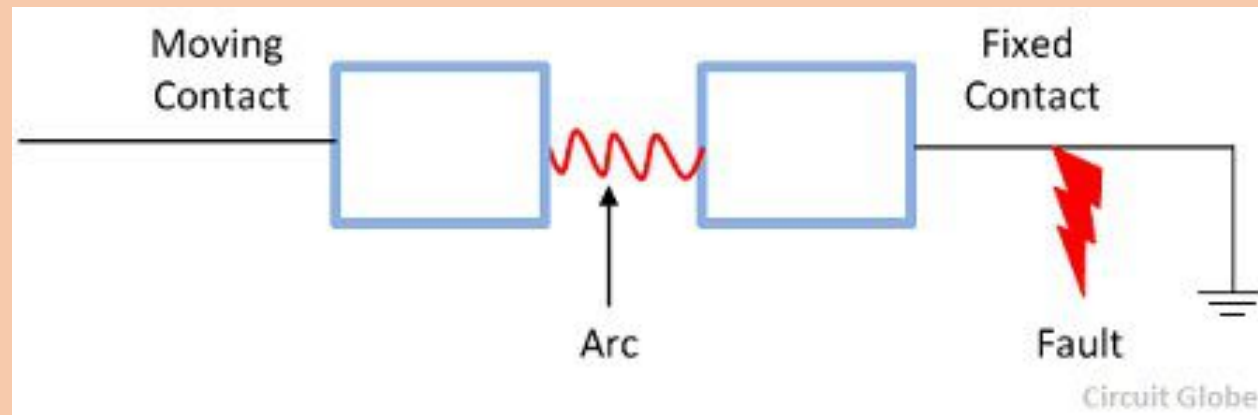


# Circuit Breakers

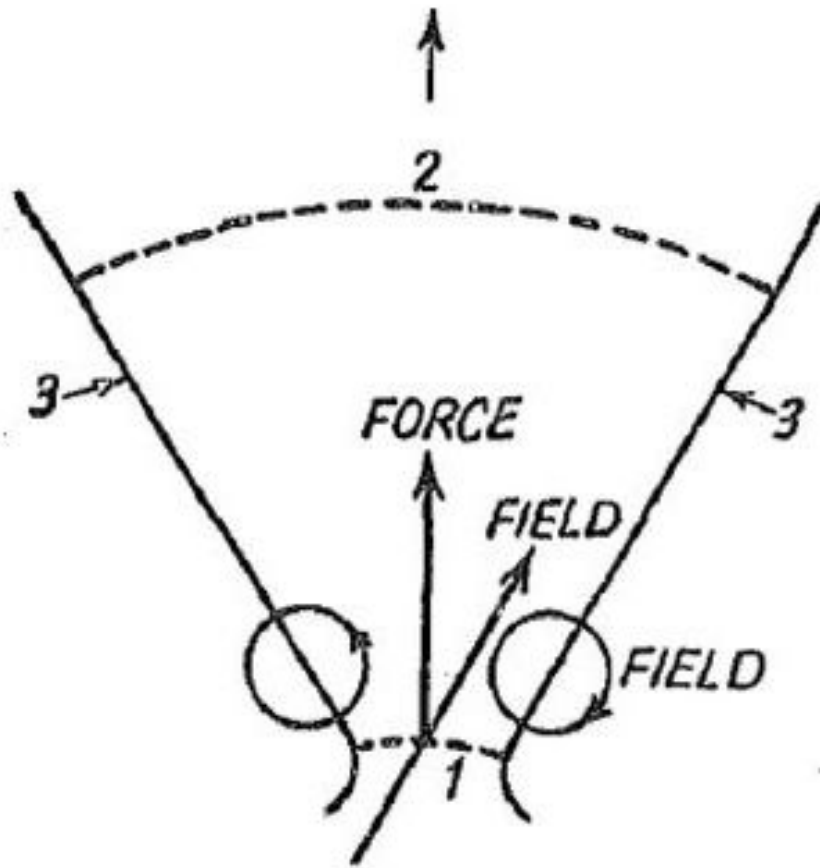
- CBs are automatic switches which can interrupt fault currents.
- The operation of automatic opening and closing the contacts is achieved by means of operating mechanism of CBs.
- As the contacts of CB open, an arc is drawn between them.



# Techniques for Arc Interruption

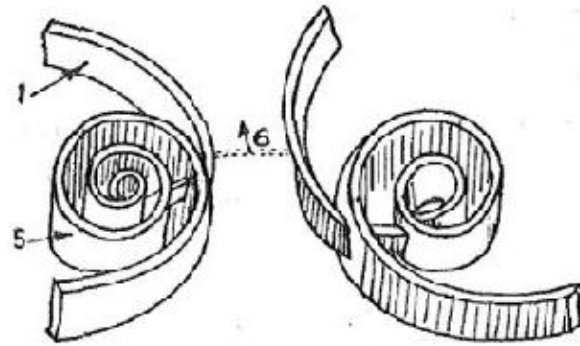
- High Resistance Interruption
- Current Zero Interruption
- Artificial Current Zero Interruption

# Arc Runners

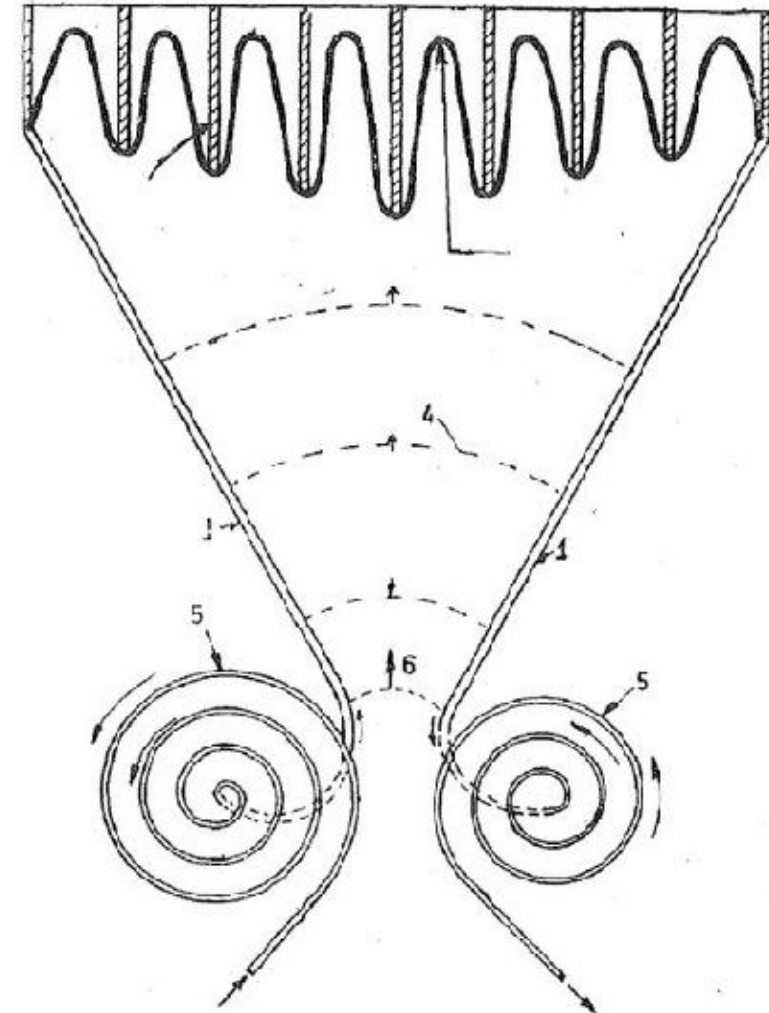


1. Initial position of arc
2. Final position of arc.
3. Arc runners  
(in vertical plane)
4. Field (in horizontal plane)
5. Force due to electrodynamic forces (in vertical plane)

