

PORK BARREL

2015 ed. Rev.1

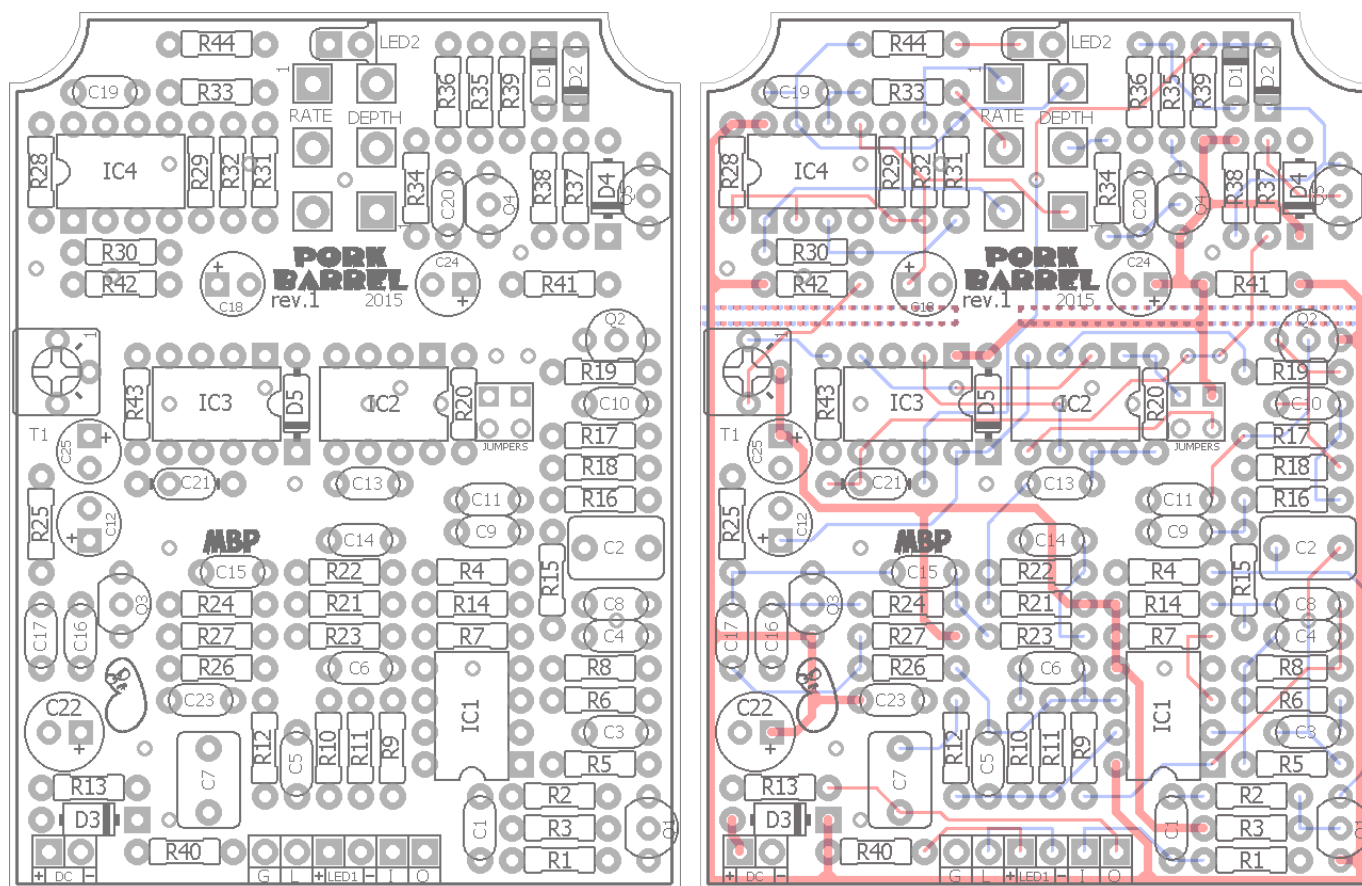
FX Type: **Chorus**

Based on the Boss® CE-2™

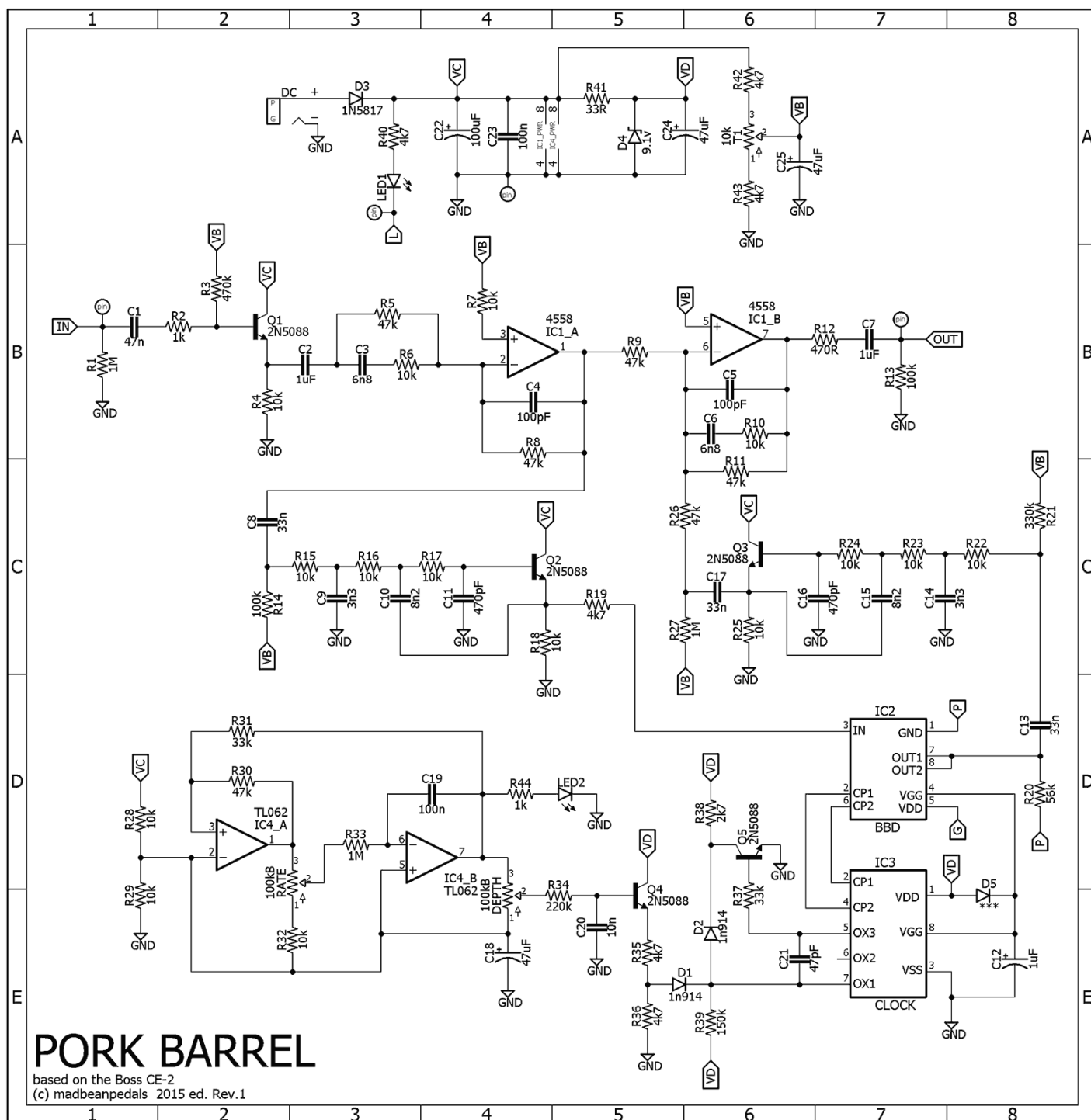
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This **Rev.1 PCB** fixes the resistor mistake made on the original 2015 ed. PCB and is marked "Rev.1" on the PCB silkscreen. If you purchased the Pork Barrel 2015 PCB **prior to July 27th**, refer to the last page of this document which details how to fix the mistake (don't worry, it is easy). The Rev.1 PCB has no other changes from the 2015 PCB. I have also removed references to running the Pork Barrel @ 15v. If you want higher voltage, use 12v instead. Please [see this post](#) which provides more detail.

2.1" W x 2.75" H



Terms of Use: You are free to use purchased **Pork Barrel** circuit boards for both DIY and small commercial operations. You may not offer **Pork Barrel** boards for resale or as part of a "kit" in a commercial fashion. Peer to peer re-sale is, of course, okay



R1 is optional – not on the stock unit. It does not appear to pop in bypass without the pull-down. YMMV.

