

DIRECTOR GENERAL BORDER ROADS
GENERALS MAINTENANCE INSTRUCTION NO. 88

ON
MAINTENANCE AND LUBRICATION
OF
JEEP NISSAN PETROL 60

Introduction :-

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

Aim :-

2. (a) To enumerate the details of periodic and preventive maintenance and lubrication of JEEP NISSAN PETROL 60.
- (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 Maintenance the eqpt during its inspection and repairs, if carried out as per and Lubrication schedules given in this instruction.
 - (ii) Advise user units in respect of any discrepancy noticed.

Details :-

4. Details of Maintenance and Lubrication alongwith the periodicity have been tabulated in Appendix 'A' to this instruction. This instruction will read in conjunction with General Maintenance Instruction No. 38.

PREVENTIVE MAINTENANCE – JEEP NISSAN PETROL 60

S/No.	Item/Assys	Maintenance Instruction	Lubrication	No of points
1	2	3	4	5
1	General	DAILY TASKS (a) Check driving a new vehicle take precaution that it should not be driven above 50 Kms speed for intial 500 Kms. Afterwards raise the speed. (b) Check water or oil or gas for leak from any component. (c) Check visually all nuts and bolts for tightness or deficiency. (d) Check the interior and exterior of the vehicle		
2	Engine oil in sump	(a) Check oil level in oil sump and top up to maximum marking on the dipstick (b) Check oil pressure after starting the engine. Minimum oil pressure should be 0.5 Kg/Cm ² at temperature between 75 Degree to 90 Degree. Normal oil pressure is 3 to 4 Kg/Cm ²	Engine oil	1 1
3	Air cleaner	(a) Check oil level in air cleaner (b) Check oil condition in oil bath air cleaner. If dirty replace oil		1
4	Cooling system	(a) Check water level in radiator and if necessary fill with fresh and clean water (b) Check any leakage of water from radiator. (c) Check that radiator cap is properly tightened.		
5	Fuel system	(a) Fill up tank with clean petrol using a funnel with fine meshed wire strainer (b) Inspect bowl glass for sediment and water traces, if so clean. Check the case washer for serviceability.		1 1
6	Electrical system	(a) Check all electrical wiring for discontinuity, short circuit etc. (b) Check battery position, safe in its cradle and terminals clean.		1
7	Body and fitting	Check engine mounting for tightness		
8	Wheel and tyres	Check tyre pressure with tyre pressure gauge	Grease	1
9	Leakage	After days work check for any leakage from engine sump, gear box, differential (Rear and Front) wheel cylinder radiator		
10	During running	Check for exhaust smoke colour, unusual noise or vibration, keep close watch on gauges and meters.		

Note :-

1. Engine and Air Cleaner - Oil Grades
 - (a) 90 Degree and above - Use SAE 30
 - (b) 32 Degree F to 90 Degree F - SAE 20 or 20W
 - (c) Below 10 Degree F - Use SAE 10W
2. If oil pressure fall or raise the limits, report the vehicle to Field Workshop.
3. Tyre pressure in 650 x 16 tyres should be 2.5 Kg/Cm² (35Lbs/Sqr) in rear tyres. Front tyres 1.6 Kg/Cm² (22 Lbs/Sqr").

500 KMs MAINTENANCE TASK

1	-	Carry out daily maintenance tasks		
2	Engine	(a) Check engine oil level and top up if necessary (b) Clean engine oil by pass filter element with petrol	Engine oil	1
3	Air cleaner	(a) Inspect condition of oil in oil bath air cleaner. If found dirty change oil (b) Remove cover, take out filter element and clean interior of element with petrol.		1
4	Fan belt	Check fan belt for correct free movement which should be approximately 15 mm when pressed between generator and water pump/pulley		1
5	Transmission	Check oil level in gear box, transfer case, differential (Front and Rear) and top up if necessary	Gear oil	1 each
6	Body and fittings	(a) Check engine mounting pad for serviceability and nuts for tightness (b) Check steering mounting bracket for tightness (c) Check tightness of universal joint on propeller shaft (d) Check wheel for tightness		
7	Ignition system	Check wire connection of ignition coil, distributor cap and spark plugs so that the system is clean and free from moisture and oil.		
8	Suspension system	(a) Inspect springs and retighten 'U' Bolts. Check for any damage (b) Pass grease through grease nipples provided on each shackle pin. The old grease should be expelled out by fresh grease. (c) Check shock absorber for serviceability.		4 8
9	Lubricate/Grease the following points			
	(a) Distributor Lubrication	(i) Grease the distributor shaft by turning one turn of grease cup.	Grease	1

