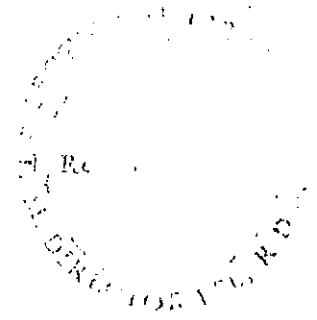


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GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS



INSPECTION CHECK LIST FOR
DUOMATIC TIE TAMPING MACHINE

Report No. TM-111

JUNE -2007

05724

RESEARCH DESIGNS & STANDARDS ORGANISATION
LUCKNOW- 226 011

CHECK LIST FOR INSPECTION OF DUOMATIC TAMPING MACHINES

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 of tank/ container		
i)	Hydraulic oil	HLP – 68 or equivalent	Ok / Less
ii)	Diesel Oil	HSD	Ok / Less
iii)	Axle Gear Boxes	SAE-90 or equivalent	Ok / Less
iv)	Main distribution gear box	SAE-90 or equivalent	Ok / Less
v)	Drive clutch	SAE-90 or equivalent	Ok / Less
vi)	Reverse gear box	SAE-90 or equivalent	Ok / Less
vii)	Drive gear	SAE-90 or equivalent	Ok / Less
viii)	Clutch for disengaging of working	SAE-90 or equivalent	Ok / Less
ix)	Differential distributing gear box	SAE-90 or equivalent	Ok / Less
x)	Radiator	Water with Coolant	Ok / Less
xi)	Engine lube oil	API CF4 15W40 or equivalent	Ok / Less

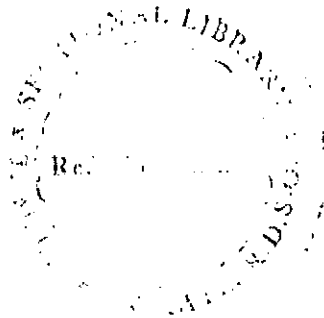
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S. No.	Items	Prevailing Conditions
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2. Engine:

Engine Model & Sl. No.:		Engine hours:
i)	Starting problem	Yes / No
ii)	Condition of smoke	White/Black/Normal
iii)	Max 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)	Compressor working	Satisfactory/Unsatisfactory
viii)	Belt tension	Ok / To be tightened
ix)	Condition of water hoses	Ok / Leaking
x)	Water pump seal	OK./Leaking
xi)	RPM of the Engine	Actual
xii)	Engine oil pressure	Actual
a)	At idle	1.5 kg/sq. cm
b)	At rated speed	2.5 kg/ sq. cm
xiii)	Last change of Air Cleaner	Dated
xiv)	Last change of engine oil	Engine hrs.
xv)	Last change of engine oil filters	Dated
xvi)	Last change of diesel filters	Engine hrs.
xvii)	Last change of batteries	Dated
xviii)	Radiator fan R.P.M (Min. 1600)	Engine hrs.
xix)	Self starter	Working/Not working
xx)	Alternator	Working/Not working
xxi)	Last over-hauling of the Engine	Dated
xxii)	Last calibration of fuel injection pump	Engine hrs.
xxiii)	Last calibration of Injectors	Dated
		Engine hrs.

S. No.	Items	Prevailing Conditions
xxiv)	Whether working gauges are in order	
a)	R.P.M.	Yes/No
b)	Oil Pressure	Yes/No
c)	Temperature	Yes/No
d)	Battery charging Ammeter	Yes/No
e)	Voltmeter	Yes/No
xxv)	Compressor oil leakage	Yes/No
3.	Hydraulic System	
i)	System pressure	130-140 bar
ii)	Squeezing pressure	110-125 bars
iii)	Accumulator pressure	85/120 bars
iv)	Vibration circuit pressure	150 bars
v)	Air pressure (kg/sq.cm.)	6-7
vi)	Counter pressure	35 bar
vii)	Hydraulic oil temperature	°C
viii)	Any rubbing in hydraulic hoses	Yes/No
ix)	Return flow filter element	Cleaned/ Clogged
x)	Leakage of Hydraulic oil at joints	Yes/No
xi)	Conditions of hoses	Good/Bad
xii)	Hoses required to be changed	Numbers and sizes
xiii)	Stock of hoses available with machine	Adequate/ Less
xiv)	Stock of hoses fittings	Adequate/ Less
xv)	Clamping of Hoses	Proper/Improper
4.	Power Transmission	
i)	Oil leakage in Gear boxes	Yes/No
ii)	Universal Joint play	Yes/No
iii)	Tightness of engine mounting Bolt	Ok/ To be tighten
iv)	Condition of shock absorber.	Good/ To be attended
5.	Electrical	
i)	Battery Charging System	Working /Not working
ii)	All electrical lights	Working / To be attended
iii)	Limit switch	Working / To be attended
iv)	Electrical Horns	Working /Not working
v)	Proximity switch	Working /Not working
vi)	Pressure and temperature switch	Working /Not working
vii)	Condition of wind screen wiper	Good/ To be attended
viii)	Condition of battery terminals	Ok/ To be attended



