

Big Muff Pi

Everyone loves a
big chunk of pie

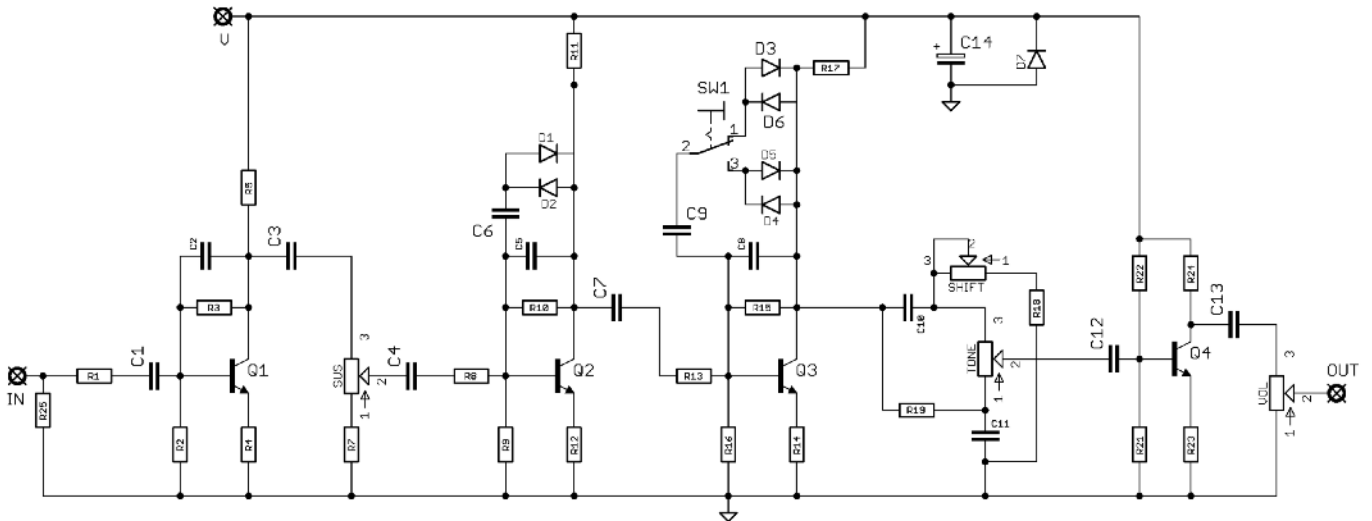


Before you dig in, ensure you download and read the **General Build Guide**.

It contains all the information you need for a successful outcome.



