

# **ELECTRIC TRACTION & CONTROL**

Vishal D Devdhar

Lecturer

Government  
Polytechnic

Rajkot

[www.vishaldevdhar.org](http://www.vishaldevdhar.org)

## UNIT-4 ELECTRIC LOCOMOTIVES AND AUXILIARY EQUIPMENT

- Important features of electric locomotives
- Different types of locomotives
- Current collecting equipment
- Coach wiring and lighting devices
- Power conversion and transmission systems
- Control and auxiliary equipment



# Coach Wiring & lighting devices

## Lighting Devices

- Various Lighting Devices

## Coach Wiring System

- Single Battery
- Double Battery

# Coach Wiring & lighting devices

## Dynamo(DC Generator)

- **Totally enclosed**
- **Same polarity with direction of rotation**
- **Constant voltage at varying speed**

## Battery Sets

## Battery Changeover Switch

## Magnetic Light Switch

## Auto cut in – cut out switch

# Rosenberg Generator

- **Totally enclosed**
- **Same polarity with direction of rotation**
- **Constant voltage at varying speed**

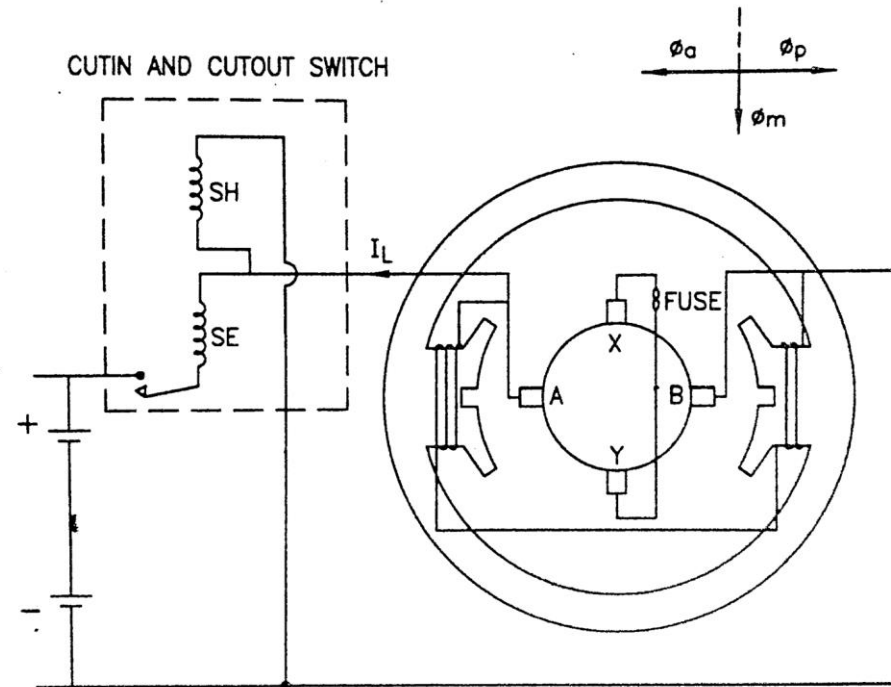


FIG. 4.14 ROSENBERG GENERATOR

# Battery Change Over Switch

- Speed < 20km/hr
  - Both battery supply load
- Speed > 20km/hr
  - One battery share load parallel with dynamo
  - Other battery is put on charge