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S. No.	I t e m s	Prevailing Conditions
6.	Pneumatic	
i)	Last overhauling of Air Unloader	Dated Engine hrs
ii)	Air leakage from Pneumatic cylinder seals	No/Yes (location)
7.	General	
i)	Condition of tamping bank	Noisy / smooth
ii)	Condition of tamping tool	OK / To be replaced
iii)	No. of tamping arms developed play (identify the location)	
iv)	Infringement of tamping tools with one another	Yes/No
v)	Actual nos. of tamping tools with which machine is working	Nos.
vi)	Leakage in hydraulic system	Yes/No
vii)	Working of all Locking devices	Satisfactory/ To be attended
viii)	Working of Air Oiler	OK / To be attended
ix)	Working of water separator	OK / To be attended
x)	Braking system	Satisfactory/ To be attended
xi)	Condition of brake shoe	Satisfactory/To be changed
xii)	Clearance between brake shoe and wheel (max.3-5mm)	OK/ To be adjusted
xiii)	All log books filled properly	Yes/No
xiv)	Condition of machine working tools (Spanner set etc.)	Satisfactory/ To be replaced
xv)	Hydraulic oil temperature after working of machine for 2 hrs.	°C
xvi)	Condition of Oil Coolers	Clean/Clogged
xvii)	Adjustment of track lifting roller height	OK/ To be adjusted
xviii)	Play in torque arm pivot	O.K/ To be attended
xix)	Last change of proportional valve filter	Dated: Engine hours
xx)	Cooling System	Working /Not working
xxi)	Last overhauling of Shock absorber	Dated Hours
xxii)	Tamping Unit Main Pin bearing leakage and no. of leaking bearing.	Yes/No
xxiii)	Vibration shaft gear case seal leakage	Yes/No
xxiv)	Vibration shaft gear case breathers	Clean / Clogged
xxv)	Last change of hydraulic suction filter	Dated Engine hours
xxvi)	Last change of hydraulic return filter	Dated Engine hours

S. No.	Items	Agent / Description	Prevailing Conditions
8.	Lubrication		
8.1	Tamping Bank		
i)	Tamping Unit Guide Column	HLP-68 or equivalent	Done/Not done
ii)	Tamping Unit Guide Bushing	HLP-68 or equivalent	Done/Not done
iii)	Vibration shaft main bearing	HLP-68 or equivalent	Done/Not done
iv)	Tamping Arm bearing	SAE150 (during summer) /SS-100 or equivalent	Done/Not done
v)	Connecting rod pins of squeezing cylinder	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
vi)	Connecting rod bearing	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
vii)	Clapper cylinder Pins	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
8.2	Lifting/ Lining Unit		
i)	Clamp Pivot	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
ii)	Lifting Unit Guide Column	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
iii)	Lining rollers	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
iv)	Clamp carrier	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
v)	Lining cylinder pivot	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
8.3	Cardon Shaft		
i)	Engine to main distributing Gear Box	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
ii)	Main distributing gear box to hydraulic pumps	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
iii)	Drive gear to differential distributing gear box	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
iv)	Differential distributing gear box to axle gear boxes	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done

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S. No.	Items	Agent / Description	Prevailing Conditions
8.4	Miscellaneous		
i)	Middle feeler rod	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
ii)	Torque arm pivot	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
iii)	Brake linkage	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
iv)	All the pivot joints of trolleys	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
v)	Hand brake gear	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done
vi)	Axle gear box flange cover	Grease Servo Gem MP-3/RR-3 or equivalent	Done/Not done