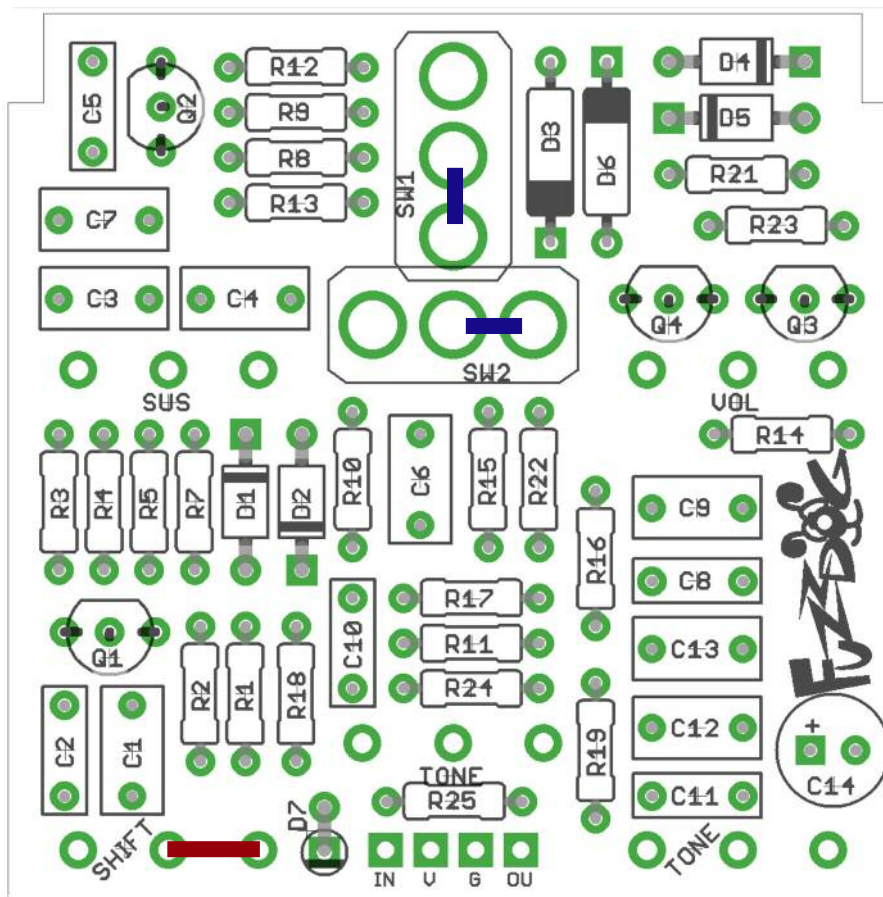
Schematic



Some of the components shown are not in standard Big Muff builds.

SW1, **D3** and **D6** are only used if you want alternative clipping selection. If you aren't including this place a jumper in either spot shown in **BLUE** below.

SHIFT is only included if you're using an alternative tone stack with mid shift. If you're going for a standard 3-pot version include the jumper shown in **RED**.



Notes

TWO SETS OF TONE PADS?

Yes. Use the centralised pads above R25 for a 3-pot build, and the ones off to the right of the PCB for a 4-pot build. There's no need for any jumpers in either situation. Both sets of pads are directly linked to each other.

THAT SCOOPED MID-RANGE - NO THANKS!

The Big Fluff Pie has a distinctive scooped mid-range. In most cases this can be flattened out if desired. For the versions listed in the first BOM page, this can be achieved by changing R18 and R19 to 39K, and C10 to 10n.

MOJO?

Many different transistors have been used across the history of the BFP, some of which are long gone. All of the 'stock' Muffs listed on the first BOM page are supplied with 2N5088.

While these may not always be the vintage-correct parts, they have been found to be the best commonly-available all-rounder.

There are additional notes regarding individual circuits later in the document. Please check them before starting your build.

CLIPPING SELECTION SWITCH

There are two sets of pads to select extra clipping diodes if you want some variation in your pedal. **SW1** (vertical) is placed to sit neatly in the middle of your knobs on a 3-pot build. **SW2** (horizontal) works for a 4-pot version. The jumpers shown on the previous page will bring diodes D4-5 into the mix. If you prefer to use the larger spaces (D3-D6) for a single clipping configuration you can jumper the opposite pads.

To incorporate an alternative clipping section on the Q3 gain stage, select some suitable diodes for D3-D6. There are no rules. Google is your friend. Socket and experiment.

Add a SPDT ON-ON toggle switch in SW1 or SW2 to select between the two sets of clipping (D4-D5 / D3-D6).

If you want to get really freaky you can use a SPDT ON-OFF-ON switch which will remove the clipping from that gain stage altogether. There'll be a big volume jump with the switch in the middle position though, so use caution.

Notes

ALTERNATIVE TONE SECTION

We've incorporated parts so you can easily modify the tone stack and add a mids control. We've stuck to the simple elegance of the AMZ Presence Control.

You can experiment with your own values, but these two set-ups offer some great tonal variation. For more info take a look at this very informative page:

