DIRECTORATE GENERAL BORDER ROADS

GENERAL MAINTENANCE INSTRUCTION NO. 74

ON

MAINTENANCE AND LUBRICATION OF MOTOR GRADER MODEL D 144A (USSR)

Introduction

1. This instruction enumerates the periodic, preventive maintenance and lubrication of Motor Grader Model D-144 A (USSR).

Summary

2. Maintenance is essential to prolong the life of the equipment, keep it working efficiently at all times, minimize the breakdown and downtime. This is achieved by regular periodic and preventive maintenance.

Action by

3. (a) User units:- To carry out periodic Inspection/Maintenance and preventive Maintenance, at regular intervals as per details given in succeeding paragraphs. Arrange for timely repairs by Field Workshop to improve the roadworthiness of the equipment and arrest development of major defects.

(b) Field Workshops:- To check the Record of Maintenance and Lubrication in the log books of the equipments during inspection and repairs and to ensure that the maintenance is carried out regularly as per the schedule given in this instruction. Advise user unit and mobile maintenance team accordingly.

Details

4. Periodic and preventive Maintenance and details of Greasing points are given in appendices 'A' and 'B' to this instruction.

GMI No. 74 dated 21 Sep 1972

Appendix 'A' to HQ DGBR GMI NO 74 dt 21 Sep 72

MAINTENANCE AND LUBRICATION CHART OF MOTOR GRADER D-144A (USSR)

S/No	Nomenclature	Daily/10 hours	60 Hrs	120 Hrs	240 Hrs	500 Hrs	1000 Hrs
1	2	3	4	5	6	7	8
01	Diesel Engine Air Cleaner	Exchange oil in the sump depending on the dust condition (after 10 to 60 hrs). Wash the sump with diesel fuel and fill oil up to the level of circular bead.	-	-	-	-	Flush the air cleaner screen. Clean the pipe line.
02	Diesel Engine Crank Case	Check the oil level prior to each start up and at least after every 10 hrs. The oil level should reach the tip mark of the oil dip stick or be 15 to 20 MM above the mark.	-	Drain the oil from the crank case when engine is hot and refill	Flush the lubrication system.	-	-
03	Diesel Engine breather	-	-	Flush the breather packing in the diesel fuel. Sock in oil slightly prior to mounting.	-	-	-

04	Oil Filters	-	-	Whenever exchanging oil in the diesel engine crank case, flush the body of the filter and band filters using diesel fuel.	Exchange yarn filtering elements for now ones and replace their packing and wrapping.	-	-
05	Starting motor air cleaner	-	Exchange oil in the sump depending on the dust conditions (after 60 to 120 hrs of diesel engine operation). Wash the cartridge in diesel fuel. Fill the air cleaner sump with oil upto the upper edge of the inner bowl.	-	-	-	-
06	Starting motor crank case.	Check oil leverl prior to starting the motor. Oil should be on the level of tip mark of the oil dip stick.		-	Flush the crank case, fill fresh oil.	-	-
07	Starting motor breather	-	-	-	Wash the breather packing in diesel fuel and sock in oil slightlyu prior to mounting.	-	-
08	Starting motor clutch clip	Fill oil daily into the clutch housing (25 to 30 drops)	-	-		-	-
09	Bevel gear casing of starting motor manual crank drive	-	-	-	Check oil level. Top up to one half of level gear casing.	Check oil level. Top up to one half of level gear casing.	Flush the casing. Fill fresh oil.

10	Starting motor reduction gear casing	-	-	-	-	Check oil leve. Oil should be on the level tip mark of the oil dip stick.	Flush the casing and breather, fill fresh oil.
11	Starter	-	-	-	-	-	Exchange the lubricant in bearing, coat the splined surfaces of the shaft and gear.
12	Fuel pump housing	-	-	Check oil level. Fill oil upto the tip of the oil filler hole.	Flush the housing with diesel fuel. Fill fresh oill upto the top of oil filler hole.	-	-
13	Fuel tank	Fill the fuel tank at the end of every working day, and never leave the fuel tank filler neck open. Drain the sediments and water from the tank	Wash the packing of the filler cover every 60 hrs according to the dusty working condition.	-	Drain the fuel tank and remove. Wash the tank with clean diesel fuel and re-fit.	-	-
14	Injector	-	-	-	-	Remove the injectors. Clean the atomizing orifies with a special needle or using a 0.3 mm dia drill. Check the injector pressure. It should be 200 to 210 Kg/Sq cm.	

