

DIRECTORATE GENERAL BORDER ROADS
GENERAL MAINTENANCE INSTRUCTION NO. 86
ON
MAINTENANCE AND LUBRICATION
OF
JEEP WILLYS/STATION WAGON WILLYS

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 JEEP WILLYS/STATION WAGON WILLYS.
- (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.

PREVENTIVE MAINTENANCE FOR JEEP WILLYS/STATION WAGON WILLYS

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

DAILY TASK

- | | | | | |
|-----|--------------------|--------------------------------------------------------------------------------------------------|------------|---|
| 1. | | (a) Check oil, water or gas for leaks. | | |
| | | (b) Check for exhaust smoke colour noise or vibration | | |
| | | (c) Check all gauges and meters are serviceable. | | |
| | | (d) Check all bolts and nuts if loose or deficient and rectify. | | |
| 2. | Engine sump | Check oil level and top up if necessary | Engine Oil | 1 |
| 3. | Radiator 1 | Top up water up to level | | |
| 4. | Fan Belts 1 | Check fan belt tension (12.5 mm) | | |
| 5. | Battery | Top up electrolyte ¼ " from top | | 1 |
| 6. | Electrical system | Check Horn, lights, oil pressure, warning light, alternator warning light etc for serviceability | | 4 |
| 7. | Steering 1 | Check steering wheel free play | | |
| 8. | Tyres 4 | Check tyre pressure | | |
| 9. | Brake and clutch | Check free play | | 2 |
| 10. | Engine and Chassis | Listen for unusual knocks in engine while running and in chassis | | |

1. Engine and Air Cleaner-Oil Grades

- | | | | |
|-----|-----------------------------------------------------|---|----------------------------------|
| (a) | Above 90 ⁰ F (32 ⁰ C) | - | Use SAE 30/10W-30 |
| (b) | Not lower than 32 ⁰ F (0 ⁰ C) | - | Use SAE 20/20W, 10W-30 or 10W-20 |
| (c) | As low as 10 ⁰ F(-12.3 ⁰ C) | - | Use SAE 20W, 10W-30 or 10W-20 |
| (d) | As low as -10 ⁰ F (-22 ⁰ C) | - | Use SAE 10W, 10W-30 or 10W-20 |
| (e) | Below -10 ⁰ F (-23 ⁰ C) | - | Use SAE 5W, 5W-20 |

| | | | | |
|---|---|--|---|---|
| 1 | 2 | | 4 | 5 |
|---|---|--|---|---|

800 KMs Task

- | | | | | |
|----|-----------------------------|---------------------------------------------------------------------------------------------------------------------------|------------|---|
| 1. | | Carry out daily Maintenances task | | |
| 2. | Engine | (A) Change Engine oil of New / overhauled engine after First 800 Kms (Running in Period). Flush out engine thoroughly. | Engine Oil | |
| | | (b) Check engine Mountings. | | |
| 3. | Air cleaner | Inspect Condition of oil in both air cleaner. if found dirty change oil and clean filter element. | Engine oil | |
| 4. | Clutch | Check free movement of this clutch. It should be (25.4mm) | | |
| 5. | Transmission | Check oil level and top up if necessary | GL 4 | 2 |
| 6. | Differential front and rear | -do- | GL 4 | 2 |
| 7. | Steering gear Box | -do- | GL 4 | 2 |

Note:-

Engine and Air cleaner- Oil grades

- | | | | |
|-----|---------------------------------------------|---|------------------|
| (a) | Above 32 ⁰ C (90 ⁰ F) | - | Use SAE 30/HD 30 |
| (b) | 32 ⁰ C to - 10 ⁰ C | - | Use SAE 20/HD 20 |
| (c) | Below-10 ⁰ C | - | Use SAE 10/HD 10 |

Gear Box Transfer Case, Front and Rear Axles and steering

- | | | | |
|-----|----------------------------------------|---|----------------------|
| (a) | Above 15 ⁰ F | - | Use SAE 90/Hypoid 90 |
| (b) | 15 ⁰ F to 15 ⁰ F | - | Use SAE 80/Hypoid 75 |

