



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

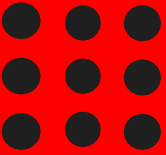
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME : 19EE407 ELECTRICAL MACHINES AND DRIVES

I YEAR /IV SEMESTER MECH

Unit 1 – OVERVIEW OF ELECTRICAL DRIVE

TOPIC: TYPES OF ELECTRICAL DRIVE





Types of Electrical Drives

Generally electrical drives are classified as follows:

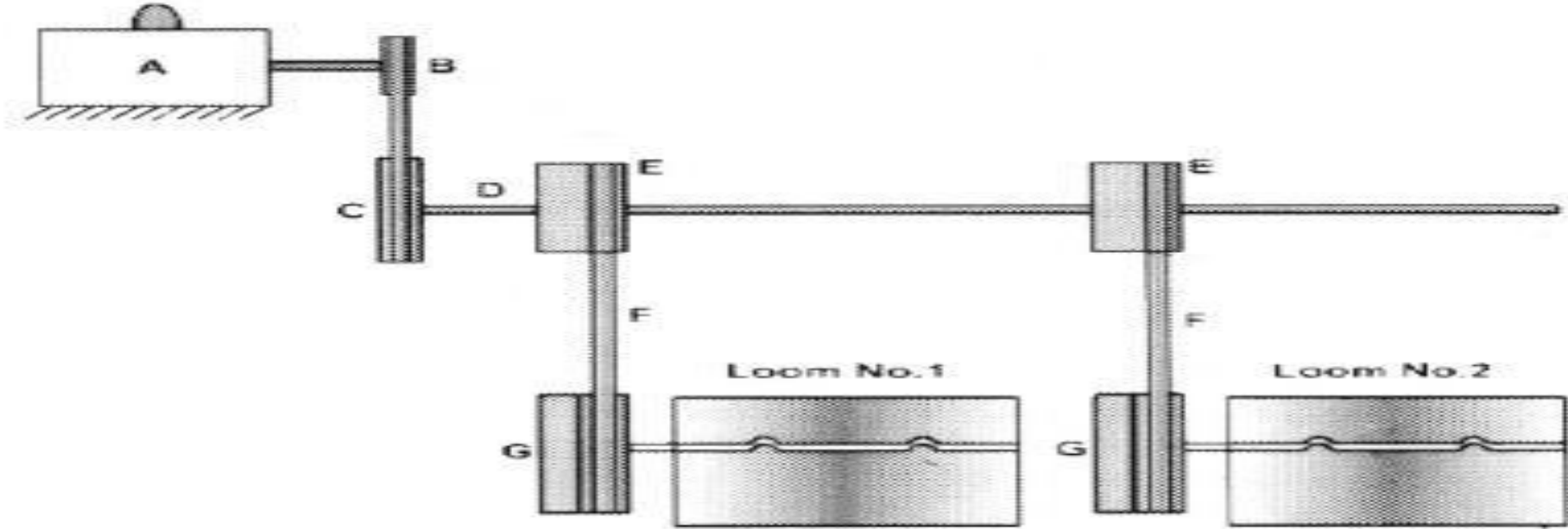
- ✓ Group drive
- ✓ Individual Drive
- ✓ Multi motor drive





GROUP DRIVE

If several group of mechanisms or machines are organized on one shaft and driven by **one motor**, the system is called a group drive.



A - Common motor
B - Motor pulley
C - Overhead shaft driving pulley
D - overhead shaft or main shaft

E - Main shaft pulleys
F - Belts
G - Fast-and-loose pulleys



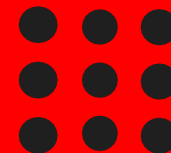
Advantages of Group Drive:

Most Economical

- ✓ All operations can be stopped simultaneously
- ✓ Less space is required
- ✓ Less maintenance

Disadvantages of Group Drive:

- ✓ Any Fault in the motor, causes all the operations to be stopped.
- ✓ Not possible to install any machine at a distance place & additional machine is not possible.
- ✓ Not safe to operate.
- ✓ Noise level at the working spot is high.
- ✓ Flexibility.





INDIVIDUAL DRIVE

When an each machine is driven by its own separate motor with the help of gears, pulley Etc, it is called individual Drive.



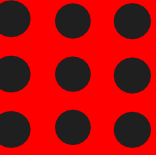


Advantages of Individual Drive:

- ✓ Machines can be installed at any desired position.
- ✓ Each operator has full control of the machines which can be quickly stopped if an accident Occurs.
- ✓ As each machine is driven by a separate motor, it can be run or stop as desired.
- ✓ Good appearance, cleanliness & safely.
- ✓ If there is a fault in one motor other machines will not be affected.
- ✓ The maintenance of line shaft bearings, pulleys & belts etc is eliminated.
- ✓ For driving heavy machines individual drive is essential.

