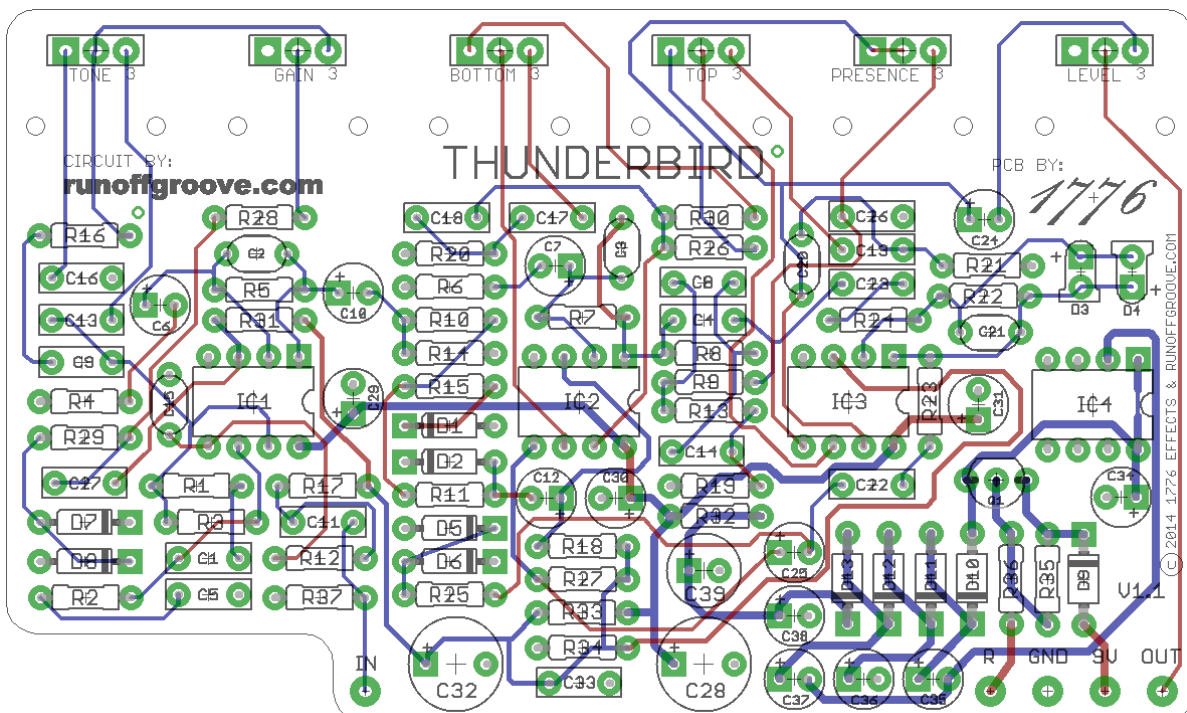
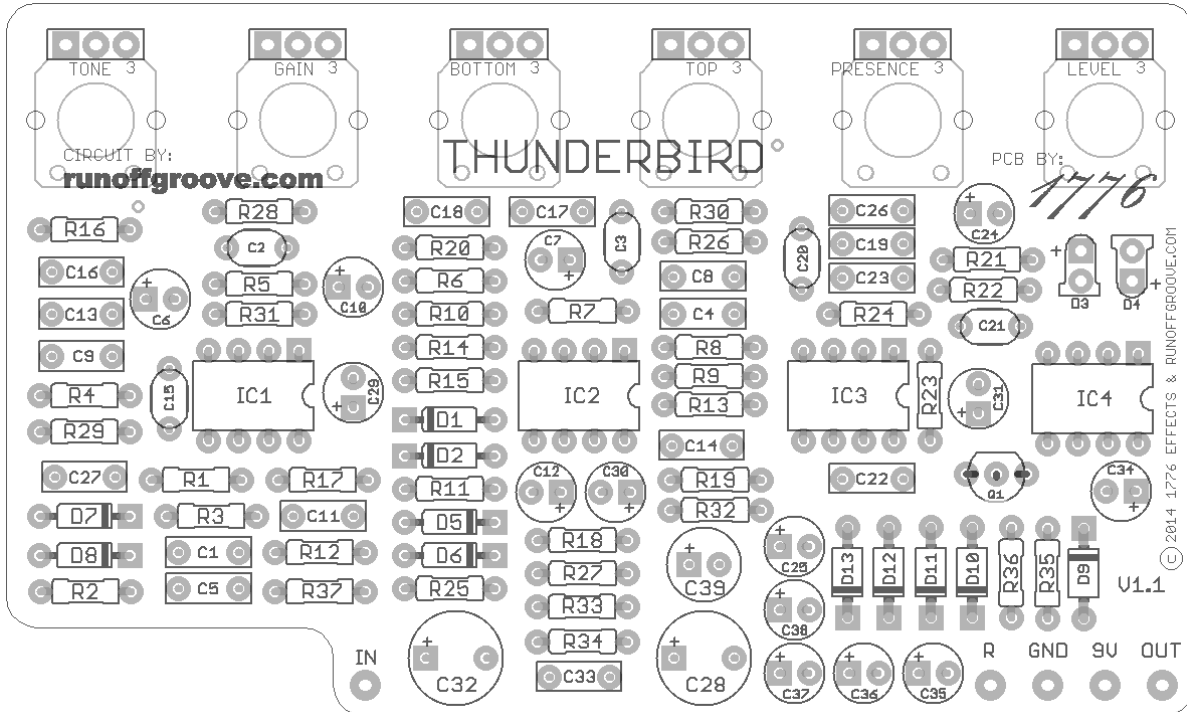


