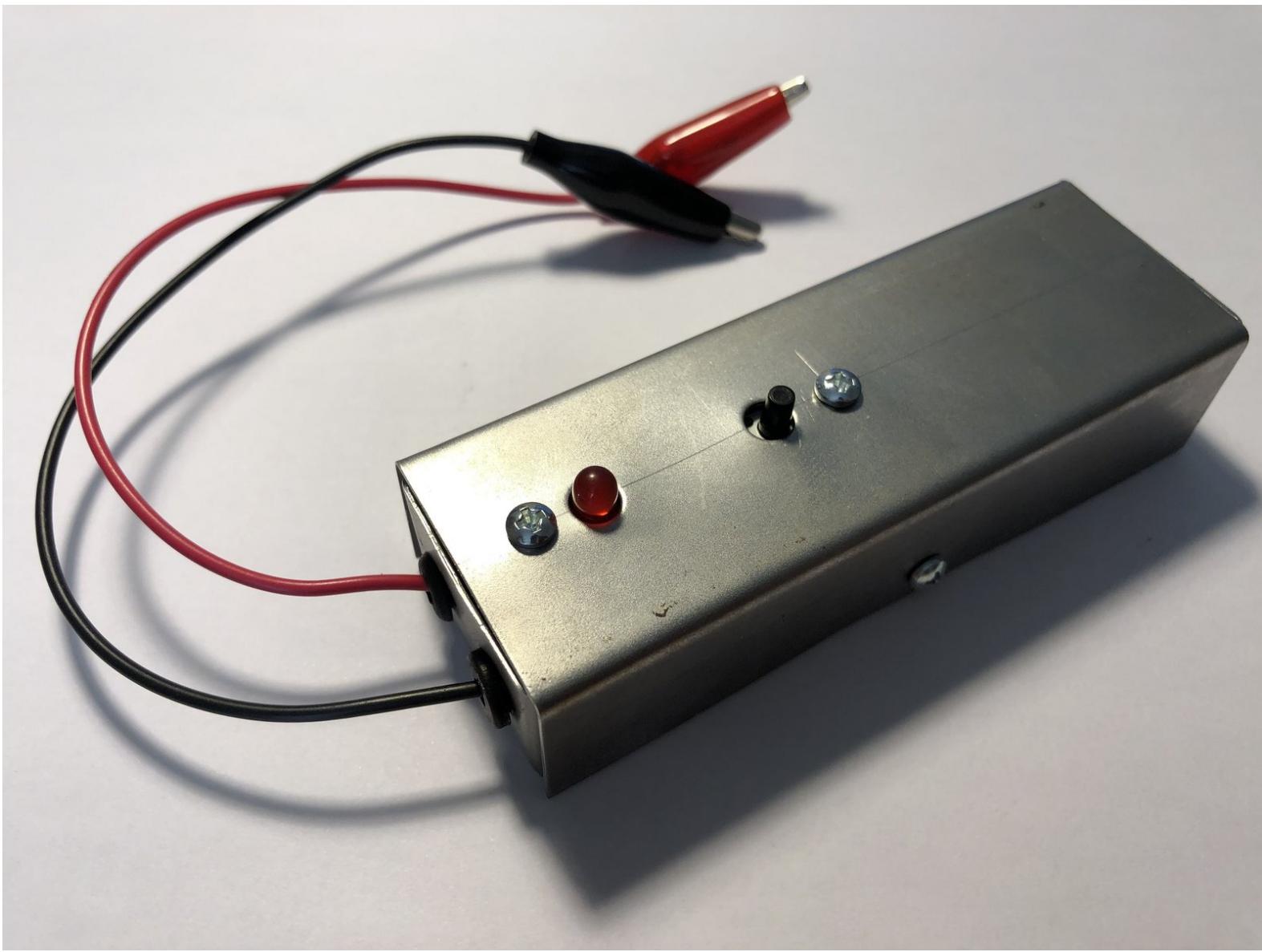




# Continuity Tester Teardown

This guide details the teardown steps of a student-created continuity tester. It shows the fastening and electronic components used to create the tester.

