



LED Vacuum Tube

Written By: J. E. Graham

Date: 10/11/2016

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Tools Needed:

Goggles / Safety Glasses

Vise

Hobby Saw

Sand paper

X-Acto Knife

Needle Nose Pliers

Small Hammer

Satin or Semi-Gloss Black Spray Paint

Heavy Paper Towel

Wire Cutters

Drill

17/64" Drill Bit

Small Table Vise

2 Part Epoxy

Masking Tape

Optional Tools:

Small Drill Bit

1/4" Drill bit

Silver Metal Spray Paint

Small Torch or Equivalent Heat Source

Parts:

Candy Tubes (eBay)

Vacuum Tubes (eBay)

LED Tea Lights (Dollar Store)

Optional Parts:

1/4" Plexiglas Rods (eBay)

Color Changing LEDs (found in Halloween novelties, such as little ghosts)

Parts Used:





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Step 1. Preparing The Insides:

1. Wrap the tube in a heavy cloth or paper towel.
2. Lightly hit the tube until you hear it pop.
3. Carefully unwrap the tube. **Be careful of the tiny glass shards.**

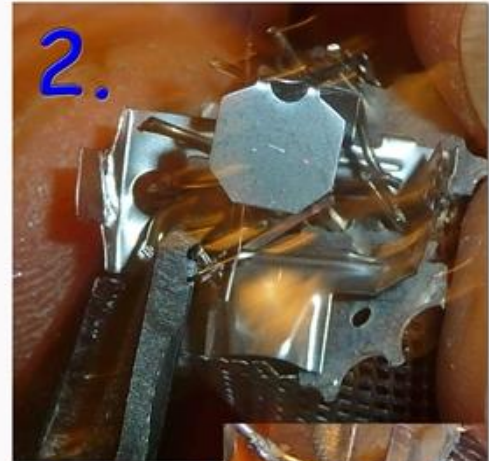
1. Wrap the tube in a heavy cloth or paper towel.
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4. Holding on to the bottom leads, clip all wires attached to the bottom.
5. Be careful of the glass; cover area or wear gloves.
6. Cut off the bottom metal plate held on by the tabs shown.
7. With an X-Acto knife, carefully cut out the middle of the mica plate.
8. Insert an LED for size check.



1. Holding on to the bottom leads, clip all wires attached to the bottom.
NOTE: Be careful of the glass; cover area or wear gloves.



2. Cut off the bottom metal plate held on by the tabs shown.

3. Pull out the filliment.

4. With an X-Acto knife, carefully cut out the middle of the mica plate.

5. Insert an LED for size check.





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Step 2. Preparing The Base:

1. You can find these LED Tea Lights at Dollar stores.
2. Remove the battery and pop the bottom off. The “flame” just snaps off.
3. Drill a $17/64$ ” hole in the top of the base.
4. Spray paint the base with either satin or semi-gloss black (flat would work, as well).
5. The base can stay as is. These have an amber color and a slight flickering for realism. If you want, you can go one step farther by getting one of those color changing LEDs out of a Halloween novelty (such as a little ghost).





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Step 3. Preparing The Tube:

1. Wrap the tube once around with masking tape, at a desired height for use as a straight line, as well as gripping proposes in the vise. NOTE: Don't have the vise too tight, you'll break the tube.
2. Cut along the edge of the masking tape with a hobby saw, turning it as you go.



By putting masking tape around the tube, you provide gripping for the vise, as well as a straight line for sawing.



Using a hobby Knife, saw along the tape line.



Extra part for another project.



