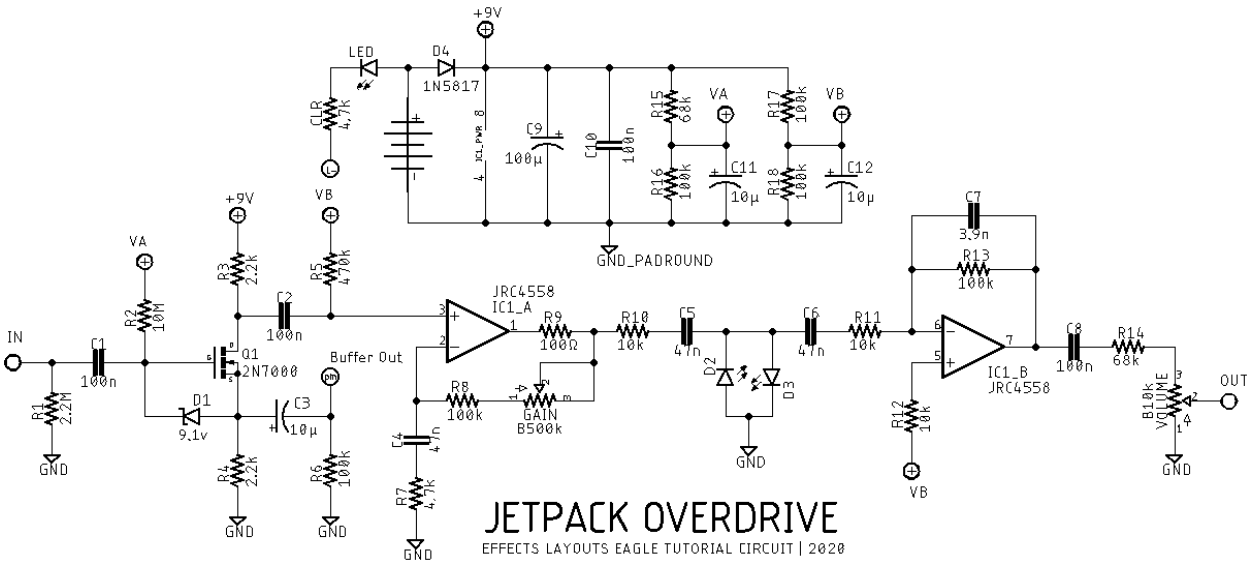
JETPACK

DESCRIPTION

The JETPACK is the circuit I designed (or mashed up) for use in my Eagle CAD video tutorials. It originated in the old Maxon OD880. The thing I didn't like about the 880 was that it inverted signal. So, I removed the initial non-inverting op-amp stage and replaced it with a MOSFET-based inverting stage. Off that same MOSFET I added componentry so it acts as a buffer as well for optional buffered bypass. The rest of it follows the 880 topography pretty closely with a few value changes and LED clippers instead of silicon diodes.

SCHEMATIC



BOM

Resistors

R1	2.2M
R2	10M
R3	2.2k
R4	2.2k
R5	470k
R6	100k
R7	4.7k
R8	100k
R9	100Ω
R10	10k
R11	10k
R12	10k
R13	100k
R14	68k
R15	68k
R16	100k
R17	100k
R18	100k
CLR	4.7k

Capacitors

C1	100n
C2	100n
C3	10µ
C4	47n
C5	47n
C6	47n
C7	3.9n
C8	100n
C9	100µ
C10	100n
C11	10µ
C12	10µ

Semiconductors

D1	9.1v Zener
D2	3mm red LED
D3	3mm red LED
D4	1N5817
IC1	JRC4558
LED	3 or 5mm LED
Q1	2N7000

