Ambulator

FX Type: **COMPRESSOR**
Build Level: Beginner
Based On: MXR® Dyna Comp™

Last Updated: April 24, 2024 8:41 AM

Overview

From the Jim Dunlop website:

"Released in 1972, the Dyna Comp Compressor featured simple, straightforward controls—labeled Output and Sensitivity—to govern the volume and compression levels, respectively. Inside, it contained the coveted CA3080 metal can integrated circuit, which remains a key component to its sound and vibe.

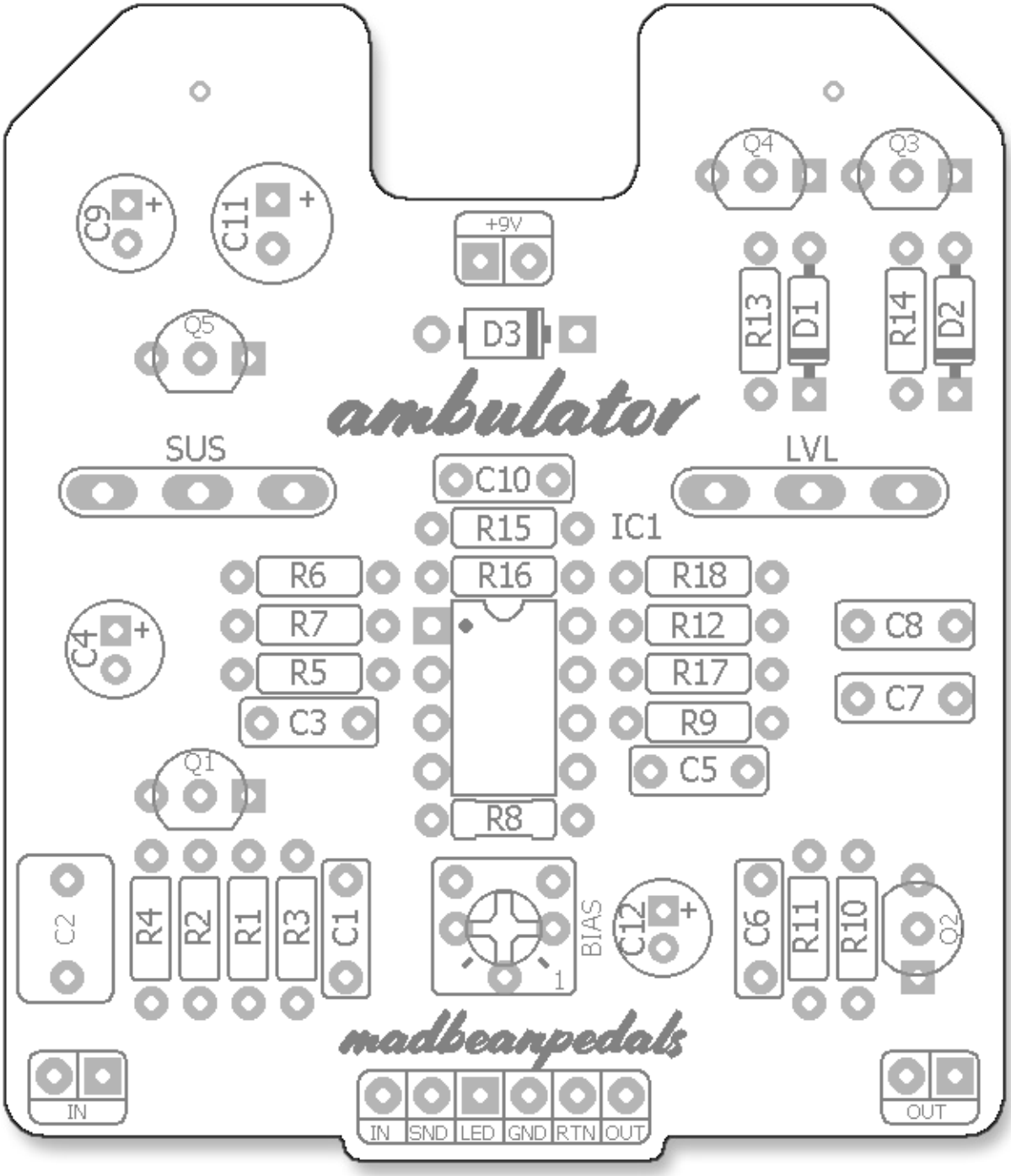
The original Dyna Comp Compressor was an instant hit, finding its way into the signal chains of monster players such as Lowell George and Bonnie Raitt, who favored it for the sweet sustain it lent to their slide work, and David Gilmour, who liked how the Dyna Comp Compressor could make his single-note lines bloom and soar. Other prominent guitarists who would rely on the Dyna Comp Compressor include Andy Summers—his popping, ringing clean chords are a perfect illustration of the pedal's sonic mojo."