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## INTRODUCTION

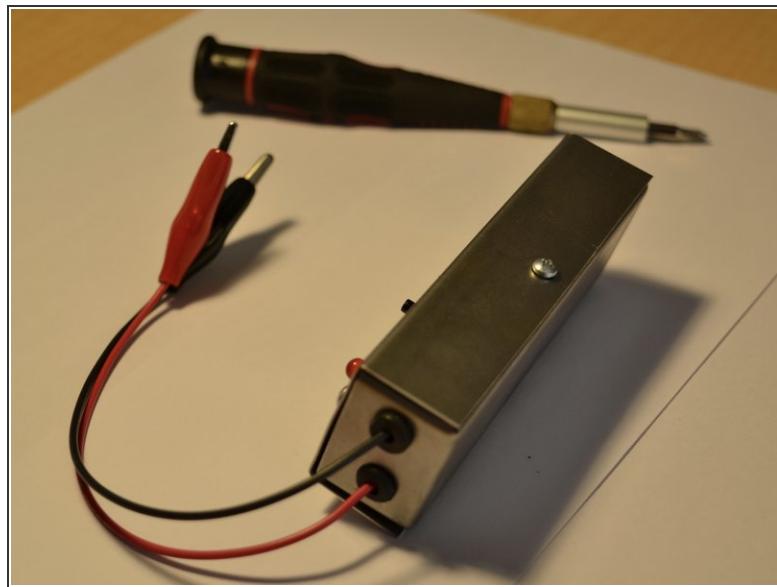
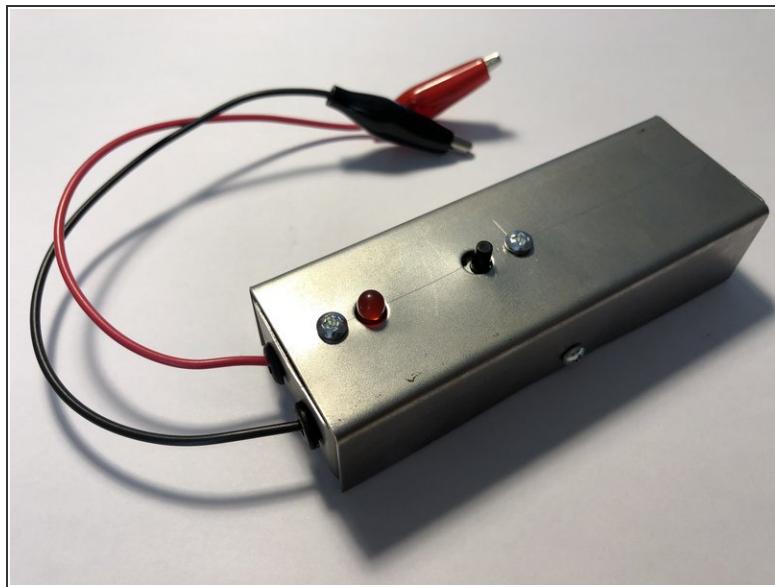
This teardown will show the process of taking a continuity tester apart. A continuity tester is a small electronic device that can be used to test a circuit for its open or closed state. The device operates by connecting the positive and negative leads to a circuit and pressing the small black button. If the red light illuminates, the circuit is closed. If it does not, the circuit is open.

This device was fabricated in a Cal Poly Manufacturing Engineering course. All of the resistors, the switch, the LED, and the IC chip were hand-soldered to the PCB.

### TOOLS:

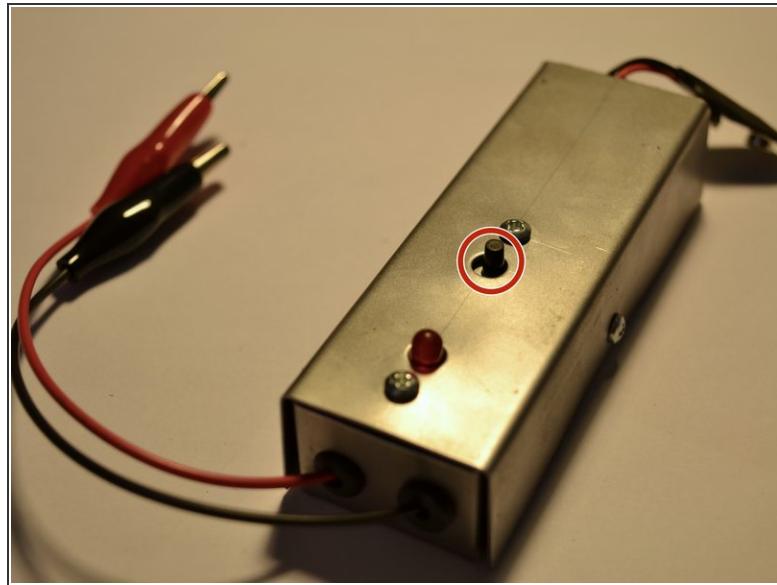
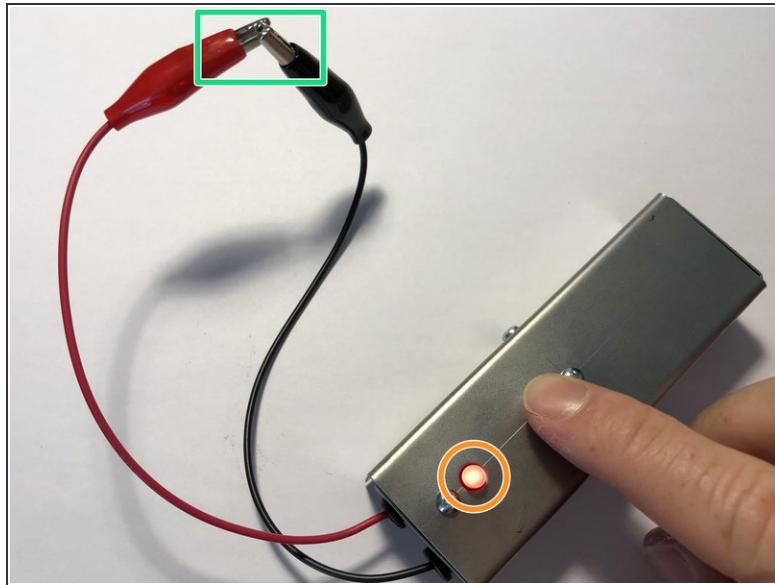
- [Phillips Head Screwdriver: Size PH1 \(1\)](#)

