Horn Device

Based on:
EQD Hoof
Effect type:
Fuzz
Build difficult:
Medium

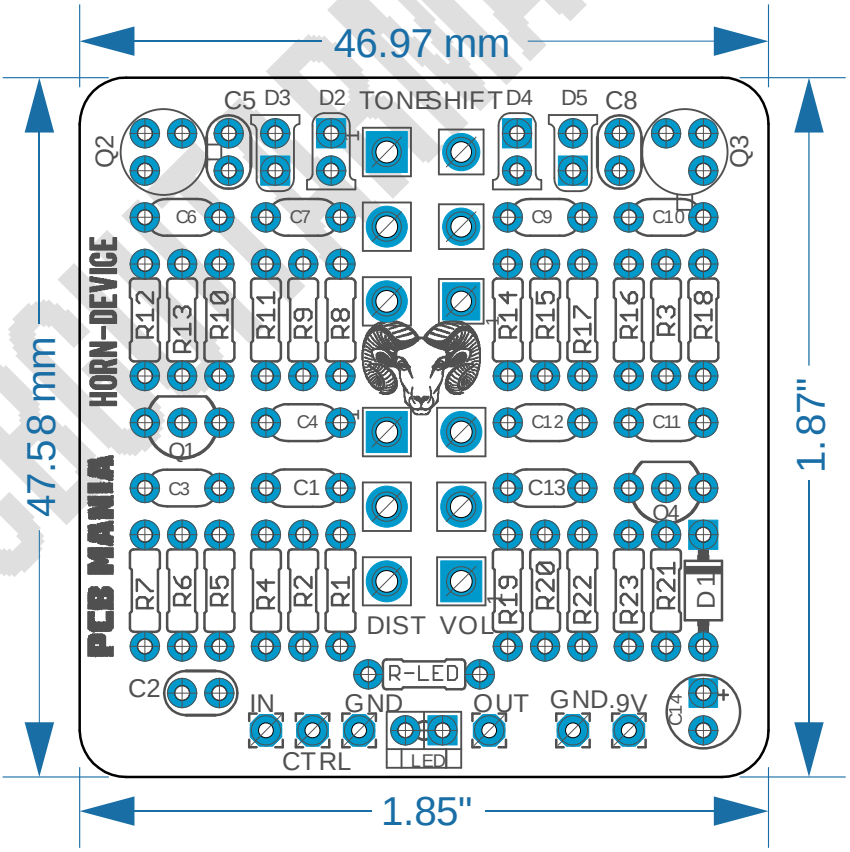
Amount of parts:
Average, total 52 components
Technology:
Germanium – Silicon hybrid transistors
Power consumption:
15mA (9v)

Enclosure type:
1590b
Get your board at:
Horn Device
Get your kit at:
Das Musikding (Europe)

Project overview:

The Horn device is powerful board inspired on two of the most popular muffs nowadays, the EQD Hoof, and the Cloven Hoof just my swapping a couple of components.

Critically acclaimed as one of the best muff inspired fuzzes, with roots on the classic Green Russian features a hybrid Germanium/Silicon design, pairing maximum tone with maximum temperature stability not found in finicky and expensive vintage units.



Index

Introduction

The Horn Device soaks your guitar's tone in beautifully dirty organic fuzz, thanks to its hybrid of germanium and silicon transistors. This circuit combines the best elements of a fuzz effect and overdriven amplifier by delivering a healthy dose of smooth, harmonically rich sustain, along with its distinctive, vintage-style fuzz. Tone and Shift controls provide a massive helping of tone-shaping options — especially in the midrange — delivering everything from classic scooped to modern boosted Mids.

The Cloven version of this circuit keeps the tightness and clarity you loved about the Hoof, along with the wide range of fuzz sounds, but replacing the germanium transistors with a set of Silicon transistors for cleaner cleans, higher gain, improved temperature stability, and a grittier, grindier, nastier fuzz tone with over 4x the gain of the original Hoof.

The Cloven Hoof is the perfect solution for those of you who wish the Hoof had more low-end, higher gain, and was just a little bit Hoofier.

Controls

- Shift: This adjusts the mid content, clockwise for scooped mids, counterclockwise for boosted.
- Tone: Bass to the left, Treble to the right.
- Level: Use this control to make it louder or quieter.
- Fuzz: Clockwise for heavy, counterclockwise for light.

