

BUMBLEBEE

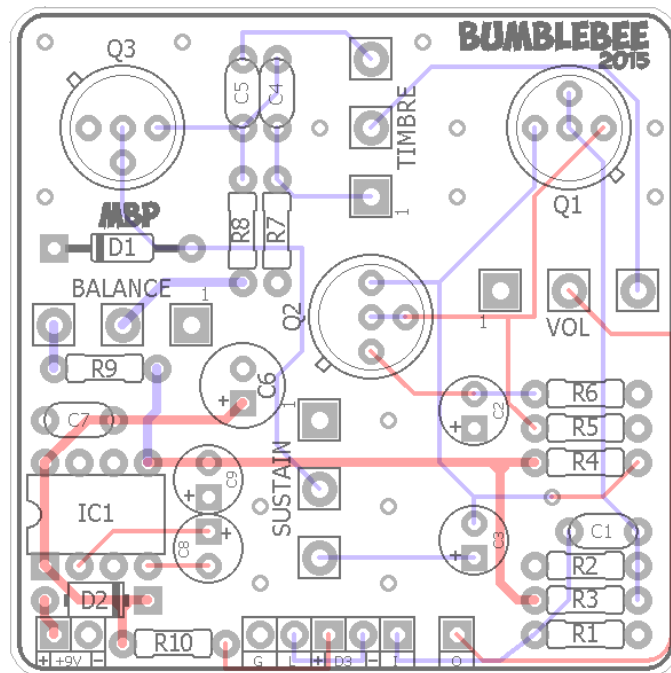
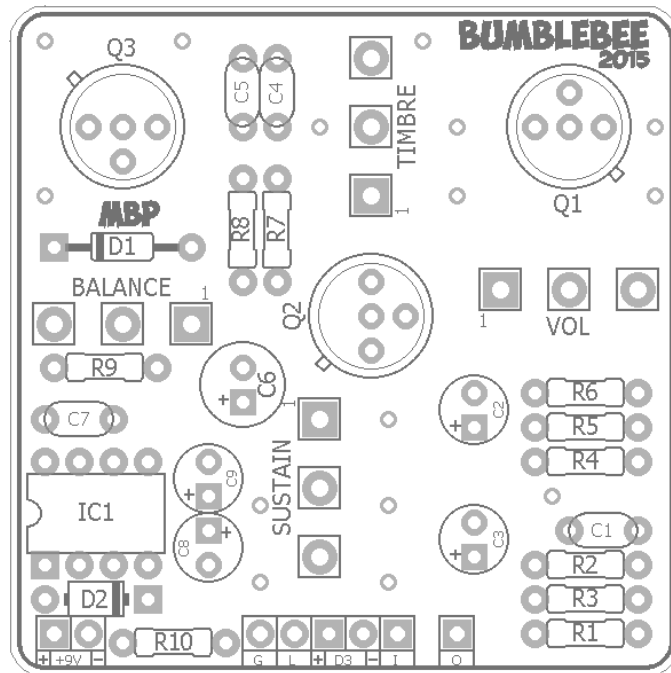
FX Type: Fuzz

