

PLANKTON ELECTRONICS

THE JELLYFISH ASSEMBLY TUTORIAL

15/07/2013 PLANKTON ELECTRONICS

If you have bought a Jellyfish PCB or made it yourself you will want to mount it. Follow this step by step tutorial to achieve it.



MATERIAL

Before you start to mount the Jellyfish be sure that you have the following list of material:

- The Jellyfish PCB
- The components listed in the BOM (Bill of Materials)
- The Jellyfish case or any other case that you like
- Soldering iron
- Solder
- Cutters
- **Soldering skills!** This is nothing that you can buy, so if you don't know how to solder check out some tutorial. Just type "how to solder" in your search engine and you will find thousands of tutorials. It is also recommended to start with a smaller project like the [WSG](#) from MFOS.

SOLDERING THE COMPONENTS

ATTENTION!: continue at your own risk. We're not responsible for any problem occurred in this stage of the process. This includes any injuries and accidents like electric shocks, fires, burns, etc. You're advised.

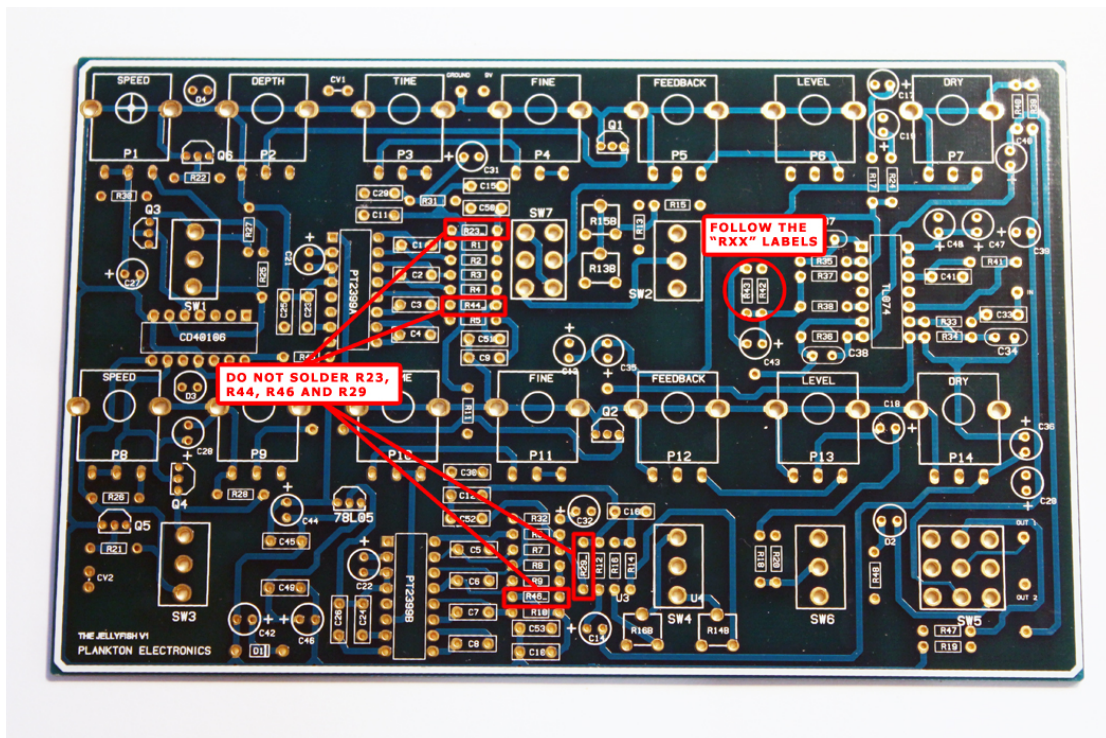


Take your time soldering all the components and triple-check every value. Saving 1/2 hour here can result in an error that will take you days to fix. Go step by step and you will easily succeed.

"HURRY KILLS MY FRIEND"

Resistors

Start soldering the resistors to the PCB. Follow the BOM to check out which value corresponds to every label. Start with the 1K resistors R37 and R38. Put it in place, solder and cut. Continue with the 1K2 resistors and so.

