2616025/2024/O/o PED/INFRA-1/RDSO

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

MAINTENANCE SCHEDULE MANUAL FOR BALLAST REGULATING MACHINE (SRIDA)

Report no.TM -247
(Revision-1)
FEB-2024

अनुसंधान अभिकल्प एवं 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 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 Regulating Machine (Srida) 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 part where as required in addition to manual depending on discretion of machine in charge. Some time machine modified/altered on the basis of experience or OEM suggestion that shall be also undertaken in the maintenance practice.

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

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(A.D.Maurya)
Director/Track Machine-III
RDSO/Lucknow-226011.

Feb-2024

EXPLANATORY NOTES

While preparing text of schedules for maintenance of Ballast Regulating Machine (Srida), 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 Regulating Machine (Srida)

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.	ScheduleIII	100 Engine hrs.	One day	-do-
4.	ScheduleIV	200 Engine hrs.	Two days	-do-
5.	ScheduleV	1000 Engine hrs.	7 days	In Satellite Depot/Zonal Workshop
6.	ScheduleVI	2000 Engine hrs.	15 days	In Zonal Workshop
7.	Schedule VII	8000/6000Engine hrs.	1st POH-45 days, 2nd POH-60days	CPOH Workshop

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SCHEDULE I (To be done Daily)	
DURATION=1 Hour	
	ENGINE (QSNT-C360)
1.	Check engine oil level & top up, if required.
2.	Check coolant level and top up if required.
3.	Check the fuel reserves for the diesel engine and do the needful.(tank capacity 1150 ltr)
4.	Check the leakage from hoses, water pump seal etc. and does the needful.
5.	Drain water from air reservoir after day's work.
6.	Check the physical condition of V-belts & do needful.
7.	Drain the fuel water separator of the engine.
8.	Check the leakage from fuel pump, injectors, fuel supply and return pipes and do needful.
9.	Check the condition of the engine smoke and do needful.
10.	Check air cleaner filter choking indicator.
11.	Clean the engine & premises.
12.	Check engine oil pressure on load after two hours.
13.	Check the water temperature of engine after two hrs.working.
14.	Check engine oil pressure at idle RPM.
15.	Check the function of charging ammeter working.
16.	Record the maximum engine temperature of the day's work.
	POWER TRANSMISSION AND GEAR BOX
1.	Check all the charge pressures.
2.	Check the oil leakage from all gear boxes and do the needful.
	PLOUGH,BROOM & CONVEYOUR UNIT
1.	Check the condition of shoulder plough for wear and do the needful.
2.	Lubricate and Check the front plough for wear and do the needful. #Open air hole cover when checking the oil level.
3.	Check locking and unlocking of Broom units.
4.	Change worn out Grader Blade. (20% maximum wear on area basis)
	HYDRAULIC
1.	Check level of Hydraulic oil in tank and top up if required.
2.	Check all the choking indicator of hydraulic suction filters.
3.	Check the high temperature indication LED.
4.	Check the leakage from hydraulic hoses and do needful.
5.	Check the charge pressure.
6.	Check the working of all gauges.
	PNEUMATIC
1.	Drain the pneumatic reservoir.

2.	Check all the Pn. Hoses.
3.	Check the pneumatic brake pressure.
4.	Check the brake application.
5.	Check pneumatic system for any air leakage.
	MECHANICAL
1.	Apply lube oil on bush bearing.
2.	Check all the machine for proper locking.
	ELECTRICAL
1.	Check the working of all lights.
2.	Check all gauges & indications for proper functions.
	UNDERFRAME
1.	**Under frame**
A.	Visually examine center pivot mounting bolts and attend if needed.
B.	Check condition of head stock/sole bar.
C.	Visually inspect center pivot cover.
D.	Visually examine and attend safety loops of bolster.
E.	Check and attend brake shoe head and key & replaceif necessary.
F.	Visually inspect brake hangers, brake gear pins andcotters/split pins and replace if necessary.
2.	**Buffing Gear**
A.	Visually examine buffer plungers for damages/drooping /stroke length.
B.	Examine buffer mounting bolts and attend if necessary.
C.	Examine visually buffer casing for cracks/damages &height.
3.	**Running Gear and Wheels**
A.	Examine visually axle box for grease oozing out,warm box if any.
B.	Visually inspect axle box covers.
4.	**GENERAL**
A.	Check for any unusual sound from wing lift unit, broomunits, gear boxes, engine & hydraulic pumps.
B.	Check the welding generator set for lub oil, fuel level &water level in radiator if applicable.
C.	It is necessary to clean the machine before starting the work.
D.	Check all spares & tools for emergency as per Annexure – I.
E.	Check all the functions of machine before block working.