S. No.	I t e m s	Prevailing Conditions
9.	Safety Items	
i)	Safety equipment as per Annexure-I	Available/Deficient
ii)	Competency certificate of operator	Current/Expired
iii)	Fire extinguisher	Working/ To be replaced
10.	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/Minutes)	
iv)	Work done (nos. of sleepers)	
v)	Depth of tamping tool (clearance between the bottom edge of the sleeper and top of tamping tool blade)	Normal Actual 10-15mm
vi)	Condition of ballast	Caked/Clean
vii)	Depth of clean cushion under sleeper (required min.150 mm)	
11.	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	
12.	General condition of the machine.	Excellent / Very good / Good /Average
13.	Pending Maintenance Schedules and reasons.	
14.	Availability of spares and tools (As per annexure –II)	Complete/Deficient
15.	Any other remarks by Inspecting Officer:	

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Signature of Inspecting Officer

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	2 nos.
9.	Wooden blocks off sizes	8 nos.
10.	Gauge cum level	1 no.
11.	Banner flag	2 nos.
12.	Portable Control Phone	1 no
13.	First Aid Box	1 no
14.	Skids	4 nos.
15.	Walkie Talkie Set	1 no

**SPARE PARTS TO BE KEPT IN MACHINE'S STORE
FOR OLD DUOMATIC MACHINES**

SN	Description of Items	Part No.	Qty.
A.	Tamping Unit		
1.	Coupling	U21.02	1 No.
2.	Lock plate	MB13	1 No.
3.	Nut	DL23.303	1 No.
4.	Hex bolt	M20x50	10 Nos.
5.	Disc	2E31.19	10 Nos.
6.	Fitting key	G50.12	4 Nos.
7.	Hex socket head cap screw	M20x40	8 Nos.
8.	Spring washer	20Din 7980	4 Nos.
9.	Pin	E36.65A	2 Nos.
10.	Pin	E32.63	2 Nos.
11.	Pin	E32.62	2 Nos.
12.	Split pin	2x20 Din 94	2 Nos.
13.	Castel nut	M10Din937-6	2 Nos.
14.	Disc	14Din1440	2 Nos.
15.	Castel nut	M14x1	2 Nos.
16.	Split pin	3.5x28Din 94	4 Nos.
17.	Hex socket head cap screw	M12x30	4 Nos.
18.	Spring washer	12 Din 7980	4 Nos.
19.	Spring washer	8Din7980	4 Nos.
20.	Hex socket head cap screw	M20x40	4 Nos.
B	Closing Cylinder		
1.	Seal kit	HZS BS52	2 Nos.
2.	Piston screw	E36.48	1 No.
3.	Hex socket head cap screw	M16x35	4 Nos.
4.	Disc	5Din 6798	4 Nos.
5.	Grease nipple (Big)		4 Nos.
6.	Seal kit	HZD01.063	1 N.
7.	Seal kit	HZD02.036	1 No.
8.	Hex socket head cap screw	M16x35	4 Nos.
9.	Spring washer	16Din 7980	4 Nos.
10.	Seal kit for lining cylinder	E150.180DS	1 No.

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SN	Description of Items	Part No.	Qty.
11.	Hex bolt	8x30	1 No.
12.	Spring washer	88 Din 127	4 Nos.
13.	Piston gasket for Track lifting cylinder	HZ 01.125	1 No.
14.	Gasket for Track lifting cylinder	HZ 02.125.050	1 No.
15.	Clamp roller	DL 150.011	1 No.
16.	Piston gasket for lining cylinder	HZ 01.100	1 No.
17.	Gasket	HZ 02.100.045	1 No.
18.	Pneumatic cylinder	Pn 2Z.G.70/20/300	1 No.
19.	Versine transducer	ELT-576.0B-7n	7 M
20.	Potentiometer	ELT-595	1No.
21.	Chord wire	2mm	80M
22.	Feeler rod	VD 252.1201-2	2 Nos.
23.	Pneumatic cylinder	Pn2Z-G50/16/250	1No.
24.	Pivot bearing	G20 DO	No.
C	Engine		
1.	Filter (Diesel)	3166555	1 No.
2.	Filter (Mobil)	3166554	1 No.
3.	Super bypass filter	3873576	1 No.

ACKNOWLEDGEMENT

Following officers and staff have made their valuable contribution in finalization of Inspection Check List of DUOMATIC (TTM).

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1.	H.C. Pandey	DD/TM
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4.	Prem Kumar	SRE/TM

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