B.O.M.							
Resistors		Resistors		Caps		Diodes	
R1	1M	R26	47k	C1	47n	D1, D2	1n914
R2	1k	R27	1M	C2	1uF	D3	1N5817
R3	470k	R28	10k	C3	6n8	D4	Zener
R4	10k	R29	10k	C4	100pF	D5	***
R5	47k	R30	47k	C5	100pF	Transistors	
R6	10k	R31	33k	C6	6n8	Q1 - Q5	2N5088
R7	10k	R32	10k	C7	1uF	I.C.	
R8	47k	R33	1M	C8	33n	IC1	4558
R9	47k	R34	220k	C9	3n3	IC2	BBD
R10	10k	R35	4k7	C10	8n2	IC3	CLOCK
R11	47k	R36	4k7	C11	470pF	IC4	TL062
R12	470R	R37	33k	C12	1uF	Trimmer	
R13	100k	R38	2k7	C13	33n	T1	10k
R14	100k	R39	150k	C14	3n3	Pots	
R15	10k	R40	4k7	C15	8n2	DEPTH	100kB
R16	10k	R41	33R	C16	470pF	RATE	100kB
R17	10k	R42	4k7	C17	33n		
R18	10k	R43	4k7	C18	47uF		
R19	4k7	R44	1k	C19	100n		
R20	56k			C20	10n		
R21	330k			C21	47pF		
R22	10k			C22	100uF		
R23	10k			C23	100n		
R24	10k			C24	47uF		
R25	10k			C25	47uF		

D5 was left for legacy reasons. Please omit.

D4 is an optional voltage protection Zener diode. Use the list below to determine what value to use.

BBD	Clock	Max vDC	D4
MN3007	MN3101	15v	15v
MN3207	MN3102	10v	9.1v
v3207	v3102	10v	9.1v
BL3207	BL3102	10v	9.1v

This list shows what BBDs and corresponding clocks you can use in building the Pork Barrel. The CE-2 is traditionally a 9v effect. However, with the MN3007 you can run it at up to 12v, if you like. More voltage generally means more headroom and dynamics (keep in mind that the difference b/w 9 and 12v is going to be pretty small). The MN3007 and MN3207 are not currently in production so you should use a reliable supplier if you plan to purchase either one of those.