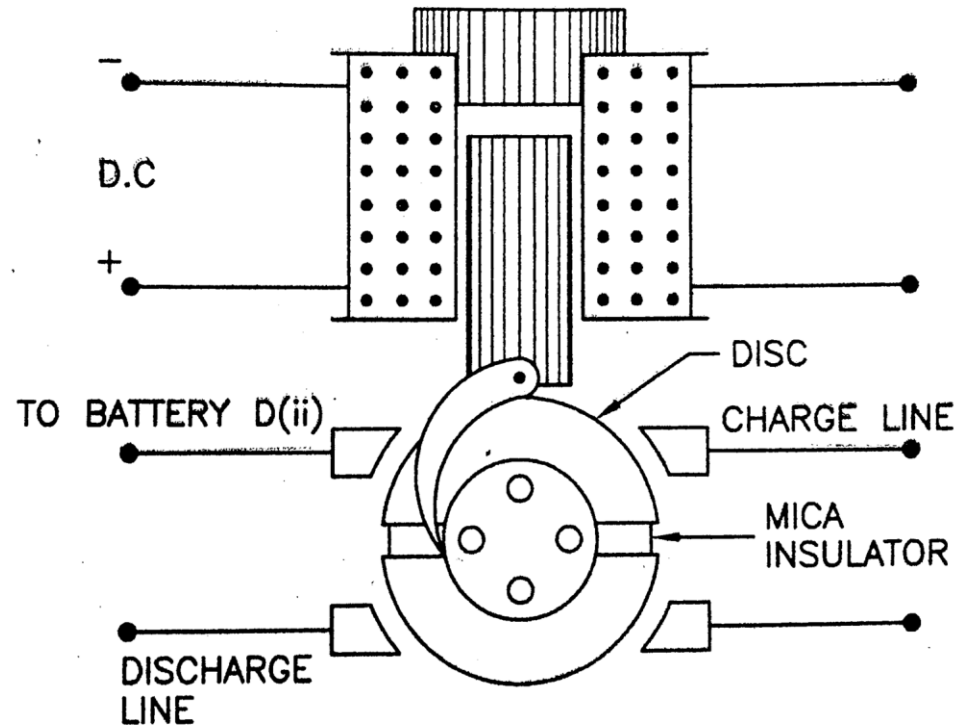


FIG. 4.18 CHANGE OVER SWITCH

# AUTO CUT IN – CUT OUT SWITCH

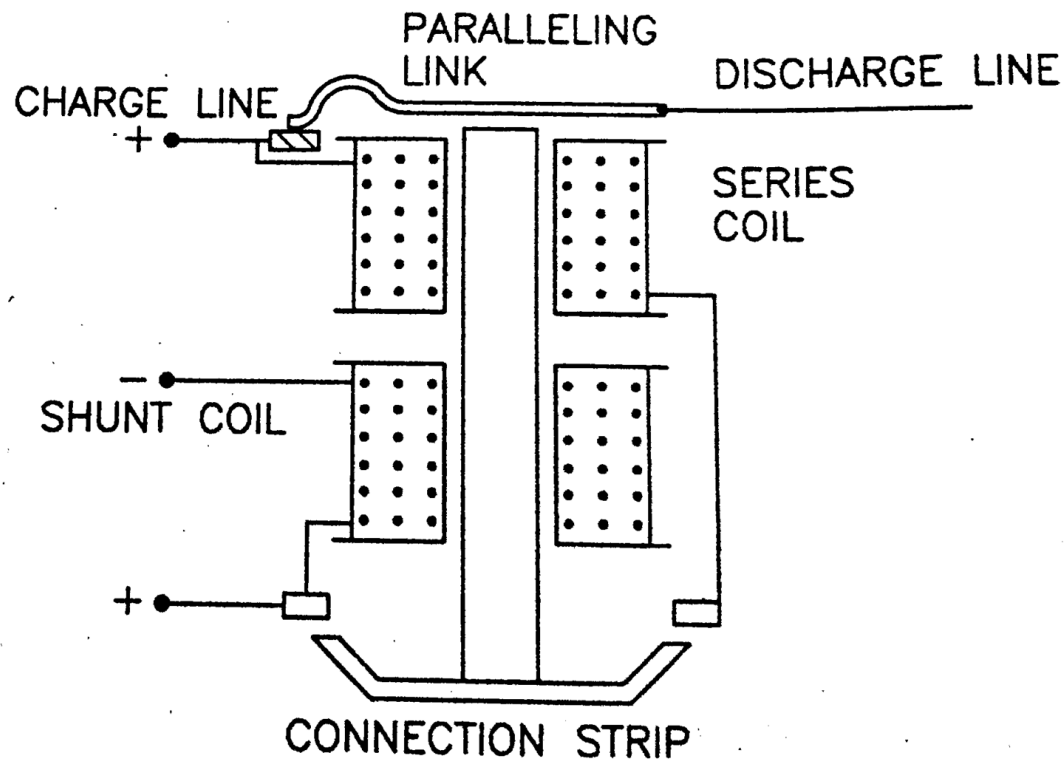


