

DIRTBABY

2015 edition rev.1

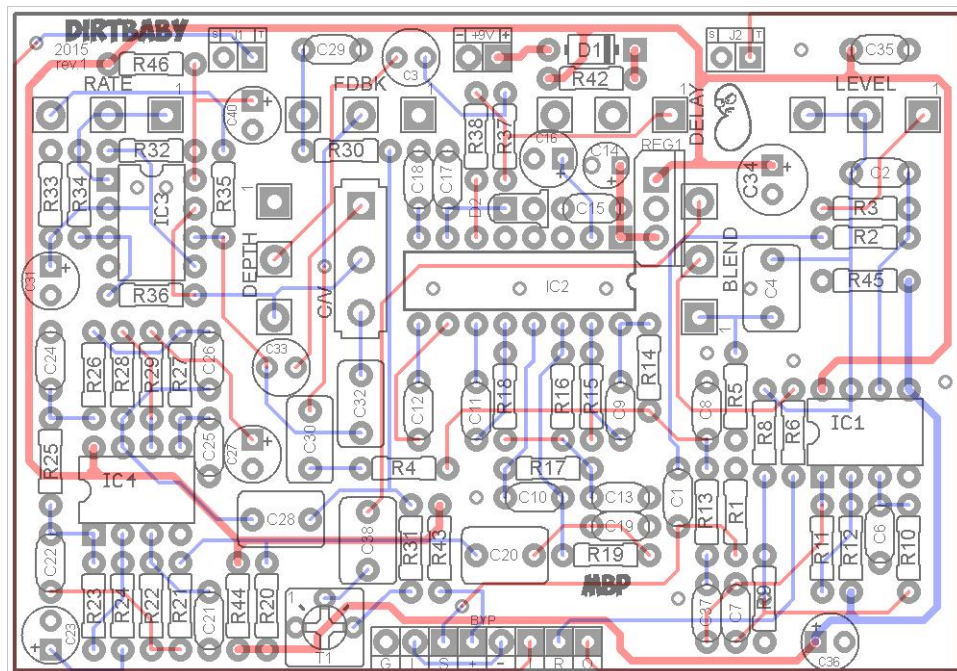
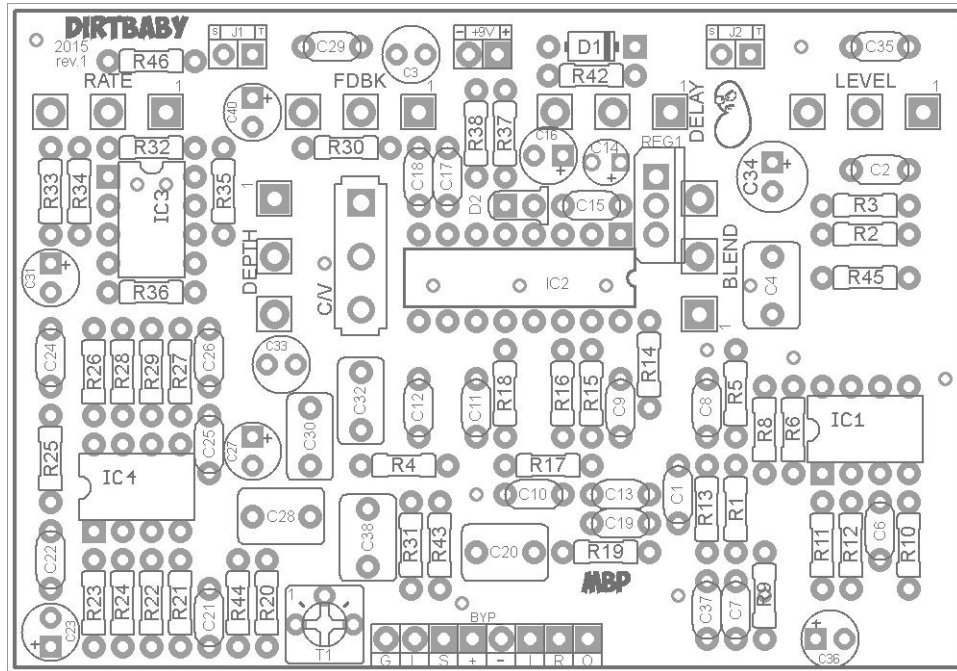
FX TYPE: DELAY

Based on the EHX® DMM™

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NOTE: Rev.1 board removes the non-functioning Tails mod (Tails pads and R40, R41 resistors).

