Corpulent Bee

Based on:
Beetronics Fat BEE

Amount of parts:
Average, total 49 components

Enclosure type:
125b

Effect type:
Fat overdrive

Technology:
Dual opamp - Jfet

Get your board at:
Corpulent Bee

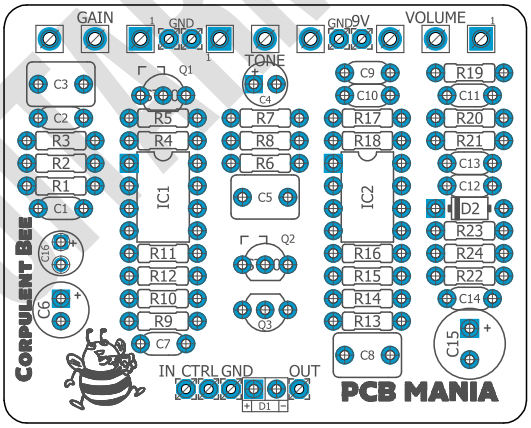
Build difficult:
Intermediate

Power consumption:
9V

Get your kit at:
Das Musikding (Europe)

Project overview:

Inspired by Beetronics Fat BEE, a fat overdrive circuit created in collaboration with the mythical pedal designer Howard Davis. Become the beekeeper of the fattest and sweetest buzzing overdrive sounds!



Index

Introduction

Corpulent Bee mix the typical JFET overdrive natural and amp-like sounding with the fat and gurgling sounds of Beetronics pedals. The result is those unique sweet, smooth waves that you are going to love.

The basic tone is nearly transparent, except for a tender softening of the top end and a throaty thickening of the lower mids. Towards maximum gain, the drive doesn't get that fuzzy but instead grows in warm, sweet, and stickiness, with very little 'air' but plenty of midrange bark to let choppy power chords cut through.

The tone knob acts essentially like an amp's presence control, varying from extra spiky at the top of its range to smooth near the bottom.

Harvest the best tones with this buzzing board and get its unique, tasty sounds!

Controls

- Gain
- Tone
- Volume

Bill of materials

Resistors	
Part	**Value**
R1	10M
R2	390K
R3	4K7
R4	10M
R5	12K
R6	2K6
R7	51K
R8	27K
R9	56K
R10	10M
R11	12K
R12	27K
R13	1K8
R14	560R
R15	1M
R16	10K
R17	3K3
R18	10K
R19	47k
R20	2K2
R21	10M
R22	4K7
R23	10K
R24	10K

Capacitors	
Part	**Value**
C1	22n
C2	56p
C3	1u
C5	1u
C7	1n5
C8	1u
C9	33n
C10	2n2
C11	220p
C12	15n
C13	100n
C14	100n

Electrolytics Capacitors	
Part	**Value**
C4	22u
C6	22u
C15	470u
C16	10u

Potentiometers	
Part	**Value**
GAIN	A1M
TONE	B100K
VOLUME	A100K

Trimpots	
Part	**Value**
IC1	TL072
IC2	TL072

Transistors	
Part	**Value**
Q1	J113
Q2	J113
Q3	2N5088

Diods	
Part	**Value**
D1	LEDSTATUS-LED
D2	1N5817

Shopping list

Resistors		
Qty	**Value**	**Parts**
4	10K	R16, R18, R23, R24
4	10M	R1, R4, R10, R21
2	12K	R5, R11
1	1K8	R13
1	1M	R15
2	27K	R8, R12
1	2K2	R20
1	2K6	R6
1	390K	R2
1	3K3	R17
1	47k	R19
2	4K7	R3, R22
1	51K	R7
1	560R	R14
1	56K	R9

Capacitors		
Qty	**Value**	**Parts**
2	100n	C13, C14
1	15n	C12
1	1n5	C7
3	1u	C3, C5, C8
1	220p	C11
1	22n	C1
1	2n2	C10
1	33n	C9
1	56p	C2

Electrolytics Capacitors		
Qty	**Value**	**Parts**
1	10u	C16
1	22u	C4
1	22u	C6
1	470u	C15

