

# FREQUENCY CENTRAL

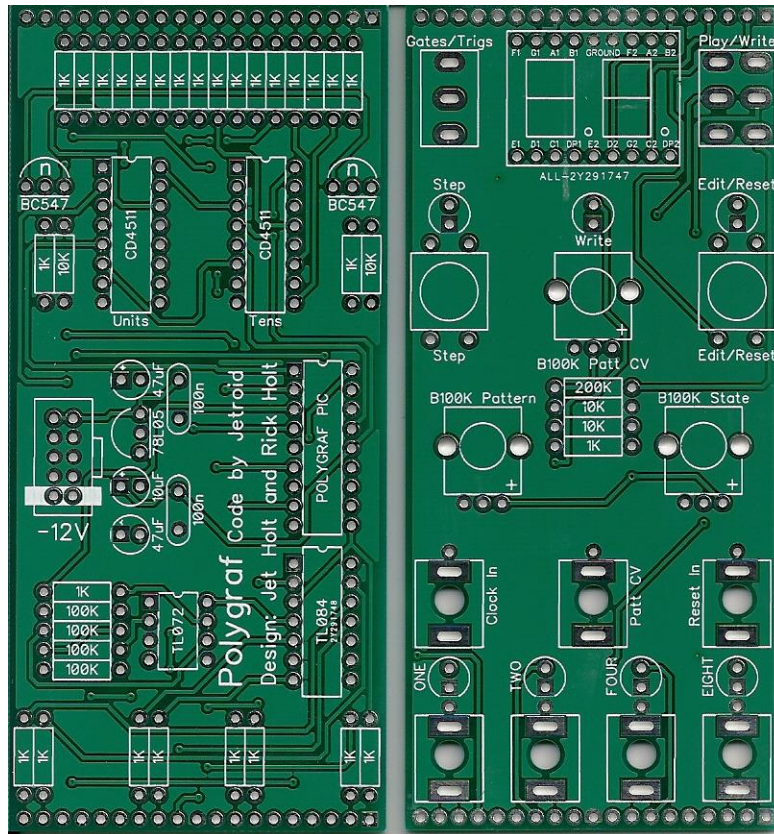
Build documentation for:

## POLYGRAF

Featuring code by Jetroid

Main PCB

Pots 'n' sockets PCB

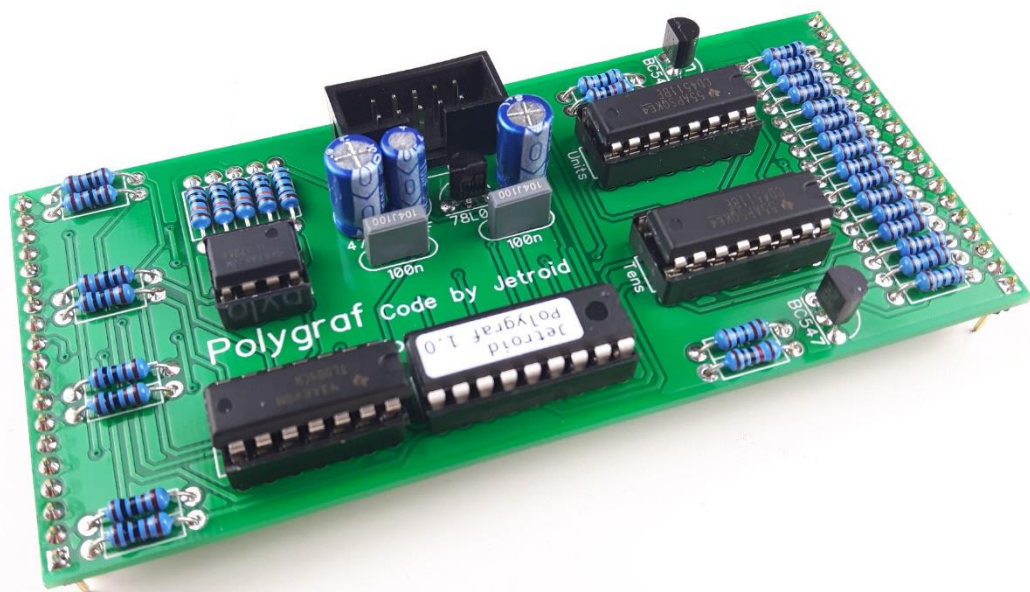


## Bill of Materials

|   |   |  |  |
|---|---|--|--|
| <p>1K x 27<br/>10K x 4<br/>100K x 4<br/>200K x 1</p> <p><u>All resistors ¼ watt metal film.</u></p> | <p><u>100nF x 2</u><br/><u>10uF x 1</u><br/><u>47uF x 2</u></p> | <p>POLYGRAF PIC</p> <p><u>CD4511 x 2</u><br/><u>TL084 x 41</u><br/><u>TL072 x 1</u></p> <p><u>BC547 x 2</u><br/><u>78L05 x 1</u></p> <p><u>2 digit LED display, common cathode, 0.56"</u></p> <p><u>3mm red LED x 6</u><br/><u>3mm green LED x 1</u></p> <p><u>18 pin IC socket x 1</u><br/><u>16 pin IC socket x 2</u><br/><u>14 pin IC socket x 1</u><br/><u>8 pin IC socket x 1</u></p> | <p><u>B100K x 2</u></p> <p><u>B100K x 1 (or this)*</u></p> <p><u>3.5mm socket x 7</u></p> <p><u>SPDT on/off/on x 1</u><br/><u>DPDT on/on x 1</u></p> <p><u>Tactile switch x 2</u></p> <p><u>Male header x 1</u><br/>(cut to size)<br/><u>Female header x 1</u><br/>(cut to size)<br/><u>Power header x 1</u></p> |
| <p>* I prefer the Song Heui tall trimmers because they have a longer shaft and a white notch.</p>   |   |  |  |

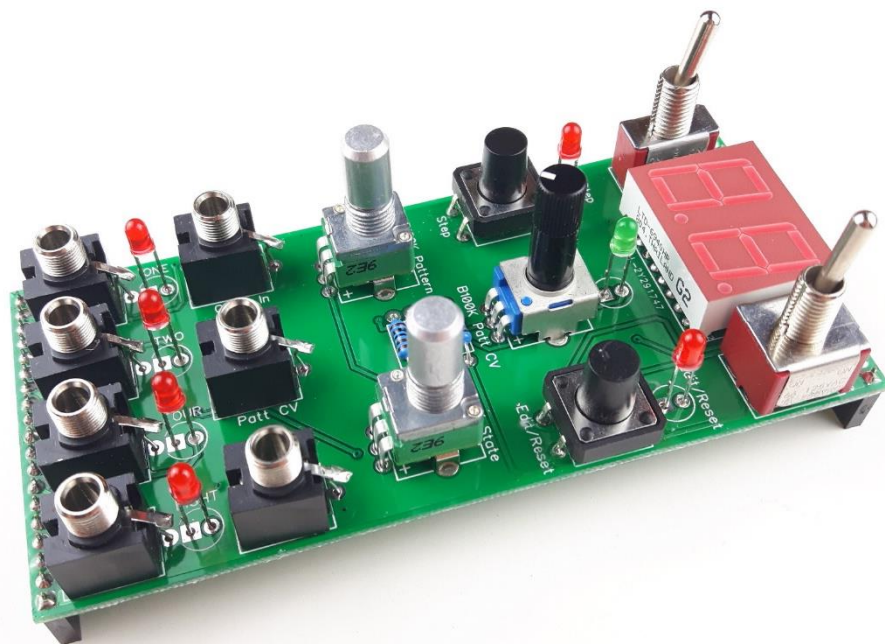
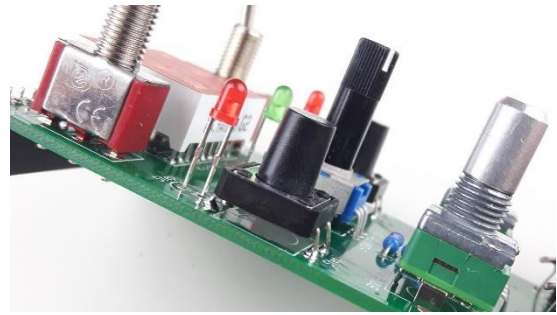
## Main PCB assembly

1. Solder all resistors
2. Solder all five IC sockets
3. Solder the non electrolytic capacitors
4. Solder the 2 x BC547 and the 78L05 – watch the polarity!
5. Solder the box power header. Make sure the notch lines up with the screenprint legend. If in doubt, have a look at a power cable, and make sure when inserted into the header the red stripe lines up with the -12V screenprint.
6. Solder all electrolytic capacitors
7. Cut male headers to size and solder them into place. Make sure that they stick out of the bottom of the PCB.



### Pots 'n' sockets PCB

1. Place the PCB on a flat surface. Place the 2 tactile switches into their solder pad. Do not push them all the way through, they should sit proud of the PCB (see photo). Solder them into place from the top of the PCB.
2. Solder the 2 metal shaft potentiometers (don't solder the plastic shaft potentiometer yet) and the 2 toggle switches. Use the panel to make everything line up nicely.
3. Place all sockets on the PCB, making sure the ground tabs line up with the PCB's ground pads – be careful because there are two different orientations - then place the panel over them. This will assure that the sockets are correctly positioned. Flip the whole lot over and solder the sockets into place. Use cut off resistor legs to connect the sockets' ground tabs line up with the PCB's ground pads.
4. Place the 2 digit LED display onto the PCB. The display needs to sit away from the PCB in order to fit snugly to the panel. This means the legs barely protrude through the solder pads, so when soldering give a little time for the solder to flow down onto the legs. Check it from the top side, and reflow if necessary.
5. Place and solder the single plastic shaft trimmer.
6. Cut female headers to size and solder them into place. Make sure that they stick out of the bottom of the PCB.
7. Put all 7 LEDs through their pads. Present the panel to the PCB, flip the whole lot over, make sure the LEDs stick through the holes in the panel, solder in place.



All done! Now [RTFM!](#)

RDH 21/08/19

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