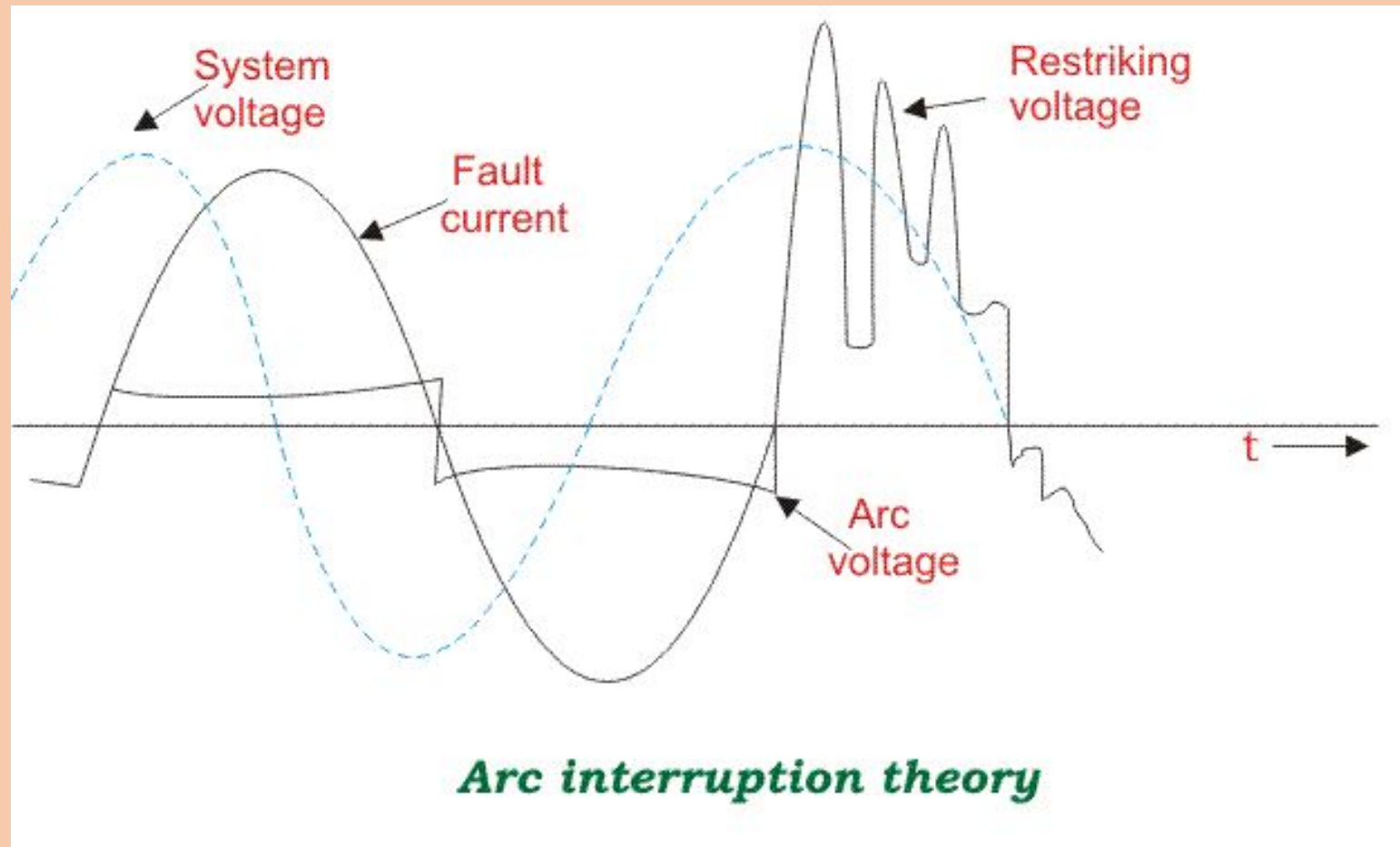
# Blow Out Coil and Cooling of Arc



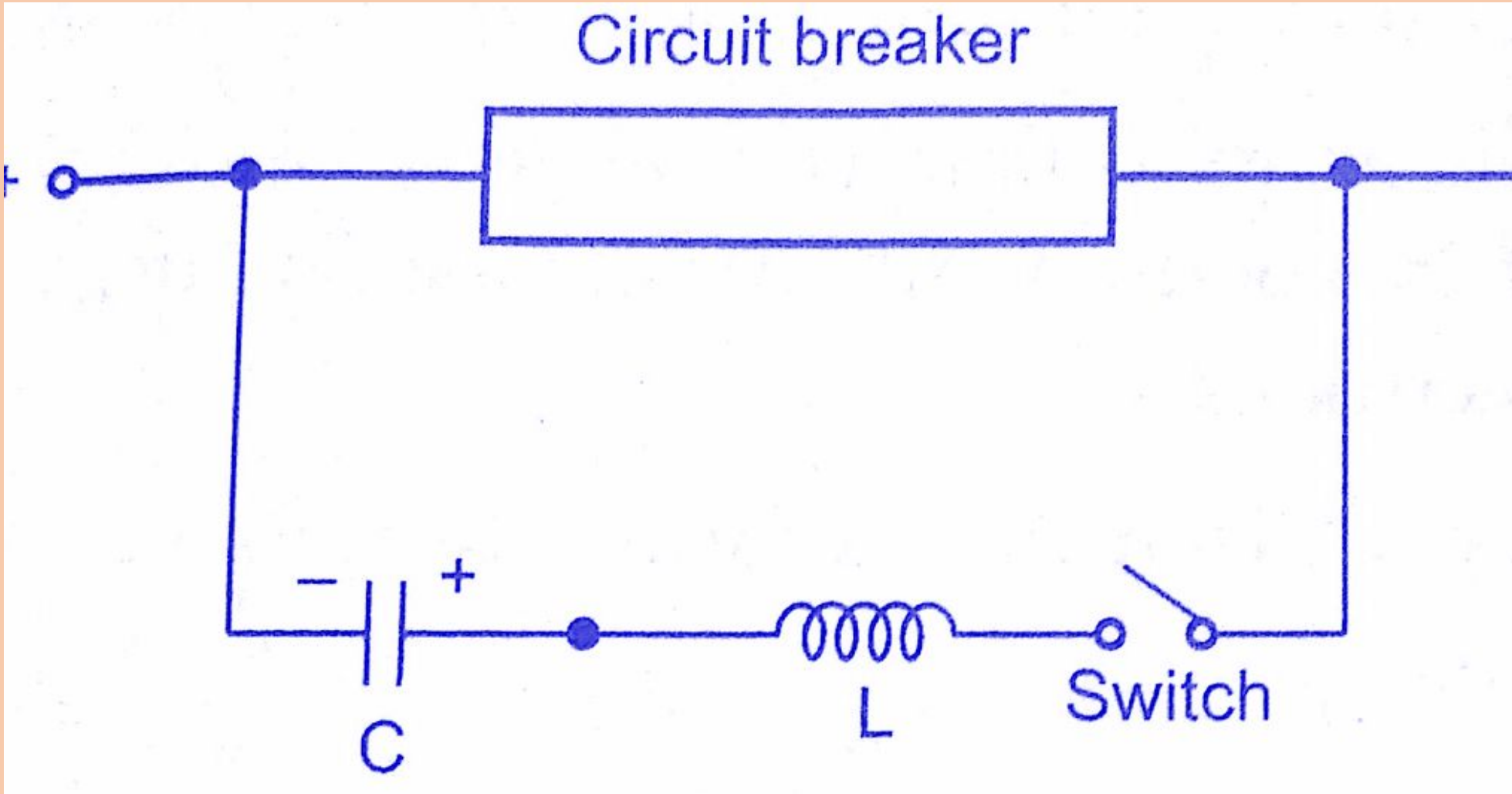
- 1. Arc runners (metallic)
- 2. Arc splitters
- 3. Elongated arc
- 4. Arc in process of travelling
- 5. Blow-out coils (metallic)
- 6. Origin of Arc