	SCHEDULE II
	(TO BE DONE IN ADDITION TO SCH.I AFTER 50 HOURS OF ENGINE RUNNING)
	DURATION=2 Hours
	ENGINE (*QSNT-C360*)
1.	Clean the fuel tank breather.
2.	Clean outer air cleaner element. (Cleaned after every 250 hrs or on dirt indication).
3.	Check & clean the throttle control linkages & lubricate.
4.	Check the V-belt tension.
5.	Drain all drip cups.
6.	Check any unusual sound from engine.
7.	Check the coolant filter for any leakage.
8.	Check battery terminal and connection for tightness.
9.	Apply petroleum jelly on battery terminal.
10.	Check injector pipes for any rubbing and do needful.
11.	Clean the water separator.
	POWER TRANSMISSION AND GEAR BOX
1.	Check and fill the transfer case and the axle gearbox with the lubricating oils (SHC 75W/90 GL-5)when necessary.
2.	Check if the end cap on the axle gearbox is well sealed.
3.	Grease king pin pivots.
4.	Grease axle gear box flange cover of driving bogie.
5.	Check oil level of intermediate drive shaft.
6.	Ensure proper engaging of axle gear box physically.
7.	Check the tightness of cardon shaft bolts.
8.	Grease all dirt repelling agents (shell Alvania RL-2).
9.	Check oil level of cardan shaft power divider/power distribution gear box.
10.	Check oil level of Pump drive gear box (at 1000 rpm), and top up after stopping engine if required.
11.	Grease all brake linkages.
12.	Grease hand brake gear.
13.	Check oil level of all axle gear boxes.
	PLOUGH,BROOM & CONVEYOUR UNIT
1.	Visually check lifting cylinder and lubricate the hinges.
2.	Visually check the front plough guide and lubricate.

3.	Lubricate the motor bearing of conveyor with grease.
4.	Check and tighten shoe plate bolts of guide column.
5.	Check and tighten plough cylinder cover plate bolts.
6.	Grease hinge of plough unit up/down cylinder.
7.	Check plough unit cylinder holding bracket bolts for tightness (LHS & RHS).
8.	Check the nuts of 55 mm and 35 mm pin for tightness(LHS & RHS).
9.	Check & lubricate plough unit locking device(LHS&RHS).
10.	Adjust initial tension for the sweeper conveyor.
11.	Adjust the rolling brush of the sleeper surface sweeper and worn out brush tubes on the vertical sweeper.
12.	Adjust the safety locking device and ensure its normal working condition.
	HYDRAULIC
1.	Check whether all hyd pumps are working properly.
2.	Check whether all hyd motors are working properly.
3.	Check the connection of all pressure control, direction control and flow control valves.
	PNEUMATIC
1.	Check oil level of pneumatic lubricator & top- up if required.
	MECHANICAL
1.	Lubricate all dirt repelling agents of axle gearbox.
2.	Visually check and lubricate the cylinder pin of shoulder plough.
3.	Visually check and lubricate the arm pin of shoulder plough.
4.	Visually check and lubricate the guide of shoulder and front plough.
5.	Adjust the height of brush assembly through adjustingscrew as required.
6.	Visually check and lubricate the brush shaft bearings.
7.	Visually check and lubricate the guide columns of brushassembly.
8.	Check the foundation bolts of front plough slidingcylinder.
9.	Ensure proper engaging of axle gear box physically.
10.	Check the leakage of all gear boxes.
11.	Check oil level of all gear boxes and fill up-to the mark, if required.
12.	Grease flange covers of gear boxes.
13.	Check foundation bolts of brake cylinders.
	ELECTRICAL
1.	Clean alternator and check connections.
2.	Check function of horns.
	UNDERFRAME
1.	**Under frame**

A.	Visually examine center pivot mounting bolts and attend if needed.
B.	Check condition of head stock/sole bar.
C.	Examine trough floor, turn under and other frame members from underneath for corrosion.
D.	Visually inspect center pivot cover.
E.	Visually examine and attend safety loops of bolster.
2.	**Brake rigging & Brake System**
A.	Check and attend brake shoe head and key & replace if necessary.
B.	Visually inspect brake hangers, brake gear pins and cotters/split pins and replace if necessary.
C.	Visually examine brake beams breakages/damages.
D.	Check brake gear and adjust so that the piston strokeis within the limit.
E.	Examine and attend brake levers.
F.	Visually inspect for damage on brake pipe, replace if required.
G.	Check and attend brake beam safety wire rope / safety straps.
H.	Visually check for hand brake chain rope, sprocket &floating lever and attend if needed.
I.	Check of MU washer and attend if needed.
J.	Check for cutoff angle cock and leakage, attend if needed.
K.	Check and attend brake block adjuster.
L.	Bogie Frame & Suspension.
M.	Visually examine the condition of bogie frame andwelded locations.
N.	Examine bolster safety straps/loops for damage / broken suspension system /missing.
O.	Visually examine the condition of suspension system(Coil spring) for any damage/loose/breakage.
3.	**Draw Gear**
A.	Examine draw hook, draw bars, rubber pads fordamages.
B.	Examine visually draft key locking pins.
C.	Check and replace damage/missing split pins.
D.	Check condition of the CBC coupling and its components and replace as required.
4.	**Buffing Gear**
A.	Visually examine buffer plungers for damages/drooping /stroke length.
B.	Examine buffer mounting bolts and attend if necessary.
C.	Examine visually buffer casing for cracks/damages &height.
	Running Gear and Wheels
A.	Examine visually axle box for grease oozing out,warm box if any.
B.	Visually inspect axle box covers.
C.	Inspect wheel tread for shattered rim, spread rim,shelled tread, thermal cracks, heat checks.

