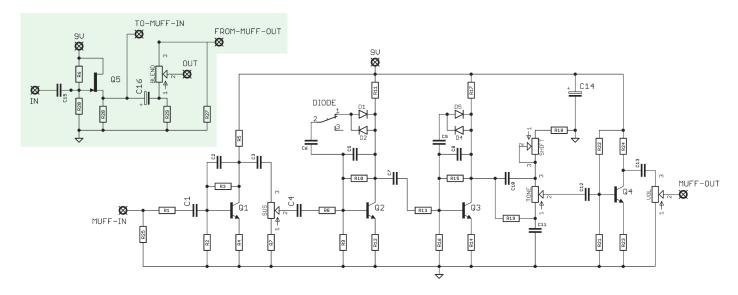


Big Muff Blender

All your bass fuzz are belong to us



Schematic + BOM



The main schematic shows the basic Big Muff Pi used throughout most of its history with two small additions:

- Diode lift switch for Q2 clipping
- Shift pot added to the Tone section

These are both optional - see later in the document.

Not sure what to make? Check out **Kit Rae's bigmuffpage.com** - this guy knows more about all things Muff than Mike Matthews himself. Astounding work.

The schematic highlighted in green is the blend circuit. Here's the BOM for that:

R6	1M	
R20	1M	
R27	100K	
R28	3K3	With the BLEND pot fully CCW you should have a
R29	100K	clean signal pretty much the same as your bypassed level.
C15	1u	
C16	10u elec	Carefully tweak the VOL and BLEND controls to get your desired balance of clean and fuzz. The two are very interactive.
Q5	N-Channel FET	
	(J201, 2N5457)	

BLEND 100KA

Important notes

SHIFT/MIDS

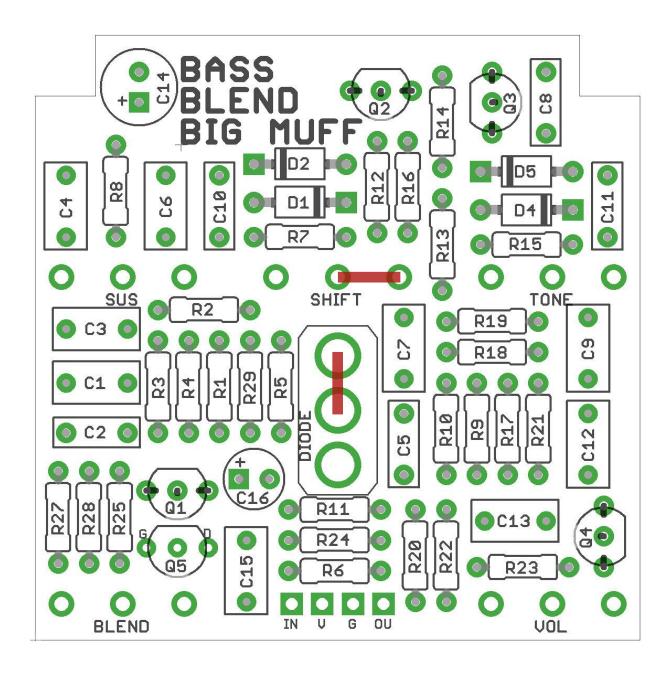
If you are NOT using this control you must place a jumper wire between pads 1 and 2.

DIODE SWITCH

If you are NOT using this switch but want to keep the clipping diodes in the circuit, you must place a jumper between the pads as shown below. If you want no clipping here, just leave it out.

C14

The PCB has been designed so C14 can lay flat to save on height - see cover image. Though the value of this cap has changed throughout the life of the BMP, 100u is supplied with all kits.



Tone Section

The PCB has been designed with an extra pot to control the MIDS of the circuit. You have several options here. The values listed below replace the same part numbers shown on the BOM for each Big Muff variation shown later in this document. If using any of the tone variation shown below, USE THESE VALUES, not those shown on the standard Muff BOMs.