## Step 1 — Gather Tools and Device



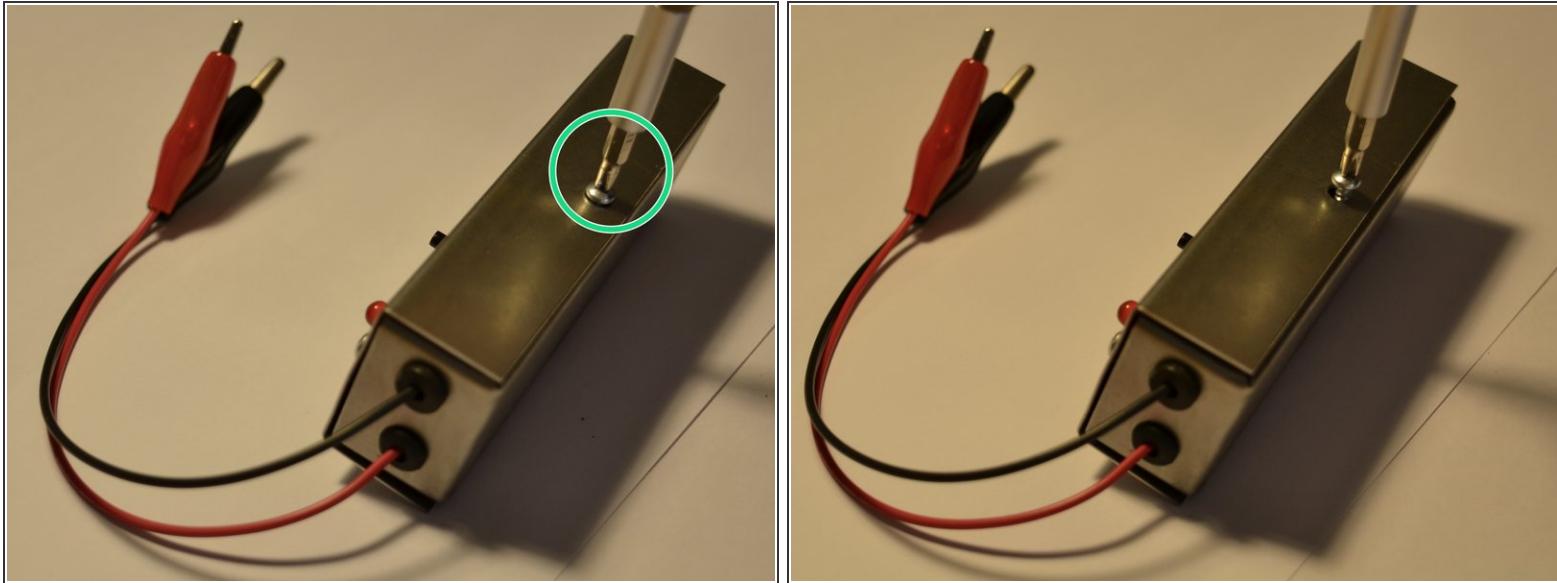
- Not many tools needed here! Just grab your favorite Phillips head screwdriver.
- The best size for these small screws is a PH1.

## Step 2 — Check for proper function



- Connect the positive and negative leads to each other.
- Press the small black button
- Does the red light come on?
  - ⓘ* If so, battery is in good condition!
  - ⚠** If not, time for a new 9V!

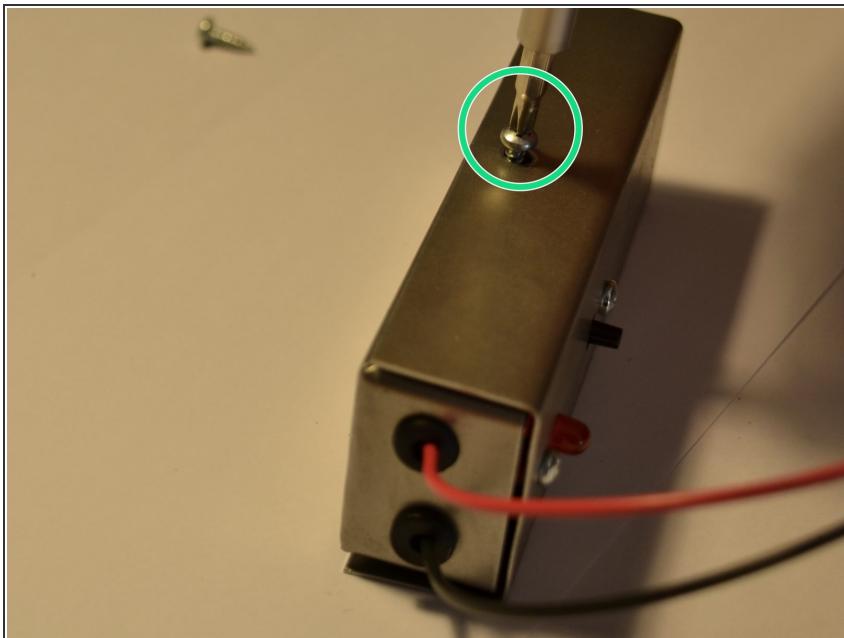
### Step 3 — Remove side screw



- Start with either side of the device and unscrew the Phillips head sheet metal screw.
  - Remove the screw and set aside in a safe place.