THUNDERBIRD

An original overdrive pedal inspired by the classic sound of a cranked Marshall Super Lead amp.

Circuit by: runoffgroove.com PCB by: [1776 effects](http://1776effects.com)

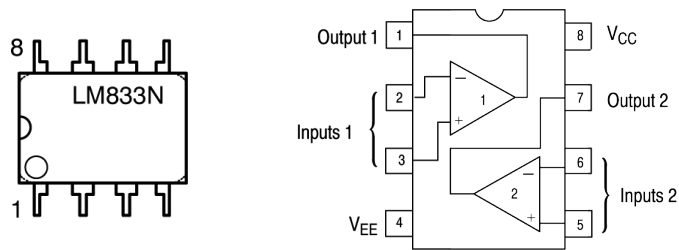


THUNDERBIRD PARTS LIST

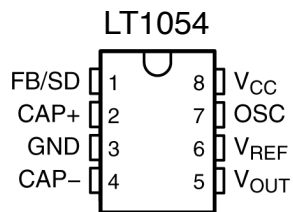
Resistors		R28	68k	C18	10n	Transistor	
R1	15k	R29	2k2	C19	2n2	Q1	2N4403
R2	10k	R30	47k	C20	220p	Diodes	
R3	22k	R31	1M	C21	15p	D1	1N5711
R4	10k	R32	68R	C22	330n	D2	1N4148
R5	100k	R33	10k	C23	470n	D3, D4	LED's
R6	10k	R34	10k	C24	10u	3mm GREEN	
R7	82k	R35	1k5	C25	10u	D5	1N4148
R8	2k7	R36	2k7	C26	3n3	D6	1N5711
R9	10k	R37	10M	C27	470n	D7	1N4148
R10	3k3	Capacitors		C28	220u	D8	1N4148
R11	15k	C1	2n2	C29 *	1u	D9	1N5819
R12	68k	C2	100p	C30 *	1u	D10	1N5819
R13	33k	C3	68p	C31 *	1u	D11	1N5819
R14	10k	C4	33n	C32	220u	D12	1N5819
R15	330R	C5	22n	C33	470n	D13	1N5819
R16	68k	C6	10u	C34 *	2u2	Potentiometers	
R17	1M	C7	10u	C35 *	10u	TONE	100KB
R18	47k	C8	470n	C36 *	10u	GAIN	10KA
R19	1k5	C9	470n	C37 *	10u	BOTTOM	50KB
R20	22k	C10	10u	C38 *	10u	TOP	100KB
R21	15k	C11	22n	C39	100u	PRES	10KB
R22	470k	C12	10u	IC's		LEVEL	10KB
R23	10k	C13	47n	IC1	LM833N	<i>POTS 9MM MOUNTED</i>	
R24	47k	C14	470n	IC2	LM833N		
R25	3k3	C15	150p	IC3	LM833N		
R26	3k3	C16	10n	IC4	LT1054		
R27	47k	C17	150n				

