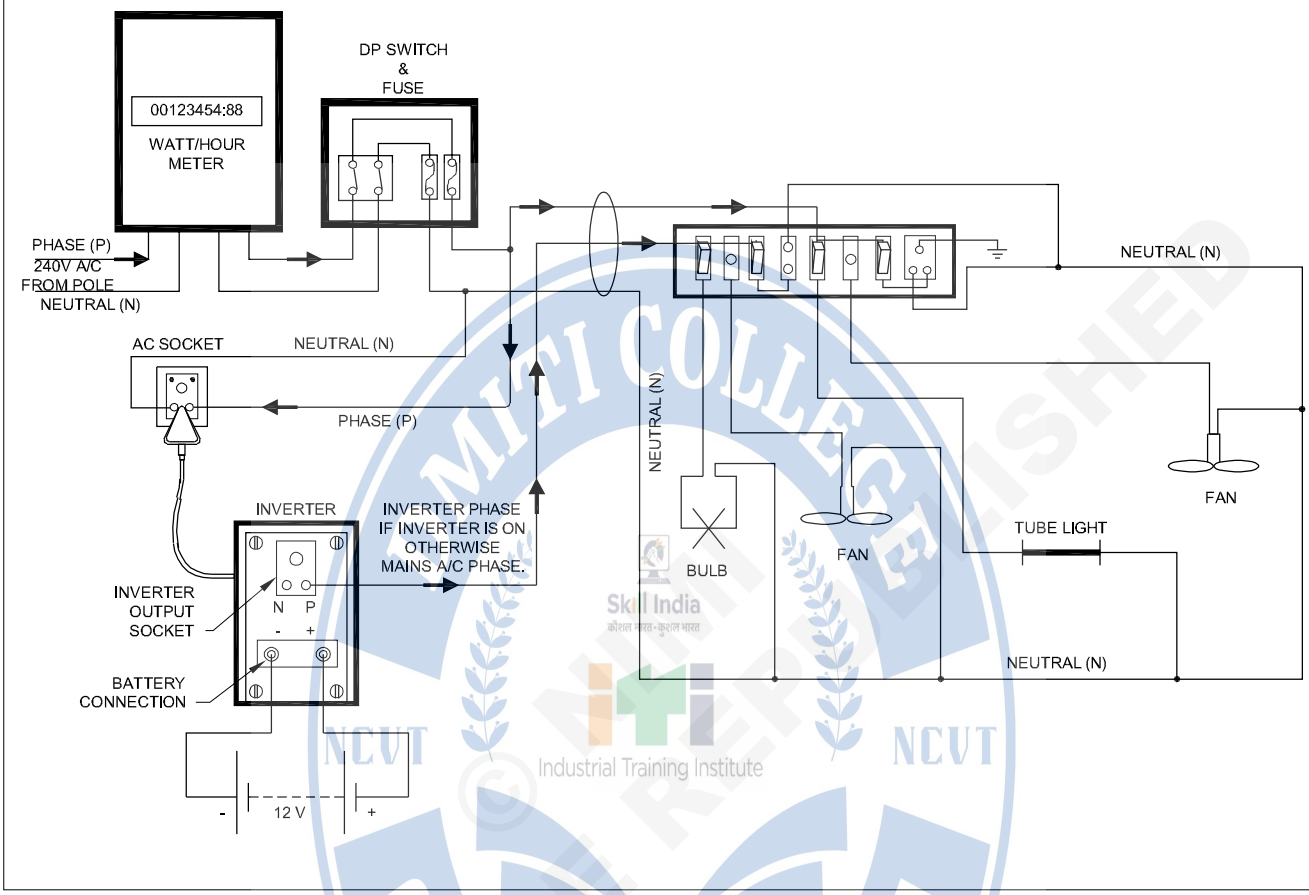
Reading of electrical circuit diagram

Inverter installation (Fig 1)

Fig 1



Read and write the Following (Fig 1)

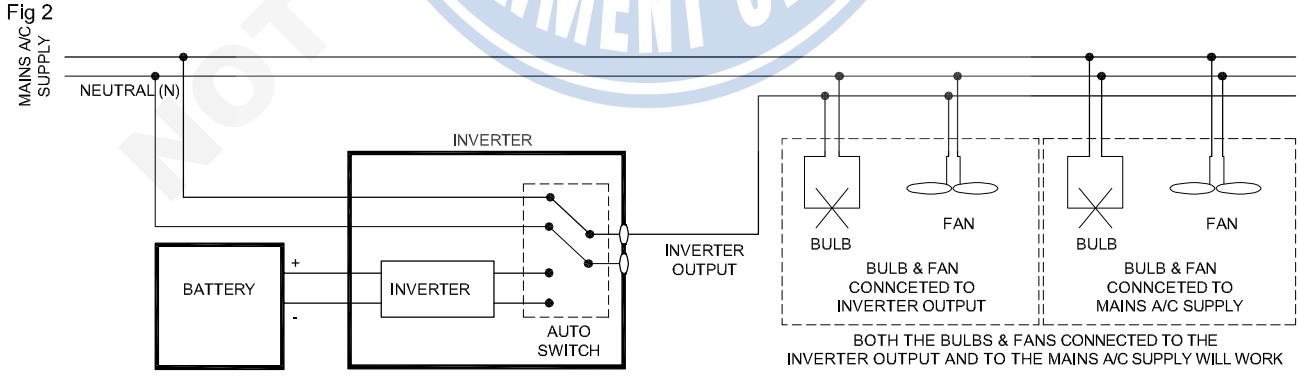
1 How to make panel board?

2 What is the purpose of inverter?

3 What is the use of MCB?

When A.C supply returns, the inverter will once again connect the load, which are connected to its output to the main supply (Fig 2)

Fig 2



Read and write the Following (Fig 2)

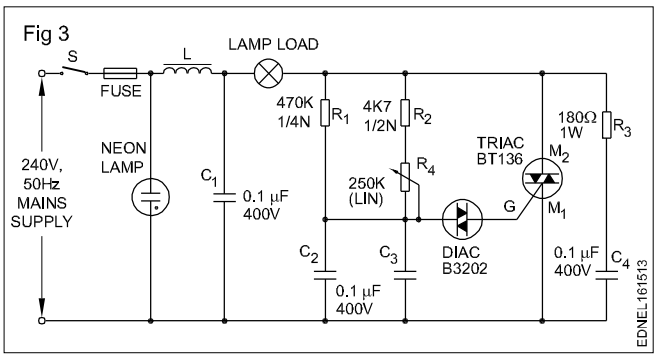
1 Draw the installation diagram of inverter?

