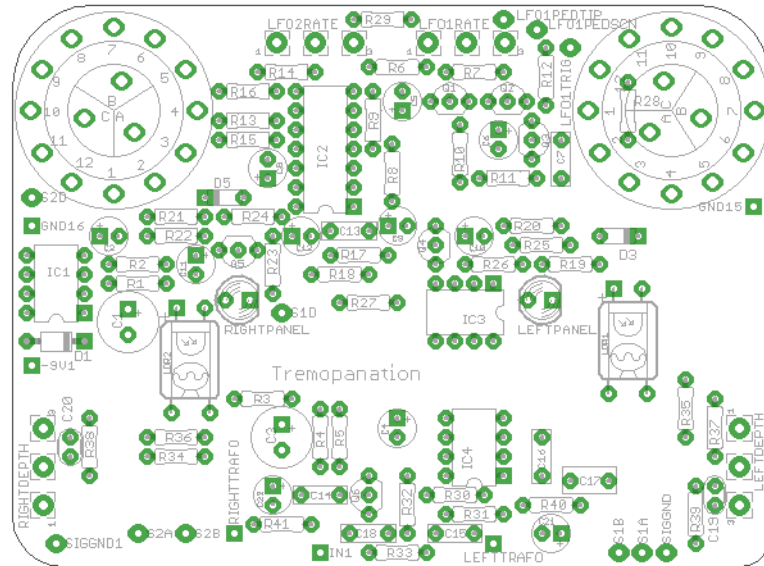


# Tremopanation



The Tremopanation is a copy of the Lovetone Wobulator, taken from MarkusW's publicly shared schematic (many thanks!) This pedal is not true bypass, due to its stereo nature, and also due to the transformer isolated output

This pedal uses two separate grounds, “gnd” (which should be used for all nonboard grounds, except for the transformer board), and “siggnd” which should only be connected to the transformer board, and also to gnd at the power jack's ground lug, and there only.

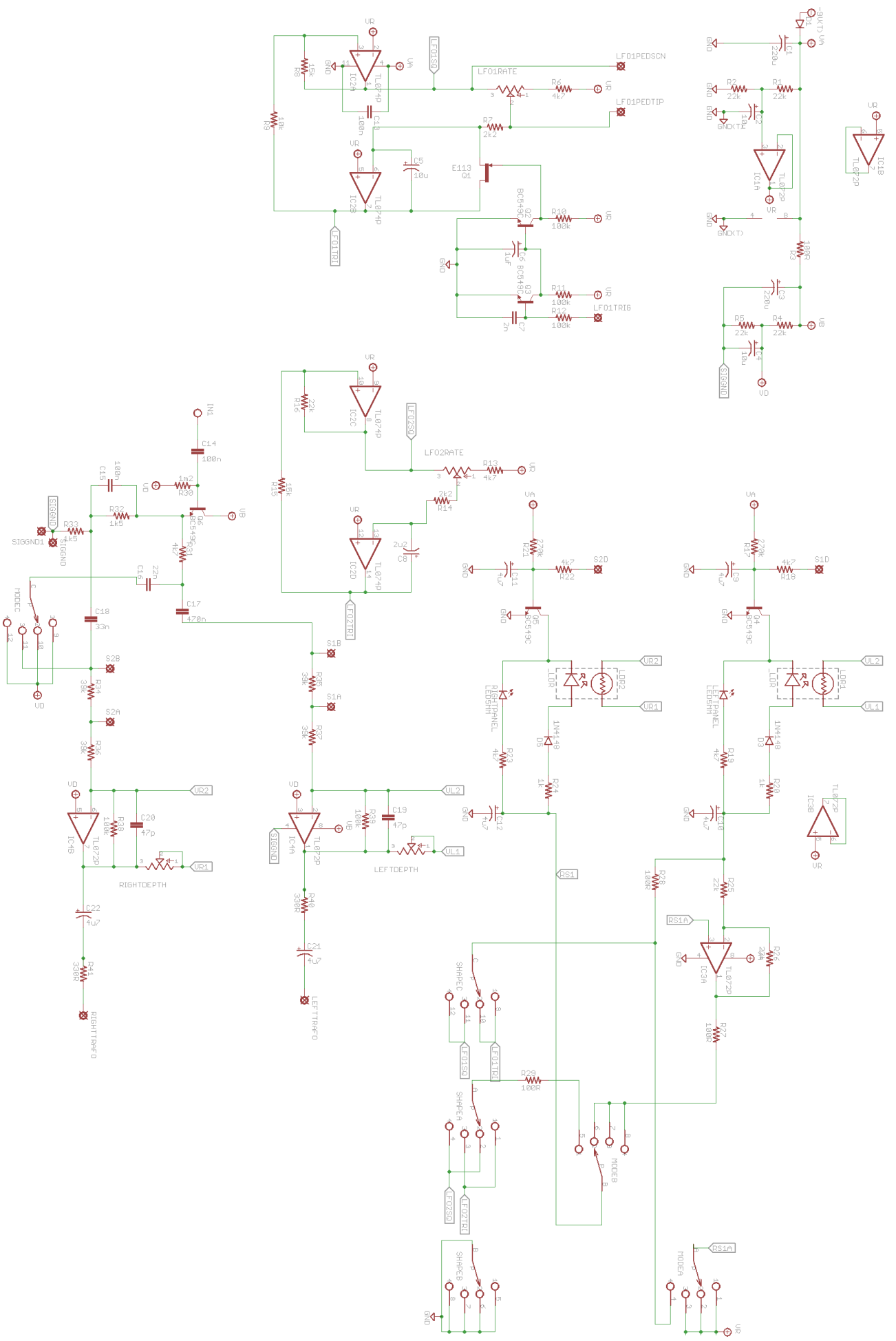
You can probably get away with quite a few substitutions for opamps, with this one. I tested with a TL074, two TL062s, and a 4558 opamp (needs must when you run out of 072's.) The E113 fet can probably be safely substituted with quite a few other fets. I used a J113 since I had it lying around. The fet is present in the LFO1 trigger circuitry, and is not in the audio path, therefore its distortion characteristics don't matter in the slightest.

