



**GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS**

**MAINTENANCE SCHEDULE MANUAL  
FOR  
DYNAMIC TRACK STABILISER  
(BHEL )**



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**RESEARCH DESIGNS AND 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, CPOHs 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 Dynamic Track Stabilizer (DTS - BHEL) has been prepared on the basis of Maintenance instruction given by OEM and suggestions received from North Central Railway. The suggestion and feedback from field has been taken and incorporated in this maintenance schedules. Suggestions / instructions given by OEM from time to time are to be also followed in addition to above instruction in 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.

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## E XPLANATORY NOTES

While preparing the text of Maintenance Schedule Manual of Dynamic Track Stabilizer (DTS VKL 404 IN) 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.

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## Maintenance Schedule For DGS (BHEL)

S.No.	Item	SCH.I Daily	SCH.II 50 Hrs	SCH.III 100 Hrs	SCH.IV 200 Hrs	SCH.V 1000 Hrs	SCH.VI 2000 Hrs	SCH.VII 6000 Hrs
<b>I. ENGINE NTA 855 L</b>								
1.	Check coolant level of radiator and top up as required.	√	√	X	X	X	X	X
2.	Check level of engine oil & top up, as required.	√	√	X	X	X	X	X
3.	Check the leakage from fuel pump, injectors, fuel supply and return pipes and do needful.	√	√	X	X	X	X	X
4.	Check the leakage from hoses, water pump seal etc. and do the needful.	√	√	X	X	X	X	X
5.	Check air cleaner filter choking indicator.	√	√	X	X	X	X	X
6.	Check engine oil pressure on load after two hours working.	√	√	X	X	X	X	X
7.	Record the maximum engine temperature of the day's work.	√	√	X	X	X	X	X
8.	Drain Water Separator before starting the engine.	√	√	X	X	X	X	X
9.	Check charging ammeter of batteries (it should be +ve)	√	√	X	X	X	X	X
10.	Clean the engine & premises.	√	√	X	X	X	X	X
11.	Drain water from air receiver after day's work.	√	√	X	X	X	X	X
12.	Check the physical condition of V belt and do the Needful.	√	√	X	X	X	X	X
13.	Open and clean dust collector/pan,	√	√	X	X	X	X	X
14.	Grease radiator fan drive.	X	√	√	√	√	√	√
15.	Check the tension of V belt and correct if required.	X	√	√	√	√	√	√
16.	Check electrolyte level of batteries ,top up if required.	X	√	√	√	√	√	√
17.	Check battery terminal and connection for tightness.	X	√	√	√	√	√	√
18.	Apply petroleum jelly on battery terminal.	X	√	√	√	√	√	√
19.	Clean the water separator.	X	√	√	√	√	√	√
20.	Top up air oiler if required.	X	√	√	√	√	√	√

S.No.	Item	SCH.I Daily	SCH.II 50 Hrs	SCH.III 100 Hrs	SCH.IV 200 Hrs	SCH.V 1000 Hrs	SCH.VI 2000 Hrs	SCH.VII 6000 Hrs
21.	Check water temperature safety device.	X	X	√	√	√	√	√
22.	Check lube oil pressure safety device.	X	X	√	√	√	√	√
23.	Inspect the water separator for proper functioning .	X	X	√	√	√	√	√
24.	Check the throttle control linkages.	X	X	√	√	√	√	√
25.	Examine the mounting bolts of engine.	X	X	√	√	√	√	√
26.	Clean outer air cleaner element.( Cleaned after every 250 hrs or on dirt indication)	X	X	√	√	√	√	√
27.	Change Engine oil.	X	X	X	√*	√*	√*	√*
28.	Change lube oil filter element.	X	X	X	√**	√**	√**	√**
29.	Change fuel filter element	X	X	X	√**	√**	√**	√**
30.	Lubricate all the engine pulleys with grease.	X	X	X	√**	√**	√**	√**
31.	Replace the super lube oil by- pass filter element .	X	X	X	√**	√**	√**	√**
32.	Clean crank case breather.	X	X	X	√**	√**	√**	√**
33.	Check for hub drive pulley and water pump.	X	X	X	√**	√**	√**	√**
34.	Check fuel tank breather and clean if required.	X	X	X	√**	√**	√**	√**
35.	Check/add Coolant additive concentrate	X	X	X	√**	√**	√**	√**
36.	Check specific gravity of battery electrolyte if applicable.	X	X	X	√	√	√	√
37.	Change worn out water hoses.	X	X	X	X	√	√	√
38.	Check coolant for PH value (8.5-10.0).	X	X	X	X	√	√	√
39.	Replace the rocker cover gaskets.	X	X	X	X	√	√	√
40.	Clean the engine radiator externally.	X	X	X	X	√	√	√
41.	Replace the outer and inner engine air cleaner element.	X	X	X	X	√	√	√
42.	Check the condition and tightness of V-belt for radiator fan.	X	X	X	X	√	√	√
43.	Clean the diesel tank with lint free cloth.	X	X	X	X	√	√	√
44.	Check the water pump idler and fan hub idler pulley	X	X	X	X	√	√	√
*To be done on every 300 Engine Hours								
** To be done on every 500 Engine Hours								

