

# **B.Y.O.C Mouse Kit Instructions**

## **Version 2.0 with 6-way Clipping Switch**

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## **B.Y.O.C. Mouse Kit Parts Checklist**

### Resistors:

- 2 x 47 ohm (yellow/purple/black/gold/brown)
- 1 x 560 ohm (green/blue/black/black/brown)
- 2 x 1k (brown/black/black/brown/brown)
- 1 x 1.5k (brown/green/black/brown/brown)
- 1 x 4.7k (yellow/purple/black/brown/brown)
- 1 x 10k (brown/black/black/red/brown)
- 2 x 100k (brown/black/black/orange/brown)
- 3 x 1M (brown/black/black/yellow/brown)

### Capacitors:

- 1 x 33pf ceramic disc (33 or 330 small orange)
- 1 x 100pf ceramic disc (101 small orange)
- 1 x .0033uf (332 or 3n3 or 3900p)
- 1 x .001uf film (102 or 1n or 1000p)
- 1 x .01uf film (103 or 10n or 10000p)
- 2 x .022uf film (223 or 22n or 22000p)
- 2 x 1uf aluminum electrolytic
- 1 x 2.2uf aluminum electrolytic
- 2 x 4.7uf aluminum electrolytic
- 1 x 100uf aluminum electrolytic

### transistors:

- 1 x 2N5458
- 2 x BS170

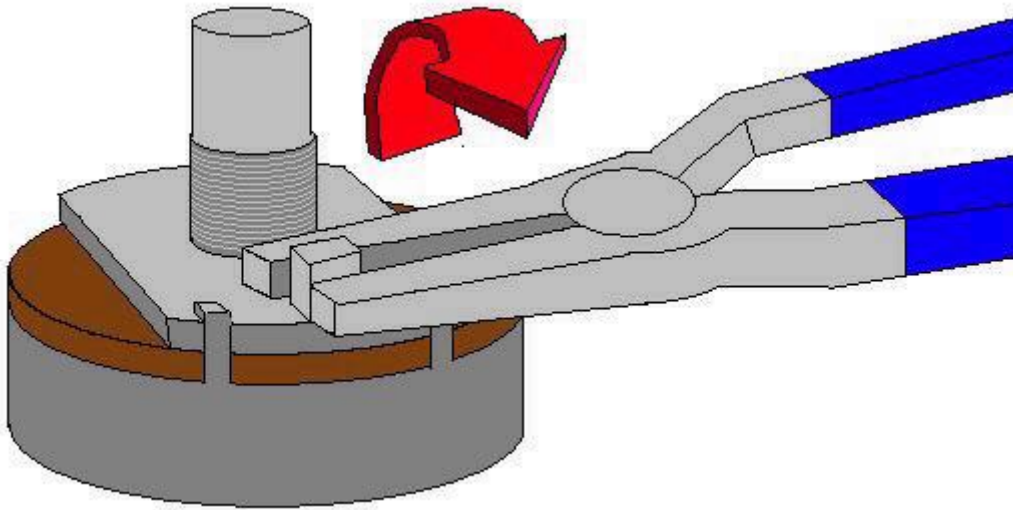
### IC's:

- 1 x LM308
- 1 x DIP8 IC socket

### Diodes:

- 6 x 1N4148 or 1N914
- 4 x 1N4001
- 1 x 1N4002
- 2 x Red 3mm LEDs

potentiometers: **(be sure to snap off the small post on the top side of the pot with a pair of needle nose pliers)**

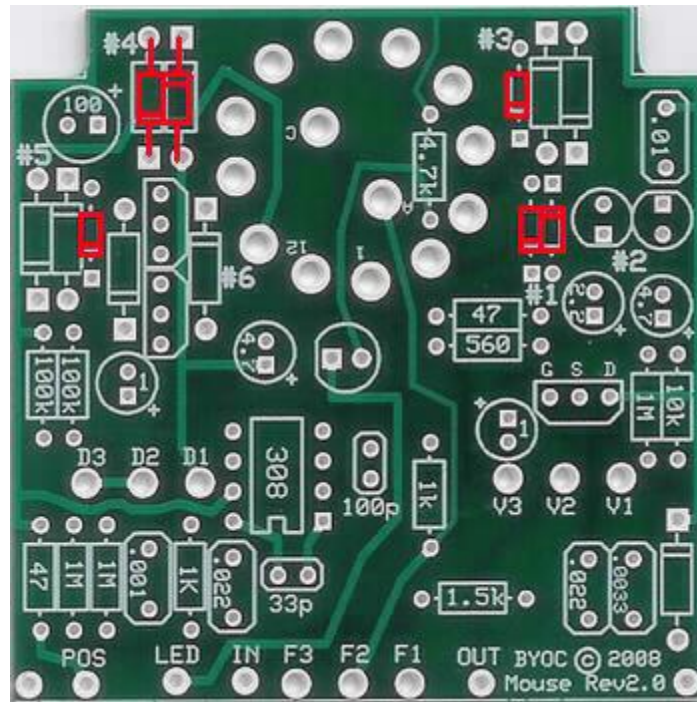


- 1 - A100k "volume"
- 1 x A100k "distortion"
- 1 x A100k "filter"
- 3 x extra pot washers and nuts to be used as spacers (only with PCB mounted pots)