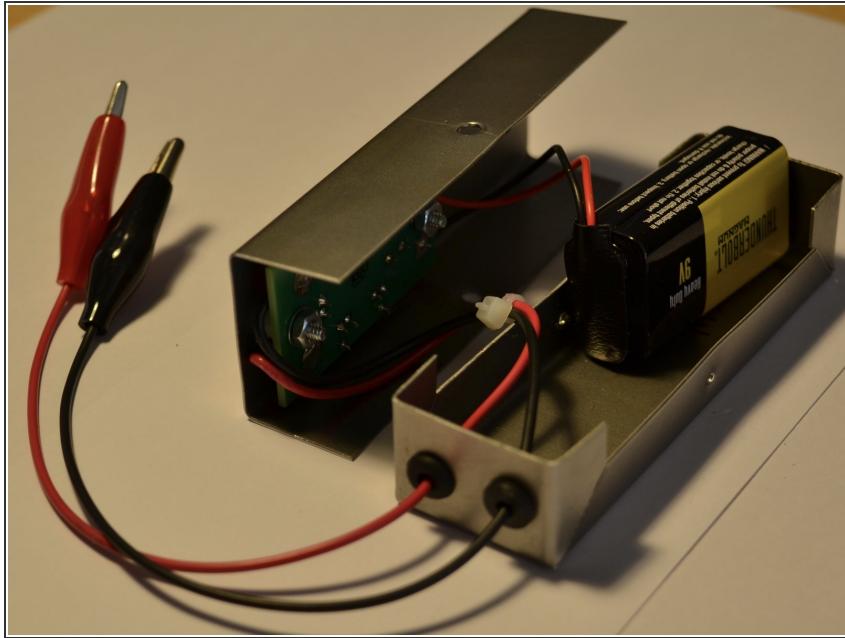
⚠ These tiny screws are easy to lose, so grab a ramekin or small bowl to keep track of 'em!

### Step 4 — Remove other side screw



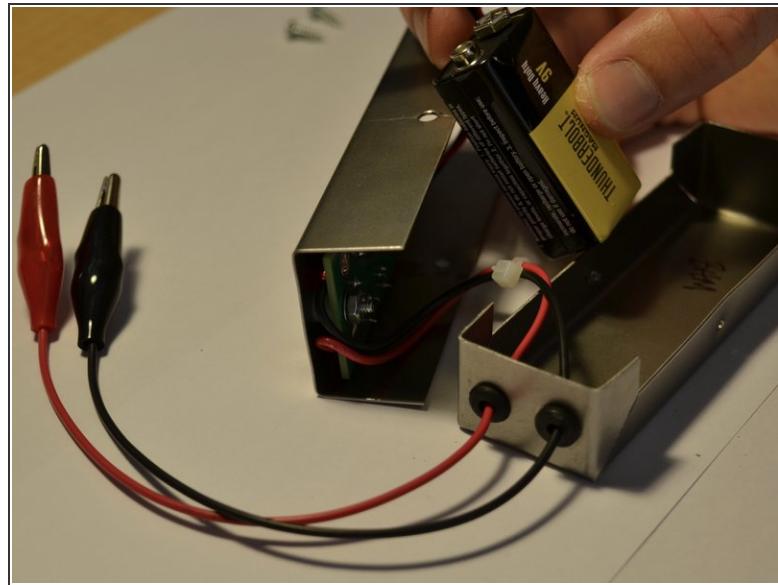
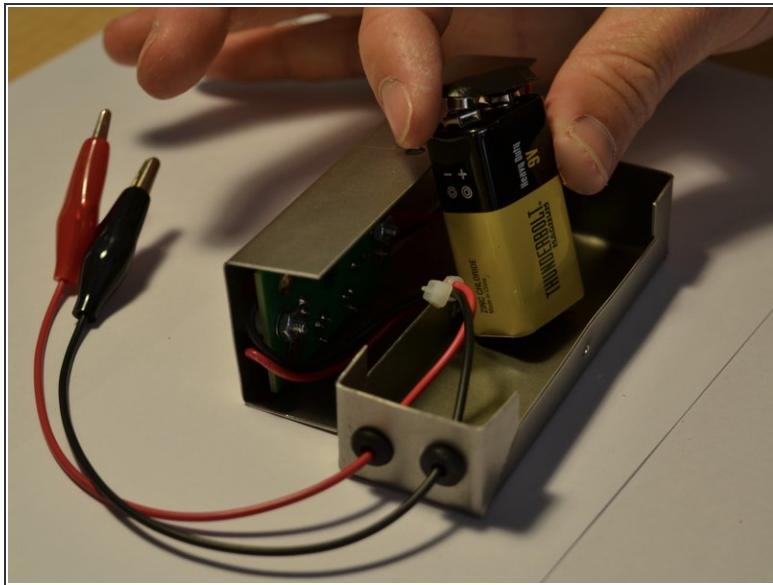
- Flip over the device to the opposite side and repeat the sheet metal screw removal.