3.325"W x 2.325"H



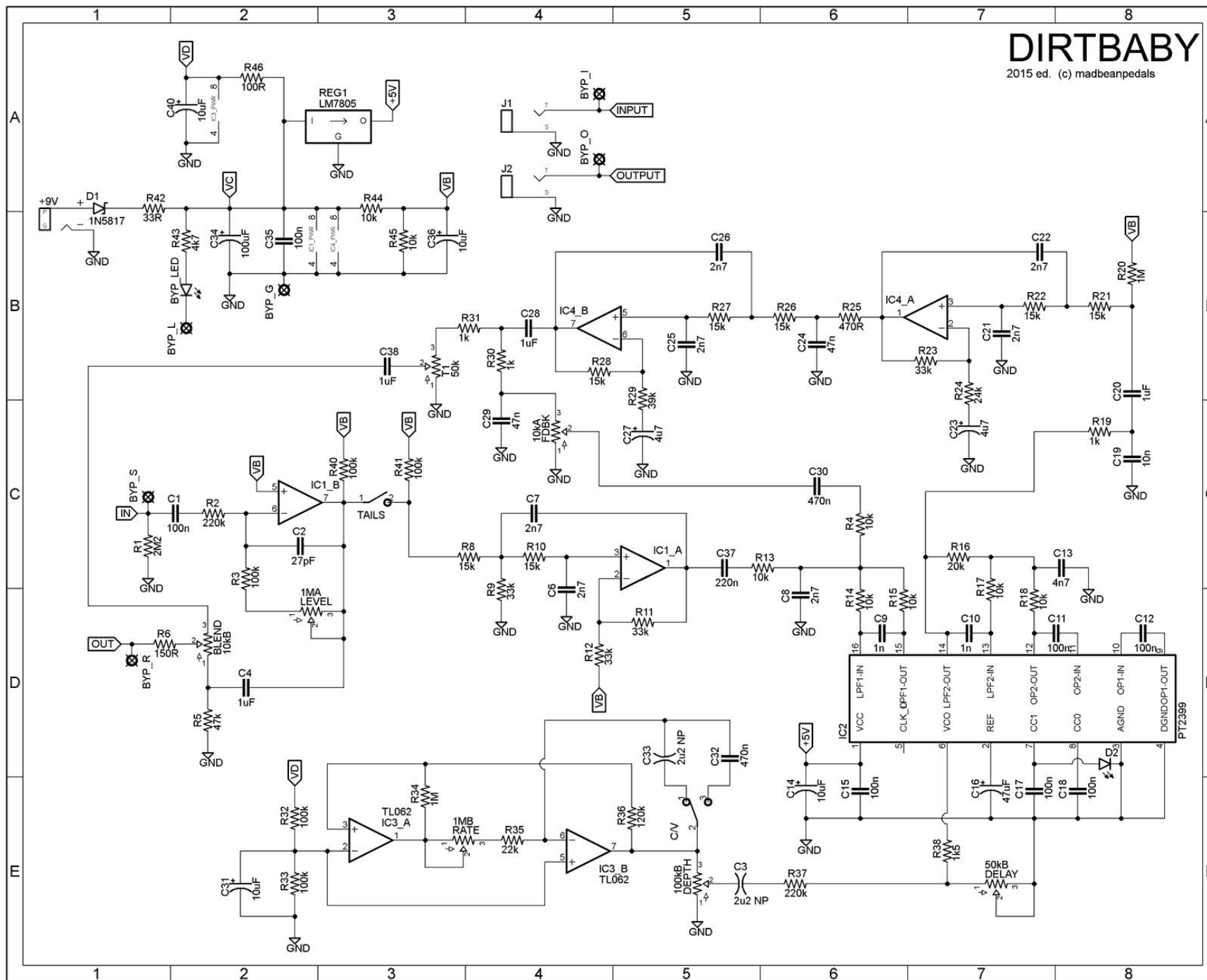
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B.O.M.					
Resistors		Caps		Didoes	
R1	2M2	C1	100n	D1	1N5817
R2	220k	C2	27pF	D2	LED
R3	100k	C3	2u2 NP	IC	
R4	10k	C4	1uF	IC1	TL062
R5	47k	C6	2n7	IC2	PT2399
R6	150R	C7	2n7	IC3	TL062
R8	15k	C8	2n7	IC4	TL062
R9	33k	C9	1n	Regulator	
R10	15k	C10	1n	REG1	LM7805
R11	33k	C11	100n	Switch	
R12	33k	C12	100n	C/V	SPDT
R13	10k	C13	4n7	Trimpot	
R14	10k	C14	10uF	T1	50k
R15	10k	C15	100n	Pots	
R16	20k	C16	47uF	RATE	1MB
R17	10k	C17	100n	DELAY	50kB
R18	10k	C18	100n	DEPTH	100kB
R19	1k	C19	10n	FDBK	10kA
R20	1M	C20	1uF	LEVEL	1MA
R21	15k	C21	2n7	BLEND	10kB
R22	15k	C22	2n7		
R23	33k	C23	4u7		
R24	24k	C24	47n		
R25	470R	C25	2n7		
R26	15k	C26	2n7		
R27	15k	C27	4u7		
R28	15k	C28	1uF		
R29	39k	C29	47n		
R30	1k	C30	470n		
R31	1k	C31	10uF		
R32	100k	C32	470n		
R33	100k	C33	2u2 NP		
R34	1M	C34	100uF		
R35	22k	C35	100n		
R36	120k	C36	10uF		
R37	220k	C37	220n		
R38	1k5	C38	1uF		
R40	omit	C40	10uF		
R41	omit				
R42	33R				
R43	4k7				
R44	10k				
R45	10k				
R46	100R				