	SCHEDULE III
	(TO BE DONE IN ADDITION TO SCH.II AFTER 100 HOURS OF ENGINE RUNNING)
	DURATION=1 Day
	ENGINE (*QSNT-C360*)
1.	Check the electrolyte level of the battery.
2.	Check all safety circuit of engine.
3.	Check the condition of engine hoses.
4.	Check the leakage from head gasket.
5.	Grease radiator fan drive.
6.	Examine the mounting bolts of engine.
7.	Replace the engine oil.(15W-40 API-CH4)(first change after 50 hrs)
8.	Replace the fuel filter. (first change after 50 hrs)
9.	Replace the lube oil filter. (first change after 50 hrs)
10.	Replace the coolant filter.(WF-2072)
11.	Check the concentration (PH-value) of radiator coolant/water.
12.	Clean crank case air breather.
13.	Check valve gap with feeler gauge (0.2~0.3mm), adjust if required.
14.	Check heat sensors provided in engine compartment.
	POWER TRANSMISSION and GEAR BOX
1.	Greasing the all cardon shafts.
2.	Inspect distributor gear box cover through inspection window.
	HYDRAULIC
1.	Change the suction filter (Part no.HY-S501.160.P10).
2.	Change filter of axial piston pump.
3.	Change oil of distribution gear box.
4.	Change return line filter element.
5.	Change oil of intermediate drive shaft.
6.	Change oil of axle gear boxes and pump drive gear box.
	PNEUMATIC
1.	Check brake lining and brake block play.
	MECHANICAL
1.	Check universal joints for play and replace, if required.

2.	Grease all brake linkages.
3.	Lubricate all the movable parts such as, cylinder fastenings, guide bushes, spindles, slide faces etc. with oil/grease.
4.	Check all hydraulic and pneumatic cylinders universal joints visually and lubricate with oil.
5.	Check the brake linings and brake block play.
6.	Lubricate axle engage/disengage cylinder guide rod.
7.	Lubricate the brush assembly guide column with oil.
8.	Lubricate the sliding surface of front plough guide.
9.	Check the functioning of emergency backup system.
10.	Grease bogie turning pin.
11.	Check the condition of brake shoes, replace if required.
12.	Grease all cardon shafts.
13.	Change the oil of pump drive gear box.
14.	Change the oil of axle gearbox.
15.	Replace the suction filter (Part no.HY-S501.460.150).
16.	Replace the return filter.
17.	Change trabold filter.
	ELECTRICAL
1.	Check all lights and do needful.
	UNDERFRAME
1.	**Under frame**
A.	Visually examine center pivot mounting bolts and attend if needed.
B.	Check condition of head stock/sole bar.
C.	Visually inspect center pivot cover.
D.	Visually examine and attend safety loops of bolster.
2.	**Brake rigging & Brake System**
A.	Check and attend brake shoe head and key & replace if necessary.
B.	Visually inspect brake hangers, brake gear pins and cotters/split pins and replace if necessary.
C.	Visually examine brake beams breakages/damages.
D.	Check brake gear and adjust so that the piston strokeis within the limit.
E.	Visually inspect damaged/missing brake gear bushes,lever hanger pins replace if necessary.
F.	Examine and attend brake levers.
G.	Check and attend brake beam safety wire rope / safety straps.
H.	Visually check for hand brake chain rope, sprocket &floating lever and attend if needed.
I.	Check of MU washer and attend if needed.

