

The Electromagnet

Objectives:

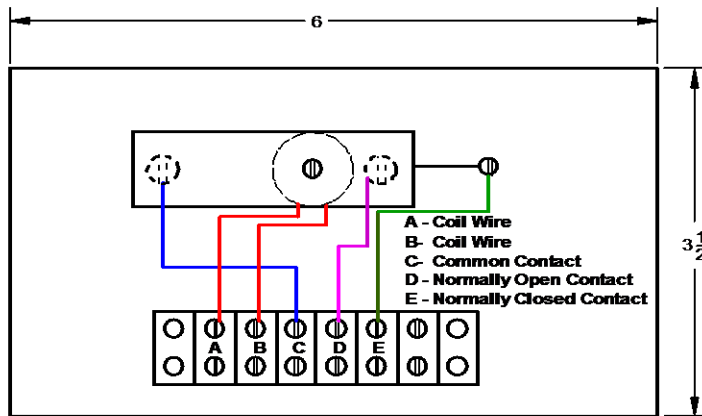
- Construct an electromagnet.
- Evaluate the magnet characteristics of the electromagnet.
- Verify that magnetism is produced by DC current flow.
- Confirm that magnetic field strength is proportional to current flow.
- Understand the operation of a relay and relay contacts (normally open, normally closed, and common).
- Hook up a light (load) to analyze how the relay contacts operate.
- Apply Ohm's law to the operating principles of an electromagnet.

Outcomes:

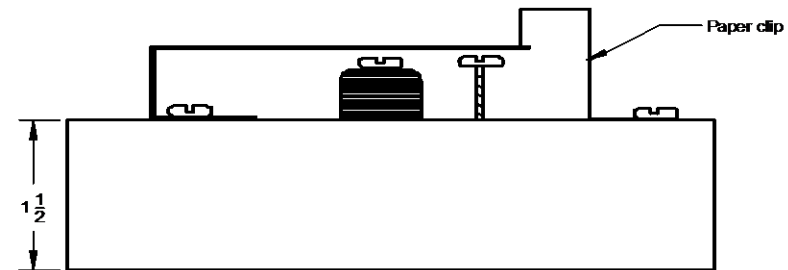
- A student will be able to construct an electromagnet from basic materials.
- A student will be able to evaluate the magnet characteristics of the electromagnet and explain its operation.
- A student will be able to verify that magnetism is produced by DC current flow through measurements and a written conclusion.
- A student will be able to prove that magnetic field strength is proportional to current flow through experimentation.
- A student will be able to apply the operation theory of a relay and relay contacts (normally open, normally closed, and common) in an electronic circuit.
- A student will be able to understand Faraday's law of electromagnetic induction and apply its theory to the electromagnet.
- A student will be able to apply Ohm's law to the operating principles of an electromagnet to determine operating current.

DC Electromagnet Relay

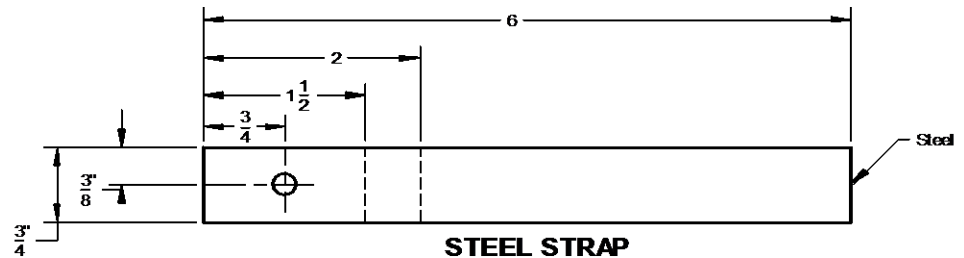
NOTE: Unit will draw 1.5 amps @ 5 to 12 volts DC



TOP VIEW



SIDE VIEW



STEEL STRAP

Materials:
 2"x4"x6"
 Steel strap .040 x 3/4" x 6"
 2 pan head screws #8 X 1/2"
 2 pan head screws # 8 X 1"
 1 sewing bobbin
 100 feet Magnet (formvar) wire 30 AWG
 4" Electrical tape
 Small paper clip
 6 place terminal block
 1 foot of 22 AWG wire

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