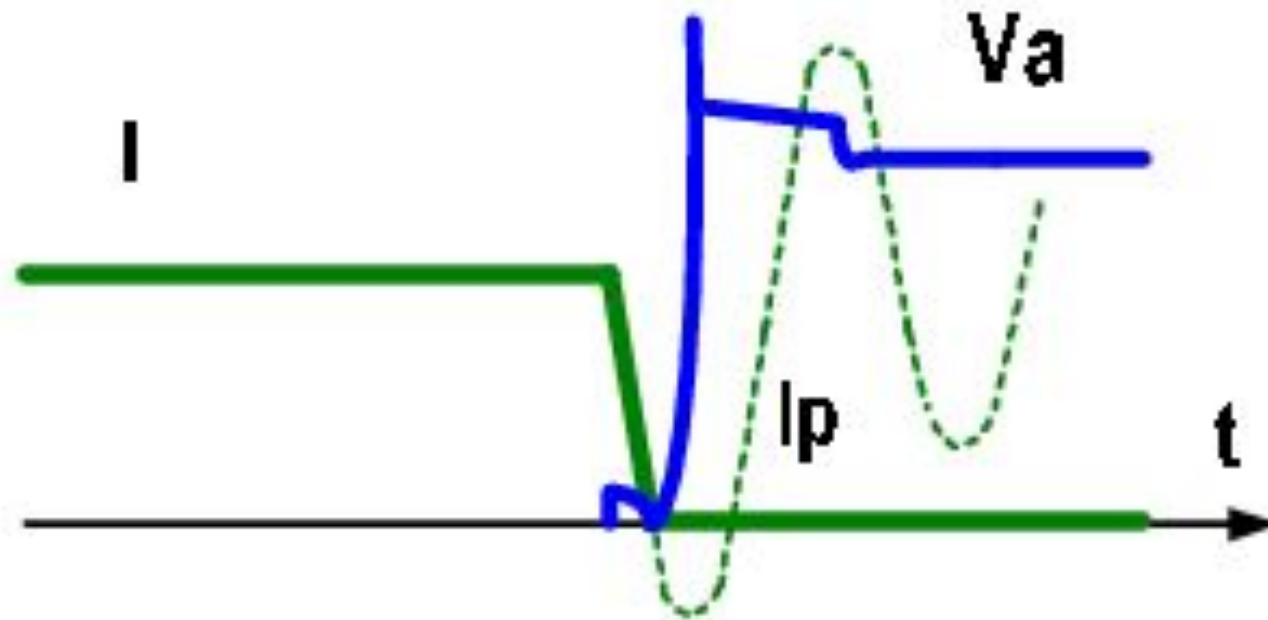
# Current Zero Arc Interruption



# Arrangement for DC Arc Interruption

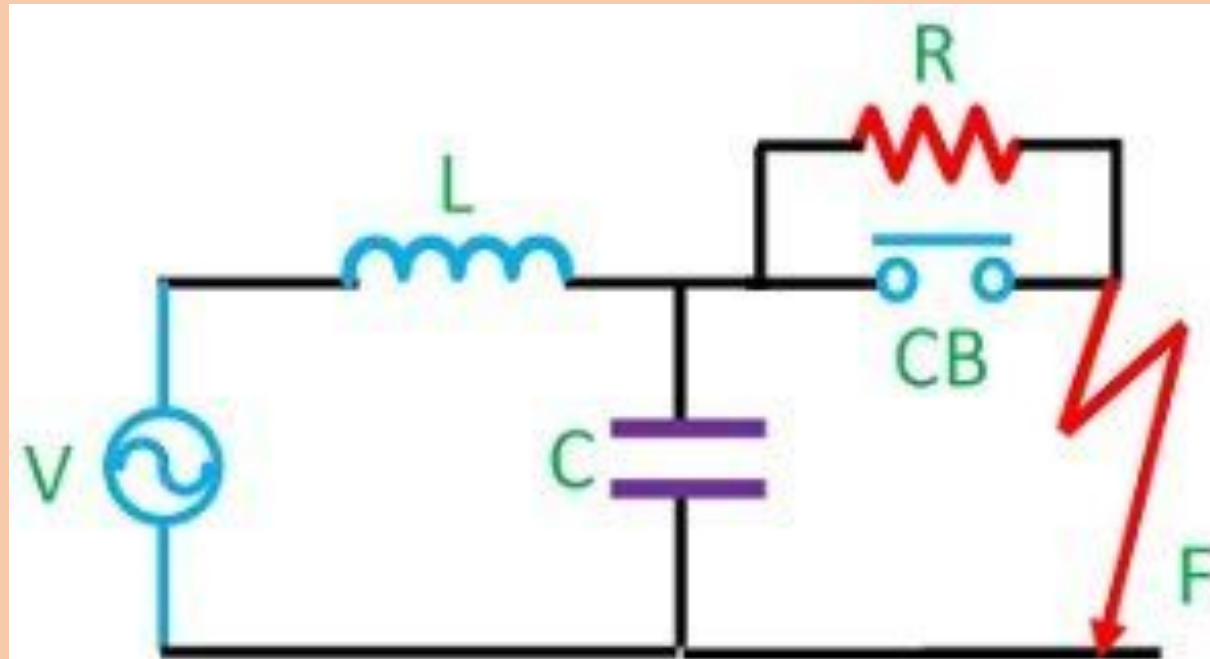


# Artificial Current Zero



Forced current zero formation

