ROYAL SIGNALS MUSEUM

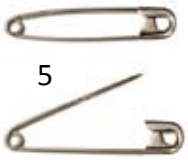
ROYAL SIGNALS CRYPTO CLUB
ELECTRIC MOTOR 2

The main components of a simple electric DC motor are a piece of insulated copper wire and a small magnet. Almost any type of magnet will work fine. All other components are optional and may easily be substituted by other materials.

We suggest that the best wire for the coil is 250 ECW 0.45mm 26swg or similar

You need;

1. Battery
2. Disk Magnet
3. Enamelled Copper Wire (50cm - 150 cm)
4. 2 x Insulated wire with sleeving (10cm each)
5. Safety Pins
6. Screws
7. Wood Block (7 x 6 cm)



How to make?

Start by winding the armature (coil), the part of the motor that moves. Experiment with the number of coils to see the effect. To make the armature nice and round, wind it on a 1" cylindrical form, such as a small C Type battery.

To make the coil hold its shape permanently, twist the free ends and wrap them around the coil a couple of times. If this method of holding the coil together is too difficult, you could also use scotch tape or electrical tape to do the job.

Using sandpaper remove the top half of the insulation from the both ends of the coil wire, making sure that the shiny bare copper side is facing up on both wire ends.

The next step is to prepare the axle supports. Use a pair of pliers to bend two safety pins from the middle. The safety pins can conduct electricity to the armature while the loops of wire on the safety pin can hold it up.

The base for this motor will be a wood block. It makes a nice base because it is heavy, stable and looks good for presentation in classroom or science fair. The wood block is large enough to hold the battery as well.

Use screws to mount the bent safety pins on the wood block so that the loops are faced to each other and about 1 inch apart.

Attach the wires from battery holder to the supports (bent safety pins).

Insert the battery into the holder. Place the magnet on top of the wood block just underneath the coil. Make sure the coil can still spin freely, and that it just misses the magnet.

Spin the armature gently to get the motor started. If it doesn't start, try spinning it in the other direction. The motor will only spin in one direction.