S.No.	Item	SCH.I Daily	SCH.II 50 Hrs	SCH.III 100 Hrs	SCH.IV 200 Hrs	SCH.V 1000 Hrs	SCH.VI 2000 Hrs	SCH.VII 6000 Hrs
45.	Clean the cooling coil.	X	X	X	X	√	√	X
46.	Overhaul air compressor, if applicable.	X	X	X	X	X	√	√
47.	Check the RPM of engine radiator fan and do the needful.(It should not be less than 1600)	X	X	X	X	√	√	√
48.	Check Engine timing.	X	X	X	X	√	√	√
49.	Check tappet clearance and adjust if required.	X	X	X	X	X	√	√
50.	Replace the batteries as applicable (at least after 2 years)..	X	X	X	X	X	√	√
51.	Overhaul self starter.	X	X	X	X	X	√	√
52.	Overhaul alternator I.	X	X	X	X	X	√	√
53.	Overhaul alternator II.	X	X	X	X	X	√	√
54.	Clean the engine radiator.	X	X	X	X	X	√	√
55.	Overhaul the engine, if there is lack of compression on low lube oil pressure otherwise de- carbonize the engine.	X	X	X	X	X	√	√
56.	Overhaul water pump.	X	X	X	X	X	√	√
57.	Check the bearing and shaft of radiator fan drive. If found O.K. then lubricate it with grease.	X	X	X	X	X	√	√
58.	Overhaul the water separator and air oiler.	X	X	X	X	X	√	√
59.	Overhaul the air unloader.	X	X	X	X	X	√	√
60.	Check turbocharger compressor and turbine wheels. Check radial and end clearances & do needful if applicable	X	X	X	X	X	√	√
61.	Check crank shaft end clearance & do needful.	X	X	X	X	X	√	√
62.	Check the vibration damper for dynamic balance & do needful.	X	X	X	X	X	√	√
63.	Replace fuel pump screen filter.	X	X	X	X	X	√	√
64.	Overhaul the injectors.	X	X	X	X	X	X	√
65.	Overhaul the fuel injection pump / PT pump	X	X	X	X	X	X	√
66.	Overhaul or replace the engine.	X	X	X	X	X	X	√
67.	Overhaul the radiator fan drive assembly.	X	X	X	X	X	X	√
68.	Replace the engine mounting pads.	X	X	X	X	X	X	√