STANDARD TONE WITH SHIFT POT

Not the best implementation, but it will give you some control over the mids.

R18 10K **SHIFT** 25KB

AMZ PRESENCE V1

Much more control over the mids. A very nice mod without straying too far from the BMP.

R18 3K3

C10 10n (actually 12n in the AMZ guide, but 10n is easier to source and gives good results)

C11 10n **SHIFT** 25KB

AMZ PRESENCE V2

A huge range of tonal variation, with humped as well as scooped mids available.

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

For more info on the above go to:

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

The power and signal pads on the PCB conform to the FuzzDog Direct Connection format, so can be paired with the appropriate daughterboard for quick and easy offboard wiring. Check the separate daughterboard document for details.

Be very careful when soldering the diodes and transistors. They're very sensitive to heat. You should use some kind of heat sink (crocodile clip or reverse action tweezers) on each leg as you solder them. Keep exposure to heat to a minimum (under 2 seconds).

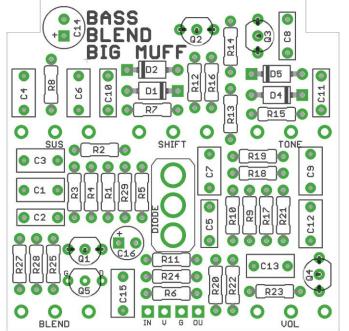
Snap the small metal tag off the pots so they can be mounted flush in the box.

Positive (anode) legs of the electrolytic caps go to the square pads.

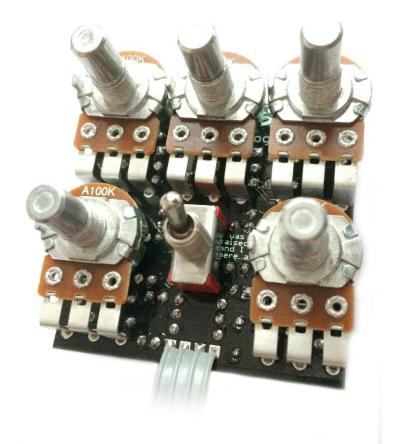
Negative (cathode) legs of the diodes go to the square pads.

You should solder all other board-mounted components before you solder the pots. Once they're in place you'll have no access to much of the board. Make sure your pots all line up nicely. The best way to do that is to solder a single pin of each pot in place then melt and adjust if necessary before soldering in the other two pins. If your pots don't have protective plastic jackets ensure you leave a decent gap between the pot body and the PCB otherwise you risk shorting out the circuit.

Same goes for the toggle switch. Use your enclosure as a guide for positioning them to ensure they line up properly. Solder one lug, then melt it and adjust to get it straight before soldering any others.



PCB layout ©2016 Pedal Parts Ltd.



	(7)				
.31	~d (70	USI		R1	39K
				R2	100K
				R3	470K
				R4	100R
				R5	15K
				R7	1K
				R8	8K2
				R9	100K
				R10	470K
C1	100n			R11	15K
C2	470p	Q1	2N5088	R12	100R
C3	1u	Q2	2N5088	R13	8K2
C4	1u	Q3	2N5088	R14	100R
C5	470p	Q4	2N5088	R15	470K
C6	100n			R16	100K
C7	1u	D1	1N4148 / 1N914	R17	15K
C8	470p	D2	1N4148 / 1N914	R18	100K
C9	100n	D4	1N4148 / 1N914	R19	39K
C10	3n9	D5	1N4148 / 1N914	R21	100K
C11	10n			R22	390K
C12	100n	SUSTAIN		R23	2K2
C13	100n	TONE	100kB	R24	10K
C14	100u	VOLUME	100kA	R25	1M

