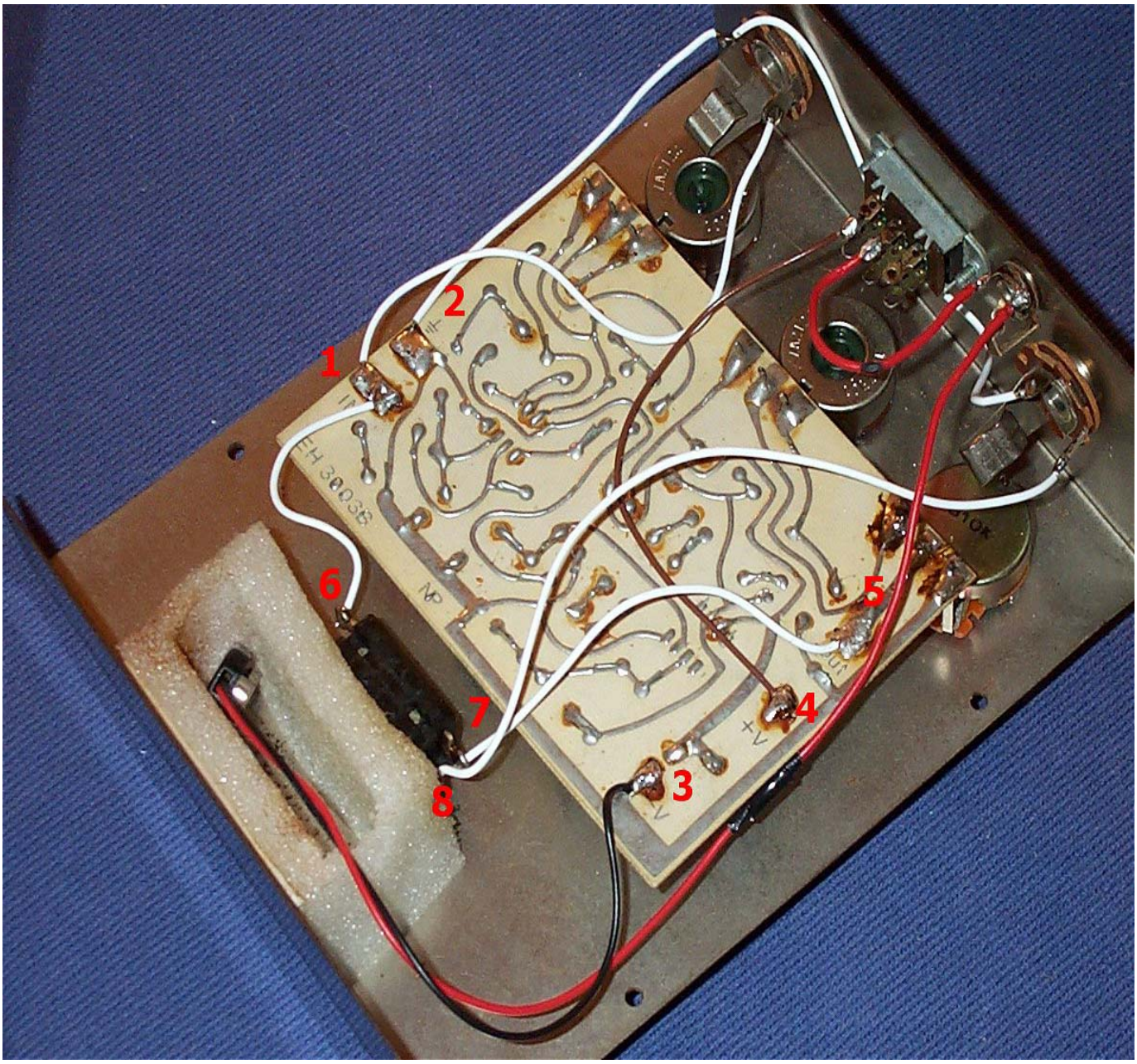
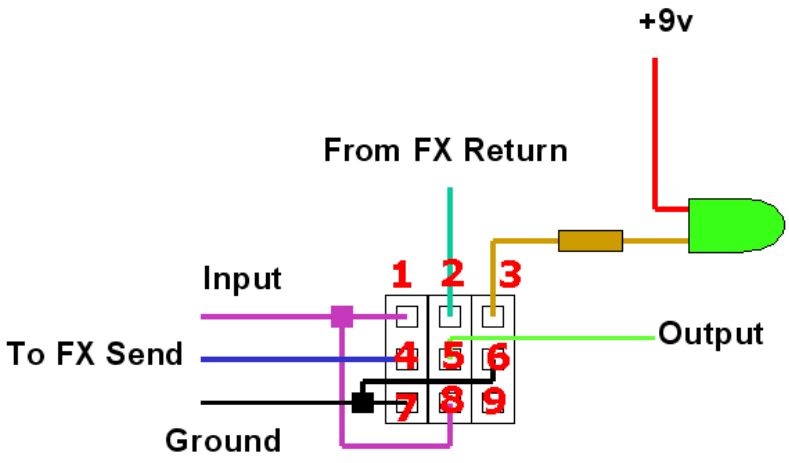
Adding True Bypass to a vintage Big Muff

