



भारत सरकार
रेल मंत्रालय

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS**

सतत् टैम्पिंग मशीन (09-32.) की निरीक्षण जांच सूची

**INSPECTION CHECK LIST FOR CONTINUOUS
TAMPING MACHINE (09-32 CSM)**

रिपोर्ट संख्या-टी.एम.-74
Report No.TM - 74

दिसम्बर -2004
December -2004

अनुसंधान अभिकल्प और मानक संगठन
लखनऊ-226011
RESEARCH DESIGNS & STANDARDS ORGANISATION
LUCKNOW- 226 011

Name & Designation of Inspecting Official :

Date of Inspection :

Machine No. :

Base Station :

ITEMS TO BE CHECKED

S.no.	Items	Agent / Description	Prevailing Conditions
1.	Oil / Water Levels in tank / container:		
i)	Hydraulic oil	Servo System – 68 or equivalent	Ok / Less
ii)	Radiator	Water with coolant	Ok / Less
iii)	ZF Gear Box	API CF-4 15W40	Ok / Less
iv)	Diesel Oil	HSD	Ok / Less
v)	Satellite Gear Box	SAE-90 or equivalent	Ok / Less
vi)	Intermediate Gear Box	SAE-90 or equivalent	Ok / Less
vii)	Reduction Gear Box	SAE-90 or equivalent	Ok / Less
viii)	Engine Lube oil	API CF-4 15W40	Ok / Less
ix)	Funk Gear Box	SAE-90 or equivalent	Ok / Less
x)	Axle Gear Box	SAE-90 or equivalent	Ok / Less
xi)	Compressor lube oil	API CF-4 15W40	Ok / Less

S. no.	I t e m s	Prevailing Conditions
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As per maintenance schedule

2. Engine:

Engine Model & No.:

Engine hours:

i)	Starting problem	Yes / no
ii)	Condition of smoke	White/black/normal
iii)	Engine temperature during working	°C
iv)	Leakage in Head gasket	No / Yes (Head no.)
v)	Electrolyte level in batteries	Ok / less
vi)	Specific gravity of electrolyte (min 1.24)	Ok / less
vii)	Compression leakage	Yes / no
viii)	Belt tension	Ok / To be tightened
ix)	Tightness of Engine Hoses	Ok / To be tightened
x)	Leakage in hoses	Yes/no
xi)	Leakage in water pump seal	Yes/no
xii)	Condition of battery terminals	Ok /To be attended
xiii)	RPM of the Engine	Actual
xiv)	Engine oil pressure	Actual
	a) 1.5 Kg/cm ² at idle speed	
	b) 2.5 Kg/ cm ² on rated speed after 2 hours working	
xv)	Last change of Air Cleaner filters	Dated
		Engine hrs
xvi)	Last change of engine oil	Dated
		Engine hrs
xvii)	Last change of engine oil filters	Dated
		Engine hrs
xviii)	Last change of diesel filters	Dated
		Engine hrs
xix)	Last change of batteries	Dated
		Engine hrs
xx)	Battery charging	Yes/no

S. no.	I t e m s	Prevailing Conditions
xxi)	Last repair / change of self starter	Dated Engine hrs
xxii)	Last repair / change of alternator	Dated Engine hrs
xxiii)	Last over-hauling of the Engine	Dated Engine hrs
xxiv)	Last calibration of fuel injection pump	Dated Engine hrs
xxv)	Last calibration of Fuel Injectors	Dated Engine hrs
xxvi)	Whether working gauges are in order	
a)	R.P.M.	Yes/no
b)	Oil Pressure	Yes/no
c)	Temperature	Yes/no
d)	Battery charging	Yes/no