	reen Issian				R1 R2 R3 R4 R5 R7 R8	39K 100K 470K 390R 12K 1K 10K 100K
C1 C2 C3	100n 470p 100n	Q1 Q2		15088 15088	R10 R11 R12 R13	470K 12K 390R 10K
C4 C5 C6	100n 470p 47n	Q3 Q4	2N 2N	15088 15088	R14 R15 R16	390R 470K 100K
C7 C8 C9 C10	100n 470p 47n 3n9	D1 D2 D4 D5	1N 1N	N4148 / 1N914 N4148 / 1N914 N4148 / 1N914 N4148 / 1N914	R17 R18 R19 R21	12K 22K 20K 100K
C11 C12 C13 C14	10n 100n 100n 100u	SUSTAIN TONE VOLUME	1	100kA 100kB 100kA	R22 R23 R24 R25	470K 2K 10K 1M

	ack					D.4	001/
D	ack					R1 R2	39K 100K
						R3	470K
	iccian					R4	390R
RL	ıssian					R5	12K
						R7	1K
						R8	10K
					I	R9	100K
					I	R10	470K
C1	100n				I	R11	12K
C2	470p	Q1	2N	5088	I	R12	390R
C3	100n	Q2	2N	5088	I	R13	10K
C4	100n	Q3		5088	l	R14	390R
C5	470p	Q4	2N	5088		R15	470K
C6	47n					R16	100K
C7	100n	D1		4148 / 1N914		R17	12K
C8	470p	D2		4148 / 1N914		R18	22K
C9	47n	D4		4148 / 1N914		R19	22K
C10	3n9	D5	1N	4148 / 1N914		R21	100K
C11	10n			4001.4		R22	470K
C12	100n	SUSTAIN	V	100kA		R23	2K7
C13	100n	TONE		100kB		R24	10K
C14	100u	VOLUME		100kA		R25	1M

	R1 39K R2 100K R3 470K R4 390R R5 12K R7 1K R8 10K R9 100K R10 470K	
1 2N5088	R12 390R	
2 2N5088	R13 10K	
3 2N5088	R14 390R	
4 2N5088	R15 470K	
	R16 100K	
1 1N4148 / 1N9	14 R17 12K	
2 1N4148 / 1N9	14 R18 22K	
4 1N4148 / 1N9	14 R19 20K	
5 1N4148 / 1N9	14 R21 100K	
	R22 470K	
USTAIN 100kA	R23 2K7	
ONE 100kB	R24 10K	
	2 2N5088 3 2N5088 4 2N5088 1 1N4148 / 1N9 2 1N4148 / 1N9 4 1N4148 / 1N9 5 1N4148 / 1N9 USTAIN 100kA	R2 100K R3 470K R4 390R R5 12K R7 1K R8 10K R9 100K R10 470K R11 12K R12 390R R13 10K R14 390R R14 390R R15 470K R16 100K R16 100K R16 100K R17 12K R18 22K R18 22K R18 10K R19 20K R19 10K R19 20K R19 10K R19 20K R21 100K R22 470K R22 470K

Tr	iangle				R1 R2	3K3 82K
					R3	390K
					R4	820R
					R5	22K
					R7	1K
					R8	8K2
					R9	82K
					R10	390K
C1	100n				R11	12K
C2	560p	Q1	2N	5088	R12	150R
C3	100n	Q2	2N	5088	R13	8K2
C4	100n	Q3	2N	5088	R14	820R
C5	560p	Q4	2N	5088	R15	390K
C6	47n				R16	82K
C7	100n	D1	1N	4148 / 1N914	R17	22K
C8	560p	D2	1N	4148 / 1N914	R18	39K
C9	47n	D4	1N	4148 / 1N914	R19	39K
C10	3n9	D5	1N	4148 / 1N914	R21	100K
C11	10n				R22	390K
C12	100n	SUSTAIN	1	100kA	R23	2K7
C13	100n	TONE		100kB	R24	12K
C14	100u	VOLUME		100kA	R25	1M