Controls

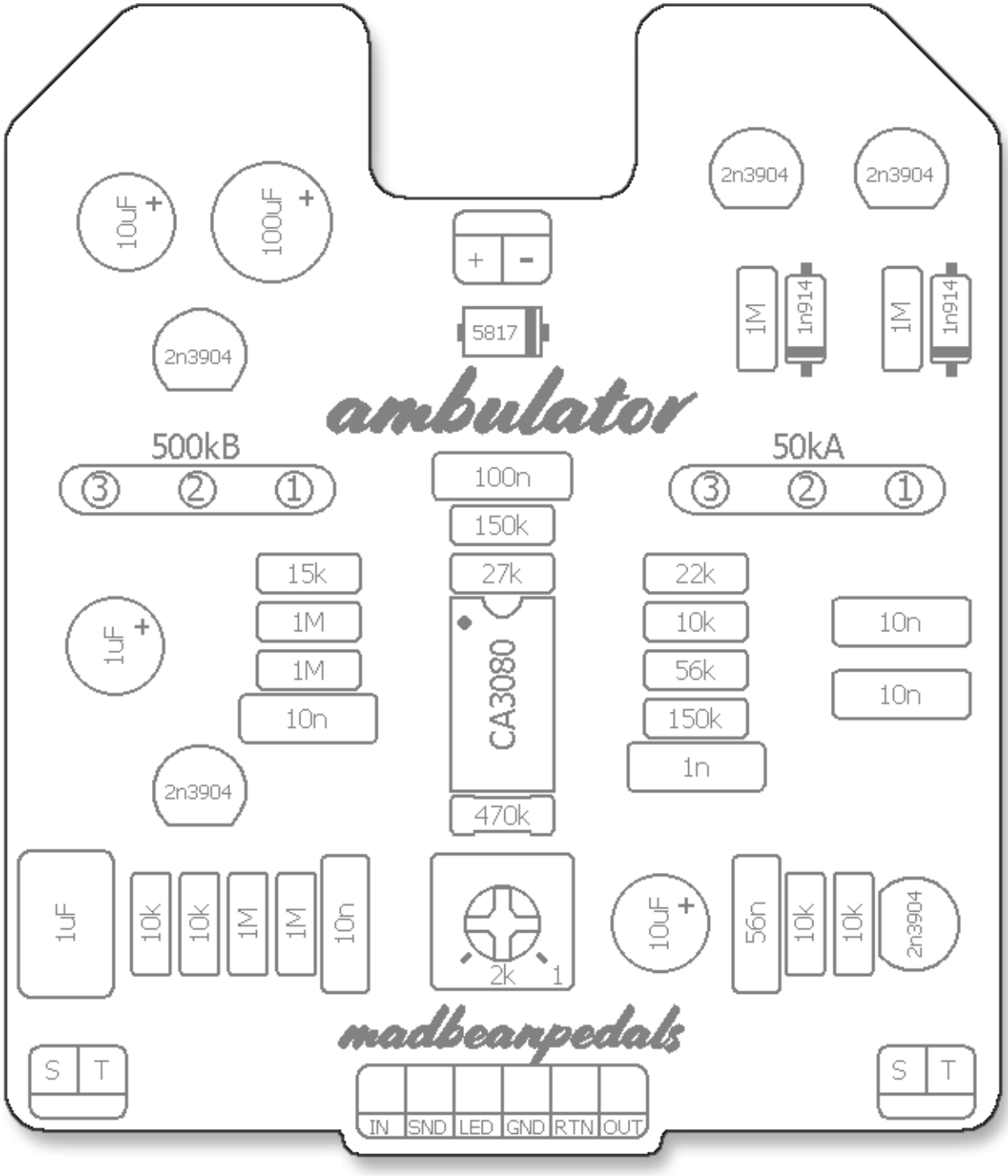
- **LEVEL:** Total effect output.
- **SUS:** Compression amount.
- **BIAS:** This trimmer sets the bias currents to the positive and negative input terminals of the OTA device.

