

# **ANNEXURE – 13.1.**

## **Hydraulic Vehicle Inspection Schedule**

### **Daily Checking.**

- I. Water topping in radiator
- II. Engine Oil level
- III. Visual type pressure to be checked
- IV. Complaint of driver to be attended

### **For Hydraulic System checking.**

- I) Check oil level of oil tank
- II) Check leakage of oil; change oil seal if required.
- III) Tighten all connections
- IV) Check hydraulic operations; set pressure, if required.

### **2000 KM Visual checking or 15 days checking.**

#### **A. Engine**

- 1. Check fuel line leakage
- 2. Check engine oil leakage
- 3. Check water leakage
- 4. Start engine, check and adjust engine idling and stop level
- 5. Change front and rear engine foundation
- 6. Check pressure leakage and cure it.

#### **B. Admission**

- 1. Check clutch pedal free play and take judgement for clutch dish plate.
- 2. Check gear and diff. Oil leakage and cure it.
- 3. Check joint line play and change it.
- 4. Check all joint bolt and tight/change.

**C. Brake**

1. Check leakage in brake system
2. Check liners and adjust brake
3. Clean air tank

**D. Fuel**

Check fuel tank cap & ring and change

**E. Electrical**

1. Check fan belt and tight it
2. Check level of electrolyte and top up
3. Check rod of alternator/dynamo
4. Check all lights and switches.

**F. Chassis**

Check shackle brackets, bolts, spring, leaf spring centre and tight U bolts.

**G. Tyre**

1. Fill up air in tyre
2. Tight wheel nuts
3. Remove stones between two tyres
4. Change polish tyres

**H. Body**

Tight bumper, check seats and rest of necessary, tight it and if necessary change it. Check steering of the bolt, side signal and horn. Check windscreen glass.

## **4000 Km checking (General Checking)**

### **A. Engine**

1. Clean engine, check oil leakage, if informed change engine oil and oil filter if in mileage.
2. If oil changed in vehicle, do as per under.
  - a) Check tappets
  - b) Clean fuel filter bowl
  - c) Clean feed pump pre filter
3. Clean air cleaner and change oil
4. Check oil level of fuel pump. Tight bolts of fuel pump coupling.
5. Check fuel connection including injector pipes
6. Check unloader valves; brake pedal valve, dual brake valve, and stand brake and system protection valve.
7. Check engine oil pressure in cold position and also check blow back and smoke
8. If there is no dipstick fit it
9. Check engine running and accelerator connection
10. Check radiator/water pump for leakage, grease water pump bearing, check radiator hose pipe and radiator support.
11. Check dumper pulley
12. Check timing covers oil seal for leakage
13. Clean diesel tank from outer side, check its cap & ring, and if needed, change it.
14. Check engine foundation and bolts
15. Clean oil breather and if needed replace it.

## **B. Brake**

1. Check oil in hydraulic brake system. Clean brake oil reservoir tins and also checks for leakage.
2. Drain pressure tank. Check brake pedal pin or bolt/change.
3. Check all pipe connection of brake system. Also check brake diaphragm for leakage, check brake setting/change.
4. Check brake drum and liner and set brake.
5. Check brake pedal free travel.
6. Tight all axle studs, if necessary change axle shaft and fit it with spring washer.
7. Open front hubcap & grease if in vehicle oil change.
8. Check air pressures and adjust it.

## **C. Steering**

1. Check steering connection and foundation bolts, ball pin with 130 to 150 PS, pressure.
2. Oil king pin and steering box.

## **D. Transmission system: clutch, gear, joint, differential.**

1. Check clutch pedal plug, gear level, thrust bearing, clutch rod sockets, gear top and gears round bolts.
2. Grease clutch thrust bearing and check fork.
3. Check gear oil and top up. Check for leakage of gear oil seal and flange nut.
4. Check cover of gear die, if it is not, then fit it.
5. Check drives oil and top U. Check pinion, oil seals and covers for leakage.
6. Check breather of gear and diff.
7. Check propeller shaft, U-bolts, joint bearing and all unique joint bolts and tight and if needed, change it.

**E. Lubrication**

Lubricate all the points in chassis.

**F. Spring**

Tight all spring, U bolts with T spanner, check springs crossmember bolts, body bolts and bumper bolts and tight.

**G. Electrical**

1. Clean battery, top up electrolyte, check gravity clean terminals and grease it.
2. Check dynamo alternator changing rate and fan belt.
3. Check self starter and starter foundation studs.
4. Check all lights, one off switches, fuse system and wiring, clean roof light glass.

**H Tyre**

1. Check tyre for puncture, fill pressure if needed tight wheel nut.
2. Change tyre if it is polish/wear out/damage
3. Remove stone if there is in between two tyres.

## **ANNEXURE-13.2**

### **Schedule of Maintenance of trucks & vehicles.**

#### **I) Daily checking**

1. Water hopping in radiator
2. Engine oil level.
3. Tyre pressure (visually)
4. Complain of driver to be attended.

#### **II) Hydraulic system**

1. Check oil level or oil tank.
2. Check leakage, change oil seal if required.
3. Tighten all connection.
4. Check hydraulic operation, set pressure if required.