Electromechanical

Gain	B500k
Volume	B10k

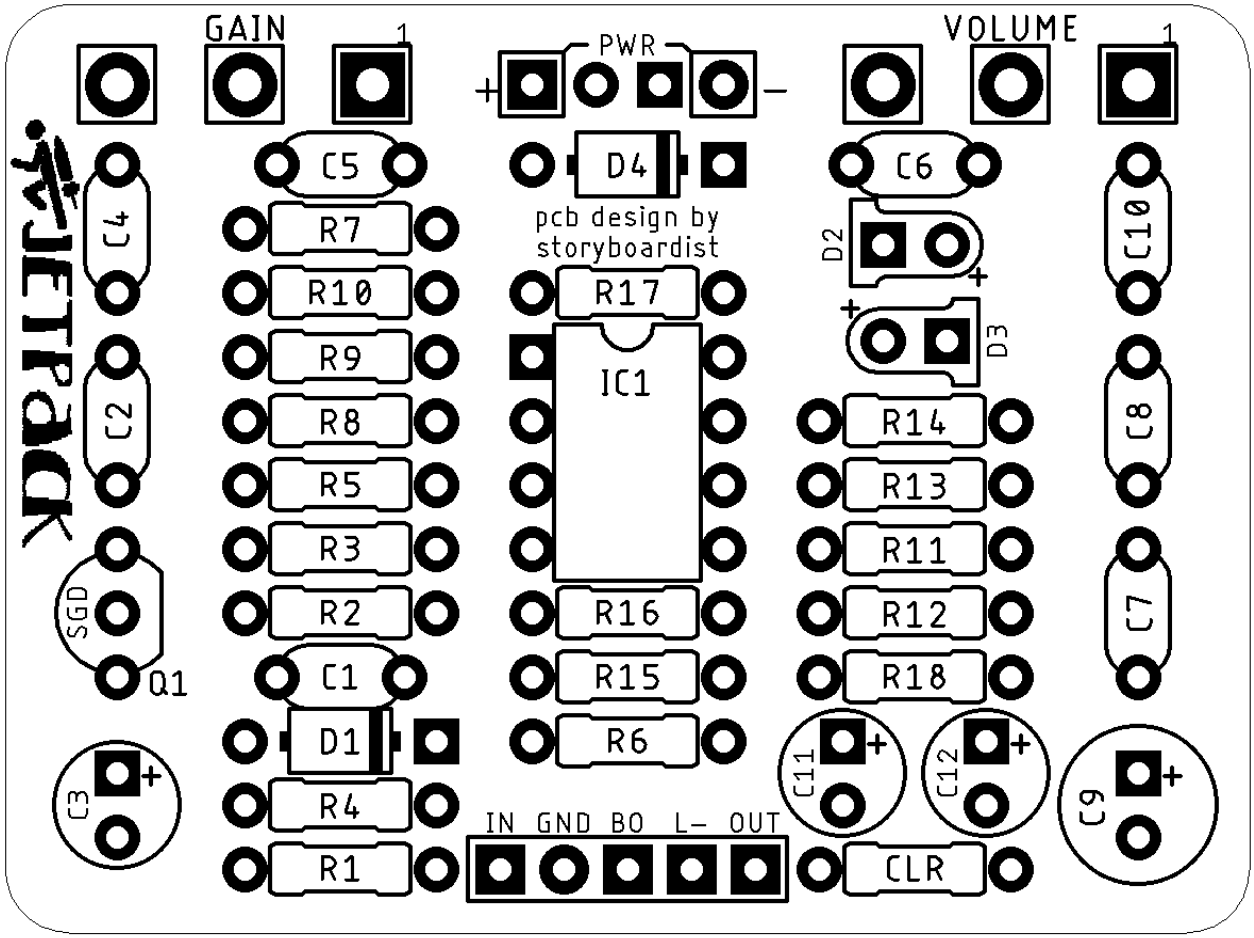
Note
A BS170 could also be used for Q1, just rotate it 180° from orientation shown on silkscreen. Other dual op-amps can be used as well (TL072, NE5532, etc).