2 Whether inverter output is AC or DC?

3 What are the safety required to connect battery?

4 How to connect battery in the inverter circuit?

Lamp dimmer cum universal speed controller circuit (Fig 3)

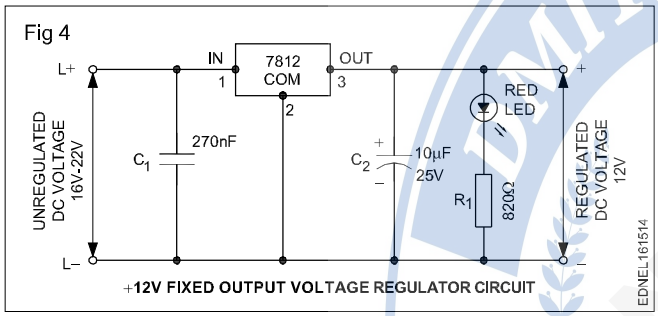


Read and write the Following (Fig 3)

1 What are the power electric component used in the circuit?

2 Why fuse is used in the circuit?

Fig 4 shows the circuit connections of a 12V, 1A regulated power supply using 7812.



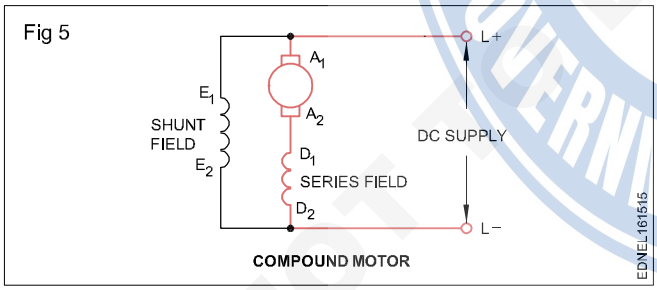
Read and write the Following (Fig 4)

1 What is the use of 7812?

2 What is the output of 7812?

3 What type of power supply is used for this circuit?

Compound motor (Fig 5)



Read and write the Following (Fig 5)

1 How many coils are used?

2 What is the use of series field?

3 Why shunt field is used?

Control circuit diagram using ELCB (Fig 6)

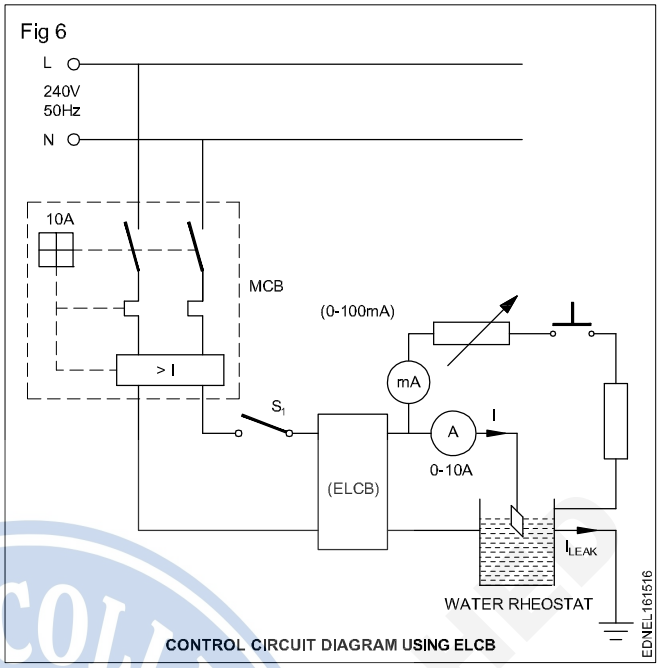
Read and write the Following (Fig 6)

1 What is the use of ELCB?

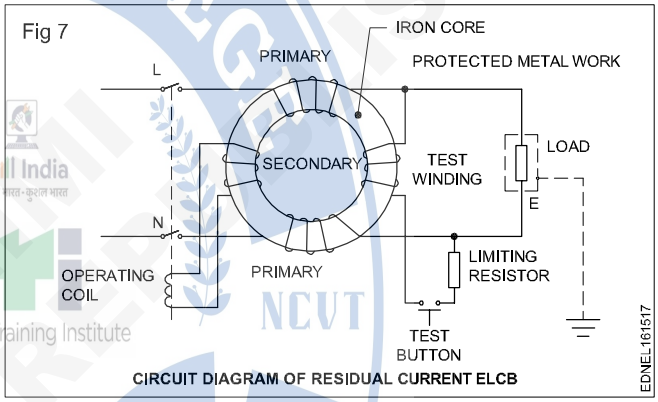
2 Expand the term ELCB?

3 What is the function of MCB?

4 Why 5K/1W resistor used in the circuit?



Circuit diagram of residual current ELCB (Fig 7)



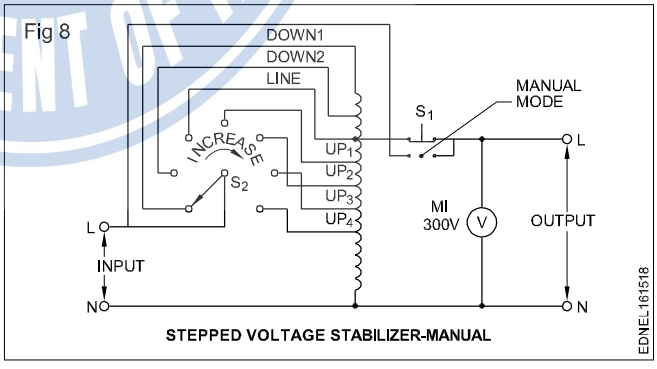
Read and write the Following (Fig 7)

1 What type of core used in the circuit diagram?

2 Why limiting resistor is used?

3 What is the purpose of secondary coil?

Stepped voltage stabilizer-manual (Fig 8)