J.	Check for cutoff angle cock and leakage, attend if needed.
3.	**Bogie Frame & Suspension**
A.	Visually examine the condition of bogie frame and welded locations.
B.	Examine bolster safety straps/loops for damage / broken suspension system /missing.
C.	Examine condition of the wearing plates.
D.	Examine corrosion of sole bar and other under frame members with torchlight or inspection lamp.
E.	Visually examine the cabin and axle support cylindersfor leakages/damages.
4.	**Draw Gear**
A.	Examine draw hook, draw bars, rubber pads fordamages.
B.	Examine visually draft key locking pins.
C.	Check and replace damage/missing split pins.
D.	Check condition of the CBC coupling and itscomponents and replace as required.
E.	Check condition of draw beam and locating pins on it.
F.	Ensure that wear on screw coupling shackle pins, trunion pins, shackle/link holes and draw hook holes should not exceed 3 mm.
5.	**Buffing Gear**
A.	Visually examine buffer plungers for damages/drooping /stroke length.
B.	Examine buffer mounting bolts and attend if necessary.
C.	Ensure the length is within 584-635 mm.
D.	Inspect buffer plunger false plate for wear and profile.
E.	Examine visually buffer casing for cracks/damages & height.
6.	**Running Gear and Wheels**
A.	Examine visually axle box for grease oozing out,warm box if any.
B.	Visually inspect axle box covers.
C.	Inspect wheel tread for shattered rim, spread rim,shelled tread, thermal cracks, heat checks.
D.	Visually examine wheel tyre profile and thickness of tyre and check with tyre profile gauge if they appear to be near condemning limit.
E.	Check with wheel distance gauge for loose or tight wheels.

	SCHEDULE IV
	(TO BE DONE IN ADDITION TO SCH.III AFTER 200,400 and 800 HOURS OF ENGINE RUNNING)
	DURATION=2 DAYS
	PLOUGH,BROOM & CONVEYOUR UNIT
1.	Visually check lifting cylinder and lubricate the hinges.
2.	Visually check the front plough guide and lubricate.
	HYDRAULIC
1.	Check all pressure controls for rated settings.
	PNEUMATIC
1.	Check air unloader for proper functioning.
	MECHANICAL
1.	Check the brake linkage and lubricate.
2.	Check the V-belt of air conditioner.
3.	Inspect all cardon shafts for any crack.
4.	Grease torque arm pivot.
5.	Grease hand brake gear.
6.	Check shock absorbers and do needful.
	UNDERFRAME
1.	**Under frame**
A.	Visually examine center pivot mounting bolts and attend if needed.
B.	Check condition of head stock/sole bar.
C.	Visually inspect center pivot cover.
D.	Visually examine and attend safety loops of bolster.
2.	**Brake rigging & Brake System**
A.	Check and attend brake shoe head and key & replace if necessary.
B.	Visually inspect brake hangers, brake gear pins andcotters/split pins and replace if necessary.
C.	Visually examine brake beams breakages/damages.
D.	Check brake gear and adjust so that the piston strokeis within the limit.
E.	Examine and attend brake levers.
F.	Visually inspect for damage on brake pipe, replace if required.

G.	Check and attend brake beam safety wire rope / safety straps.
H.	Visually check for hand brake chain rope, sprocket &floating lever and attend if needed.
I.	Check of MU washer and attend if needed.
J.	Check for cutoff angle cock and leakage, attend ifneeded.
K.	Visually examine the condition of bogie frame andwelded locations.
L.	Examine bolster safety straps/loops for damage / broken suspension system /missing.
3.	**Draw Gear**
A.	Examine draw hook, draw bars, rubber pads for damages.
B.	Examine visually draft key locking pins.
C.	Check and replace damage/missing split pins.
D.	Check condition of the CBC coupling and itscomponents and replace as required.
E.	Check condition of draw beam and locating pins on it.
4.	**Buffing Gear**
A.	Visually examine buffer plungers for damages/drooping /stroke length.
B.	Examine buffer mounting bolts and attend if necessary.
C.	Examine visually buffer casing for cracks/damages &height.
5.	**Running Gear and Wheels**
A.	Examine visually axle box for grease oozing out,warm box if any.
B.	Visually inspect axle box covers.
C.	Inspect wheel tread for shattered rim, spread rim,shelled tread, thermal cracks, heat checks.
D.	Visually examine wheel tyre profile and thickness of and check with tyre profile gauge if they appear to benear condemning limit.
	GENERAL
E.	Check the expiry of first Aid box, refill, if required.#

Note- i) # to be done after 250 hours.

	SCHEDULE V
	(TO BE DONE IN ADDITION TO SCH.IV AFTER 1000,3000 and 5000 HOURS OF ENGINE RUNNING)
	DURATION=7 DAYS
	ENGINE (*QSNT-C360*)
1.	Clean the diesel tank.
2.	Overhaul the self-starter on condition basis.
3.	Overhaul the alternator on condition basis.
4.	Calibrate the fuel pump.
5.	Calibrate the fuel injector.
6.	Clean the radiator externally.
7.	Change all engine hoses on condition basis.
8.	Replace the battery on condition basis.
9.	Check the RPM of engine radiator fan and do the needful.
10.	Change both the air cleaner.
11.	Clean cooling coil.
	PLOUGH,BROOM & CONVEYOUR UNIT
1.	Overhaul wear plates and strips.
2.	Reconditioning/ replace hinges of plough unit as required.
3.	Replace worn out sweeping elements.
4.	Overhaul/replace Grader Blade, if required.
	HYDRAULIC
1.	Send sample of hydraulic oil for physical & chemical test.
2.	Clean the hydraulic reservoir and fill laboratory tested /new oil if required.
3.	Clean the hydraulic tank.
4.	Clean the hydraulic oil cooler.
5.	Check all hydraulic pressures and adjust if needed.
6.	Check the leakage from hydraulic valves and do needful.
7.	Replace the seal kit of all hydraulic cylinders on condition basis.
8.	Recondition/ replace the yoke of all hydraulic cylinders, if required.
	PNEUMATIC
1.	Replace/Overhaul the pneumatic cylinder on condition basis.