* Tantalum caps

VOLTAGES (9.42V DC INPUT VOLTAGE)



IC1	V	IC2	V	IC3	V
Pin 1	12.23	Pin 1	12.04	Pin 1	11.95
Pin 2	12.24	Pin 2	12.06	Pin 2	12.04
Pin 3	11.24	Pin 3	12.00	Pin 3	12.04
Pin 4	0.00	Pin 4	0.00	Pin 4	0.00
Pin 5	11.09	Pin 5	12.00	Pin 5	12.01
Pin 6	12.27	Pin 6	12.04	Pin 6	12.03
Pin 7	12.26	Pin 7	12.04	Pin 7	12.02
Pin 8	24.06	Pin 8	24.06	Pin 8	24.06



IC4	V		V
Pin 1	9.00	Pin 5	0.00
Pin 2	4.77	Pin 6	2.54
Pin 3	0.00	Pin 7	1.42
Pin 4	0.00	Pin 8	9.00

PARTS NOTES:

- Capacitors (Use caps rated 35V or higher)
 - pF's - ceramic or multilayer ceramic, pads are at 5mm spacing
 - nF's - film, 5mm spacing
 - uF's - tantalum as specified; electrolytic, cap size 5mm x 11mm for all values except 220uF (10mm x 12.5mm, 5mm lead spacing)
- All resistors are standard 1/4 watt metal film
- Potentiometers spacing set for [Alpha Single-Gang 9mm Right-angle PC Mount](#), but normal solder lug potentiometers can be used and wired to the pads.
- Enclosure size - This is designed to fit in a 1590BB horizontally.
- [Mouser Shared Project \(Click for Link\)](#)
 - Project cart contains everything but potentiometers for the PCB.
 - Normal stomp-box items also not included in the BOM (3PDT, jacks, enclosure).

ADDITIONAL NOTES:

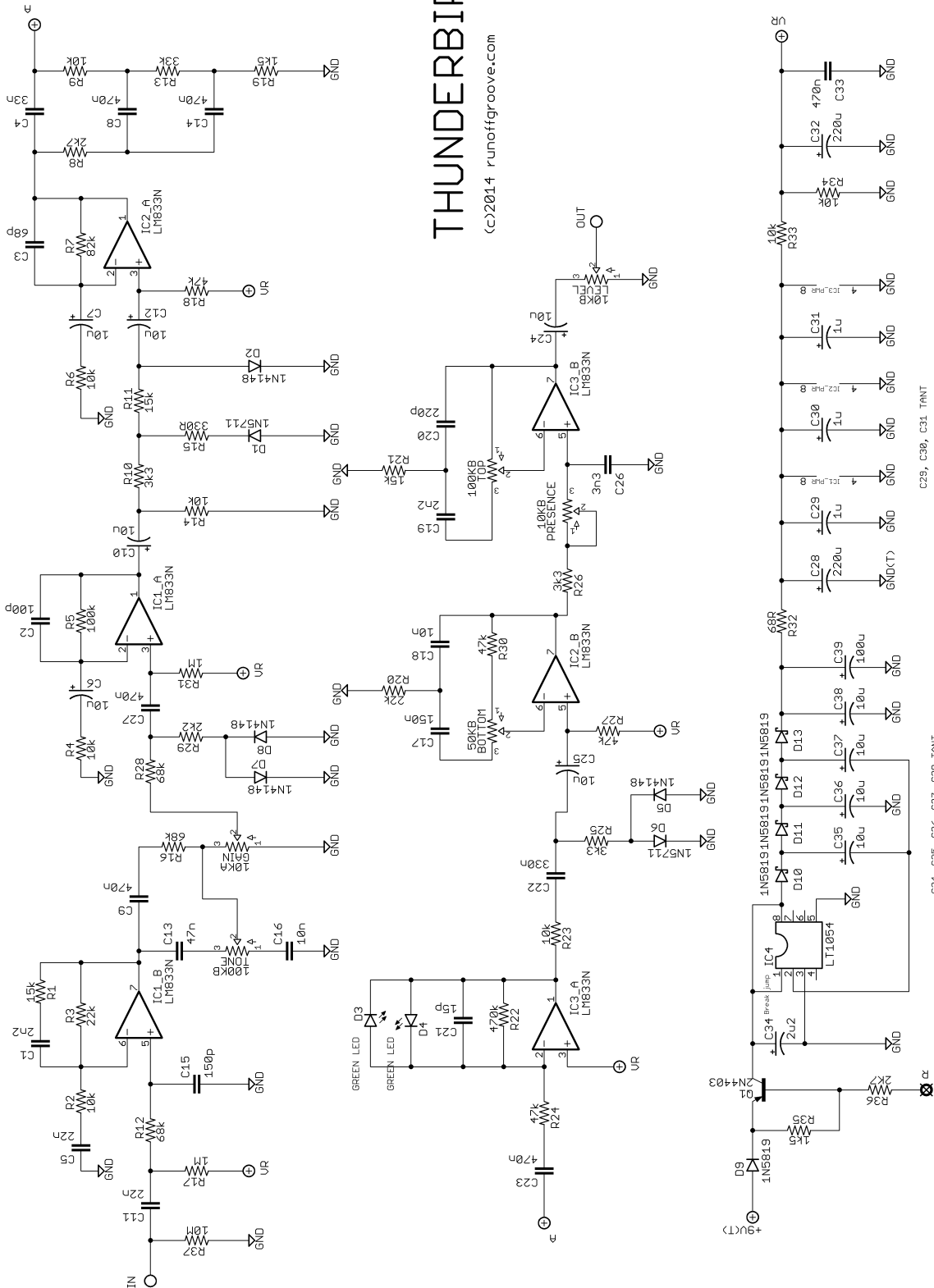
The circuit should be powered with a 9V DC power supply. Do not use any power supply higher than 9.8VDC.

You can substitute the charge pump with a MAX1044CPA or TC1044, but the LT1054 is recommended. The LT1054 does not require pins 1 and 8 to be connected. Although they are connected on the PCB, it will not cause any issues.

Use a stereo jack for the input and wire the "R" pad to the ring terminal.

The purpose of the 2N4403 transistor is to avoid the return current from the charge pump IC through the same ground wire that carries the return of the input signal. The charge pump ICs draw current peaks at the switching frequency which will otherwise make its way through the signal path.

SCHEMATIC

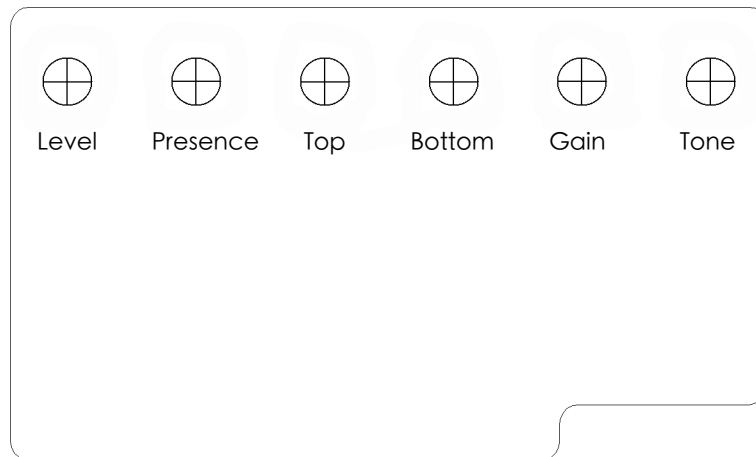


THUNDERBIRD
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DRILL GUIDE

Print at 100% scale for drilling! Dry fit the PCB template inside to make sure you have clearance and then place the template on top of the enclosure to center-punch the hole locations.

The drill guide is the same for the etched version.

