SNS COLLEGE OF TECHNOLOGY

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COIMBATORE-35

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME: 19EEB210 / Electrical Machines and Drives

II YEAR / IV SEMESTER

Unit II – ELECTRICAL MOTORS

Topic : 2 Point Starter

2- POINT STARTER

Definition of 2-point starter: a starter that is used to restrict the starting current of a DC series motor by starting and controlling its speed is known as a two-point starter.

- The main function of this starter is to defend the DC series motor from overvoltage and high starting current by restricting the high starting armature current to a secure value, by simply connecting a resistance within the series by the armature only at the starting time.
- This resistance can be decreased gradually whenever the motor gets speed.

2- POINT STARTER

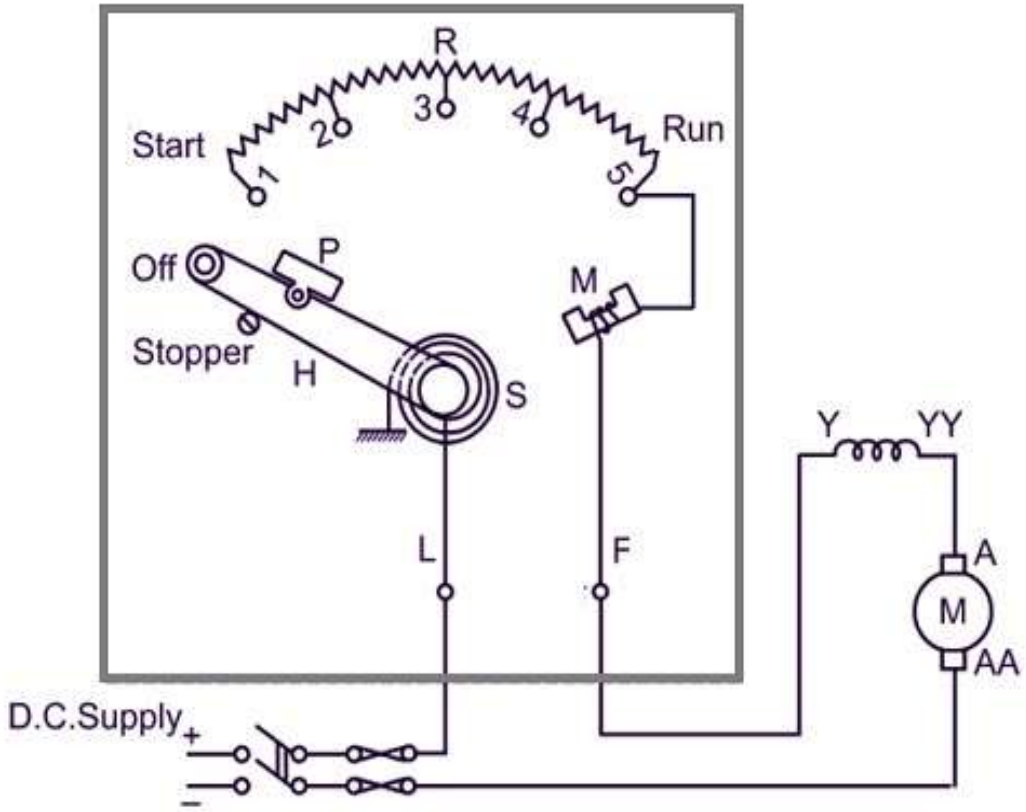
A 2-point starter includes two main parts; a rheostat & a set of contacts. In this starter, the rheostat is mainly used for controlling the flow of current throughout the motor whereas the set of contacts is used for firstly start & after that control the speed of the motor. Whenever the contacts are closed, the motor is directly connected to the power supply to start. Once this motor gets speed, the set of contacts will be opened gradually by increasing the resistance within the circuit & decreasing the flow of current to the motor to control its speed. So, this kind of starter is used commonly in applications wherever exact speed control is required like in industrial equipment & machinery.

2- POINT STARTER

Circuit Diagram

The circuit diagram of the 2-point starter is shown below. This circuit is similar to a three-point and four-point starter because it includes a starting resistance ‘R’ which is subdivided in between the contact studs from 1 to 5. In this circuit, the ‘H’ is a starting handle and is turned on a single side where the other side is easily moved from a strong ‘S’ spring. So that it makes contact with every stud during the starting operation. The starter in the circuit is provided simply with a protective device with no load release.

2- POINT STARTER CIRCUIT DIAGRAM



2- POINT STARTER WORKING

A two-point starter works by starting the dc motor which has the over-speeding trouble because of load loss from its shaft. To start the DC motor, the control arm will be turned in a clockwise direction from its OFF to ON position against the spring tension. The L & F are two starter points that are simply connected through the motor terminals & supply.

The control arm will be held within the turn-ON position through an electromagnet. Here, the hold-on electromagnet is simply connected with the armature circuit in series. If the DC motor loses its load, then the flow of current reduces, thus the electromagnet strength also reduces. The control arm comes back to its OFF position because of its spring pressure and prevents the DC motor from overspending. Whenever the voltage supply reduces considerably, the starter arm can also return to its OFF position.

2- POINT STARTER

Advantages & Disadvantages

The advantages of a 2-point starter include the following.

- This starter helps protect the motor from drawing maximum starting current.
- These starters protect from short circuits and overload faults.
- When the power supply is not there then it automatically turns OFF.
- The disadvantages of a 2-point starter include the following.

It offers no adjustable starting characteristics and a soft stop is not possible at all

- These are mechanically tough
- This starter may decrease the lifespan of the motor.
- This is not used for all types of motors.
- This starter can cause a major dip in voltage.

2- POINT STARTER

Applications

The applications of the 2-point starter include the following.

- 2 point starters are used with DC series motors.
- These types of starters are used in cranes.
- These are used in railways for starting and stopping the rail.
- These starters help in starting the dc motor which has an over-speeding problem because of load loss from its shaft.
- These are used normally in applications wherever the motor is anticipated to work above standard speed