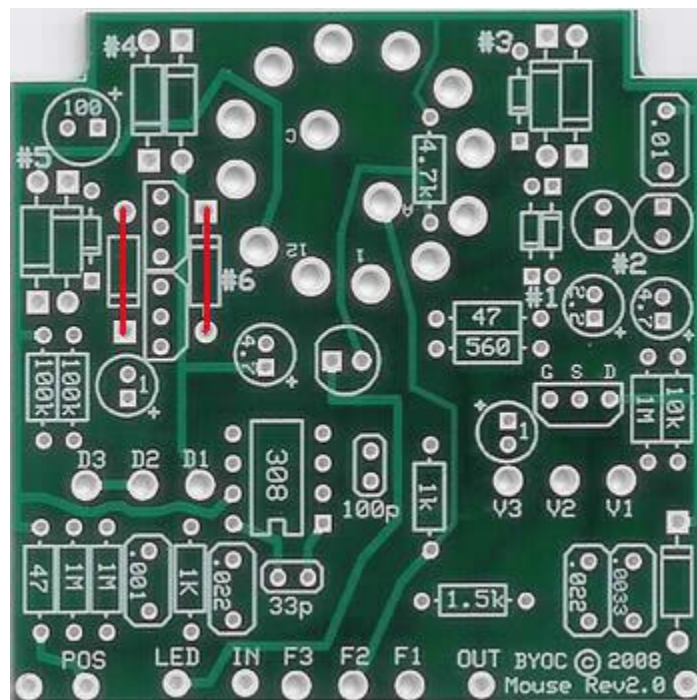
Hardware:

- 1 - b.y.o.c. ready to solder BYOC Mouse PCB
- 1 - predrilled enclosure w/screws
- 1 x 2pole 6position rotary switch
- 4 x knobs
- 1 x 1/4" mono jack
- 1 x 1/4" stereo jack
- 1 x 3PDT footswitch
- 1 x 5mm red LED
- 1 x battery snap
- 1 x AC adaptor jack
- 4 x rubber bumpers
- hookup wire

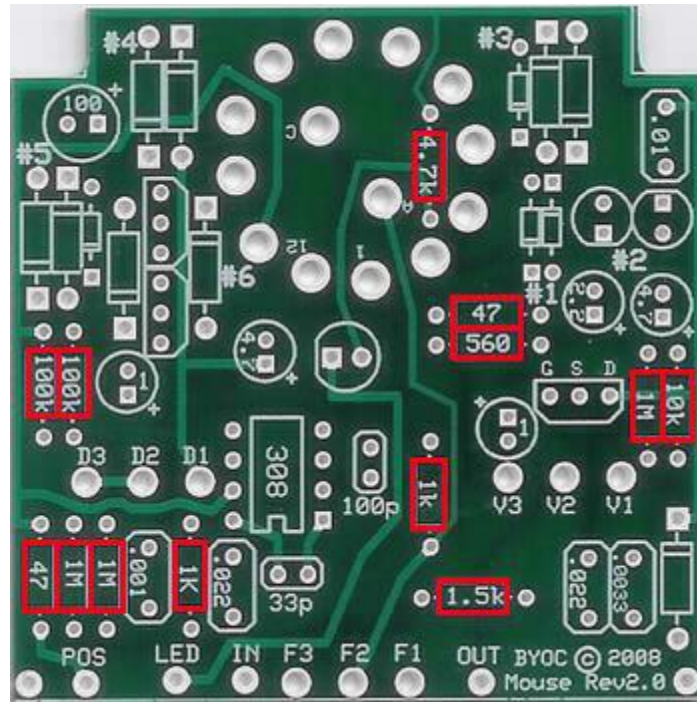
# Populating the Circuit board



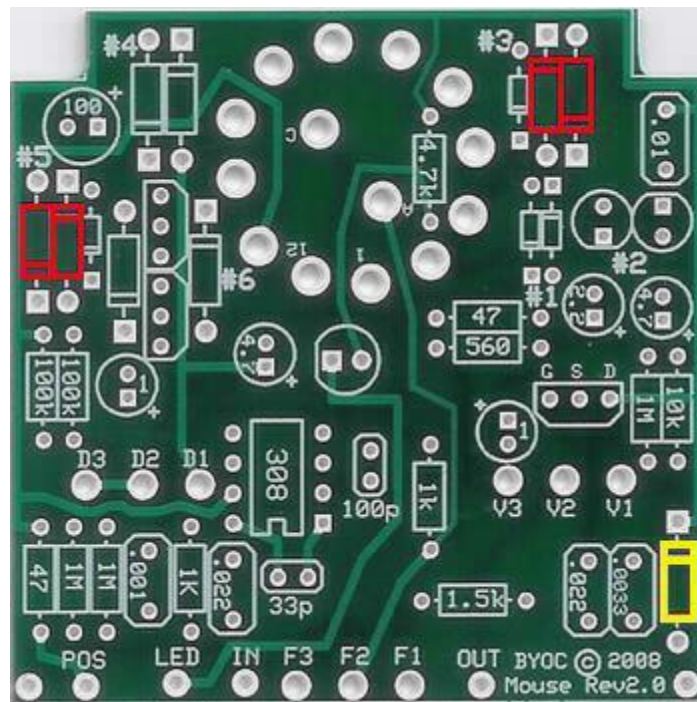
Step 1: Add the 1N4148 diodes. These are the small orange glass diodes with the black stripe. Make sure the end with the black stripe matches up with the layout. Note that the slots for #4 are larger than necessary. This is to accommodate a variety of diodes in “aftermarket experimentation”.