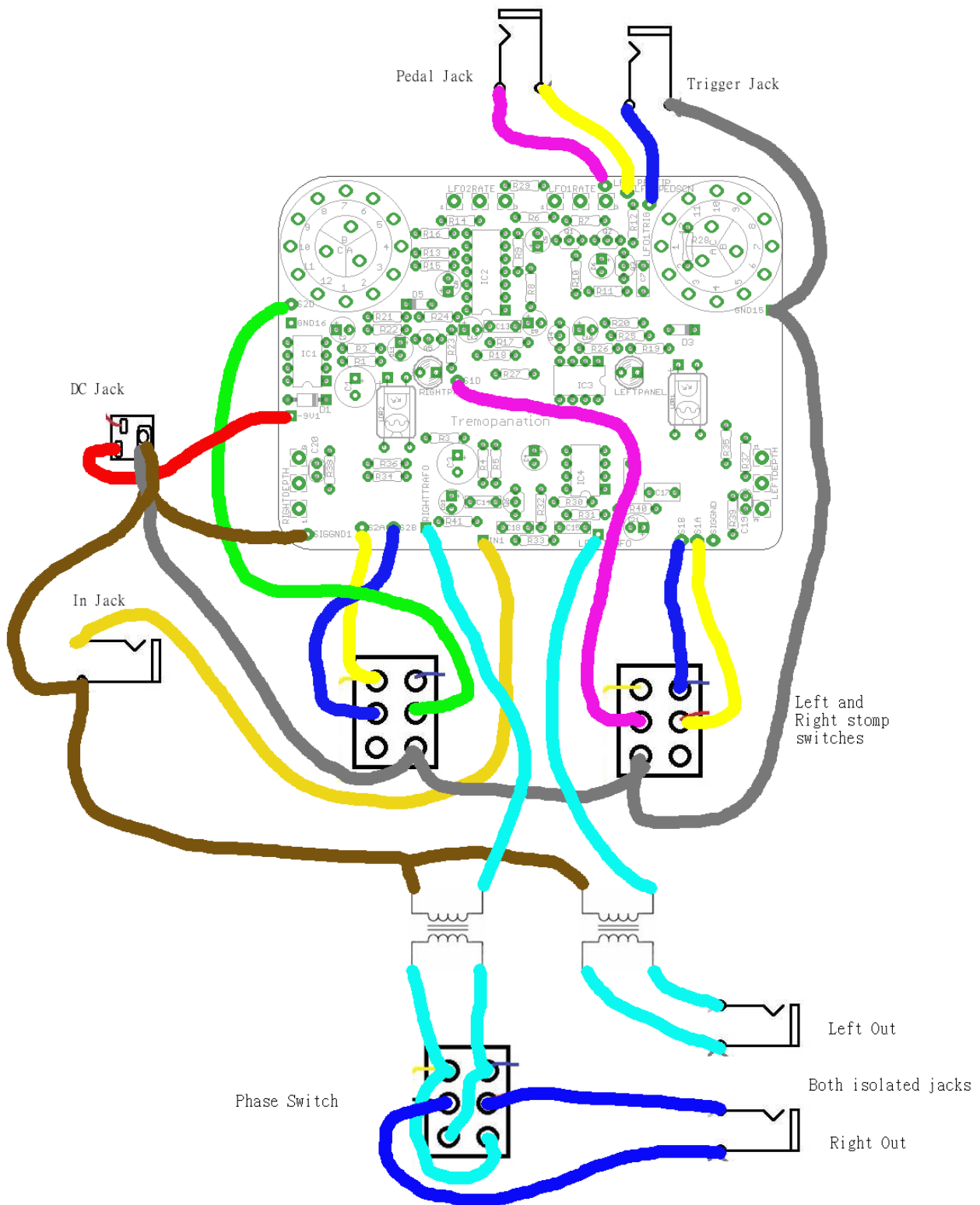
You will want to experiment with LED/LDR choice in the two vactrol areas (the bridges between the audio path and the control path in the silkscreen.) I used two green LEDs, and two 27k-60k / 2 meg LDR's from smallbear, which seemed to work okay. I'm going to try different LDRs in future to see if they work better or not. I strongly suggest socketing the vactrol pins. (You can even try a VTL vactrol, if you're feeling posh.)