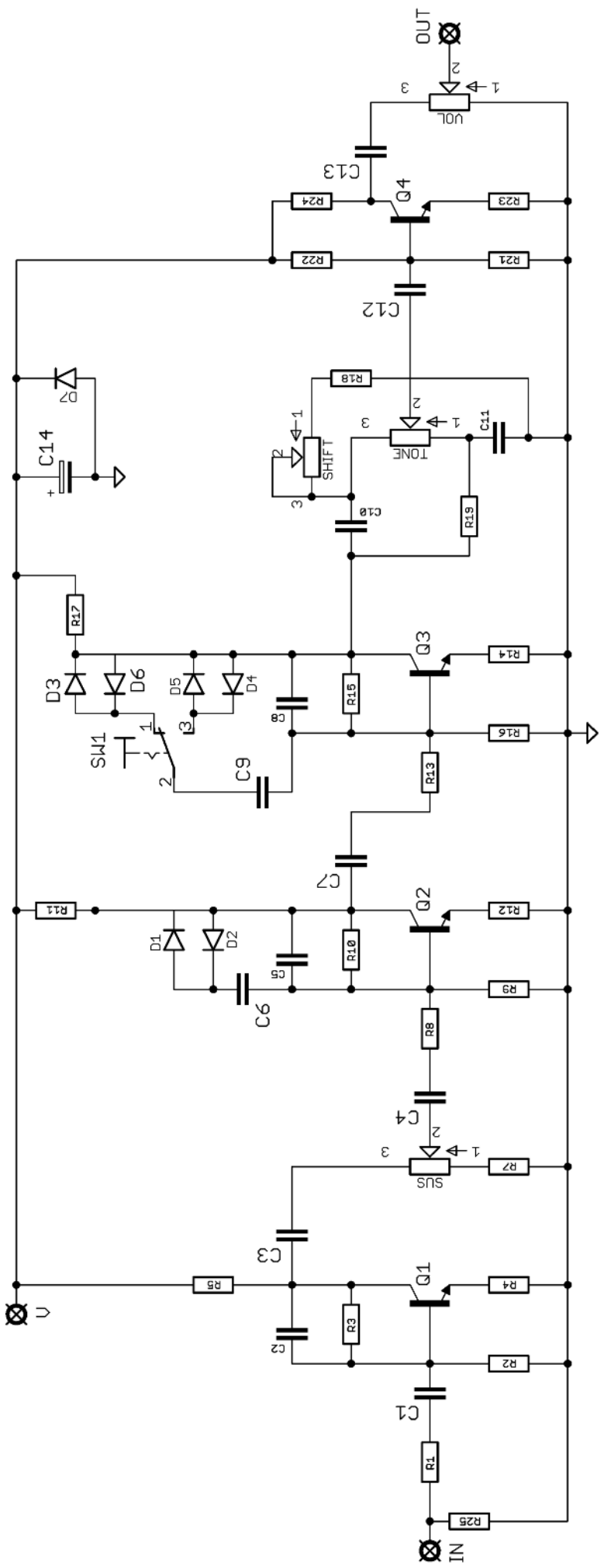
<http://www.muzique.com/lab/tone3.htm>

AMZ Control #1

R18	3K3
R19	39K
C10	12n (10n will be fine)
C11	10n
SHIFT	25KB
TONE	100KB

AMZ Control #2

R18	3K3
R19	470K
C10	15n
C11	1n5
SHIFT	25KB
TONE	250KA



BOM

	3rd (70s)	Green Russian	Black Russian	Civil War Russian	Triangle	73#18 Ram Head	Violet Ram Head	NYC Reissue
R1	39K	39K	39K	39K	33K	33K	33K	39K
R2	100K	100K	100K	100K	100K	100K	100K	100K
R3	470K	470K	470K	470K	470K	470K	470K	510K
R4	100R	390R	390R	390R	150R	100R	100R	100R
R5	15K	12K	12K	12K	15K	12K	12K	10K
R7	1K	1K	1K	1K	1K	820R	560R	1K8
R8	8K2	10K	10K	10K	8K2	7K5	8K2	10K
R9	100K	100K	100K	100K	100K	100K	100K	100K
R10	470K	470K	470K	470K	470K	470K	470K	470K
R11	15K	12K	12K	12K	12K	12K	12K	10K
R12	100R	390R	390R	390R	150R	100R	100R	390R
R13	8K2	10K	10K	10K	8K2	7K5	8K2	10K
R14	100R	390R	390R	390R	150R	100R	100R	390R
R15	470K	470K	470K	470K	470K	470K	470K	470K
R16	100K	100K	100K	100K	100K	100K	100K	100K
R17	15K	12K	12K	12K	12K	12K	12K	10K
R18	22K	22K	22K	22K	33K	33K	33K	22K
R19	39K	20K	22K	20K	33K	33K	33K	22K
R21	100K	100K	100K	100K	100K	100K	100K	100K
R22	390K	470K	470K	470K	470K	470K	470K	470K
R23	2K2	2K	2K7	2K7	2K7	3K3	2K7	2K
R24	10K	10K	10K	10K	12K	12K	12K	10K
R25	1M	1M	1M	1M	1M	1M	1M	1M
C1	100n	100n	100n	100n	100n	100n	100n	1u
C2	470p	470p	470p	560p	500p	470p	470p	470p
C3	1u	100n	100n	100n	100n	100n	100n	1u
C4	1u	100n	100n	100n	100n	150n	100n	1u
C5	470p	470p	470p	560p	500p	470p	470p	470p
C6	100n	47n	47n	47n	47n	47n	100n	1u
C7	1u	100n	100n	100n	100n	100n	100n	1u
C8	470p	470p	470p	560p	500p	470p	470p	470p
C9	100n	47n	47n	47n	47n	100n	100n	1u
C10	3n9	3n9	3n9	3n9	3n9	3n9	3n9	3n9
C11	10n	10n	10n	10n	10n	10n	10n	10n
C12	100n	100n	100n	100n	100n	100n	100n	1u
C13	100n	100n	100n	100n	100n	100n	100n	1u
C14	100u	100u	100u	100u	100u	100u	100u	100u
Q1	2N5088	2N5088	2N5088	2N5088	2N5088	2N5088	2N5088	2N5088
Q2	2N5088	2N5088	2N5088	2N5088	2N5088	2N5088	2N5088	2N5088