SHOPPING LIST

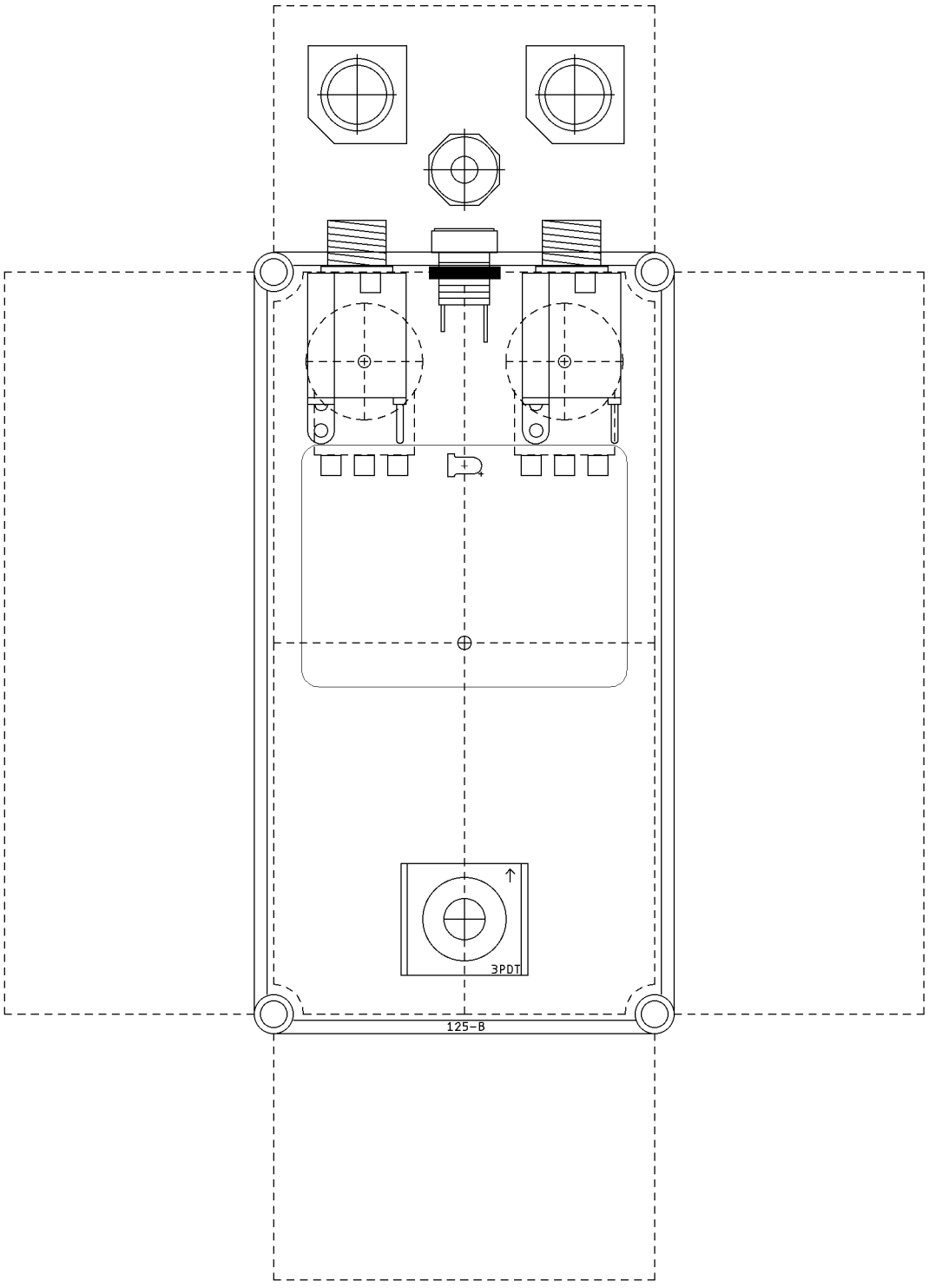
Value	**Type** (suggested)	**Quantity**
100Ω	¼ watt metal or carbon film	1
2.2k	¼ watt metal or carbon film	2
4.7k	¼ watt metal or carbon film	2
10k	¼ watt metal or carbon film	3
68k	¼ watt metal or carbon film	2
100k	¼ watt metal or carbon film	6
470k	¼ watt metal or carbon film	1
2.2M	¼ watt metal or carbon film	1
10M	¼ watt metal or carbon film	1
3.9n	Film	1
47n	Film	3
100n	Film	4
10µ	Electrolytic (35v+)	3