## Step 5 — Separate device



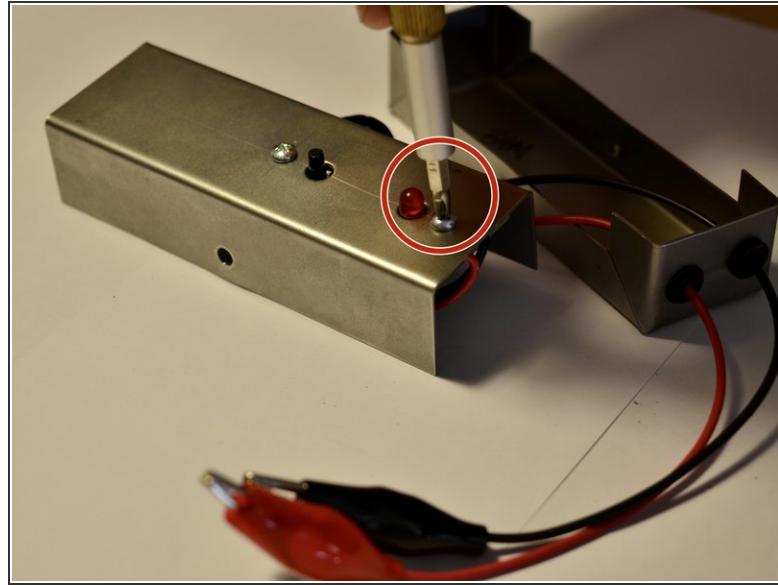
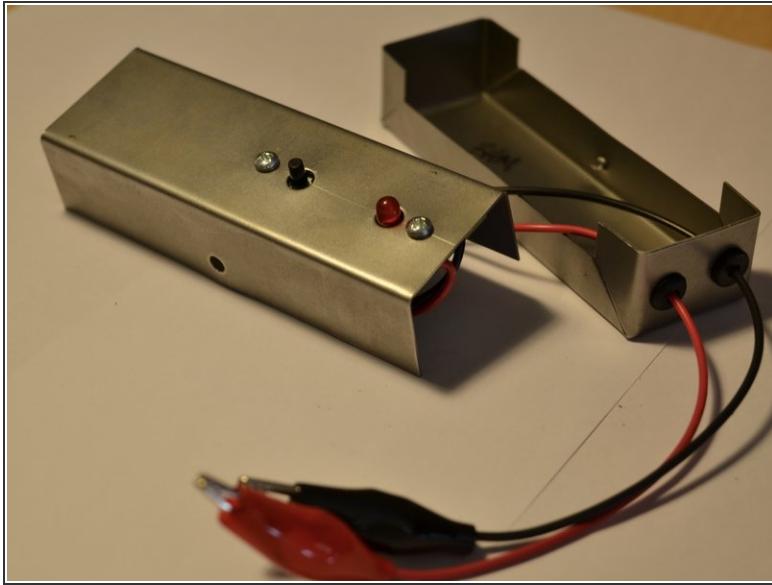
- Separate the top and bottom halves to expose the internals.

## Step 6 — Battery Removal



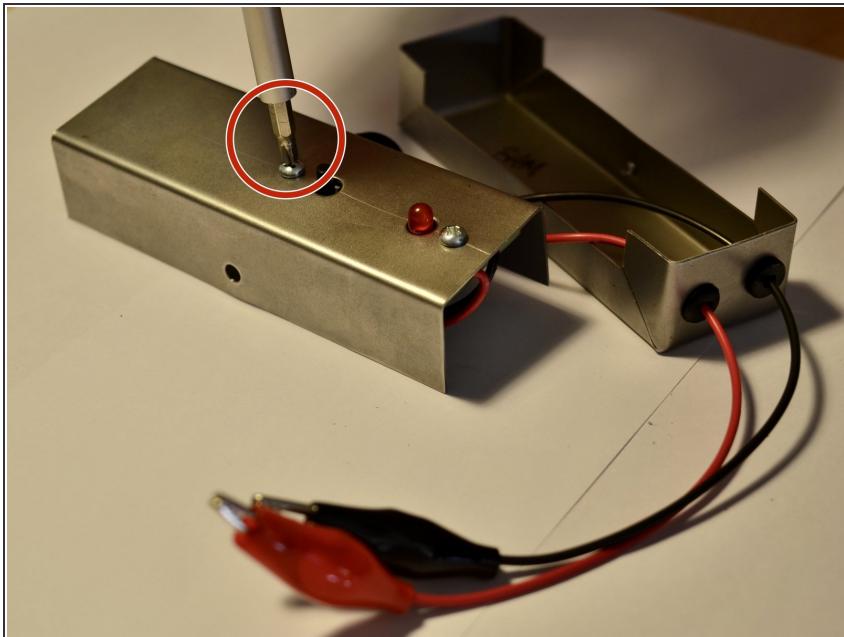
- Remove the battery connection on the top of the battery.
- Set battery aside

## Step 7 — Unscrew first top screw



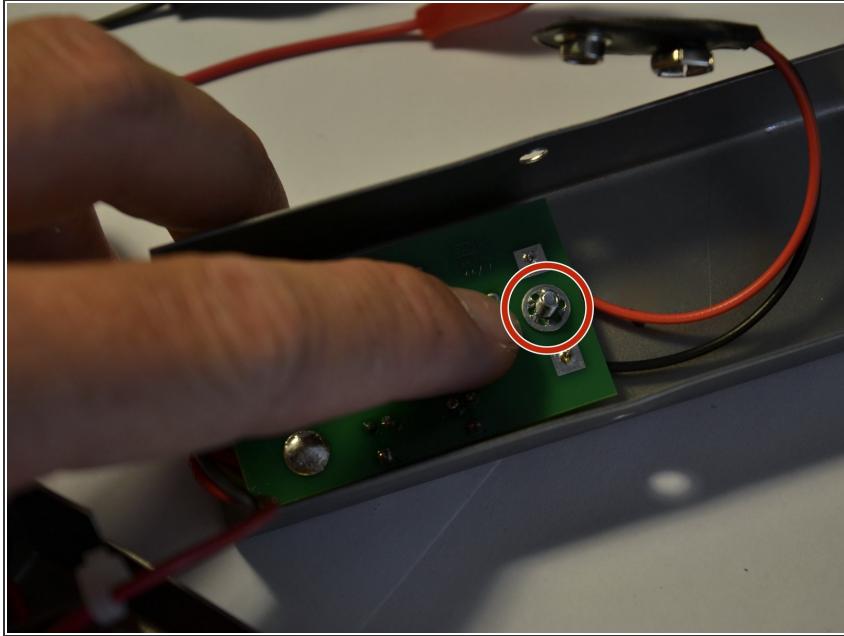
- Using the same screwdriver, unscrew one of the top screws that holds in the circuit board.
- *Hold the nut on the back with another finger to keep it from spinning.*