MN3007: <http://smallbear-electronics.mybigcommerce.com/ic-mn3007/>

MN3101: <http://smallbear-electronics.mybigcommerce.com/ic-mn3101/>

V3207: <http://smallbear-electronics.mybigcommerce.com/ic-v3207d/>

V3102: <http://smallbear-electronics.mybigcommerce.com/ic-v3102d/>

BL3207: <http://smallbear-electronics.mybigcommerce.com/ic-bl3207/>

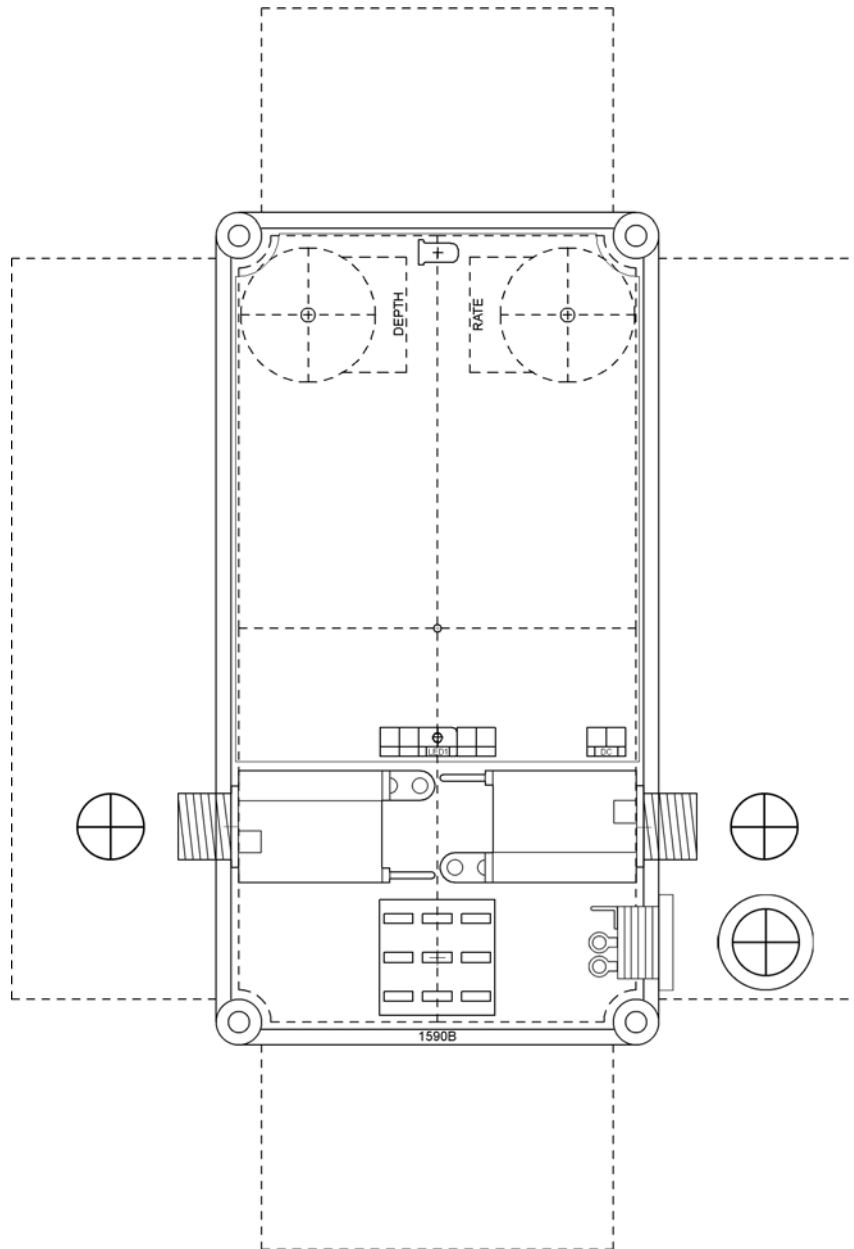
BL3102: <http://smallbear-electronics.mybigcommerce.com/ic-bl3102/>

Note: The MN3008/BL3208/V3208 is not appropriate for the Pork Barrel.

Shopping List			
Value	QTY	Type	Rating
33R	1	Metal / Carbon Film	1/4W
470R	1	Metal / Carbon Film	1/4W
1k	2	Metal / Carbon Film	1/4W
2k7	1	Metal / Carbon Film	1/4W
4k7	6	Metal / Carbon Film	1/4W
10k	15	Metal / Carbon Film	1/4W
33k	2	Metal / Carbon Film	1/4W
47k	6	Metal / Carbon Film	1/4W
56k	1	Metal / Carbon Film	1/4W
100k	2	Metal / Carbon Film	1/4W
150k	1	Metal / Carbon Film	1/4W
220k	1	Metal / Carbon Film	1/4W
330k	1	Metal / Carbon Film	1/4W
470k	1	Metal / Carbon Film	1/4W
1M	3	Metal / Carbon Film	1/4W
47pF	1	Ceramic	25v min
100pF	2	Ceramic	25v min
470pF	2	Ceramic	25v min
3n3	2	Film	25v min
6n8	2	Film	25v min
8n2	2	Film	25v min
10n	1	Film	25v min
33n	3	Film	25v min
47n	1	Film	25v min
100n	2	Film	25v min
1uF	2	Film	25v min
1uF	1	Electrolytic	25v min
47uF	3	Electrolytic	25v min
100uF	1	Electrolytic	25v min
1n914	2		
1N5817	1		
Zener	1	9.1 / 15v	1W
2N5088	5		
4558	1		
BBD	1	see notes	
CLOCK	1	see notes	
TL062	1		
10k	1	Bourns 3362P	
100kB	2	PCB Short Pin	16mm

