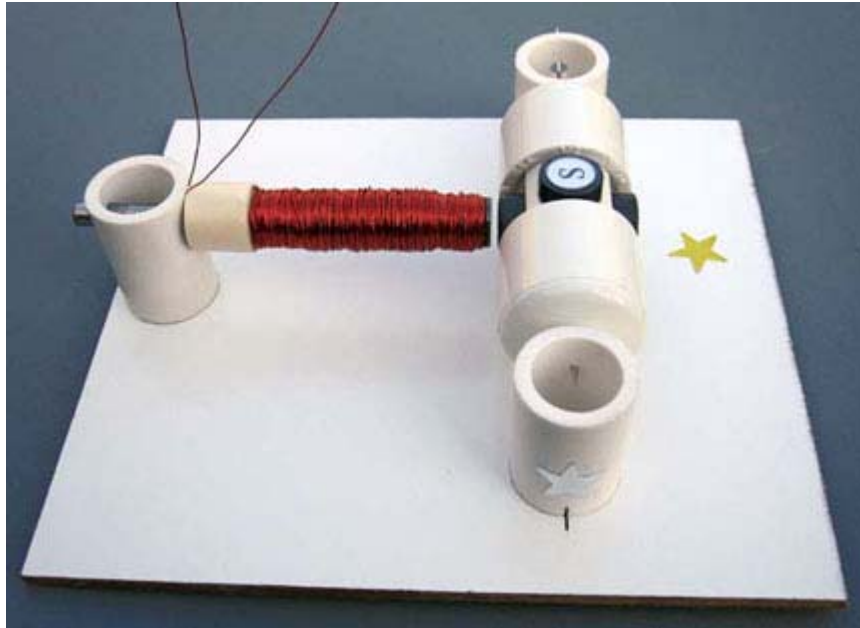


Assembly Instructions: Wire Comparison Kit



Wire comparison kit allows you to compare different gauges of electromagnet wire and experiment how different wire diameters affect the performance of the motors. These experiments can be performed with all of the motors.

If you purchased this kit you need to follow the regular instructions for the motor you are assembling. However, instead of steps 10-12 for kits #1-6 or steps 11-13 for the kits #7-10, please follow the instructions below. After that you may continue the regular assembly instructions for the motor you are building.

Instructions

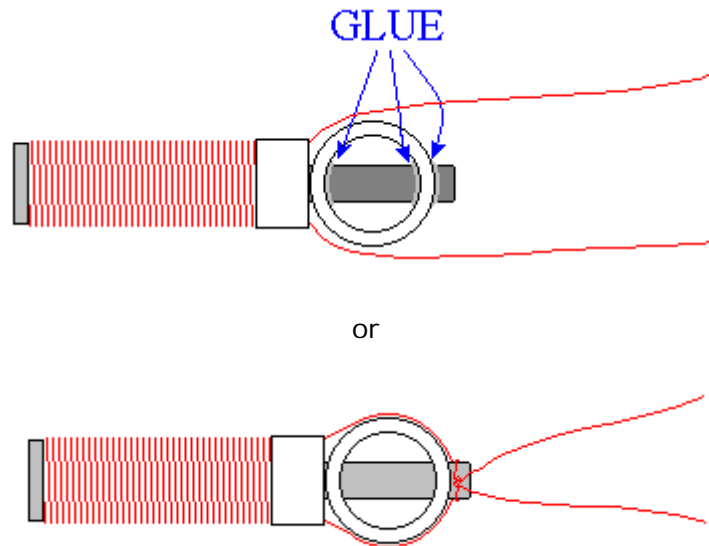
1. All wire on each spool should be used to wrap around the area between the tape and the head of the nail.
 - o Tape one end of wire leaving about 6" (15 cm) open*. You may use the tape that is already on the nail.
 - o Wind all the wire in one rotational direction (either clockwise or counterclockwise) moving back and forth along the nail. Try to be as accurate as possible. Do not let the wire slide off the end of the electromagnet.
 - o Tape the second end of the wire using the same tape. Both open ends of wire should be about 6" (15 cm) long*.
 - o Clean about 3/8" (10 mm) of the wire tips with fine sandpaper (included) or a sharp knife to remove the insulation.

* 10" (25 cm) if your kit does not include a battery holder.

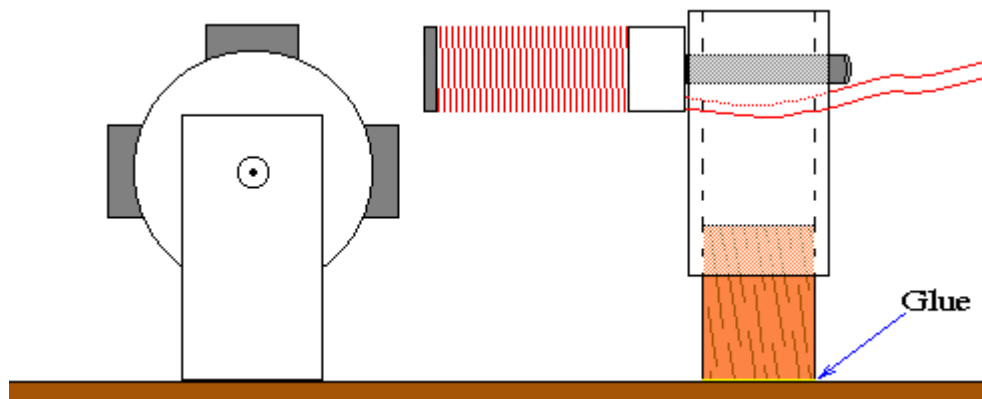
Repeat this step for 24 (thick) and 29 (thin) gauges of wire.



2. Insert one of the electromagnets into the stand with the green star. If it does not fit tightly, you may secure it using one of the following methods. (Super Glue connection between metal and plastic is not strong enough so you should be able to take these parts apart by trying to rotate the electromagnet in the stand when you need to replace it.)



3. Place the electromagnet on the board as shown below. Turn the rotor slowly to see if the magnets hit the electromagnet. If one or more do, move the electromagnet back until there is a 1/16" (1.5 mm) gap between the electromagnet and the closest magnet on the rotor. Glue the inner stand to the board. It will allow easy replacement of the electromagnets in your experiments.



If the vibration generated by the motor moves the electromagnet, wrap the inner stand with a piece of scotch tape or thin piece of paper.

For QuikLock motors (kits #11-14) wire comparison kit does not include inner or outer stands. Instead it includes two 1x2 bricks with holes so you can easily replace the electromagnets. Both ends of wire for these motors should be at least 5" (13 cm) long; secure them with included cable ties.

Detailed steps on how to wind the electromagnets for QuikLock motors are provided in their Assembly Instructions.