Shopping List			
Value	QTY	Type	Rating
33R	1	Metal / Carbon Film	1/4W
100R	1	Metal / Carbon Film	1/4W
150R	1	Metal / Carbon Film	1/4W
470R	1	Metal / Carbon Film	1/4W
1k	3	Metal / Carbon Film	1/4W
1k5	1	Metal / Carbon Film	1/4W
4k7	1	Metal / Carbon Film	1/4W
10k	8	Metal / Carbon Film	1/4W
15k	7	Metal / Carbon Film	1/4W
20k	1	Metal / Carbon Film	1/4W
22k	1	Metal / Carbon Film	1/4W
24k	1	Metal / Carbon Film	1/4W
33k	4	Metal / Carbon Film	1/4W
39k	1	Metal / Carbon Film	1/4W
47k	1	Metal / Carbon Film	1/4W
100k	3	Metal / Carbon Film	1/4W
120k	1	Metal / Carbon Film	1/4W
220k	2	Metal / Carbon Film	1/4W
1M	2	Metal / Carbon Film	1/4W
2M2	1	Metal / Carbon Film	1/4W
27pF	1	Ceramic	25v min.
1n	2	Film	25v min.
2n7	7	Film	25v min.
4n7	1	Film	25v min.
10n	1	Film	25v min.
47n	2	Film	25v min.
100n	7	Film	25v min.
220n	1	Film	25v min.
470n	2	Film	25v min.
1uF	4		25v min.
2u2 NP	2	Electrolytic (non-polar)	25v min.
4u7	2	Electrolytic	25v min.
10uF	4	Electrolytic	25v min.
47uF	1	Electrolytic	25v min.
100uF	1	Electrolytic	25v min.
1N5817	1		
LED	1	Green, Diffused	5mm
TL062	3		
PT2399	1		
LM7805	1	or, LM78L05	
SPDT	1	On/On, PCB Mount	
50k	1	Bourns 3362P	
1MB	1	PCB Mount, Short Pin	16mm
50kB	1	PCB Mount, Short Pin	16mm
100kB	1	PCB Mount, Short Pin	16mm
10kA	1	PCB Mount, Short Pin	16mm
1MA	1	PCB Mount, Short Pin	16mm
10kB	1	PCB Mount, Short Pin	16mm

DIRTBABY

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Overview

The **Dirtbaby** is a PT2399-based delay modeled after the Deluxe Memory Man™. It is an attempt to re-design the DMM™ without the use of the stock, out-of-production (and expensive) MN3005/MN3008 BBDs. While I will not claim the **Dirtbaby** sounds just like the DMM, it is at least a genuine alternative to the standard PT2399 type delays out there and does manage to cop some of the feel of the DMM™.