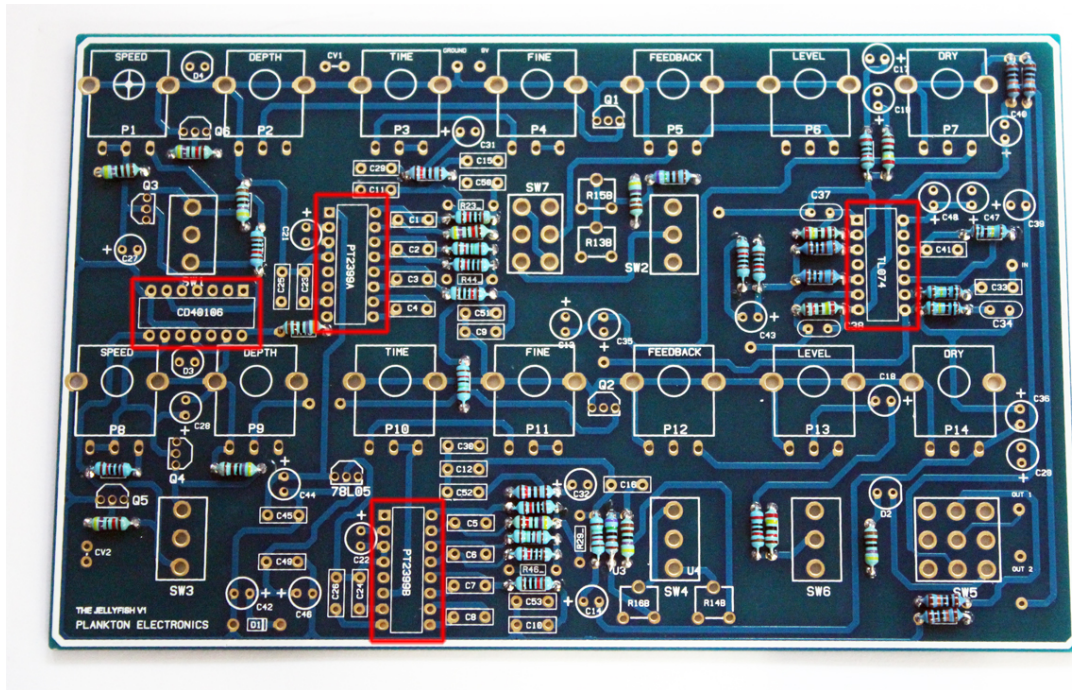


Do NOT solder R23, R29, R44 and R46. These are filter resistors. You will solder 4 trimmers here later. Only if you know what you are doing solder the resistors that you consider. Check the schematic for reference.

IC sockets

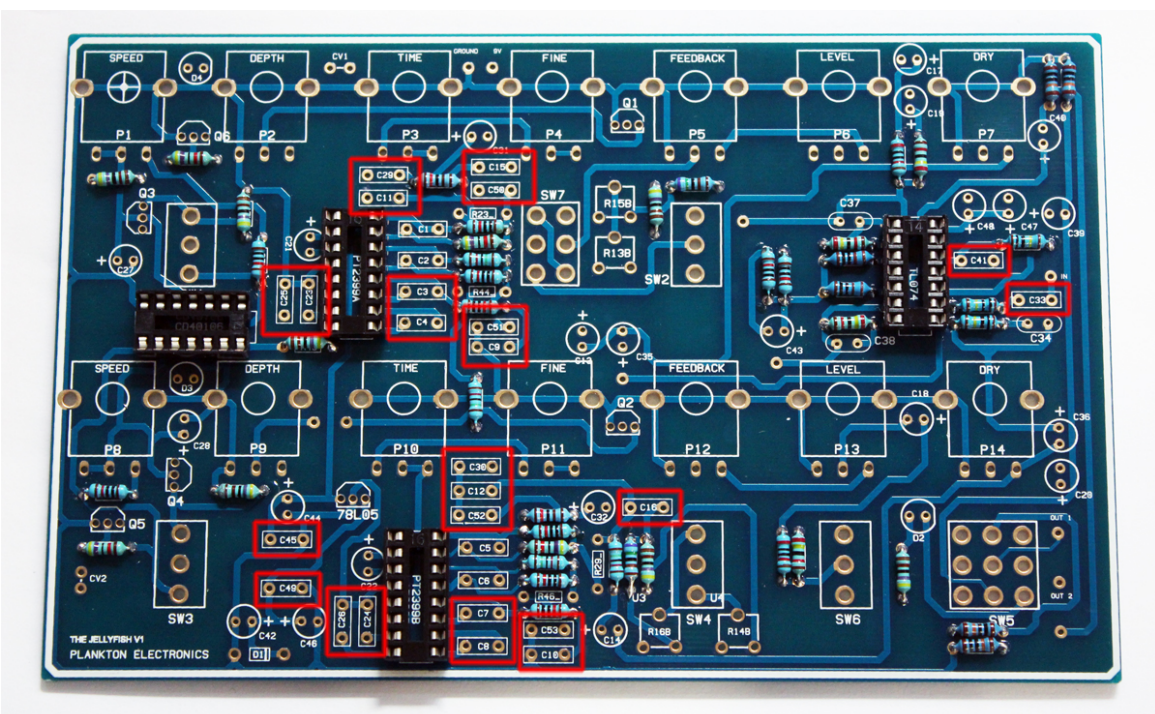
Time to solder the sockets now. Notice that the sockets for the PT2399 are 16 pin type, and the ones for CD40106 and TL074 are 14 pin type.

Put the 4 sockets in place and turn the PCB trying to maintain the sockets in place. Using a plastic or a wood sheet will help. Solder the 4 sockets.

