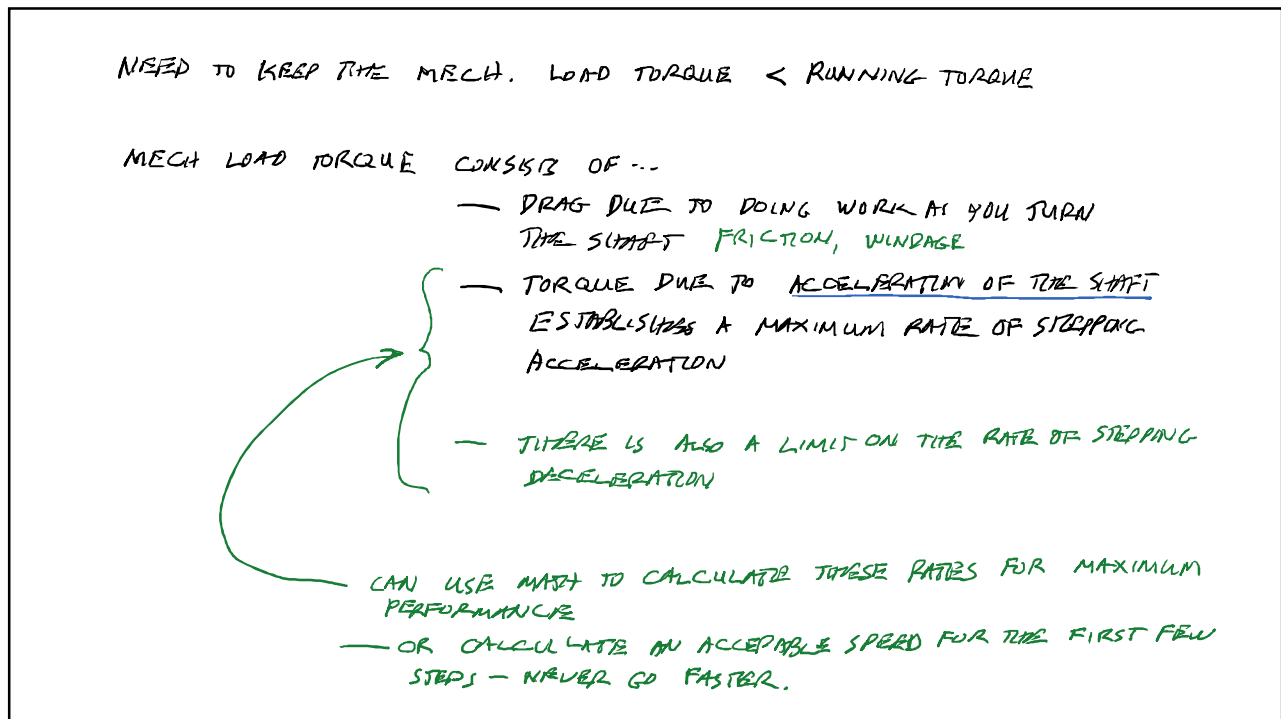
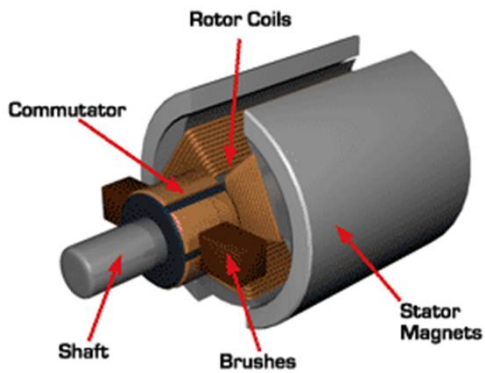


1



2

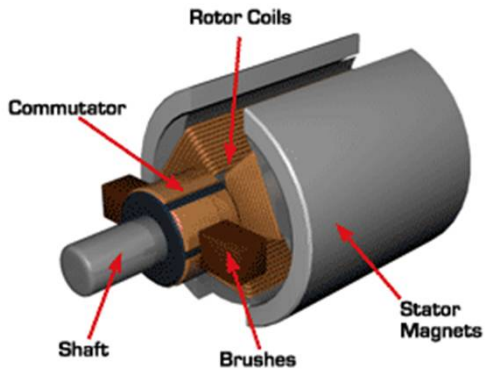
Can you recognize a motor by how it looks? A picture Gallery of motors