2.	Clean the air reservoir.
3.	Overhaul the air unloader.
	MECHANICAL
1.	Check grease filling in hand brake gear.
2.	Lubricate the axle bearing with grease.
3.	Do the strengthening of the machine by welding, where crack detected.
4.	Tighten all the following screws of working mode drive.
5.	Tighten all the following screws of power divider.
6.	Tighten all the following screws of suspensions.
7.	Tighten all the following screws of gear boxes.
8.	Check bearings of all axles and grease them.
9.	Grease draw and Buffing gear at both ends.
10.	Check grease filling of Parking brake and do as required.
	ELECTRICAL
1.	Replace defective switches and potentiometers.
	UNDERFRAME
1.	**Under frame**
A.	Check condition of head stock/sole bar.
B.	Examine trough floor, turn under and other frame members from underneath for corrosion.
C.	Visually inspect center pivot cover.
D.	Visually examine and attend safety loops of bolster.
E.	Thoroughly examine the centre pivot mounting bolts and replace, if needed.
2.	**Brake rigging & Brake System**
A.	Check and attend brake shoe head and key & replaceif necessary.
B.	Visually inspect brake hangers, brake gear pins andcotters/split pins and replace if necessary.
C.	Visually examine brake beams breakages/damages.
D.	Check brake gear and adjust so that the piston strokeis within the limit.
E.	Visually inspect damaged/missing brake gear bushes,lever hanger pins replace if necessary.
F.	Examine and attend brake levers.
G.	Visually inspect for damage on brake pipe, replace if required.
H.	Check and attend brake beam safety wire rope / safety straps.
I.	Visually check for hand brake chain rope, sprocket &floating lever and attend if needed.
J.	Check of MU washer and attend if needed.
K.	Check for cutoff angle cock and leakage, attend ifneeded.
L.	Check and attend brake block adjuster.

3.	**Bogie Frame & Suspension**
A.	Visually examine the condition of bogie frame and welded locations.
B.	Examine bolster safety straps/loops for damage / broken suspension system /missing.
C.	Visually examine the condition of suspension system(Coil spring) for any damage/loose/breakage.
D.	Examine condition of the wearing plates.
E.	Examine corrosion of sole bar and other under frame members with torchlight or inspection lamp.
F.	Visually examine the cabin and axle support cylindersfor leakages/damages.
4.	**Draw Gear**
A.	Examine draw hook, draw bars, rubber pads fordamages.
B.	Examine visually draft key locking pins.
C.	Check and replace damage/missing split pins.
D.	Check condition of the CBC coupling and its components and replace as required.
E.	Check condition of draw beam and locating pins on it.
F.	Ensure that wear on screw coupling shackle pins, trunion pins, shackle/link holes and draw hook holes should not exceed 3 mm.
5.	**Buffing Gear**
A.	Visually examine buffer plungers for damages/drooping /stroke length.
B.	Examine buffer mounting bolts and attend if necessary.
C.	Ensure the length is within 584-635 mm.
D.	Inspect buffer plunger false plate for wear and profile.
E.	Examine visually buffer casing for cracks/damages &height.
6.	**Running Gear and Wheels**
A.	Examine visually axle box for grease oozing out,warm box if any.
B.	Visually inspect axle box covers.
C.	Inspect wheel tread for shattered rim, spread rim,shelled tread, thermal cracks, heat checks.
D.	Visually examine wheel tyre profile and thickness of tyre and check with tyre profile gauge if they appear to benear condemning limit.
E.	Check with wheel distance gauge for loose or tightwheels.
F.	Fill all axles bearing housing with grease.
G.	Visual and Physical inspection of wheel shall be done at a frequency of once in a year or after every 1000 engine running hours whichever is earlier.
	GENERAL
1.	Do the patch work painting.