The vintage Big Muff´s are the most desireable ones and especially the socalled "Triangle Big Muff" is a collectors item. When talking about vintage Big Muff´s we are talking about the first model EH3003 (picture 1, aka "triangle Muff"), the later model EH3004 (picture 2, aka "rams head Muff") and the EH3034 (picture 3, aka "model 3 Muff") which was the last one ever produced. All this models have something in common: they are not true bypass and they can kill your tone in the bypass mode. So it´s a good idea to true-bypass them. Besides this you can do a lot more mods to enhance your vintage Muff. Tonewise I wouldn´t do any mods with a Big Muff, it´s a valueable vintage unit and if you don´t like the sound, get another one. I would suggest to change the jacks for high-quality Switchcraft jacks. It´s also good to change the flimsy battery clip for a good-quality one. Check the pot´s, if they are damaged change them. You can buy original replacement pots (with the super-long lugs) directly from EH´s "New Sensor" part shop. I also bridged the On/Off switch and installed power-switching, you can see this on the pictures below. Further on I replaced the exotic AC jack with a standard Boss style 2.1mm plastic jack (all vintage Muffs are negative ground) and added a status LED on top of the box. Last but not least you should replace all cables with a good quality one, the old stuff is tending to break with the years !

To start open up your box and you fill find something similar like you can see in my box in the pictures below, it is a very rare bird, an OpAmp Big Muff from the 70´s, but all vintage Muffs look very similar inside.





3PDT footswitch

Wire (but don't solder yet) a jumper between 1 and 8 on the switch. At point "1" on the pcb, there are two wires. Remove the one coming from the input jack, and wire it or a new, longer one to 1 or 8 on the switch. Since the jumper is there, you can choose the soldering tab that is most convenient. Then solder both tabs 1 and 8. That's your main input.

Wire the jumper between 7 and 6 as well, and add the ground wire from one of the tabs to a convenient ground point (the input/output jack sleeve connection or "2" on the pcb). I'd go for one of the jacks, just to be safe.

Then wire in the LED (the reason I do it this early is because I like the wires to run underneath any signal wires - you can skip this stage and wire it later if you want). Take a 9v+ feed from the power switch - tack another wire on together with the brown one, and attach it to the LED anode (long leg). From the cathode (shorter leg, flat part on the LED body), add a wire going to the switch, with the limiting resistor added to the end of it, and solder it to 3 on the switch.