Ra	am's H	eac	d		R1 R2	39K 47K
*Originally electrolytic but you'll get much better results replacing R4						470K 120R
these wi	th 1u film caps.				R5	10K
					R7	1K
					R8	10K
					R9	100K
					R10	470K
C1	10u*				R11	10K
C2	560p	Q1		5088	R12	150R
C3	100n	Q2		5088	R13	10K
C4	100n	Q3		5088	R14	150R
C5	560p	Q4	2N	5088	R15	470K
C6	100n				R16	100K
C7	100n	D1		4148 / 1N914	R17	15K
C8	560p	D2	1N	4148 / 1N914	R18	22K
C9	1u*	D4	1N	4148 / 1N914	R19	39K
C10	3n9	D5	1N	4148 / 1N914	R21	100K
C11	10n				R22	430K
C12	100n	SUSTAIN	1	100kA	R23	3K3
C13	1u*	TONE		100kB	R24	15K
C14	100u	VOLUME		100kA	R25	1M

	olet am's H	lead	d	R1 R2 R3 R4 R5 R7 R8 R9	33K 100K 470K 100R 12K 560R 8K2 100K
C1 C2 C3 C4 C5 C6 C7 C8 C9 C10	100n 470p 100n 100n 4700p 100n 100n 470p 100n 3n9	Q1 Q2 Q3 Q4 D1 D2 D4 D5	2N5088 2N5088 2N5088 2N5088 1N4148 / 1N914 1N4148 / 1N914 1N4148 / 1N914 1N4148 / 1N914	R10 R11 R12 R13 R14 R15 R16 R17 R18 R19 R21	470K 12K 100R 8K2 100R 470K 100K 12K 33K 33K 100K 470K
C12 C13 C14	100n 100n 100u	SUSTAIN TONE VOLUME	100kB	R23 R24 R25	2K7 12K 1M

N'	YC Reis	SSU	e		R1 R2 R3 R4 R5 R7 R8	39K 100K 510K 100R 10K 1K8 10K 100K
C4	1				R10	470K 10K
C1 C2	1u 470p	Q1	211	5088	R11 R12	390R
C3	1u	Q2		5088	R12	10K
C4	1u	Q3		5088	R14	390R
C5	470p	Q4		5088	R15	470K
C6	1u	Q4	ZIN	3000	R16	100K
C7	1u	D1	1 N I	4148 / 1N914	R17	100K
C8	470p	D2		4148 / 1N914 4148 / 1N914	R17	22K
C9	1u	D4		4148 / 1N914 4148 / 1N914	R19	22K 22K
C10	3n9	D4 D5		4148 / 1N914 4148 / 1N914	R21	100K
C11	10n	טט	IIN	4140 / 1111714	R21	470K
		CHCTAIN		1001. 1		
C12	1u	SUSTAIN	V	100kA	R23	2K
C13	1u	TONE		100kB	R24	10K
C14	100u	VOLUME	-	100kA	R25	1M

V3 79#2 - J Mascis

Based on what is supposedly one of J Mascis' favourite Muffs. The original has true tone bypass, this doesn't. Deal with it.

C1	1u
C2	470p
C3	1u
C4	1u
C5	470p
C6	1u
C7	100n
C8	470p
C9	1u
C10	3n9
C11	10n
C12	100n
C13	1u

100u

C14

Q1 Q2 Q3	MPSA18 MPSA18 MPSA18
Q4	MPSA18

٠.	
D1	1N4148/1N914
D2	1N4148/1N914
D4	1N4148/1N914
D5	1N4148/1N914

SUSTAIN	100kA
TONE	100kB
VOLUME	100kA

R1	39K
R2	100K
R3	470K
R4	100R
R5	15K
R7	1K
R8	8K2
R9	100K
R10	470K

R10	470K
R11	15K
R12	100R
R13	8K2
R14	100R
R15	470K
R16	100K
R17	15K
R18	22K
R19	39K

R21	100K
R22	390K
R23	2K2
R24	10K
R25	1M

39K

100K

R1

R2

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	
C2	500p	
C3	100n	
C4	100n	
C5	500p	
C6	47n	
C7	100n	
C8	500p	
C9	47n	
C10	3n9	
C11	10n	
C12	100n	
C13	100n	
C14	100u	

