

Date: _____

A.C MOTOR

STATOR

In an AC motor there's a ring of electromagnets arranged around the outside (making up the stator) which are designed to produce a rotating magnetic field.

ROTOR

Inside the stator, there's a solid metal axle, a loop of wire, a coil, a Squirrel cage made of metal bars and interconnections, or some other freely rotating metal part that can conduct electricity. Any of these constitute the rotor.

POWER SUPPLY

Unlike in a D.C motor, where power is sent to the inner rotor, in an A.C motor power is sent to the outer coils that make up the stator.

WORKING

* CHANGING MAGNETIC FIELD OF STATOR

The coils of stator are energized in pairs, in sequence, producing a magnetic field that rotates around the outside of the motor.

* ROTATION OF ROTOR

The rotor, suspended inside the magnetic field is an electrical conductor. The magnetic field is constantly changing (because it's rotating) so according to Faraday's Law the magnetic field induces an electric current inside the rotor.

* FLOW OF CURRENT

If the conductor is a ring or wire, the current flows around it in a loop. ~~It~~

* EDDY CURRENT

If the conductor is simply a solid piece of metal, eddy currents swirl around it instead.

Either way, the induced current produces its own magnetic field and according to Lenz's law tries to stop whatever it is that causes it - the rotating magnetic field - by rotating as well.

* INDUCTION MOTOR

Electromagnetic induction is the key to why a motor like this spins - and that's why it's called an induction motor