100µ	Electrolytic (35v+)	1
1N5817	Schottky rectifier diode	1
3mm red LED		2
2N7000	MOSFET	1
9.1v Zener	Zener diode	1
JRC4558	Dual op-amp	1
LED	3 or 5mm	1
B10k	16mm right angle PC mount	1
B500k	16mm right angle PC mount	1

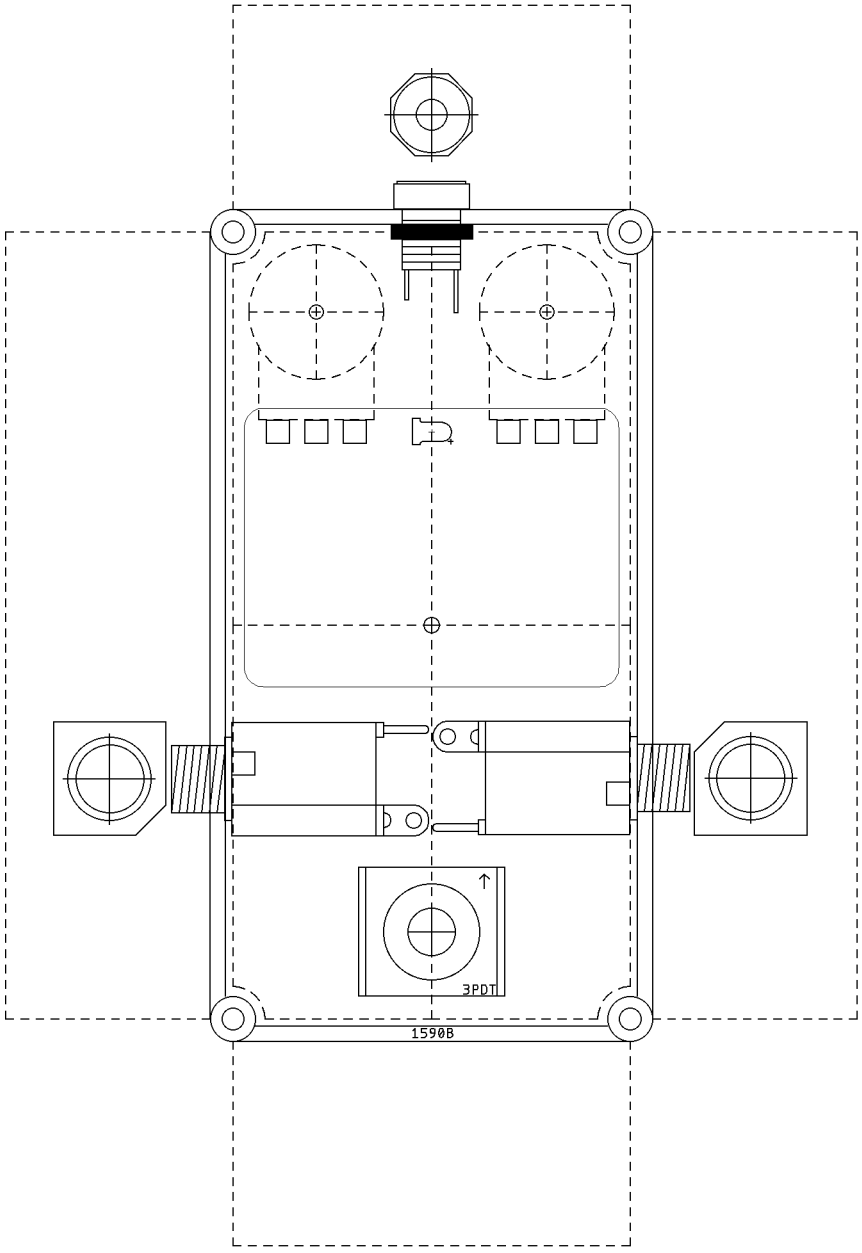
LAYOUT



DRILLING TEMPLATE (125B)



DRILL TEMPLATE (1590B)



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