

JOB ROLE – AUTOMOTIVE SERVICE TECHNICIAN

Sector: Automotive
(Qualification Pack Code : **ASC/Q01402**)



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UNIT 3 : Transmission System

Session 4: A : Transmission System

B: Introduction to the Automatic Transmission System

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Session Objectives

1. The student will be able to understand and explain the procedure for servicing and adjustment of differential unit.
2. Able to find causes of faults in differential unit and suggest suitable remedies .
3. Able to carry out adjustments in differential unit .

Introduction

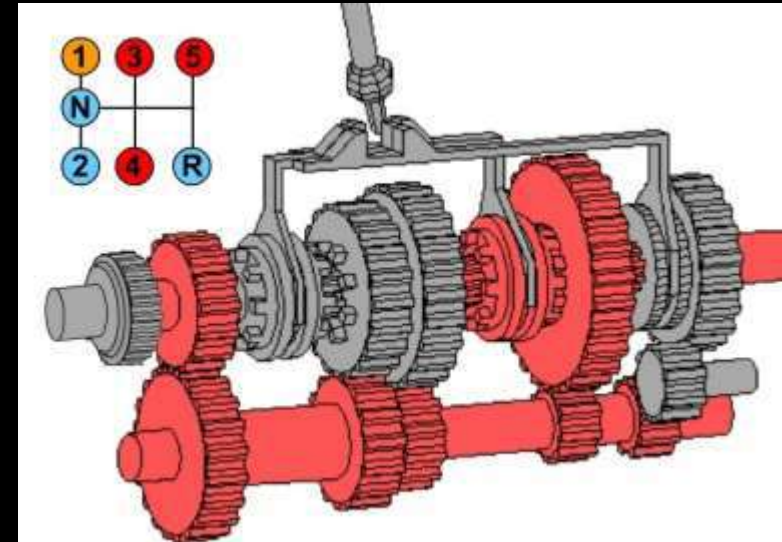
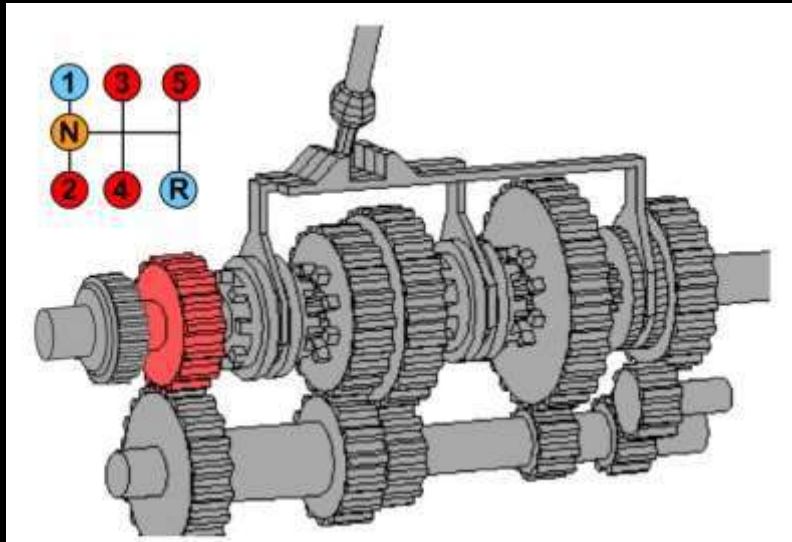
The Gearbox is placed between engine & propeller shaft/differential.

The gear box is used to increase the attractive efforts of an engine power to overcome the following resistances:

1. To overcome the air resistance.
2. To overcome the gradient resistance.
3. To overcome the load resistance.
4. To overcome the road resistance

Continue

In maintenance of the gearbox Carry out oil change at regular intervals. Shift the gear gently to reduce friction and power loss. Inspect the s the components of the gear selective mechanism and provide necessary adjustments. At regular intervals If the transmission is not sending drive through respective gear follow the gear box overhauling procedure.



Procedure

1. Overhauling of gear box process.
2. Dismounted self starter by unthreading both bolts.
3. Unscrewed clamps of inlet hose pipe and serrated them from engine and gear box.
4. Unthreaded all bolts of gear box assembly and serrated it from engine and engine plate.
5. Unthreaded drain plug with Allen key and drained out gear oil in a tray.
6. Dismounted rear foundation bracket and gear box from it.
7. Unlocked clutch fork using screwdriver.
8. Unscrewed all four Philips head screw of oil retainer.
9. Unthreaded all bolts joining upper and lower housing, of gear box.
10. Serrated counter gear from lower housing.

11. Serrated differential housing from gear box housing.
12. Took out main shaft assembly from housing along with all gears and bearings.
13. Unlocked rear nut's lock of main shaft with the help of chisel and ball peen hammer.
14. Unthreaded main shaft's nut and dismantled main shaft.
15. Cleaned and checked all components. Checked width of slot of all three synchronising ring using vernier caliper, as 8mm, 10mm, 9.6mm respectively.
16. Assembled main shaft and tighten nut with a torque of 750 kg - cm.
17. Fitted counter gear along with bearing at lower housing and meshed main shaft with it.
18. Mounted differential assembly along with lock and bearing in housing.

Procedure to service the constant mesh gear box

1. We were given a constant mesh gear box of Ashok Leyland.
2. Unthreaded drain plug and drained out gear oil in a tray.
3. Dismounted gear shifting lever.
4. Disconnected speedometer cable, clutch linkage, and propeller shaft etc.
5. Unthreaded mounting bolts and placed a jack below gear box and lowered down gear box.

Dismantling

1. Cleaned gear box housing and placed it on work bench.
2. Dismounted selector tower by unscrewing four screws of it.
3. Dismounted top cover.
4. Dismounted gear plate from clutch housing's rear end side.
5. Engages first gear by shifting selector fork.
6. Serrated selector carriage after unthreading its bolts.
7. Dismounted clutch withdrawal bearing, operating lever and lubrication pipe.
8. Dismounted clutch housing after unthreading its nuts.
9. Serrated clutch shaft bracket from clutch housing.
10. Took out clutch shaft and ball bearing by removing the circlip and washer fitted over ball bearing.

Inspection

1. Dismantled and washed all components using kerosene oil.
2. Checked clutch shaft's helical gears and dog teeth.
3. Checked bore of spigot bearing.
4. Checked clutch plate splines.

Main Shaft

1. Checked surface of front and rear bearing seats.
2. Checked worn out of floating bushes.
3. Checked worn out of thrust washer.
4. Checked teeth of fixed and sliding dogs.
5. Checked play of main shaft bearing.
6. Checked threads and splines made over main shaft.

Automatic Transmission System

An automatic transmission (also called automatic gearbox) is a type of motor vehicle transmission that can automatically change gear ratios as the vehicle moves, freeing the driver from having to shift gears manually. An automatic transmission uses a number of components to get the optimum amount of power from the engine to the wheels.



Summary

In this session you have learnt about , The Gearbox is placed between engine & propeller shaft/differential.

- We can say that an automatic transmission is an automobile gearbox that can change gear ratios automatically as the vehicle moves under varying conditions, thus freeing the driver from shifting of gears manually.
- An automatic transmission (also called automatic gearbox) is a type of motor vehicle transmission that can automatically change gear ratios as the vehicle moves, freeing the driver from having to shift gears manually.

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