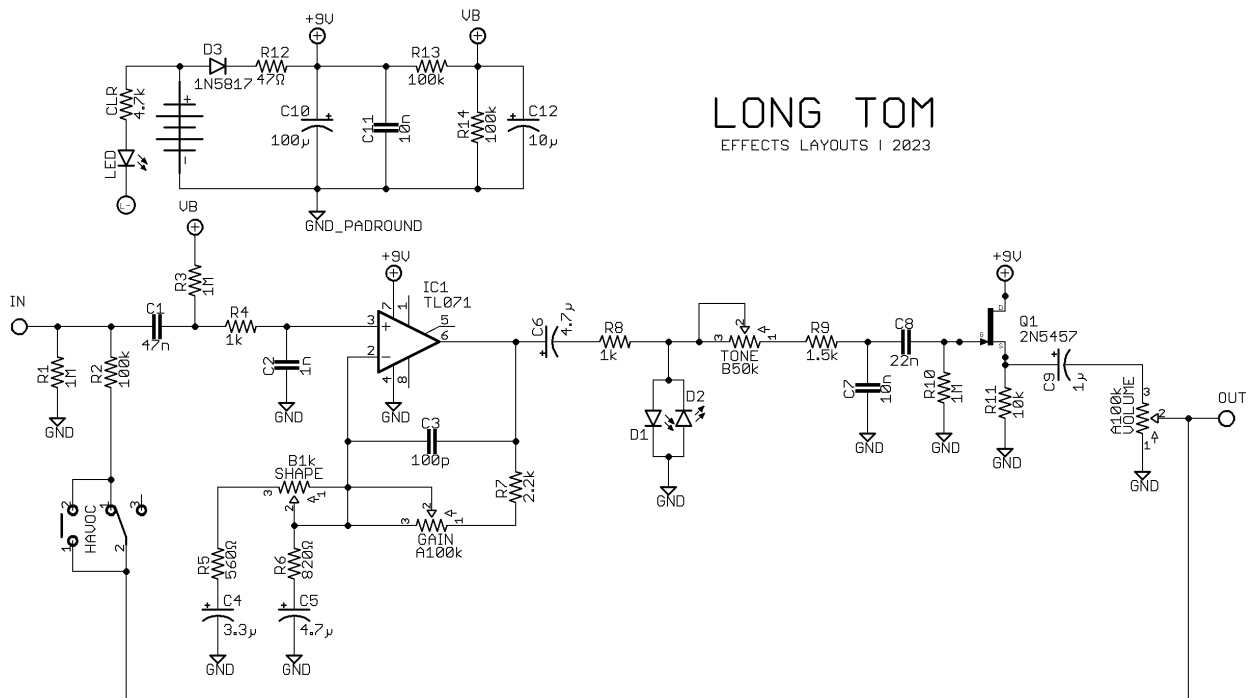


# LONG TOM

## DESCRIPTION

The LONG TOM is a RAT-style distortion with a variety of distortion tones on tap. It's based on the Caroline Guitar Co. Wave Cannon Mk. I and features the option for the Havoc switch to be either a toggle (as it is on the original) or a momentary footswitch (as it is in later iterations of the Wave Cannon). What the Havoc switch is doing is creating a feedback loop and some gnarly noises. This works best when the LONG TOM is first in your signal chain (it doesn't like buffers in front of it, so be warned). In this circuit the clipping LEDs will light up with the audio signal, so I've designed the board so these LEDs can be mounted externally on either side of the on/off indicator LED.