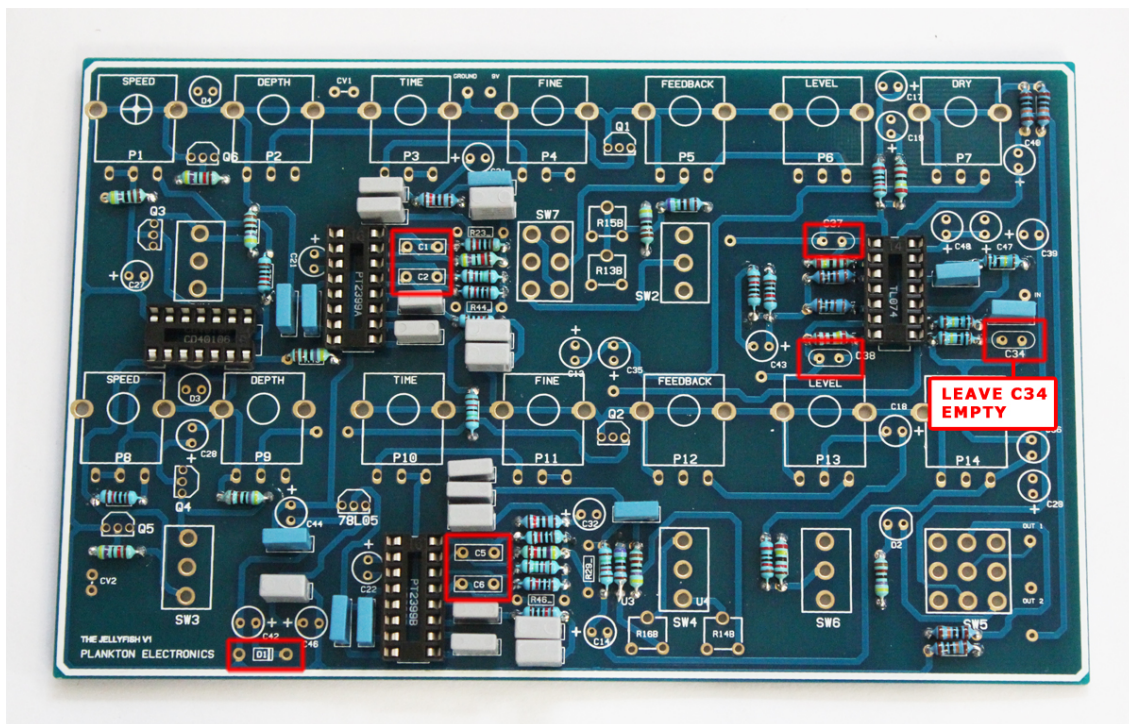


Capacitors and diode

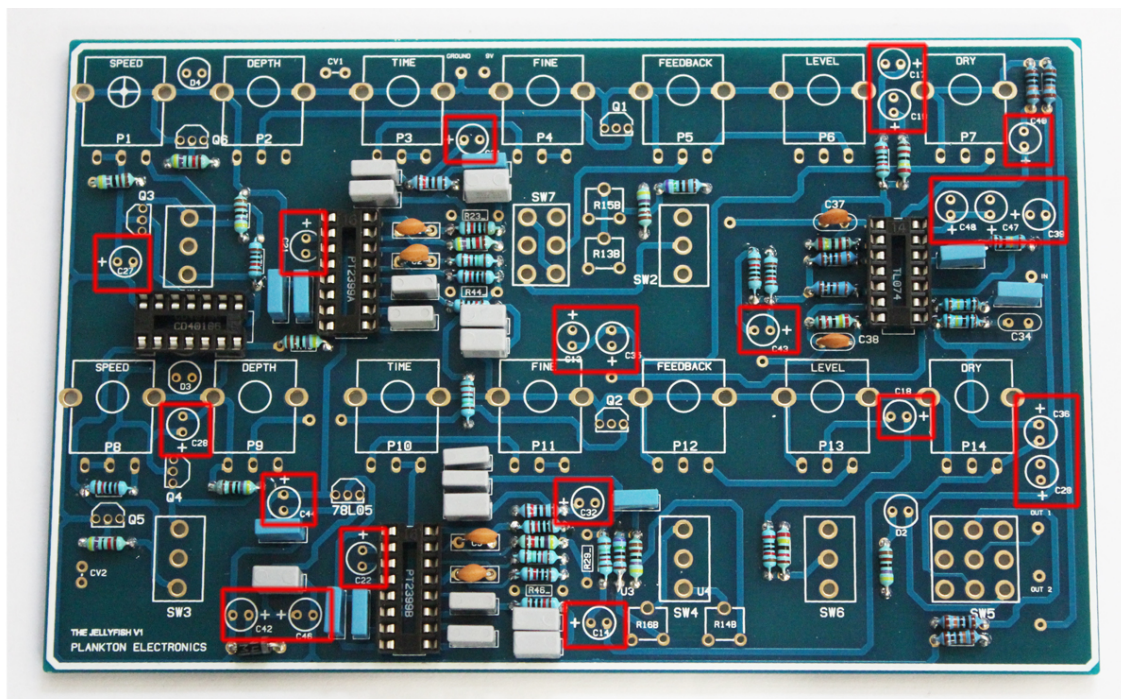
Start with the film capacitors. Like with the resistors follow the BOM and solder by groups. Start with the 10nf C9, C10, C49, C50, C51, C52, C53. Solder it and continue with the next ones.