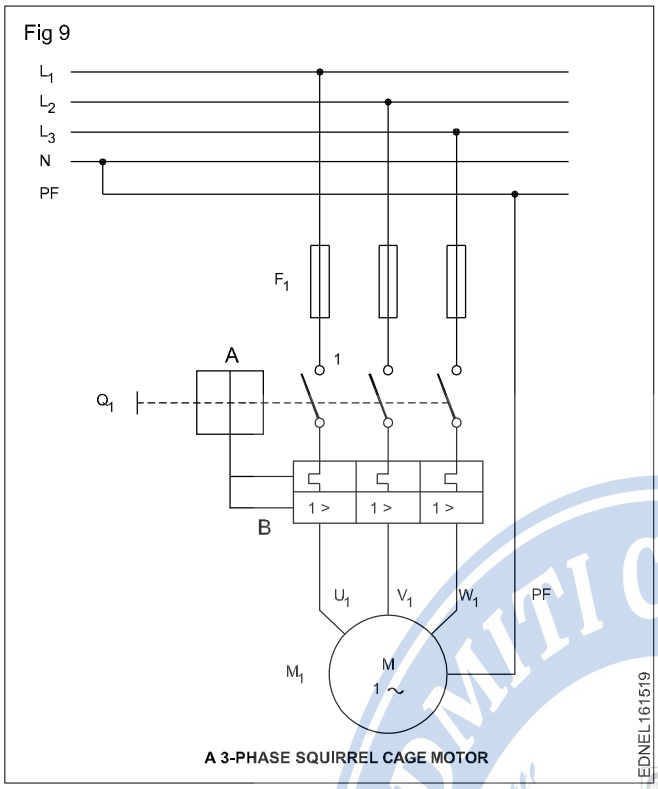


Read and write the Following (Fig 8)

1 What type of switch is used in the diagram?

2 How to increase the voltage?

3-phase squirrel cage motor. (Fig 9)



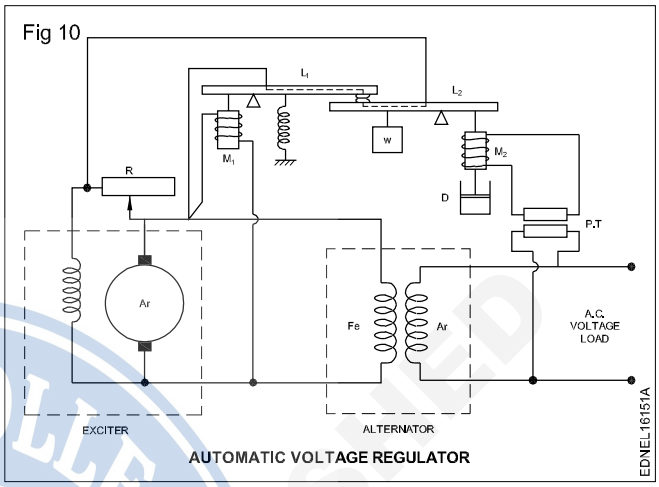
Read and write the Following (Fig 9)

1 What type of power supply is used?

2 Draw the squirrel cage motor?

3 Explain the 'PF'?

Automatic voltage regulation (Fig 10)



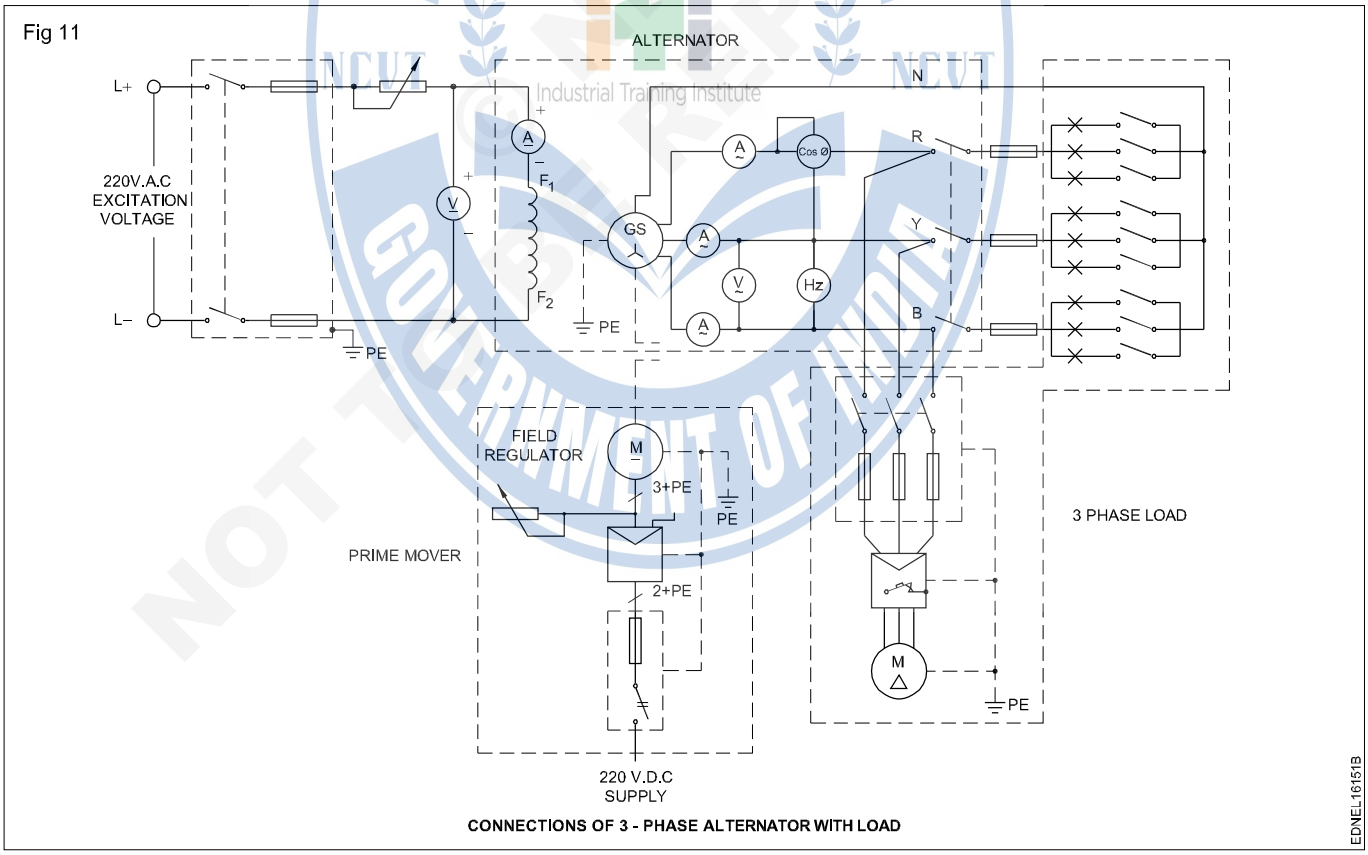
Read and write the Following (Fig 10)