# Resistance Switching Circuit

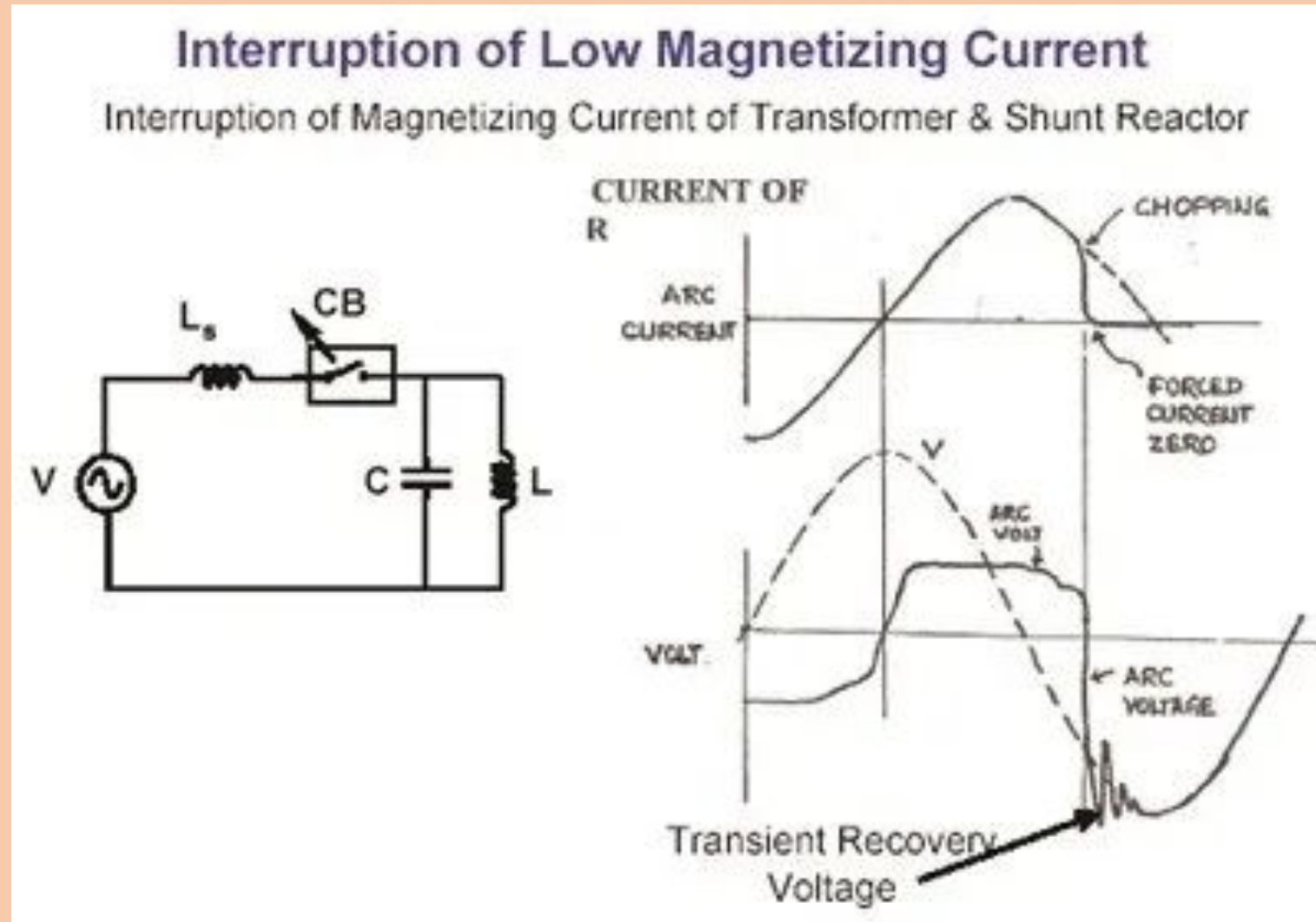


**Resistance Switching Circuit**

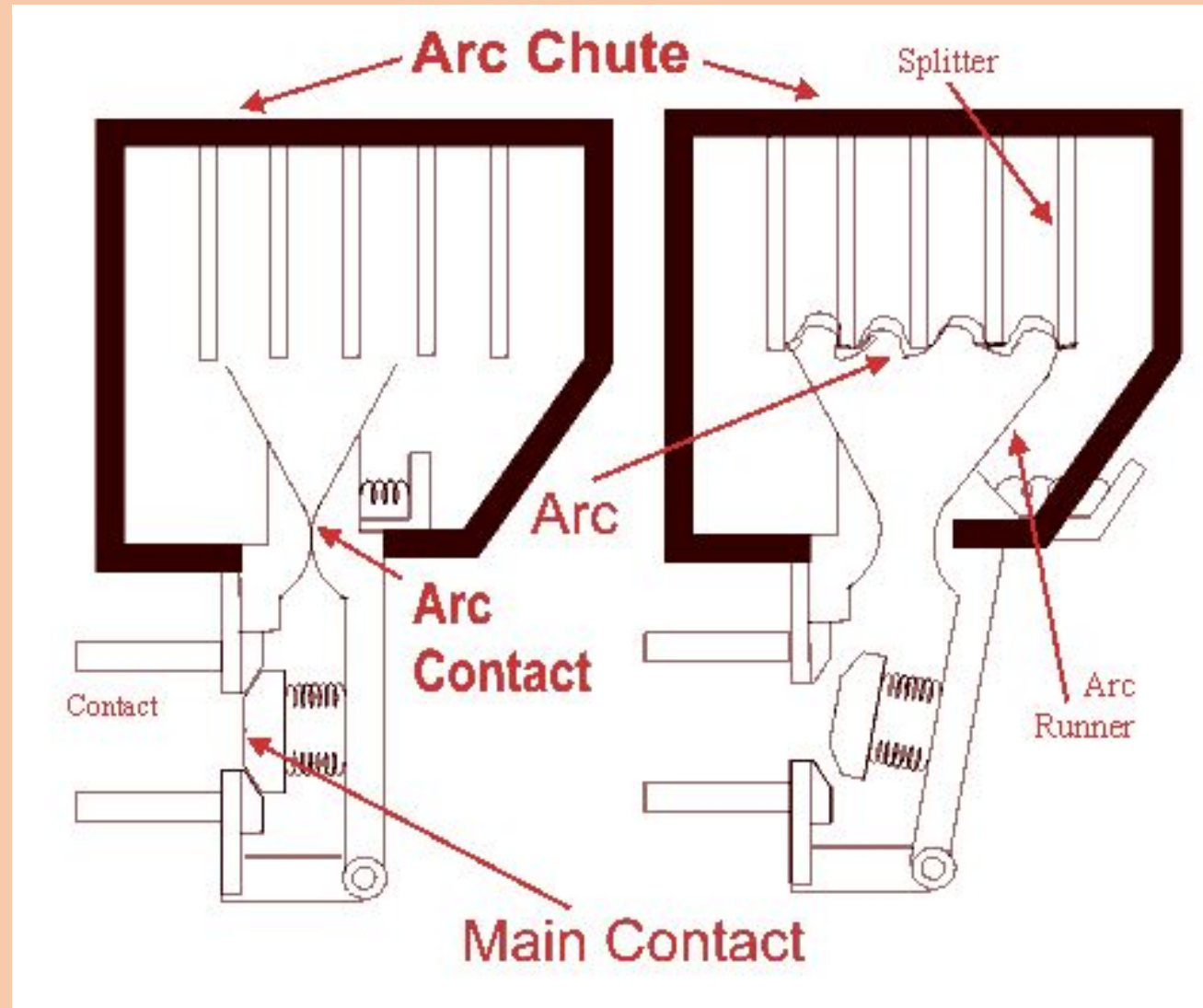
Circuit Globe



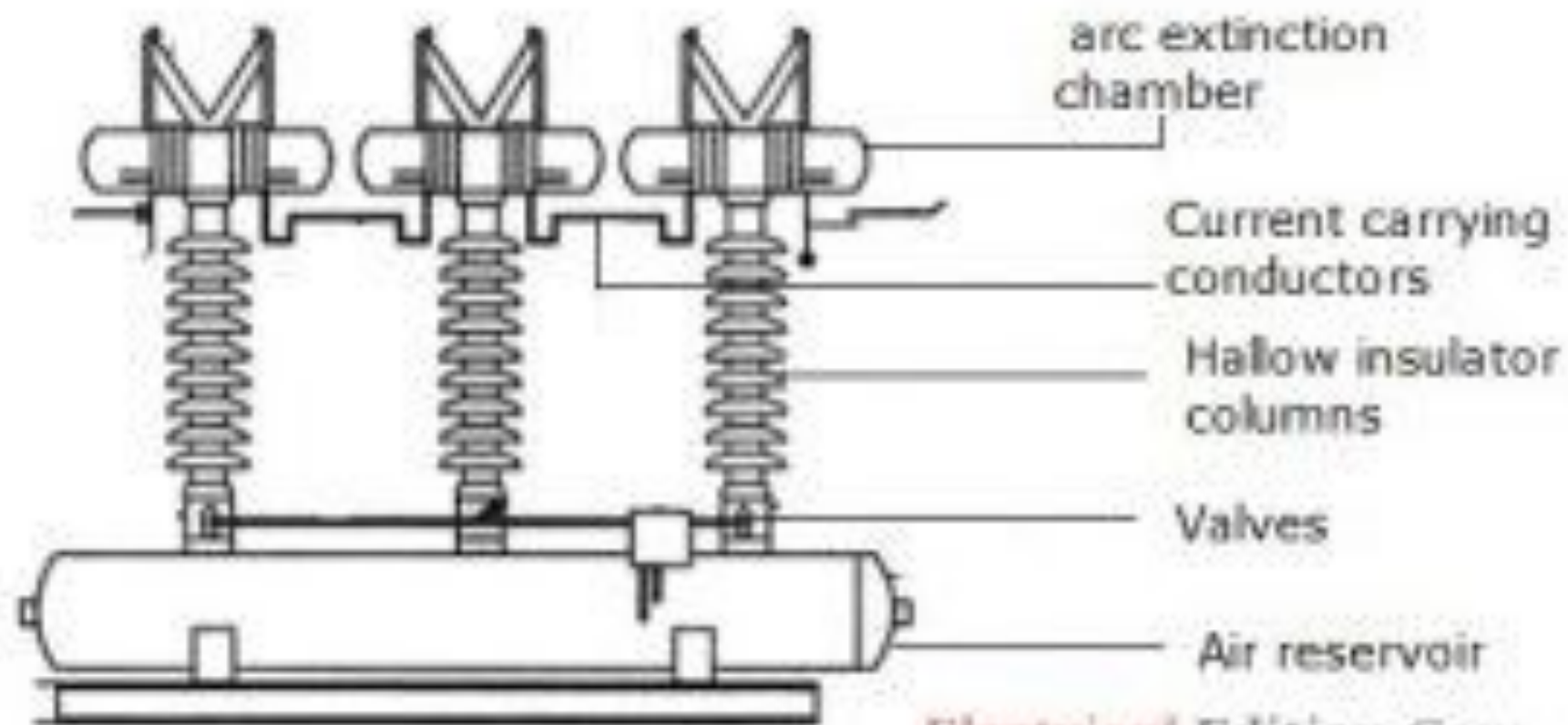
# Interruption of Low Magnetizing Current (Current Chopping)