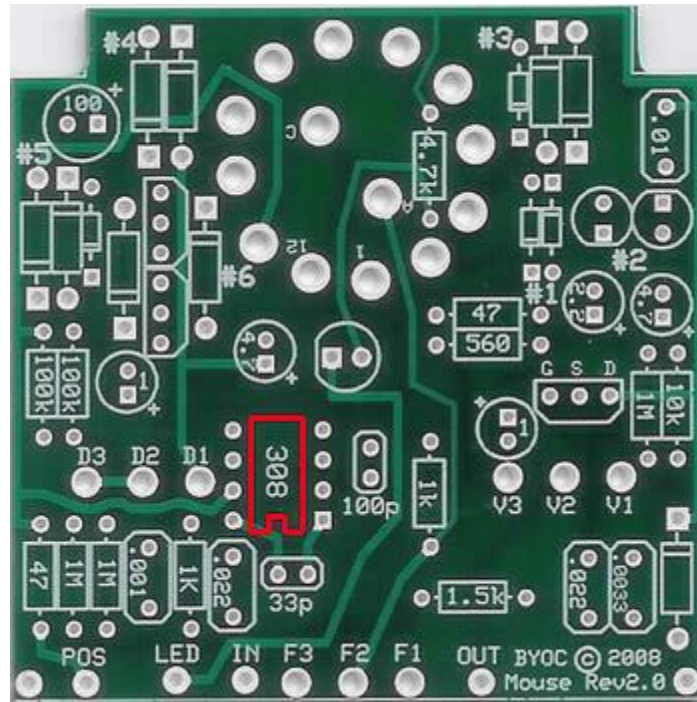
Step 2: Jumper the two diode slots in #6 with left over clippings from the diodes in step 1. These slots are to accommodate “aftermarket experimentation”.



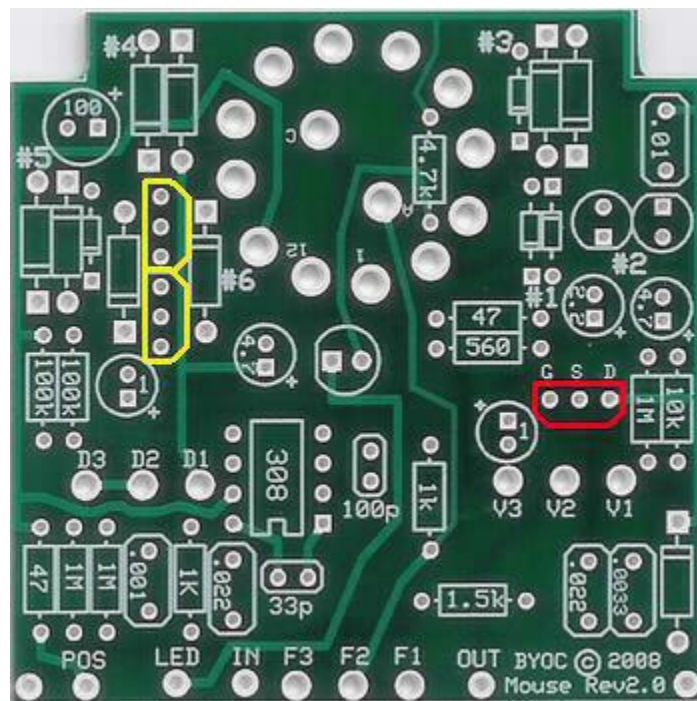
Step 3: Add all the resistors. Resistors are not polarized and can be inserted into the PCB in either direction.



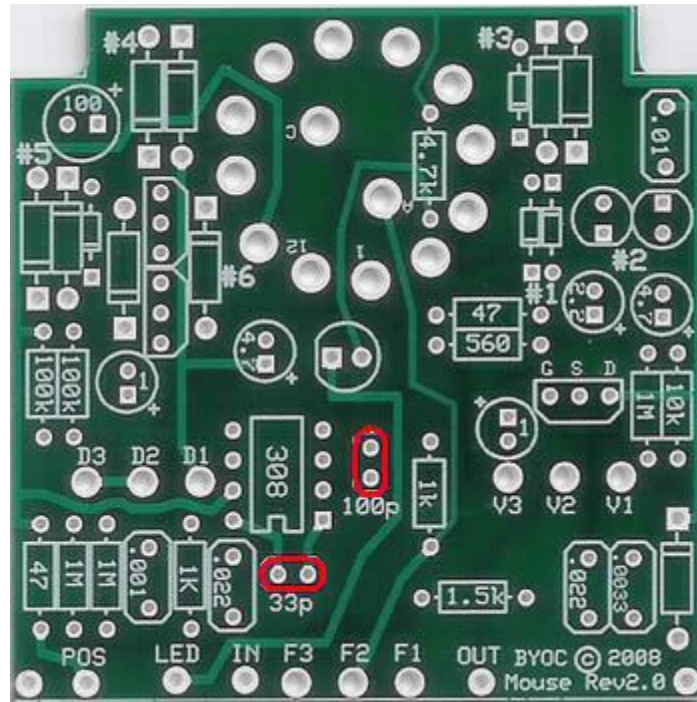
Step 4: Add the four 1N4001 diodes and the 1N4002 diode. The 1N4002 goes in the space that is highlighted in yellow. Be sure to match the side with the stripe to the layout on the PCB.



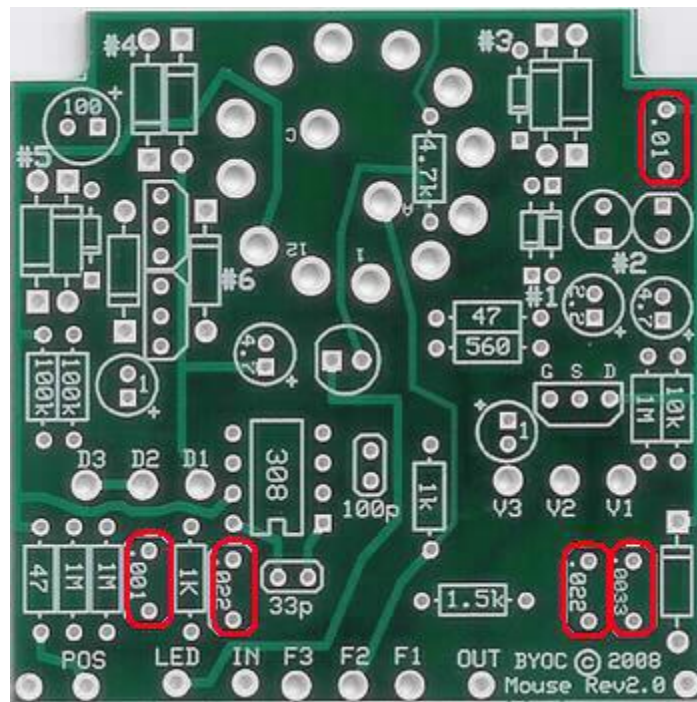
Step 5: Add the DIP8 IC socket. DO NOT SOLDER THE LM308 to the PCB!. Only add the socket at this time. Make sure to match the notched end of the socket with the notch on the layout on the PCB.