1 What is the use of R in the diagram?

2 What is the function of alternator?

3 Explain EXCITER?

Connections of 3-phase alternator with load (Fig 11)



Read and write the Following (Fig 11)

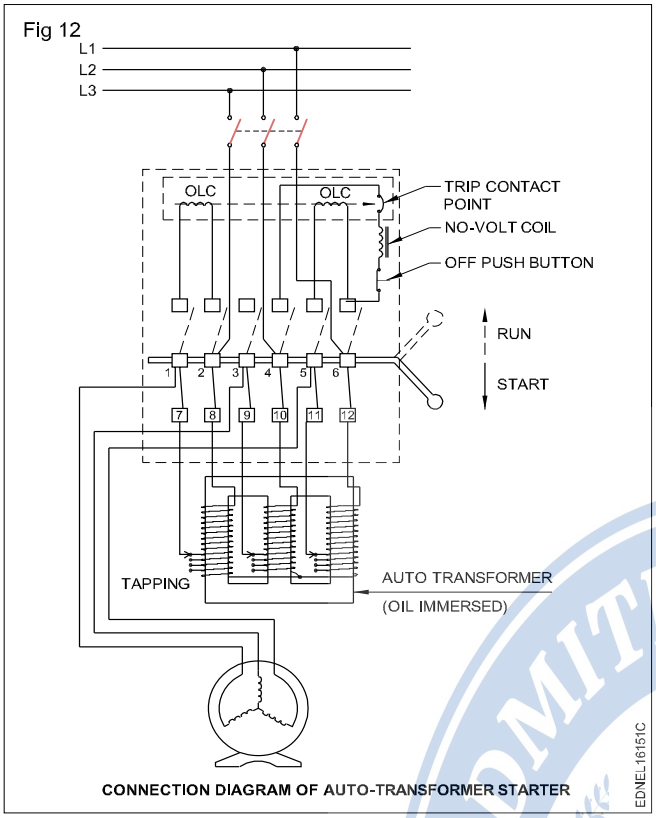
1 What is the function of prime mover section?

2 How to connect the 3 phase load.

3 What is the use of alternator?

4 What are the safety methods used?

Connection diagram of auto-transformer starter (Fig 12)

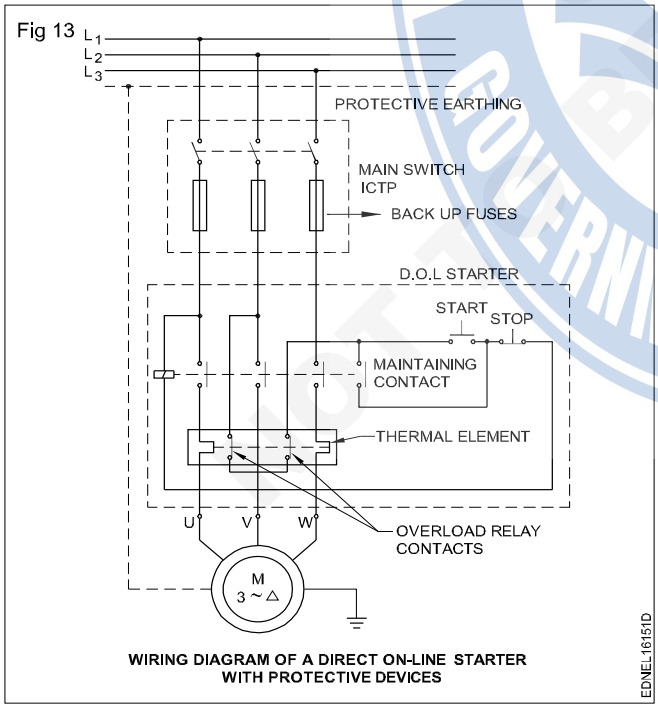


Read and write the Following (Fig 12)

1 Why auto-transformer is used?

2 What is the purpose of auto-transformer immersed in oil?

Wiring diagram of a direct online starter with protective devices (Fig 13)



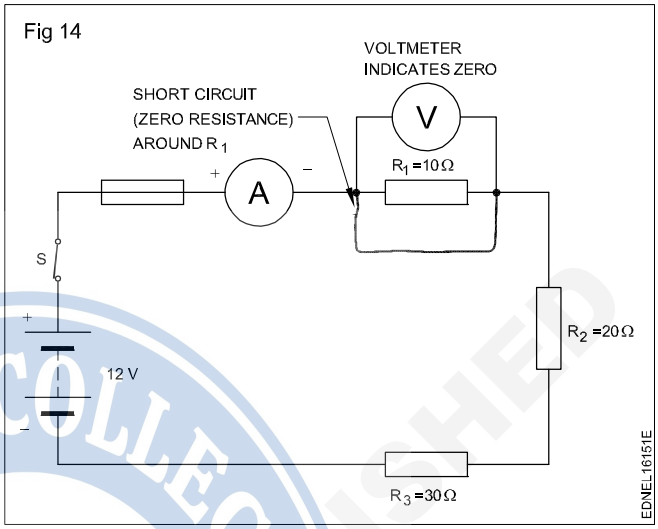
Read and write the Following (Fig 13)

1 What is the use of DOL starter?

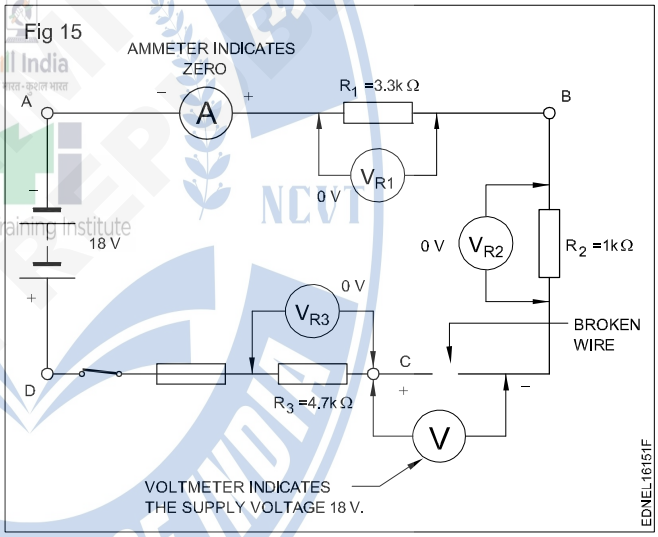
2 How to maintain the contact inDOL starter?

