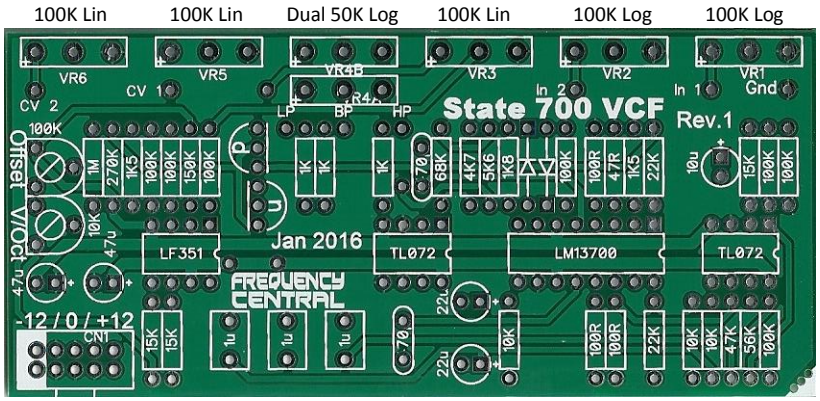
FREQUENCY CENTRAL

Build documentation for:

STATE 700

Based on the Roland System 700 state variable filter module. Rev.1 Jan 2016



Key to PCB screen print:

n: This signifies NPN BC547 transistors. Note the correct pinout as shown by the half circles.
p: This signifies PNP BC557 transistors. Note the correct pinout as shown by the half circles.

The PCB shows the correct orientation for BC547/BC557. Other transistor types can be used (eg 2N3904/2N3906), but please observe the correct pinout.

Please observe the correct polarity of the electrolytic capacitors.

Gnd: ground connection between PCB and all sockets
In 1: wire to Audio1 socket
In 2: wire to Audio2 socket
HP: wire to HP output socket
BP: wire to BP output socket
LP: wire to LP output socket
CV1: wire to CV1 socket
CV2: wire to CV2 socket

Tip #1 - don't mix up the 47R and 47K
Tip #2 - don't mix up the 100R and 100K

A big part of the sound of the State 700 is the way in which resonance is reduced as the audio inputs are driven harder. It won't self oscillate with a hot audio input, throttle back a little and you'll get squelchy ear bleeding resonances!