1590B Drill Guide

4.44" W x 6.47" H

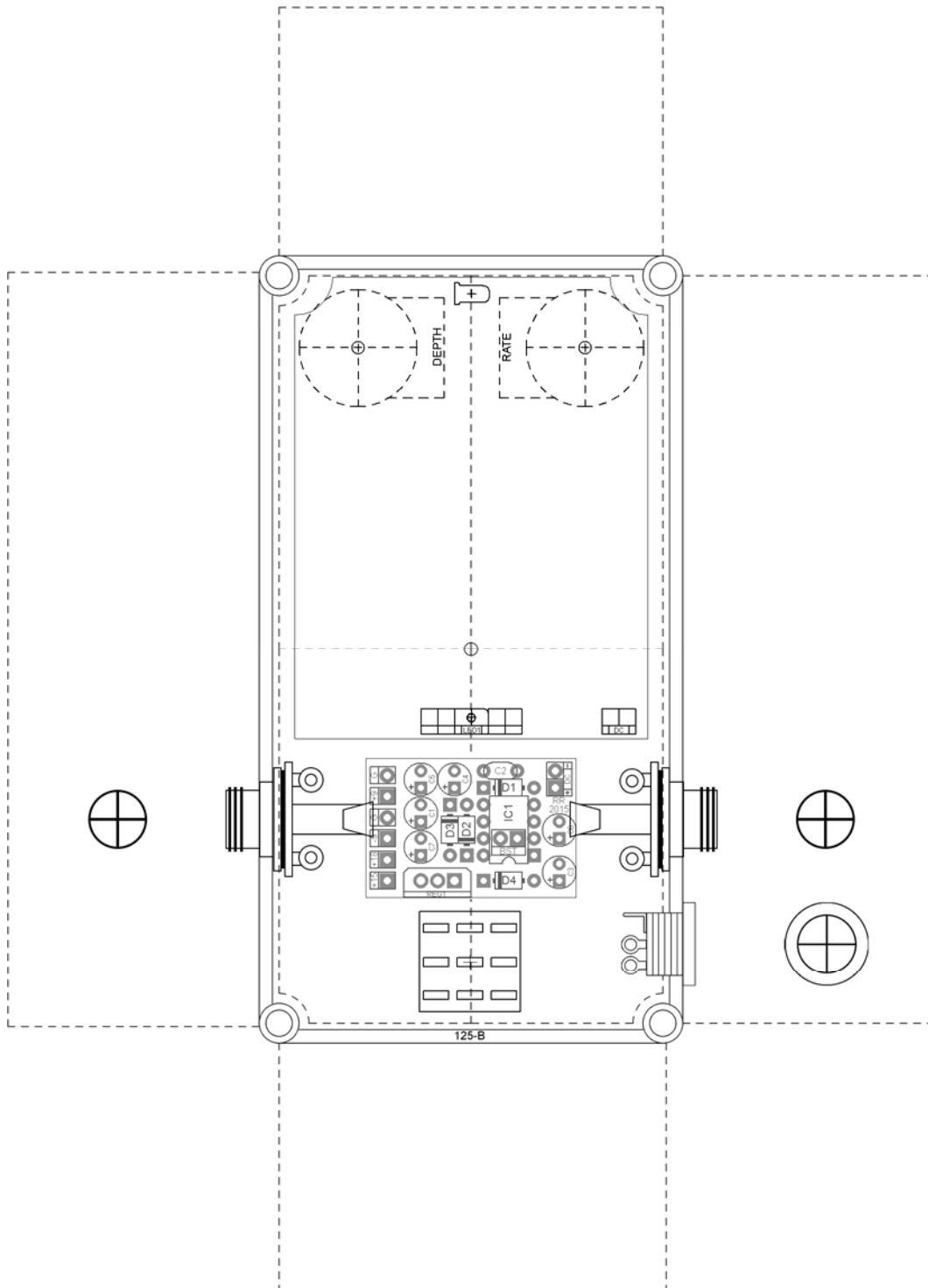


This will be a tight fit. If you are building the P.B. into a 1590B, I suggest using the “Lumberg” style DC jack instead of the typical plastic one shown here. This will give your input jack a bit more space: <http://smallbear-electronics.mybigcommerce.com/dc-power-jack-all-plastic-unswitched/>

You should also consider using mono enclosed jacks here: <http://smallbear-electronics.mybigcommerce.com/1-4-in-mono-enclosed-111/> or, these low profile ones: <http://smallbear-electronics.mybigcommerce.com/stereo-low-profile-pc-mount/>