SCHEDULE VI-2000 HOURS	
(TO BE DONE IN ADDITION TO SCH.V AFTER 2000,4000 and 6000 HOURS OF ENGINE RUNNING)	
	Duration-15 Days
	ENGINE (*QSNT-C360*)
1.	Check bearing and shaft of radiator fan drive and do needful.
2.	Overhaul the compressor on condition basis.
3.	Overhaul the radiator.
4.	Replace breather valve core for the crankcase as required.
5.	Calibrate the injectors.
6.	Rewire the engine wiring with temperature proof wires on condition basis.
	PLOUGH,BROOM & CONVEYOUR UNIT
1.	Overhaul broom reel bearing and bushes.
2.	Change worn out rubber sheet provided at broom.
	HYDRAULIC
1.	Replace the seal kit of all hydraulic cylinders on condition basis.
2.	Check the hydraulic motors for proper function and do needful.
3.	Provide the missing clamps.
4.	Replace damaged hydraulic hoses.
5.	Check the D.C. valves for leakage and do needful.
	PNEUMATIC
1.	Replace old Pn. Hoses along with clamps on condition basis.
2.	Overhaul water separator and air oiler.
3.	Check all pneumatic valves and change, if required.
4.	Test air tank for rated pressure.
5.	Change pneumatic pipes leading to brake cylinders.
6.	Change the seals of brake cylinders.
	MECHANICAL
1.	Check all gearboxes and overhaul, if required.
2.	Replace the missing and defective hand tools.

	ELECTRICAL
1.	Replace defective indicative instruments.
	UNDERFRAME
1.	**Under frame**
A.	Check condition of head stock/sole bar.
B.	Examine trough floor, turn under and other frame members from underneath for corrosion.
C.	Visually inspect center pivot cover.
D.	Visually examine and attend safety loops of bolster.
E.	Thoroughly examine the centre pivot mounting bolts and replace, if needed.
2.	**Brake rigging & Brake System**
A.	Check and attend brake shoe head and key & replaceif necessary.
B.	Visually inspect brake hangers, brake gear pins andcotters/split pins and replace if necessary.
C.	Visually examine brake beams breakages/damages.
D.	Check brake gear and adjust so that the piston strokeis within the limit.
E.	Visually inspect damaged/missing brake gear bushes,lever hanger pins replace if necessary.
F.	Examine and attend brake levers.
G.	Visually inspect for damage on brake pipe, replace if required.
H.	Check and attend brake beam safety wire rope / safety straps.
I.	Visually check for hand brake chain rope, sprocket & floating lever and attend if needed.
J.	Check of MU washer and attend if needed.
K.	Check for cutoff angle cock and leakage, attend ifneeded.
L.	Check and attend brake block adjuster.
M.	Check/Replace all types Torque arm plates, pins &bushes.
N.	Check/Replace all Maggie flex washer, Maggie/Rubbersprings/ Damper rubber.
O.	Replace all brake reversal springs.
P.	Repair/Replace all brake drum seals, cylinders & brakelinkage rods.
3.	**Bogie Frame & Suspension**
A.	Visually examine the condition of bogie frame andwelded locations.
B.	Examine bolster safety straps/loops for damage / broken suspension system /missing.
C.	Visually examine the condition of suspension system(Coil spring) for any damage/loose/breakage.
D.	Examine condition of the wearing plates.
E.	Examine corrosion of sole bar and other under framemembers with torchlight or inspection lamp.
F.	Visually examine the cabin and axle support cylindersfor leakages/damages.
4.	**Draw Gear**
A.	Examine draw hook, draw bars, rubber pads fordamages.

B.	Examine visually draft key locking pins.
C.	Check and replace damage/missing split pins.
D.	Check condition of the CBC coupling and its components and replace as required
E.	Check condition of draw beam and locating pins on it.
F.	Ensure that wear on screw coupling shackle pins, trunion pins, shackle/link holes and draw hook holes should not exceed 3 mm.
G.	Remove the scale, rust, work hardened layers and surface cracks if any, by light grinding/filing.
H.	Use dye-penetrant test for checking surface cracks incase of doubts.
I.	Inspect the draw hook for deformations & cracks. The neck, its pin hole, and the slot are vulnerable locations.
5.	**Buffing Gear**
A.	Visually examine buffer plungers for damages/drooping /stroke length.
B.	Examine buffer mounting bolts and attend if necessary.
C.	Ensure the length is within 584-635 mm.
D.	Inspect buffer plunger false plate for wear and profile.
E.	Check the draw bar for dimensional distortions and damaged threads.
F.	Check the castle nuts for damaged threads, worn nutfaces visually. Replace castle nuts if needed.
G.	Test all draw bars by magna-glow equipment forsurface cracks.
H.	Load test draw bar (Stc. 60.61) at 39.5 t and those of(IS 5517 Gr. 35Mn6Mo3) at 60t. There should not beany permanent deformations.
I.	Examine visually buffer casing for cracks/damages &height.
6.	**Running Gear and Wheels**
A.	Examine visually axle box for grease oozing out,warm box if any.
B.	Visually inspect axle box covers.
C.	Inspect wheel tread for shattered rim, spread rim,shelled tread, thermal cracks, heat checks.
D.	Visually examine wheel tyre profile and thickness of tyre and check with tyre profile gauge if they appear to benear condemning limit.
E.	Check with wheel distance gauge for loose or tight wheels.
F.	Repair/replace all wheels, axles bearing housingsand bearings.
G.	Fill all axle bearing housing with grease.
H.	Repair/replace all gear boxes, seals & driving shaft assemblies.
I.	Ultrasonic testing of axles of machine shall be done between 40,000 to 45,000 kms of running or three years whichever is earlier.
	GENERAL
A.	Change all clamps for rubber elements if found defective.
B.	Repair/ replace missing and defective hand tools.

