes/piston.
2.15	Check the hydraulic motors and pumps for proper function and do needful.
2.16	Check the D.C. valves for leakage and do needful.
2.17	Check all pressure settings.
<b>3.0</b>	<b>Mechanical</b>
3.1	Change hood area wear plates.
3.2	Change aeration filters (4nos.) of axle gear box at every 1000h or annually .
3.3	Visual check the parking brake and lubricate with grease (Shell Gadus S2 V 100 2).
3.4	Change oil of swivel conveyor belt Gear box.
3.5	Change aeration filters of Dredger drum box at every 1000h or annually.

3.6	Change aeration filters of Hydraulic tank.
3.7	Change aeration filter of fuel tank.
3.8	Check the functioning of pressure switch of axle clutch and adjust if required.
3.9	Clean and grease the axle bearings of the bogies.
3.10	Lubricate swiveling bearings with grease. Grease RETINAX - RL2(Shell)
3.11	Clean and lubricate sliding surfaces and bolts of torque supports with oil.
3.12	Change the chute wear plates.
3.13	Change worn out screen meshes and chute plates, if required.
3.14	Check shock absorber for proper functioning and do needful.
3.15	Overhaul the complete plow.
3.16	Replace the worn out broom sticks, if required.
3.17	Change the worn out rubber pads.
3.18	Check condition of trough plates and replace if required.
3.19	Replace distributing conveyors and waste conveyor belts, if required.
3.20	Replace main conveyor and scrapper rubber.
3.21	Check condition of roller disc clamp for lifting device and do needful.
3.22	Lubricate chain trough bearings with grease. Grease RETINAX - RL2(Shell)
3.23	Check the condition of the lifting device, and do the needful.
3.24	Check rubber element of torque plate suspension and do needful.
3.25	Check grease filling of parking brake and do as required.
3.26	Check the plough unit & do needful.
<b>4.0</b>	<b>Power Transmission And Gear Box</b>
4.1	Remove bushes of axle gear box and check the condition of the piston ring groove.
4.2	Replace all conveyor belts on condition basis and overhaul the driving stations.
<b>5.0</b>	<b>Electrical</b>
5.1	Check temperature switch and sensor.
5.2	Check all solenoids and do needful.
5.3	Check both side trough transducers condition and do needful.
5.4	Check and replace defective lights, horns etc.
<b>6.0</b>	<b>Pneumatic</b>
6.1	Check condition of pneumatic hoses and replace as required.
6.2	Change aeration filters of screen drive every 1000h or annually.
6.3	The air drier has to be checked periodically.
6.4	Overhaul the air unloader.
6.5	Overhaul the water separator and air oiler.
6.6	Clean/overhaul the cooling coils.
<b>7.0</b>	<b>Under frame</b>
7.1	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.
7.2	Visual Check and buffing gear, clean and lubricate it with grease (Shell Gadus S2 V 100 2).
<b>8.0</b>	<b>General</b>
8.1	Clean complete machine.
8.2	Paint the screen area and chain trough.

**SCHEDULE VI**  
**(IOH)**  
**(TO BE DONE AFTER EVERY 2000 HOURS OF ENGINE RUNNING)**  
**DURATION-45 DAYS**  
**(TO BE DONE IN ADDITION TO SCHEDULE- I, II, III, IV AND V)**

<b>1.0</b>	<b>Engine</b>
1.1	Change the batteries on condition basis.
1.2	Overhaul self-starter on condition basis.
1.3	Overhaul alternator on condition basis.
1.4	Overhaul & calibrate the fuel injection pump & the fuel injector.
1.5	Check engine timing and do needful.
1.6	Overhaul the engine if required.
1.7	Check turbocharger compressor and turbine wheels. Check radial and end clearances & do needful as per condition.
1.8	Check the air compressor. Overhaul if necessary.
1.9	Check anti vibration mounting pads of the engine and change, if required.
1.10	Clean/Overhaul the water radiator.
1.11	Clean the diesel tank.
<b>2.0</b>	<b>Hydraulic</b>
2.1	Check the hydraulic motors & pumps for proper function and do needful.
2.2	Check the D.C. valves for leakage and do needful.
2.3	Check all pressure settings valves & do needful.
2.4	Clean the hydraulic tank.
2.5	Check all hydraulic cylinders & do needful.
2.6	Check all hydraulic coolers & do needful
<b>3.0</b>	<b>Mechanical</b>
3.1	Overhauling of screen vibration unit on need basis.
3.2	Overhauling/replacement conveyer belt/chain guide.
3.3	Change the wing plate of ballast guide.
3.4	Change all the brake shoes.
3.5	Change/repair wear plates on condition basis.
3.6	Check & repair the plough unit.
<b>4.0</b>	<b>Electrical</b>
4.1	Check temperature switch and sensor for proper function.
4.2	Check the cable of Firefighting monitoring system and do needful
4.3	Check all limit switches/Proximity switches and do needful.
4.4	Check gauges and display and do the needful.
4.5	Check all lights and do needful .
4.6	Check all cable connections and repair/replace if required
<b>5.0</b>	<b>Pneumatic</b>
5.1	Replace the filter cartridge of air dryer.
5.2	Check mounting and function of all Pneumatic control valves, repair/replace if required.
5.3	Check and adjust all pressures setting.
5.4	Check all pneumatic cylinders and do needful.