	(II) Lubricate distributor with engine oil	Engine oil	1
(b) Cam Lubrication	Cam hole on shaft be lubricated with engine oil with finger.	Engine oil	1
(c) Propeller shaft U Joint	Grease	Grease	1

Note :-

1. Engine and Air Cleaner - Oil Grades

- (a) 90 Degree and above - Use SAE 30
- (b) 32 Degree F to 90 Degree F - SAE 20 or 20W
- (c) Below 10 Degree F - Use SAE 10W

2. Main gear box. transfer case, Front and Rear Differential and Steering Box Oil Grades

- (a) Above 0 Degree C - Use Hyd 90
- (b) 0 Degree C to -26 Degree C - Use Hyd 75

3. Grease Nipple – Grease Grades

- (a) Above 0 Degree C - Grease No. 1
- (b) 0 Degree C to -26 Degree C - Grease No. '0'

4. To clean the air cleaner remove cover and take out filter element, clean the interior and element with petrol, pour clean engine oil up to the required mark, and re-assemble the element after it has been thoroughly dried.

5. The vehicle after completion of running in period will be sent to Field Workshop, Field Workshop will drain the engine oil from oil sump and examine the drained out oil to see the trace of metal due to excessive wear. The workshop will carry out the adjustments and the tune up the engine if considered necessary.

6. First engine oil to be changed by Field Workshop of Mobile Maintenance Team for checking the excessive wear in engine components.

7. If moisture or oily this will likely cause fast deterioration to wire insulation causing misfiring of engine.

8. If service found unsatisfactory direct the vehicle to Field Workshop.

9. Always keep the cup filled with grease. To do so remove the distributor cap and rotate and apply one or two drops of oil/felt under rotor.

1000 KMs MAINTENANCE TASK

1	-	Carry out daily 500 Kms maintenance tasks	
2	Brakes	(a) Check hand brake is in acting position. It will act fully when pulled to 6 th or 7 th notch of the retched.	1

		(b) Check free movement of foot brake pedal. Free movement of foot brake pedal is from 10 mm to 20 mm		1
3	Clutch pedal lubrication	Lubricate	Engine oil	1
4	Battery	(a) Check electrolyte level in battery. Top up with distilled water if required. The level should be 10 mm above the surface of the plates.		1
		(b) Check specific gravity recharge the battery if specific gravity found below 1200. Specific gravity should be between 1200 and 1300		2
		(c) Check that battery terminals are clean and dry and + terminal is earthed.		
		<u>1600 KMs MAINTENANCE TASK</u>		
1	-	Carry out daily maintenance tasks		
2	Engine	Change engine oil	Engine oil	1
3	Air cleaner	Change oil in air cleaner	Engine oil	1
4	Oil filter	Clean oil filter element		
5	Clutch pedal	(a) Check play in clutch and pedal and adjust correct free play of clutch pedal. Correct free play of clutch should always be between 15 to 25 mm		
		(b) Lubricate the clutch pedal shaft linkage and release yoke shaft.	HD 30	each
6	Transmission system	Check gear box and transfer case oil level and top up if necessary	Gear oil	each
7	Starter motor	Lubricate starter motor with 5 to 6 drop of engine oil. Clean the commutator surface, if necessary with fine sand paper. This should be done by Field Workshop.	Engine oil	1
8	Electrical system			
9	Steering gear	(a) Check for excessive play in steering gear components. The play of the steering wheel when measured at the rim should not exceed 30 mm. Keep the steering gear box filled with oil		
		(b) Lubricate all points of steering linkage i.e. draglink, tie rod, socket steering arm.	Grease	
		(c) Top up the level	Grease	
10	Front and Rear axle (Differential)	Check oil level and top up	Gear oil	2
11	Foot brake	Check that the system is fully filled with brake fluid No. 3. Replenish if necessary and lubricate foot brake pedal.	Brake Fluid No. 3	
12	Lubricate the following points :-			