Front and Rear wheel bearing

- | | | | |
|-----|------------------------------------------|---|-----------------------------------------------------------------|
| (a) | Above 15 ⁰ F | - | Use wheel bearing grease No 2 or No 3. |
| (b) | 15 ⁰ F to - 15 ⁰ F | - | Use wheel bearing grease No 2 or grease wide temperature range. |

Grease Grades

- | | | | |
|-----|--------------------------------------------|---|-------------------|
| (a) | Above 15 ⁰ C | - | Use Grease No 2 |
| (b) | + 15 ⁰ C to - 15 ⁰ C | - | Use Grease No 'O' |

| | | | | |
|---|---|--|---|---|
| 1 | 2 | | 4 | 5 |
|---|---|--|---|---|

1600 KMs Task

| | | | | |
|-----|------------------------------------------|---------------------------------------------------------------------------|-------------|----|
| 1. | | Carry out Daily and 800 KMs Task. | | |
| 2. | Engine | Change engine oil. Clean Air cleaner element and change oil. | Engine Oil | 2 |
| 3. | Cooling system | Check adjustment of fan belt. | | 1 |
| 4. | Battery | Top up batteries with distilled water 3/8 " (9.53 mm above the plates) | | 1 |
| 5. | Electrical system | (a) Clean and adjust the spark plug-.030" (0.76) mm | | |
| | 4 | (b) Check and adjust CB point gap-0.20" (0.51 mm) | | |
| | 1 | | | |
| 6. | Starter Motor | Lubricate Starter motor bearing | Engine Oil | 1 |
| 7. | Clutch | Lubricate the clutch pedal shaft, links and release yoke shaft. | Grease No 1 | 1 |
| 8. | Transmission | Check oil level and top up if necessary | Gear oil | 2 |
| 9. | Steering Gear Box | Check oil level and top up | GL 4 | 1 |
| 10. | Differential front and Rear | Check oil level and top up if necessary. | GL 4 | 2 |
| 11. | Steering Linkage | Lubricate all points on steering linkage. | Grease No 1 | 9 |
| 12. | Propeller Shaft/ Universal joints | Lubricate the universal joints | Grease No 1 | 6 |
| 13. | Brakes | (a) Check the oil level in the master cylinder and replenish if necessary | Brake Fluid | 1 |
| | | (b)Lubricate foot brake pedal shaft and brake linkage. | Grease No 1 | 1 |
| 14. | Road Spring shackle pins front and Rear. | Lubricate all the points | Grease No 1 | 12 |

Note:-

Engine and Air Cleaner – Oil Grades

| | | | |
|-----|---------------------------------------------|---|------------------|
| (a) | Above 32 ⁰ C (90 ⁰ F) | - | Use SAE 30/HD 30 |
| (b) | 32 ⁰ C to - 12 ⁰ C | - | Use SAE 20/HD 20 |
| (c) | Below minus 12 ⁰ C | - | Use SAE 10/HD 10 |

| | | | | |
|---|---|--|---|---|
| 1 | 2 | | 4 | 5 |
|---|---|--|---|---|

Gear Box, Transfer Case, Front and Rear Axles and steering Gear Housing

- (a) Above 15⁰ F - Use SAE 90/Hypoid 90
- (b) 15⁰ F to - 15⁰ F - Use SAE 80/Hypoid 75

Front and Rear Wheel Bearings

- (a) Above 15⁰ F - Use wheel bearing grease No 2 or No 3
- (b) 15⁰ F to - 15⁰ F - Use wheel bearing grease No 2 or grease wide temperature range.