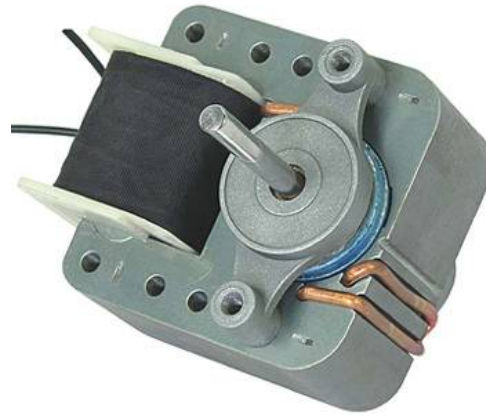
DC motor illustration, fair use from <http://www.electrical4u.com/permanent-magnet-dc-motor-or-pmdc-motor/>

3

Can you recognize a motor by how it looks? A picture Gallery of motors



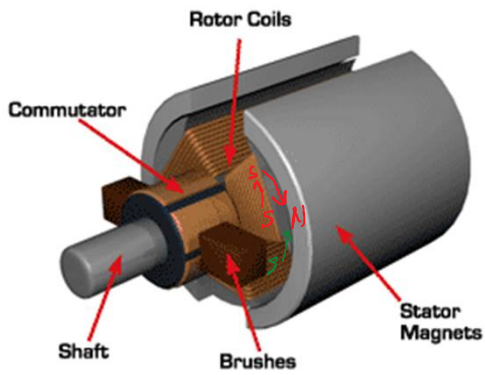
DC permanent magnet motor



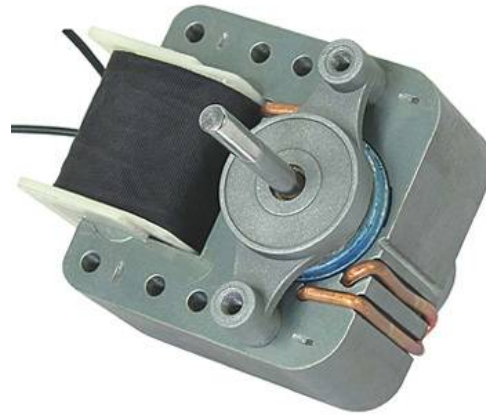
DC motor illustration, fair use from <http://www.electrical4u.com/permanent-magnet-dc-motor-or-pmdc-motor/>
Shaded pole motor illustration, fair use from <http://ningbohanran.wholesale.chinaqualitycrafts.com/z5eb4dc-hot-air-exhaust-blower-with-shade-pole-motor-for-combi-boiler-images.html>

4

Can you recognize a motor by how it looks? A picture Gallery of motors



DC permanent magnet motor



AC shaded pole motor
(All shaded pole motors are single-phase. Why?)

DC motor illustration, fair use from <http://www.electrical4u.com/permanent-magnet-dc-motor-or-pmdc-motor/>
Shaded pole motor illustration, fair use from <http://nimgtobupran.ubholab.chinaqualitycrafts.com/252344-hot-air-exhaust-blower-with-shaded-pole-motor-for-combi-boller-image.html>

