

Ease of build	Easy
-partscount	Low
-density	Medium
Parts sourcing	Normal
Enclosure fitting	Normal
Debugging level	Easy

GlassBlower V1.5

Bootstrap Booster 27dB based on Merlin Blencowe's circuit

Overview

Merlin is famous for his knowledge about valve circuits. But from time to time he releases stompbox circuits after his own ideas. His site: <http://www.valvewizard.co.uk/>

General

Here is Merlins project page: <http://www.valvewizard.co.uk/glassblower.html>

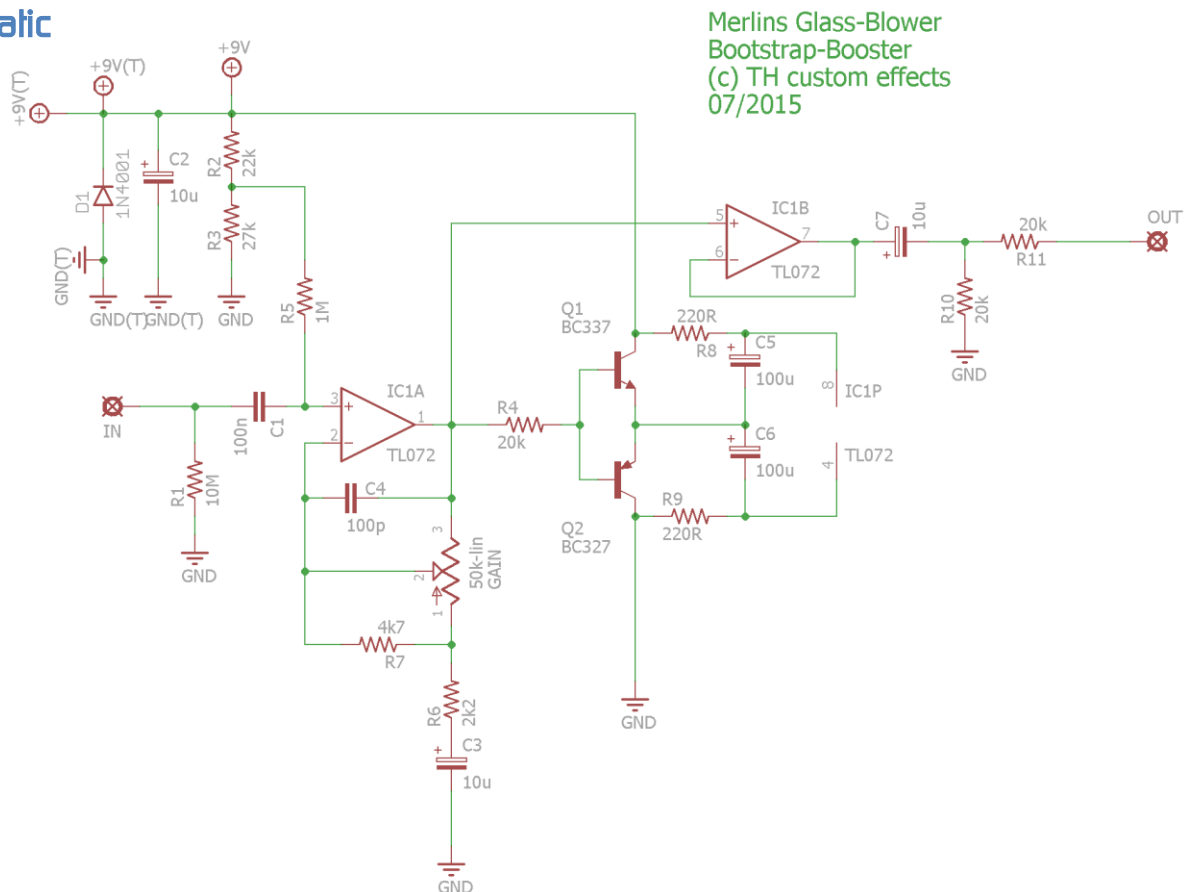
The board in rev 1.5 has been changed to remove my noisy implementation of the VU meter.

This is what Merlin says about it:

“The GlassBlower is a high-headroom buffer / booster pedal, specially designed for slamming the input of a valve amp, though it can also be used as a general-purpose booster of course. Using a buffer before a valve amp can also cure some forms of heater hum by presenting the input grid with a low source impedance! There are no sound clips for this pedal since it is purely clean; no tone shaping at all, just hifi quality amplification.