Q1	2N5089
Q2	2N5089
Q3	2N5089
Q4	2N5089
D1	1N4148/1N914
D2	1N4148/1N914
D4	1N4148/1N914
D5	1N4148/1N914
SUSTAIN	100kA

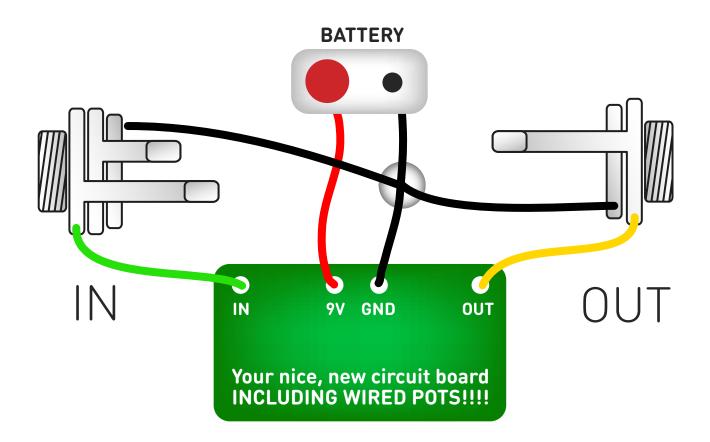
Q1	2N5089	R12	390R
Q2	2N5089	R13	10K
Q3	2N5089	R14	390R
Q4	2N5089	R15	470K
		R16	100K
D1	1N4148/1N914	R17	12K
D2	1N4148/1N914	R18	22K
D4	1N4148/1N914	R19	20K
D5	1N4148/1N914	R21	100K
		R22	470K
SUSTAIN	100kA	R23	2K7
TONE	100kB	R24	10K
VOLUME	100kA	R25	1 M

R3	470K
R4	390R
R5	12K
R7	1K
R8	10K
R9	100K
R10	470K
R11	12K
R12	390R
R13	10K
R14	390R
R15	470K
R16	100K
R17	12K

St	tonec	I Cle	ric	R1 R2	33K 100K
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.		R3	470K 470R 470R 10K 1K		
*BC549	C pinout is the oppo	osite to that show	n on the PCB, so flip th	RR	10K 100K 470K
C1 C2	100n 560p			R11 R12	10K 150R
C3 C4 C5	100n 100n 560p			R13 R14 R15	10K 150R 470K
C6 C7 C8	1u 100n 560p	Q1-4	BC549C*	R16 R17 R18	100K 10K 33K
C9 C10	1u ['] 4n7	D1-2 D4-5	1N4148 1N4148	R19 R21	33K 100K
C11 C12 C13	10n 100n 100n	SUSTAI TONE	100KB	R22 R23 R24	470K 2K7 10K
C14	100u	VOLUMI	100KA	R25	1 M

Cr	eamy				
	Jan			R1	39K
				R2	100K
	reame	2r		R3	470K
	Calli			R4	Jumper
				R5	15K
				R7	1K
				R8	8K2
				R9	100K
C1	1u	Q1	2N5089	R10	470K
C2	470p	Q2	2N5089	R11	15K
C3	47n	Q3	2N5089	R12	Jumper
C4	1u	Q4	2N5089	R13	8K2
C5	470p			R14	Jumper
C6	1u	D1	1N4148	R15	470K
C7	1u	D2	1N4148	R16	100K
C8	470p	D3	Jumper	R17	15K
C9	1u	D4	1N4148	R18	47K
C10	4n7	D5	1N4148	R19	47K
C11	10n			R21	100K
C12	100n	SUSTAIN	100kB	R22	390K
C13	100n	TONE	100kA	R23	2K2
C14	100u	VOLUME	100kA	R24	10K

Test the board!

