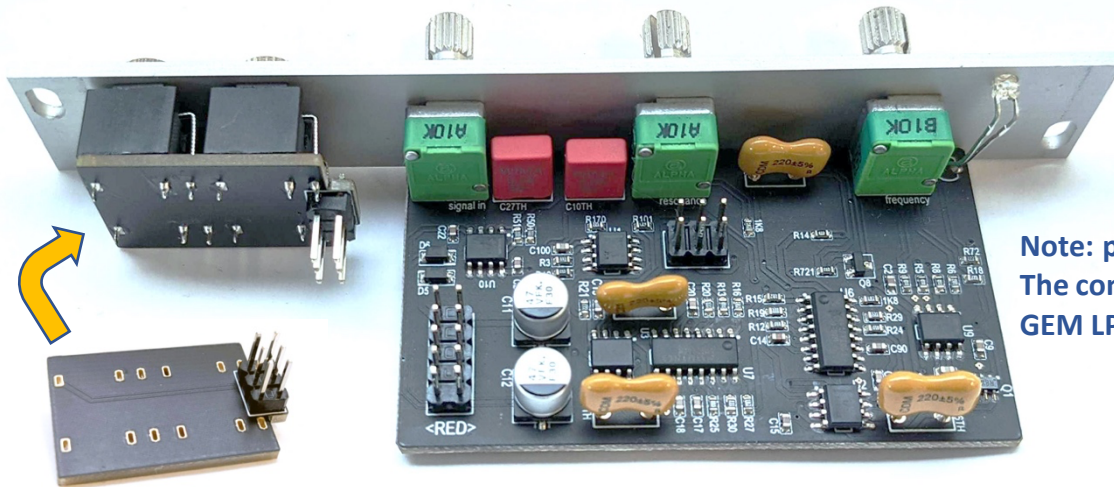


## God's Box – GEM HP/LP filters – Build Document

1. Start with the larger of the two PCBs and solder the 4 x orange 220pF mica capacitors (C4TH, C5TH, C6TH, C7TH). Note: picture below shows HP PCB, the LP layout is slightly different.
2. Next solder the red 0.68uF film box capacitors:
  - In the HP there are two (C10th, C27th)
  - In the LP there is only one (C31)
3. Next place and solder two male headers onto the main PCB - one 2x5 pin header and one 2x3 pin. Both headers should sit on the same side as all other components as pictured.
4. Next take the remaining 2x3 pin header and solder it onto the smaller bare PCB as shown
5. Then place the 4 x jacks on the other side of the smaller PCB and attach them to the frontpanel with their nuts before soldering the jacks onto the PCB. The header should be facing towards the top of the panel as shown.



Note: picture shows GEM HP. The component layout for the GEM LP is slightly different.

7. Now it's time to place but **don't solder yet** the pots and LED onto the main PCB. Be sure to place the single B10K pot at the 'frequency' position and the two A10K pots at 'signal in' and 'resonance'. The LED needs to be bent a few mm below the bulb so it can turn through its hole in the panel. **IMPORTANT: orientation for the LED is vital! The longer leg must go to the pad marked with the + symbol (closest to the pots).**
8. Before soldering, first place on the frontpanel and attach the pots with their nuts and washers. Then make sure the LED bulb is poking through to the front of the panel nicely. Solder the two outer pins of each pot first and then check that each pot base is fully flat against the main PCB. Reflow the side pins and adjust if required before soldering the final middle pin of each pot and the led pins.
9. Now you can attach the 3 x knobs onto the pots and connect the 6-pin ribbon cable between the two PCBs. **NOTE:** Cable orientation matters – the red stripe must be placed as shown below.
10. Finally the power cable can be attached. Again, **Orientation is vital!** The red stripe must face towards the text on the PCB saying <RED>.