3 What is the purpose of overload relay?

Detecting short circuit (Fig 14)



Open circuit in series circuit (Fig 15)



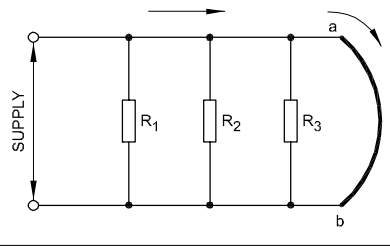
An open circuit results whenever a circuit is broken or is incomplete, and there is no continuity in the circuit.

In a series circuit, open circuit means that there is no path for the current, and no current flows through the circuit. Any ammeter in the circuit will indicate no current as shown in Fig 15.

Shorts in parallel circuit (Fig 16)

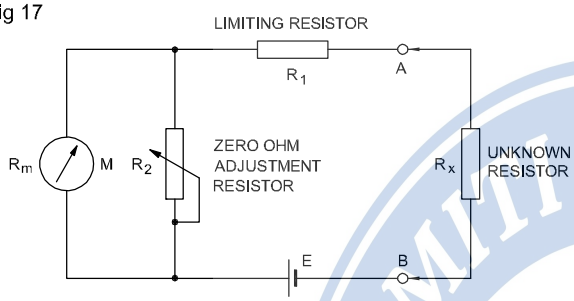
Fig 16 shows a parallel circuit with short between points 'a' and 'b'.

Fig 16



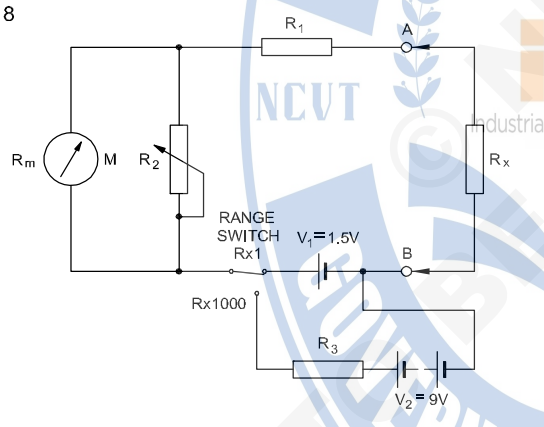
Series type ohmmeter: construction (Fig 17)

Fig 17



Multiple ohmmeter range (Fig 18)

Fig 18



Read and write the Following (Fig 14 to 18)

1 How to find the short circuit in one resistance? (Fig 14)

2 Why broken wire used? (Fig 15)

3 How to measure resistance? (Fig 18)

4 How to find the open circuit in series circuit? (Fig 15)

5 How to find the short circuit in parallel circuit? (Fig 16)

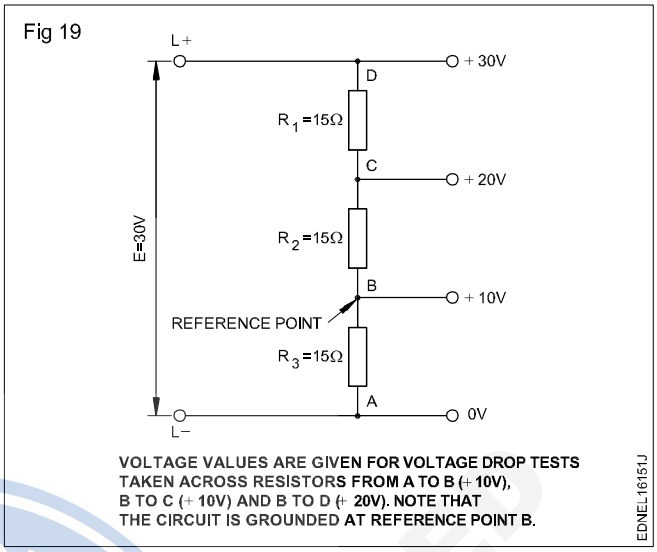
6 What type of ohmmeter is used in Fig 17?

7 What is the purpose of range switch? (Fig 18)

8 How to get the actual value? (Fig 18)

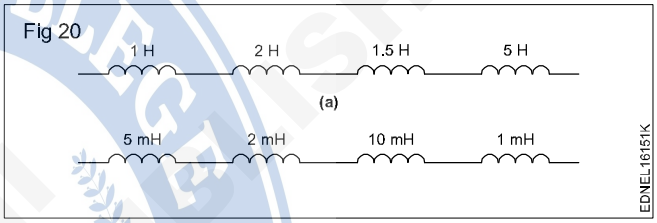
Voltage divider (Fig 19)

Fig 19



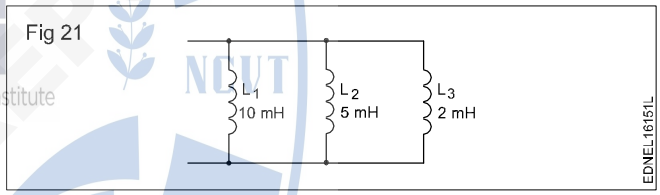
Inductor series connection (Fig 20)

Fig 20



Inductor parallel connection (Fig 21)

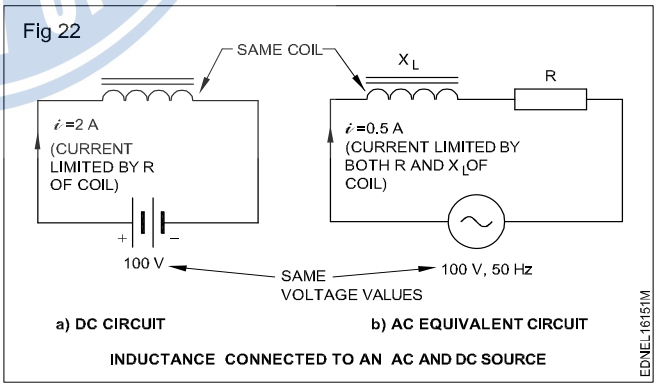
Fig 21



Current flow through a coil connected to a DC source is limited by the wire resistance of the coil only (Fig 22a) Current flow through the same coil connected to an AC source is limited by the wire resistance and the inductive reactance (Fig 22b)

Inductance connected to an AC and DC source (Fig 22)

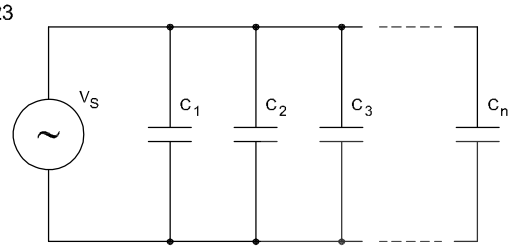
Fig 22



Connection of parallel grouping: Parallel grouping of capacitors is shown in Fig 23 and is analogous to the connection of resistance in parallel or cells in parallel.