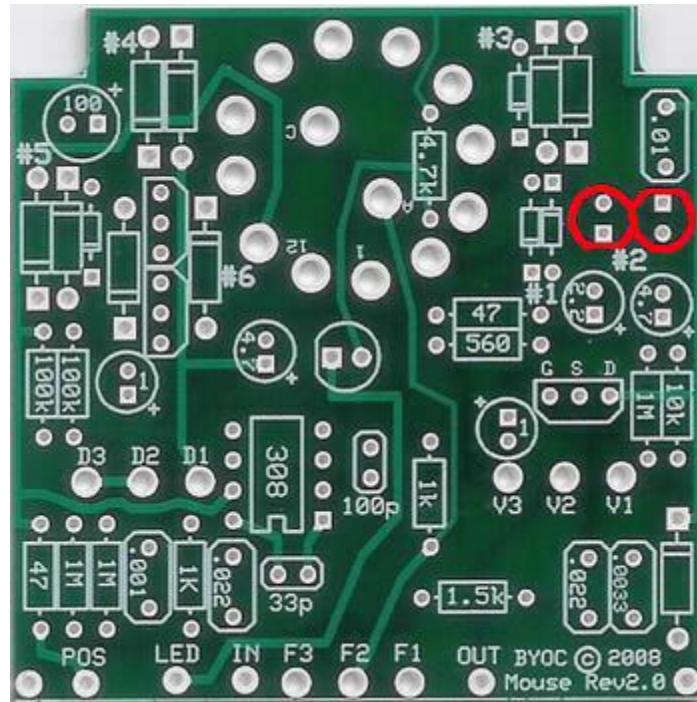
Step 6: Add the transistors. The 2N5458 JFET is highlighted in red. The two BS170 MOSFET's are highlighted in yellow. Be sure to match the rounded side of the transistors to the rounded side of the layout on the PCB.



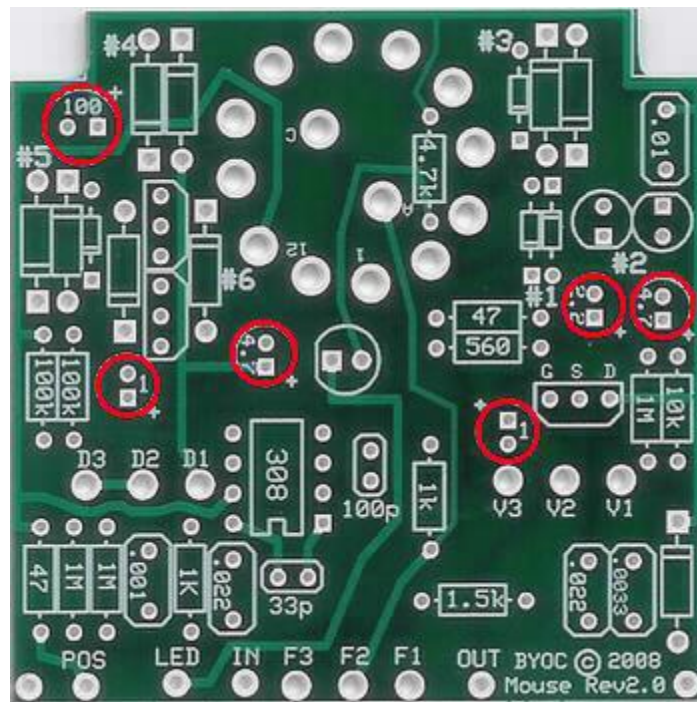
Step 7: Add the ceramic disc caps. These are the small round orange caps. They are not polarized.



Step 8: Add the metal film caps. These are not polarized.



Step 9: Add the small red LED's. Insert them into the pcb so that the longer lead goes in the round hole and the shorter lead goes in the square hole. These will be used as the clipping diodes for position #2: Turbo RAT mode.

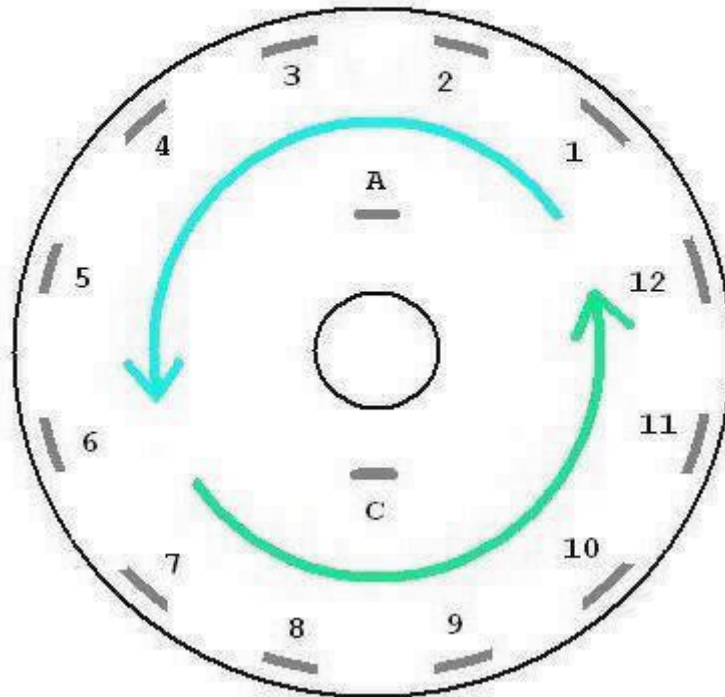


Step10: Add the aluminum electrolytic caps. These are polarized. The positive end has the longer lead and it goes in the square solder pad. The negative end has a stripe down it's side and has the shorter lead. The shorted lead goes in the round solder pad.



