

# B A S T L INSTRUMENTS

## TEA KICK v1.1 - Assembly Guide

bastl-instruments.com



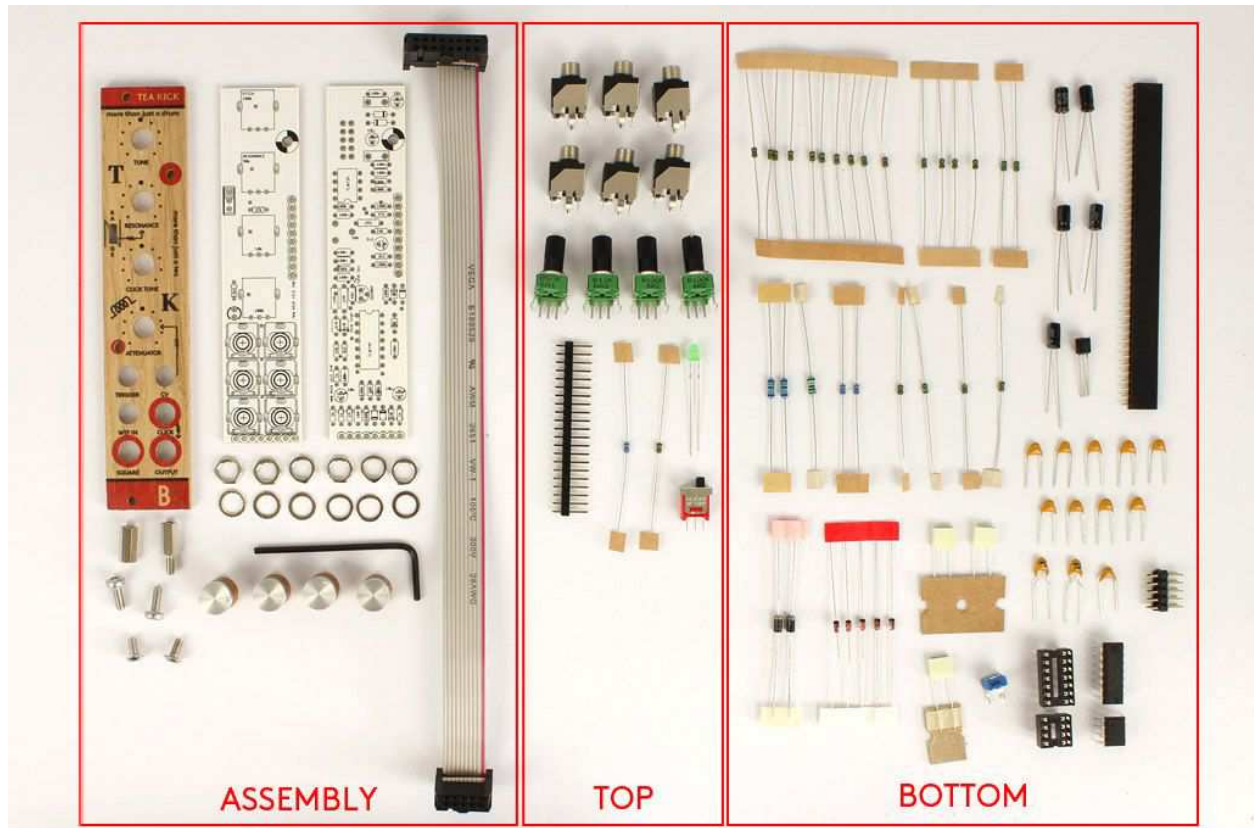
### INTRODUCTION

This guide is for building Tea Kick module from Bastl Instruments. It is good to have basic soldering skills and to be able to identify electronic components before starting this kit. However if you have never soldered before, check out this [tutorial first](http://www.instructables.com/id/How-to-solder/)<sup>1</sup>. We even included some of the best quality solder to help you solder everything faster and better.

The Tea Kick module consists of two boards. All the parts comes in three bags separated for Bottom board, Top board and Assembly parts. See Bill of Materials ([BOM](#)) for detailed list.