Further study: https://www.electrosmash.com/mxr-dyna-comp-analysis

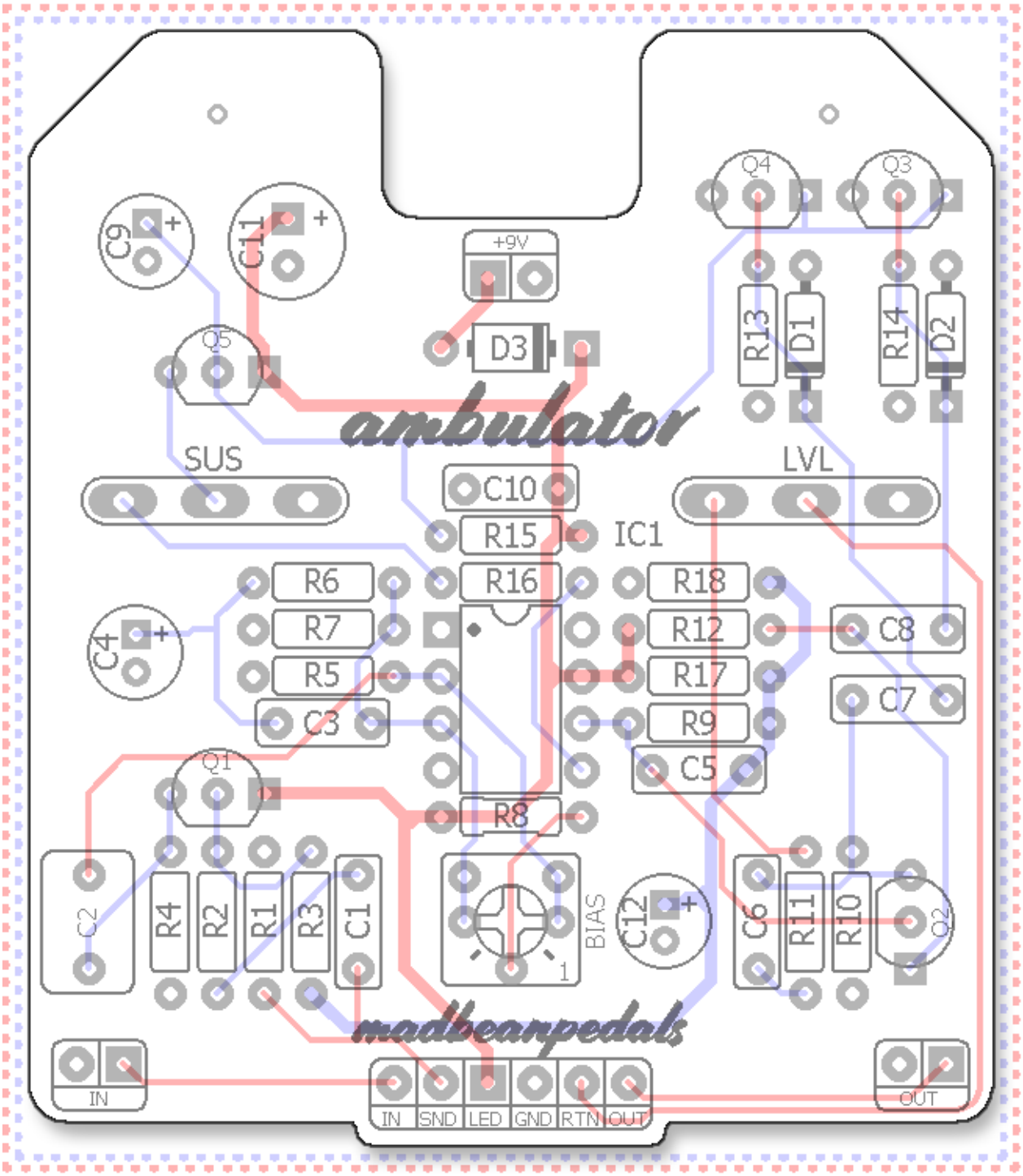
Parts Layout



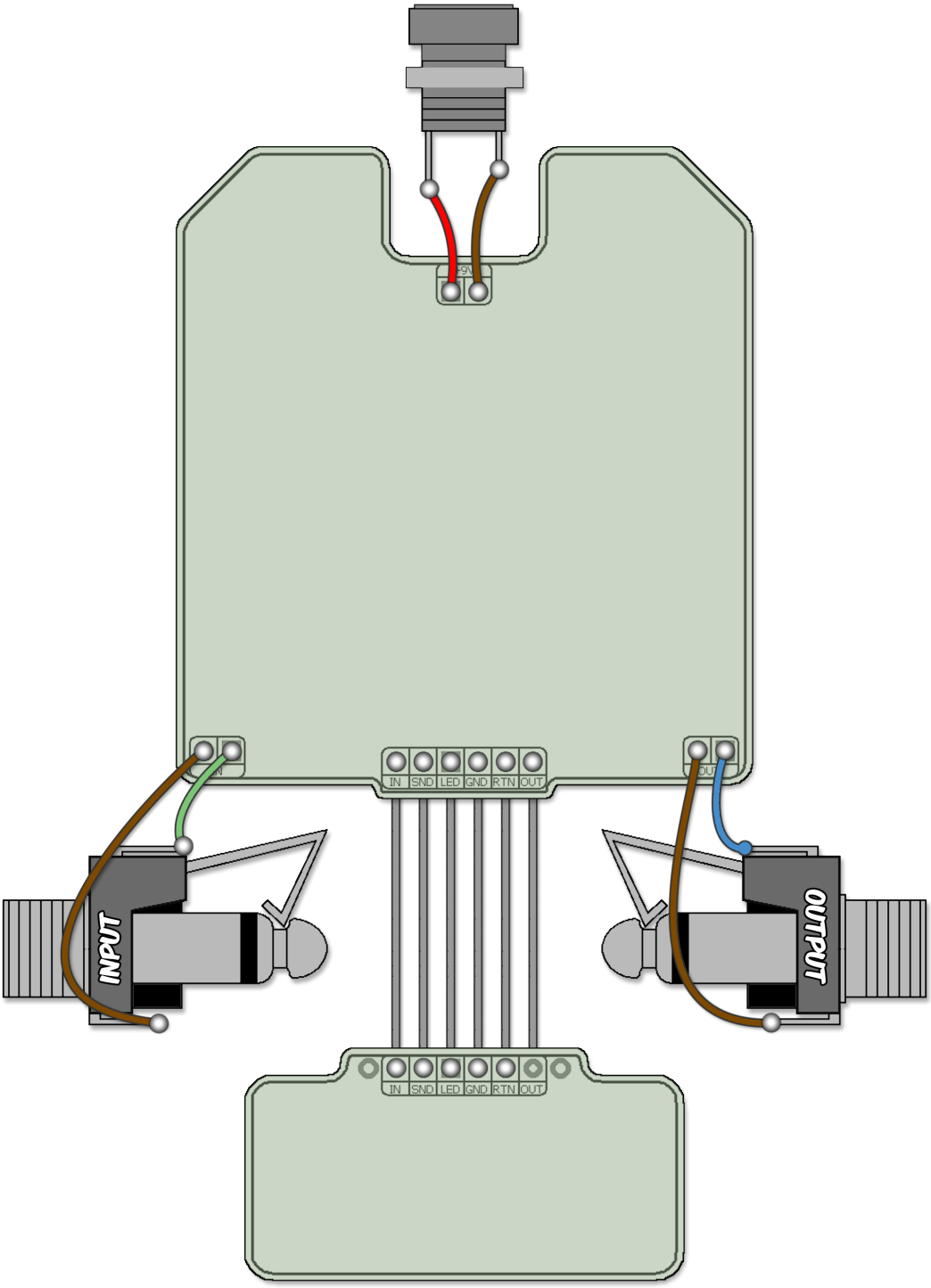
Component Values



Trace Layout



Wiring



Unless otherwise noted, all Standard Series projects have the same wiring regardless of which 3PDT bypass board is used. A 6-pin, 2” ribbon cable is recommended for soldering the connections between the two PCBs.