# Installing the Rotary Switch, Pots, and LED

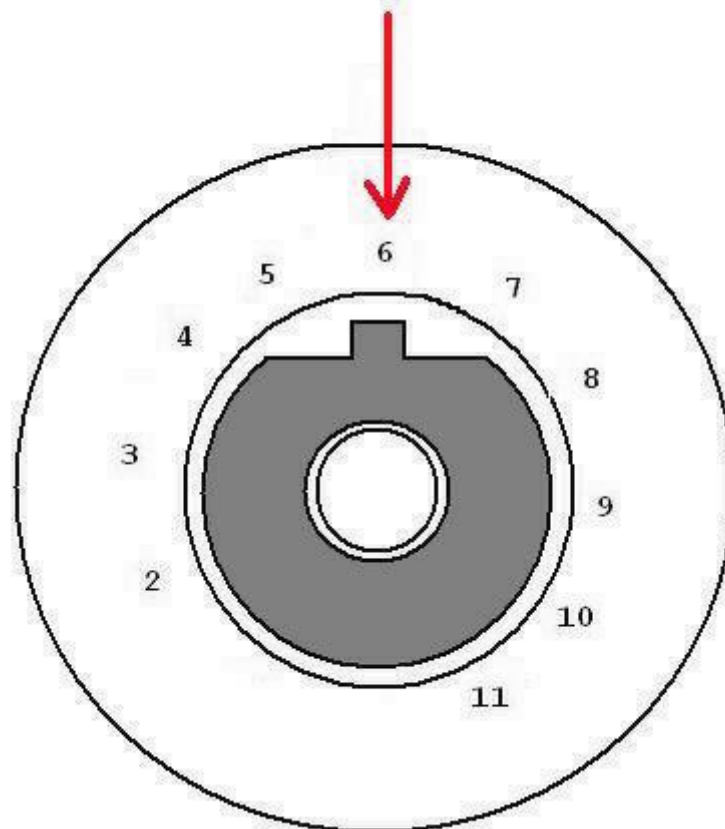
## Back of Rotary Switch



The rotary switch that comes with your Mouse kit is a 2 pole 6 position rotary switch. The 2 poles are labelled A, and C. The 12 throws (2 x 6) are labelled 1 - 12. Throws 1 - 6 belong to pole A. And throws 7 - 12 belong to pole C. When your switch is in position 1, pole A is connected to throw 1, and pole C is connected to throw 7. When your switch is in position 2, pole A is connected to throw 2, and pole C is connected to throw 8. When your switch is in position 3, pole A is connected to throw 3, and pole C is connected to throw 9. Ect...

Makes sense? If it doesn't, that's OK. You don't need to know how the switch works. Any way you can fit it into the PCB will work....as long as you don't forcibly make the switch fit.

## Front of rotary switch



On the front of your rotary switch is a washer. And this washer has a notch on it. This washer limits the number of positions you can turn your rotary switch to by placing the washer's notch in the appropriately numbered hole. We want to set our switch for 6 positions so we want to put the washer's notch into hole #6.

Step 1: Install and solder the rotary switch **ON THE BACK SIDE OF THE PCB!!!!**

Step 2: Install and solder the pots **ON THE BACKSIDE OF THE PCB!!!** Don't forget to snap off the small post on the top of your pots. If your kit came with solder lugged pots, skip this step and go complete the "assembly" and "wiring" portions of the instructions. Then continue here with Step 3.

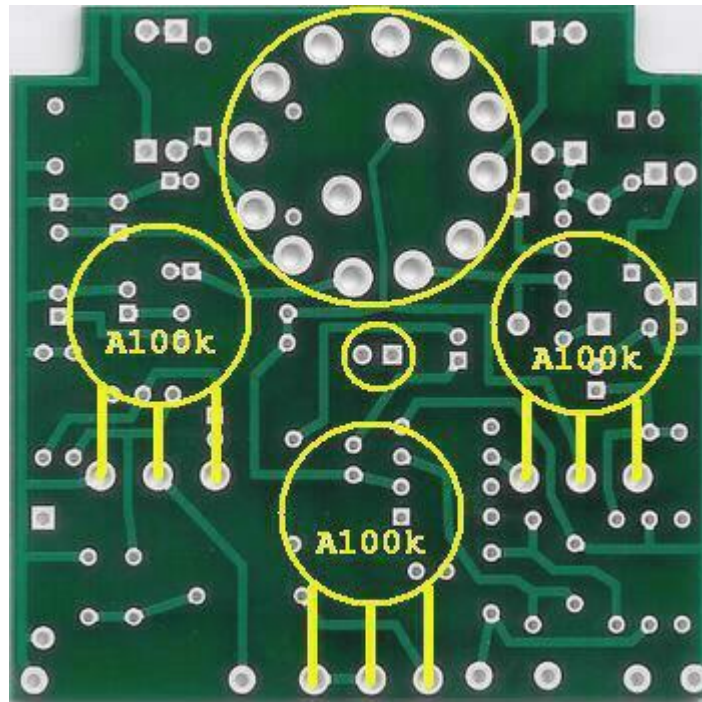
Step 3: Insert the LED into its place, but do not solder it yet. Make sure the longer lead goes in the round solder pad and the shorter lead goes in the square solder pad. No....this is not a typo.