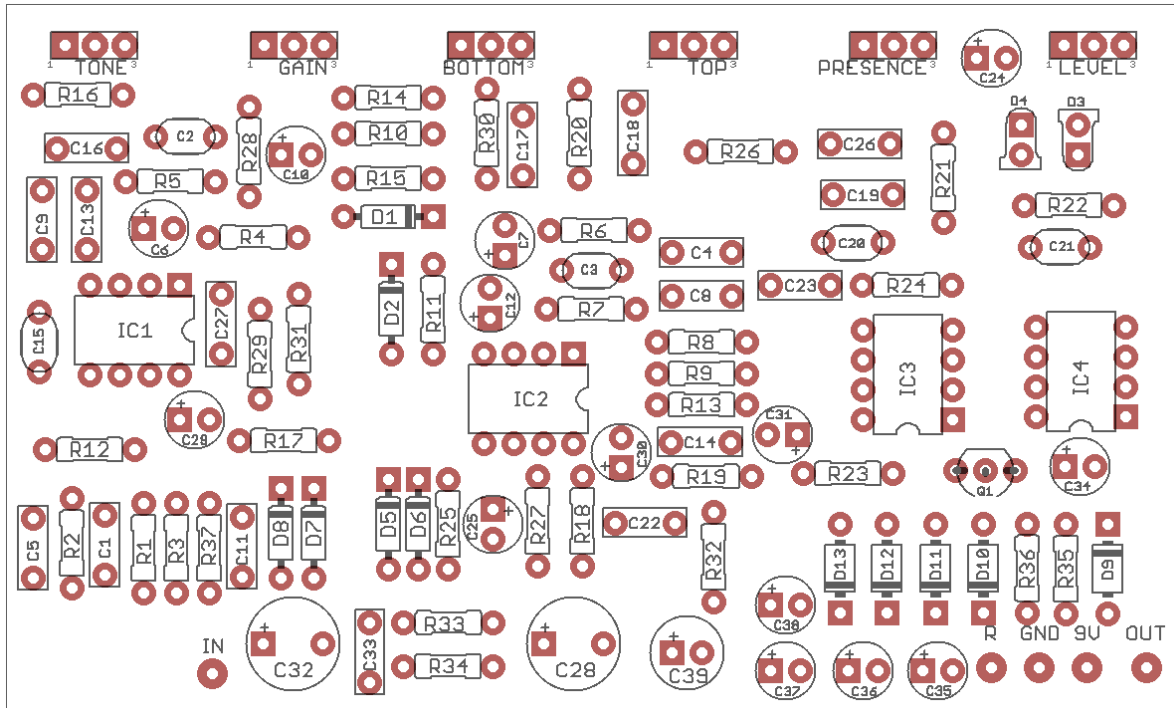


100mm x 60mm (3.94" x 2.36")

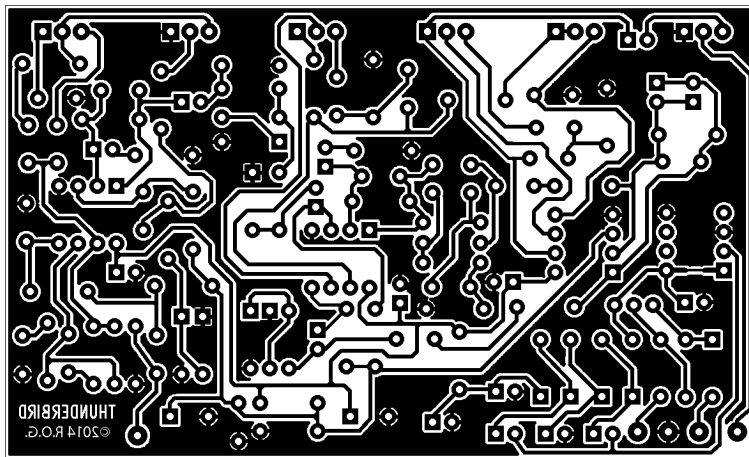
This document and PCB are designated for personal use only.

No commercial usage.

ETCH LAYOUT & TRANSFER:



Component numbering & values are the same as the fab PCB.



100mm x 60mm (3.94" x 2.36")

PRINT AT 100% SCALE!