## **Visual Checking to be carried out after every 2000 Kms. or 15 days**

### **A. Engine**

1. Check fuel line leakage
2. Check engine oil leakage
3. Check water leakage
4. Start engine, check and adjust engine idling and stop lever
5. Change front and rear engine foundation
6. Check pressures leakage and cure it.

### **B. Transmission**

1. Check clutch pedal free play & take judgement for clutch dish plate.
2. Check gear & diff. Oil leakage & cure it.
3. Check joint line play and change it
4. Check all joint bolt and tight/change

### **C Brake**

1. Check leakage in brake system
2. Check liners and adjust brake
3. Clean air tank

### **D. Fuel**

check fuel tank capand ring and change.

### **E. Electrical**

1. Check fan belt and tight it.
2. Check level of electrolyte and top up
3. Check rod of alternator/dynamo
4. Check all lights and switchers

**F. Chassis.**

Check shackle brackets, bolts, spring leaf spring centre & tight U bolts.

**G. Tyres**

1. Fill up air in tyre
2. Tight wheel nuts
3. Remove stones between two tyres
4. Change polish tyres
5. Report for which tyres wears because of mechanical defects.

**H. Body**

Tight bumpers, check steering of the bolt, side signal and horn. Check wind screen glass.

**Checking to be carried out after every 4000 Kms.**

**A. Engine**

1. Clean engine, check oil leakage, change engine oil and oil filter if in mileage.
2. When you change oil in vehicle do as under:-
  - a) Check Tappets
  - b) Clean fuel filter bowl
  - c) Clean FD pump pre filter
3. Clean air cleaner and change oil.
4. Check oil level of fuel pump. Tight bolts of fuel pump coupling.
5. Check fuel connection including injector pipes.
6. Check unloader valve, brake pedal valve, dual brake valve, stand brake and system protection valve.

7. Check engine oil pressure in cold position and also check blowback and smoke.
8. If there is no dipstick fit it.
9. Check engine running and accelerator connection.
10. Check radiator/water pump for leakage, grease water pump bearing, check radiator hose pipe and radiator support.
11. Check dumper pulley.
12. Check timing covers oil seal for leakage.
13. Clean diesel tank from outer side and check its cap and ring, if needed change.
14. Check engine foundation and bolts.
15. Clean oil breather, if needed, replace it.

## **B. Brake**

1. Check oil in hydraulic brake system. Clean brake oil reservoir tin and also check for leakage.
2. Drain pressure tank. Check brake pedal pin or bolt/change.
3. Check all pipe connection of brake system. Also check brake diaphragm for leakage, check brake setting/change.
4. Check brake drum and liner and set brake.
5. Check brake pedal free level.
6. Tight all axle studs, if necessary change axle shaft and fit it with spring washer.
7. Open front hubcap and grease if in vehicle in which oil change.
8. Check air pressure and adjust it.

## **C. Steering**

1. Check steering connection and foundation bolts. Tight ball pin with 130 to 150 PS, Pressure.

2. Oil king pin and steering box..

**D. Transmission system : Clutch, Gear, Joint, and Differential.**

1. Check clutch pedal plug, gear lever, thrust bearing clutch rod sockets, gear top and gear round bolts.
2. Grease clutch thrust bearing and check fork.
3. Check gear oil and top up. Check for leakage of oilseal and flange nut.
4. Check cover of gear die, if it is not there, fit.
5. Check diff. Oil and top up. Check pinion, oil seal and cover for leakage.
6. Check breather of gear and diff.
7. Check propeller shaft, U joint bearing and all unique joint bolts and tight if needed change.

**E. Lubrication**

Lubricate all the points in chassis.

**F. Spring**

Tight all spring U bolts with T spanner, check springs, cross member bolts, body bolts and bumper bolts and tight.

**G. Electrical**

1. Clean battery. Top up electrolyte, check gravity clean terminals and grease it.
2. Check dynamo/alternator changing rate and fan belt.
3. Check self-starter and starter foundation studs.
4. Check all lights, on off switches, fuel system and wiring, clean roof light glass.

**H. Tyre**

1. Check tyre for puncture, fill pressure if needed tight wheel nut.
2. Change tyre if it has worn out/damaged.
3. Remove stone if they're in between two tyres.

## **Inspection for maintenance at 2400 Kms.**

### **A. Engine**

1. Check all diesel and oil pipes for leakage and clamp the same properly.
2. Clean the feed pump pre filter.
3. Change diesel filter in mileage.
4. Change in the injectors.
5. Check Bosch pump timing, its mounting and tight timing bolt.
6. Open the bosch pump cover and do oiling
7. Change air cleaner
8. Change the oil and oil filter in mileage
9. Fit the dipstick if missing.
10. Change valve cover packing.
11. Clean the breather.
12. Do tappet setting (0.20") for Henna Engine concern the respective authority.
13. Check exhaust manifold and silencer and repair it if needed. Check and set accelerator connections and oil it. Check water pump pulley, fan and fan bolt.
14. Change water pump if needed or regrease it.
15. Tight cylinder head nuts in recommended order
16. Change water pump if needed or regrease it.
17. Tight cylinder head nuts in recommended order.
18. Change, unloader valve, hand brake valve, dual brake valve, system protection valve, if in mileage or check for any leakage's
19. Check system air pressure, adjust the system air pressure.
20. Change the units, which are in mileage.
21. Open brake line air filters clean/change and refit.
22. Check/change brake pedal valve.