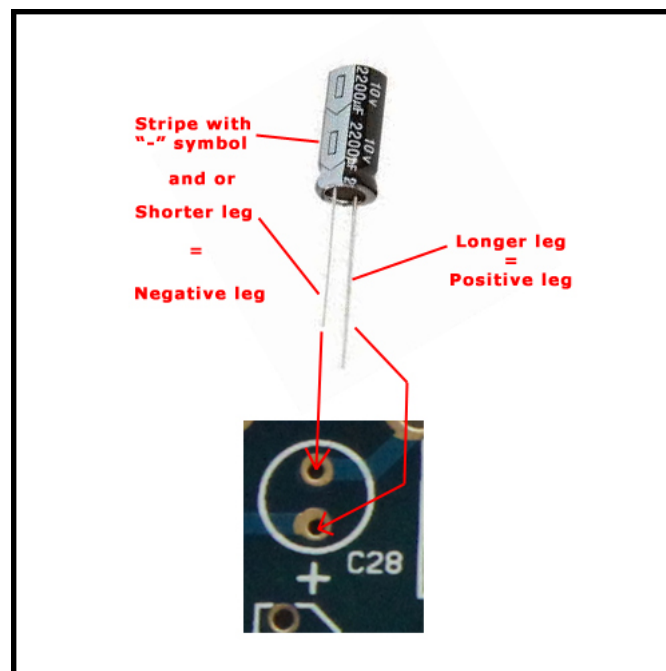
Continue with the ceramic caps and the 1N4001 diode. Take in mind that the diode is polarized. Do not solder C34.



Now solder the electrolytic capacitors.

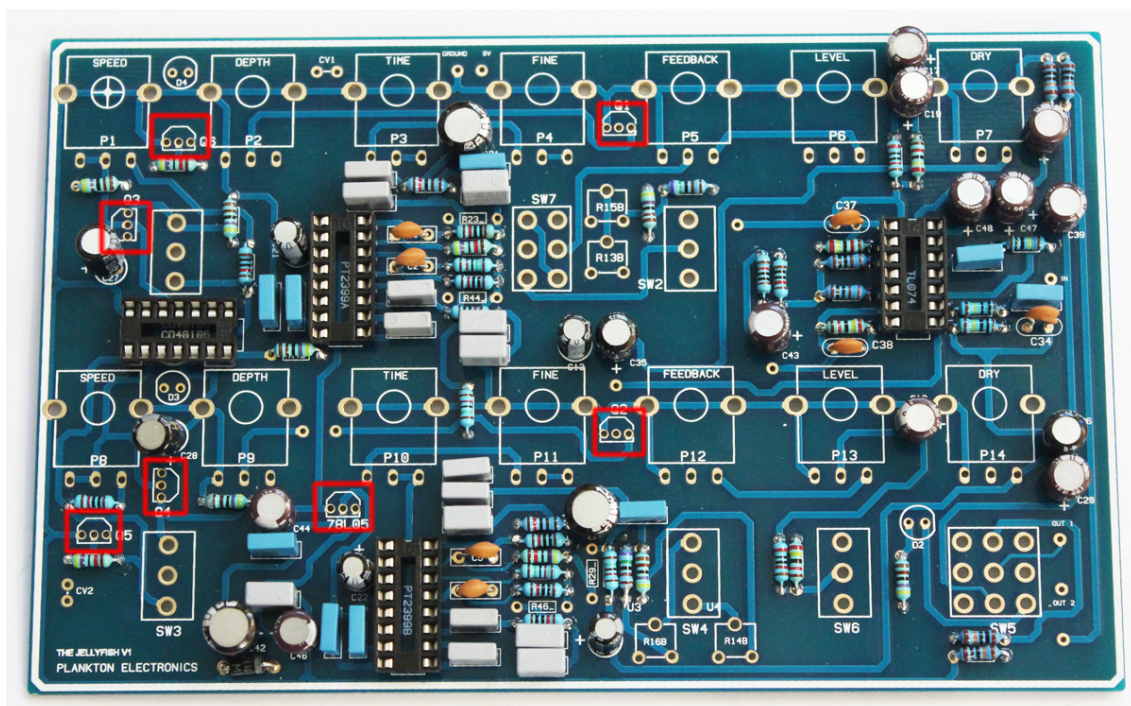


This capacitors are polarized. The long leg of the capacitor should go to the "+" symbol of the PCB. Just like this:



Transistors and voltage regulator

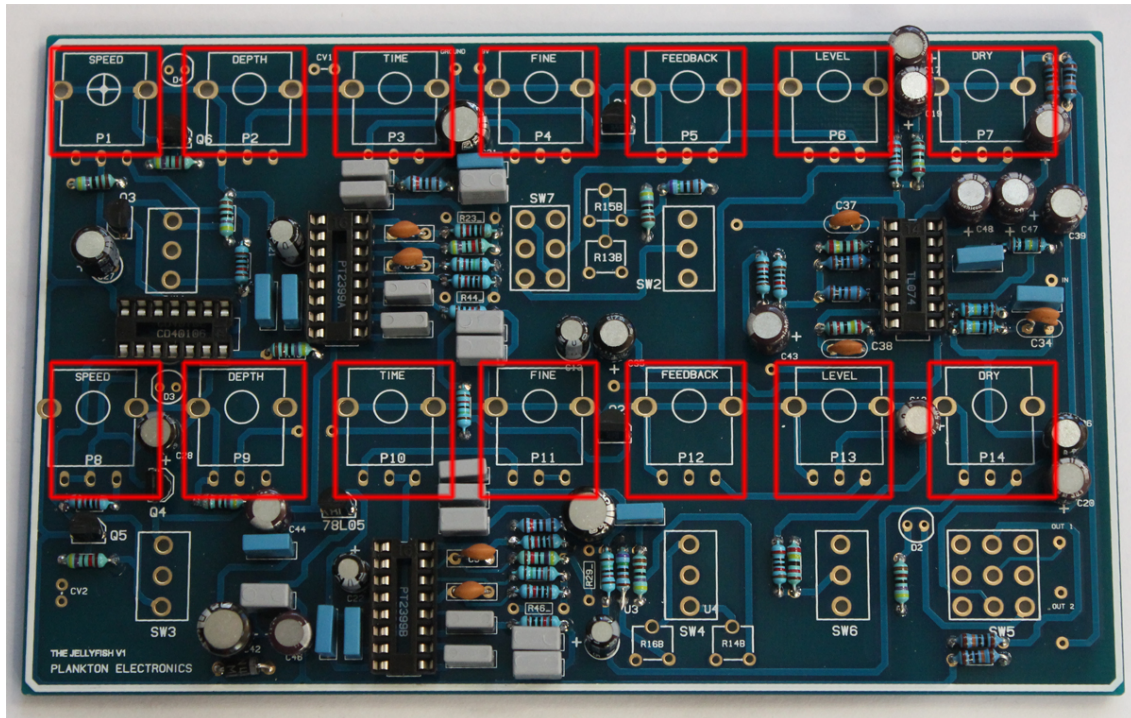
Now solder the 6 transistors and the voltage regulator. Transistors are temperature sensitive and too much heating time can destroy it. The use of pliers here pressing gently to body of the transistor is a good way to dissipate the heat of the solder. You will need an extra hand (or tool).



Potentiometers

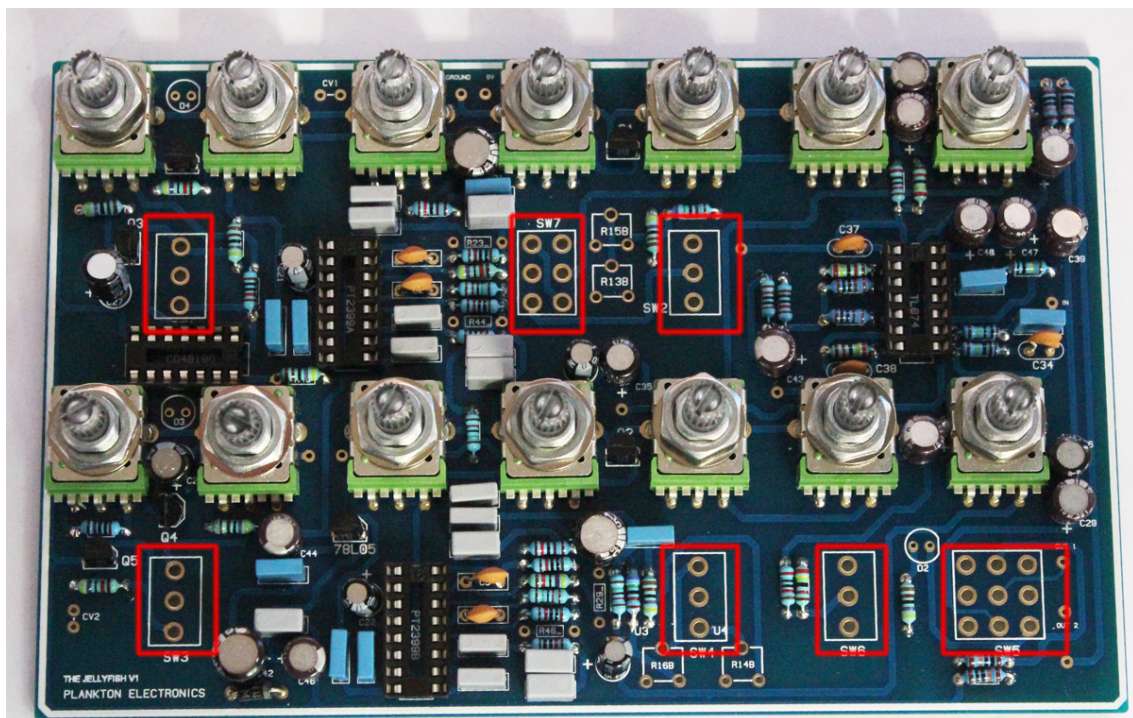
Solder now the 14 potentiometers. Push carefully until the base of the potentiometer is touching the PCB. It is very important for all the pots to be straight and perpendicular to the board. If not you might find some trouble later.

It is a good idea to all the potentiometers first, and then solder it.



