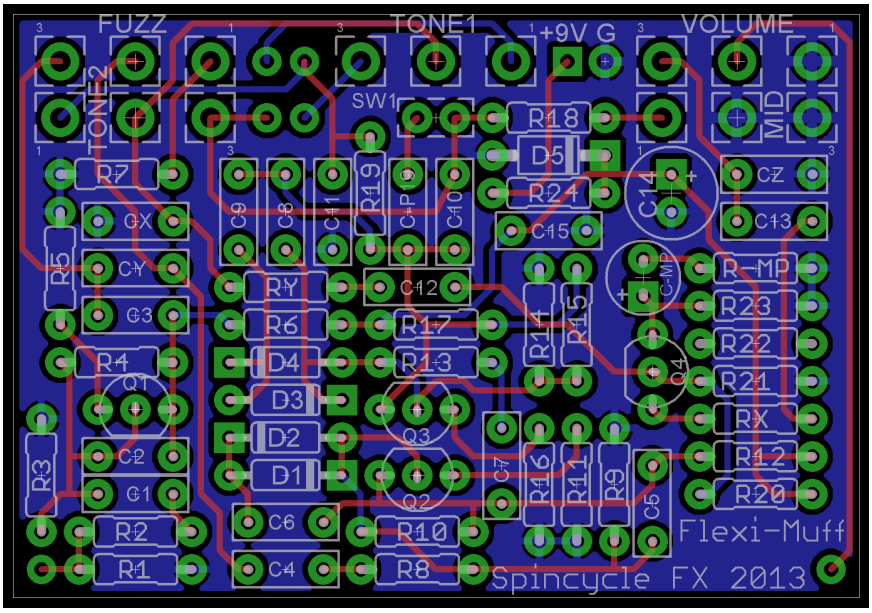
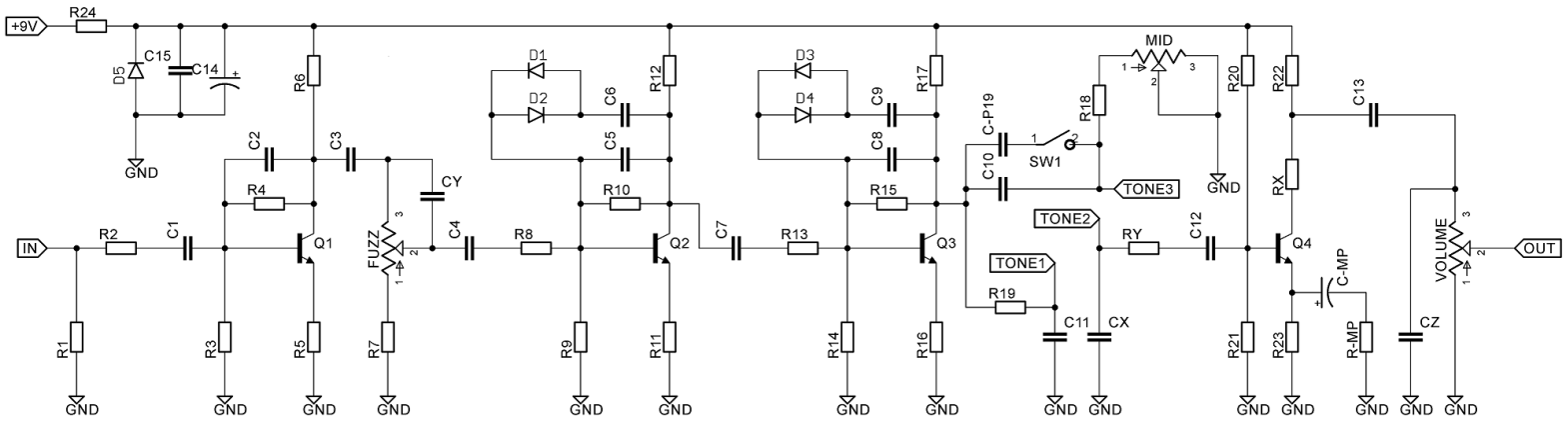
Flexi-Muff