## **B. Brake**

1. Over haul both front, rear brakes and change the bearing grease.
2. Change the front axle if in mileage.
3. Change the camshaft in mileage and change brake chambers in mileage or leakage.
4. Check and change oil seals and its rings and required wheel bearing, also set wheel bearing play.
5. Check all brake hoses and change if required. Set its position to avoid any wearing.
6. Check and tight or replace all chassis pot pipe.
7. Check hub, axle stud and replace where necessary.
8. Axle stud should procured 5/10@ check axle shaft holes and willing if required replace axle shaft.
9. Check sluck adjustment and replace if required.
10. Check/replace pr.meter.
11. Drain the air tank.
12. Check/replace brake pedal fulcrum pin and bolts.

## **C. Clutch and gears.**

1. Change clutch disc plate/prt.plate/gear box if in mileage on having defect.
2. Check/replace clutch pedal bush.
3. Check/replace clutch rod socket. Jaw pin.
4. Check/replace flywheel ring.
5. Check/replace the bearing fork.
6. Tight gem housing bolts with spring washer.
7. Set the clutch and adjust free play (3.75").
8. Top up change gear oil.
9. Fit geardie inspection play.

10. Check/change gear die.
11. Check gear die bolt/stud. Check/tight gear lever rock bolt.
12. Check/change/tight joint bolt, check gearbox flange for hole and if required change.

**D. Differential and steering.**

1. Check milling and flange hole of pro.shaft, yolk and centre bearing and change.
2. Check/change joint bolts.
3. Check/change centre bearing bolts.
4. Check steering connection, remove play and do steering reloading.
5. Check and change all steering ends.
6. Tight ball pin nut with 130/150 PSI pressure.
7. Top/change steering oil
8. Top /change dif. Oil.
9. Change differential given in mileage on defect
10. Check/tight/change/saddle bracket bolts.
11. Check/tight/change I bolts and U bolts with help of T spanners.
12. Check leaf springs and chassis and give reports.
13. Tight diff. Tube studs.

**E. Diesel, tank, greasing/brake chamber.**

1. Do greasing in suspension, accelerator, and in need full units.
2. Drain diesel tank and change it if leakage.
3. Clean diesel tank plug net.
4. Fit rubber packing both diesel tank, bolt and tank.
5. Tight diesel tank bracket and mounting bolts.
6. Check/change rubber O/F pipe.
7. Check/change diesel tank cap and return spring and rubber rings.
8. Change front brake chamber in mileage or leakage.

**F. Radiator/Engine foundation/Coil/Kingpin.**

1. Change radiator and hose pipes.
2. Change/check front & rear engine foundation bush meter cones.
3. Check/change engine foundation pin and fit quarter pin.
4. Check and change engine side support bolts and its pads.
5. Check/change radiator mounting pads.
6. Adjust the king pin and do wheel alignment.

**G. Auto electric.**

1. Check/change starter/alternator/batteries.
2. Remove all the batteries from battery box deems the battery box and refit.
3. Check/change starter/chassis earthing wire, main wire, jumper wires.
4. Check/change wire socket battery terminal and apply jelly.
5. Top up the battery with dist. Water mix upto 1/2" above plates.
6. Check/change starter push button.'check/change fan belts.
7. Check/change fan belts.
8. Check/change lighting switches, fuse and junction wiring.
9. Check/change route board/rood light/brake light/parking light/head light/side signal/dipper switch/all tube lights and covers.
10. Clean head light seal beam, roof light glass, tube light covers, and adjust headlights.

**H. Body**

1. Check and replace or repair driver seats.
2. Check driver seat's gear and oil it.
3. Check/change side glass, looking glass and all glasses.
4. Check/repair/change grill, bonnet, front rear bumpers, horn, horn bulb, windscreen glass and its bracket, lock of driver cabin doors.
5. Fit horn with proper cleaning and position.

**I. Tyre**

1. Change punctured tyres.
2. Check tyre pressure and check/changer wheel plates if required.
3. Change worn out, polish, damaged tyres.
4. Remove stones, bolts from tyres.

**J. Cleaning/paint.**

1. Cleaning all the glass from both the sides.
2. Paint the required part with some colour.

## **ANNEXURE – 13.3**

### **Minimum equipments/tools required for workshop to maintain a fleet of up to 50 vehicles.**

1. 5 HP Air Compressor
2. Car washing machine
3. 150 amp. Welding machine for fabrication and body work.
4. One ton capacity lib crane preferably mechanically operated.
5. Battery charging machine having capacity of 12 Volt, 6 batteries, battery tester such as hydro meter, volt meter, etc.
6. Working table along with vice for repairing aggregates.
7. Tube vulcanizing machine tyre inflator.
8. Pneumatic grease pump, grease gun, etc.