B.O.M.

Resistors		Caps		Diodes	
R1	1M	C1	10n	D1	1n914
R2	10k	C2	1uF	D2	1n914
R3	1M	C3	10n	D3	1n5817
R4	10k	C4	1uF	Transistors	
R5	1M	C5	1n	Q1 - Q5	2n3904
R6	15k	C6	56n	IC	
R7	1M	C7	10n	IC1	CA3080
R8	470k	C8	10n	Trimmers	
R9	150k	C9	10uF	BIAS	2k
R10	10k	C10	100n	Pots	
R11	10k	C11	100uF	LVL	50kA
R12	10k	C12	10uF	SUS	500kB
R13	1M				
R14	1M				
R15	150k				
R16	27k				
R17	56k				
R18	22k				

Shopping List

Value	QTY	Type	Rating
10k	5	Carbon / Metal Film	1/4W
15k	1	Carbon / Metal Film	1/4W
22k	1	Carbon / Metal Film	1/4W
27k	1	Carbon / Metal Film	1/4W
56k	1	Carbon / Metal Film	1/4W
150k	2	Carbon / Metal Film	1/4W
470k	1	Carbon / Metal Film	1/4W
1M	6	Carbon / Metal Film	1/4W
1n	1	Film	16v min.
10n	4	Film	16v min.
56n	1	Film	16v min.
100n	1	Film	16v min.
1uF	1	Film	16v min.
1uF	1	Electrolytic	16v min.
10uF	2	Electrolytic	16v min.
100uF	1	Electrolytic	16v min.
1n914	2		
1n5817	1		
2n3904	5		
CA3080	1		
2k	1	Bourns 3362p or 6mm	
50kA	1	PCB Right Angle	16mm
500kB	1	PCB Right Angle	16mm

Additional Hardware

(1) 1590B enclosure
(2) Lumberg 1/4” Compact mono jacks
(1) Slim 2.1mm DC jack
(1) Standard 3PDT footswitch
(1) 5mm LED

Build Notes

- Bias trimmer: start in its center position. To see if it needs adjustment, turn the SUS control all the way up. If you hear any sort of thumping or otherwise strange noise in the compressed signal, adjust the BIAS trimmer slightly to the right or left until it is eliminated. It should be done in very small increments. Most likely the trimmer will be fine left in the center position.

- I highly recommend reading the Dyna Comp analysis article on the Electro Smash website. There are a few mod suggestions in the article, too. Note the different component numberings with the Ambulator if you decide to try any them.