Design

The design eliminates the DMM compander but retains the input section (with one resistor change for higher input impedance), the filtering and a simplified version of the LFO (with added Rate control). The Feedback path skips the pre-emphasis filtering and goes straight back to the input of the PT2399 which keeps the delays from getting too “filtered sounding”. The T1 trimmer sets the overall delay output level before the Blend pot. This gives you much more control over the dry/wet blending of the effect. Lastly, there is an option for Tails bypass if you want the repeats to spill over when the effect is disengaged.

The Rate and C/V switch have some overlap in the range of modulation, but they do offer variety. With the Rate knob set most of the way down the C/V switch operates much like the modulation on the DMM™. The Rate control then allows you to take the modulation into warp speed for some interesting sounds.

Controls

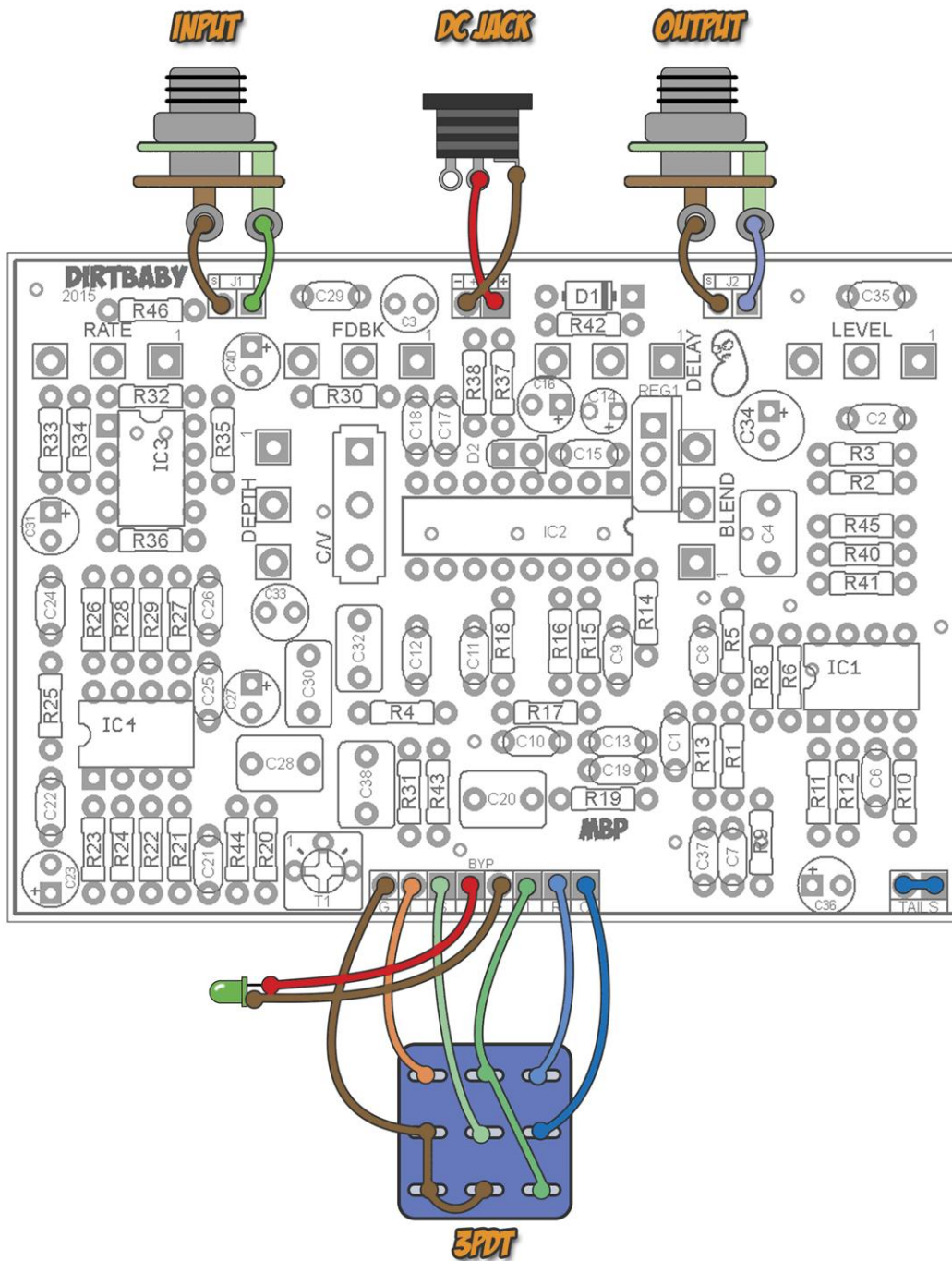
- **LEVEL** – The gain of the input section. At maximum it will produce some distortion like the DMM™.
 - **FDBK** – The number of delay repeats from one to many. High levels of feedback will produce self-oscillation.
 - **DELAY** – The total amount of delay from a few ms to about 600ms.
 - **BLEND** – The ratio of dry to wet signal.
 - **RATE** – The speed of the LFO which controls the delay modulation.
 - **DEPTH** – The intensity of the modulation.
 - **C/V** – This switch allows you to go between “chorus” and “vibrato” type modulation.
 - **T1** – This trimmer lets you set the delay output before the Blend knob.
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The Mod That Wasn't