Bill of materials (Standard version)

Resistors	
Part	**Value**
R1	1m
R2	39k
R3	39k
R4	470k
R5	100k
R6	100r
R7	15k
R8	2k2
R9	8k2
R10	100k
R11	470k
R12	15k
R13	100r
R14	8k2
R15	100k
R16	100r
R17	470k
R18	15k
R19	2k2
R20	100k
R21	2k2
R22	10k
R23	390k
R-LED	4k7

Transistors	
Part	**Value**
Q1	2N3904
Q2	2N1308*
Q3	2N1308*
Q4	2N3904

Capacitors	
Part	**Value**
C1	100n
C2	470p
C3	100n
C4	100n
C5	470p
C6	100n
C7	100n
C8	470p
C9	100n
C10	6n8
C11	6n8
C12	100n
C13	100n
C14	100u electro

Pots	
Part	**Value**
DIST	50K B
SHIFT	25K B
TONE	100K B
VOL	1M A

Diodes	
Part	**Value**
D1	1n5817
D2	3mm red led
D3	3mm red led
D4	3mm red led
D5	3mm red led
LED	3mm red led

Shopping list

Resistors		
Qty	**Value**	**Parts**
1	1m	R1
2	39k	R2, R3
1	10k	R22
1	390k	R23
3	470k	R4, R11, R17
4	100k	R5, R10, R15, R20
3	100r	R6, R13, R16
3	15k	R7, R12, R18
3	2k2	R8, R19, R21
2	8k2	R9, R14
1	4k7	R-LED

Capacitors		
Qty	**Value**	**Parts**
2	100n	C1, C13
2	6n8	C10, C11
1	100u	C14
3	470p	C2, C5, C8
6	100n	C3, C4, C6, C7, C9, C12

Transistors		
Qty	**Value**	**Parts**
2	2N3904	Q1, Q4
2	2N1308	Q2, Q3

Diodes		
Qty	**Value**	**Parts**
1	1n5817	D1
4	3mm red led	D2, D3, D4, D5
1	3mm red led	LED

Pots		
Qty	**Value**	**Parts**
1	50K B	DIST
1	25K B	SHIFT
1	100K B	TONE
1	1M A	VOL

Cloven Version

The Cloven version can be achieved just by replacing a few components on the original version.

Replace the original low gain 2N3904 with the high gain 2N5089. Swap the Germanium transistors by the MPSA13.

The 1n4148 diodes will perform a harder clipping on the signal than the red leds. Remove C5 and leave the space empty and there you got!

Part	Value
Q1	2N5089
Q2	MPSA13
Q3	MPSA13
Q4	2N5089
D4	1N4148
D5	1N4148
C5	Not Populated

Components Recommendations

As many people like to experiment some pedals with higher voltage, always ensure the max tolerance of your **electrolytic capacitors** is over 25v.

This board has been tested using Film box capacitors for most of the values over 1nf, and ceramics discs for the ones under 1nf. However, high quality components such as Wima's Capacitors and Panasonic's electrolytics can deliver a better performance.

All the resistors used for testing this project are 1/4W Metal Film.

The BOM and Shopping list are exclusively regarding this project. It doesn't include all the hardware like the 3PDT bypass switch, audio/dc jacks, enclosure, etc.

The **Transistors** 2N1308* are NPN germanium around 180-200 HFE. Other NPN germanium transistors can work as well, just make sure they are about 180-200HFE and remember always to check the pin out.