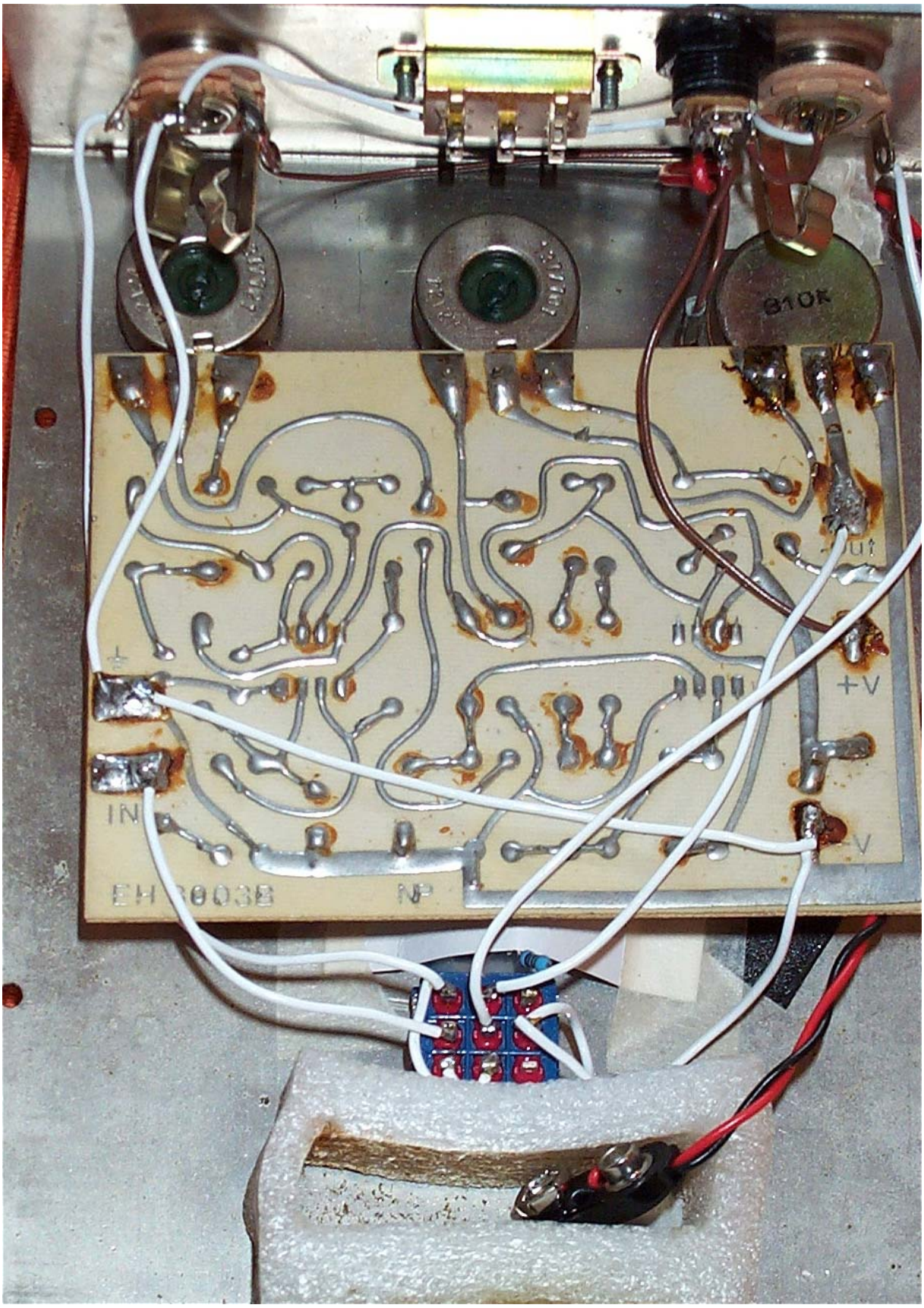
On the switch, 4 is the wire that goes to the effect input ("1" on the pcb) - The schematic calls it "FX send". "5" on the pcb is the effect output (not to be confused with the main output - this is the output from the actual fuzz circuit), and it should be wired to 2 on the switch. The schematic calls this "FX return".

Then all you need to do is add the main output wire from the switch. In the Muff pic, it comes from "8" and goes to the output jack. Wire it to 5 on the switch and you´re done !

Thanks to my friend Andreas Möller for this detailed step-by-step guide !

On the picture below you can see what it looks like after this operation. To complete this section you will also find all vintage Muff schematics with some explanations.

Have fun and happy soldering.