FIG. 4.17 AUTO CUT IN–AUTO CUT OUT SWITCH

# Magnetic Light Switch

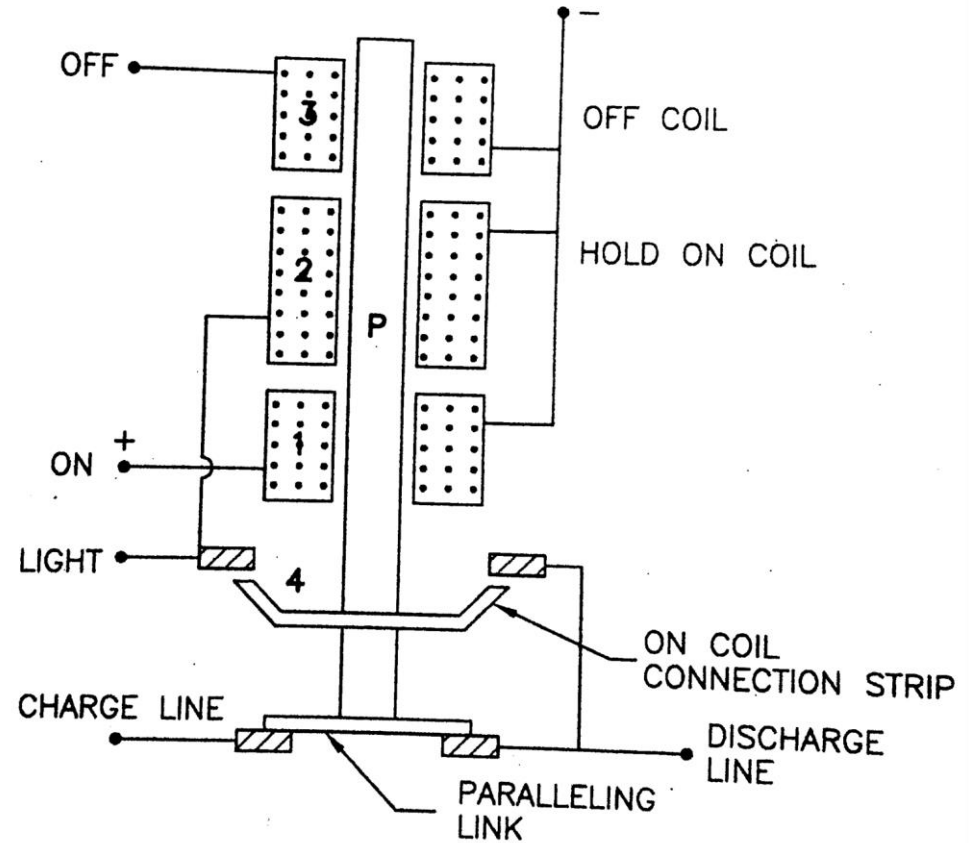


FIG. 4.19 MAGNETIC LIGHT SWITCH