15	Fuel filter	-	Drain the sediment	-	Clean the slotted filter element and change the fine element.	-	-
16	Cooling system	Check water level and top up if necessary	-	-	-	-	Flush the system.
17	Fan belt	Check condition of belts	Check their proper tension		-	-	-
18	Battery	-	Check the electolyte level of battery. It should be (10 to 15mm) above the guard shield) beyond the separators. Apply mineral jelly.	Check the specific gravity of electolyte in each of the storage battery cells.	-	-	-
19	Clutch	-	(i) Drain oil accumulated in the flywheel load through hole.(ii) Check adjustment of clutch. The force applied to the lever handle should be within 15 to 25 Kg.	-	-	-	-
20	Gear box	-	Check oil level and tip up if necessary	-	Change oil	-	-
21	Control box housing	-	-	Check oil level and top up if necessary.	-	-	Change all.
22	Step up gear housing	-	-	-do-	-	-	-do-
23	Final drive housing	-	Check oil level and top up if necessary		Change oil		
24	Intermediate reduction gear.	-	-	Check oil lever and top up if necessary	-	-	Change oil.

25	Mould board turning mechanism worm reduction gear.	-	-	-do-	-	-	-do-
26	Mould board left and right hand lift level gear reduction gear.	-	-	-do-	-	-	-do-
27	Mould board right and left hand lift worm reduction gear	-	-	-do-	-	-	-do-
28	Scarifier lift bevel gear reduction gear.	-	-	Change oil level and top up if necessary	-	-	Change oil.
29	Scarifier lift worm reduction gear.	-	-	Change oil level and top up if necessary	-	-	Change oil.
30	Whell leaning worm reduction gear	-	-	Change oil level and top up if necessary	-	-	Change oil.
31	Balance truck reduction housing.	-	-	Change oil level and top up if necessary	-	-	Change oil.
32	Steering mechanism reduction gear.	-	-	-	-	-	-
33	Brake	-	-	Check the adjustment of the brake and fluid level in the master cylinder.	-	-	-
34	Rear axle floating bushings and thrust rings.	-	Mixture of universal grease (60%) and Motor oil (35%) and graphite (5%)	-	-	-	-

Appendix 'B' to HQ DGBR GMI No 74 dt 21 Sep 72

DETAILS OF GREASING POINTS OF MOTOR GRADER MODEL D-144A

S/No	Location of Grease Nipples	No of Greasing points	Periodicity for greasing the grease nipples in hours	Remarks
1	2	3	4	5
01	Hand brake lever bushng	1	60 Hrs	-
02	Steering column shaft bearings	2	60 Hrs	-
03	Clutch control, clutch pedal, clutch control crank bearings, interlocking mechanism transverse shaft bearing	4	60 Hrs	-
04	Red heads of lift and lowering mechanisms of mould board and mould board reach.	10	60 Hrs	-
05	Front wheel leaning rod crank pin.	2	60 Hrs	-
06	Tractive frame spherical head piece.	1	60 Hrs	-
07	Front axle king pin	2	60 Hrs	Replace grease
08	Mould board turning mechanism propeller shaft transmission bearing	1	120 Hrs	-
09	Front support bearing	1	120 Hrs	Replace grease
10	Mould board bracket catch	1	120 Hrs	Replace grease
11	Upper bearing of lower drive column shaft	1	60 Hrs	Replace grease
12	Column shaft clutch	1	120 Hrs	-
13	Main propeller shaft telescopic joint	1	60 Hrs	-
14	Needle bearings of cardon joints of drive to working organs.	19	60 Hrs	-
15	Fan bearing	1	240 Hrs	-
16	Main propeller shaft needle bearing	2	60 Hrs	-
17	Clutch middle plate bearing	1	10 Hrs	-
18	Bearing of the clutch central disc	1	10 Hrs	-
19	Clutch coller	1	10 Hrs	-
20	Clutch ball bearing starting engine	1	10 Hrs	-
21	Engagement clutch	1	10 Hrs	-
22	Front wheel knuckle lower bearing	2	60 Hrs	-
23	Front wheel crank pins	4	60 Hrs	-
24	Front axle wheel leaning rod joints	2	60 Hrs	-

25	Front wheel knuckle upper bearing	2	60 Hrs	-
26	Steering gear longitudenal and cross rod pivots.	2	60 Hrs	-
27	Scarifier lever shaft right hand bearing	1	60 Hrs	-
28	Propeller shaft bearing to wheel leaning reduction gear.	2	60 Hrs	-
	Rear axle floating bushings and thrust rings.	1	60 Hrs	-