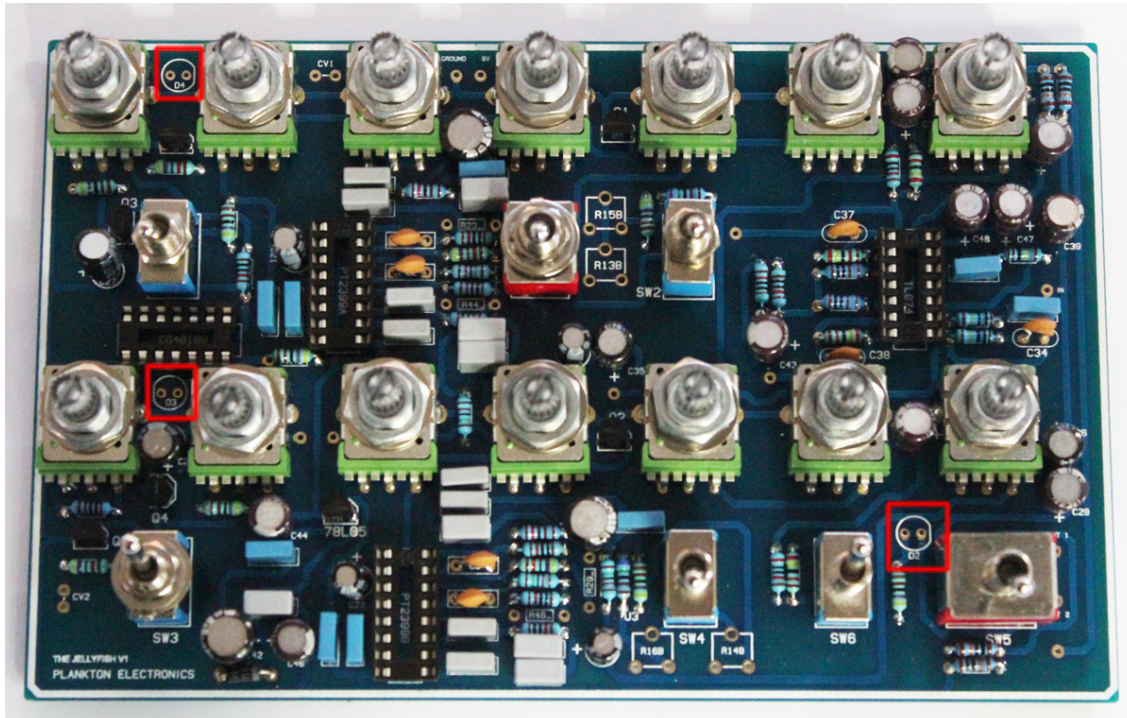
Switches

Like the potentiometers, switches must be installed and soldered straight and parallel. Solder it to the board.



Leds

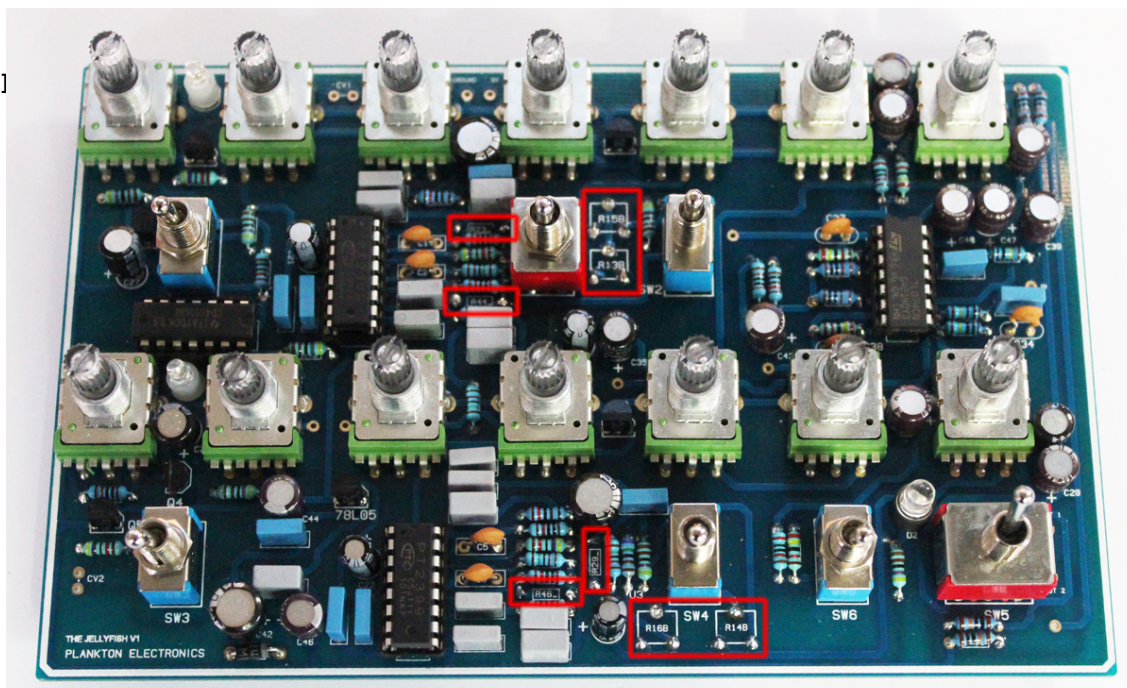
Solder the leds now. You have to use the led spacers and put every led trough its spacer before solder it to the board. Note that the leds are polarized. The short leg must go where the line cuts the circle.