810K
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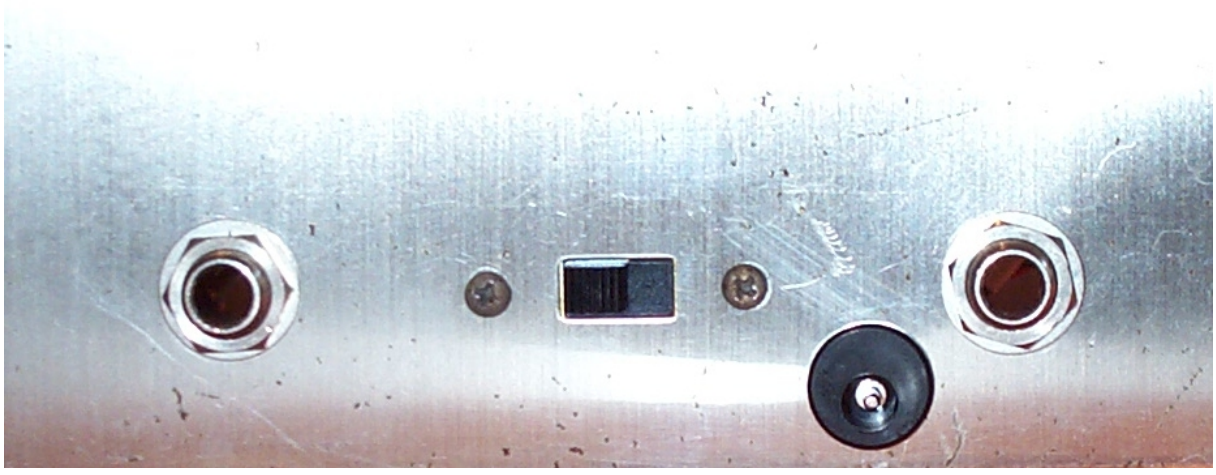
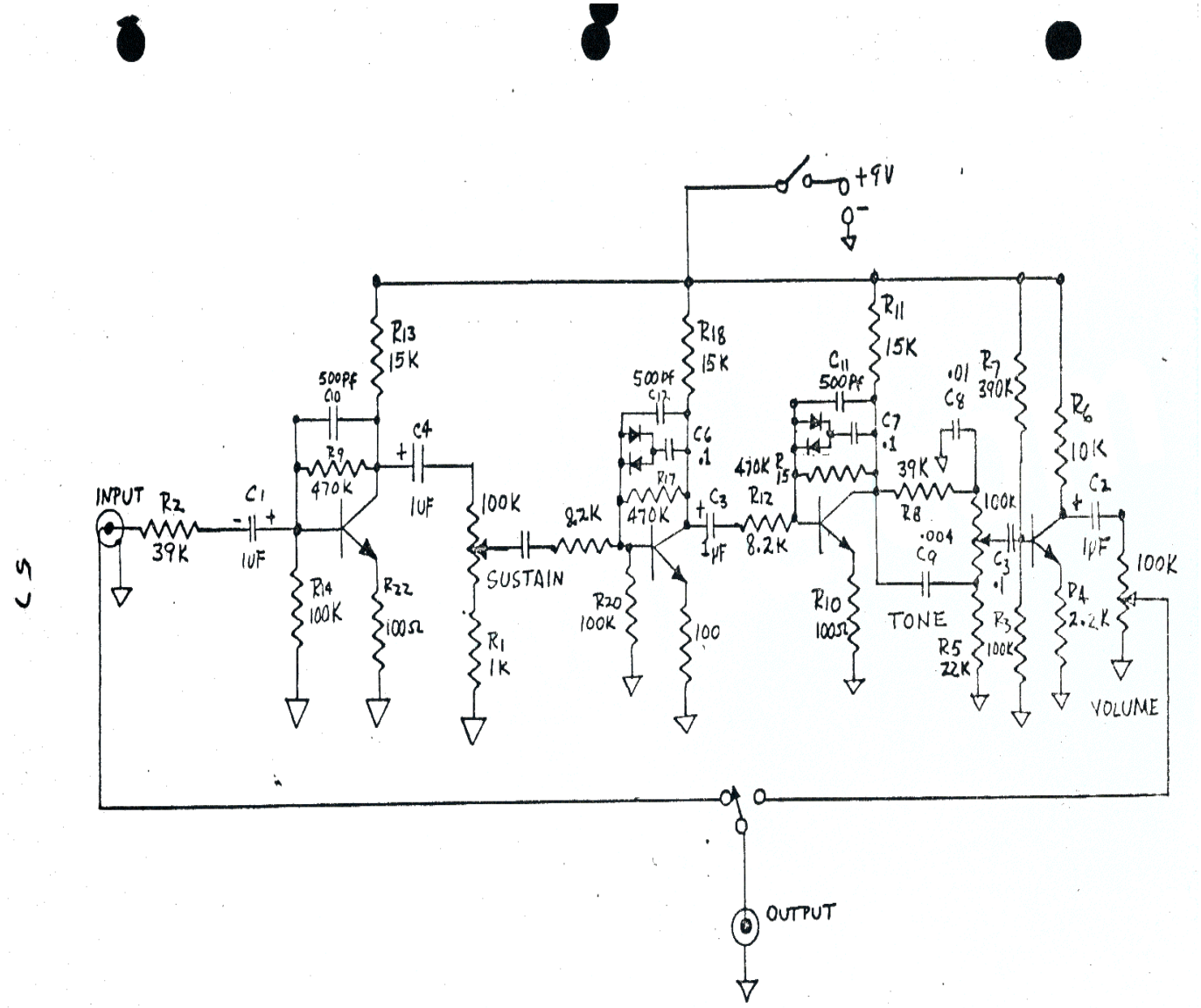
+V
IN
-V