## Step 8 — Unscrew other top screw



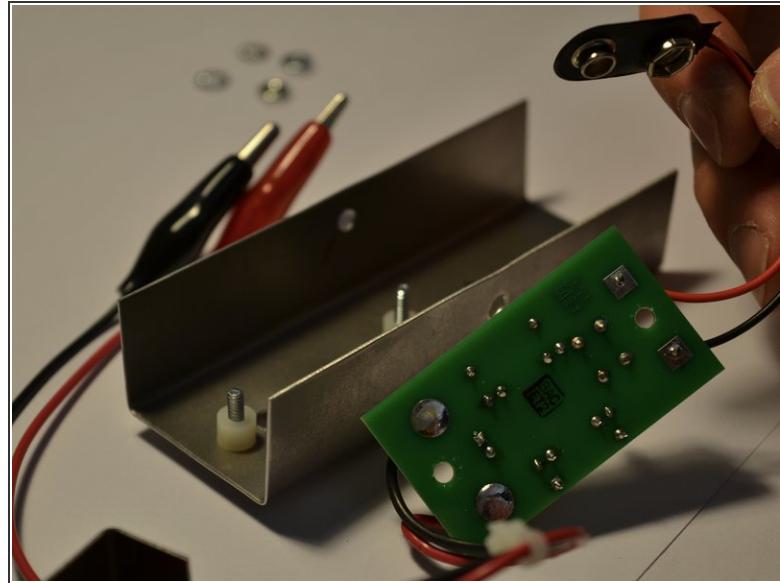
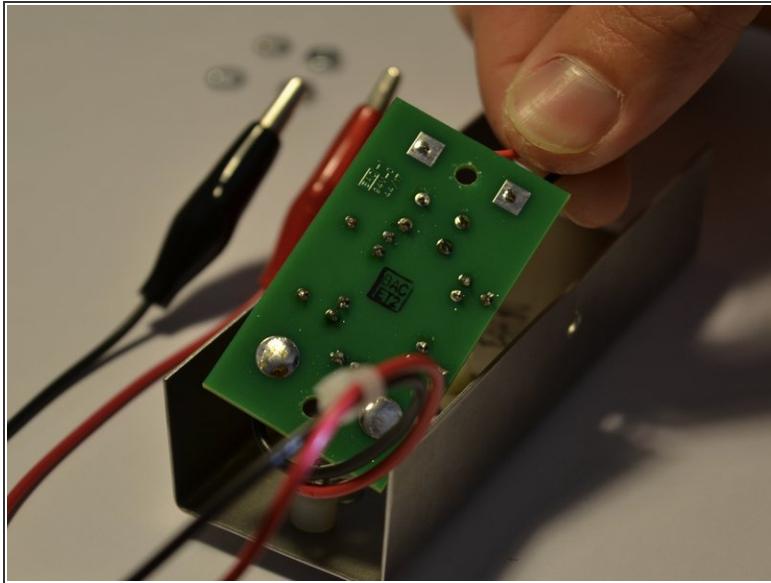
- Using the same process as step 7, loosen the other top screw.
- *Don't forget to hold the nut on the back of the screw!*

## Step 9 — Remove star washers



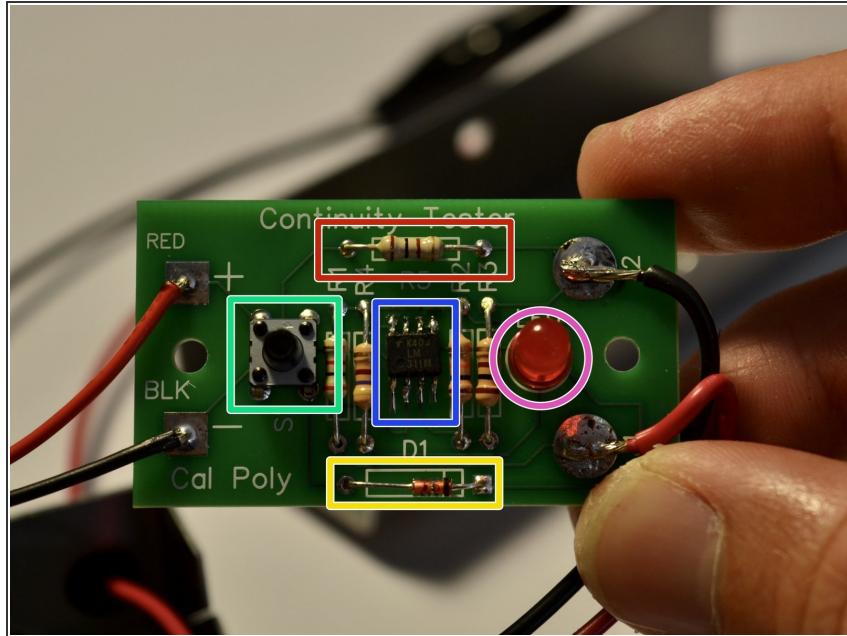
- With the nuts off of the screws, remove the two star washers and set them in your bowl of hardware.