# Coach Wiring

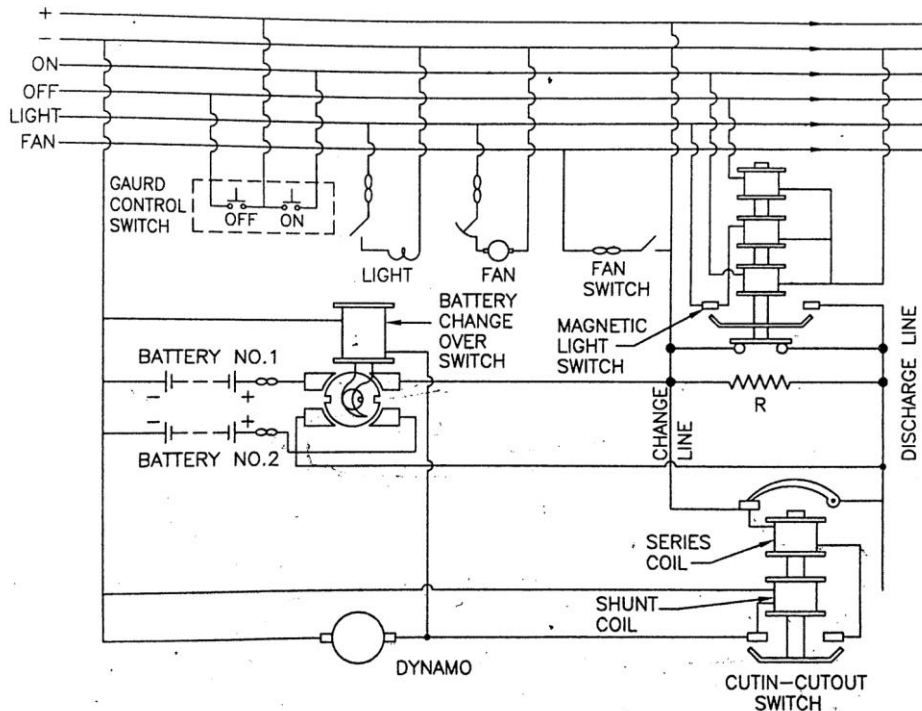


FIG. 4.16 DOUBLE BATTERY SYSTEM OF COACH WIRING

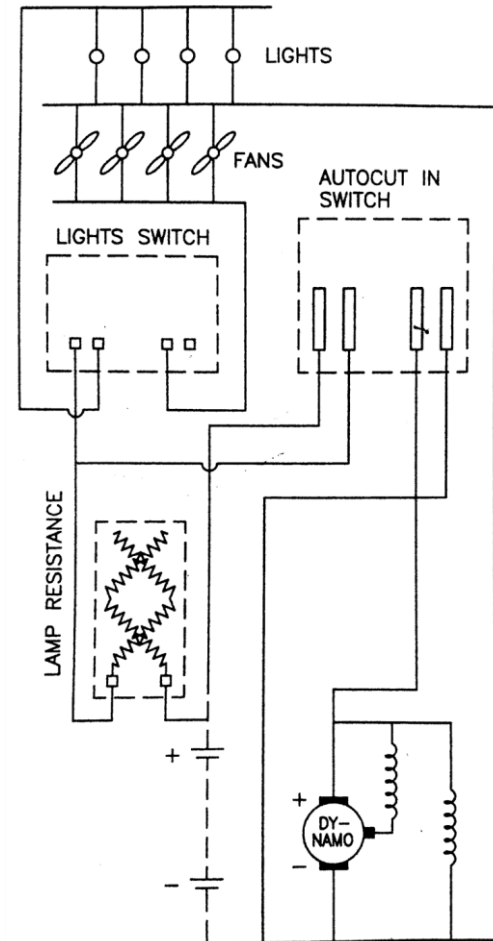