Step 4: Mount the entire circuit board assembly inside the enclosure. Make sure you have the spacer nuts on your PC mounted pots (no spacers required for solder lug pots), and make sure that the Rotary switch limit washer hasn't fallen out of place. Then secure the pots and rotary switch with their nuts and washers.

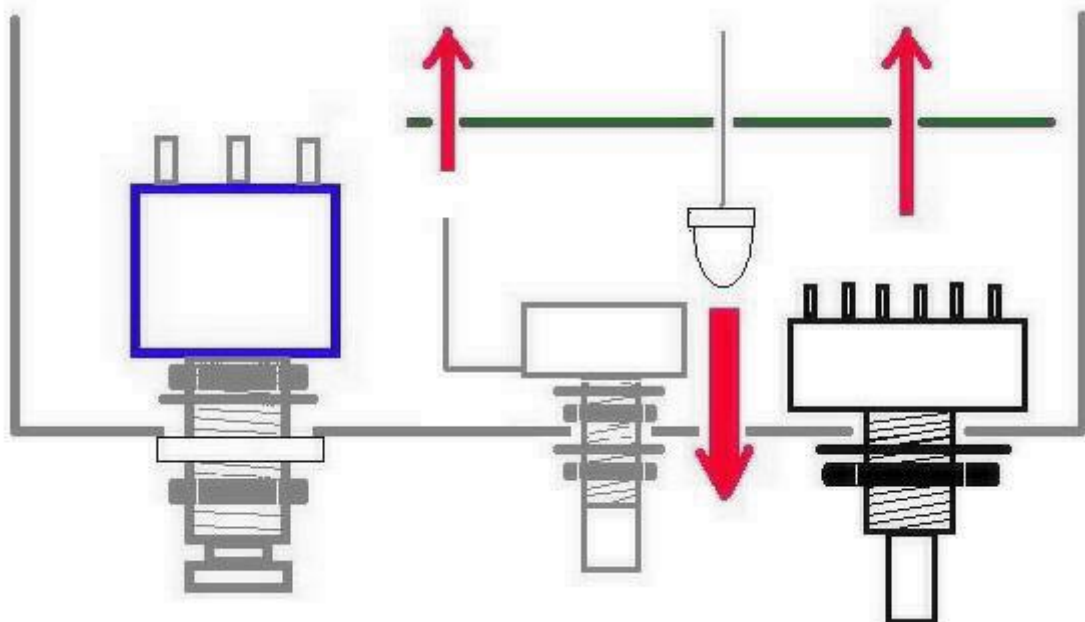
Step 5: Move the LED into place by guiding it with the leads that are sticking out of the top

side of the PCB.

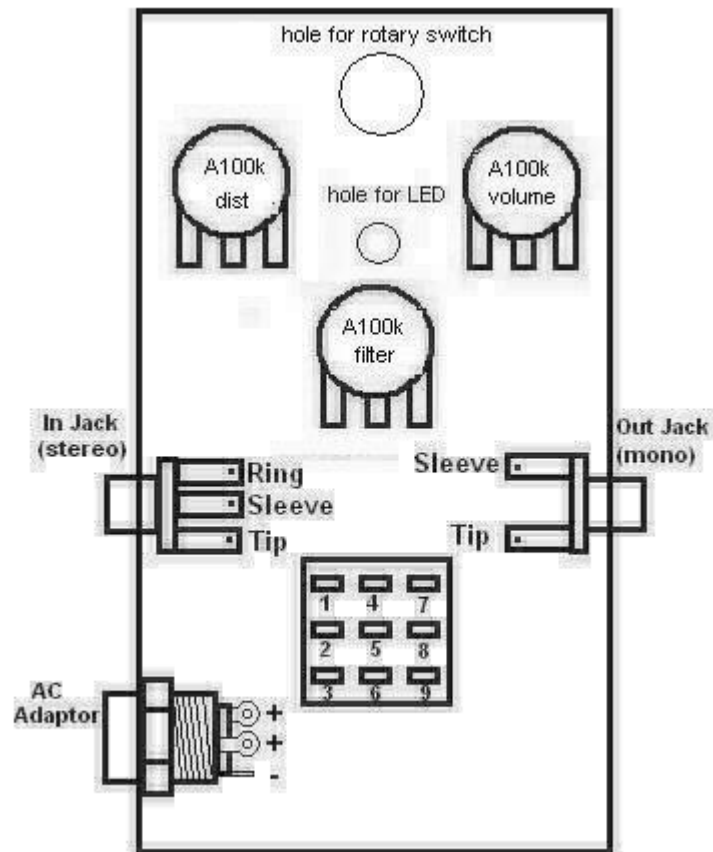
Step 6. Once you have the LED in place, solder it and clip the excess leads.



This diagram is an exploded view. It would imply that you should mount the pots and switch first and then install and solder the PCB, but it is actually easier if you solder the pots and switch to the PCB first and then mount the assembly to the enclosure.



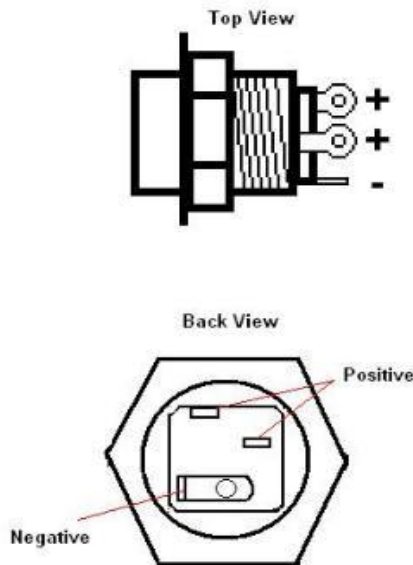
# Assembly



NOTE: If you have already mounted/soldered your PC mounted pots, ignore the step 3 of the assembly portion of the instructions. This step is only for kits that have solder lug pots.