## Step 10 — Extract the circuit board



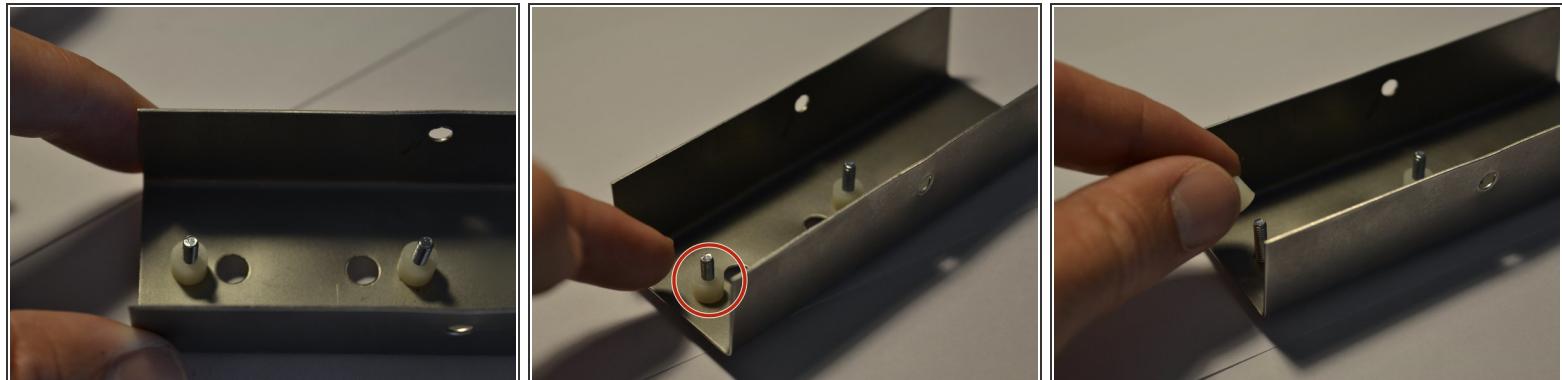
- With the nuts and washers off, remove the circuit board from the top shell.

## Step 11 — Observe the circuit board



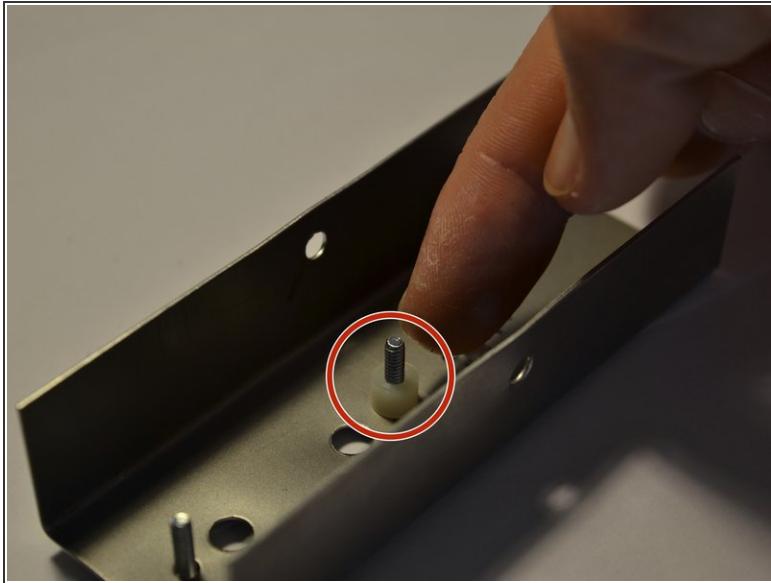
- This is a resistor. There are 5 of them on this board!
- Here we see the LED.
- This is the Texas Instruments IC Chip. It is the brain of the operation.
- This is the Panasonic switch.
- This is a little diode.