(a) Propeller shaft universal joint	Grease	Grease No. 1	4
(b) Front and rear shock absorber	Lubricate. To be done by Field Workshop only.	Shock absorber fluid	4
(c) Water pump bearing	Grease	Grease No. 1	1
(d) Road spring shackle pins	Grease	Grease No. 1	8
(e) Propeller shaft sleeve yoke	Grease	Grease No. 1	2
(f) Clutch release bearing and shaft	Grease	Grease No. 1	2
(g) Brake pedal shaft	Grease	Grease No. 1	1
(h) Transfer case control lever	Lubricate	Engine oil	1
(j) Side brake lever	Lubricate	Engine oil	1
(k) Rear axle differential	Lubricate	Gear oil	1
(l) Toe hook joint pin	Lubricate	Engine oil	1
(m) Steering arms	Grease	Grease No. 4	2
(n) Generator armature shaft, bearing	Grease	Grease	1
(o) Starter Motor bearing	Grease	Grease	1
(p) Hings and bonnet, side and rear doors ventilator	Lubricate	Engine oil	1
(q) CV joints	Grease	Grease	1

Note :-

1. Engine and Air Cleaner - Oil Grades

- | | | | |
|-----|----------------------------|---|---------------|
| (a) | 90 Degree and above | - | Use SAE 30 |
| (b) | 32 Degree F to 90 Degree F | - | SAE 20 or 20W |
| (c) | Below 10 Degree F | - | Use SAE 10W |

2. Main gear box. transfer case, Front and Rear Differential and Steering Box Oil Grades

- | | | | |
|-----|----------------------------|---|------------|
| (a) | Above 0 Degree C | - | Use Hyd 90 |
| (b) | 0 Degree C to -26 Degree C | - | Use Hyd 75 |

3. Grease Nipple – Grease Grades

- | | | | |
|-----|---------------------------|---|----------------|
| (a) | Above 0 Degree C | - | Grease No. 1 |
| (b) | 0 Degree C to 26 Degree C | - | Grease No. '0' |

4. Under the adverse condition of driving i.e driving over dust roads, short runs or cold weather etc. the engine oil should done be changed more frequently.

5. Crank case oil dilution should be avoided short run in cold weather such as city driving do not permit the though warning of the engine nor the efficient operation of Automatic control device. In such conditions engine oil be changed more frequently

EVERY 3200 KMs MAINTENANCE TASKS

1	-	Carry out daily, 500 Kms, 1000 kms and 1600 Kms maintenance tasks		
2	Oil filter	Replace by pass oil filter element. after refitting the element, run the engine for few minutes, re-check the oil level and add if required		1
3	Fuel system	Clean fuel tank and strainer		2
4	Wheel and tyres	(a) Carry out tyre rotation (b) Remove tyre from rim, clean and paint with rim paint if required.		5 5
5	Water pump	Lubricate the water pump bearing	Grease	1

EVERY 8000 KMs MAINTENANCE TASKS

1	-	Carry out daily maintenance tasks		
2	Engine oil	Drain engine oil, remove sump, clean all sludge and dirt and refill it with oil .	Engine oil	1
3	Cooling system	(a) Drain out water, flush out cooling system with clean and soft water, by opening both the cocks. (b) Inspect rubber packing inside of the radiator cap and replace if necessary.		1
4	Fuel system	Drain fuel from tank, disassemble and clean the tank and strainer and refit.		1
5	Electrical system	Replace old grease in dynamo bearing and soft starter bearing . To be done by Field Workshop.	Grease	4
6	Transmission	Drain and refill gear box and transfer case with gear oil. The right level of oil is up to the level of the filler hole.	Gear oil	1
7	Front and Rear axle	Change oil from differential both front and rear. When draining oil, remove the drain plug soon after the vehicle has been driven for a while than oil will flow itself. Refit the plug. Refit the casing with new oil up to the lower rim of the filler hole	Gear oil	1
8	Front and rear axle hub	Replace grease	Grease No. 3	

CHECK CARD : PREVENTIVE MAINTENANCE
(ORIGINAL/DUPLICATE)

1. Project 4. Make & Type JEEP NISSAN PATROL - 60
 2. Task Force..... 5. BA/EM NO.
 3. Unit 6. Location

Action
 After carrying out the preventative maintenanceTask, 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	Daily												
	(a)												
	(b)												
	(c)												
	(d)												
	(e)												
	(f)												
	(g)												
	(h)												
	(j)												
	(k)												
	(l)												
	(m)												
2	500 Kms Task												
	(a)												
	(b)												
	(c)												
	(d)												
3	1000 Kms task												
	(a)												
	(b)												
	(c)												
4	1600 Kms Task												
5	3200 Kms Task												
6	8000 Kms Task												

Signature of SO1/SO2 EME Project

Date

Remarks

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