Based on the Baldwin-Burns® Buzzaround™

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2015 Version

1.95" W x 1.95" H



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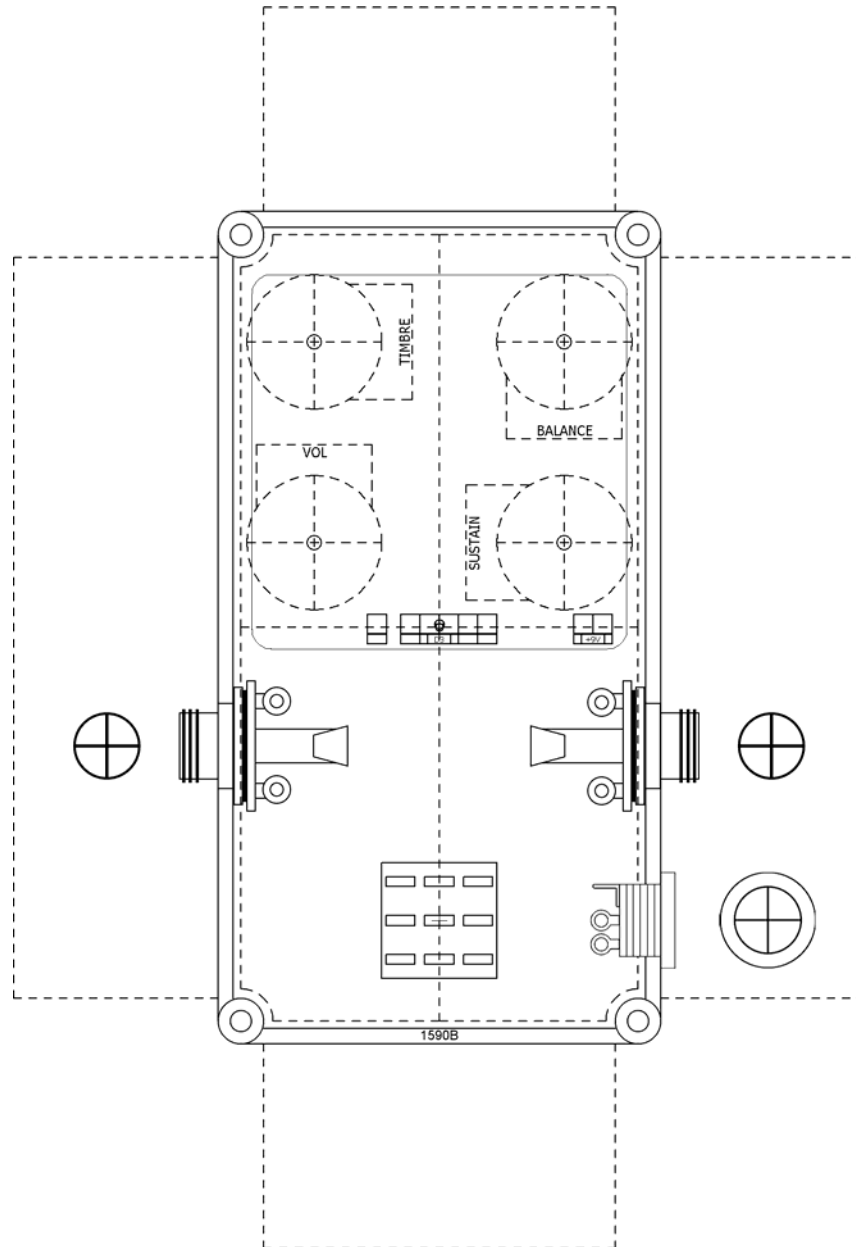
B.O.M.					
Resistors		Caps		Diodes	
R1	1M	C1	100n	D1	1n34a
R2	100k	C2	4u7	D2	1N5817
R3	470k	C3	4u7	Transistors	
R4	10k	C4	1n	Q1 - Q3	PNP Germ
R5	10k	C5	100n	IC	
R6	3k3	C6	100uF	IC1	TC1044SCPA
R7	10k	C7	100n	Pots	
R8	15k	C8	10uF	SUSTAIN	100kB
R9	27k	C9	10uF	TIMBRE	100kB
R10	4k7			VOL	100kB
				BAL	10kB

Shopping List				
Value	QTY	Type	Rating	
3k3	1	Metal / Carbon Film	1/4W	
4k7	1	Metal / Carbon Film	1/4W	
10k	3	Metal / Carbon Film	1/4W	
15k	1	Metal / Carbon Film	1/4W	
27k	1	Metal / Carbon Film	1/4W	
100k	1	Metal / Carbon Film	1/4W	
470k	1	Metal / Carbon Film	1/4W	
1M	1	Metal / Carbon Film	1/4W	
1n	1	Film	16v min	
100n	3	Film	16v min	
4u7	2	Electrolytic	16v min	
10uF	2	Electrolytic	16v min	
100uF	1	Electrolytic	16v min	
1n34a	1			
1N5817	1			
TC1044SCPA	1	or, MAX1044CPA		
PNP Germ	3	*see notes		
100kB	3	PCB Right Angle	16mm	
10kB	1	PCB Right Angle	16mm	