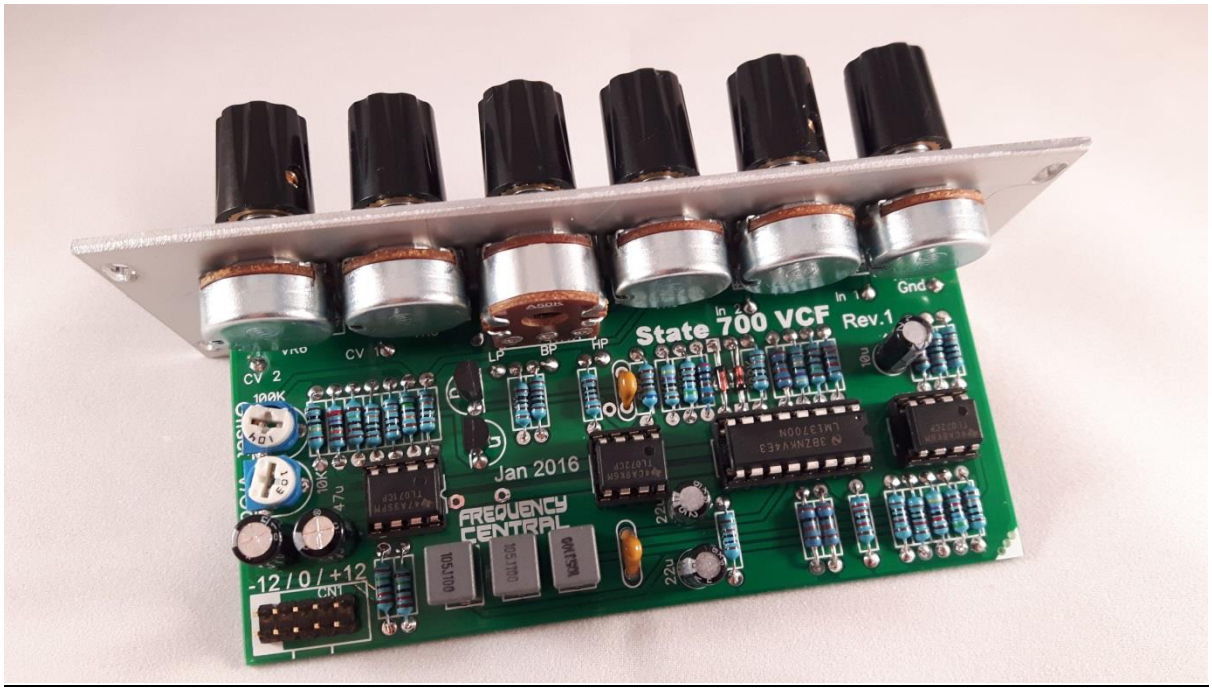
Bill of Materials

47R x 1 100R x 3 1K x 3 1K5 x 2 1K8 x 1 4K7 x 1 5K6 x 1 10K x 3 15K x 3 22K x 2 47K x 1 56K x 1 68K x 1 100K x 7 150K x 1 270K x 1 1M x 1 All resistors ¼ watt	470pF x 2 1uF BP x 3 10uF x 1 22uF x 2 47uF x 2	LF351 x 1 (Please use TL071 instead)* TL072 x 2 LM13700 x 1 BC547 x 1 BC557 x 1 1n4148 x 2	A50K Dual x 1 A100K x 3 B100K x 2 10K trimmer 100K trimmer Power header

*Reports of some duff LF351 making the rounds, TL071 will work equally well.

Calibration

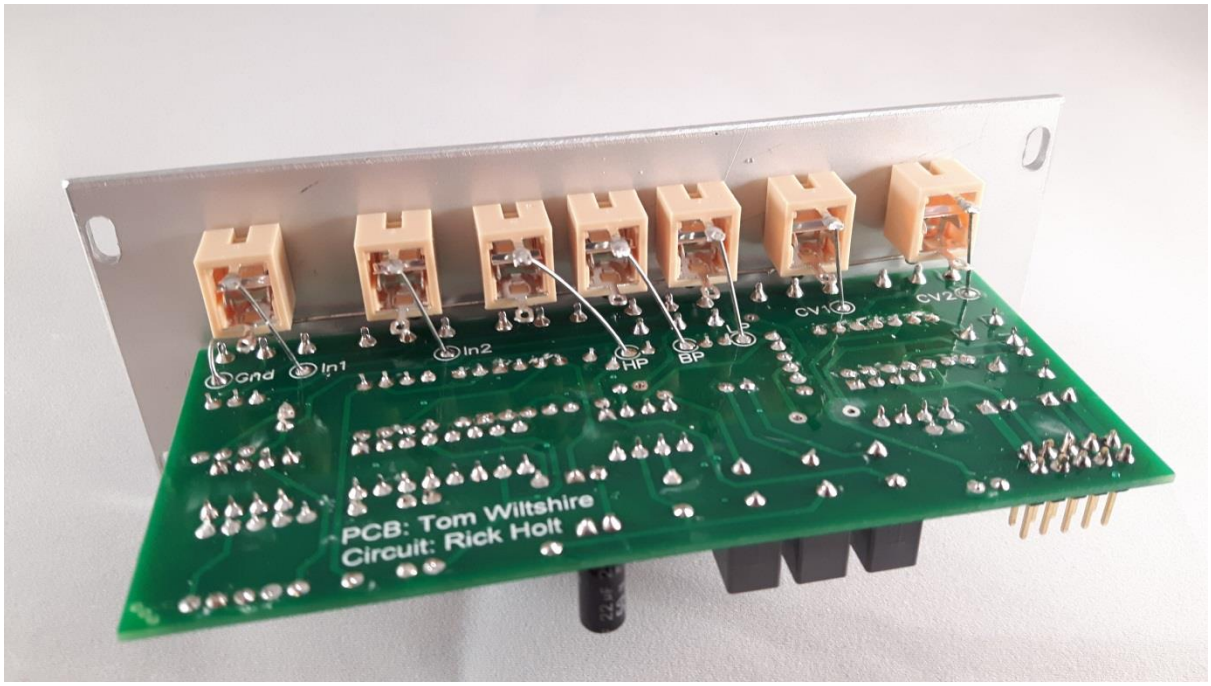
1. **Scale trimmer:** turn Res all the way to self oscillation. Patch a 1V/oct source into CV input 1, with the attenuator fully clockwise. Play octaves and adjust the Scale trimmer until they are spot on.
2. **Freq trimmer:** you want to tweak this so that the filter is fully open when the Cutoff pot is fully clockwise.