1. Install the jacks first. If you are looking down inside the enclosure, the mono jack goes on the right side and the stereo jack goes on the left. Place the washer on the outside of the enclosure. Use a 1/2" wrench to tighten.
2. Install the AC adaptor jack. The bolt goes on the inside. Use a 3/4" or 14mm wrench to tighten. You may think your AC adaptor jack is missing the nut, but it is not. It just blends in very well. The "hex" portion of the jack is the nut. Turn it counter clock wise with a pair of pliers and you can be assured it will come off.

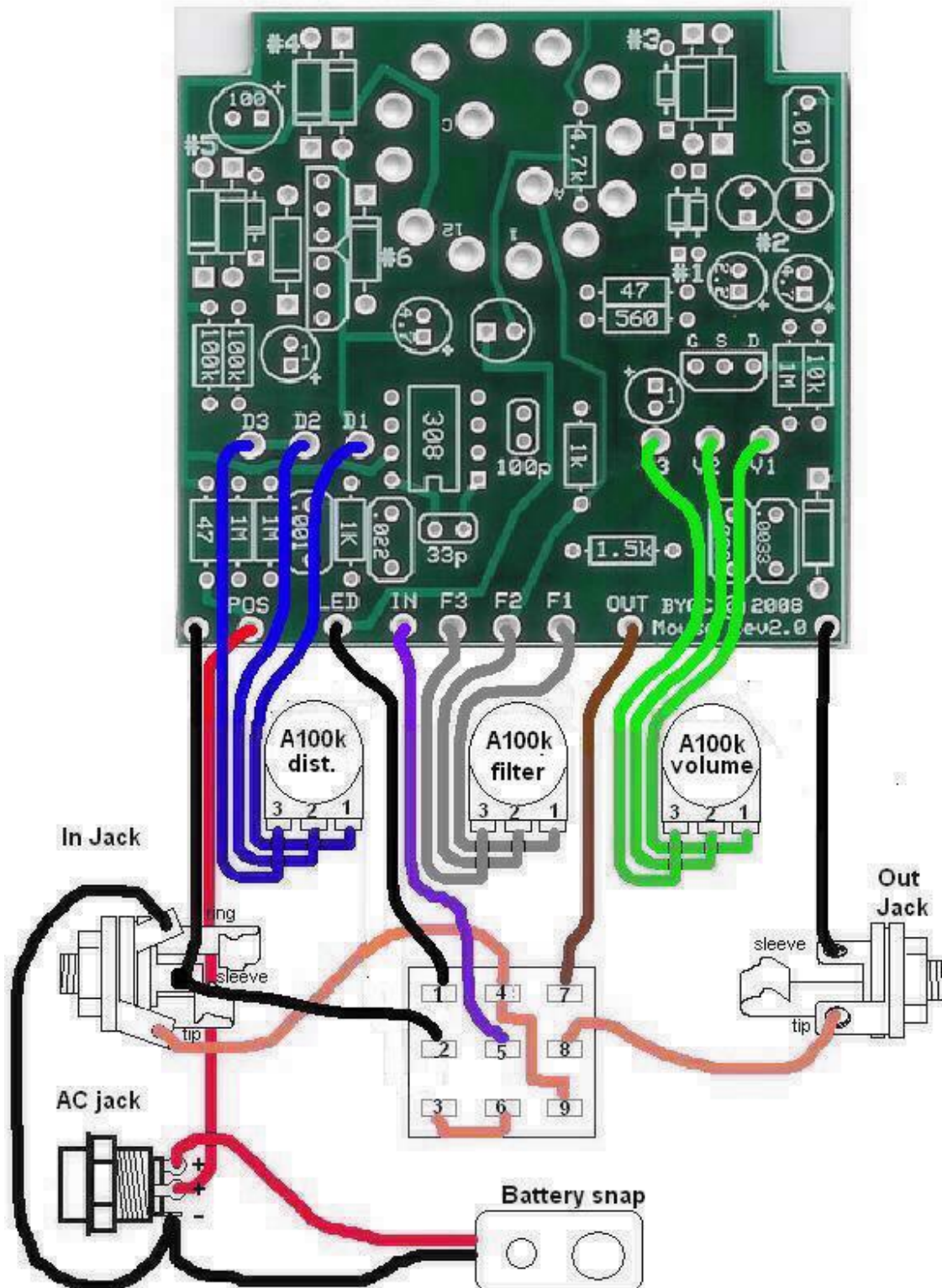
## AC Adaptor



This is a “disconnect” ac adaptor jack. That means that when you have a battery connected and you plug in the adaptor, it will disconnect the battery. That is why there are 2 positive terminals. They are both connected when there is no plug in the jack, but when the plug is inserted only one of the terminals (the uppermost terminal in the “back view”) is connected to the sleeve of the adaptor. The advantage of this is that you can leave batteries in your pedals as a back up power source if you are a “working” musician and they will stay fresh even when you have the input jack plugged in as long as you keep the adaptor plugged in.