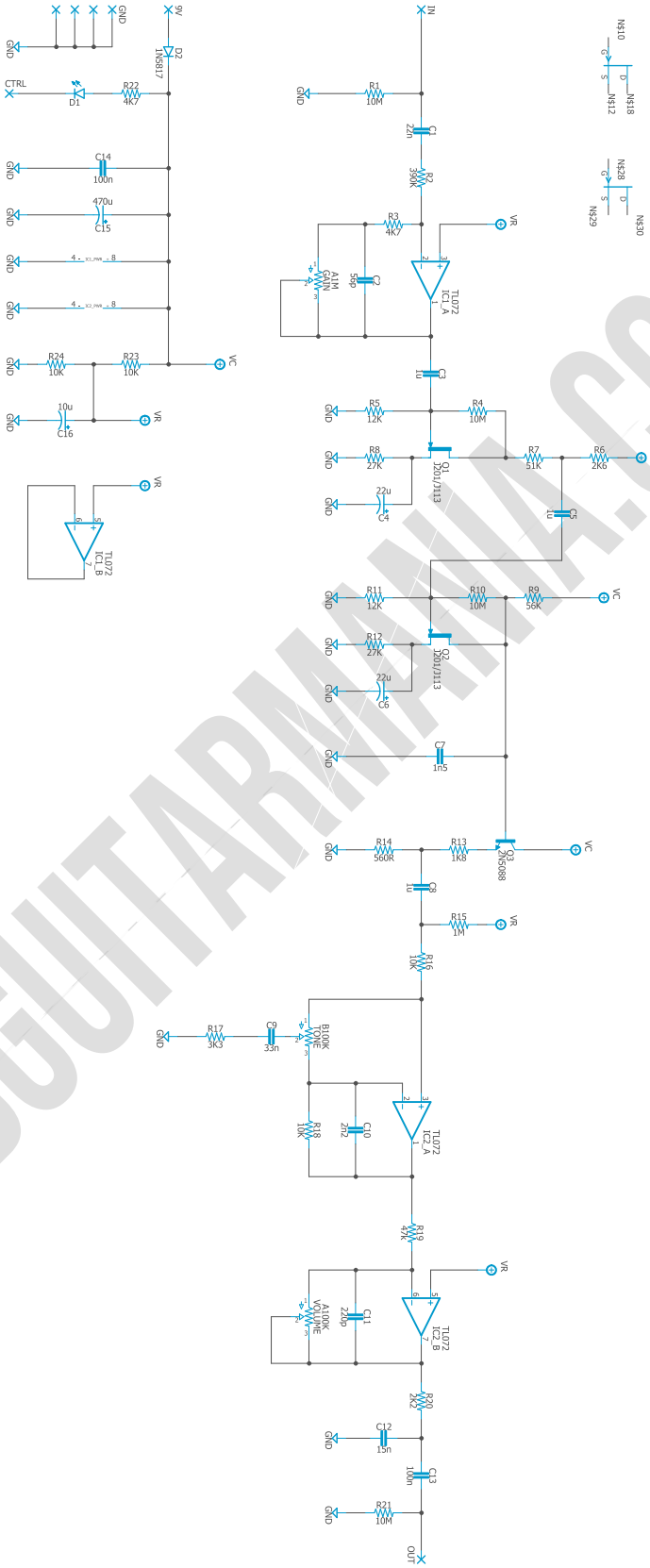
Potentiometers		
Qty	**Value**	**Parts**
1	A100K	VOLUME
1	A1M	GAIN
1	B100K	TONE

IC		
Qty	**Value**	**Parts**
2	TL072	IC1, IC2

Transistors		
Qty	**Value**	**Parts**
1	2N5088	Q3
2	J113	Q1, Q2

Diods		
Qty	**Value**	**Parts**
1	1N5817	D2
1	LEDSTATUS-LED	D1

Schematic



Components Recommendations

As many people like to experiment with some pedals with higher voltage, always ensure your **electrolytic capacitors'** max tolerance is over 25v.

This board has been tested using Film box capacitors for most of the values over 1nf and ceramics discs for those under 1nf. However, high-quality components such as Wima's Capacitors and Panasonic's electrolytics can deliver a better performance.

All the resistors used for testing this project are 1/4W Metal Film.

The BOM and Shopping list are exclusive regarding this project. It doesn't include all the hardware like the 3PDT bypass switch, audio/dc jacks, enclosure, etc.

Build Notes

If this is one of your first projects, I recommend you to take a look at our Pedal Building Guide.

For a successful and tidy build, it's recommended the following order:

1. Resistors & diodes
2. Capacitors, starting with the smaller ones and the ceramic ones.
3. Electrolytic capacitors (always check the polarity)
4. Transistors
5. Wires
6. Potentiometers and switches
7. Off-board wiring

Wiring Diagram

All our projects include a free 3PDT Board to make the wiring easier and tidier. Also, all of our PCBs feature the status LED on board.

The pad named "Ctrl" or "LED" is the one that controls the status of the led; wire it to the "LED" pad on the 3PDT board or in the control slug of your 3PDT.

This board has been designed to match our EZ 3PDT PCB; check it here to access our Pedal Wiring Guide.

Drill Template

This Project has been planned to fit into a 125b enclosure type.

Check the Attached “Drilling templates” to drill the box properly. The files are on Scale 1:1, ready to print on an A4 page.

Licensing and Usage

We really appreciate your trust and support in buying this PCB, as well as your will to dive into the DIY electronics world. For us, that's why you can make this project work properly and enjoy not only the building process but also experiment and play with it on your rig.

We try to reply to every question we receive on our email or our social media. Still, we try to encourage all our customers to join our PCB Guitar Mania – Builders Group on Facebook to post all your doubts, issues, suggestions, or requests, share your builds, and have some feedback from other fellow builders and us!

We tested all our projects following this same guide on their standard configurations. Although, not all of the variations and mods have necessarily been checked. These are suggestions based on the schematic analysis and the experiences and opinions of others. Feel free to share with us your views and recommendations regarding the mods your personal experimentation.

These boards may be used for commercial endeavors in any quantity unless expressly noted. No attribution is necessary, though accreditation or a link back is always much appreciated.

If you are a builder planning to make your own run of pedals, we also offer the service of custom-made boards with your brand and logo, design according to your specifications.

The only usage restrictions are that, first, you cannot resell the PCB as part of a kit without prior arrangement with us, and second, you cannot scratch off the silkscreen or other way of trying to hide our logos and the source of the PCBs. Like it's written above, if you want to have your designs with your brand and logo, we could undoubtedly reach an agreement.

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