S. no.	Items	Agent / Description	Prevailing Conditions
3. Lubrication (As per maintenance schedule)			
3.1 Tamping Bank:			
i)	Tamping Unit Guide Column	Servo System-68	Done / Not done
ii)	Tamping Unit Guide Bushing	Servo System-68	Done / Not done
iii)	Bolt (55 mm pin)	Grease	Done / Not done
iv)	Vibration shaft main bearing	Servo System-68	Done / Not done
v)	Connecting rod bolt (35 mm pin)	Grease	Done / Not done
vi)	Tamping arm bolt leakage and no. of bolt leaking.		No / Yes (Nos)
vii)	Vibration shaft main bearing cover leaking.		Yes/no
viii)	Vibration shaft main bearing breathers		Clean / Clogged
3.2 Satellite:			
i)	Satellite slide rollers	Grease	Done / Not done
3.3 Lifting/ Lining Unit:			
i)	Clamp Pivot	Grease	Done / Not done
ii)	Lifting Unit Guide Column	Grease	Done / Not done
iii)	Lining rollers	Grease	Done / Not done
iv)	Clamp Housing	Grease	Done / Not done
v)	Lining cylinder pivot	Grease	Done / Not done
3.4 Cardon Shaft:			
i)	Engine to ZF Gear Box	Grease	Done / Not done
ii)	ZF to Distributor Gear Box	Grease	Done / Not done
iii)	Engine to pump distributor Gear Box	Grease	Done / Not done
iv)	Distributor Gear Box to axle I	Grease	Done / Not done
v)	Distributor Gear Box to intermediate shaft	Grease	Done / Not done
vi)	Intermediate shaft to axle II	Grease	Done / Not done
vii)	Axle gear box flange cover	Grease	Done / Not done
viii)	Working drive reduction gear box to ZF gear box	Grease	Done / Not done
3.5 Miscellaneous:			
i)	Middle feeler rod	Grease	Done / Not done
ii)	Torque arm pivot	Grease	Done / Not done
iii)	Brake linkage	Grease	Done / Not done
iv)	All the pivot joint of trollies	Grease	Done / Not done

S. no.	I t e m s	Prevailing Conditions
4.	PCBs:	
i)	Requirement of PCB if any	Part no.
ii)	Defective / released PCB available with machine	Part no.
5.	General:	
i)	Condition of tamping bank	Noisy / smooth
ii)	Condition of tamping tool	Wornout / To be
		Reconditioned
iii)	No. of tamping arms developed play (identification nos.)	Yes/no
iv)	Infringement of tamping tools with one another	Nos.
v)	Actual no. of tools with which machine is working	Yes/no
vi)	Leakage in hydraulic system	Satisfactory / To be
vii)	Locking device of lifting/lining unit	attended
viii)	Air Oiler working properly	Yes/no
ix)	Water separator working properly	Yes/no
x)	Lights (head light & back light) etc.	In working condition
xi)	Braking system	/not functioning
xii)	Condition of brake shoes	Satisfactory / To be
xiii)	Clearance between brake shoes and wheel	attended
xiv)	All log books filled properly	Ok / To be changed
xv)	Condition of machine working tools (Spanner set etc.)	Excess / Ok
xvi)	Hydraulic Oil Temperature after working of machine	Yes/no
	for 2 hrs.	Satisfactory / To be
xvii)	Condition of Oil Coolers	replaced
xviii)	Satellite brake pressure (5 – 2 bars)	°C
xix)	Function of satellite axle support cylinder	Clean/clogged
xx)	Play in satellite support blocks	Actual.
xxi)	Adjustment of track lifting roller height	Satisfactory / Leaking
xxii)	Play in torque arm pivot	Excess/Ok
xxiii)	Change of ZF gear box oil & filter	Ok / To be adjusted
xxiv)	Change of Servo valve filter	Excess / Ok
xxv)	Change of proportional valve filter	Dated:
		Engine hours
		Dated:
		Engine hours
		Dated:
		Engine hours