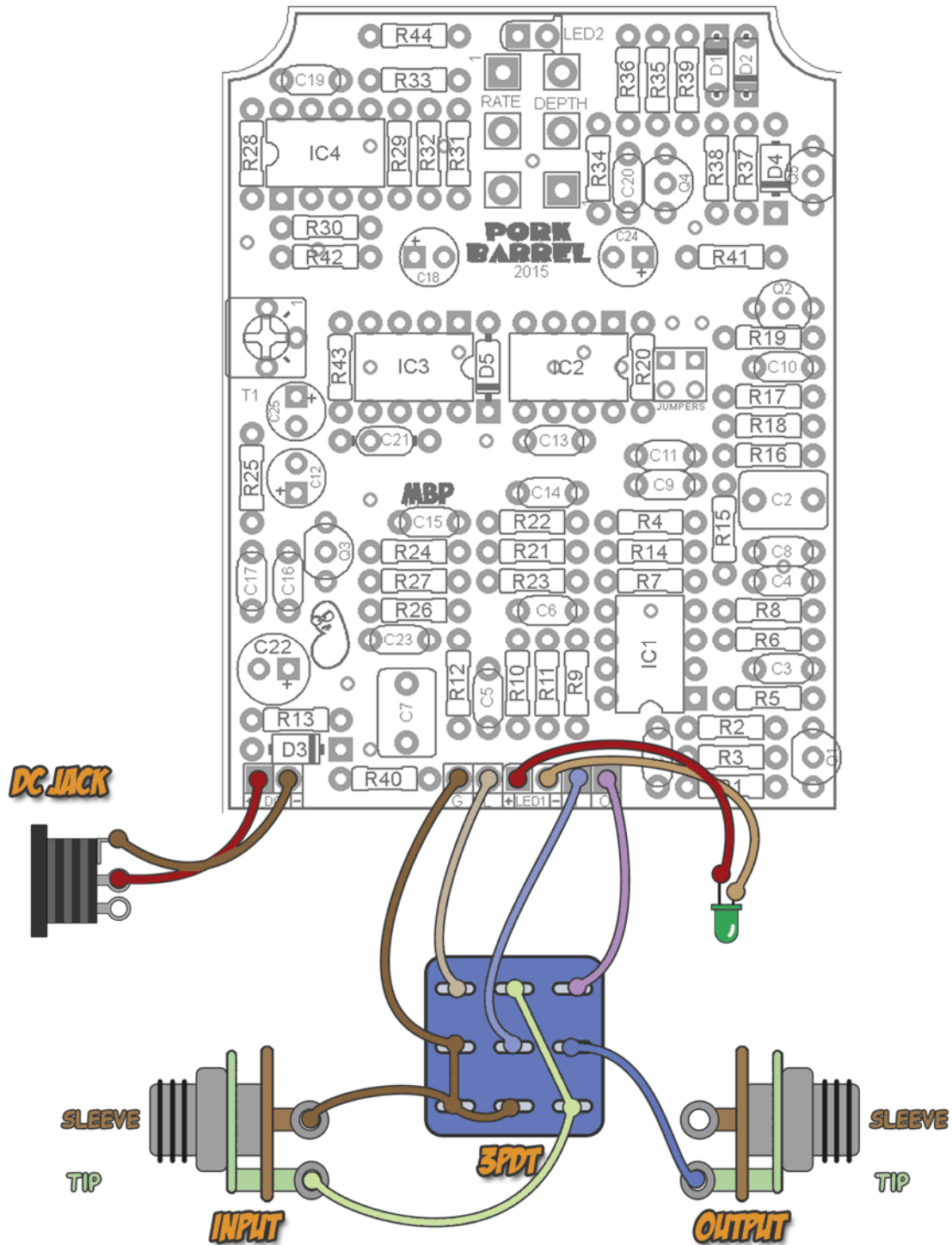
125B Drill Guide

5.52" W x 7.65" H



The 125B will be an easier fit if you don't mind a larger enclosure. You can fit a Road Rage board in here if you are using a MN3007 at a higher voltage. You might also be able to use a 3PRR board instead of the Road Rage which would give you bypass switching, too. You do not need those boards for 9v operation...only if you are going to run the Pork Barrel at a higher voltage.

Wiring



You can mount the indicator LED1 directly to the PCB, if you prefer. Use the drill hole indicated on the drilling guide. LED2 should be mounted directly to the PCB, as well.