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<sup>1</sup> <http://www.instructables.com/id/How-to-solder/>



Before starting this kit, prepare the following tools:

- Soldering iron (15-20W)
- Multi-meter
- Flush cutters
- n2. hex screwdriver or allen key (enclosed with kit)
- Phillips screwdriver (cross)
- Wrench No. 8
- Protective eyewear

We suggest that you work in a clean and a well lit and ventilated environment to avoid accidents or losing any of the small components.

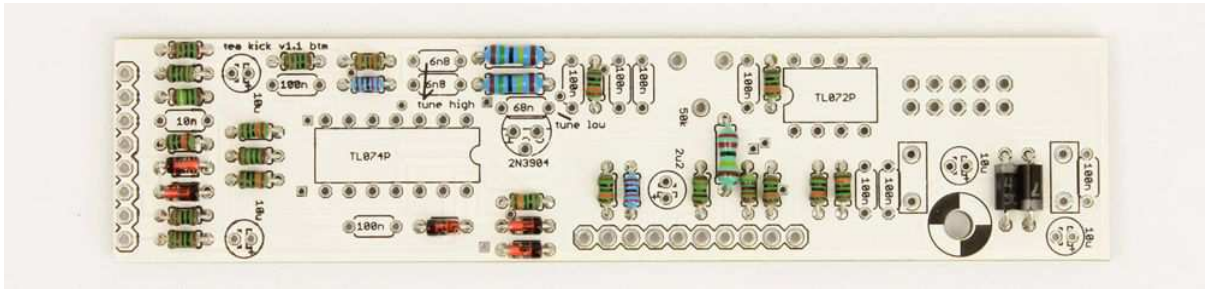
Also briefly go through this guide and make sure that you understand all the steps.

## BOTTOM BOARD

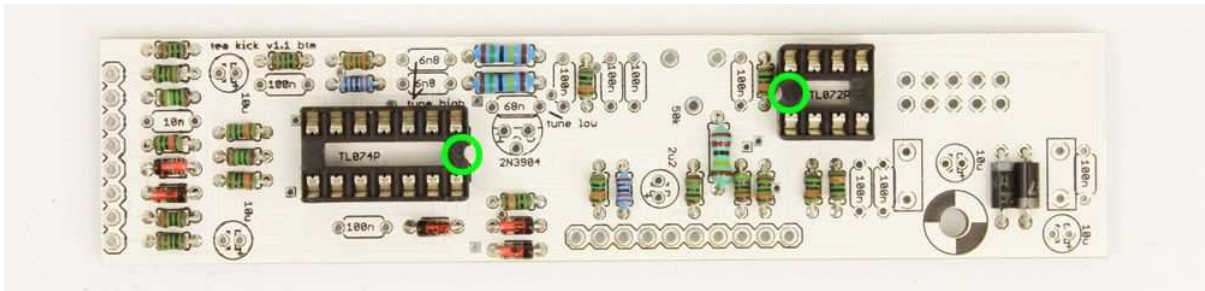
Let's start with the bottom board. Before you start soldering, take your time and find all the resistors values [using a multimeter](https://learn.sparkfun.com/tutorials/how-to-use-a-multimeter/measuring-resistance)<sup>2</sup> (or you can check the color codes if you are seasoned enough).

Now insert and solder 25 **resistors** (2x 10k, 10x 100k, 2x 1M5, 4x 1k, 1x 1M, 1x 220R, 1x 22k, 1x 2M2, 2x 2k2, 1x 47k). Then snip the leads as close to the PCB as you can (be sure to make this step on all remaining leads in the course of this guide). Then do the same with **diodes** (2x 1N4007, 5x 1N4148). **Be careful, diodes are polarized!** Make sure that the marking ring on the diode body matches the marking on the circuit board.

