DIRECTORATE GENERAL BORDER ROADS

GENERAL MAINTENANCE INSTRUCTION NO. 83
ON
MAINTENANCE AND LUBRICATION
OF
ROAD ROLLER AVELLING JESSOP

Introduction :-

1. Regular servicing and preventive maintenance are essential to prolong the life of the equipment, ensure timely repairs to arrest defects from developing into majors ones, to work the equipment effectively at all times, minimise inopportune breakdowns and downtime losses.

Aim :-

2. (a) To enumerate the details of periodic and preventive maintenance and lubrication of ROAD ROLLER AVELLING JESSOP.

(b) Issue CHECK CARD for use by Mobile Maintenance Team.

Action By :-

3. (a) User Units :- To carry out periodic Inspection, regular servicing and preventive maintenance tasks as laid down.

(b) Field Workshops (GREF) :-

(i) To check the 'Record of Maintenance and Lubrication' in the log book of the eqpt during its inspection and repairs, if carried out as per Maintenance and Lubrication schedules given in this instruction.

(ii) Advise user units in respect of any discrepancy noticed.

Details:-

4. Details of Maintenance and Lubrication along with the periodicity have been tabulated in Appendix 'A' to this instruction.

5. This instruction will read in conjunction on with General maintenance instruction No. 21

Appendix- 'A' to HQ DGBR GMI No.83
dated 13 Feb 73

PREVENTIVE MAINTENANCE FOR ROAD ROLLER BRITANIA MAP

S/No.	Item/Assys	Maintenance Instruction	Lubrication	No of points
1	2	3	4	5

8 HOURS TASK

1.	General	(a) Check oil, water and gas for leaks. (b) Check for exhaust smoke colour noise or vibration (c) Read all gauges and meters. (d) Check all bolts and nuts if loose or deficient.		
2.	Engine sump	Check and top up oil level as per temperature range	Engine Oil	1
3.	Transmission case	Check oil level and Top up	Gear oil	1
4.	Fuel tank	Drain sediment and water		1
5.	Fuel filter	Drain sediment and water		
6.	Air filter	Keep oil level up to groove in bowl. Use new engine oil.		
7.	Cooling system	Top up coolant level Check fan belt, adjust tension or replace	Use clean and soft water.	1
8.	Final drive	Check for oil leaks and rectify.		2
9.	Oil pressure	Check oil pressure. Normal working pressure is :- Perkins P4 Engine – 40 to 60 lbs PSI - .8 to 4.2 Kg/ CM^2		
10.	Tappet chamber drain tank.	Drain daily, report if more drainage is required.		
11.	Lubricate Points			
	(a) Differential shaft bearing	Oil	Oil	2 each
	(b) Hind Roll Bushes	Grease	Gear Oil	2 each
	(c) Front roll bushes	Grease	Grease	4
	(d) Clutch shaft bearing	Grease	Grease	1

1	2		4	5
(e)	Brake shaft	Oil	Engine oil	1
(f)	Trunion pinion operating fork.	Grease	Grease	4
(g)	universal joints	Oil	Engine Oil	4
(h)	Steering head	Remove cap nut, add a few drop of oil into hole in stud.	Grease	4
(j)	Steering worm gear	Oil	Engine Oil	1
(k)	Clutch side and operating fork.	Oil	Engine Oil	5
(l)	Final drive	oil	oil	2
(m)	Engine controls etc.	Clean mud or dust from all working pins and pivots on all controls and operating rods and lubricate, using oil can.		

Note:-

Engine and Air cleaner- Oil grades

(a) Above 90^0 F - Use SAE 30/HD 30

(b) 30^0 C to 90^0 F - Use SAE 20/HD 20

(c) Below 30^0 F - Use SAE 10/HD 10

Transmission – Oil Grades

(a) Above 90^0 F - Use SAE 140/HD140

(b) Below 90^0 F - Use SAE 90/HD 90

Grease Grades

(a) Above 15^0 C - Use Grease No. 2

(b) 15^0 C to 10^0 C - Use Grease No. 1

(c) Below 10^0 C - Use Grease No '0'

Keep fuel tank full, condensation occur in fuel tank. Be careful not to be let dirt enter into the tank.

Before setting the machine on work, make sure that there are no un-usual knocks or noise and that the engine is running smoothly.