The LFO1TRIG pad should be connected to a 1/4” jack's tip, with the sleeve grounded. The LFO1PEDSCN and LFO1PEDTIP pads should be connected to an isolated jack (ie, one where the sleeve is not automatically grounded – these are usually plastic bodied), with SCN connected to the sleeve of the jack, and TIP connected to the tip. No switching connections are needed – with no plug inserted, the two pads should be disconnected. Protip – just as with the Doppelganger's pedal jacks, you can put a plug in which has had a 10Meg resistor soldered across Tip and Sleeve to really, really slow down the LFO.

The image on this page should work as a drill guide – be certain to print it out and compare it to your board BEFORE drilling! Scaling may be needed! Sorry for how damn messy the wiring diagram is – wires are only connected when they meet at a clear point, not when they cross over.

Part	Value	Library	Part	Value
C13	100n	Film Box Cap	R10	100k
C14	100n	Film Box Cap	R11	100k
C15	100n	Film Box Cap	R12	100k
C16	22n	Film Box Cap	R38	100k
C7	2n	Film Box Cap	R39	100k
C18	33n	Film Box Cap	R27	100R
C17	470n	Film Box Cap	R28	100R
C19	47p	Ceramic Cap	R29	100R
C20	47p	Ceramic Cap	R3	100R
C2	10u	Electrolytic	R9	10k
C4	10u	Electrolytic	R15	15k
C5	10u	Electrolytic	R8	15k
C6	1uF	Electrolytic	R20	1k
C1	220u	Electrolytic	R24	1k
C3	220u	Electrolytic	R32	1k5
C8	2u2	Electrolytic	R33	1k5
C10	4u7	Electrolytic	R30	1m2
C11	4u7	Electrolytic	R1	22k
C12	4u7	Electrolytic	R16	22k
C21	4u7	Electrolytic	R2	22k
C22	4u7	Electrolytic	R25	22k
C9	4u7	Electrolytic	R26	22k
D1	1n4001	Power Diode	R4	22k
D3	1N4148	Signal Diode	R5	22k
D5	1N4148	Signal Diode	R17	270k
LEFTPANEL	LED5MM		R21	270k
RIGHTPANEL	LED5MM		R14	2k2
IC1	TL072P		R7	2k2
IC3	TL072P		R40	330R
IC4	TL072P		R41	330R
IC2	TL074P		R34	39k
LEFTDEPTH	100kB	16mm PCBmount	R35	39k
LFO1RATE	100kB	16mm PCBmount	R36	39k
LFO2RATE	100kB	16mm PCBmount	R37	39k
RIGHTDEPTH	100kB	16mm PCBmount	R13	4k7
Q1	E113	Sub J113	R18	4k7
Q2	BC549C		R19	4k7
Q3	BC549C		R22	4k7
Q4	BC549C		R23	4k7
Q5	BC549C		R31	4k7
Q6	BC549C		R6	4k7
LDR1	LED/LDR		MODE	3P4T rotary
LDR2	LED/LDR		SHAPE	3P4T rotary





A note on the transformers -- the stock Lovetone pedal used OEP1200 signal transformers to isolate the outputs. This meant that you didn't need to worry about ground loops when you used two amplifiers for your stereo field. You can get away with not using these, and wiring the LEFTTRAFO and RIGHTTRAFO directly to your left and right outs, but this means you run the risk of ground loops if you use a stereo setup.

The Bourns LM-NP-1001-B1 1220 transformer works as a substitute, with the added bonus that you can score this from Mouser, whereas Mouser does not stock the OEP1200 transformer. Any 600:600 signal trafo should work okay, suck it and see.