<b>6.0</b>	<b>General</b>
6.1	Thoroughly clean all panel boxes with pressurized air.
6.2	Calibrate the machine on track for all functions
6.3	Replace the missing and defective hand tools.
6.4	Inspect complete machine for any crack or weld failure and do needful.
6.5	Ultrasonic examination of axles shall be between 40,000 to 45,000 kms of running or three years, whichever is earlier.
6.6	Check the expiry of fire extinguisher.
6.7	Check the function of all assemblies after IOH.

**SCHEDULE VII (POH)**

**(TO BE DONE AFTER 8000 HOURS OF ENGINE RUNNING)**  
**DURATION-90 DAYS**  
**(TO BE DONE IN ADDITION TO SCHEDULE- I, II, III, IV, V AND VI)**

<b>1.0</b>	<b>Engine</b>
1.1	Overhaul or replace the engines.
1.2	Check the engine damper for dynamic balance.
1.3	Check crank shaft and cam shaft end play.
1.4	Overhaul the air compressor.
1.5	Change air inlet hoses.
1.6	Change all the high pressure fuel pipes, pipe clamp, flexible fuel
1.7	hoses and rubber hoses.
1.8	Overhaul turbocharger.
1.9	Check the exhaust manifold for any defect and clean the same.
1.10	Overhaul the radiator fan drive assembly.
1.11	Replace Silencer (Muffler).
1.12	Clean water radiator internally and externally & do needful.
<b>2.0</b>	<b>Hydraulic</b>
2.1	Clean the hydraulic oil tank. Paint the surface of tank with approved quality of paint and fill new oil.
2.2	Check all the stop cocks and flow control valves and change if required.
2.3	Replace all the hydraulic hoses along-with clamps as required.
2.4	Check all hydraulic cylinders, change/repair on need basis.
2.5	Check all hydraulic pumps & motors and replace on need basis.
2.6	Check all hydraulic control valves and replace on need basis.
2.7	Clean all hydraulic coolers internally & externally/replace on need basis.
<b>3.0</b>	<b>Mechanical</b>
3.1	Check the wheels for tyre defects re-profile or replace, if required.
3.2	Change the chute box and wing frame.
3.3	Check the bogie pivot for wear and attend as necessary.
3.4	Change the scraper pads and scraper rubbers of all conveyors.
3.5	Check the axle bearing and grease them. Change if required.
3.6	Overhaul the complete ascending and descending side chain trough.
3.7	Overhaul the lifting unit.
3.8	Strengthen the machine frame where cracks have developed.
3.9	Repair/replace screen frame.
3.10	Overhaul screen vibration drum and replace bearings.
3.11	Replace bearing of excavating unit.
3.12	Overhaul the cutting unit.
3.13	Overhaul the plough unit.
<b>4.0</b>	<b>Power Transmission And Gear Box</b>
4.1	Replace the shaft of gear boxes for which splices have twisted or worn out.
4.2	Overhaul the cardan shafts.
4.3	Change mounting pad of all gear boxes.
4.4	Overhaul the all gear boxes.
4.5	Replace bearing of cutting chain drive gear box if required
<b>5.0</b>	<b>Electrical</b>
5.1	Check the LED of all solenoids & replace if required.

5.2	Overhaul all the panel boxes.
5.3	Replace the defective Micro controllers.
5.4	Change/replace defective cable/wiring.
5.5	Replace defective switches and Transducers.
5.6	Provide missing thimbles.
5.7	Replace/repair all solenoids on need basis.
<b>6.0</b>	<b>Pneumatic</b>
6.1	Replace pneumatic cylinder seals or cylinders as required.
6.2	Clean/replace air tank on need basis.
6.3	Check all pneumatic valves and change if necessary.
6.4	All pneumatic pipes to be replaced.
6.5	Change the water separator and air oiler.
6.6	Replace air unloader & relief valve if required.
6.7	Change all the pressure control valves, if required.
6.8	Overhaul the brake cylinder and replace the seals if required.
6.9	Check the brake system and change the brake blocks on condition basis.
<b>7.0</b>	<b>Under frame</b>
7.1	Through repair and maintenance of bogie & center buffer coupler.
7.2	Repair and maintenance of under frame, bogie frame, primary suspension, secondary suspension, brake rigging, draw gear, buffing gear and running gear
<b>8.0</b>	<b>General</b>
8.1	Overhaul/recondition the bogies.
8.2	Check the calibration of all the indicative instruments and replace the defective ones.
8.3	Flush the complete system.
8.4	Check the function of all assemblies.
8.5	Test the machine for one week before it is put for actual working in
8.6	section on regular basis.
8.7	Overhaul the A.C. unit.
8.8	Complete machine may be painted with approved paint.
<p>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</p>	

## Annexure - I

## 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.

\*List of jacks sent to railway bd. vide I no.TM/HM/1, Vol-II dated 22.08.2019 for approval which is awaited.

**Annexure – II**

**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-80-92U, Machine Sr. No. 57088-57105 & 57165-57175).

### RAILWAYS

- |    |                           |           |
|----|---------------------------|-----------|
| 1. | Shri Prasanth kumar       | SSE/TM/NR |
| 2. | Shri Mahesh Kumar         | SSE/TM/NR |
| 3. | Shri Bhupendra            | JE/TM/NR  |
| 4. | Shri Udayveer Singh Meena | SSE/NCR   |
| 5. | Shri Ashish Negi          | SSE/NCR   |

### RDSO

- |    |                             |           |
|----|-----------------------------|-----------|
| 1. | Shri Rakesh Tiwari          | ARE/TM    |
| 2. | Shri Ved Prakash Srivastava | SSE/TM    |
| 3. | Shri D G Sharma             | SSE/Civil |

22-12-2023