50 HOURS TASK

1	General	Carry out 8 hours task.		
2	Fuel pump chamber	Drain the fuel pump chamber (or when the fuel spill from the tell tale hole)		
3	Battery	Top up to 1/2 " (6 mm) plate with distilled water		1
4	Sliding ballast weight	Check rope for tensions and rope grips for tightness		1
	Lubrication points			
	(a) Starting handle shaft	Oil	Oil	1
	(b) Starting spindle	Oil	Oil	1
	(c) Clutch driver and casing	Pour little oil in one of the four holes in clutch casing also into one of the two holes in clutch drivers.	Oil	
	(d) Steering worm bearing	Oil	Oil	2
	(e) Hydro steering ram lever	Oil	Oil	1

Note:-

Engine and Air cleaner- Oil grades

(a)	Above 90^0 F	-	Use SAE 30/HD 30
(b)	30^0 C to 90^0 F	-	Use SAE 20/HD 20
(c)	Below 30^0 F	-	Use SAE 10/HD 10

Transmission – Oil Grades

(a)	Above 90^0 F	-	Use SAE 140/HD140
(b)	Below 90^0 F	-	Use SAE 90/HD 90

General oiling – Oil Grades

Use SAE 10W at all temperatures

Grease Grades

(a)	Above 15^0 C	-	Use Grease No. 2
(b)	15^0 C to 10^0 C	-	Use Grease No. 1
(c)	Below 10^0 C	-	Use Grease No '0'

Service air cleaner at early hours under adverse work condition.

Check all bolts, nuts, set screw and split pins were fitted, including engine, gear box transmission and fore-carriage.

100 HOURS TASK

1	General	Carry out 8 hours and 50 task.		
2	Fuel filter	Change the filter elements		
3	Engine oil	Change engine oil		

250 HOURS TASK

1	General	Carry out 8 hours 50 hours and 100 hours task.		
2	Lubricating oil filter	Clean or remove element		
3	Fuel filter	Remove drain plug at button of filter bowel and allow fuel to flow through until clean fuel appears. Replace drain plug		
4	Sediment bulb	Remove glass bowel and clean		
5	Dynamo	Refill grease cup on dynamo	Grease	1
6	Water pump belt drive	Fill grease cup	Grease	1

Note:-

Engine and Air cleaner- Oil grades

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(b)	30^0 C to 90^0 F	-	Use SAE 20/HD 20
(c)	Below 30^0 F	-	Use SAE 10/HD 10

Transmission – Oil Grades

(a)	Above 90^0 F	-	Use SAE 140/HD140
(b)	Below 90^0 F	-	Use SAE 90/HD 90

General oiling – Oil Grades

Use SAE 10W at all temperatures

Grease Grades

(a)	Above 15^0 C	-	Use Grease No. 2
(b)	15^0 C to 10^0 C	-	Use Grease No. 1
(c)	Below 10^0 C	-	Use Grease No '0'

Change engine oil early hours under adverse working condition.

Inspect drained engine oil for metal partials. If any found suggest holding unit to report to field workshop immediately. DO NOT RUN ENGINE TILL RECTIFIED.

500 HOURS TASK

1	General	Carry out 8 hours 50 hours 100 hours and 25O hours task.		
2	Engine oil sump	Drain remove sump and clean strainer		
3	Lubricating oil filter	Change element		
4	Injector	Remove Injector and test. Set injector pressure.		
5	Transmission	Remove top cover and inspect for :- (a) Oil supply from pump to gears (b) Correctly meshing of bevel gears (c) Security of bevel wheel feather	Grease	1

Note:-

Engine and Air cleaner- Oil grades

(a)	Above 90^0 F	-	Use SAE 30/HD 30
(b)	30^0 C to 90^0 F	-	Use SAE 20/HD 20
(c)	Below 30^0 F	-	Use SAE 10/HD 10

Transmission – Oil Grades

(a)	Above 90^0 F	-	Use SAE 140/HD140
(b)	Below 90^0 F	-	Use SAE 90/HD 90

General oiling – Oil Grades

Use SAE 10W at all temperatures

Grease Grades

(a)	Above 15^0 C	-	Use Grease No. 2
(b)	15^0 C to 10^0 C	-	Use Grease No. 1
(c)	Below 10^0 C	-	Use Grease No '0'

Change engine oil early hours under adverse working condition.
No attempt should be made to adjust the injection pressure without a proper testing equipment.