Q3	2N5088	2N5088	2N5088	2N5088	2N5088	2N5088	2N5088	2N5088
Q4	2N5088	2N5088	2N5088	2N5088	2N5088	2N5088	2N5088	2N5088
D1	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148
D2	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148
D3	empty	empty	empty	empty	empty	empty	empty	empty
D4	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148
D5	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148	1N4148
D6	empty	empty	empty	empty	empty	empty	empty	empty
SUSTAIN	100KA	100KA	100KA	100KA	100KA	100KA	100KA	100KA
TONE	100KB	100KB	100KB	100KB	100KB	100KB	100KB	100KB
VOLUME	100KA	100KA	100KA	100KA	100KA	100KA	100KA	100KA

SHIFT -----Place jumper as shown on page 2-----

V3 79#2 - J Mascis

Based on what is supposedly one of J Mascis' favourite Fluffs.
The original has true tone bypass, but why would you want that?

C1	1u	Q1	MPSA18	R1	39k
C2	470p	Q2	MPSA18	R2	100K
C3	1u	Q3	MPSA18	R3	470K
C4	1u	Q4	MPSA18	R4	100R
C5	470p	D1	1N4148	R5	15K
C6	1u	D2	1N4148	R7	1K
C7	100n	D3	jumper	R8	8K2
C8	470p	D4	1N4148	R9	100K
C9	1u	D5	1N4148	R10	470K
C10	3n9	D6	empty	R11	15K
C11	10n	SUSTAIN	100kA	R12	100R
C12	100n	STONE	100kB	R13	8K2
C13	1u	VOLUME	100kA	R14	100R
C14	100u	MIDS	Jumper	R15	470K
				R16	100K
				R17	15K
				R18	22K
				R19	39K
				R21	100K
				R22	390K
				R23	2K2
				R24	10K
				R25	1M

Tall Font Green Russian

Bass players' favourite. The feedback caps in the original
are two 1nf in series, but that's the same as 500pf.

C1	100n	D1	1N4148	R1	39k
C2	500p	D2	1N4148	R2	100K
C3	100n	D3	empty	R3	470K
C4	100n	D4	1N4148	R4	390R
C5	500p	D5	1N4148	R5	12K
C6	47n	D6	empty	R7	1K
C7	100n	SUSTAIN	100kA	R8	10K
C8	500p	STONE	100kB	R9	100K
C9	47n	VOLUME	100kA	R10	470K
C10	3n9	MIDS	Jumper	R11	12K
C11	10n			R12	390R
C12	100n			R13	10K
C13	100n			R14	390R
C14	100u			R15	470K
Q1	2N5089			R16	100K
Q2	2N5089			R17	12K
Q3	2N5089			R18	22K
Q4	2N5089			R19	20K
				R21	100K
				R22	470K
				R23	2K7
				R24	10K
				R25	1M