C.	Check function of all assemblies after IOH.
D.	Thoroughly clean all panel boxes.
E.	Test the machine for one week near the workshop,Before it is put for work in regular section.

SCHEDULE VII-6000 HOURS (1ST POH-45 Days,2nd POH-60 Days)	
(TO BE DONE IN ADDITION TO SCH.VI AFTER 8000,14000 then 4000 HOURS OF ENGINE RUNNING)	
Duration:1ST POH-45 Days,2 nd POH-60 Days	
	ENGINE (*QSNT-C360*)
1.	Overhaul/Replace the engine on condition basis.
2.	Overhaul the air compressor.
3.	Overhaul the self-starter and alternator.
4.	Change anti-vibration mounting pads of the engine.
5.	Clean diesel tank internally.
6.	Change all the high-pressure fuel pipes, pipe clamp,flexible fuel hoses and rubber hoses.
7.	Overhaul the turbo charger.
8.	Change the shut down valve on condition basis.
9.	Change air inlet hoses.
10.	Overhaul the radiator fan drive assembly.
11.	Check engine damper for any damage.
12.	Replace cooling coil.
	PLOUGH,BROOM & CONVEYOUR UNIT
1.	Change worn out sweeping element.
2.	Change bearing of the broom unit.
3.	Replace wear plates and strips.
4.	Open air hole cover when checking the oil level.
	HYDRAULIC
1.	Flush complete hydraulic system.
2.	Replace all the hydraulic hoses along with fittings.
3.	Overhaul all hydraulic cylinders. Change, if required.
4.	Clean hydraulic tank, inside surface is to be painted with approved type of paints.
5.	Fill new oil after replacing return line and suction filters.

6.	Clean Hydraulic oil cooler. If it is blocked more than 20% during service or badly Leaking, then replace it.
7.	Check all the stopcocks and flow control valves and change, if required.
8.	Change all the direct acting and pilot operated D.C. valves.
9.	Overhaul all pressure controls and replace their kits, if required.
10.	Replace all Hydraulic pumps and motors on need basis.
	PNEUMATIC
1.	Change Granulate cartridges after 2 years.
2.	Replace air unloader.
	MECHANICAL
1.	Change the seal of brake cylinder.
2.	Change all the brake shoes.
3.	Replace the missing and defective hand tools.
4.	Check the axle bearings and grease them.
5.	Test the machine working for one week near POH Workshop, before it is put for actual working in the section on regular basis.
6.	Strengthen machine frame where cracks have developed.
7.	Overhaul all the gear boxes except ZF gear box.
8.	Replace the shaft coupling and holding nuts & bolts.
9.	Overhaul the driving and idle bogies and replace the defective parts.
10.	Complete machine may be painted with approved paint.
11.	Check the bogie coil springs and replace, if broken.
	ELECTRICAL
1.	Repair or replace the defective PCBs.
2.	Get insulation test of main cables and replace the defective ones.
3.	Overhaul the panel boxes.
4.	Defective switches and indicative lights may be replaced.
5.	Check the LED of all the solenoids.
6.	Check the calibration of digital potentiometers and replace the defective ones.

7.	Replace the missing or defective lights.
8.	Change sensors, if required.
	UNDERFRAME
1.	**Under frame**
A.	Check condition of head stock/sole bar.
B.	Examine trough floor, turn under and other frame members from underneath for corrosion.
C.	Visually inspect center pivot cover.
D.	Visually examine and attend safety loops of bolster.
E.	Thoroughly examine the centre pivot mounting bolts and replace, if needed.
2.	**Brake rigging & Brake System**
A.	Check and attend brake shoe head and key & replace if necessary.
B.	Visually inspect brake hangers, brake gear pins andcotters/split pins and replace if necessary.
C.	Visually examine brake beams breakages/damages.
D.	Check brake gear and adjust so that the piston strokeis within the limit.
E.	Visually inspect damaged/missing brake gear bushes,lever hanger pins replace if necessary.
F.	Examine and attend brake levers.
G.	Visually inspect for damage on brake pipe, replace if required.
H.	Check and attend brake beam safety wire rope / safety straps.
I.	Visually check for hand brake chain rope, sprocket &floating lever and attend if needed.
J.	Check of MU washer and attend if needed.
K.	Check for cutoff angle cock and leakage, attend if needed.
L.	Check and attend brake block adjuster.
M.	Check/Replace all types Torque arm plates, pins &bushes.
N.	Check/Replace all Maggie flex washer, Maggie/Rubber springs/ Damper rubber.
O.	Replace all brake reversal springs.
P.	Repair/Replace all brake drum seals, cylinders & brake linkage rods.
3.	**Bogie Frame & Suspension**
A.	Visually examine the condition of bogie frame and welded locations.

