

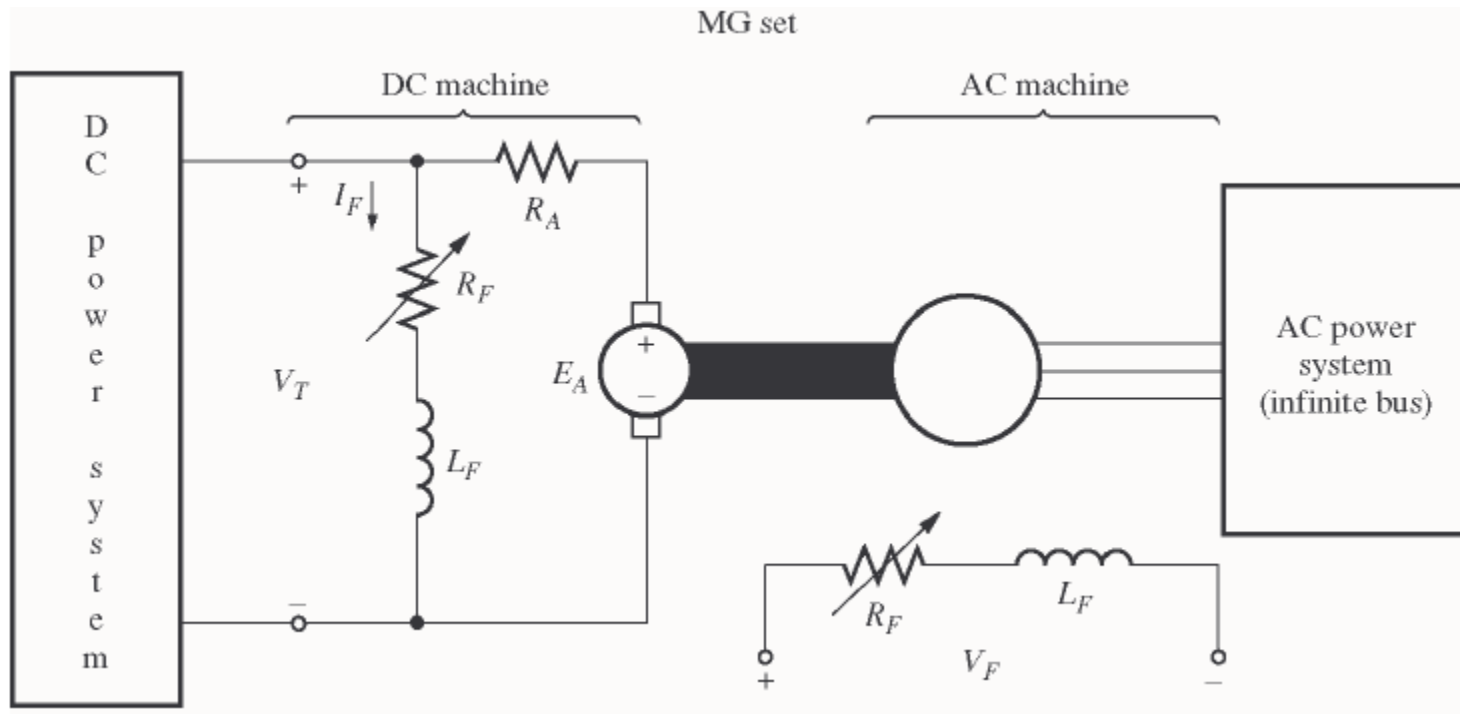
Electromechanical Energy Conversion I

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Unit 1: Principles of Electromechanical Energy Conversion

- Introduction
- Flow of Energy in Electromechanical Devices
- Energy in magnetic systems(defining energy & Co-energy) , Singly
- Excited Systems
- Determination of mechanical force, mechanical energy, torque equation
- Doubly excited Systems; Energy stored in magnetic field, electromagnetic torque
- Generated emf in machines; torque in machines with cylindrical air gap