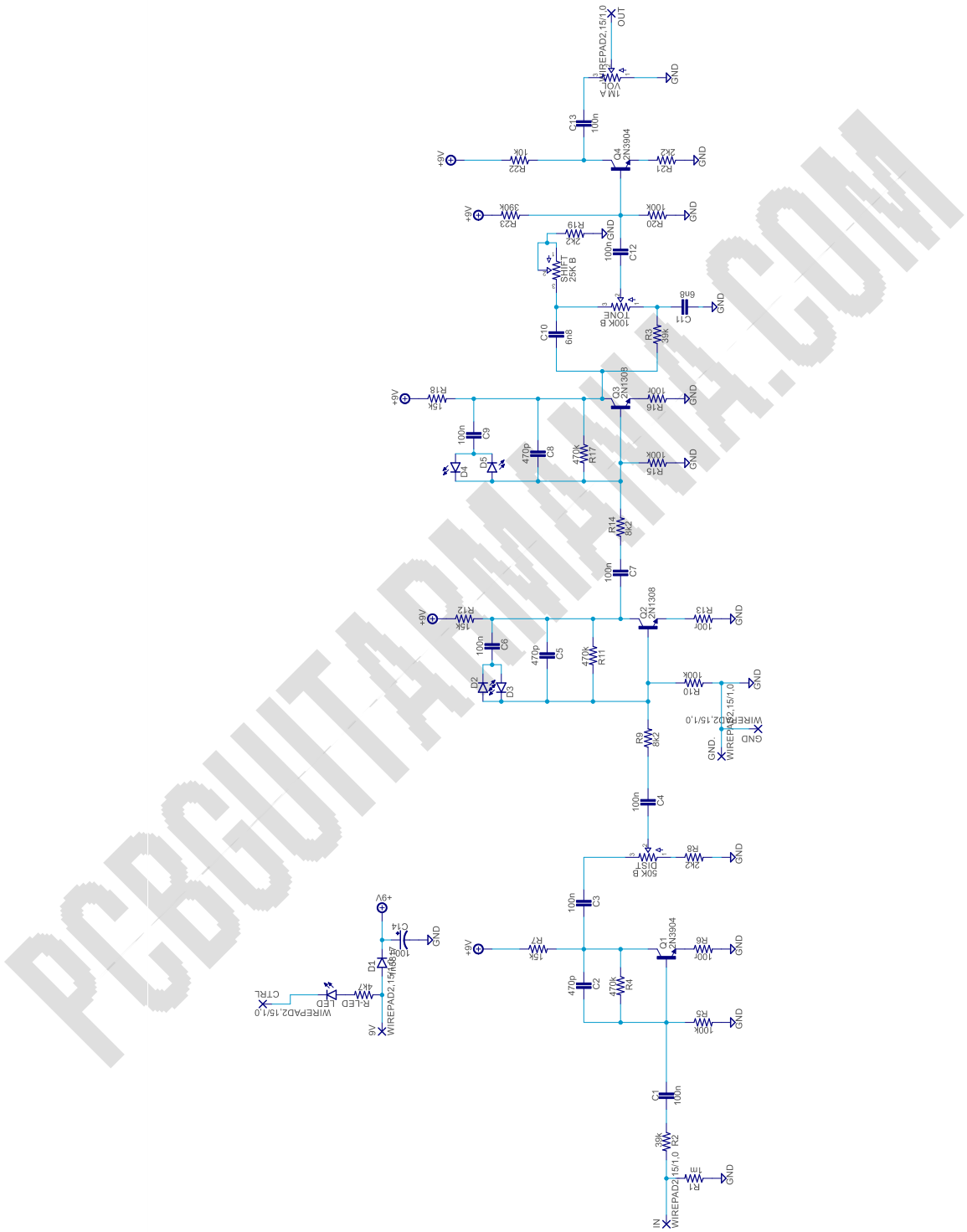
Build Notes

If this is one of your first projects I recommend you to take a look on our Pedal Building Guide

For a successful and tidy build it's recommended the following order:

1. Resistors & diodes
2. Capacitors, starting with the smaller ones and the ceramic ones.
3. Electrolytic capacitors (always check the polarity)
4. Transistors
5. Wires
6. Potentiometers and switches
7. Off board wiring