S.No.	Item	SCH.I Daily	SCH.II 50 Hrs	SCH.III 100 Hrs	SCH.IV 200 Hrs	SCH.V 1000 Hrs	SCH.VI 2000 Hrs	SCH.VII 6000 Hrs
69.	Check the engine damper for dynamic balance.	x	x	x	x	x	x	√
70.	Replace the air unloader	x	x	x	x	x	x	√
71.	Check & clean the cooling coil Clean /Replace cooling coil.	x	x	x	x	x	x	√
72.	Check the fuel tank suspensions, cleaning the inlet screens.	x	√	√	√	√	√	√
73.	Draining the sediment from the fuel tank	x	x	x	x	√	√	√
<b>II. POWER TRANSMISSION</b>								
1.	Visual check the cardon shaft	√	√	x	x	x	x	x
2.	Inspection on the carbon bushes of the TM cooling blower motor, replacement	x	x	x	x	√	√	√
<b>III. VIBRATION UNIT</b>								
1.	Grease the vibration unit vertical cardon shaft	x	x	√	√	√	√	√
2.	Lubricate the guide rod sleeve of vibration unit.	√	x	x	x	x	x	x
3.	Change the oil of vibration gear box	x	x	x	√*	√*	√*	√*
4.	Check function of lifting cylinder of vibration unit	√	√	√	√	√	√	√
<b>IV. HYDAULIC</b>								
1.	Check the hydraulic system remove leaks ( hoses, connections etc.)	√	√	x	x	x	x	x
2.	Inspection on the hydraulic system for leakages	√	√	√	√	√	√	√
3.	Check the TM cooling air inlet filters, cleaning	x	√	√	√	√	√	√
4.	Inspection on the electrical cables and hoses for damages, replacement	x	x	√	√	√	√	√
5.	Check the pressure in the hydraulic accumulator, supplying the N40 nitrogen up to the pressure of 6.4 MPa if necessary	x	x	x	x	√	√	√
6.	Hydraulic oil changing including oil filters	x	x	x	x	√	√	√
7.	Checking the hydraulic system reducing valves,	x	x	x	x	√	√	√
8.	Adjustment checking the wiper rubber blades	x	x	x	x	√	√	√
*To be done on every 300 Engine Hours								



S.No.	Item	SCH.I Daily	SCH.II 50 Hrs	SCH.III 100 Hrs	SCH.IV 200 Hrs	SCH.V 1000 Hrs	SCH.VI 2000 Hrs	SCH.VII 6000 Hrs
<b>V. MECHANICAL</b>								
1.	Check the wipers and do need full	√	√	X	X	X	X	X
2.	Check the temperature of the main bearings (must not exceed 80 <sup>0</sup> C).	√	√	X	X	X	X	X
3.	Visual check the frame of the exciters drive	√	√	X	X	X	X	X
4.	Check the hand brake function	√	√	X	X	X	X	X
5.	Visual check the stabilizing aggregate, especially its frame and rollers.	√	√	X	X	X	X	X
6.	Visual check on the vehicle (equipment signals, props, tools and operational documentation)	√	√	X	X	X	X	X
7.	Visual check on the cooling system for leakages, cleaning the radiator	X	√	√	√	√	√	√
8.	Visual check on the whole stabilizing aggregate, roller and blades worn pout	X	√	√	√	√	√	√
9.	Inspection on the recording appliance, adjustment	X	√	√	√	√	√	√
10.	Clean the cover eaves and the rain water drains	X	√	√	√	√	√	√
11.	Visual check the axles, wheels and hubs for cracks.	X	√	√	√	√	√	√
12.	Visual check the wheel tread.	X	√	√	√	√	√	√
13.	Visual check the bogie springs.	X	√	√	√	√	√	√
14.	Visual Check a lubrication the buffing and the draw gear.	X	√	√	√	√	√	√
15.	Visual inspection on the buffing and draw gear for cracks and Lubricate it.	X	X	√	√	√	√	√
16.	Inspection on the traction motor nose hung	X	X	X	X	√	√	√
17.	Inspection on the rollers and blades wear	X	X	X	X	√	√	√
18.	Removing the exciter covers and inspection on the bearings	X	X	X	X	√	√	√