Unit 2: D.C. Machines



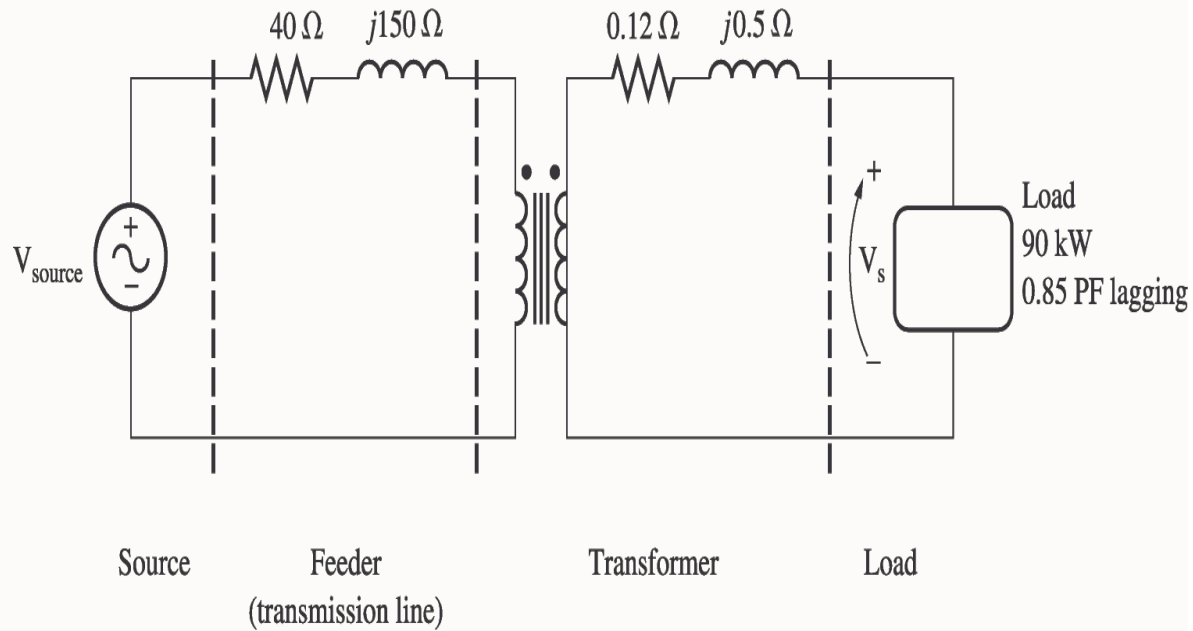
D.C. Machines

- Construction of DC Machines
- Armature winding
- Emf and torque equation
- Armature Reaction
- Commutation
- Interpoles and Compensating Windings
- Performance
- Characteristics of D.C. generators.

Unit 3: D.C. Machines

- Performance Characteristics of D.C. motors
- Starting of D.C. motors
- 3 point and 4 point starters
- Speed control of D.C. motors:
 - Field Control
 - Armature control
 - Voltage Control (Ward Leonard method)
- Efficiency
- Testing of D.C. machines (Hopkinson's and Swinburn's Test).

Unit 4: Single Phase Transformer



Transformers

- Construction
- Ideal Transformer Phasor Diagram
- Practical Transformer Phasor Diagram
- Equivalent Circuit
- Voltage regulation
 - Leading Power Factor
 - Lagging Power Factor
 - Zero Power Factor
- All day efficiency

Testing of Transformers

- **Open Circuit Test**
- **Short Circuit Test**
- **Sumpner's test**
- **Polarity test**

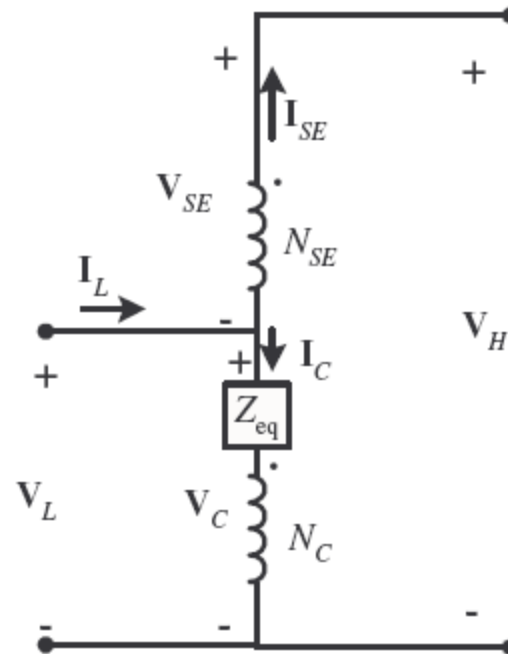
Auto Transformer

- **Single phase**
- **Three phase auto transformers**
- **Volt-amp relation**
- **Efficiency**
- **Merits & demerits and applications of Autotransformer**

Autotransformer

- Single Winding transformer
- Step UP
- Step Down

Use: For Variable Supply



Unit 5: Three Phase Transformers

- Construction
- Three phase transformer phasor groups and their connections
- open delta connection
- three phase to 2 phase, 6 phase or 12 phase connections, and their applications
- Parallel operation and load sharing of single phase and three phase transformers
- Excitation phenomenon and harmonics in transformers, three winding transformers.

Thanks...

Queries

Please...