Total capacitance: When capacitors are connected in parallel, the total capacitance is the sum of the individual capacitances, because the effective plate area increases. The calculation of total parallel capacitance is analogous to the calculation of total resistance of a series circuit.

Fig 23

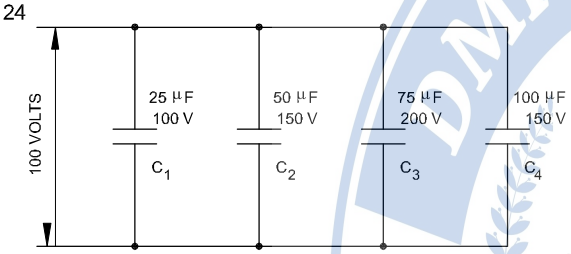


CAPACITORS IN PARALLEL

EDNEL16151N

Capacitor connected in parallel (Fig 24)

Fig 24

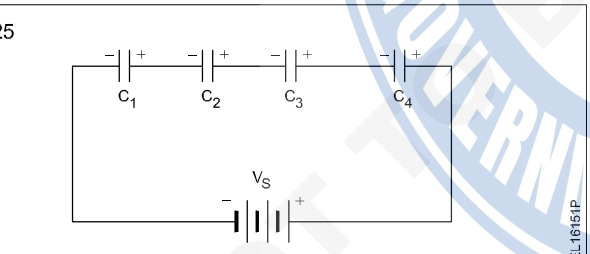


EDNEL16151O

Connection in series grouping: Series grouping of capacitors, as shown in Fig 25 is analogous to the connection of resistances in series or cells in series.

Total capacitance: When capacitors are connected in series, the total capacitance is less than the smallest capacitance value.

Fig 25



SERIES CONNECTION OF CAPACITORS

EDNEL16154P

Read and write the Following (Fig 19 to 25)

1 What type of circuit is shown? (Fig 19)

2 What is the total inductor value? (Fig 20a)

3 Find the total inductor value? (Fig 20b)

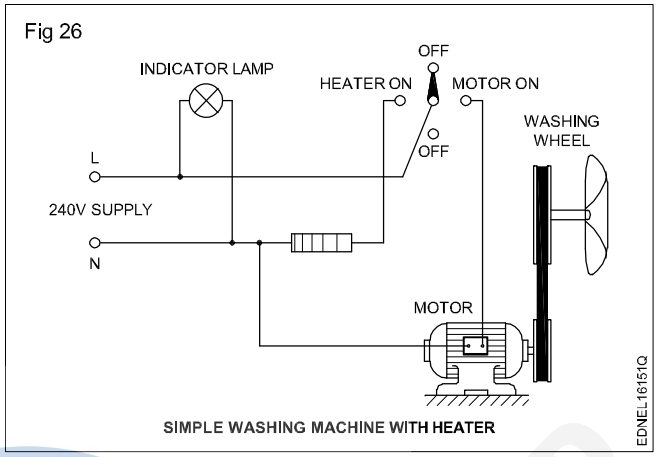
4 How to find the 'R' value? (Fig 22)

5 How to find the total capacitance value in parallel connection? (Fig 24)

6 How to find the total capacitance in series circuit? (Fig 25)

Simple diagram of washing machine with heater (Fig 26)

Fig 26

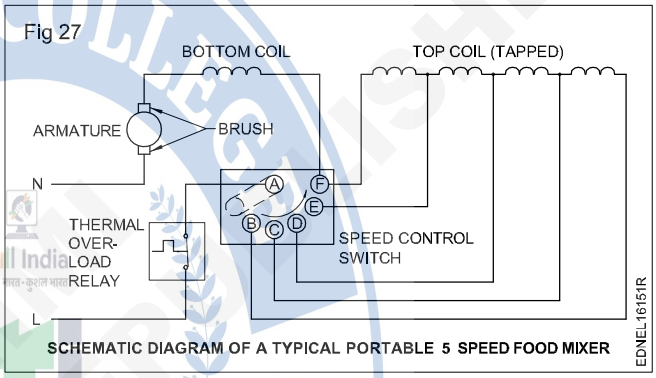


SIMPLE WASHING MACHINE WITH HEATER

EDNEL16151Q

Diagram of a typical portable 5 speed food mixture (Fig 27)

Fig 27

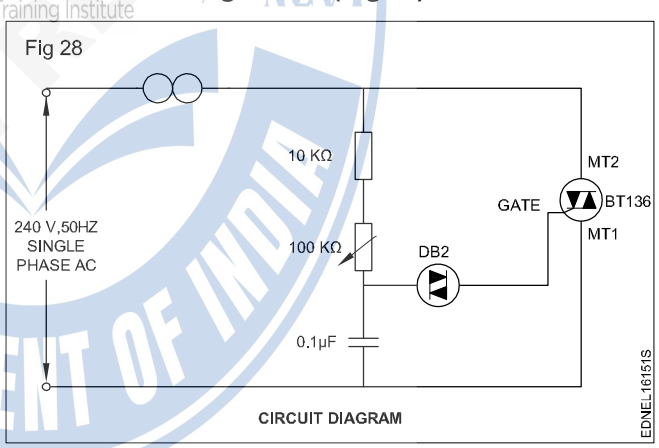


SCHEMATIC DIAGRAM OF A TYPICAL PORTABLE 5 SPEED FOOD MIXER

EDNEL16151R

Electronic fan regulators (Fig 28)