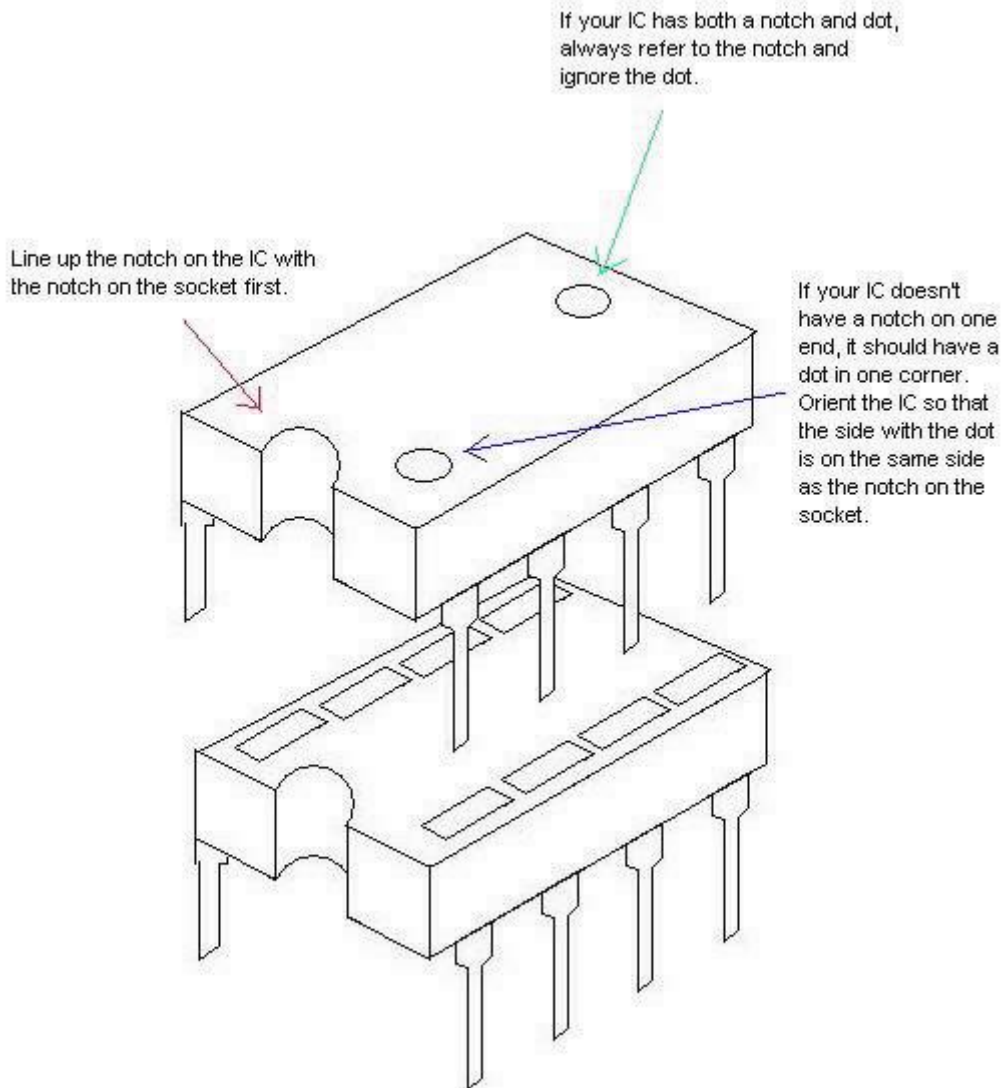
3. Install the potentiometers so that the solder lugs are pointing down towards the footswitch side of the enclosure. Use a 10mm wrench to tighten but only snug. Do not over tighten the pots.
4. Install the footswitch. The first bolt and metal washer go inside. The plastic washer and second bolt go on the outside. It does not matter which side you designate as the "leading edge" of the footswitch as long as you orientate it so that the flat sides of the solder lugs are aligned in horizontal rows, not vertical columns. Use a 14mm wrench to tighten.

# Wiring



NOTE: You do not need to wire the PC mounted pots like this. Only if you have solder lugged pots. Finish this step and go back to Step 3: Installing the Rotary switch, Pots, and LED.

# Installing the IC, Finishing up & Troubleshooting



1. Install the LM308 IC. Match up the notch on the top of the IC with the notch on the side of the socket.

2. Screw on the base of the enclosure and add the bumpers (unless you don't like bumpers on your pedals).

Step 3: Use a fresh battery or appropriate negative tip power supply.

# Trouble shooting

Is your pedal working? Here's a few common mistakes:

1. **No sound at all in either the bypass or on position.** If you aren't getting sound in bypass then you did not wire your footswitch correctly. Getting the bypass to work is the first thing you need to worry about.
2. **Bypass works and the LED lights up when "on", but there's no sound.** You either have a problem with the wiring from the in to the out of the circuit board and foot switch. . Or you have a problem with something on the circuit board.
3. **Bypass works, but there's sound when on and the LED does not come on.** You probably aren't getting any power to the circuit. .

If none of this helps, and you can't seem to figure out the problem, I always find that it is best to just set the pedal aside for a day or 2 and then come back to it with a fresh pair of eyes. Then the problem usually jumps right out at you....usually.

If you still can't get it working, start a thread on the BYOC forum and ask for help.  
[board.buildyourownclone.com](http://board.buildyourownclone.com)

## Steps for posting a tech support thread on the BYOC forum

1. Take clear up close and in focus pics of your build. This includes a shot of the top side of your PCB, the solder side of your PCB, a shot of your wiring of the footswitch/jacks, a shot of your wiring of the pots, and a shot of the entire build. Don't waste your time and our time posting pics that are out of focus or are too small to see. Please do not post pics that are too large to fit on the screen. It is very important for us to get the "big picture", especially when trouble shooting your wiring, and it is impossible to do if we need to scroll off the screen to see the entire build.
2. Post your pics on the forum. You must first host your pics on another server. If you aren't familiar with this, there are lots of free image hosting services such as photobucket and imageshack. Google "free image hosting". After you have hosted your pics, each pic will now have it's own URL. You must reference these URLs when you are posting a thread to get them to render within the thread. There is a picture icon in the top toolbar. When you click on the icon, you will be prompted to enter the URL to each pic.
3. Describe what the pedal is doing. Simply answer these questions so we can get an idea of what state your build is in.
  - A. Does bypass work?
  - B. Does the LED status light come on when the effect should be engaged?
  - C. What, if anything, does the pedal do when engaged?
  - D. Are you using an AC adaptor power supply that you know works or a battery that you know is good?
4. Be patient.