# Air Break Circuit Breaker

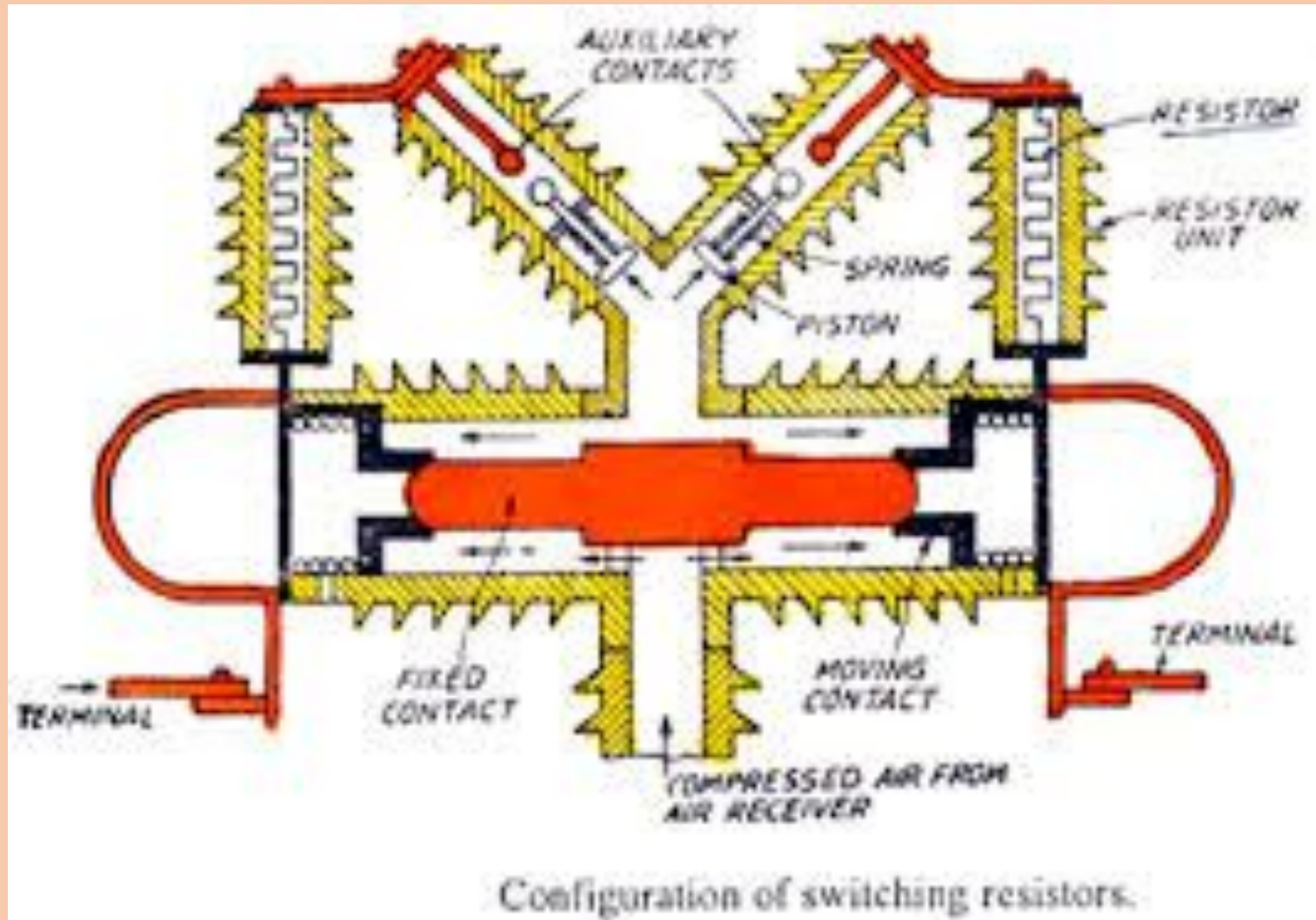


# Air Blast Circuit Breaker



*Electrical Edition.Com*

# Double Arc Extinction Chamber



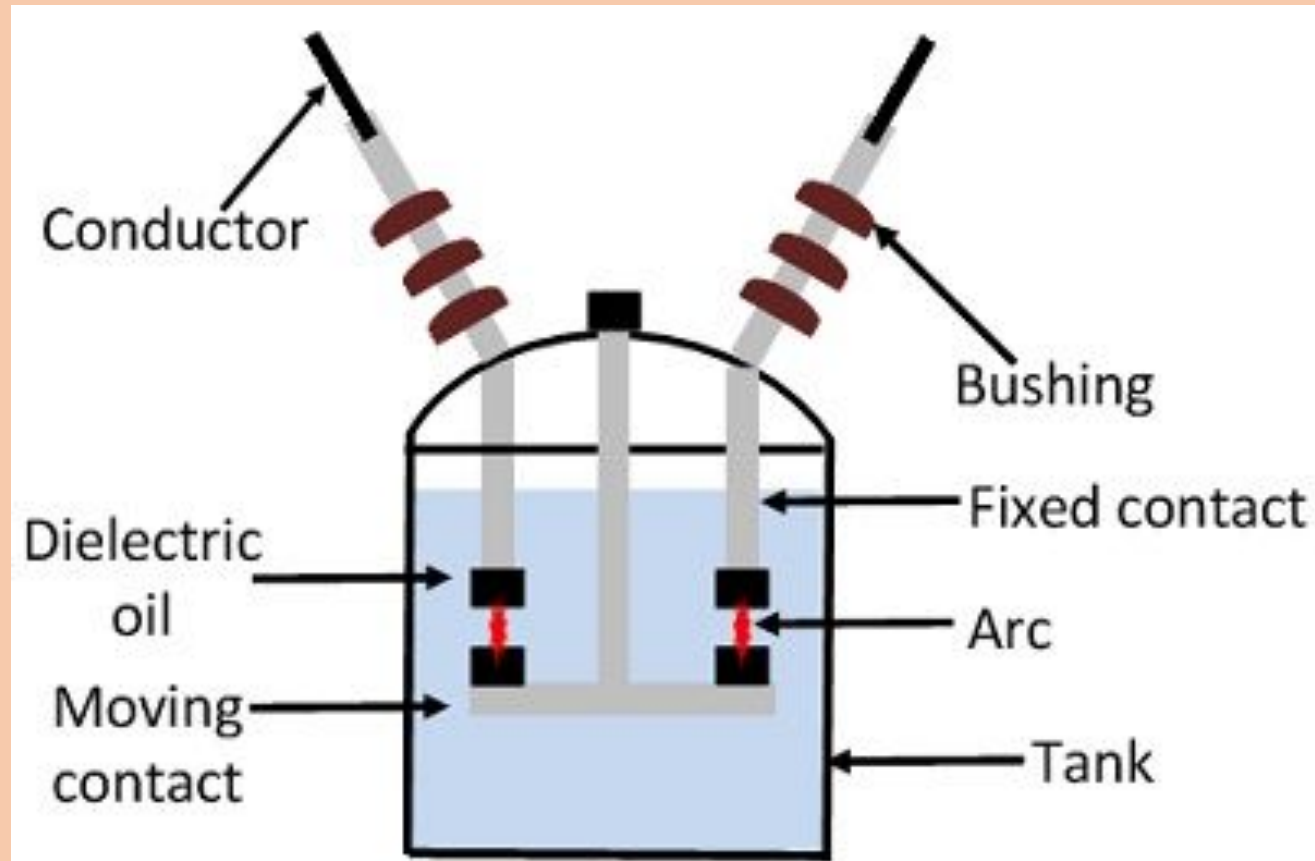
# Video link

- <https://www.youtube.com/watch?v=SxVa1gpdfg8>

# **Oil Circuit Breakers**

- 1. Bulk Oil Circuit Breaker**