FIG. 4.15 SINGLE BATTERY SYSTEM

# Lamp Resistance

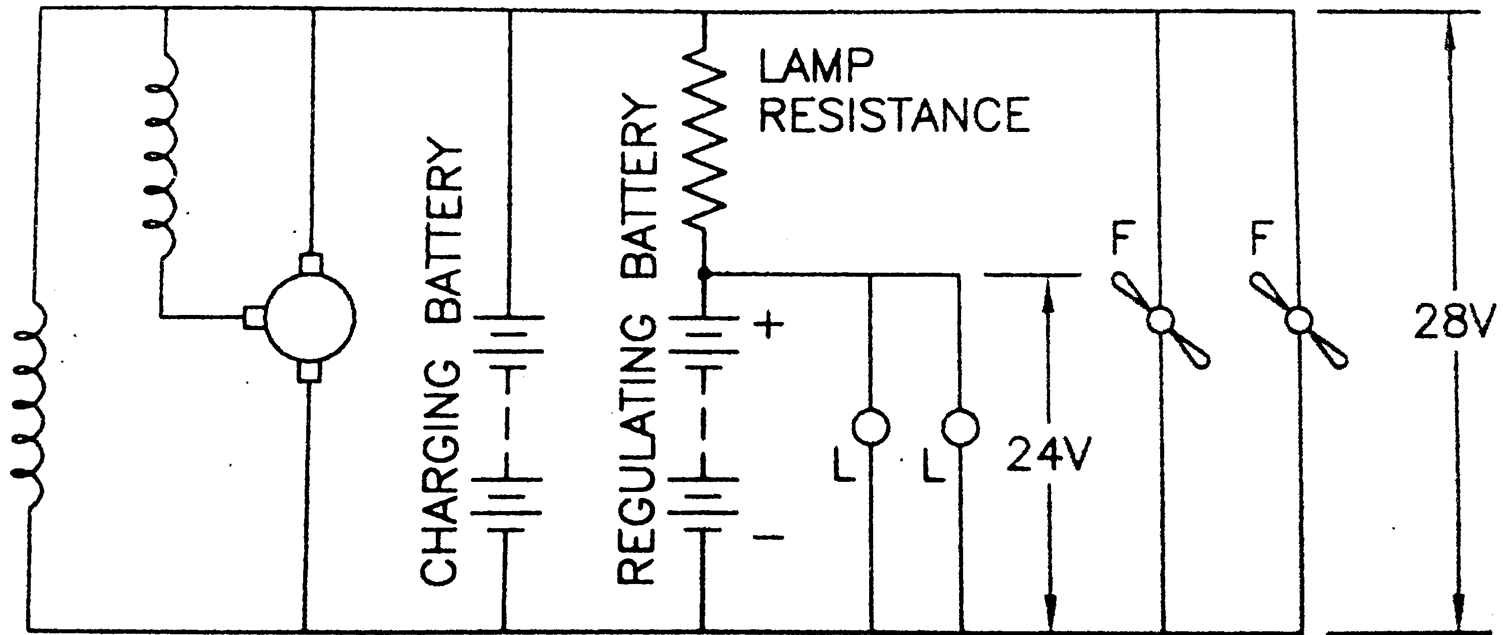
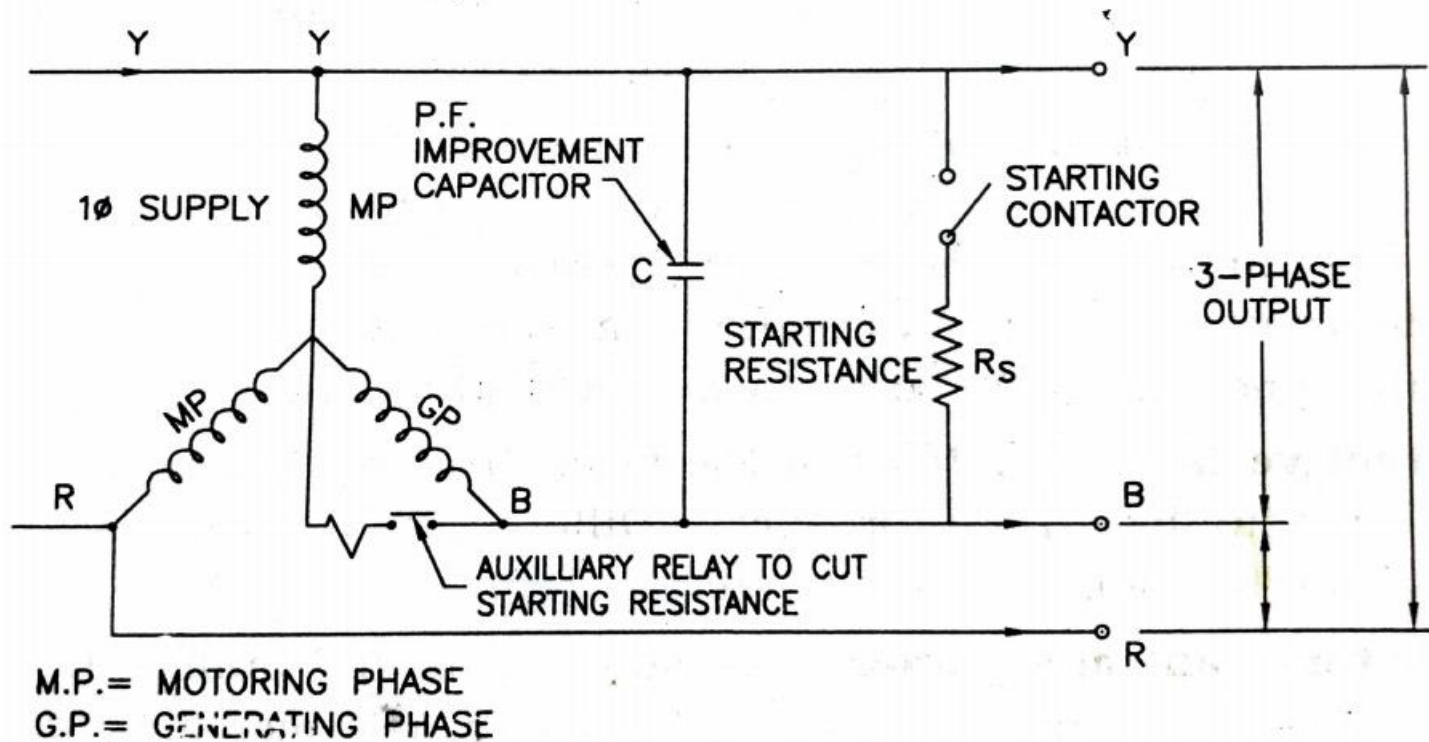