Csnd Supa Tonebender

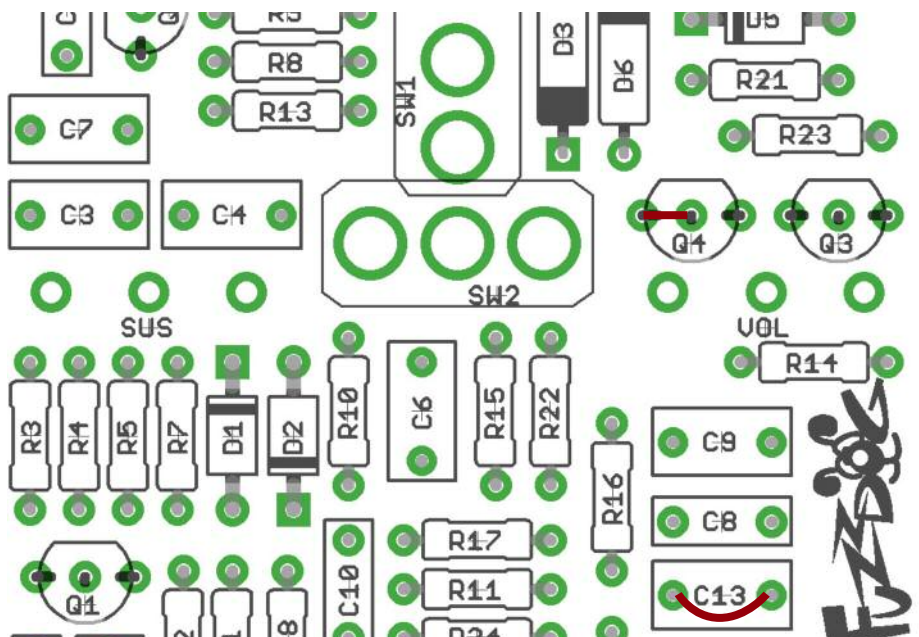
'73 UK interpretation. The first clipping stage is removed which changes the sound to a mix of Tonebender-meets-Fluff. Heavy! Transistor pinout is reversed so flip them. There was an extra cap between the third gain stage and the tone section, but it'll sound just the same without it. If you want a 100% clone look elsewhere.

C1	100n	Q1	BC184	R1	33k
C2	470p	Q2	BC184	R2	100K
C3	100n	Q3	BC184	R3	470K
C4	100n	Q4	BC184	R4	100R
C5	470p	D1	empty	R5	15K
C6	empty	D2	empty	R7	820R
C7	100n	D3	empty	R8	8K2
C8	470p	D4	1N4148	R9	100K
C9	47n	D5	1N4148	R10	470K
C10	4n7	D6	empty	R11	10K
C11	10n	SUSTAIN	100kA	R12	100R
C12	100n	TONE	100kA	R13	8K2
C13	100n	VOLUME	100kA	R14	100R
C14	100u	MIDS	Jumper	R15	470K
				R16	100K
				R17	15K
				R18	33K
				R19	33K
				R21	100K
				R22	390K
				R23	2K7
				R24	10K
				R25	1M

Csnd Jumbo Tonebender

Based on the Supa, but the final gain recovery stage was removed giving this much less gain and output level than its older brother. It has heavy hints of BFP but has its own character. Great on bass. BOM as above but changes as shown below.

C10	4n7
C11	10n
C12	100n
C13	jumper
TONE	100kA
R7	1K
R18	39K
R19	39K
R21-24	empty
Q4	No transistor - jumper the base and collector pads as shown



Hooowwf (+Cloven variation)

Nice example of slight modifications to a BFP making a BIG difference to the tone. The germanium cans and LED clipping make this a crunchier, grittier experience - worth checking out even if you already have a BFP. Experiment with NPN Ge cans in Q3-4. Original used 2N1308 - try AC176, AC127.

Substitute the parts shown in blue for the higher gain Cloven version.