- 2. Minimum Oil Circuit Breaker**

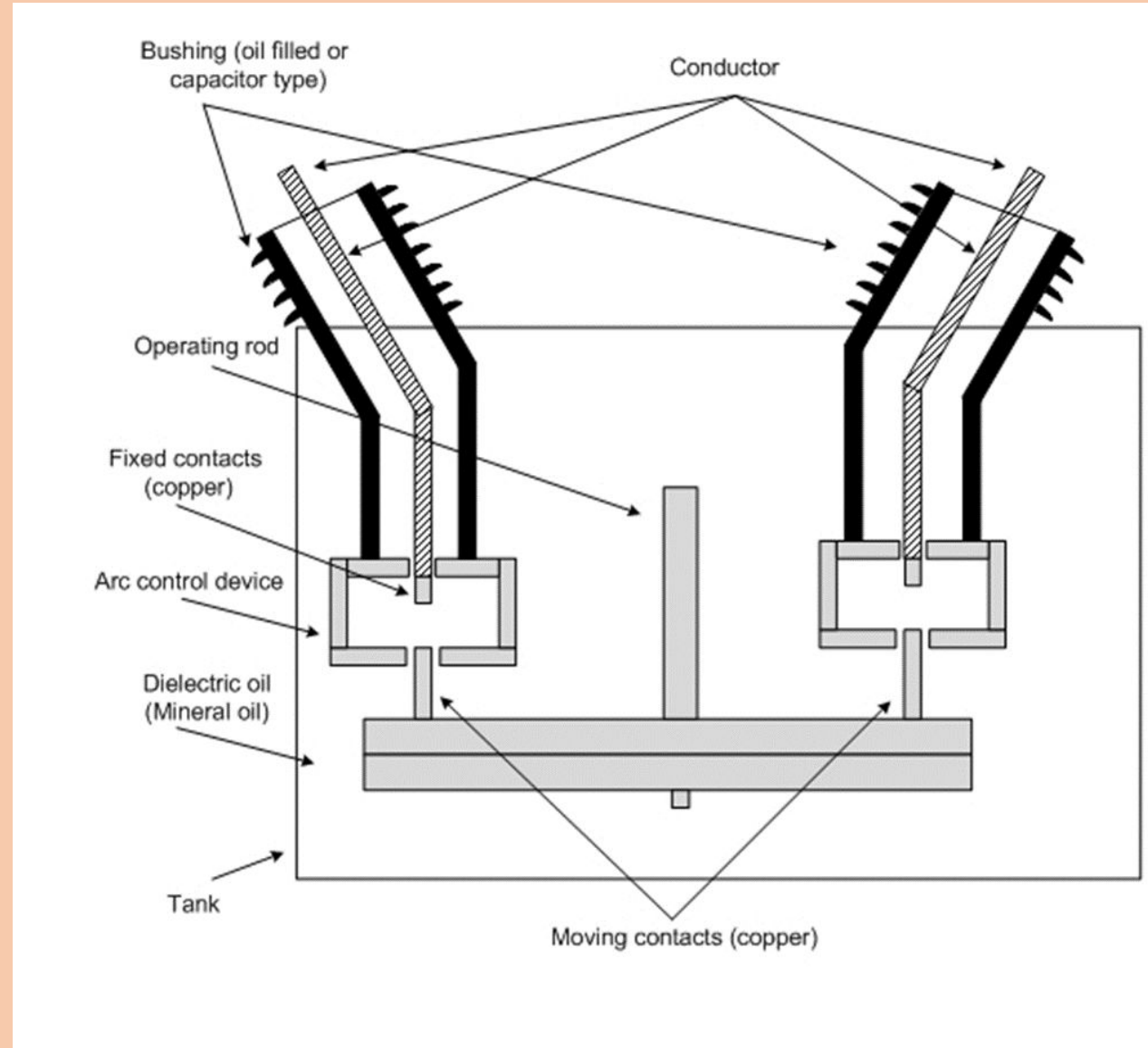
# Bulk Oil Circuit Breaker



**Bulk Oil Circuit Breaker**



# Bulk Oil Circuit Breaker with Arc Control Device

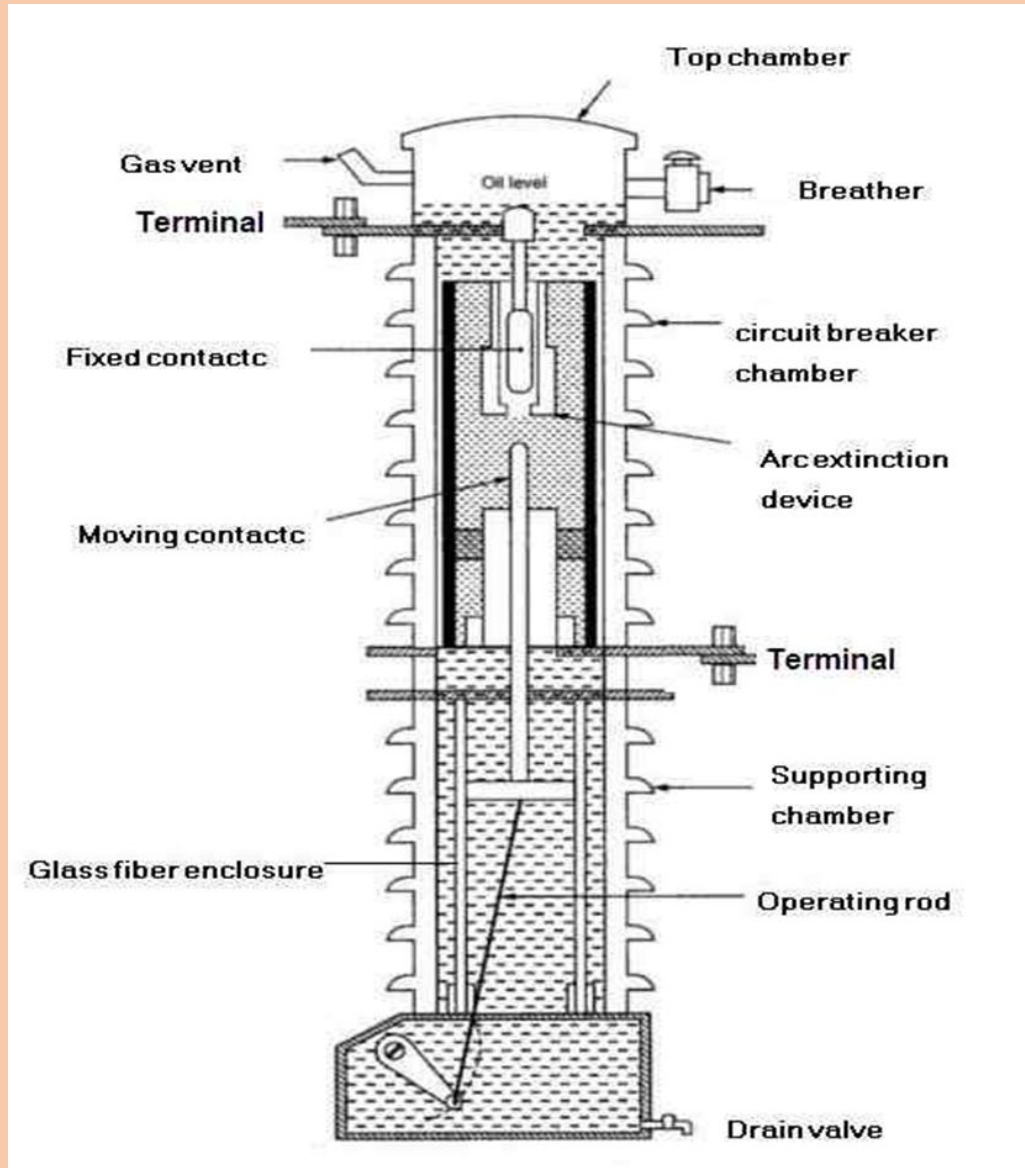




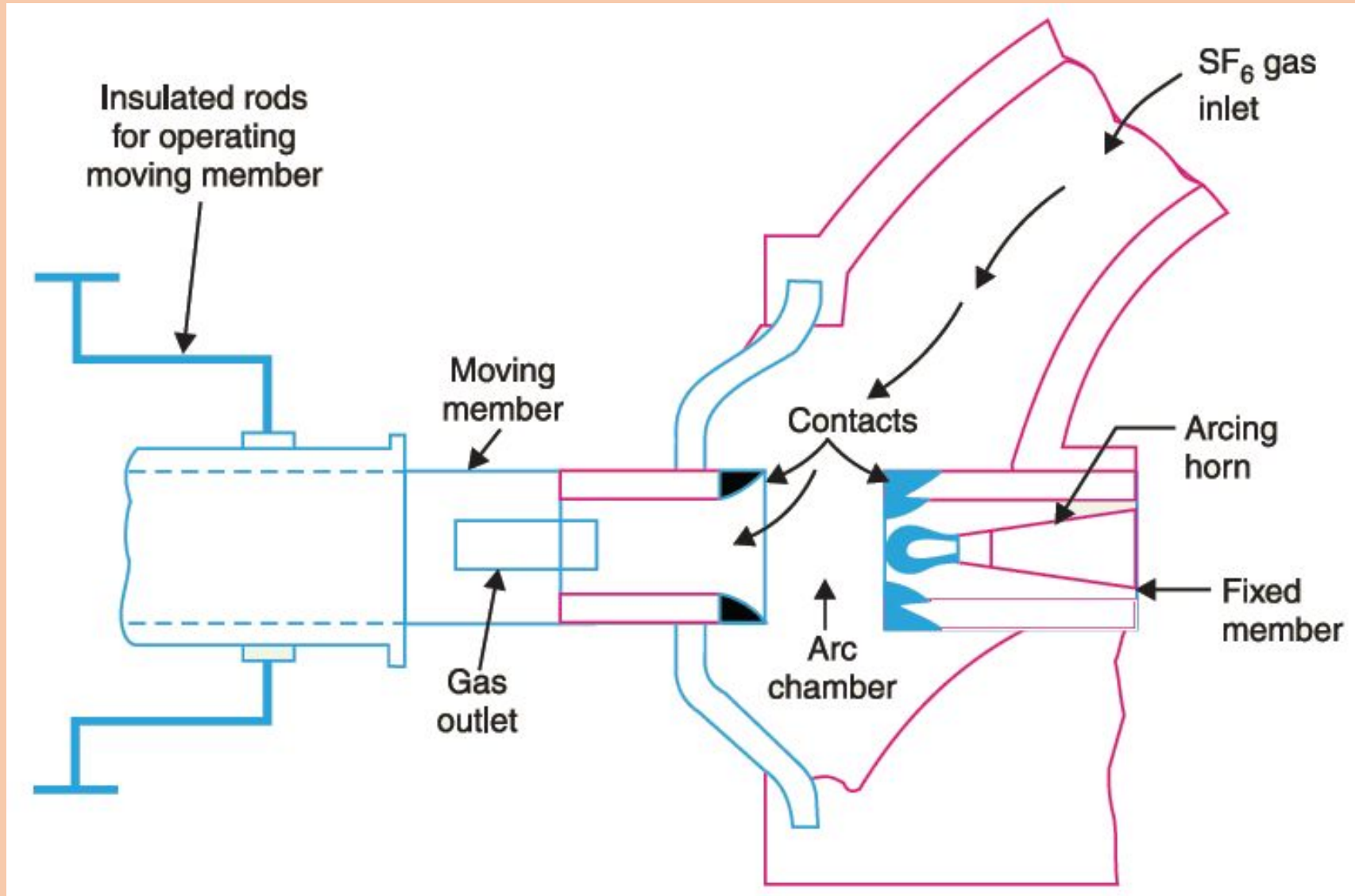