Ver. 1 30-10-2013



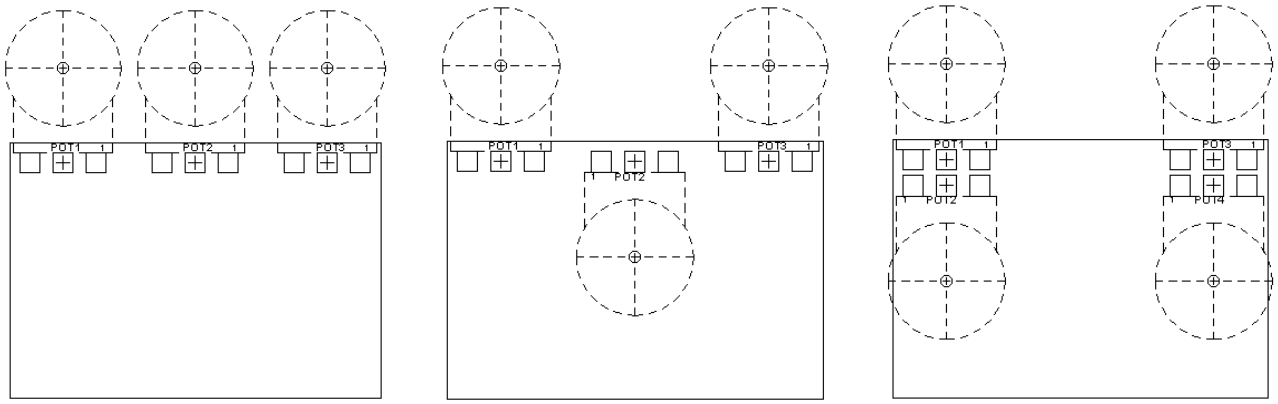
Now, I guess all of you have built a Muff-type pedal at least once and you probably know that there are about 1,365,244 different versions either for sale or to build yourself. So that's why this isn't going to be a fully detailed 'build doc', but rather a series of notes. This PCB was designed to enable you to build a large number of different Muff versions on one PCB, without having to use any off-board components or extra wiring.

First the schematic. Nothing shocking there, but just to give you an indication where all the extra bits connect to the circuit we all love so much…….

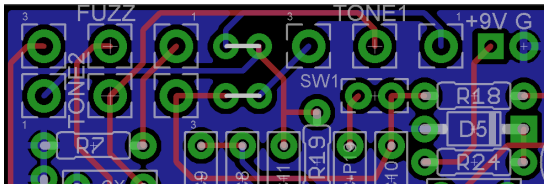


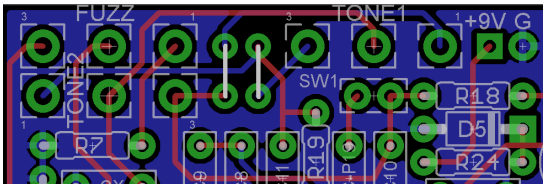
Build notes:

- For part values I'd like to point you to juansolo's excelent Muff spreadsheat. The version this PCB is based on is added to this doc on the last pages, but be warned that it is an older version. For the latest up to date version, see: http://juansolo.demon.co.uk/stompage/muffbuild.html
  It was the reason I designed this PCB in the first place, and a great source of knowledge concerning loads of different Muff versions. Thanks juan!!
- There are three different ways to place the pots on this PCB:



Three-in-line, **Triangle** and **Four Knob**. If you are going to build the Four Knob, which includes the 'MID' pot, you can just ignore the position labled 'TONE1'and solder the pots onto the four remaining positions. If you are building one of the two versions without the 'MID' pot, you should first jumper pads 1 and 2 of the 'MID' pot to connect R18 to ground. After that, you'll have to decide between the Triangle and the Three-in-line, and set a pair of jumpers accordingly: the picture on the ***left*** shows how





to set the jumpers for the ***Triangle*** version, on the ***right*** for the **Three-in-line version.**