Fig 28



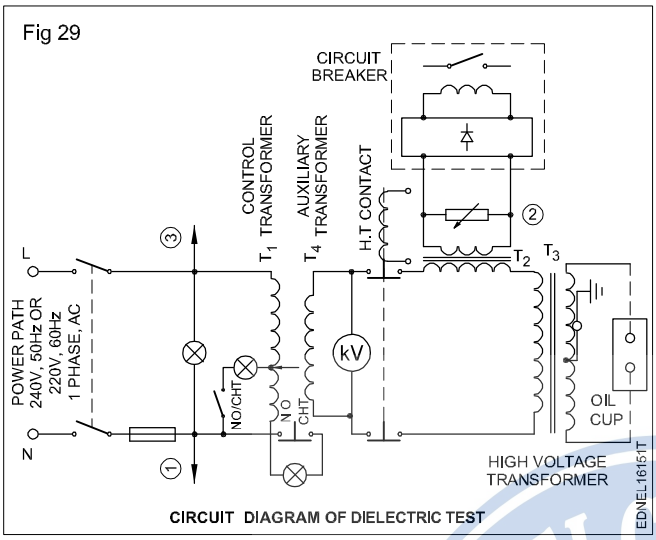
CIRCUIT DIAGRAM

EDNEL16151S

It is an electronic controlling device which regulates / controls the speed of the fan.

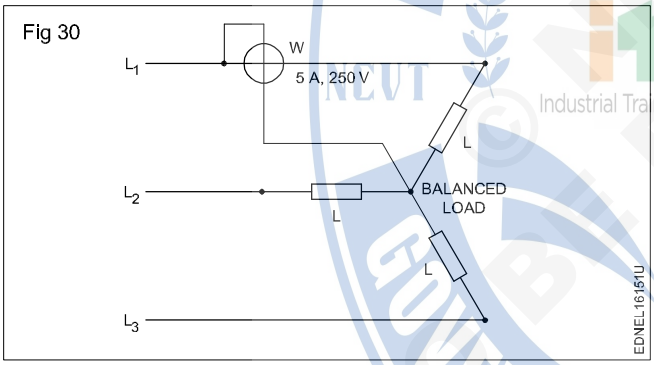
The conventional type regulators which are bulky in size, use a tapped resistor to control the speed of fan, consumes considerable amount of energy. The number of speed can be achieved is only limited upto 5 different speed. But the electronic regulators over come these problems by using electronic components. Circuits diagram of electronic regulator using triac and diac is given in Fig 28.

Electrical circuit diagram of dielectric test unit (Fig 29)



Single wattmeter method: Fig 30 shows the circuit diagram to measure the three-phase power of a star-connected, balanced load with the neutral point accessible the current coil of the wattmeter being connected to one line, and the voltage coil between that line and neutral point. The wattmeter reading gives the power per phase. So the total is three times the wattmeter reading.

Power/phase = $3V_P I_P \cos\theta = 3P = 3W$.



Read and write the Following (Fig 26 to 30)

1 How washing machine works?

2 What is the purpose washing wheel in the diagram? (Fig 26)

3 How food mixer works? (Fig 27)

4 How speed is controlled in fan regulator circuit? (Fig 28)

5 What is the the purpose of BT 136? (Fig 28)

6 What is the use of 100KΩ potentiometer? (Fig 28)

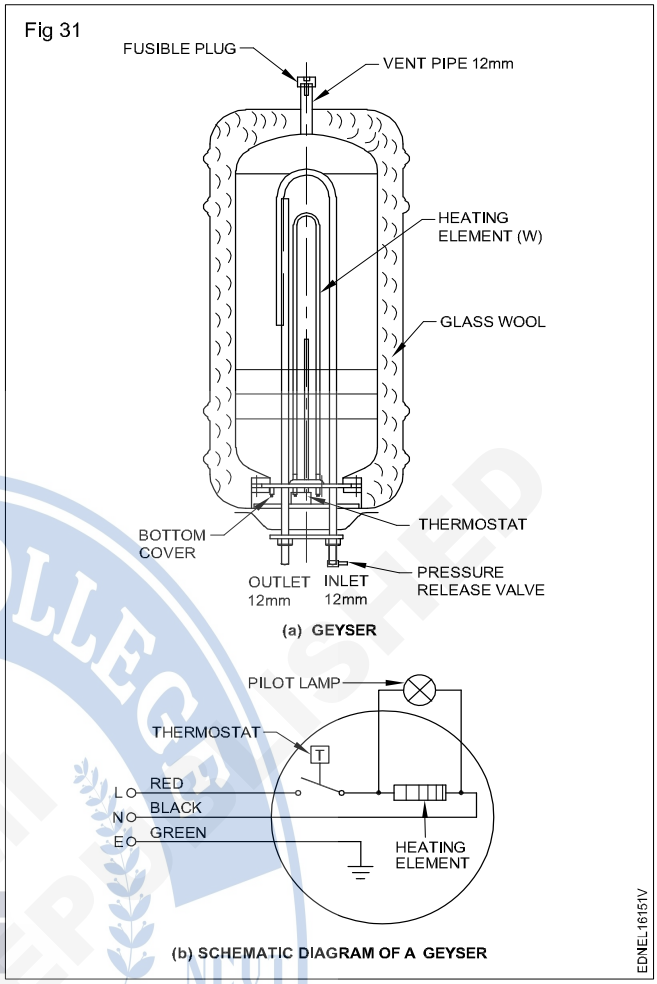
7 How to test the dielectric? (Fig 29)

8 Why high voltage transformer is used? (Fig 29)

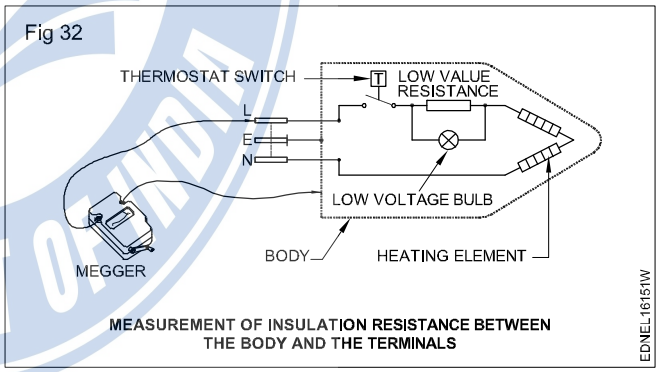
9 How to measure the three phase power? (Fig 30)