## SCHEMATIC



## BOM

### Resistors

R1	1M
R2	100k
R3	1M
R4	1k
R5	560Ω
R6	820Ω
R7	2.2k
R8	1k
R9	1.5k
R10	1M
R11	10k
R12	47Ω
R13	100k
R14	100k
CLR	4.7k

### Capacitors

C1	47n
C2	1n
C3	100p
C4	3.3μ
C5	4.7μ
C6	4.7μ
C7	10n
C8	22n
C9	1μ
C10	100μ
C11	10n
C12	10μ

### Semiconductors

D1	3mm red LED
D2	3mm red LED
D3	1N5817
IC1	TL071
LED	3mm LED
Q1	2N5457 or MMBF5457

### Electromechanical

Gain	A100k
Havoc	SPDT toggle or SPST momentary footswitch
Shape	B1k
Tone	B50k
Volume	A100k

### Notes

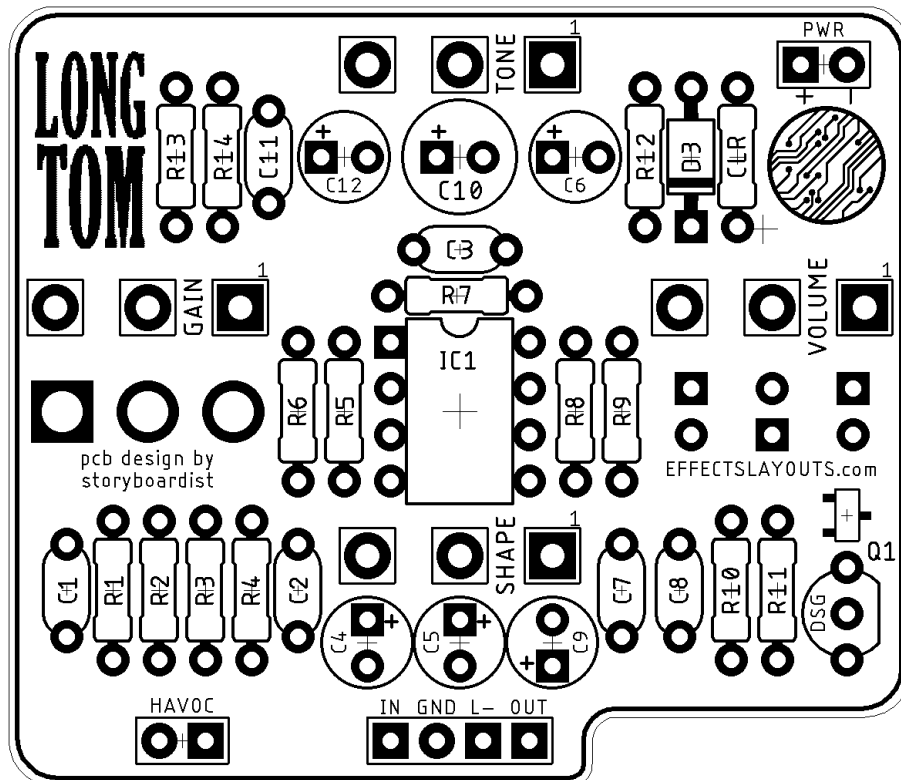
Other single op amp ICs can be used (LM741, NE5534, etc.), but if trying to use an LM308 or OP07 the compensation capacitor (30p) will need to be wired between pins 1 and 8 and there aren't connections on the board for it, so you'll need to get creative. Other JFETs can be used for Q1, as it's just the output buffer. Just mind the pinout. And as always, the pads for an SMD JFET are provided. Pick through-hole or SMD—no need to populate both.