VOLUME
TONE
SUSTAIN
BIG MUFF
electro-harmonix
MADE IN NYC, U.S.A.



Triangle Big Muff



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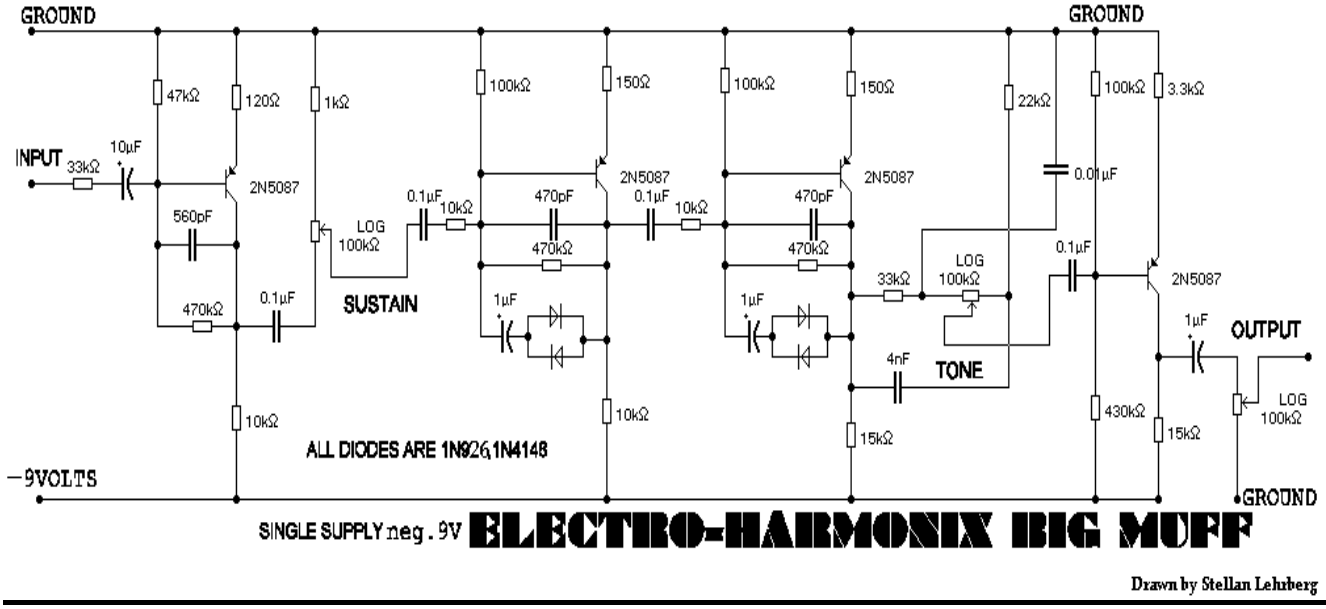
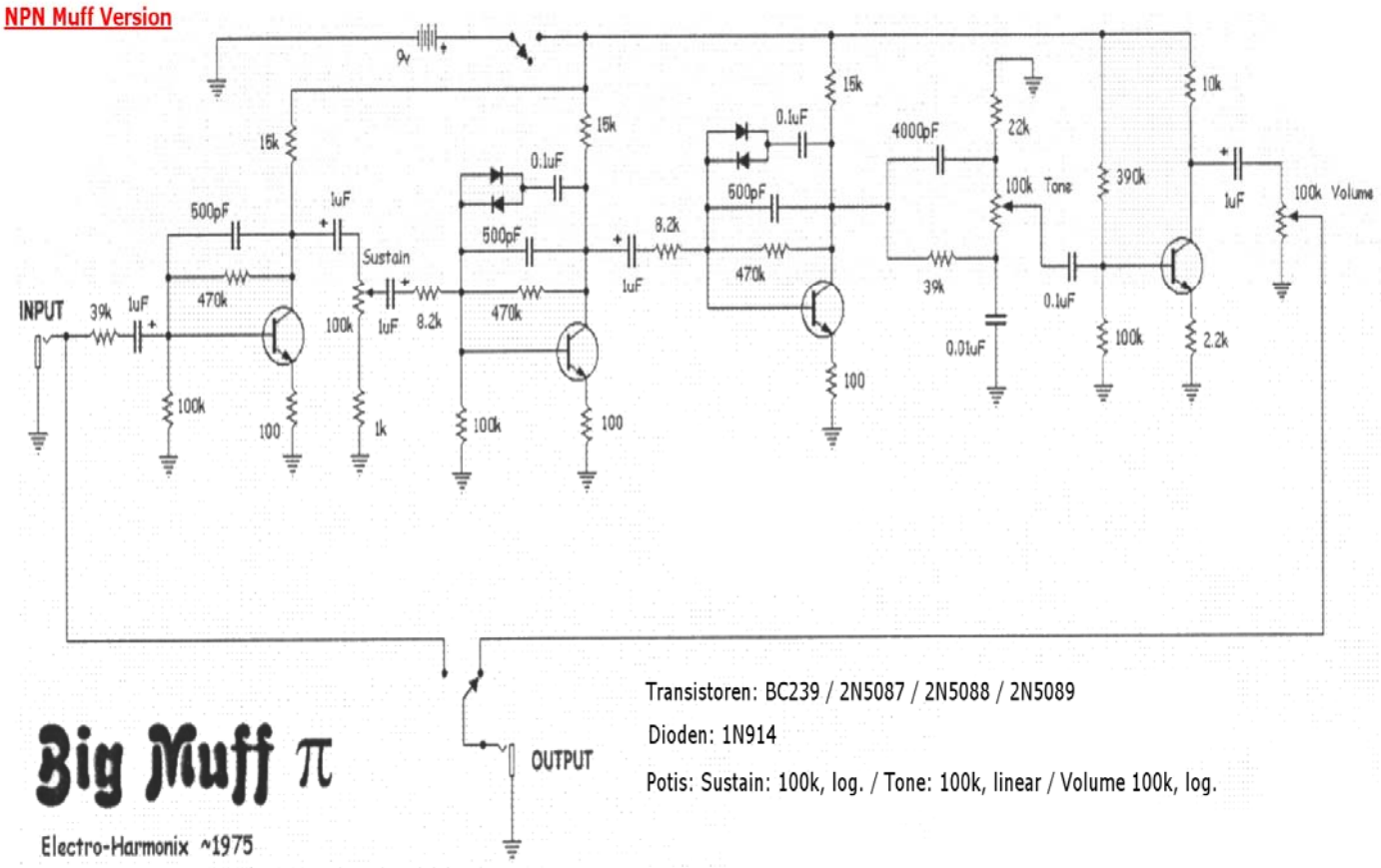
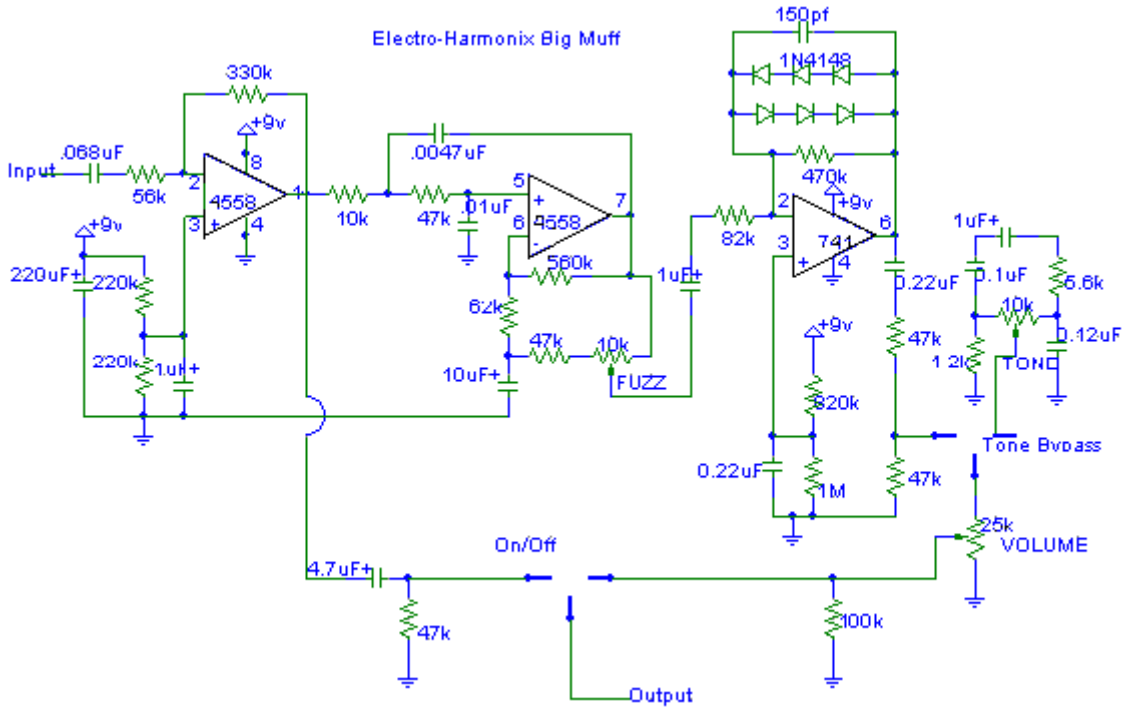
Vintage Big Muff (PNP)