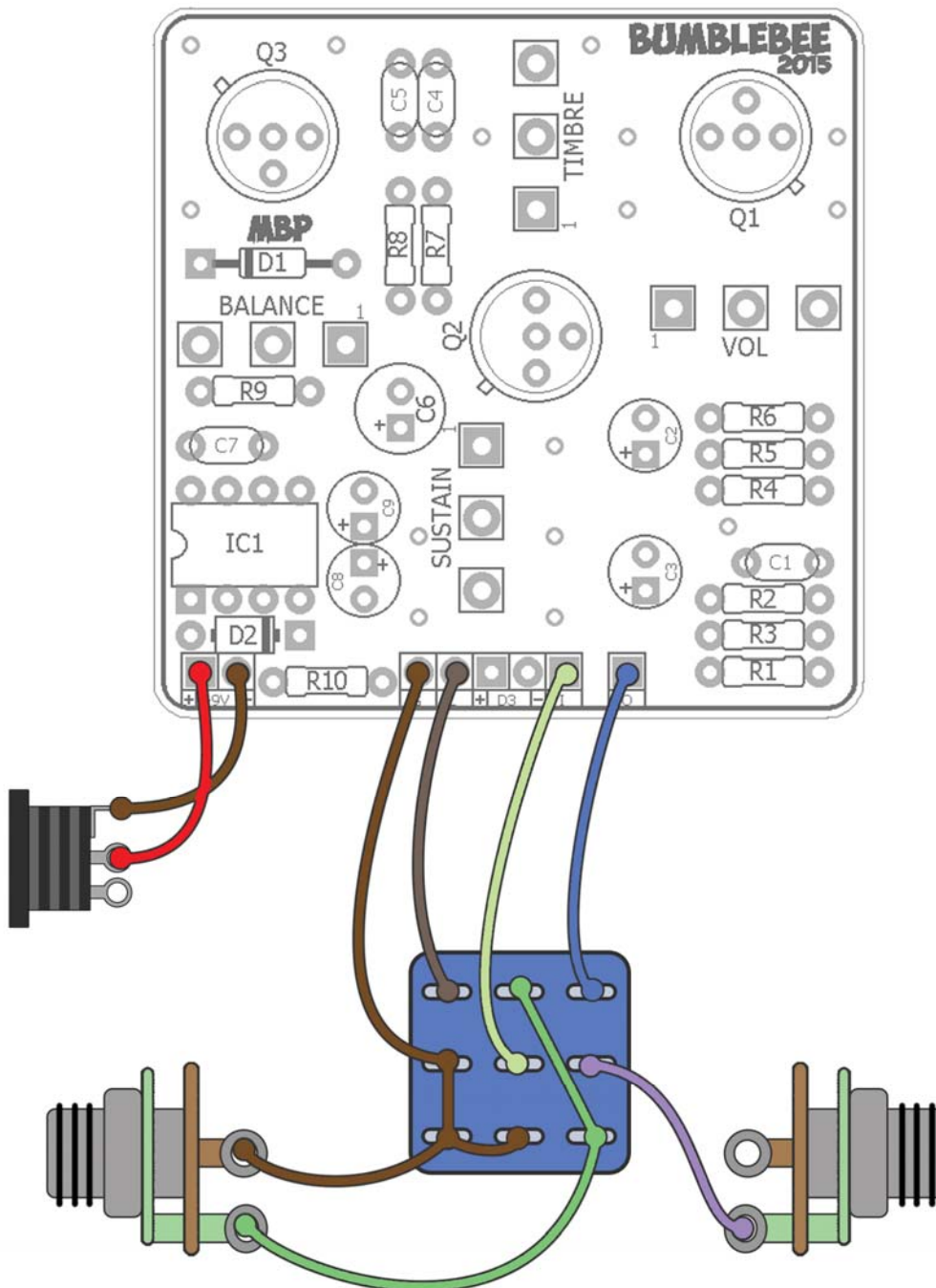


1590B Drill Guide

4.44" W x 6.47"H



1590B Drill Guide



The **BumbleBee** is a re-creation of the Baldwin Burns Buzzaround; a very rare and somewhat legendary fuzz monster. The Bumblebee stands apart from the Fuzz Face and Tonebender. It's not as nearly as bassy as the FF and it is capable of getting even more fuzz saturation than the TB (IMO). At the same time, it can be tamed quite well into some classic (and controlled) fuzz tones. And, the interaction with the guitar volume is absolutely excellent for dialing fuzz up and down on the fly.

2015 Version

- New layout with voltage inverter incorporated onto the PCB.
- Added output volume control.
- Axial caps option no longer available due to the newly added parts.
- Changed the Balance pot value from 5k Ω to 10k Ω for more range.
- Added optional 1M pull-down resistor.

Controls

Sustain – The overall fuzz amount from least to greatest.

Balance – A variable bias control for Q3.

Timbre – A simple tone control/capacitor blend.

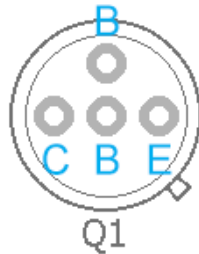
Vol - Output volume.

Notes

The **BumbleBee** is a **positive ground** effect. However, it is wired as a negative ground circuit due to the voltage inverter circuitry now included on the 2015 PCB. So, there is nothing special or different needed to build this circuit.

The NKT213 is listed for the stock version of the **BumbleBee**. These are the transistors used in the original Buzzaround. Unfortunately, they are very rare these days and almost impossible to find. However, you can use any matched Tonbender set of PNP transistors in place of the NKT213s. The OC75 is a very good replacement and offers an incredible fuzz tone. These are available as a matched set from smallbear.

You can use the fancy round transistor sockets or inline sockets for Q1-Q3. The two pads in the middle are connected. Note that the little tab is for the emitter.