2015 Change Log

- New layout. Potentiometers moved further apart. I/O pads relocated. No significant circuit changes.
 - Added LED2 Rate indicator.
-

Overview

The **Pork Barrel** is a clone of the classic Boss® CE-2™. The CE-2™ has a signature sound and been a staple of many guitar and bass pedal boards for dozens of years. Next to the EHX Small Clone, it is one of the most instantly recognizable chorus effects out there. Even if you don't like chorus, this is one of the best analog ones ever made.

The Pork Barrel is designed to utilize several different BBD types depending on availability and price. Minimal modifications are required to set the build up for these different BBDs, and this will be explained in detail later on in this document.

Special thanks to forum member **Scruffie** who provided assistance in merging the different BBD versions onto one PCB!

Controls

RATE: Sets the speed of the LFO driver for the chorus.

DEPTH: The overall thickness or density of the chorus effect.

What are the advantages of the different BBDs?

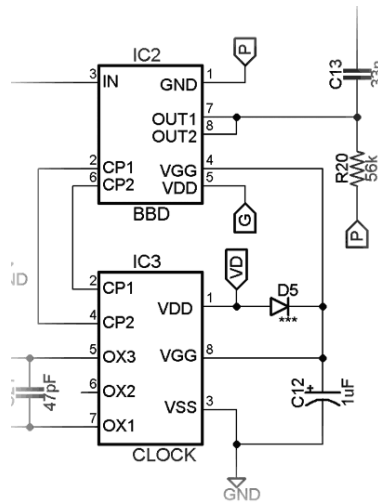
The vintage unit used the MN3007. This BBD allows a higher voltage supply than the others. You can safely use 9 – 12v DC to power the effect, with the higher voltage providing additional headroom. Note that if you use 12v, you will want it to be well regulated either by your power supply, or by using a charge pump like the Road Rage. Anything over 12v will not work for this design.

The MN3207/v3207 and BL3207 have lower current requirements, are less expensive and easier to find. These BBDs should not be operated at higher than 9vDC. Be sure to see the notes on how to build the different versions.

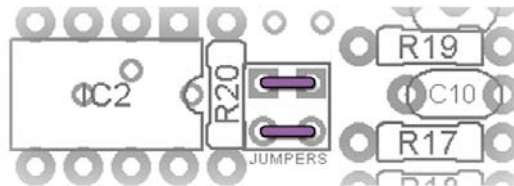
Jumpers

You must set one pair of jumpers on the Pork Barrel PCB to correspond to the type of BBD you are using. These jumpers determine which pins get power and ground, and sets R20 to be a pull-up or pull-down resistor.

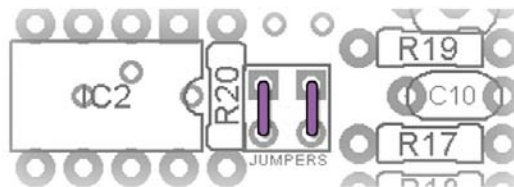
(cont'd)



For MN3007, set the jumpers horizontal.



For MN3207, V3207 and the BL3207, set the jumpers vertical.



Note: The manufacturer extended the solder mask over the top and bottom portion of these jumper pads. However, they are plated through so they will solder just fine. Simply heat the jumpers and let solder flow into the pads naturally.