The **Dirtbaby** was meant to offer two bypass modes; true and “tails”. Tails mode means that when bypassed, the delay portion spills over the dry signal so that the repeats are not cut off abruptly. In most PT2399 delays this is very easy to do, however after more testing I discovered that the method I had employed on the **Dirtbaby** does not work very well. The problem is that with tails bypass there is a significant “pop” when bypassing the delay portion and it cannot be eliminated easily. I tried various methods of using coupling caps combined with resistors and even an optical solution and in each instance either the pop remains OR the pop is eliminated but the resulting sound is altered in an undesirable way. Therefore, I am recommending against wiring the **Dirtbaby** for Tails bypass at this time.

NOTE: This mod was removed for the Rev.1 board (Tails pads and R40, R41).

True Bypass Wiring



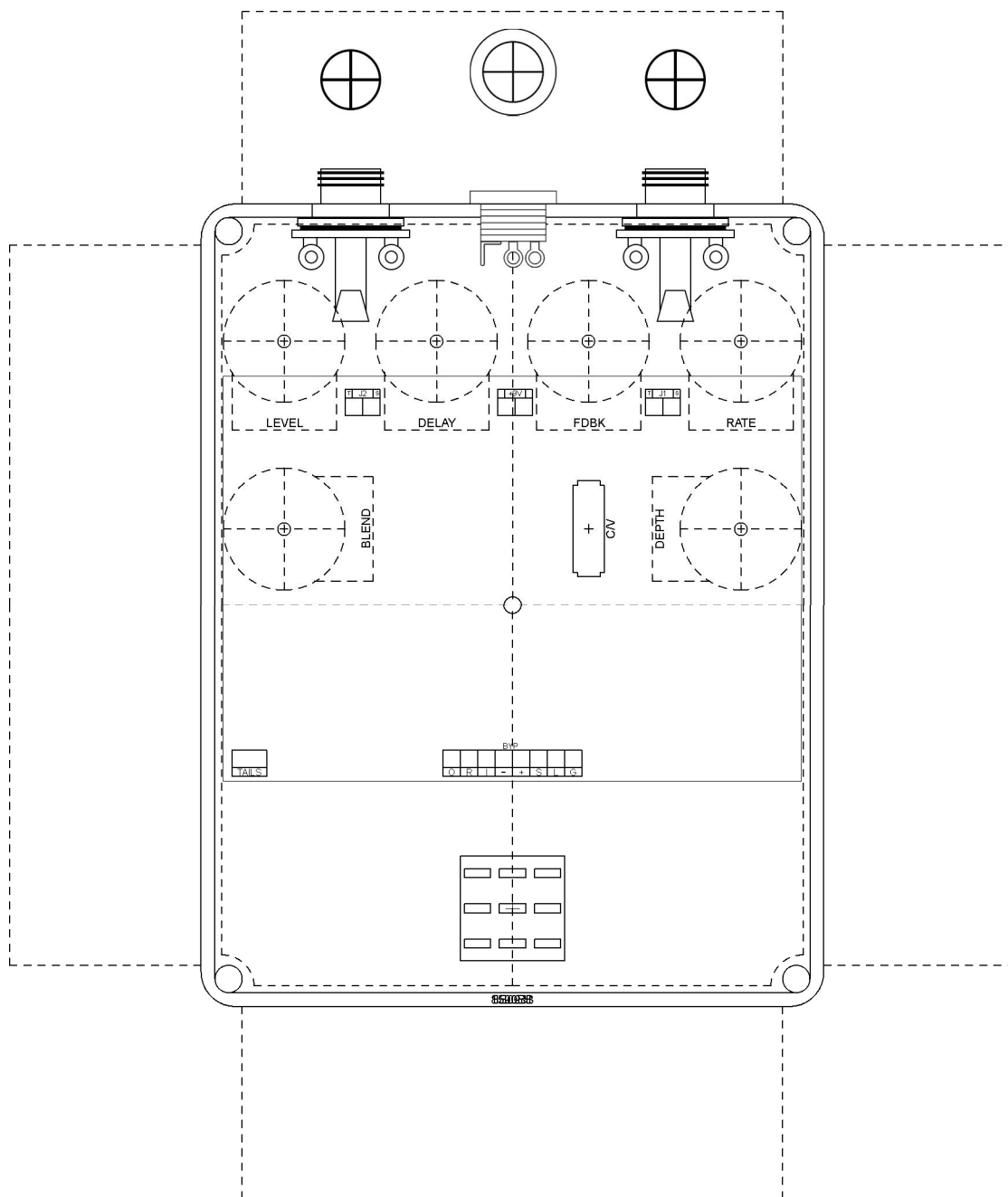
Be sure to jumper the two “Tails” pads on the right side of the PCB! You do not need to populate R40 or R41.