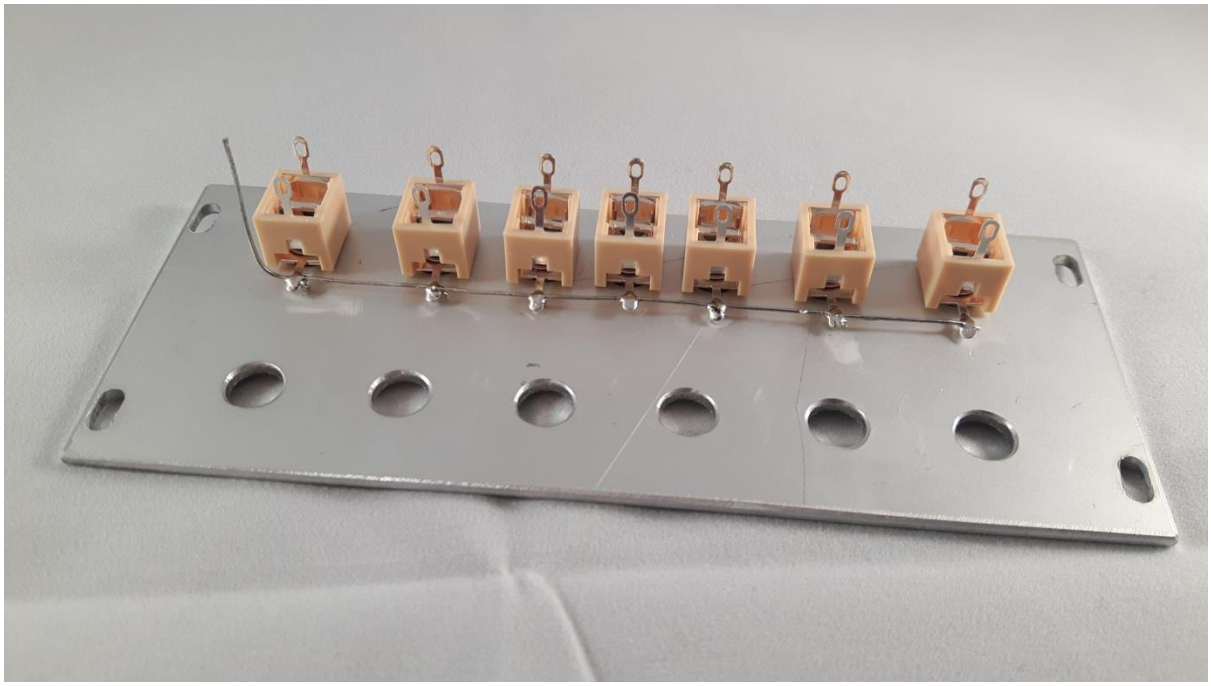
Underside of the PCB showing:

- Ground bus between sockets and PCB
- Connections between inputs/output and PCB

I use solid core for all of the above.



This is how I ground all the sockets to the PCB, The wire far left goes through the PCB ground pad:



RDH 06/02/16

http://www.frequencycentral.co.uk/