



## Experiment - 5

Title :- Testing of Automotive Starter motor.

Aim: To study constructional details of a typical automotive starter on a test same for power output.

### Objectives:

- i) To understand principle of starter motor.
- ii) To know Fleming's left hand rule.
- iii) To study constructional details of starter motor.
- iv) To test starter motor.

### Principle of operation:

The simple definition of any motor is a machine to convert electrical energy into mechanical energy. When current flows through a conductor placed in a magnetic field, a force is created acting on the conductor relative to the field. The magnitude of this force is proportional to the field strength, the length of the conductor in the field & the current flowing in the conductor.

In any DC motor, the single conductor is of no practical use so the conductor is shaped into a loop or many loops to form the armature. The force on the conductor is created due to the interaction of the main magnetic field



and the field created around the conductor.  
Four brushes are used to carry the heavy current. The brushes are made up of a mixture of copper & carbon as is the case for motor or generator brushes.

Fleming's left hand rule:

Fleming's rule relates to the direction of the magnetic field a current in electrical conduction. The left hand used for the motors & right hand for generators.

In an electric motor, the first finger lies up with magnetic field, the second finger lies up with the current & thumb lies with the motion.

### 3 Construction details:-

Generally there are three types of the DC electric motor used, namely the shunt, series & compound. The series wound motor is capable of producing heavy starting torque. In this type of motor the field winding around the pole pieces are connected in series with each other & with alternator.

According to the characteristics of the motor we get the speed variation applicable with variation of load.



Series motor are generally of the four pole type. Single turn copper strip coils are used for the armature. The pole of armature winding is in series.

To test or Diagnose Starter motor.

As with all systems, the six stages of fault-finding should be allowed.

1. Verify the fault.
2. Collect further information.
3. Evaluate the evidence.
4. Carry out further tests in a logical sequence.
5. Rectify the problems.
6. Check all systems.

Procedure of the starter motor diagnostic is listed in Table. The table list some common symptoms of a starter motor with suggestions for the possible fault.

Conclusion:

Hence we have studied working of an automobile Starter motor. & seen some faults & diagnosis of Starter motor.

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