The controls on this fuzz circuit are highly interactive. They are unusual in that the Sustain and Timbre are voltage dividers (the Vol control is as well but this is normal). This means when you turn them all the way down, it actually kills the signal. So, it takes a bit getting used to because, as guitar players, we are not accustomed to having three knobs that kill our riffs. We like knobs that make our riffs louder and crunchier, not puny and quiet. And, the Bumblebee certainly does that, too. To understand how it works think of it like this:

- The Sustain pot controls how much output signal from Q1/Q2 goes to Q3. Low settings means small signal and vice-versa. The more signal, the more saturation. I tend to keep this under half-way up. After that it gets very unruly!
- The Balance pot varies the bias point on Q3. At low settings little or no voltage gets through to the Q3 collector so the overall output is low (or off). When it's turned up, the output swings upward (IOW louder) as Q3 is brought into bias. It is essentially acts as a clamp on the Sustain pot in that allows you to dial down the output volume without reducing the total fuzz you get from the Sustain control.
- The Timbre control is essentially a low cut in reverse. At low settings the low end frequencies flatten out. As it is turned up more bass (and more volume) gets through to the output.
- The most important thing to remember - every control you turn up makes this thing a lot louder and fuzzier. So, the added volume control will help a lot to balance out different settings.

Voltages - 9.42v supply							
IC1	TC1044	Q1		Q2		Q3	
1	9.22	C	-3.12	C	-3.1	C	-1.15
2	5.57	B	-1.64	B	-1.59	B	-46mV
3	0	E	-1.59	E	-1.48	E	0
4	-3.72						
5	-9.15						
6	4.34						
7	5.7						
8	9.22						

The voltages for Q3 are read when the Balance pot is all the up. When it is all the way down, Q3 is at ground.