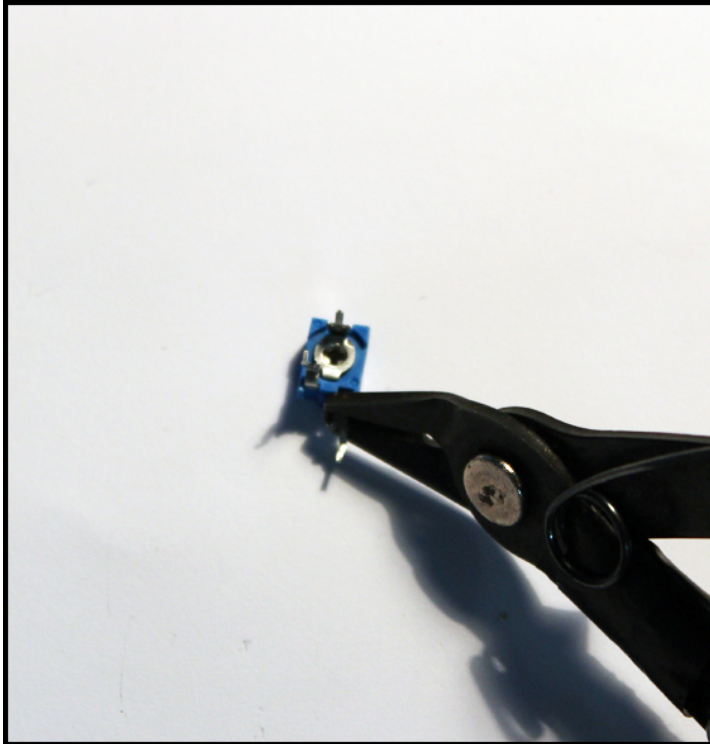
Trimmers

You can solder the trimmers to the upper side of the board, but is better to do it to the other side. This way you can calibrate the machine without disassembly the case every time.

Solder 13B, 14B, 15B and 16B. You can see that it are already soldered in the picture.



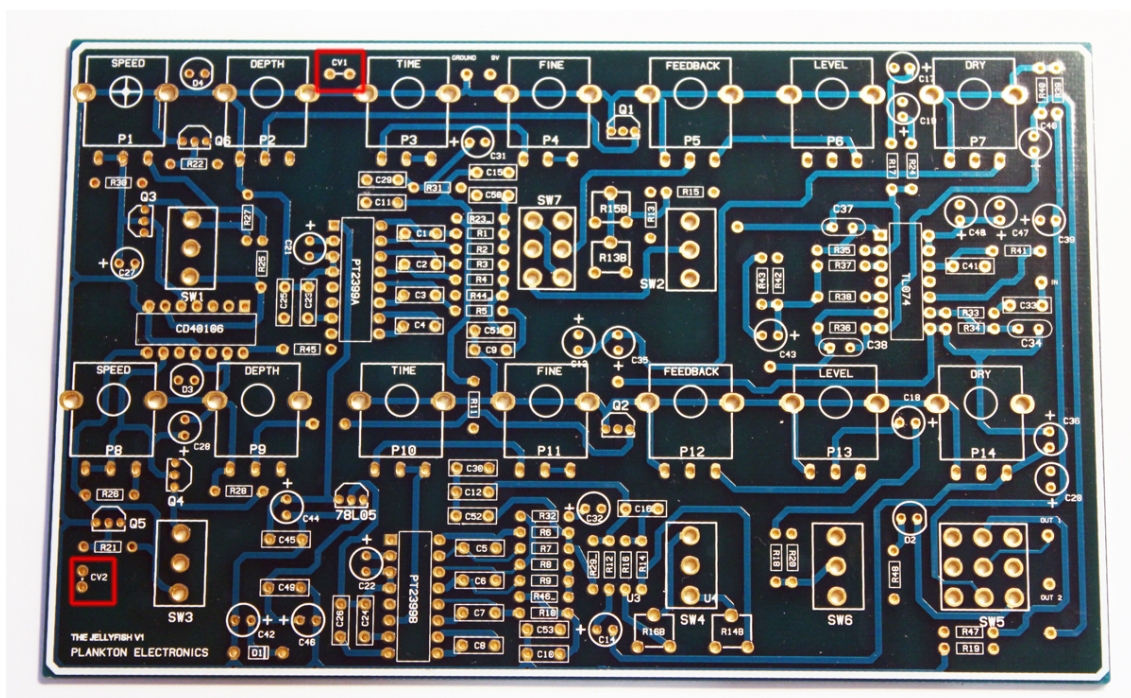
Before soldering R23, R29, R44 and R46 you need to adapt the trimmers, as only 2 legs are used. Cut one of the legs, as in the picture, and solder to the board.