C1	100n
C2	470p
C3	100n
C4	100n
C5	470p
C6	100n
C7	100n
C8	470p (empty)
C9	100n
C10	6n8
C11	6n8
C12	100n
C13	100n
C14	100uSu

Q1	2N3904 (2N5089)
Q2	NPN Ge (MPSA18)
Q3	NPN Ge (MPSA18)
Q4	2N3904 (2N5089)
D1	3mm red led
D2	3mm red led
D3	empty
D4	3mm red led (1N4148)
D5	3mm red led (1N4148)
D6	empty
SUSTAIN	50KA
tone	100KB
VOLUME	1MA
MIDS	25KB

R1	39K
R2	100K
R3	470K
R4	100R
R5	15K
R7	2K2
R8	8K2
R9	100K
R10	470K
R11	15K
R12	100R
R13	8K2
R14	100R
R15	470K
R16	100K
R17	15K
R18	2K2
R19	39K
R21	100K
R22	390K
R23	2K2
R24	10K
R25	1M

Creamy Dreamer

C1	1u
C2	470p
C3	47n
C4	1u
C5	470p
C6	1u
C7	1u
C8	470p
C9	1u
C10	4n7
C11	10n
C12	100n
C13	100n
C14	100u

Q1	2N5089
Q2	2N5089
Q3	2N5089
Q4	2N5089
D1	1N4148
D2	1N4148
D3	empty
D4	1N4148
D5	1N4148
D6	empty
SUSTAIN	100kB
tone	100kA
VOLUME	100kA
MIDS	Jumper

R1	39k
R2	100K
R3	470K
R4	Jumper
R5	15K
R7	1K
R8	8K2
R9	100K
R10	470K
R11	15K
R12	Jumper
R13	8K2
R14	Jumper
R15	470K
R16	100K
R17	15K
R18	47K
R19	47K
R21	100K
R22	390K
R23	2K2
R24	10K

B&M Champion Fuzz Unit

Another vintage British interpretation, pretty much identical to the Jumbo Tonebender. BC184C may be hard to come by, so try others. Looking for around 600hFE in Q1 and Q2, 150hFE in Q3.

C1	100n	Q1	BC184C	R1	39K
C2	470p	Q2	BC184C	R2	100K
C3	100n	Q3	BC184C	R3	470K
C4	100n	Q4	No transistor - jumper Base & Coll.	R4	100R
C5	470p	D1	empty	R5	10K
C6	empty	D2	empty	R7	1K
C7	100n	D3	empty	R8	10K
C8	470p	D4	1N4148	R9	100K
C9	100n	D5	1N4148	R10	470K
C10	3n3	D6	empty	R11	10K
C11	10n	SUSTAIN	100kB	R12	100R
C12	100n	TONE	100kA	R13	10K
C13	jumper	VOLUME	100kA	R14	100R
C14	100u	MIDS	Jumper	R15	470K
				R16	100K
				R17	15K
				R18	39K
				R19	39K
				R21-24	empty

Stoned Cleric

Stoner heaven, based closely around a Ram's Head 74#1 but with different cans and a different emitter resistor in the first gain stage. Awesome stuff.

*BC549C pinout is the opposite to that shown on the PCB, so flip them.

C1	100n	Q1-4	BC549C*	R1	33K
C2	560p	D1-2	1N4148	R2	100K
C3	100n	D3	empty	R3	470K
C4	100n	D4-5	1N4148	R4	470R
C5	560p	D6	empty	R5	10K
C6	1u	SUSTAIN	100KA	R7	1K
C7	100n	TONE	100KB	R8	10K
C8	560p	VOLUME	100KA	R9	100K
C9	1u	MIDS	Jumper	R10	470K
C10	4n7			R11	10K
C11	10n			R12	150R
C12	100n			R13	10K
C13	100n			R14	150R
C14	100u			R15	470K
C15	empty			R16	100K
C16	jumper			R17	10K
				R18	33K
				R19	33K
				R21	100K
				R22	470K
				R23	2K7
				R24	10K
				R25	1M

Elk Sustainer

Japanese Big Muff clone recently resurrected with a Boris connection. The original is PNP/Posi Ground, but it sounds just the same in this NPN configuration.