## SHOPPING LIST

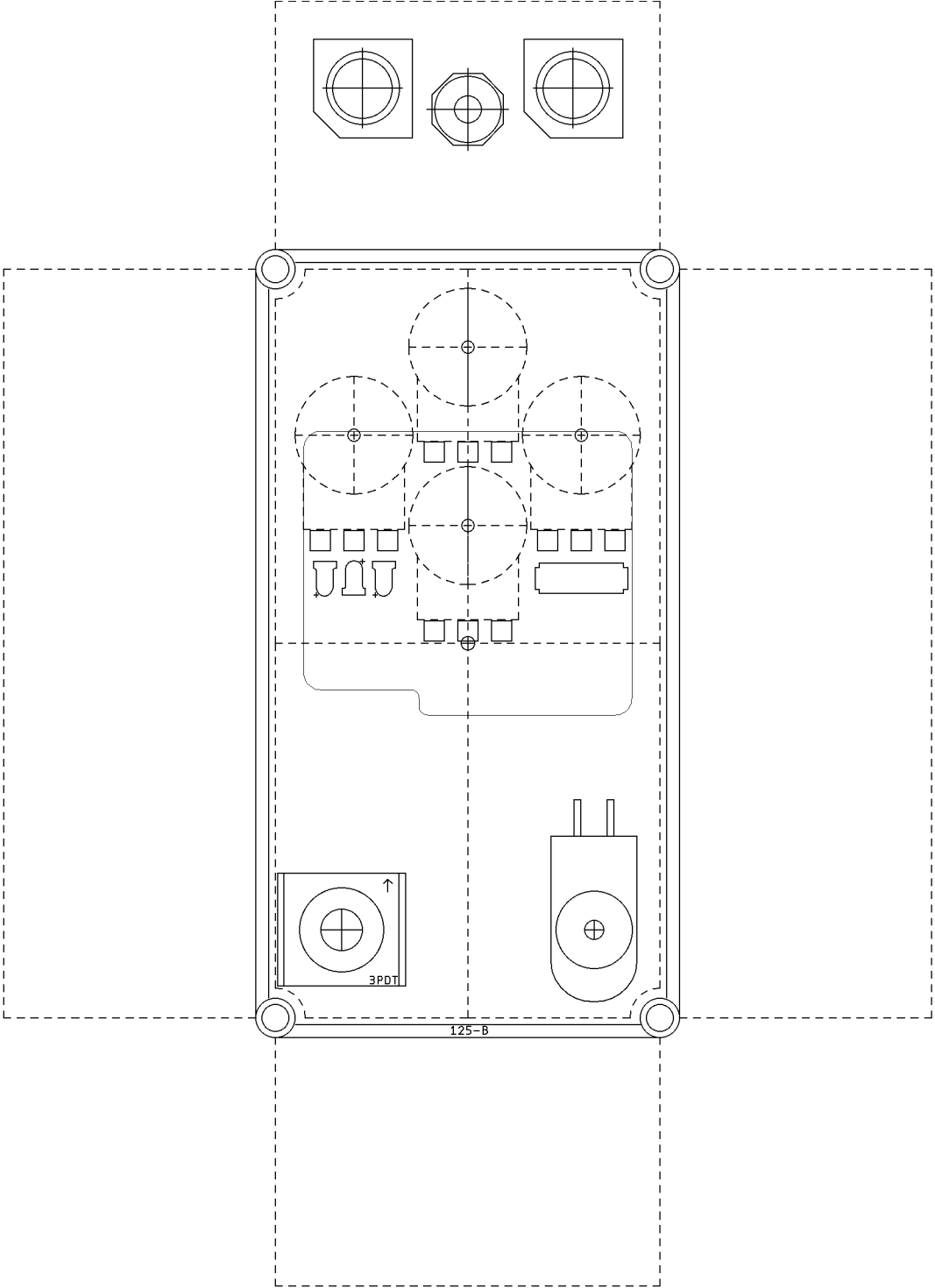
Value	Type (suggested)	Quantity
47Ω	¼ watt metal or carbon film	1
560Ω	¼ watt metal or carbon film	1
820Ω	¼ watt metal or carbon film	1
1k	¼ watt metal or carbon film	2
1.5k	¼ watt metal or carbon film	1
2.2k	¼ watt metal or carbon film	1
4.7k	¼ watt metal or carbon film	1
10k	¼ watt metal or carbon film	1

100k	¼ watt metal or carbon film	3
1M	¼ watt metal or carbon film	2
100p	Ceramic	1
1n	Film	1
10n	Ceramic	1
22n	Film	1
47n	Film	1
1µ	Electrolytic (25v+)	1
3.3µ	Electrolytic (25v+)	1
4.7µ	Electrolytic (25v+)	2
10µ	Electrolytic (25v+)	1
100µ	Electrolytic (25v+)	1
1N5817	Schottky rectifier diode	1
2N5457	JFET	1
LED (D1-2)	3mm red	2
LED	3 or 5mm	1
TL071	Single op amp	1
A100k	16mm right angle PC mount	2
B1k	16mm right angle PC mount	1
B50k	16mm right angle PC mount	1
SPDT	Toggle	1
SPST	Momentary footswitch	1