https://www.electrosmash.com/mxr-dyna-comp-analysis

Circuit Voltages

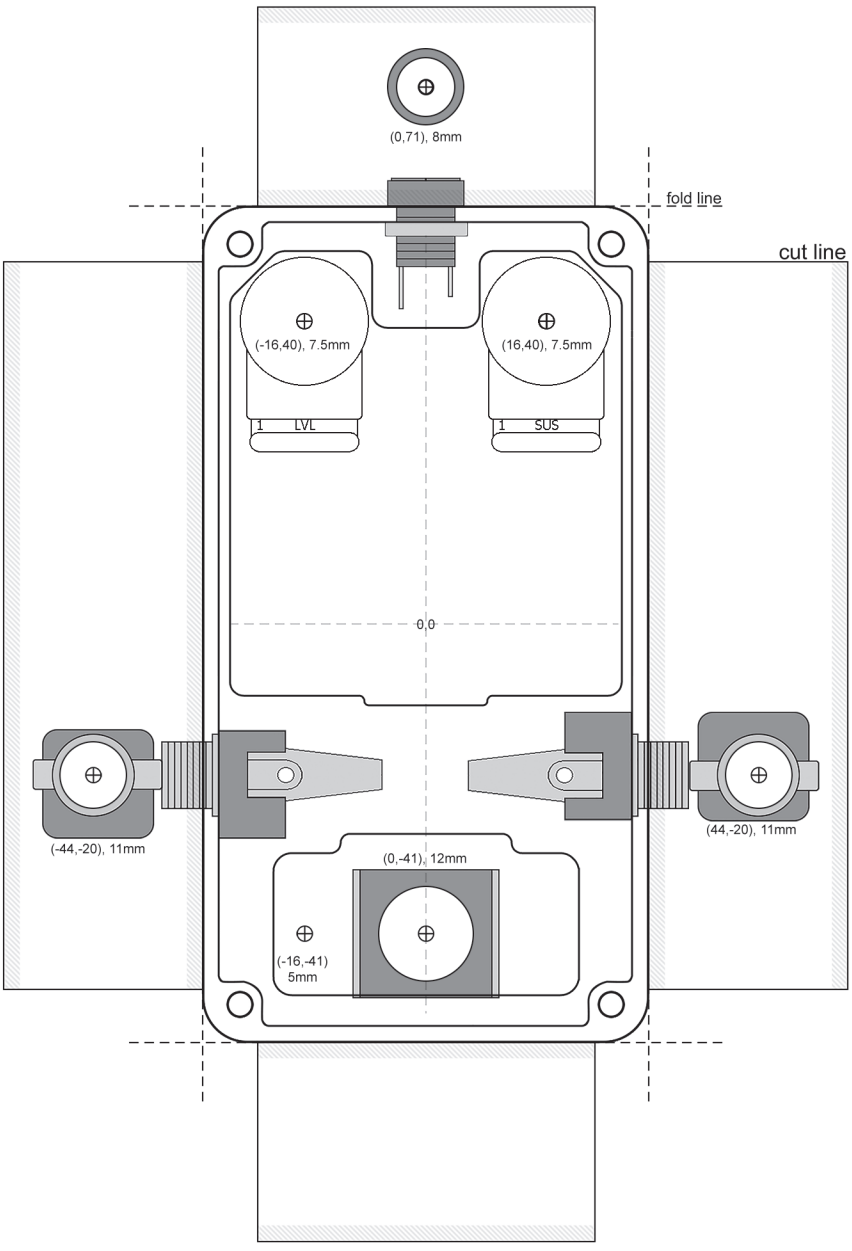
IC1	CA3080
1	~275mV
2	4.55
3	4.55
4	0
5	0.66
6	2.42
7	9.26
8	~19mV
Q1	**2n3904**
C	9.26
B	1.79
E	1.27
Q2	**2n3904**
C	7.44
B	2.42
E	1.83
Q3	**2n3904**
C	9.11
B	16mV
E	0
Q4	**2n3904**
C	9.11
B	7mV
E	0
Q5	**2n3904**
C	9.26
B	9.09
E	8.64

9.44vDC One Spot supply
Current Draw: ~2mA
Knobs @ 50%

1590B Drill Template

Coordinates are denoted in (X,Y), drill size format starting from the center (0,0) location of the enclosure. If you are drilling your own enclosure, use the closest sized drill bit using imperial measurements.