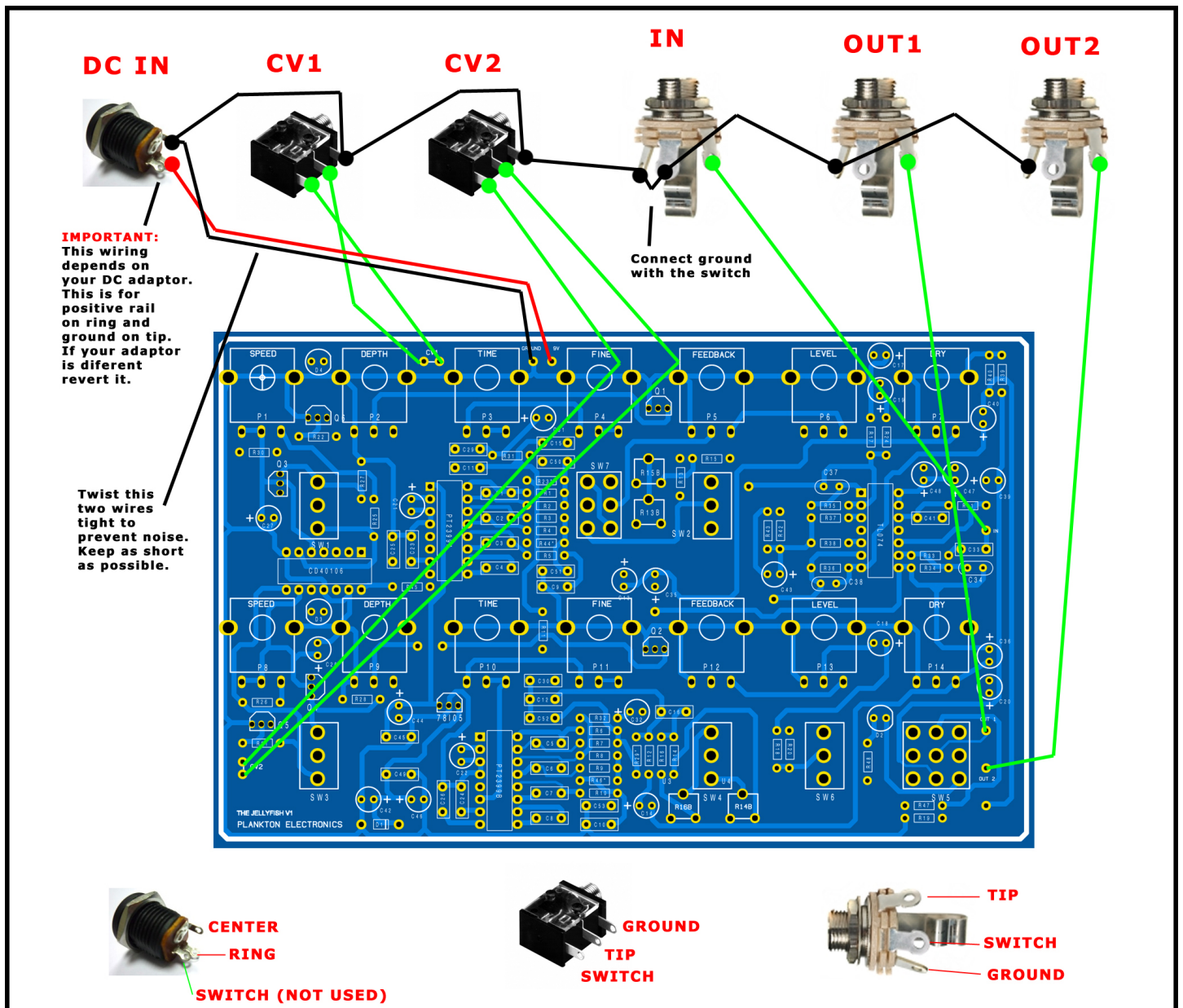
Now is time to wiring. You can see that the ICs are mounted in the sockets, you can do it before testing the machine.

WIRING

Before wiring and if you don't want to use the CV inputs you need to solder a bridge between the 2 holes of "CV1" and "CV2". If you want to use the CV inputs, which is recommended, just jump this step.



For the wiring follow this diagram:



Important on wiring:

- You could connect the ground to the "IN" jack. Doing it you will prevent noise when nothing is plugged in. Don't do the same with the outputs.
- Twist thight the power wires and keep it short. This way you will prevent noise.
- The wiring diagram for the power jack is for a power supply with +9V at the ring and ground at the tip. If your power supply is diferent, reverse the wiring here.
- It is recomendado to solder the power cables on the top side of the board and rest on the bottom side. Wiring will be easy later.

- The best way for wiring is:

1. solder the wires to the board,
2. assemble the board and the case without screwing,
3. assemble the connectors to the case and
4. solder the wires to the connectors.

You can now screw the nuts of the switches, turn on the machine and test it.



If everything is ok you can assemble the knobs. You don't need to screw the pot nuts. With the switches the machine is well fixed to the case. If you want to do it don't screw too hard or you will bend the PCB.

Congratulations! You've finished the Jellyfish! You need to calibrate it now. Refer to the "calibration tutorial".

Errata

C34 appears to be soldered in some of the last pictures. If you don't know what are you doing leave it empty.