Disadvantages of Individual Drive:

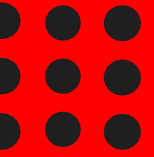
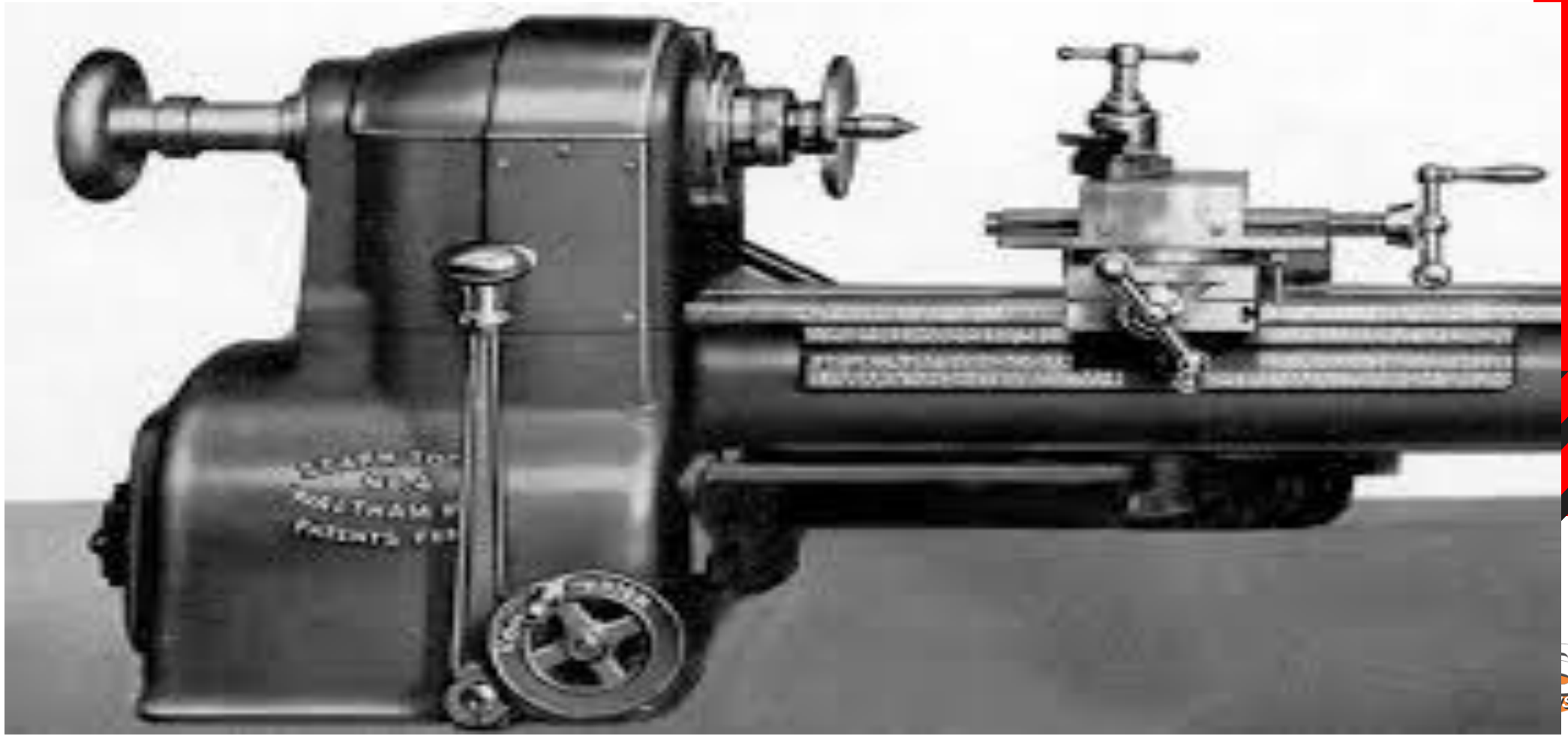
- ✓ The initial cost is high.





MULTIMOTOR DRIVE

In Multimotor drive **separate motor** are provides for operating different parts of the driven mechanism





Advantages of Multi motor Drive:

- ✓ Each Machine is driven by a separated motor it can be run and stopped as desired.
- ✓ In the case of motor fault, only its connected machine will stop where as others will continue working undisturbed.
- ✓ Absence of belts and line shafts greatly reduces the risk of a accidents to the operating personnel.





References:

1. Kothari, D.P., Nagrath, I.J., “Basic Electrical Engineering”, Tata McGraw Publishers, 2nd Edition, 2018 (UNIT I-III)
2. Pillai, S.K., “A First Course on Electrical Drives” New age publishing Ltd, New Delhi, 2016(UNIT I, IV,V).
3. Metha. V.K. & Rohit Metha, “Principle of Electrical Engineering”, S.Chand & Co, New Delhi, 2012. (UNIT I - III)
4. Vedam Subramaniam, “Electric Drives”, Tata McGraw Hill Publisher, New Delhi , 2017. (UNIT I, IV,V)
5. Bimbhra, P.S., “Power Electronics”, Khanna Publishers, Pvt Ltd, New Delhi, 2015 (UNIT IV,V)
6. ubey. G.K. “Fundamental Electrical Drives”, Narosa Publications, 2ndEdition,2017, (UNIT IV, V)
7. Bhattacharya S.K. &Brijinder Singh , “Control of Electrical Machines”, New Age International Publishers, 2009. (UNIT I - III)