10 What is the safety required while testing dielectric? (Fig 30)

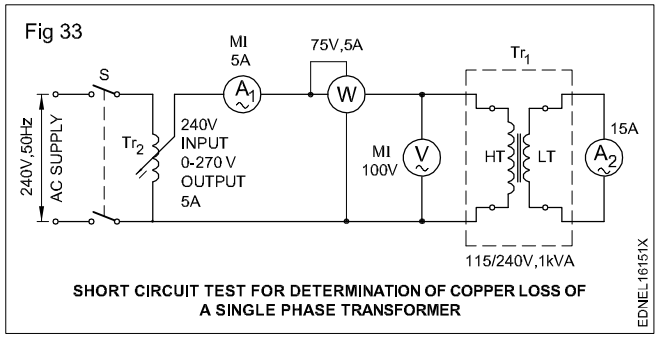
Schematic diagram of a geyser (Fig 31)



Measurement of insulation resistance between the body and the terminals (Fig 32)



Short circuit for determination of copper loss of a single phase transformer (Fig 33)

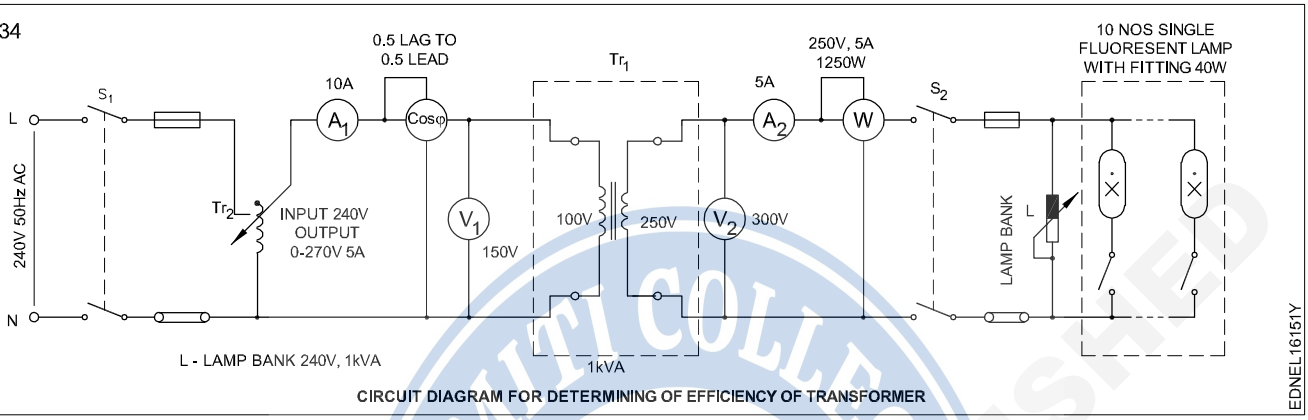


Read and write the Following (Fig 31 to 33)

1 What is the purpose of thermostat? (Fig 31)
2 What is the use of pressure release valve? (Fig 31)
3 Why glass wool is used in geyser? (Fig 31)
4 What is the use of heating element? (Fig 32)
5 Why thermostat switch is used? (Fig 32)
6 What is the use of transformer? (Fig 33)

Circuit diagram for determining the efficiency of transformer (Fig 34)

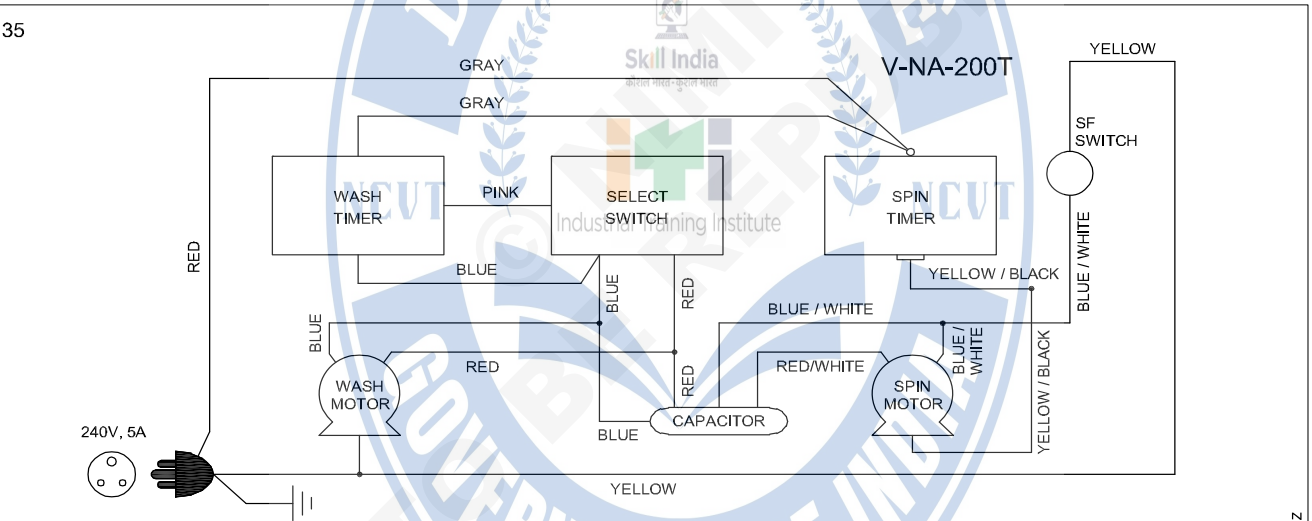
Fig 34



CIRCUIT DIAGRAM FOR DETERMINING OF EFFICIENCY OF TRANSFORMER

Connection diagram of semi automatic washing machine (Fig 35)

Fig 35



CONNECTION DIAGRAM OF SEMI AUTOMATIC WASHING MACHINE

Read and write the Following (Fig 34&35)

1 What is the disadvantage of semi automatic washing machine?
2 What is the purpose of spin motor?
3 Why SF switch is used?
4 How to check the efficiency of transformer? (Fig 34)
5 What is the purpose of 1KVA transformer? (Fig 34)
6 What is the advantage of select switch?
7 Explain wash timer and spin timer?
8 How wash motor and spin motor works?
9 Why color codes are used in connecting wires?