Biasing

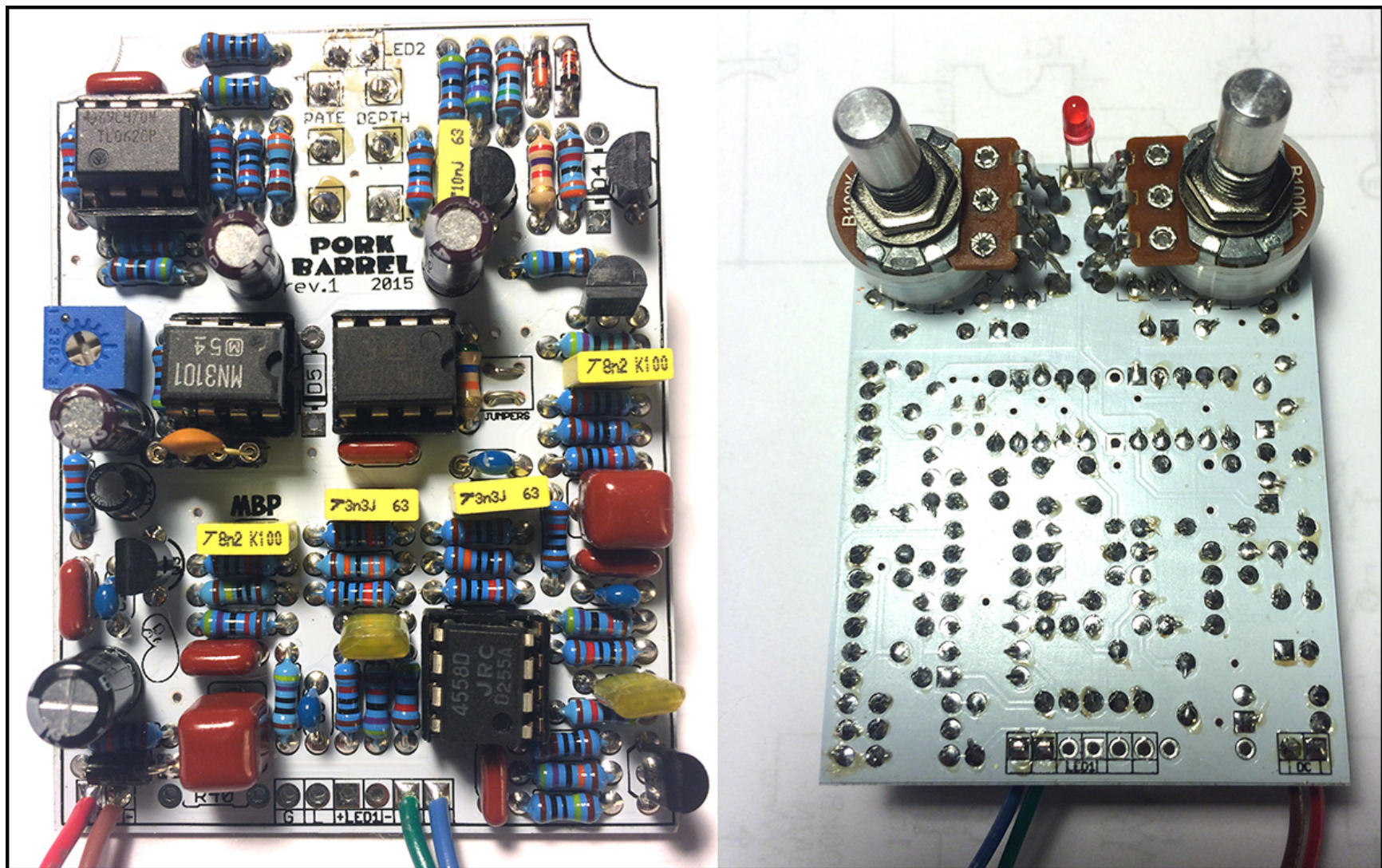
Biasing the Pork Barrel is very straight forward. Set your Rate knob to its midpoint and the Depth knob to maximum. Adjust the T1 trimmer until you get the maximum chorus effect with minimal distortion. That's it!

BL3207: <http://pdf1.alldatasheet.com/datasheet-pdf/view/164432/BELLING/BL3207.html>

Voltages 9.3v supply			
IC1	4558	IC3	MN3007
1	6.2	1	4.94 - 4.99
2	6.2	2	4.95 - 4.99
3	6.19	3	4.31
4	0	4	0
5	6.2	5	0.62
6	6.2	6	5.45
7	6.2	7	4.65
8	9.19	8	9

IC2	MN3101	IC4	TL062
1	0.62	1	varies
2	2.4 - 2.7	2	4.54 - 4.59
3	7.3 - 7.8	3	varies
4	varies	4	0
5	4.65	5	4.54 - 4.58
6	0	6	4.58 - 4.6
7	4.61	7	varies
8	9	8	9.19

Build details: MN3007 with an MN3101 clock, run off a 9.3v One Spot adaptor.



You can see the difference between not cleaning flux on the top to some flux cleaning on the bottom here. Ugh.

Fix for the 2015 PCB

This is for 2015 PCBs sold prior to 7.27.2015. If you have the 2015 PCB marked "Rev.1" you do not need to do this.

I found a mistake on the PCB. R29 is connected incorrectly. It should be connected to ground, and the trace that it does connect to should be routed to pin2 of IC4.

Fortunately, this is an easy correction to make. Jumper R29 on the PCB. On the bottom of the PCB, solder the 10k resistor between pins 5 and 4 of IC4. That's it! Your Pork Barrel will now wobble. Here is a pic to show the correction.