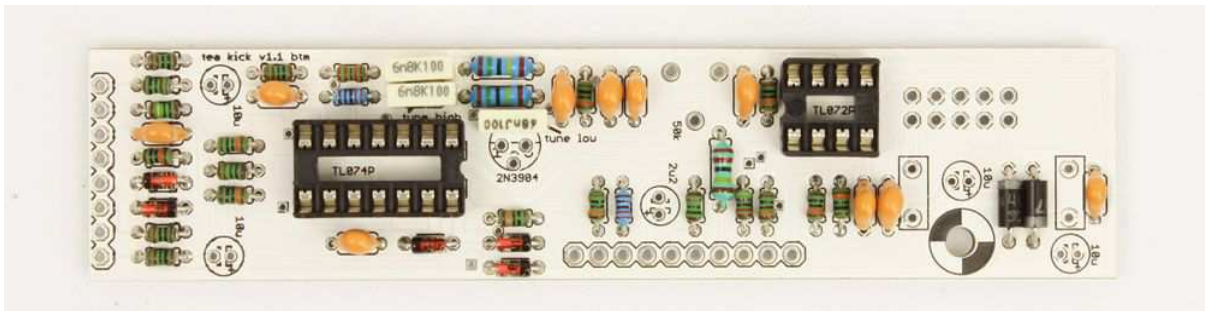
<sup>2</sup> <https://learn.sparkfun.com/tutorials/how-to-use-a-multimeter/measuring-resistance>



Then solder two **IC sockets** (1x 8 pin, 1x 14 pin). Make sure that the **notch on the socket matches the print on the board**.

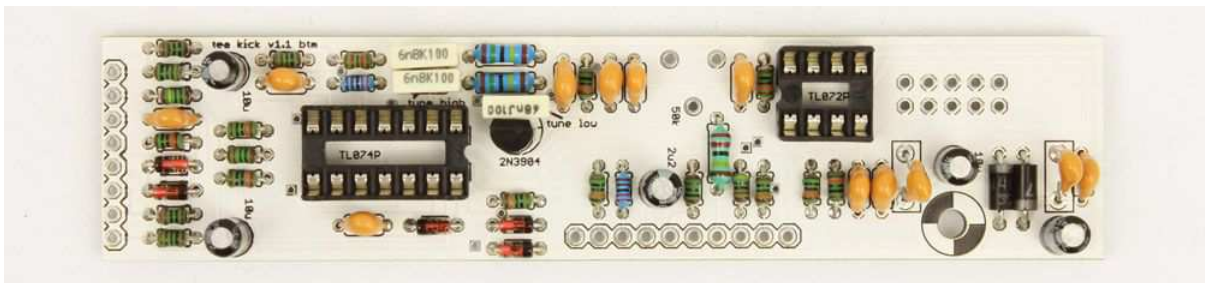


Then add the **capacitors**. There are nine **100nF** (marked 104), one **10nF** (marked 103), one **68n** and two **6,8n**. Don't worry they are not polarized.



Next solder in:

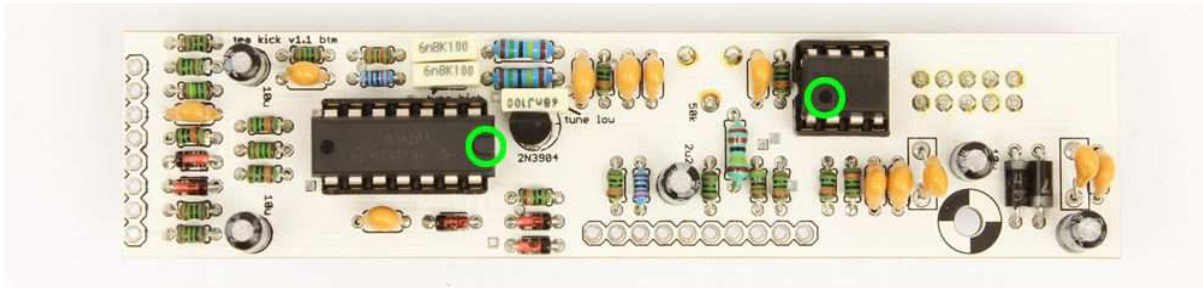
- **One 2,2μF and four 10μF electrolytic capacitors** (watch out, **these ones are polarized!** There is a plus (+) sign on the PCB that should match the longer lead of the capacitor)
- **One 2N3904 transistor** (flat side of transistor must match the outline drawn on the PCB!)
- **Two fuses** (marked "PTC" on board; be careful, they look quite similar to capacitors)