Grease Grades

- (a) Above +15⁰ C - Use Grease No 2
- (b) +15⁰ C to - 15⁰ C - Use Grease No 'O'

3200 KMs Task

- | | | | |
|----|------------|------------------------------------------|---|
| 1. | | Carry out 800 Kms, 1600 Kms maint tasks. | |
| 2. | Oil Filter | Clean filter and replace element | 1 |
| 3. | Tyres | Carry out tyre rotation. | 4 |

Every 4.800 Kms Task

- | | | | |
|----|-------------|-----------------------------------------------------------|---|
| 1. | | Carry out 800 KMs, 1600 KMs and 3200 KMs Maintenance Task | |
| 2. | Fuel System | Clear the fuel strainer | 1 |

Every 8.000 KMs Task

- | | | | |
|----|-------------------------------|----------------------------------------------------------------------|-------------|
| 1. | | Carry out 8 00 KMs, 1600 KMs, 3200 KMs and 4800 KMs Maintenance Task | |
| 2. | Gear box and transfer case | Drain and refill the assemble 90 Hypoid | 1 |
| 3. | CV joint 2 | Replace the grease on both side | Grease No 1 |
| 4. | Front and 2 | Change oil in differentials | 90 Hypoid |
| 5. | Rear axles Wheel hubs 4 | Replace the grease in front and rear hubs | Grease No 3 |
| 6. | Cooling system | Flush out cooling system | 1 |

| | | | | |
|---|---|--|---|---|
| 1 | 2 | | 4 | 5 |
|---|---|--|---|---|

Engine sump and Air Cleaner –Oil Grades

- (a) Above 32⁰ C (90⁰ F) - Use SAE 30/HD 30
- (b) 32⁰ C to - 12⁰ C - Use SAE 20/HD 20
- (c) Below - 12⁰ C - Use SAE 10/HD 10

Gear Box, Transfer Case, Front and Rear Axles and steering Gear Housing

- (a) Above 15⁰ F - Use SAE 90/Hypoid 90
- (b) 15⁰ F to - 15⁰ F - Use SAE 80/Hypoid 75

Front and Rear Wheel Bearings

- (a) Above 15⁰ F - Use wheel bearing grease No 2 or No 3.
- (b) +15⁰ F to - 15⁰ F - Use wheel bearing grease No 2 or wide temperature range grease .

Grease Grades

- (a) Above +15⁰ C - Use Grease No 2
- (b) +15⁰ C to - 15⁰ C - Use Grease No 'O'

CHECK CARD : PREVENTIVE MAINTENANCE
(ORIGINAL/DUPLICATE)

- | | |
|--------------------|-----------------------------------|
| 1. Project | 4. Make & Type <u>JEEP WILLYS</u> |
| 2. Task Force..... | of Equip-ment <u>STATION</u> |
| 3. Unit | 5. BA 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 | Daily | | | | | | | | | | | | |
| | (a) | | | | | | | | | | | | |
| | (b) | | | | | | | | | | | | |
| | (c) | | | | | | | | | | | | |
| | (d) | | | | | | | | | | | | |
| | (e) | | | | | | | | | | | | |
| | (f) | | | | | | | | | | | | |
| | (g) | | | | | | | | | | | | |
| | (h) | | | | | | | | | | | | |
| | (j) | | | | | | | | | | | | |
| | (k) | | | | | | | | | | | | |
| | (l) | | | | | | | | | | | | |
| | (m) | | | | | | | | | | | | |
| | (n) | | | | | | | | | | | | |
| 2 | 800 KM | | | | | | | | | | | | |
| | (a) | | | | | | | | | | | | |
| | (b) | | | | | | | | | | | | |
| | (c) | | | | | | | | | | | | |
| | (d) | | | | | | | | | | | | |
| 3 | 1600 KM | | | | | | | | | | | | |
| | (a) | | | | | | | | | | | | |
| | (b) | | | | | | | | | | | | |
| | (c) | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 4 | 3200 KM | | | | | | | | | | | | |
| 5 | 4800 KM | | | | | | | | | | | | |
| 6 | 8000 KM | | | | | | | | | | | | |

Signature of SO1/SO2 EME Project

Date

Remarks

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