S.No.	Item	SCH.I Daily	SCH.II 50 Hrs	SCH.III 100 Hrs	SCH.IV 200 Hrs	SCH.V 1000 Hrs	SCH.VI 2000 Hrs	SCH.VII 6000 Hrs
19.	Visual inspection on the axle bearings and lubricate	x	x	x	x	√	√	√
20.	The buffer screws tightening	x	x	x	x	√	√	√
21.	Inspection on the stabilizing aggregate rollers bearings	x	x	x	x	√	√	√
22.	Inspection on the vehicle painting, marking and lettering	x	x	x	x	√	√	√
24.	Cleaning the whole vehicle especially the under frame, inspection for cracks	x	x	x	x	√	√	√
25.	Inspection on the cabins and DG set silent blocks	x	x	x	x	√	√	√
26.	Visual inspection on the pivot pin arrangement	x	x	x	x	x	x	√
27.	Checking the sanding, nozzles cleaning and adjustment (for preventing wheel skidding)	x	x	x	x	√	√	√
<b>VI. Electrical</b>								
1.	Check the illumination	√	√	x	x	x	x	x
2.	Check the horns	√	√	x	x	x	x	x
3.	Visual check the electric equipment, if mechanical damage especially	√	√	x	x	x	x	x
4.	Visual check the temperature of the electric motors and devices (must not exceed 70 <sup>0</sup> C)	√	√	x	x	x	x	x
5.	Check the TM cooling ( manually at the TM air outlet, DG set idling, travel direction lever on )	√	√	x	x	x	x	x
6.	Inspection on the power cables connections, tightening	x	√	√	√	√	√	√
7.	Exhausting a dust from the electrical switch boards (cabinets),	x	√	√	√	√	√	√
8.	Check the battery charging supply the distilled water	x	√	√	√	√	√	√
9.	Visual checking the sensors and cable connections of the measuring system	x	√	√	√	√	√	√
10.	Blowing through the electric motors (dry pressure air)	x	x	√	√	√	√	√

S.No.	Item	SCH.I Daily	SCH.II 50 Hrs	SCH.III 100 Hrs	SCH. IV 200 Hrs	SCH.V 1000 Hrs	SCH.V I 2000 Hrs	SCH.V II 6000 Hrs
<b>VII. PNEUMATIC</b>								
1.	Check the air brake pressure and adjust if required	√	√	x	x	x	x	x
2.	Check the emergency brake	√	√	x	x	x	x	x
3.	Check the independent brake checking the sand ejectors function, checking sand supply	√	√	x	x	x	x	x
4.	Check the air brake system, inspection for leaks	√	√	x	x	x	x	x
5.	Check the brake shoes gap if required then adjust	√	√	x	x	x	x	x
6.	Check the brake shoes worn out , replace if required	x	√	√	√	√	√	√
7.	Brake cylinders sealing rings, checking for the leakage	x	x	x	x	√	√	√
<b>VIII. GENERAL</b>								
1.	Check for any unusual sound from gear boxes, engine & hydraulic pumps.	√	√	x	x	x	x	x
2.	Check all the functions of machine before block working.	√	√	x	x	x	x	x
3.	Check all spares & tools for emergency as per Annexure-I.	√	√	x	x	x	x	x
4.	Clean the complete machine	x	√	√	√	√	√	√
5.	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	x	x	x	x	√	√	√
6.	Thoroughly clean all panel boxes.	x	x	x	x	x	√	√
7.	Check the function of all assemblies after IOH.	x	x	x	x	x	√	√
8.	Test the machine for one week near the workshop, before it is put for work in regular section.	x	x	x	x	x	√	√
9.	Ultrasonic testing of axles of machine shall be done between 40,000 to 45,000 kms of running engine hours or three years whichever is earlier.	x	x	x	x	x	x	√

## LIST OF SAFETY TOOLS

S.No.	Description	Quantity
1	Red and hand signal flags	2 Nos
2	Green hand signal flags	1 Nos
3	Tri- colour hand signal lamps/LED torch	2 Nos
4	Chain With Padlock	2 Nos.
5	Fire Extinguisher	1 No.
6	Hooter ( Manually Controlled)	2 Nos.
7	Jack 10t	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 )	-
12	Machine Specific Equipment if any.	-
13	Fog signals ( detonators ) in a tin case	10 No.
14	A copy of working time table of this section where the machine is working	1 No
15	G& SR book with up to date amendment slips	
16	4 cells flasher light LED lamp cum flasher light (rechargeable )	1 No.
17	Banner flags	2 Nos.
18	First aid Box	1 No
19	Skids	2 Nos
20	Safety Helpmate for all machine staff	-
21	Protection clothing , safety shoes and safety gloves	-
22	Walkie talkie with frequency of SM, guard and loco pilots	2
23	Internal communication system wakie talkie and / or head mounting system	-
24	Track machine manual with up to date correction slip	1
25	Accident manual	1
26	Tail Lamp	1

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