The “+” and “-” pads on the BYP area of the PCB are for your indicator LED. It can be soldered directly to the PCB and mounted to the enclosure with or without a bezel.

Ignore the “Tails” pads on the right for wiring the rev.1 board.

1590BB Drilling Guide

5.8"W x 6.8"H



This template is approximate.

This is the top-down view. Download the Photoshop file here:
www.madbeanpedals.com/projects/Dirtbaby/Dirtbaby_DRILL.zip

Note on the C/V switch: on the DMM, EHX calls what I consider “chorus” Vibrato and vice-versa. On the **Dirtbaby** I consider the “chorus” mode to be when the switch is in the up position and Vibrato when it is down. Listen and decide for yourself.

Voltages

9.4v One Spot Supply															
IC1		IC1		IC1		IC1		IC1		IC1		IC1		IC1	
1	1.6	1	4.95	1	varies	1	4.24	1	4.24	1	4.24	1	4.24	1	4.24
2	2.93	2	2.38	2	4.41	2	4.24	2	4.24	2	4.24	2	4.24	2	4.24
3	2.92	3	0	3	varies around 4v	3	3.9	3	3.9	3	3.9	3	3.9	3	3.9
4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0
5	4.24	5	2.85	5	4.41	5	4.23	5	4.23	5	4.23	5	4.23	5	4.23
6	4.26	6	2.37	6	4.42	6	4.24	6	4.24	6	4.24	6	4.24	6	4.24
7	4.24	7	0.71	7	varies around 4v	7	4.24	7	4.24	7	4.24	7	4.24	7	4.24
8	8.89	8	0.74	8	8.85	8	8.89	8	8.89	8	8.89	8	8.89	8	8.89
		9	2.39												
		10	2.39												
		11	2.39												
		12	2.39												
		13	2.39												
		14	2.39												
		15	2.39												
		16	2.39												

Other Mods

1. To make the **Dirtbaby** darker, use 2n2 for C9 and C10 and/or 4n7 for C8.
 2. To give the **Dirbaby** more “tape-like” repeats, increase C13 to 15n. You should only do when doing mod 1 (otherwise it will be too noisy).
 3. To decrease the maximum depth of the modulation, increase R37 to 470k or 1M.
 4. To decrease the maximum rate of the modulation increase R35 to 68k or 120k (I prefer 68k here).
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“Rev. 0” board (prior to 3.15.15)