B.	Examine bolster safety straps/loops for damage / bro-ken suspension system /missing
C.	Visually examine the condition of suspension system(Coil spring) for any damage/loose/breakage.
D.	Examine condition of the wearing plates.
E.	Examine corrosion of sole bar and other under frame members with torchlight or inspection lamp.
F.	Visually examine the cabin and axle support cylindersfor leakages/damages.
4.	**Draw Gear**
A.	Examine draw hook, draw bars, rubber pads for damages.
B.	Examine visually draft key locking pins.
C.	Check and replace damage/missing split pins.
D.	Check condition of the CBC coupling and its component and replace as required.
E.	Check condition of draw beam and locating pins on it.
F.	Ensure that wear on screw coupling shackle pins, trunion pins, shackle/link holes and draw hook holes should not exceed 3 mm.
G.	Remove the scale, rust, work hardened layers and surface cracks if any, by light grinding/filing.
H.	Use dye-penetrant test for checking surface cracks incase of doubts.
I.	Inspect the draw hook for deformations & cracks. The neck, its pin hole, and the slot are vulnerable locations.
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C.	Ensure the length is within 584-635 mm.
D.	Inspect buffer plunger false plate for wear and profile.
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B.	Visually inspect axle box covers.
C.	Inspect wheel tread for shattered rim, spread rim,shelled tread, thermal cracks, heat checks.
D.	Visually examine wheel tyre profile and thickness of tyre and check with tyre profile gauge if they appear to be near condemning limit.
E.	Check with wheel distance gauge for loose or tight wheels.
F.	Repair/replace all wheels, axles bearing housings and bearings.
G.	Fill all axle bearing housing with grease.
H.	Repair/replace all gear boxes, seals & driving shaft assemblies.
	GENERAL
A.	Check calibration of all the indicative instruments.
B.	Strengthen the machine frame, where cracks havedeveloped on condition basis.
C.	Replace the missing and defective hand tools.
D.	Check the function of all assemblies.
E.	Check the expiry of first Aid box.
F.	Overhaul the A.C. unit.
G.	Examine the fire extinguisher for expiry date & replace if required.

Annexure – I

List of Safety Equipments

S.No.	Description	Quantity
1.	10 Detonators in a tin case	1 box
2.	H.S. flag red	2 nos.
3.	H.S. flag green	1 nos.
4.	H.S. Tri colour lamps/LED Torch	2 nos.
5.	Two Chains with Padlocks	1 set
6.	Clamp with Padlock	2 nos.
7.	20t* jack with traverse	2 no.
8.	Crow bars	4nos.
9.	Wooden blocks off sizes	4nos.
10.	Rail thermometer (dial type)	1 no.
11.	Banner flag	2 nos.
12.	Walki talki with frequency of SM, Guard and Loco Pilots	2 nos.
13.	First Aid Box	1 no
14.	Skids	2 nos.
15.	Working time table of section where machine working	1 copy
16.	G&SR book with up to date amendment slips	1 copy
17.	4 cell flasher light/ LED lamp cum flasher light (rechargeable).	1 no.
18.	LED Petromax	1 no.
19.	Safety helmets	For each Machine staff
20.	Protective clothing, safety shoes and safety gloves	For each Machine staff
21.	Track Machine Manual	1 no.
22.	Accident Manual	1 no.
23.	Fire extinguisher	1 no.
24.	Hooter (Manual/ Remote)	2 nos.
25.	Tail Lamp	1 no.
26.	Hydraulic Hand Pump	1 no.
27.	Emergency pneumatic/Hydraulic hose of sizes suiting to different machines(complete with endfittings)	1 no.

Annexure – II

GENERAL SAFETY NOTES

1. The machine has to be operated according to existing Indian Railways rules andregulations.
2. The safety of all machine staffs is most important in the operation and maintenance of themachine.
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 inaccordance with Railways regulations.
8. Wherever there is an opportunity while waiting to go out for a job, do some of the smallermaintenance 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. 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 Regulating Machine (Srida) (Revision-1).

RAILWAYS

RDSO

1. **Shri Rakesh Tiwari ARE/TM**
2. **Shri A.K.Srivastava SSE/TM**
3. **Shri Vivek Tewari JRE/TM**