

Make Your Own Battery Interrupters!

Battery interrupters allow you to adapt off-the-shelf toys or appliances for use with switches, and these step-by-step instructions will guide you through the steps for making them yourself! This handout assumes you already know how to solder. Refer to the “Basic Soldering Instructions” for a refresher and ask for assistance as needed! As always, take precautions when soldering to protect yourself and your work surface.

Materials:

- 1/8” female inline mono phone jack (Radio Shack #274-333)
- Protected work surface for soldering
- Soldering iron
- Standard 60/40 rosin-core solder (Radio Shack #64-009 E)
- 22-gauge 2-conductor speaker wire (Radio Shack #278-1385)
- Wire stripper
- Masking tape
- Scissors
- Needle-nose pliers

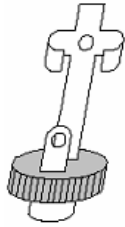
You’ll also need:

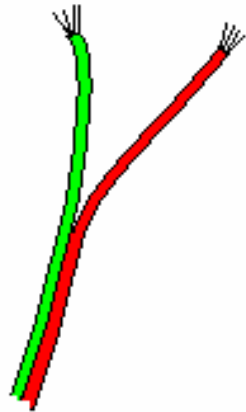
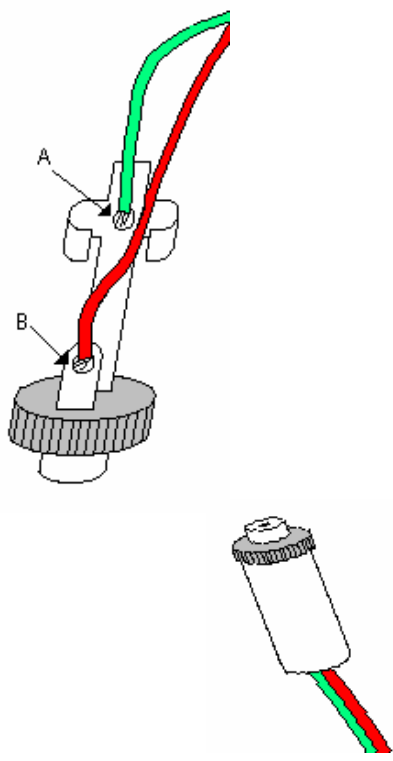
- 2 pieces of copper foil (available at Hobby Lobby) cut into circles (about 2/3” to 1/2” diameter) or squares (about 2/3” to 1/2”)
- 1 insulator cut into a slightly larger circle or square than your copper foil (can be cardstock, part of a file folder, or my favorite -- scrap melted plastic from a laminator)
- 2 small pieces of double-sided tape (about 1/2” square)

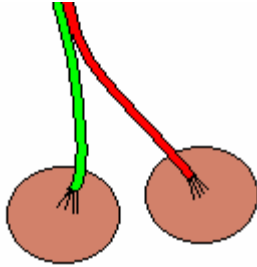
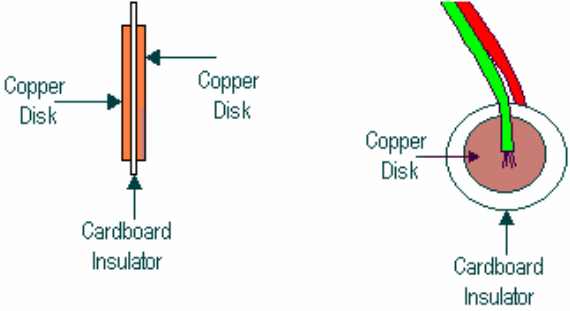
OR:

- Double-sided copper-clad undrilled PC board (Radio Shack #276-1499) cut into a circle or square (only need 1 circle or square, not 2)

Note: The PC Board is already copper clad and insulated, so it can replace the foil, insulator, and double-sided tape. Be aware, though, that it’s difficult to cut and your battery interrupter will be slightly thicker.

1	Unscrew the plastic insulating cover off the 1/8” female jack.	
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<p>2</p>	<p>Cut about 8 to 12” of speaker wire. Make a small cut in the plastic between the 2 strands of wire, and pull the strands back about 1 to 1 ½” into a “Y.”</p>	
<p>3</p>	<p>Use the wire strippers to strip about ¼” of plastic from the end of each strand, leaving the copper wires exposed. To do this, make a notch in the plastic without cutting all the way through, and then pull the plastic tubing off the wires.</p>	
<p>4</p>	<p>Look closely at the jack and find the 2 holes. One of them, opening A in the picture, will have metal shaped like a “C” around it. Use your pliers or the end of your wire strippers to pull the “C” open wider. Thread one side of the wire through one of the holes, and the other side through the other hole, both from the inside out. Be sure the ends of the 2 strands of wire aren’t touching each other, and make sure they don’t touch the opposite sides of the jack. In other words, wires threaded through opening A should never touch wires threaded through opening B or any metal around opening B, and vice versa.</p>	
<p>5</p>	<p>Tape the jack and wires to your work surface for stability. Solder the wires to the jack at opening A and opening B. Refer to the Basic Soldering handout for more information. When you’re finished soldering, squeeze the “C” shaped metal back together. Screw the cap back on the jack.</p>	

<p>6</p>	<p>Repeat steps 2 and 3 to separate and strip the other end of the wire. Solder one strand of wire to each copper disk OR to each side of your copper-clad PC board. IF you're using PC board, this is your last step and you're finished!</p>	
<p>7</p>	<p>If you're using copper foil, put one piece of double-sided tape on each piece of copper on the soldered side. Sandwich the insulator (cardstock, file folder, or laminated plastic) between the 2 pieces copper with tape and press together firmly. The insulator will be larger than the copper. You can trim it, but be sure to leave a little rim of it around your copper to prevent the 2 disks from touching each other.</p>	
<p>8</p>	<p>Slide the battery interrupter into the battery compartment of a toy or appliance. It can go between a battery and the spring or metal post, or between 2 batteries. Plug a switch into the jack on the battery interrupter. Turn the toy or appliance "on." It shouldn't come on until the switch is activated. You may need to use a file to make an opening in the lid of the battery compartment for your battery interrupter cord to come through.</p> <p>Have fun!!</p>	