FIG. 4.21 LAMP RESISTANCE



# ARNO CONVERTER

# Metadyne

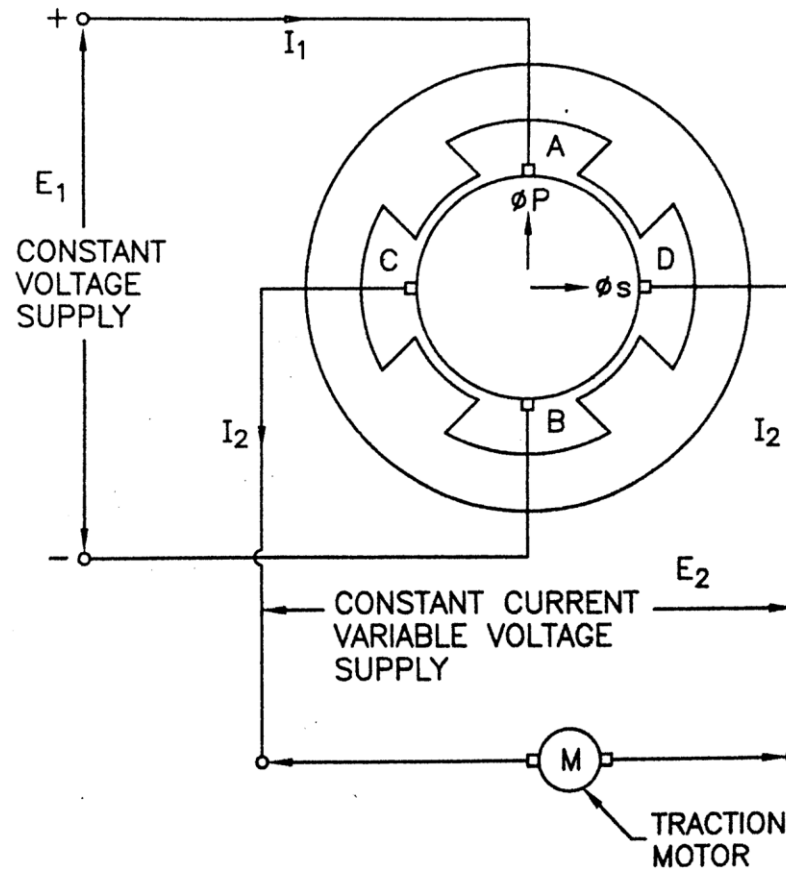


FIG. 8.22 (a) METADYNE PRINCIPLE

# Metadyne Control

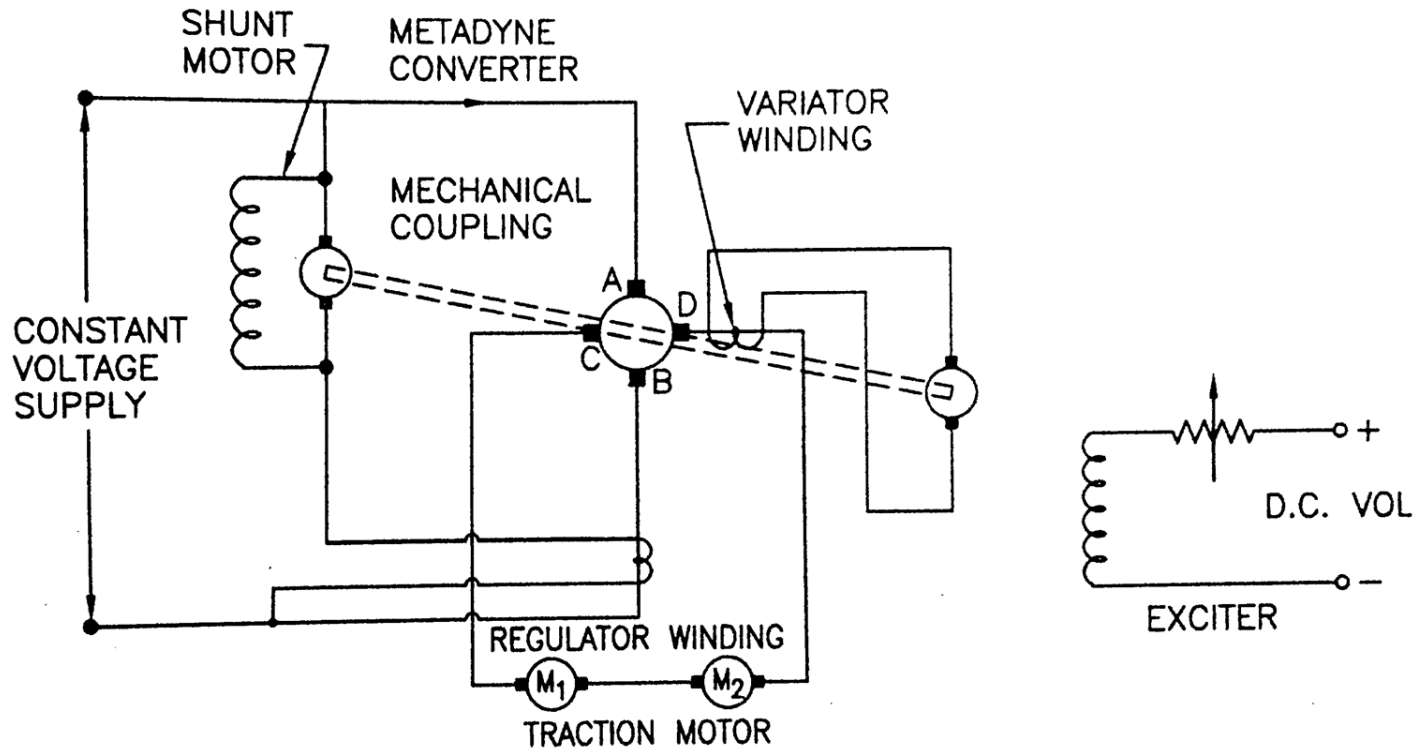


FIG. 8.22 (b) SCHEMATIC DIAGRAM OF CONTROL OF TRACTION MOTORS BY METADYNE CONTROL METHOD

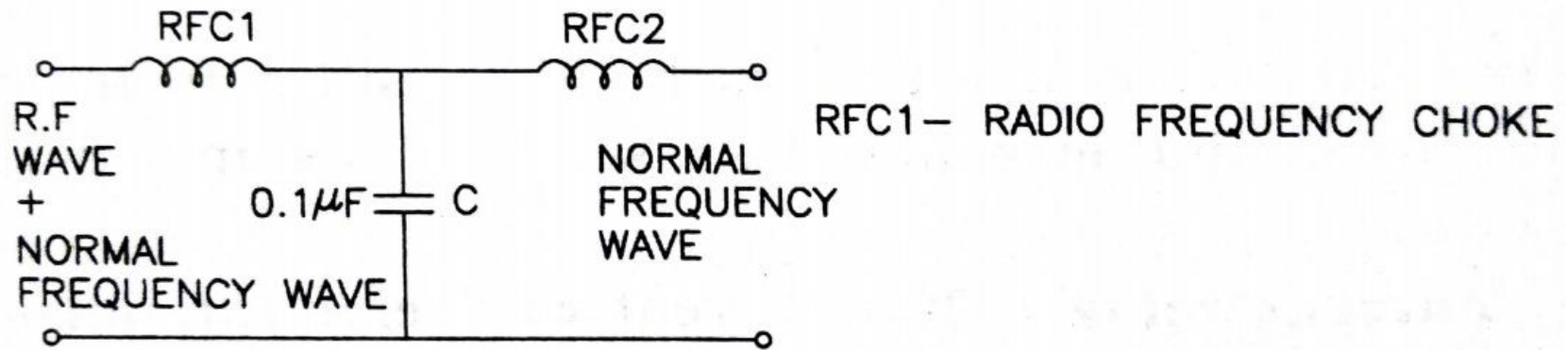


FIG. 4.22 RADIO FREQUENCY INTERFERENCE SUPPRESSOR (FILTER)

# Radio Interference | Suppression

The background features several overlapping, wavy, translucent green lines that create a sense of movement and depth. These lines are rendered with a soft, glowing effect, giving them a three-dimensional appearance. They flow across the frame from left to right, with some lines curving upwards and others downwards, creating a rhythmic pattern.

**Thank You**

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