C1 100n
C2 560p
C3 100n
C4 100n
C5 560p
C6 100n
C7 100n
C8 560p
C9 47n
C10 3.3n
C11 10n
C12 100n
C13 100n
C14 100u

Q1 2N3904
Q2 2N3904
Q3 2N3904
Q4 2N3904

D1 1N4148
D2 1N4148
D3 empty
D4 1N4148
D5 1N4148
D6 empty

SUSTAIN 50KB
TONE 50KB
VOLUME 50KB
MIDS Jumper

R1 33K
R2 82K
R3 390K
R4 100R
R5 18K
R7 1K
R8 8K2
R9 82K
R10 390K
R11 12K
R12 150R
R13 8K2
R14 100R
R15 390K
R16 82K
R17 18K
R18 39K
R19 39K
R21 100K
R22 390K
R23 2K7
R24 12K
R25 1M

Drilling template

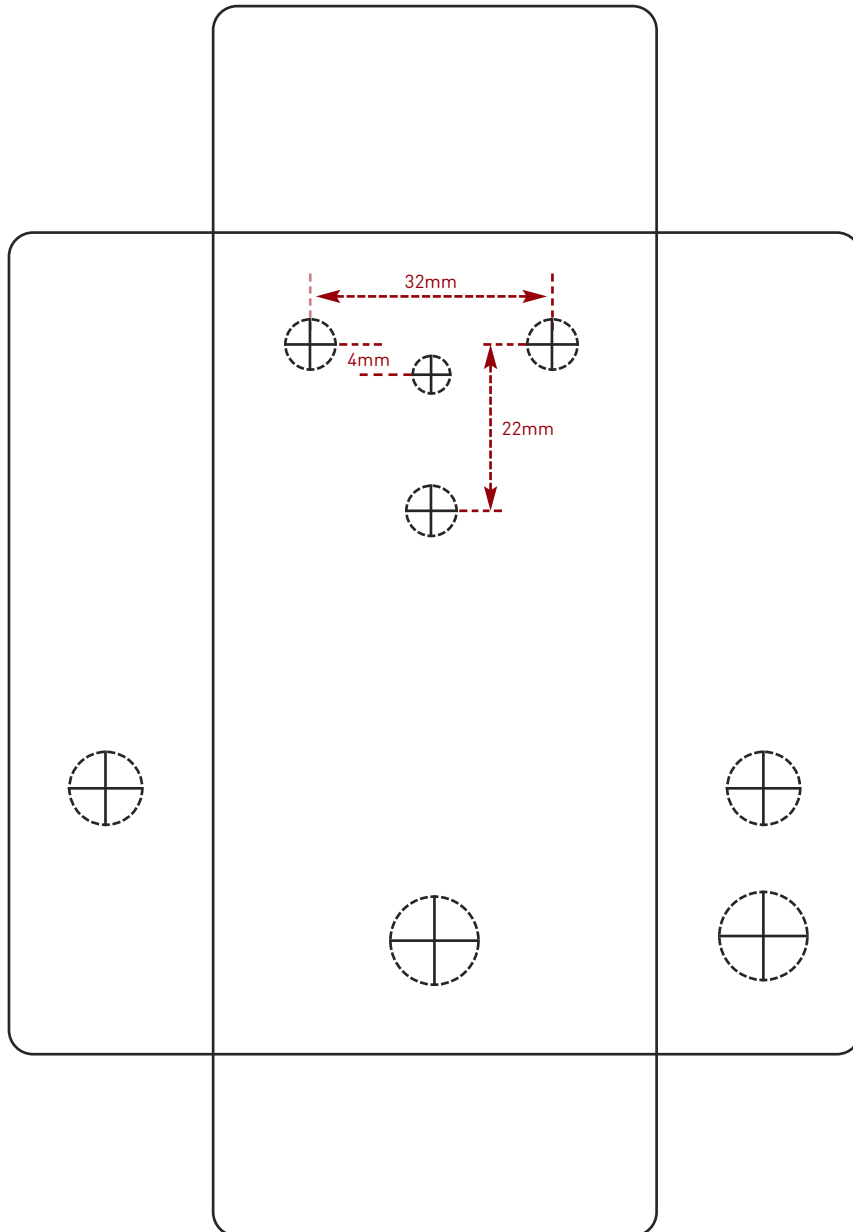
Hammond 1590B - 60 x 111 x 31mm

Drill sizes listed are minimum.