1000 HOURS TASK

1	General	Carry out 8 hours 50 hours 100 hours 25O hours and 500 hours task.		
2	Engine	Decarbonizes and inspect valve. Remove cylinder head and examine inlet and exhaust valve. Grind in valves as required. Decarbonizes cylinder head, tops of pistons and exhaust manifold . Clean out water spaces in cylinder head		
3	Valve clearance	Adjust valve clearance when the engine is hot.		
		Tappet Clearance		
		0.010" hot 0.012" Cold		
4	Spill timing	Check timing – 29 Degree BTDC		
5	Cooling system	Flush out the system.		
6	Gear box	Drain oil and refill	Gear oil	1
7	Starter and Generator	Inspect commutator and bush and carry out necessary repairs		
8	Water sprinkler	Inspect pump for smooth functioning clean fitted.		
9	Lubricating Points			
	(a) Starter motor	Oil	SAE 10W	1
	(b) Dynamo	Grease	Grease	2

Note:-

Engine and Air cleaner- Oil grades

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Transmission – Oil Grades

(a) Above 90^0 F - Use SAE 140/HD140

(b) Below 90^0 F - Use SAE 90/HD 90

General oiling – Oil Grades

Use SAE 10W at all temperatures

Grease Grades

(a) Above 15^0 C - Use Grease No. 2

(b)	15^0 C to 10^0 C	-	Use Grease No. 1
(c)	Below - 10^0 C	-	Use Grease No '0'

Inspect drained engine oil for metal partials. If any found suggest holding unit to report to field workshop immediately. DO NOT RUN ENGINE TILL RECTIFIED.

1500 HOURS TASK

1	General	Carry out 8 hours 50 hours 100 hours 25O hours 500 hours and 1000 hours task.
2	Engine	Remove pistons and check wear of cylinder bore. If wear is more than 0.008" on diameter (a) Replace new cylinder liners (b) Fit new piston rings (c) Examine main and big end bearing. Refit or renew if necessary. (d) Clean all lubricating pipe thoroughly with flushing oil.
3	Fuel tank	Thoroughly clean out fuel tank

Note:-

Engine and Air cleaner- Oil grades

(a)	Above 90^0 F	-	Use SAE 30/HD 30
(b)	30^0 C to 90^0 F	-	Use SAE 20/HD 20
(c)	Below 30^0 F	-	Use SAE 10/HD 10

Transmission – Oil Grades

(a)	Above 90^0 F	-	Use SAE 140/HD140
(b)	Below 90^0 F	-	Use SAE 90/HD 90

General oiling – Oil Grades

Use SAE 10W at all temperatures

Grease Grades

(a)	Above 15^0 C	-	Use Grease No. 2
(b)	15^0 C to 10^0 C	-	Use Grease No. 1
(c)	Below 10^0 C	-	Use Grease No '0'

2000 HOURS TASK

1	General	Carry out 8 hours 50 hours 100 hours 25O hours 500 hours 1000 hours and 1500 hours task.
2	Fuel pump	Check the fuel pump. This includes timing, phasing and calibration or replace the fuel pump if necessary

Note:-

Engine and Air cleaner- Oil grades

(a)	Above 90^0 F	-	Use SAE 30/HD 30
(b)	30^0 C to 90^0 F	-	Use SAE 20/HD 20
(c)	Below 30^0 F	-	Use SAE 10/HD 10

Transmission – Oil Grades

(a)	Above 90^0 F	-	Use SAE 140/HD140
(b)	Below 90^0 F	-	Use SAE 90/HD 90

General oiling – Oil Grades

Use SAE 10W at all temperatures

Grease Grades

(a)	Above 15^0 C	-	Use Grease No. 2
(b)	15^0 C to 10^0 C	-	Use Grease No. 1
(c)	Below 10^0 C	-	Use Grease No '0'

Do not attempt to adjust the FIP and governor in the absence of proper testing equipment.

CHECK CARD : PREVENTIVE MAINTENANCE
(ORIGINAL/DUPLICATE)

1. Project .....
2. Task Force.....
3. Unit .....
4. Make & Type ROAD ROLLER AVELING JESSOP
5. BA/EM NO. .....
6. Location .....

Action
After carrying out the preventative maintenance Task, IC Mobile maintenance team will enter its date in the month's column below and initial.

Srl No.	Tasks	J	F	M	A	M	J	J	A	S	O	N	D
1	08 Hours												
	(a)												
	(b)												
	(c)												
	(d)												
	(e)												
	(f)												
	(g)												
	(h)												
	(j)												
2	100 Hours												
	(a)												
	(b)												
	(c)												
	(d)												
3	250 Hours												
	(a)												
	(b)												
	(c)												
4	500 Hours												
5	1000 Hours												
6	2000 Hours												

Signature of SO1/SO2 EME Project .....

Date .....

Remarks .....

Note : Column 'J' to 'D' stands for months of the year.