S. no.	I t e m s	Prevailing Conditions
6.	Safety Items:	
i)	Safety equipment as per Annexure-I	Available/deficient
ii)	Working of safety system of the machine	Ok / Defective
iii)	Competency certificate of operator	Current/Expired
iv)	Engaging/disengaging indicator of satellite drive	Ok/ To be attended
v)	Fire extinguisher	Working / Not working
7.	During Block Working:	
i)	Location of block working	Km / TP
ii)	Pre and post tamping operations being done	Yes/no
iii)	Duration of block	Hrs Min.
iv)	Output of work	Sleeper Km
v)	Depth of tamping tool (clearance between the bottom edge of the sleeper and top of tamping tool blade)	Normal Actual 15 mm
vi)	Condition of ballast	Caked/clean
vii)	Depth of clean cushion under sleeper (required min. is 150 mm)	mm
8.	Staff:	
i)	Strength of staff	Full / deficient
ii)	Group Performance	Excellent / V. Good /Good / Average
iii)	Cost awareness	Excellent / V. Good /Good / Average
iv)	Safety awareness	Excellent / V. Good /Good / Average
v)	Staff due for Medical	

S. no.	I t e m s	Prevailing Conditions	
9.	General condition of the machine.	Excellent / Very good / Good /Average	
10.	Control Chart of Output	Upward / Normal / Down	
11.	Breakdown (Permissible unit 3 days)	Within limit/beyond limit	
12.	Hydraulic Pressure (bars)	Rated	Actual
i)	System Pressure	140	
ii)	High Pressure System for squeezing	150	
iii)	Counter Pressure for small squeezing cylinder	35	
iv)	Squeezing Pressure for concrete sleepers	120 – 135	
v)	ZF Oil Pressure	10 - 15	
vi)	Boost/Charge Pressure	30	
vii)	Accumulator pressure		
a)	High	100 (Max)	
b)	Working	85 (Max.)	
viii)	Vibration pressure	150	
ix)	Air Pressure (in kg / cm ²)	6 - 7	
13.	Pending Maintenance Schedule and reasons.		
14.	Availability of spares and tools as per annexure -I	Complete/Deficient	
15.	Any other remarks by Inspecting Officer:		

Officer

Signatures of Inspecting

Annexure - I**List of Safety Equipments**

S. no.	Description	Quantity
1.	Detonators	1 box
2.	H.S. flag red	2 nos.
3.	H.S. flag green	1 nos.
4.	H.S. Tri colour lamps	2 nos.
5.	Chain & Pad lock	1 set
6.	Terfor (2 t capacity)	1 no.
7.	25 t jack with traverser	1 no.
8.	Crow bars	4 nos.
9.	Wooden blocks off sizes	8 nos.
10.	Gauge cum level	1 no.
11.	Rail thermometer (dial type)	1 no.
12.	Banner flag	2 nos.
13.	Portable Control Phone	1 no
14.	First Aid Box	1 no
15.	Skids	4 nos.
16.	Walkie Talkie Set	1 no