Most other 9V booster pedals run out of headroom around 6Vp-p, or even less, but the GlassBlower can deliver up to 27dB of boost and 12Vp-p of clean output signal! There are some pedals on the market that can do this (for example, the VisualSound Truetone), but they use voltage multipliers to increase the supply voltage internally. Such multipliers are, at best, 80% efficient, so your 9V battery only lasts 80% as long, which is a bit of a waste, considering you don't actually need all that headroom most of the time. The GlassBlower is different. I archives its extra headroom with a devilishly-simple-yet-sophisticated rail bootstrapping technique that forces the supply rails to follow the signal. In this way the extra voltage is there ONLY when it is needed. This is effectively what advertisers call Class G (I disapprove of the term though).”

Schematic

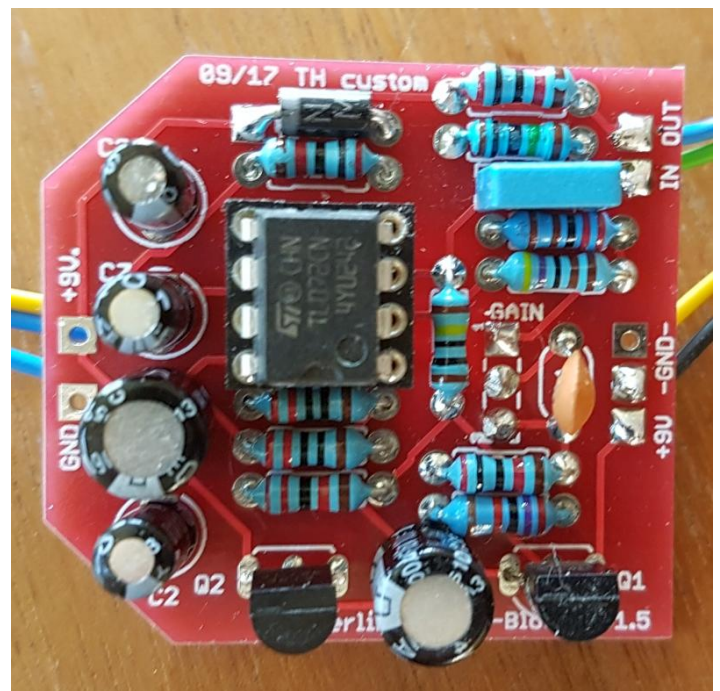
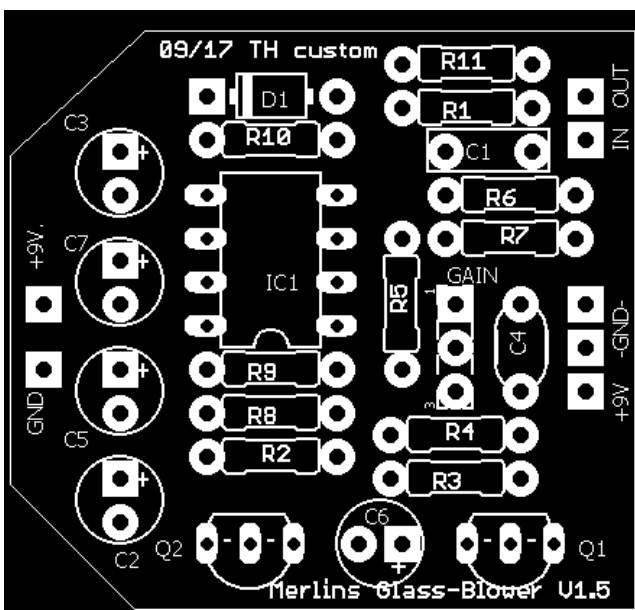


Bill of Materials

	Device#	Qty	Value	Comment
Resistors	R1	1	10M/6.2M	10M are rather hard to source
	R2	1	22k	
	R3	1	27k	
	R4,R10,R11	3	20k	
	R5	1	1M	
	R6	1	2k2	
	R7	1	4k7	
	R8,R9	2	220R	
	Capacitors	C1	1	100n
C2,C3,C7		3	10u/16V	polarized electro
C4		1	100p	ceram
C5, C6		2	100u/16V	polarized electro
Pots		GAIN	1	50k-lin
Diodes	D1	1	1N4001	
Transistors	Q1	1	BC337	
	Q2	1	BC327	
ICs	IC1	1	TL072	

Building

Start populating resistors and diodes first, then IC sockets. If you want to socket the transistors you put the sockets in now. Next do the capacitors, starting ceramic, box film and last pol. electros.



Finally

You now have an easy-to-use boost with lots of reserves to bring down any amp☺

It's a boost, so the pot starts with equal amplification and increases when turned.

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