5

Can you recognize a motor by how it looks? A picture Gallery of motors

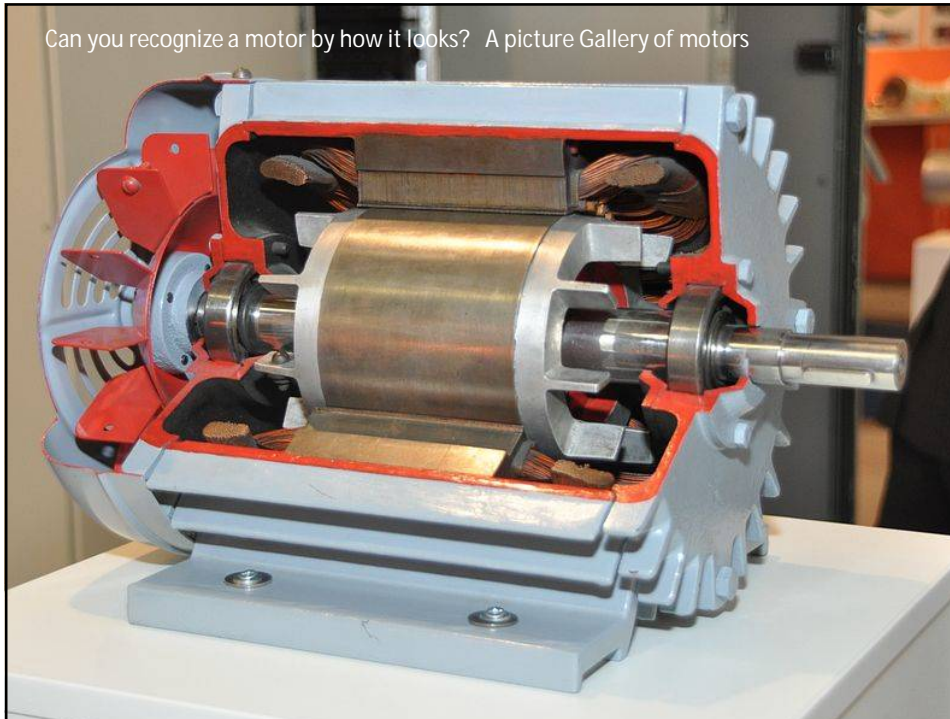
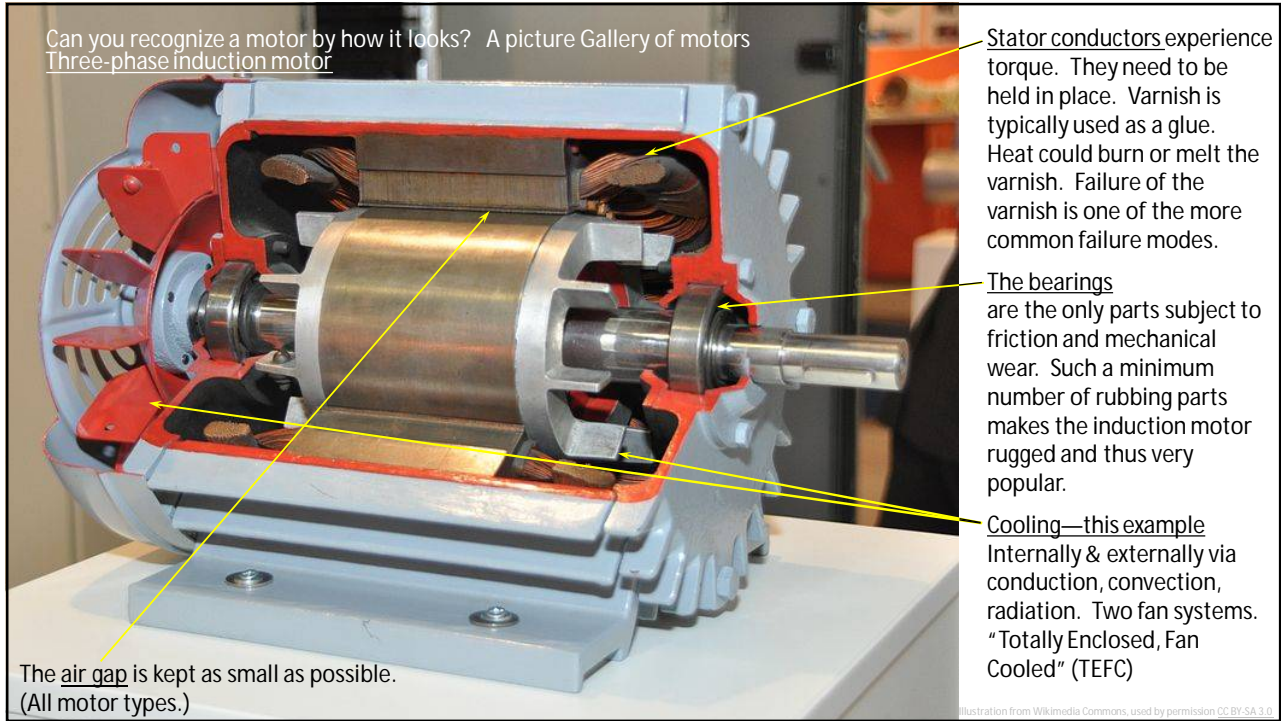
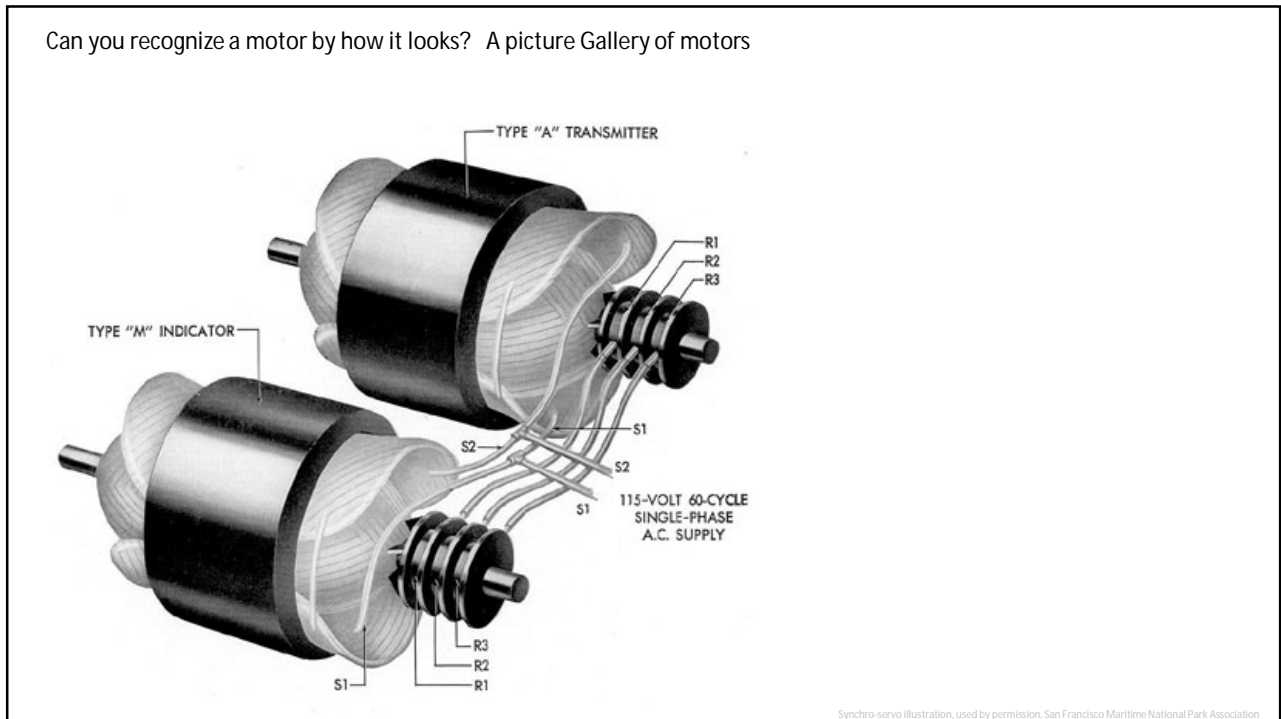


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6



7



8

Can you recognize a motor by how it looks? A picture Gallery of motors
 A Synchro-servo (a.k.a. Selsyn)

WOUND STATOR - AC voltage applies
 Trade Name
 3 phase rotors
 TYPE "A" TRANSMITTER A.K.A RESOLVER
 TYPE "M" INDICATOR
 115-VOLT 60-CYCLE SINGLE-PHASE A.C. SUPPLY
 TO REVERSE DIRECTION OF INDICATOR MOTOR, REVERSE ITS ROTOR LEADS R1 AND R3
 TORQUE IS TRANSMITTED IN BOTH DIRECTION
 REPLACE ONE MOTOR WITH A COMPUTERIZED EMULATION OF THIS MOTOR (THIS IS MORE COMMON NOW)

Synchro-servo illustration, used by permission, San Francisco Maritime National Park Association

9

Linear motor vs. rotary motor
 2 kinds of linear motor
 --conventional induction
 --rail motor (rail gun)

The metallic parts of any motor are subject to magnetostriction. This is a change of physical size due to metal grain alignment with the magnetic field. Causes hum and vibration.

Current +
 Magnetic field
 Armature slides along rails (was the rotor)
 Rail
 Force
 Rail
 B
 I
 F

10