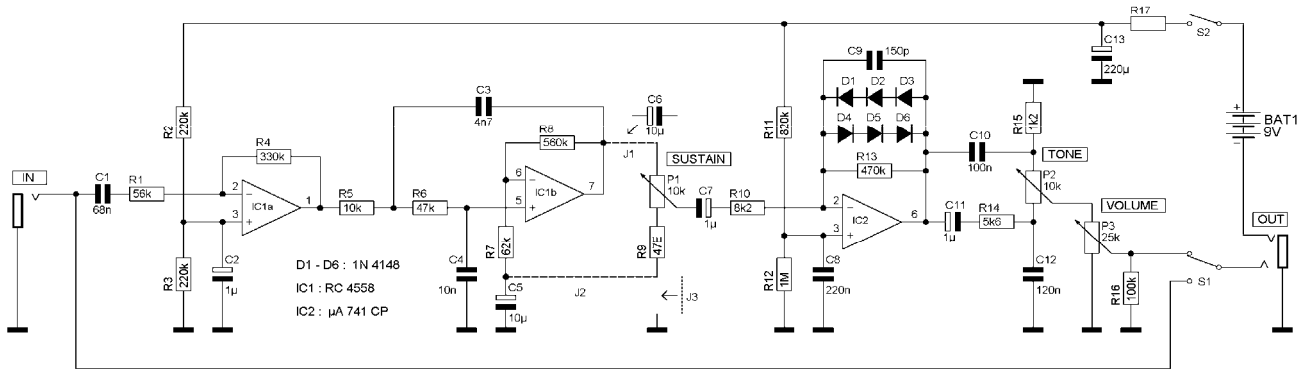
Vintage Big Muff (NPN)



OpAmp Big Muff



PRELIMINARY VERSION !



D1 - D6 : 1N 4148
IC1 : RC 4558
IC2 : µA 741 CP

Notes :

Information taken from schematics of Justin Philpott, Tobias Karlsson and a picture found on the web.

Schematic can differ a little from original unit, but this is a working one.

Exact values of R17 unknown, R17 = 47E would be a good choice

If you intend to use a FET OP-Amp (e.g. TL 071) for IC 2, change R11 to 1M

It is recommended to cut the traces marked as J1 and J2, use an additional 10µ (C6) and place connection J3

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Big Muff Pi (OP-Amp)

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Version: 0.9
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