- If you don't use RX or RY, you should jumper them, otherwise your Muff won't Muff…. (and that would suck!)
- If you're not using CY, CX, CZ, C-P19, C-MP, R-MP or SW1 you can ignore them, no jumper needed
- I forgot to label the 'IN' and 'OUT' pads, but they are easy to

find: if you have the PCB in front of you, with the component-side up, they are in the lower left and right corners respectively…. Sorry about that!

- The PCB is quite large, approx. 57mm x 39mm (or 2¼" x 1½"). The only 1590B I had to test-fit was one with the slots on the inside, and those made it impossible to fit it in. In a 1590B with smooth insides, it might work….. just…… No guarantees!!! 125B works for sure, as does a 1590TRPB (the trapezoidal ones, love 'em!!!). Anything bigger leaves room to spare!

And now a final note……

I intended this PCB as a sort of ongoing project, evolving with what information is available and what input I get from you guys, who build it up! If you have anything you would like to see added, or done differently, let me know through the Madbean forum or drop me an email on paulvanderzijde@yahoo.com

A number of things will be changing on the next version:

- I'll check the latest version of juans spreadsheet and include everything he added since I started this project. This includes an extra pot, mmmmmm…...
- The connections for SW1 will be moved to a more convenient location, as suggested by Jon (Midwayfair) in the forum thread. I'm even considering a board-mounted switch, but that will only work for the **Four Knob** and **Three-in-line** versions, as the middle knob of the **Triangle** would cover the part of the PCB where the switch will be.
- Width of the PCB will be reduced in an attempt to make it easier to fit it in a 1590B, but this will be a big PITA…
- Production will move from OSH to SEEED or ITEAD, so more, cheaper PCB's will be available…..