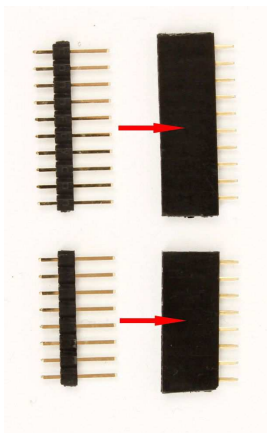
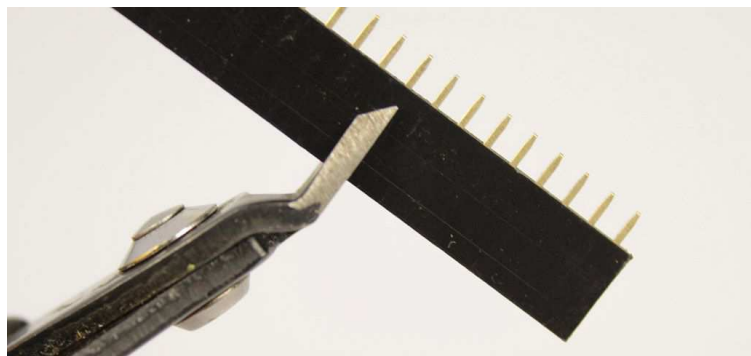
Now turn the board around and insert and solder the **50k trimmer** and the **2x5 pin male header** as shown on the photo. You may first solder just one of the the header pins, then take the board in your hand and re-heat that pin while pressing down on the header to align it. Wait for it to cool and solder the rest of the pins.



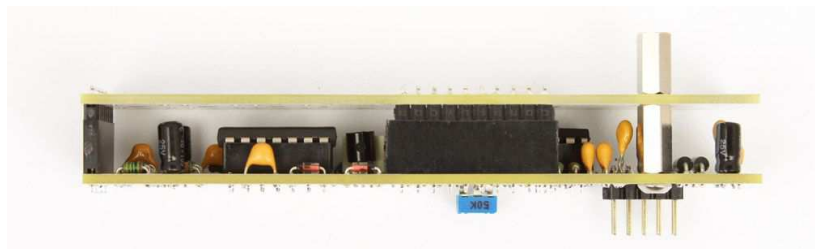
It's time to insert the **ICs** into their sockets. Again make sure that the **notch** on the TL074 chip is **facing the same direction** as the notch on the socket and also the **orientation dot** on the TL072 is **facing the notch** on its socket.



As you can see one female pinheader left. Use your flush cutters to get one **8 pin** and one **10 pin** (you will always lose one pin when cutting the female headers, so be sure to cut it always after the last required pin - check the picture to see where to cut to get 8 pin). Do the same lengths also with the **male pinheader** from the top board components.



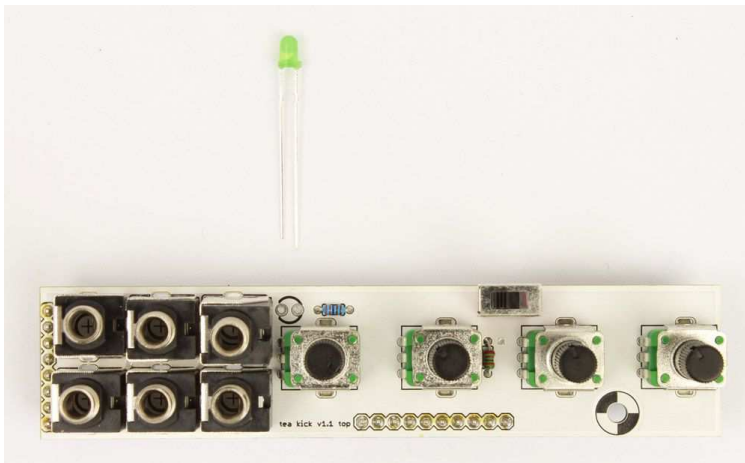
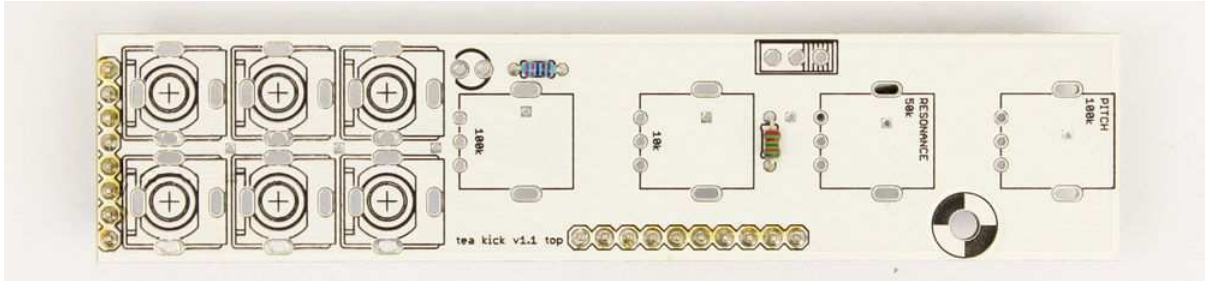
Now to ensure that the headers are properly aligned, screw the **hex screw** and the **11 mm spacer (nut - nut)** on bottom board. Place the female headers on the bottom board with the male pins inserted. Now **connect the boards** together, mount them with the **10 mm spacer (nut - screw)** and finally, **solder the headers** to both boards. Unscrew the spacers and disconnect the boards.