# BOCB



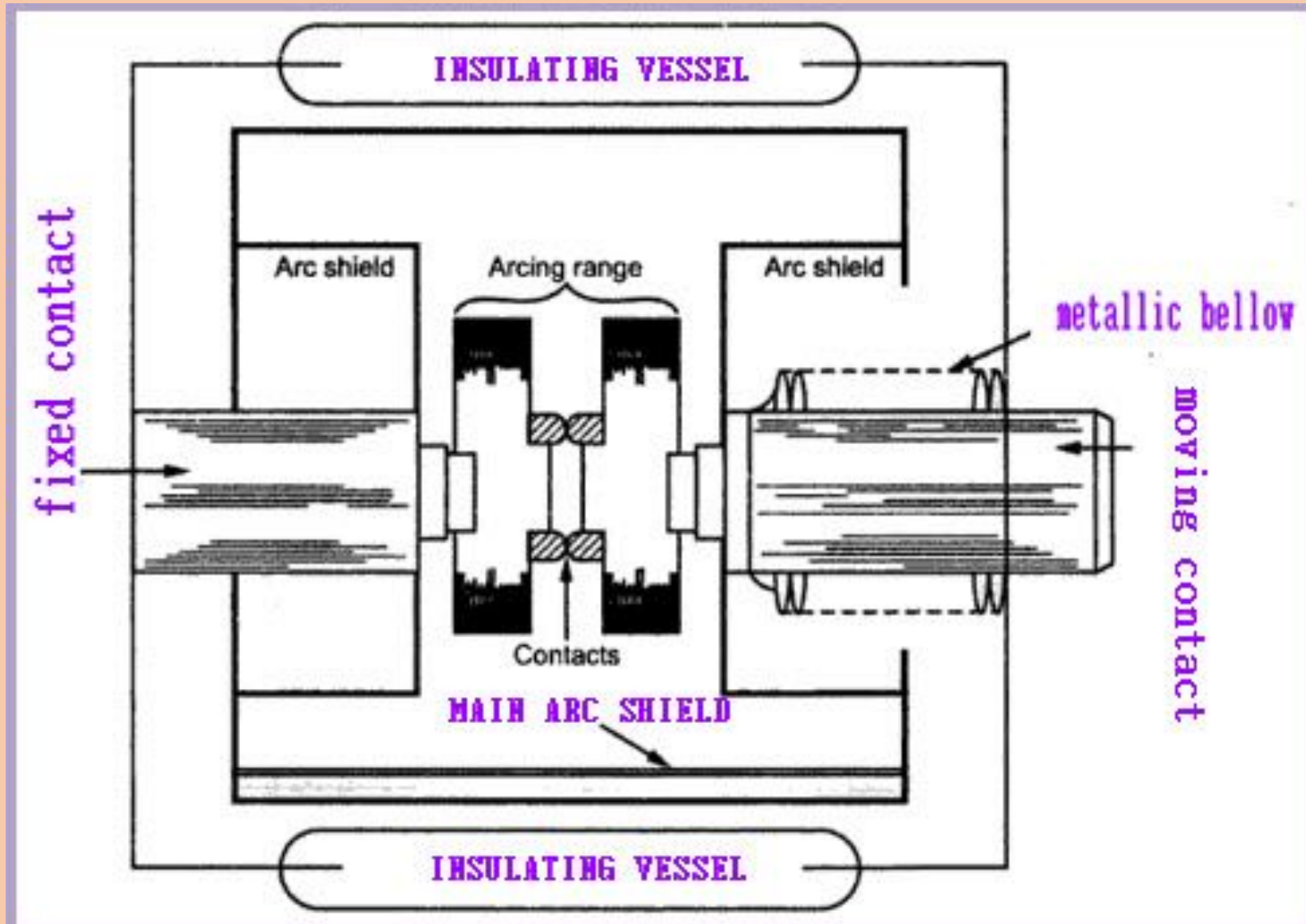
# Minimum Oil Circuit Breaker



# Sulphur Hexafluoride Circuit Breaker

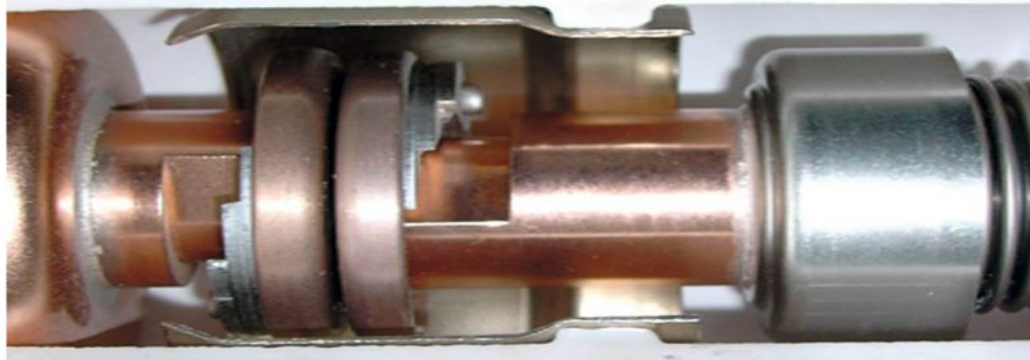


# Vacuum Circuit Breaker

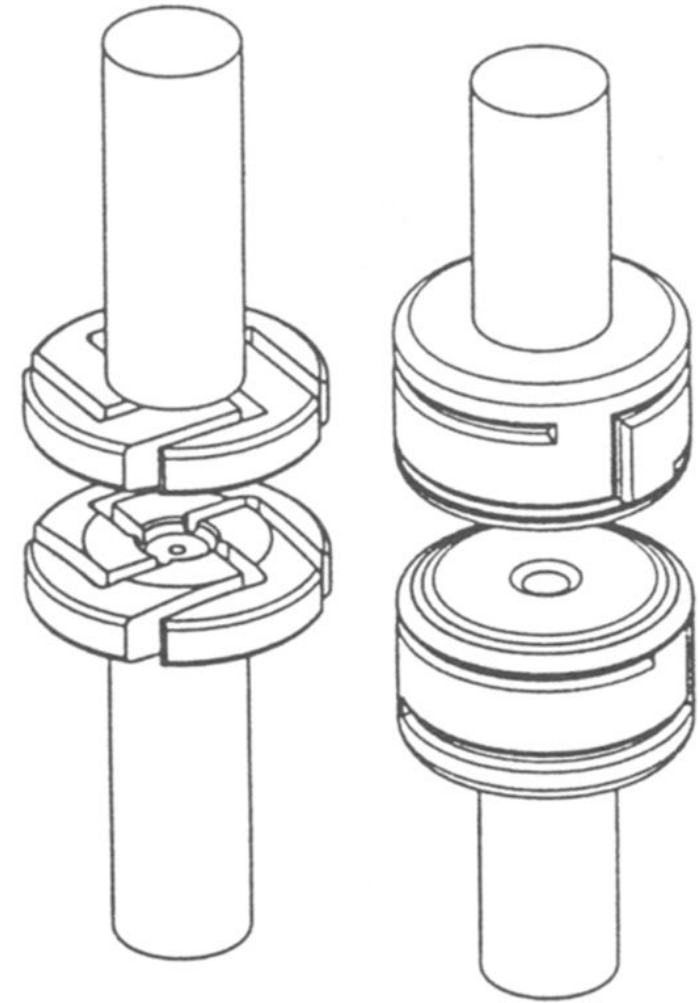


# Contacts in Vacuum Circuit Breaker

a)

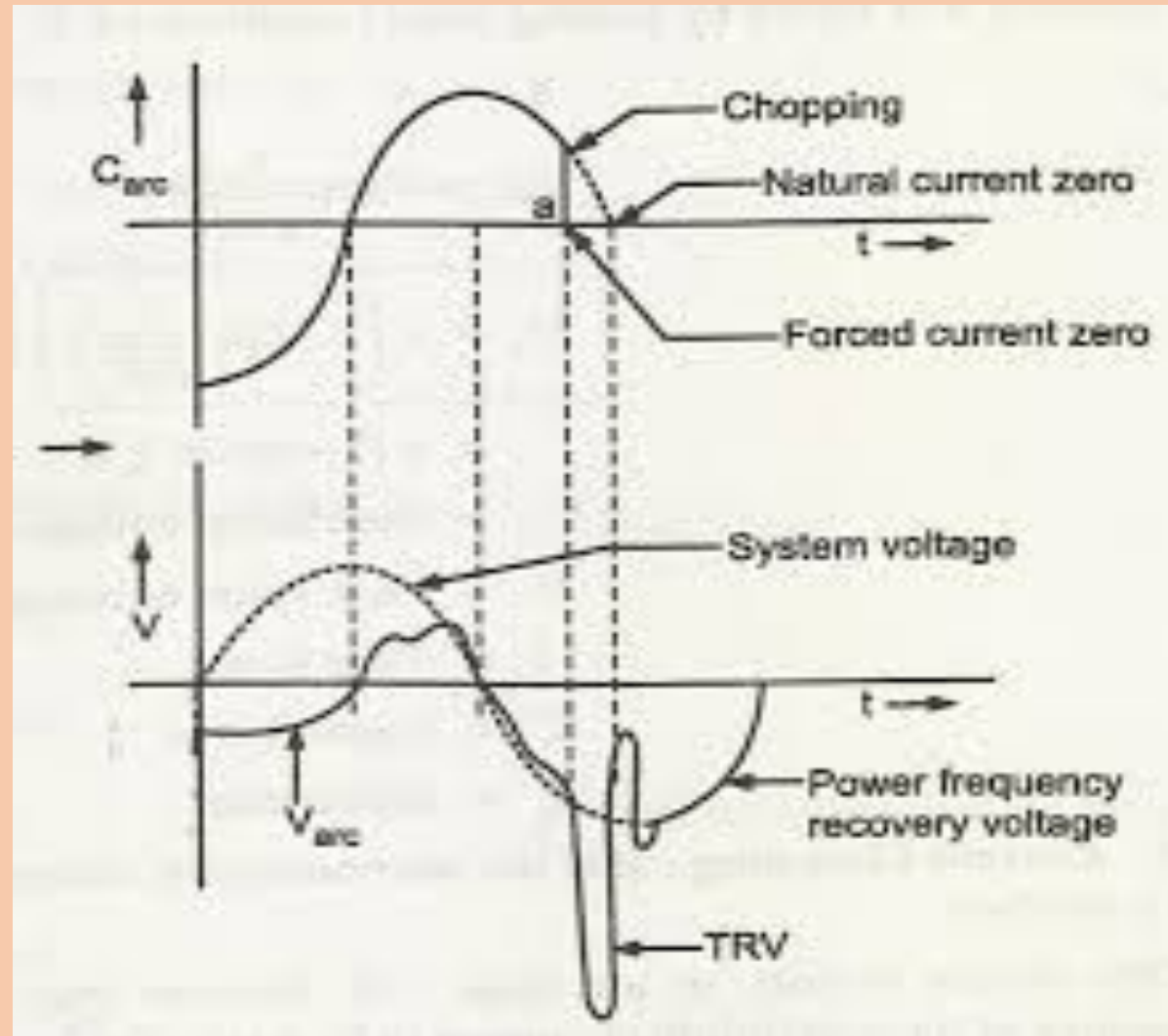


b)