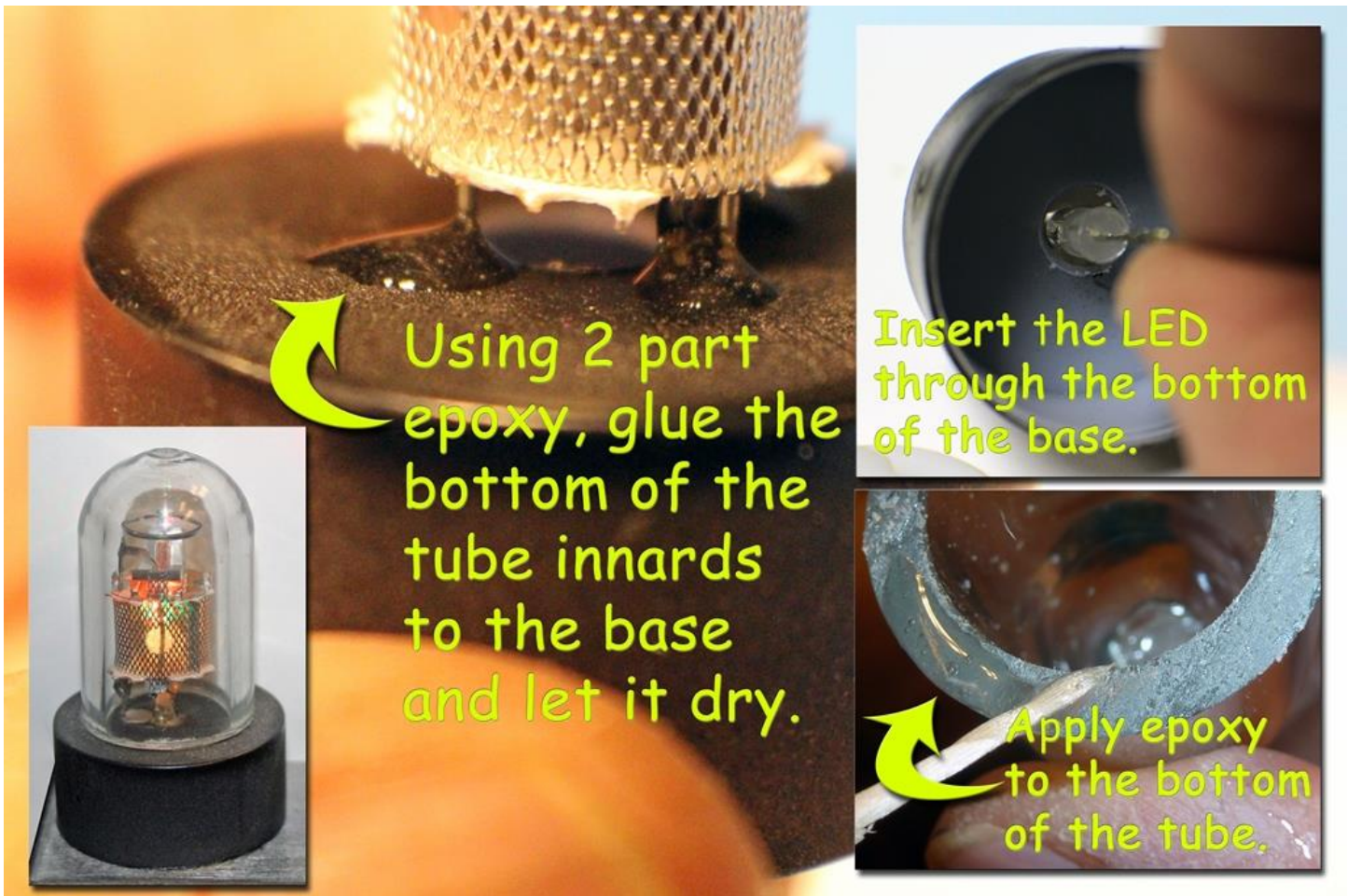
If you're impatient, use a bigger saw.



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Step 4. Finishing:

1. Using 2 part epoxy, glue the bottom of the tube innards to the base and let it dry.
2. Insert the LED through the bottom of the base.
3. Apply epoxy to the bottom of the tube.
4. Glue the tube to the base and let it dry.
5. Put the battery and battery cover back on and turn it on.
6. Done.





Going further:

To add a little more realism, here are a few more steps.

1. Drill a small pilot hole in the end of the tube.
2. Then drill the hole out to a quarter inch size. Clean the hole up using an X-Acto knife.
3. Put the quarter inch Plexiglas rod in a vice. While heating the rod with a small torch, slowly bend and twist the rod as it heats up and pull it apart slowly until it gets thinner in the middle pulling it apart it'll get thin in the middle and then you can break, or cut it off with a pair of diagonal cutters.
4. Sand off the end.



Slowly bend and twist the rod as it heats up and pull it apart until it gets thinner in the middle.





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5. After cutting it down, insert the modified rod into the tube.
6. Mask off the bottom at a desired height.
7. Using a silver metal spray paint, spray the top of the tube.
8. You can now proceed with step four.



Insert modified
rod into tube
& mask off.