Schematic

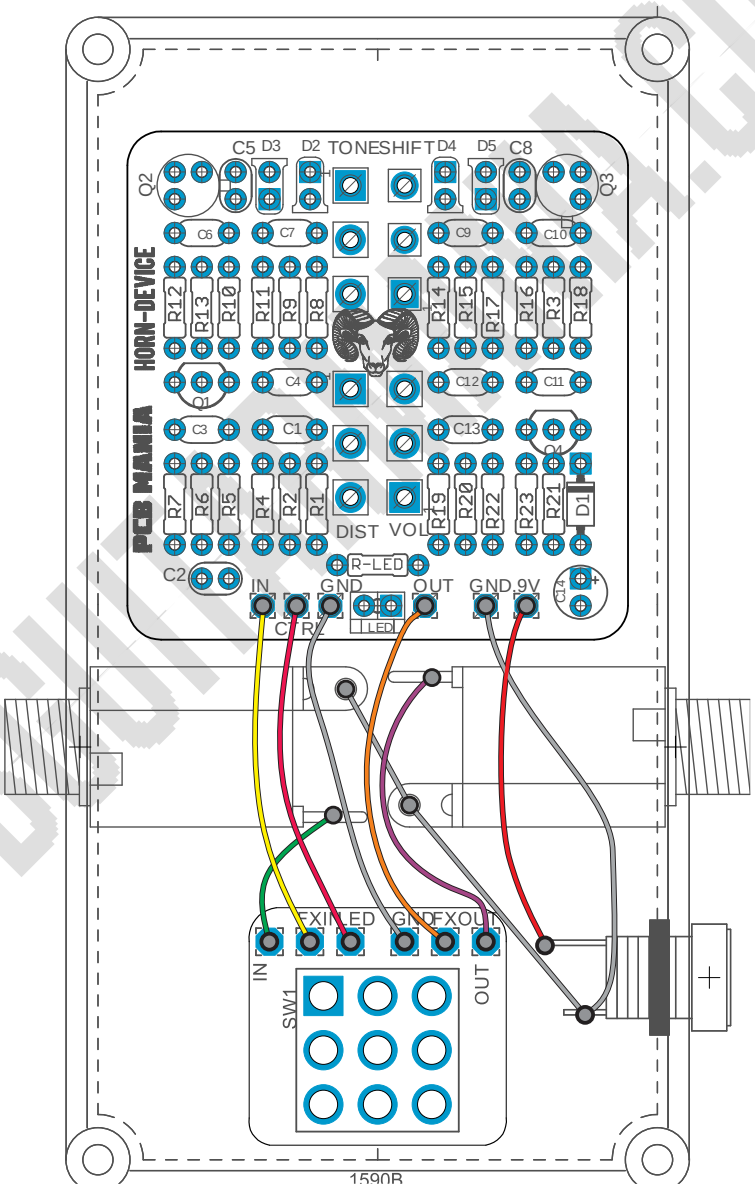


Wiring Diagram

All our projects include a free 3PDT Board to make the wiring easier and tidier. Also all of our PCBs feature the status LED on board.

The pad named “Ctrl” or “LED” is the one that controls the status of the led, wire it to the “LED”pad on the 3PDT board, or in control slug of your 3PDT.

You can take a look on the following diagram to understand the general connections. For further information check our Pedal Wiring guide.



Drill Template

This Project has been planned to fit into a 1590B enclosure type (122x67x35mm approx.)

Check the Attached "Drilling templates" to drill the box properly. The files are on Scale 1:1, ready to print in an A4 page.

Licensing and Usage

We really appreciate your trust and support buying this PCB, as well as your will to dive into the DIY electronics world. That's why for us is really important that you can make this project work properly and to enjoy not only the building process, but also to experiment and play with it on your rig.

We try to reply to every question we receive on our email or in our social media, but we try to encourage all our customers to join our PCB Guitar Mania – Builders Group on Facebook, in order to post all your doubts, issues, suggestions or request, as well to share your builds and have some feedback from us and other fellow builders!

All of our projects have been tested following this same guide on their standard configurations. Although, not all of the variations and mods have necessarily been tested. These are suggestions based on the schematic analysis, and on the experiences and opinions of others. Feel free to share with us your opinions and suggestions regarding the mods your own personal experimentation.

These boards may be used for commercial endeavors in any quantity unless specifically noted. No attribution is necessary, though accreditation or a link back is always greatly appreciated.

If you are a builder planning to make your own run of pedals we also offer the service of custom made boards with your brand and logo, design according your specifications.

The only usage restrictions are that, first, you cannot resell the PCB as part of a kit without prior arrangement with us, and second, you cannot scratch off the silk screen, or other way of trying to hide our logos and the source of the PCBs. Like it's written above, if you want to have your own designs, with your brand and logo we could certainly reach an agreement.

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