Annexure -II

S. no.	Description	Part No.	Quantity
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A. Tamping Unit

1	Seal Kit set	HZS DS.243	2 Nos
2	Piston	2E 36.443	2 Nos
3	Piston screw	2E.36.48	2 Nos
4	Threaded pin	M6X18	2 Nos
5	Hex socket head cap screw	M8X20	4 Nos
6	Spring washer	8Din 7980	4 Nos
7.	Hex nut	M24X1	2 Nos
8.	Spring washer	B24 Din 127	2 Nos
9.	Disc	25Din 1440	2 Nos
10.	Spring washer	16Din 7980	2 Nos
11.	Hex socket head cap screw	M16X75	2 Nos
12.	Hex socket head cap screw	M16X35	8 Nos
13.	Lock washer	VS16	4 Nos
14.	Connecting rod bolt (35 mm pin)	G.20.13	2 Nos
15.	Toothed disc	F2116	4 Nos
16.	Threaded pin	M6X8	2 Nos
17.	Piston	2E35.303	2 Nos
18.	Seal kit	HZS.DS.401	2 Nos
19.	Bearing bush	2E35.211	2 Nos
20.	Hex bolt	M20X70	2 Nos
21.	Adjusting screw	2E11.30	2 Nos
22.	Hex nut	M42X1	2 Nos
23.	Spring washer	B42Din127	2 Nos
24.	Disc	2E32.05	2 Nos
25.	Bolt	2E31.04	2 Nos
26.	Spring washer	B20Din127	16 Nos
27.	Adjusting screw	E60.08AAS	1 No.
28.	Hex socket head cap bolt	M20X40	4 Nos
29.	Hex bolt	M20X50	10 Nos
30.	Disc	2E31.19 ARJ	10 Nos
31.	Hex bolt	CU30.406	10 Nos
32.	Toothed disc	5 Din 6797	10 Nos

S. no.	Description	Part No.	Quantity
33.	Chord	EL-T576.1.35	7 mtrs
34.	Potentiometer	EL-T500	01 No.
35.	Cheese head screw	M3X25	4 Nos
36.	Spring washer	3 mm dia	4 Nos
37.	Cheese head screw	M4X30	4 Nos
38.	Carrier	EL-T920.04A	01 No.
39.	Jack	EL-T376.16	01 No.
40.	Rod	EL-T1330.17	2 Nos
B. LIFTING LINNING UNIT			
1	Piston gasket	HZ 01.080	01 No.
2	Seal kit	HZD02.080.040	01 No.
3	Hex Socket head cap screw	M16X110	04 Nos.
4	Hex bolt	M16X50	04 Nos.
5	Spring washer	16 mm dia	08 Nos.
6	Cylinder pin	20M6X40 Din 7	02 Nos.
7	Hex Socket head cap screw	M16X35	04 Nos.
C. GENERAL			
1	Seal kit	UD 50.100DS	2 Nos.
2	Hex Socket head cap screw	M16X35	4 Nos.
3	Spring washer	16 mm dia	4 Nos.
4	Seal kit	UD 50.550 DS	2 Nos.
5	Piston gasket	HZ 01.080	2 Nos.
6	Gasket	HZ 02.080.036.0210.2	2 Nos.
7	Fish plate	UD 62.5001	2 Nos.
8	Bolt	UD.70.8854	2 Nos.
9	Castel nut	M20	2 Nos.
10	Disc	20 mm dia	2 Nos.
11	Brake shoe	5 M 111 / 229	4 Nos.
12	Carrier assembly	EL-T 67.0013	1 No.
13	Chord	EL-T 576.08	7 mtrs.
14	Potentiometer	EL-T 595	1 No.
15	Rod	EL-T 609.32	2 Nos.
16	Cheese head screw	M 4X30	10 Nos.

S. no.	Description	Part No.	Quantity
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D. CLAMP CYLINDER

1	Seal Kit	E150.180 DS	2 Nos.
2	Hex bolt	M8X30	4 Nos.
3	Spring washer	8 mm dia	4 Nos.
4	Roller clamp	DL 150.001	1 No.
5	Gasket	HZ02.100.045	2 Nos.
6	Piston Gasket	HZ01.100	2 Nos.
7	Hex Socket head cap screw	M 14X70	4 Nos.
8	Spring washer	14 mm dia	4 Nos.

ACKNOWLEDGEMENT

Following officers and staff have made their valuable contribution in preparation of Inspection Check List of Continuous Tamping Machine (09-CSM)

Railway

1. Shri Ram Garib SSE/TMC/NCR/CSM-917

RDSO

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3. " O.P.Kapoor SE/Drg/TM
4. " M.N.Siddiqui SE/Engg/TM
5. " A.N. Shrivastva JRE-I/TM
6. " Prem Kumar JRE-I/TM
7. Smt. Renu Pandey PA