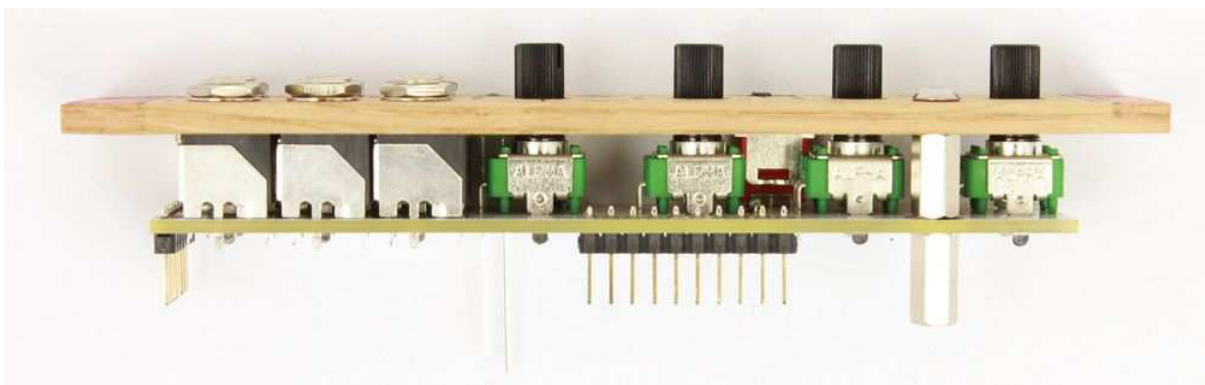
## TOP BOARD

Again, let's start with **resistors**: solder one 2k2 and 22k.



Then place the four **potentiometers** (1x 10k, 1x 50k, 2x 100k) to their respected places (**don't forget to read the resistance value of the potentiometer on the side**). Push them well until they **sit absolutely flat on the board**. Also place the **mono jacks**, the **switch** and the **LED**. The LED is **polarized** so make sure that the longer lead (+) is facing upwards. Also the flat side on LED and PCB print should match. **Don't solder anything yet.**

Again we want to make sure that all the **components are properly aligned** with the front panel, so take the **spacer** (nut - screw) and place it in the opening. Screw the **front panel** with the hex screw. Secure the spacer with the other one. Also secure the jacks to the panel with the **washers** and the **nuts** (Don't tighten the screws and jack washers too much as you may damage the panel). Push the LED to fit its head on the panel and let the switch come through enough. Solder all the components.



Congratulations! You have made it through, now just connect the boards together, add the knobs and you are ready to enjoy your new module.



Before you connect anything, make sure that your system is disconnected from power. Also double check the polarity of the ribbon cable, the red cable should match the -12V rail both on the module and on the bus board!

## CALIBRATION

To properly calibrate the resonance of the Tea Kick, set the RANGE switch to the low position (GE) and the RESONANCE knob to full. Set the TUNE knob to a common kick frequency and send a relatively sparse trigger sequence. Adjust the trimmer potentiometer at the back of the module until you have a desired decay length but the unit does not start to self oscillate.

## TROUBLESHOOTING

First check out the [DIY F.A.Q.](#)

If you are having some more trouble, the best thing is to take a nap! Especially late at night!

If you are still in trouble you can send the detailed description of the problem with enclosed high-resolution photos on [diy@bastl-instruments.com](mailto:diy@bastl-instruments.com).

If you think that you are unable to make the module work on your own, consider our "[Come to Daddy](#)" service.