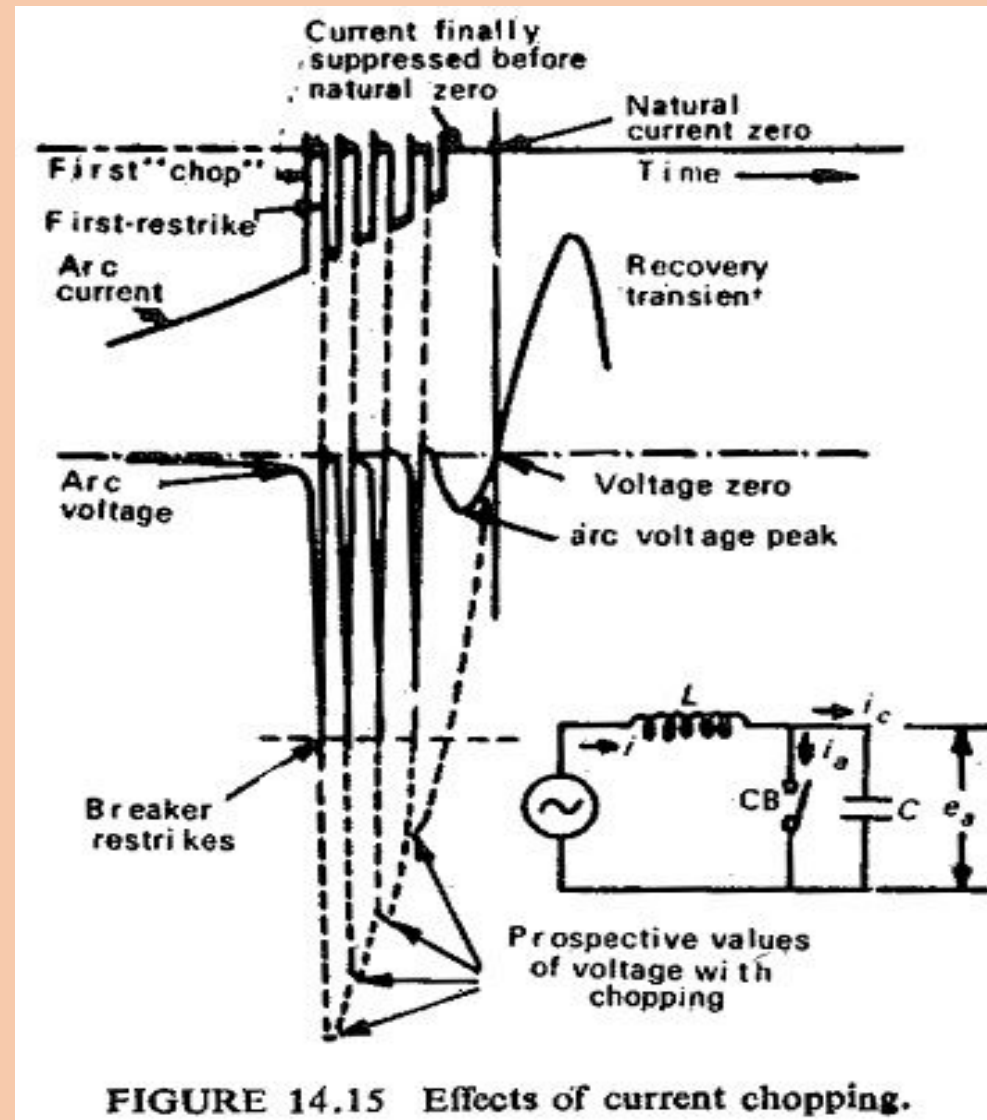




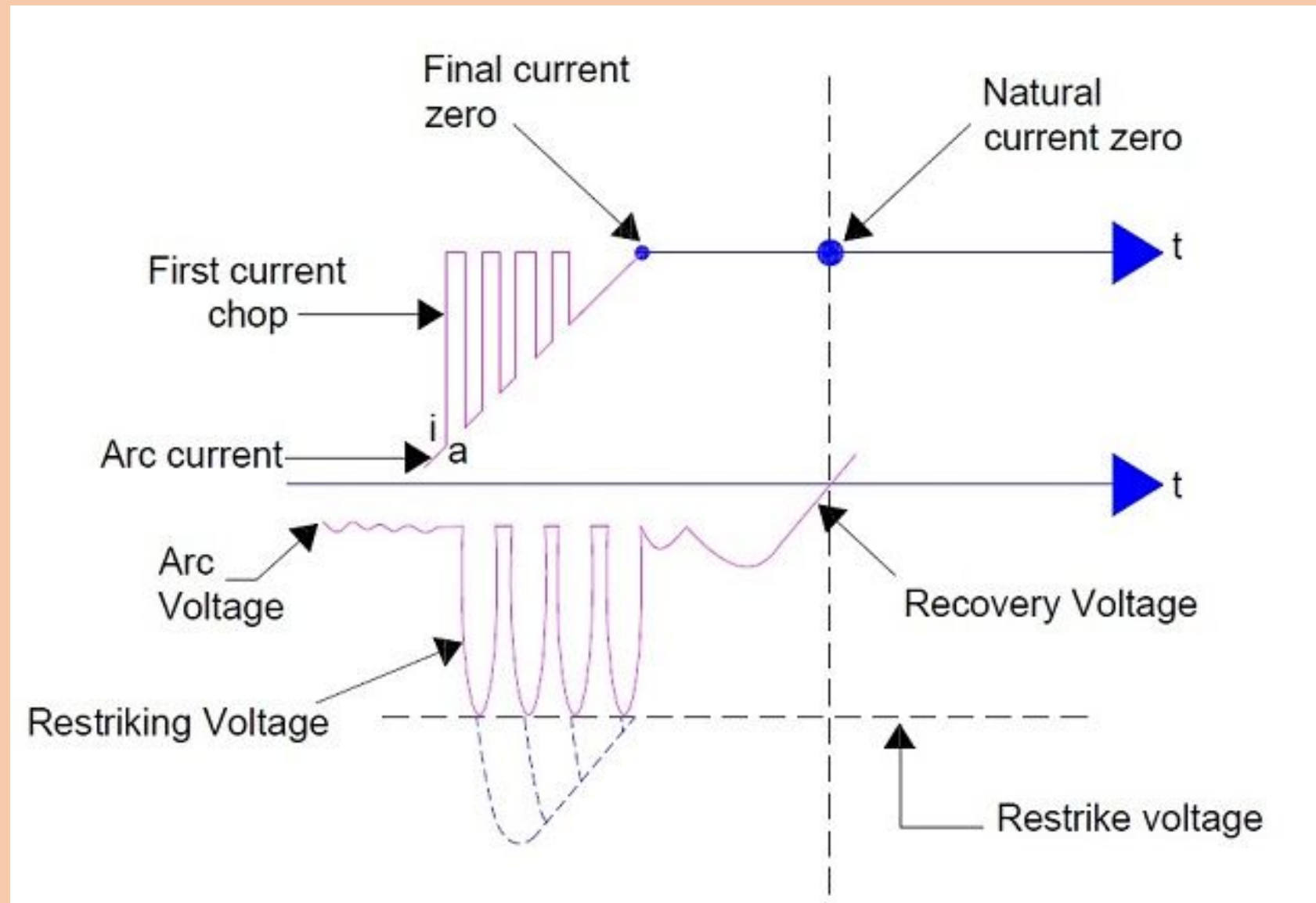
# Interruption of Low Magnetizing Current (Current Chopping)



# Interruption of Low Magnetizing Current (Current Chopping)

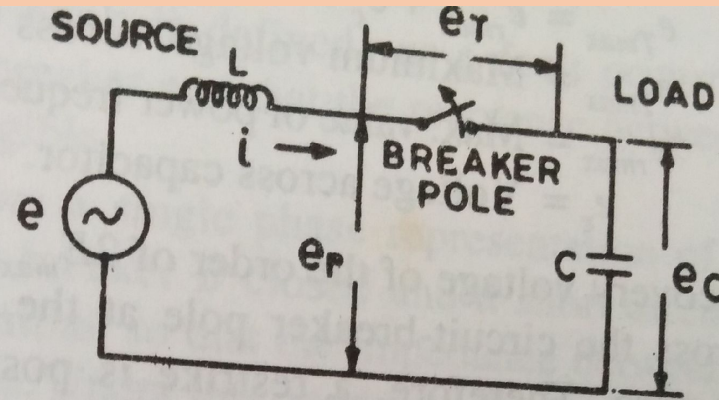


# Current Chopping

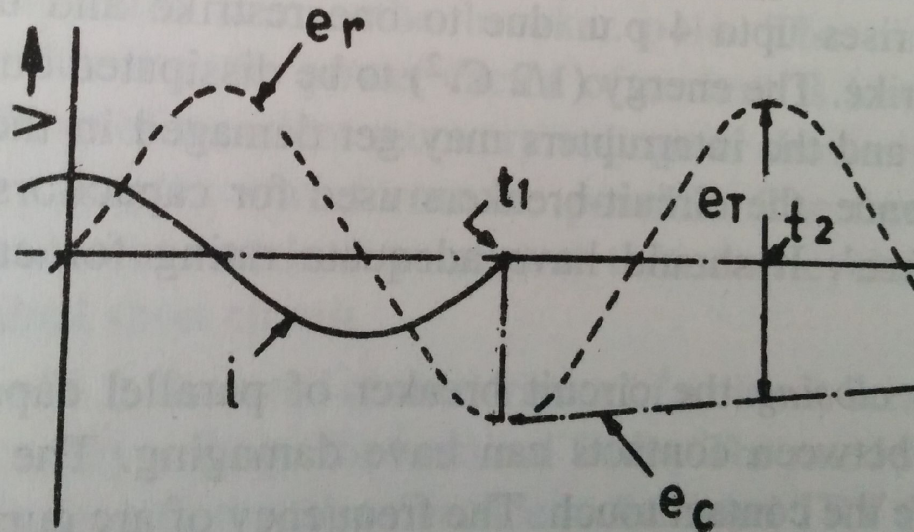




# Interruption of Capacitive Current



(a) Single phase Representation of star  
Connected 3 ph. Capacitor Bank



(b) Waveforms of Clean interruption without restriking