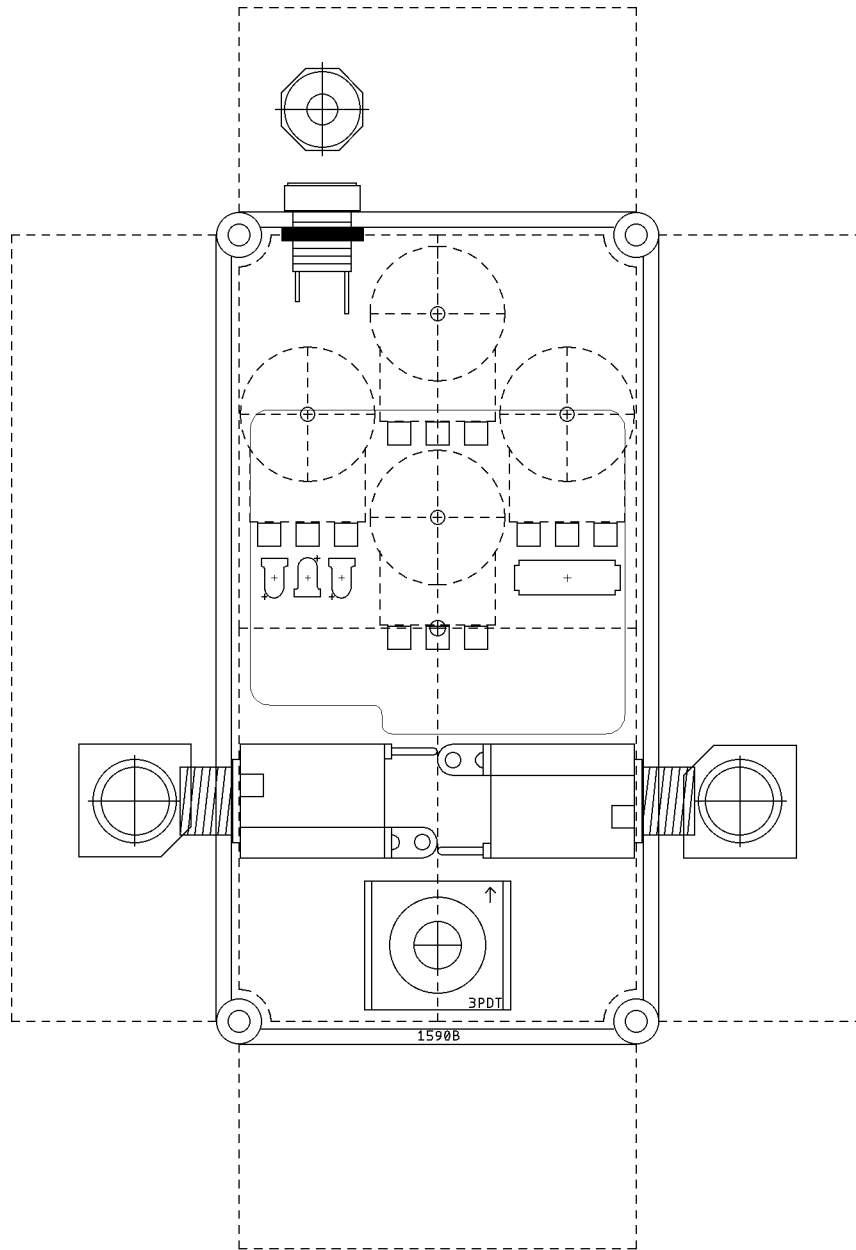
## LAYOUT



**DRILL TEMPLATE (125B)**



# DRILL TEMPLATE (1590B)



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Not for non-peer to peer resale.