Link to Tayda Standard Series master drill template

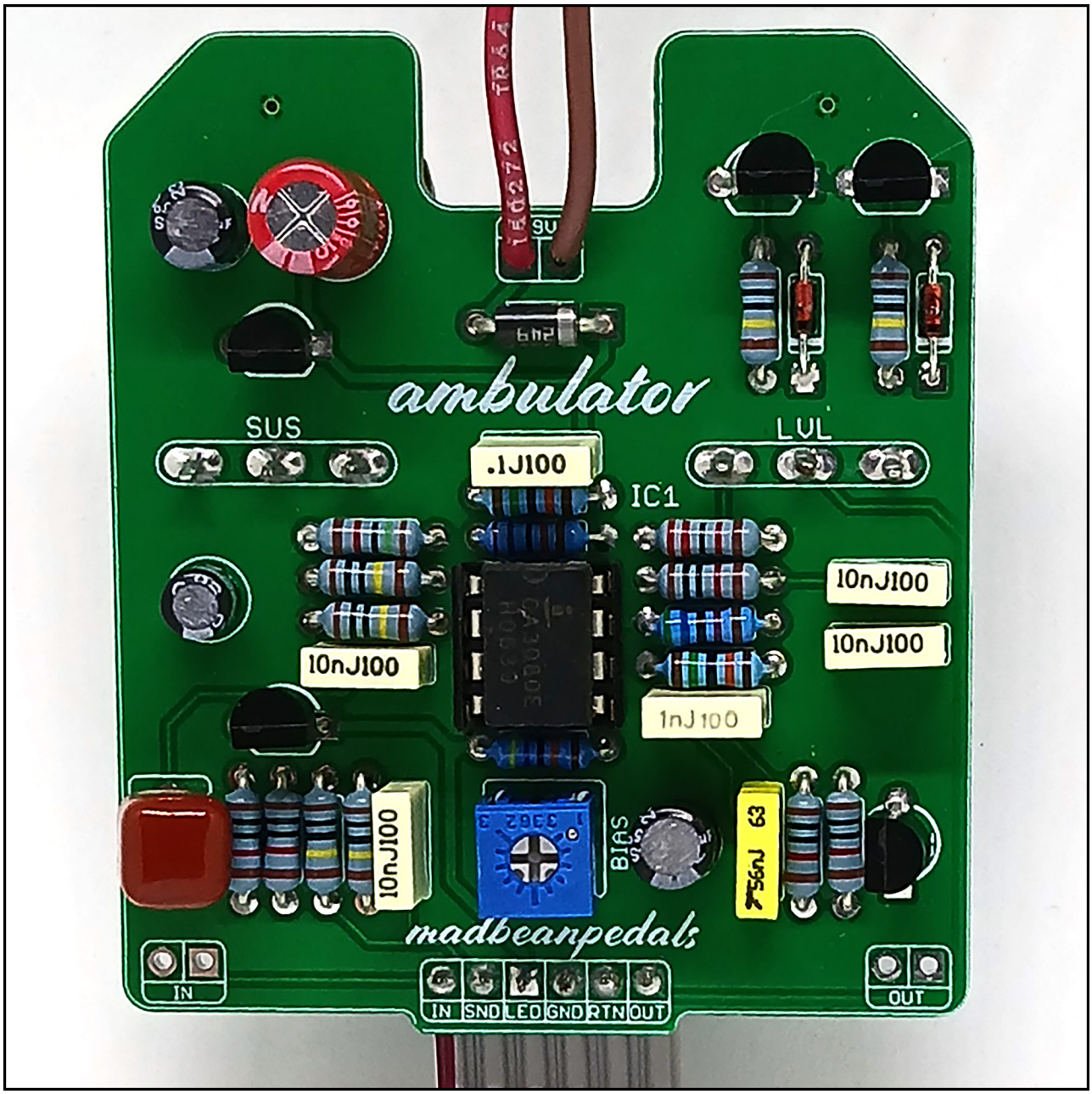


Hardware

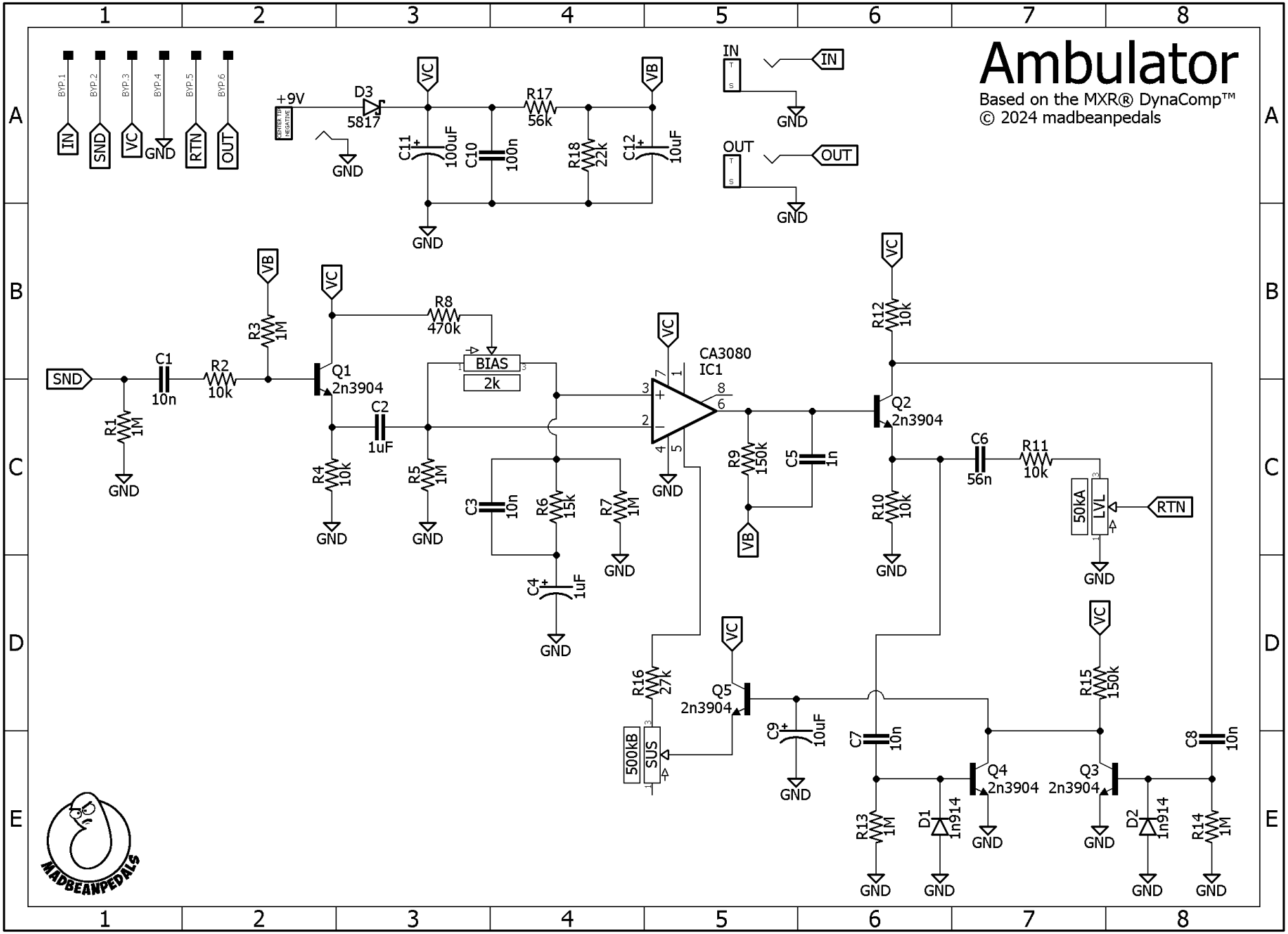
1590B enclosure
16mm pots
Lumberg 1/4” Compact mono jacks
Slim 2.1mm DC jack
Standard 3PDT footswitch
5mm LED

NOTE: Different 1/4” and DC jack styles may require different sized drill holes.

Build Pic


ambulator
SUS
LVL
.1J100
IC1
10nJ100
10nJ100
10nJ100
1nJ100
10nJ100
BIAS
madbeanpedals
IN
IN SND LED GND RTN OUT
OUT

Schematic


Ambulator
Based on the MXR® DynaComp™
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BYP-1
BYP-2
BYP-3
BYP-4
BYP-5
BYP-6
IN
SND
VC
GND
RTN
OUT
+9V
D3
5817
R17
56k
C11
100uF
C10
100n
R18
22k
C12
10uF
VB
R3
1M
R8
470k
C1
10n
R2
10k
Q1
2n3904
BIAS
2k
C2
1uF
R1
1M
R4
10k
R5
1M
C3
10n
R6
15k
R7
1M
C4
1uF
CA3080
IC1
R9
150k
C5
1n
R12
10k
Q2
2n3904
C6
56n
R11
10k
50kA
LVL
R10
10k
R16
27k
500kB
SUS
Q5
2n3904
C9
10uF
R15
150k
C7
10n
Q4
2n3904
Q3
2n3904
C8
10n
R13
1M
D1
1n914
D2
1n914
R14
1M
MADBEANPEDALS