	Mayo schematic part number	Mudbunny part number	P19	Mayo	? Lady	Dreamer	Ram's Head	Triangle	Civil War Russian	Green Russian	Third Edition	Violet Ram's Head	Foxey Lady
9v base Q4	R7	R20	470k	390k	390k	470k	430k	390k	470k	470k	390k	390k	390k
9v Q1	R13	R6	10k	18k	18k	22k	10k	22k	12k	12k	15k	15k	12k
9v Q2	R18	R12	10k	10k	10k	22k	10k	12k	12k	12k	15k	10k	12k
9v Q3	R11	R17	10k	18k	18k	22k	15k	22k	12k	12k	15k	15k	12k
9v Q4	R6	R22	10k	8k2	8k2	22k	15k	12k	10k	10k	10k	10k	12k
9v Q4+	Rx		100r	2k7	2k7								
base-gr Q1	R14	R3	100k	100k	100k	82k	47k	none??	100k	100k	100k	100k	100k
base-gr Q2	R20	R9	56k	56k	56k	82k	100k	100k	100k	100k	100k	100k	100k
base-gr Q3	R21	R14	100k	100k	100k	82k	100k	82k	100k	100k	100k	100k	100k
base-gr Q4	R3	R21	100k	100k	100k	100k	100k	100k	100k	100k	100k	100k	100k
C-B Q1	R9	R4	470k	470k	470k	470k	470k	390k	470k	470k	470k	470k	470k
C-B Q2	R17	R10	470k	470k	470k	470k	470k	390k	470k	470k	470k	470k	470k
C-B Q3	R15	R15	470k	470k	470k	470k	470k	390k	470k	470k	470k	470k	470k
emmiter-gr Q1	R10	R5	200R	100R	100R		120R	820R	390R	390R	100R	100R	100R
emmiter-gr Q2	R16	R11	200R	100R	100R		150R	150R	390R	390R	100R	100R	100R
emmiter-gr Q3	R22	R16	200R	100R	100R		150R	820R	390R	390R	100R	100R	100R
emmiter-gr Q4	R4	R23	2k7	2k7	2k7	390R	3k3	2k7	2k7	2k	2k2	2k7	3k3
in Q2	R19	R8	10k	8k2	8k2	15k	10k	8k2	10k	10k	8k2	8k2	7k5
in Q3	R12	R13	10k	8k2	8k2	15k	10k	8k2	10k	10k	8k2	8k2	7k5
input	R2	R2	33k	33k	33k	33k	39k	3k3	39k	39k	39k	39k	33k
pulldown	Ra	R1	1M	1M	1M	1M	1M	1M	1M	1M	1M	1M	1M
sustain1	R1	R7	820R	820R	820R	1k	1k	1k	1k	1k	1k	1k	8k2
tone down	R8	R19	18k	33k	33k	39k	22k	39k	20k	20k	39k	39k	100k
tone up	R5	R18	33k	33k	33k	39k	39k	39k	22k	22k	100k	39k	33k
tone out	Ry				8k2[1]								
anti-rfi	Crfi			100pF	100pF	100pF	100pF	100pF	100pF	100pF	100pF	100pF	100pF
C-B Q1	C10	C2	560pf	470pF	470pF	560pF	560pF	none??	430pF	470pF	500pF	470pF	
C-B Q2	C12	C5	560pf	470pF	470pF	560pF	560pF	560pF	430pF	470pF	500pF	470pF	470pF
C-B Q3	C11	C8	560pf	470pF	470pF	560pF	560pF	560pF	430pF	470pF	500pF	470pF	470pF
diodes Q2	C6	C6	100nF	220nF	1uF	47nF	100nF	47nF	47nF	47nF	100nF	100nF	120nF
diodes Q3	C7	C9	100nF	220nF	100nF	47nF	1uF	47nF	47nF	47nF	100nF	100nF	120nF
in Q2	C5	C4	100nF	220nF	220nF	100nF	100nF	100nF	100nF	100nF	1uF	100nF	120nF
in Q3	C13	C7	100nF	220nF	330nF	100nF	100nF	100nF	100nF	100nF	1uF	100nF	120nF
in Q4	C3	C12	330nF	100nF	100nF	100nF	100nF	100nF	100nF	100nF	100nF	100nF	120nF
input	C1	C1	68nF	100nF	10uF[2]	100nF	10uF	100nF	100nF	100nF	1uF	100nF	120nF
out	C2	C13	100nF	100nF	100nF	100nF	1uF	100nF	100nF	100nF	1uF	100nF	120nF
power filter	Ca	C14	100uF	100uF	100uF	100uF	100uF	100uF	100uF	100uF	100uF	100uF	100uF
sustain3	C4	C3	47nF	100nF	220nF	100nF	100nF	100nF	100nF	100nF	1uF	100nF	120nF

tone down	C8	C11	10nF	10nF	10nF	10nF	10nF	10nF	10nF	10nF	10nF	10nF	100nF
tone up	C9	C10	6.8nF*	4.7nF	5.6nF	4.7nF	4.7nF	4.7nF	3.9nF	3.9nF	3.9nF	3.9nF	3.9nF
tone2 - gr	Cx			47pF									
Sustain 3+2			2nF										
Vol 3+1			560pf										
clipping	D1-4		1N914 / 4148	1N914 / 4148	1N914 / 4148	1N914 / 4148	1N914 / 4148	1N914 / 4148	1N914 / 4148	1N914 / 4148	1N914 / 4148	1N914 / 4148	1N914 / 4148
polarity	Da		1N4001	1N4001	1N4001	1N4001	1N4001	1N4001	1N4001	1N4001	1N4001	1N4001	1N4001
transistors			BC550C	2N5133	Q1-3 2N5133 Q4: BC109C	?	?	2N5133	?	?	2N5133	2N5133	?
P19 – 50KB tone													
parallel switched													