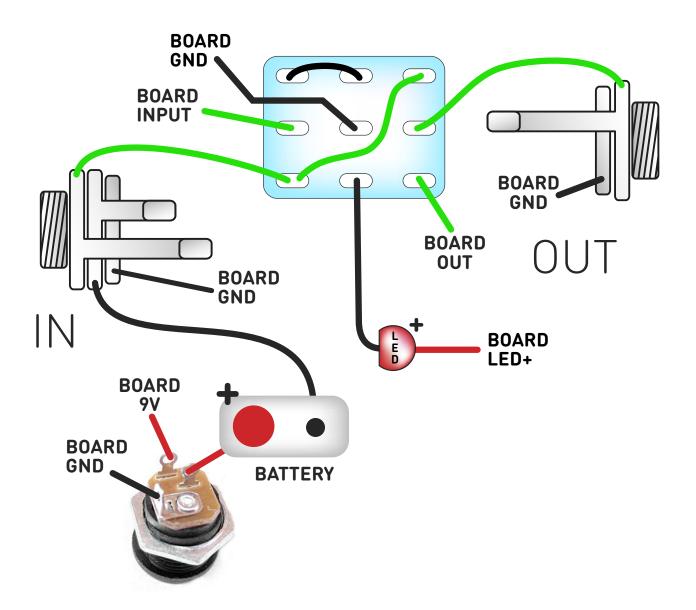


UNDER NO CIRCUMSTANCES will troubleshooting help be offered if you have skipped this stage. No exceptions.

Once you've finished the circuit it makes sense to test is before starting on the switch and LED wiring. It'll cut down troubleshooting time in the long run. If the circuit works at this stage, but it doesn't once you wire up the switch - guess what? You've probably made a mistake with the switch.

Solder some nice, long lengths of wire to the board connections for 9V, GND, IN and OUT. Connect IN and OUT to the jacks as shown. Connect all the GNDs together (twist them up and add a small amount of solder to tack it). Connect the battery + lead to the 9V wire, same method. Plug in. Go!

If it works, crack on and do your switch wiring. If not... aw man. At least you know the problem is with the circuit. Find out why, get it working, THEN worry about the switch etc.



Wiring shown above will disconnect the battery when you remove the jack plug from the input, and also when a DC plug is inserted.

The Board GND connections don't all have to directly attach to the board. You can run a couple of wires from the DC connector, one to the board, another to the IN jack, then daisy chain that over to the OUT jack.

It doesn't matter how they all connect, as long as they do.

This circuit is standard, Negative GND. Your power supply should be Tip Negative / Sleeve Positive. That's the same as your standard pedals (Boss etc), and you can safely daisy-chain your supply to this pedal.

Drilling template

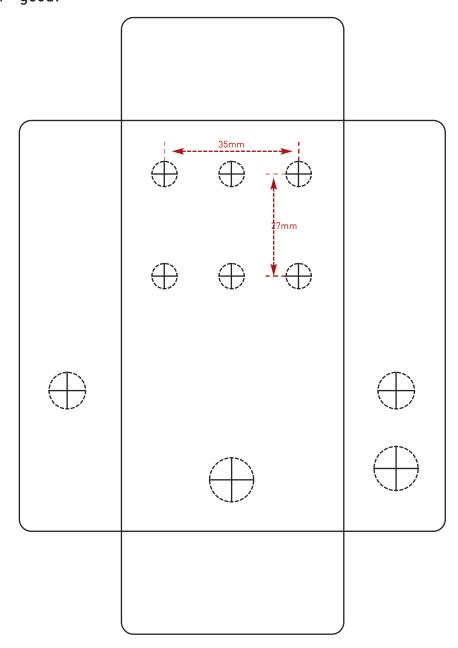
Hammond 1590B

60 x 111 x 31mm

Recommended drill sizes:

Pots 7mm
Jacks 10mm
Footswitch 12mm
DC Socket 12mm
Toggle switch 6mm

It's a good idea to drill the pot and toggle switch holes 1mm bigger if you're board-mounting them.
Wiggle room = good!



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.

FuzzDog.co.uk