## Step 12 — Remove first nylon spacer



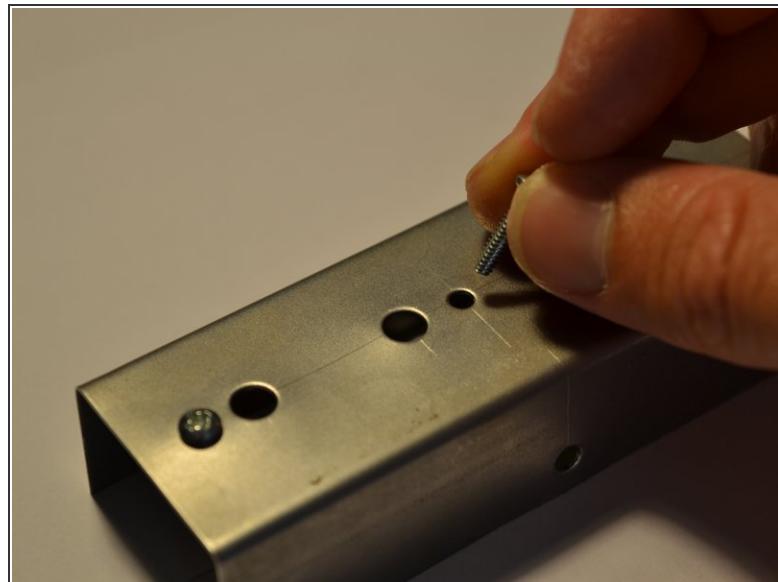
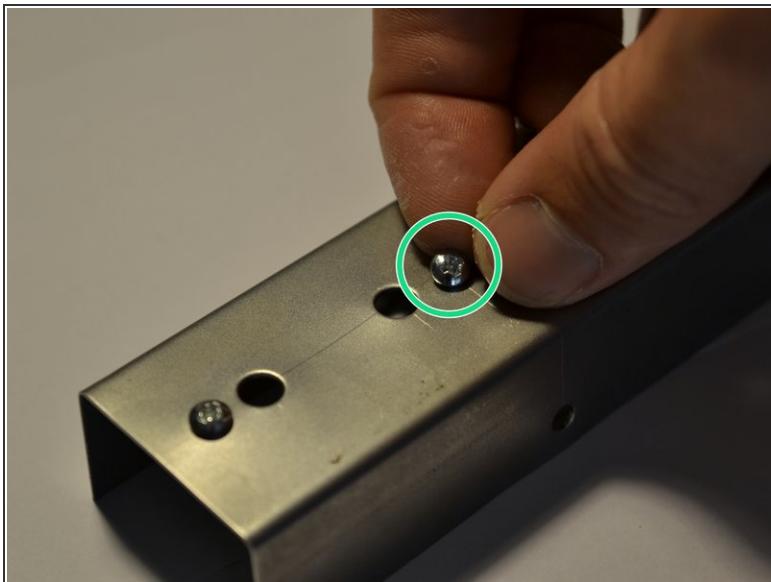
- These little spacers keep the circuit board from being smashed against the top shell.
- Using the best tool (your fingers) remove the first spacers from the screw.

## Step 13 — Remove second spacer



- Remove the second spacer from the screw.

## Step 14 — Remove screw from top shell



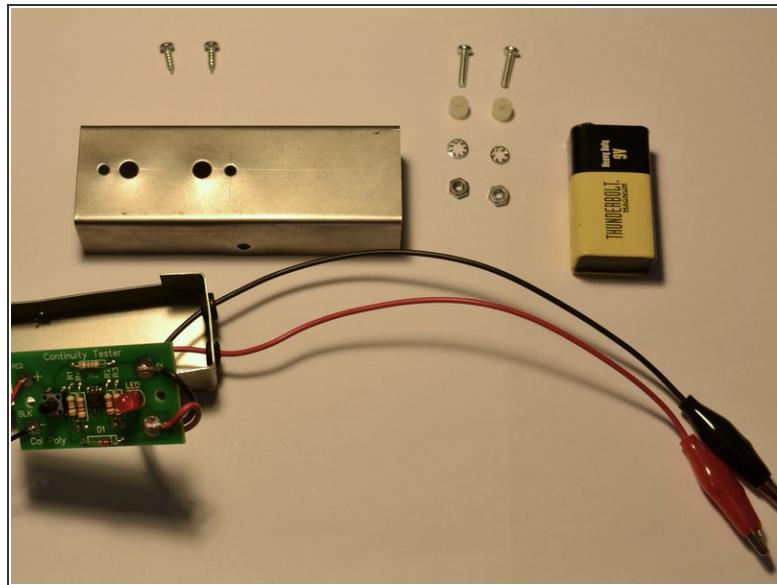
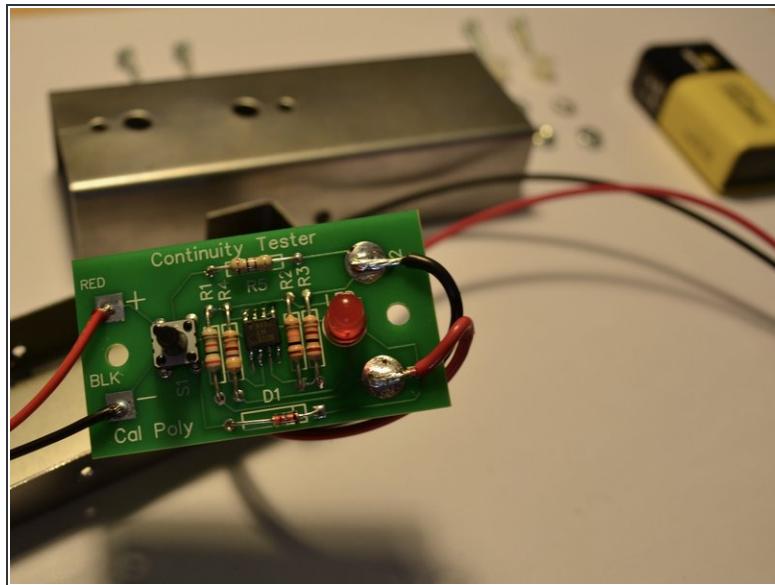
- Take the first screw out of the top shell.

## Step 15 — Remove last screw from top shell



- Take the last screw out of the top shell.

## Step 16 — Done!



- Sit back and observe your hard work.
- Arrange the parts for a nice pic for your portfolio!