It's a good idea to add 1mm to anything mounted on the PCB that'll poke through the front of the enclosure.

Drill sizes:

Pots	7mm
Jacks	10mm
Footswitch	12mm
DC Socket	12mm
Toggle switches	6mm
Rotary switches	10mm



This template is a rough guide only. You should ensure correct marking of your enclosure before drilling. You use this template at your own risk.

Pedal Parts Ltd can accept no responsibility for incorrect drilling of enclosures.

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Drilling template

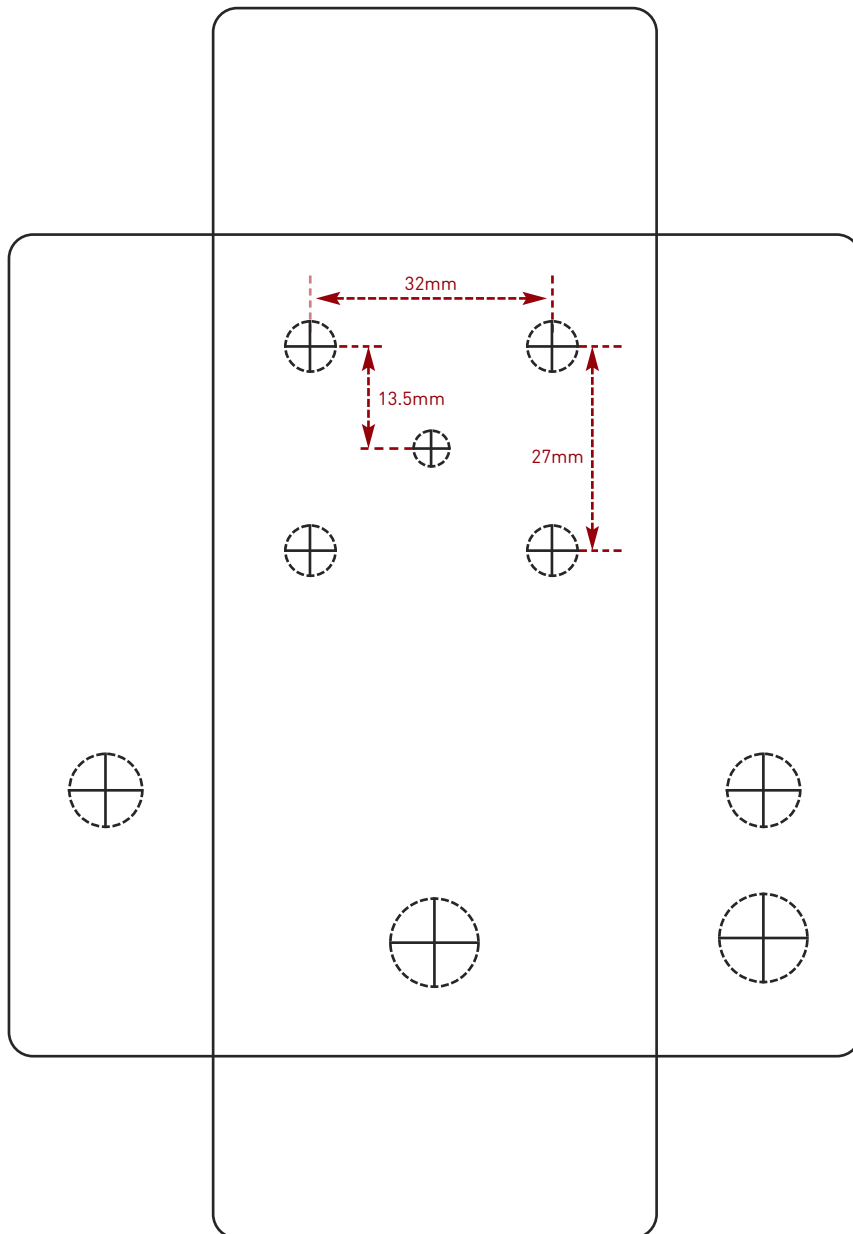
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