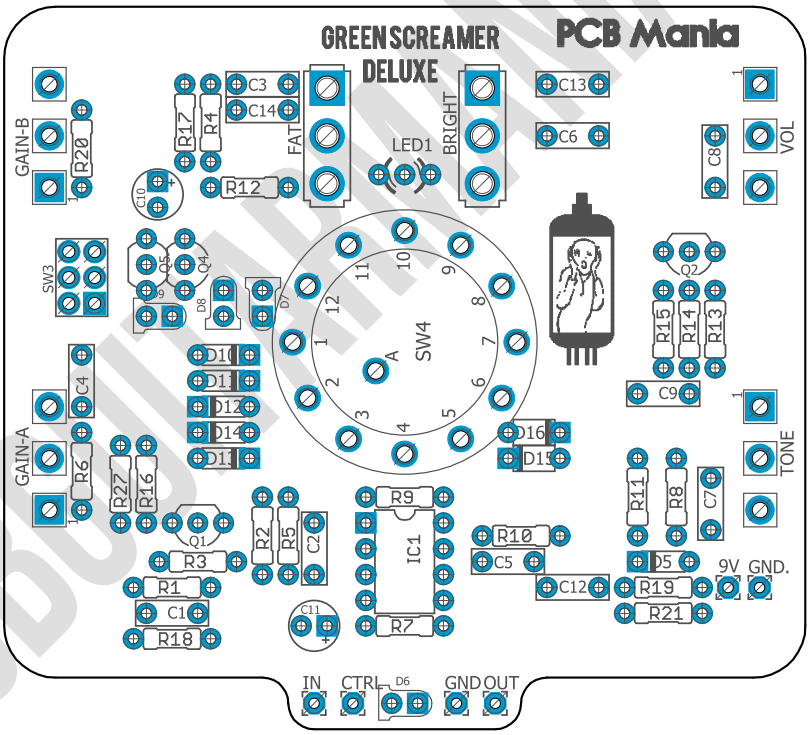
Green Screamer Deluxe

Based on:
Ibanez´s Tube Screamer
Effect type:
Overdrive
Build difficult:
Advanced

Amount of parts:
Average, total 62 components
Technology:
Dual Op Amp + NPN silicon transistors
Power consumption:
9V

Enclosure type:
1590bb
Get your board at:
Green Screamer Deluxe
Get your kit at:
Das Musikding (Europe)

Project overview:
T The Green Screamer deluxe is a take on the father of all the overdrives, the Ibanez's Tube Screamer



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Introduction

To develop this project, we investigated a lot about the evolution, the clones, and the mods of this classic drive through the time, taking as much as we could on a single board that is capable of uncountable mods and voicings.

- Rotatory switch to select in between 6 different clipping options.
- Dual gain channel with extra footswitch to select them.
- Bright and fat switch to dial the tone as your preference.
- Very easy to mod and make uncountable different versions out of this single board.
- Designed to fit in a 1590BB enclosure with all the pots and switches on board.

Controls

- Volume
- Tone
- Gain A
- Gain B
- Rotatory switch for clipping diodes.
- Bright switch
- Fat switch

Bill of materials

Resistors	
Part	**Value**
R1	1k
R2	510k
R3	10k
R4	4k7
R5	10k
R6	51k
R7	1k
R8	220r
R9	10k
R10	1k
R11	1k
R12	510k
R13	10k
R14	**100r****
R15	**10k****
R16	10k
R17	10k
R18	2m2
R19	47r
R20	10k
R21	4k7
R27	2k7

Switches	
Part	**Value**
BRIGHT	SPDT ON-ON
FAT	SPDT ON-ON
SW3***	**DPDT ON-ON**
SW4***	**Rotatory 1P12T**

Potentiometers	
Part	**Value**
TONE	20kb
VOL	100ka
GAIN-A	**500ka********
GAIN-B	**1mb********

IC**********	
Part	**Value**
IC1	JRC4558D

Capacitors	
Part	**Value**
C1	22n
C2	1u
C3	47n
C4*	**51p**
C5	1u
C6	100n
C7*	**220n**
C8	100n
C9	1u
C12	100n
C13	220n
C14*	**120n**

Electrolytic Capacitors	
Part	**Value**
C10*	47uf Electrolytic
C11	47uf Electrolytic

Diodes	
Part	**Value**
D5	1n4001
D6	LED3MM
D7	LED3MM Green
D8	LED3MM Green
D9	LED3MM Water clear
D10	1n916
D11	1n916
D12	1n916
D13	1n4148
D14	1n4148
D15	bat41
D16	bat41
LED1	Led dual common cathode

Transistors**********	
Part	**Value**
Q1	2N5088
Q2	2N5088
Q4	**2n7000**
Q5	**2n7000**

Shopping list

Resistors		
Qty	Value	Parts
1	2k7	R27
1	2m2	R18
2	510k	R2, R12
1	51k	R6
1	47r	R19
1	220r	R8
2	4k7	R21
1	100r	R14
4	1k	R1, R7, R10, R11
8	10k	R3, R5, R9, R13, R15, R16, R17, R20

Capacitors		
1	120n	C14
3	100n	C6, C8, C12
3	1u	C2, C5, C9
1	220n	C13, c7
1	22n	C1
1	47n	C3
1	51p	C4
2	47uf electro	C10, C11

Potentiometers		
1	1mb	GAIN-B
1	500ka	GAIN-A
1	20kb	TONE
1	100ka	VOL

Semiconductors		
2	2N5088	Q1, Q2
2	2n7000	Q4, Q5
1	JRC4558D	IC1

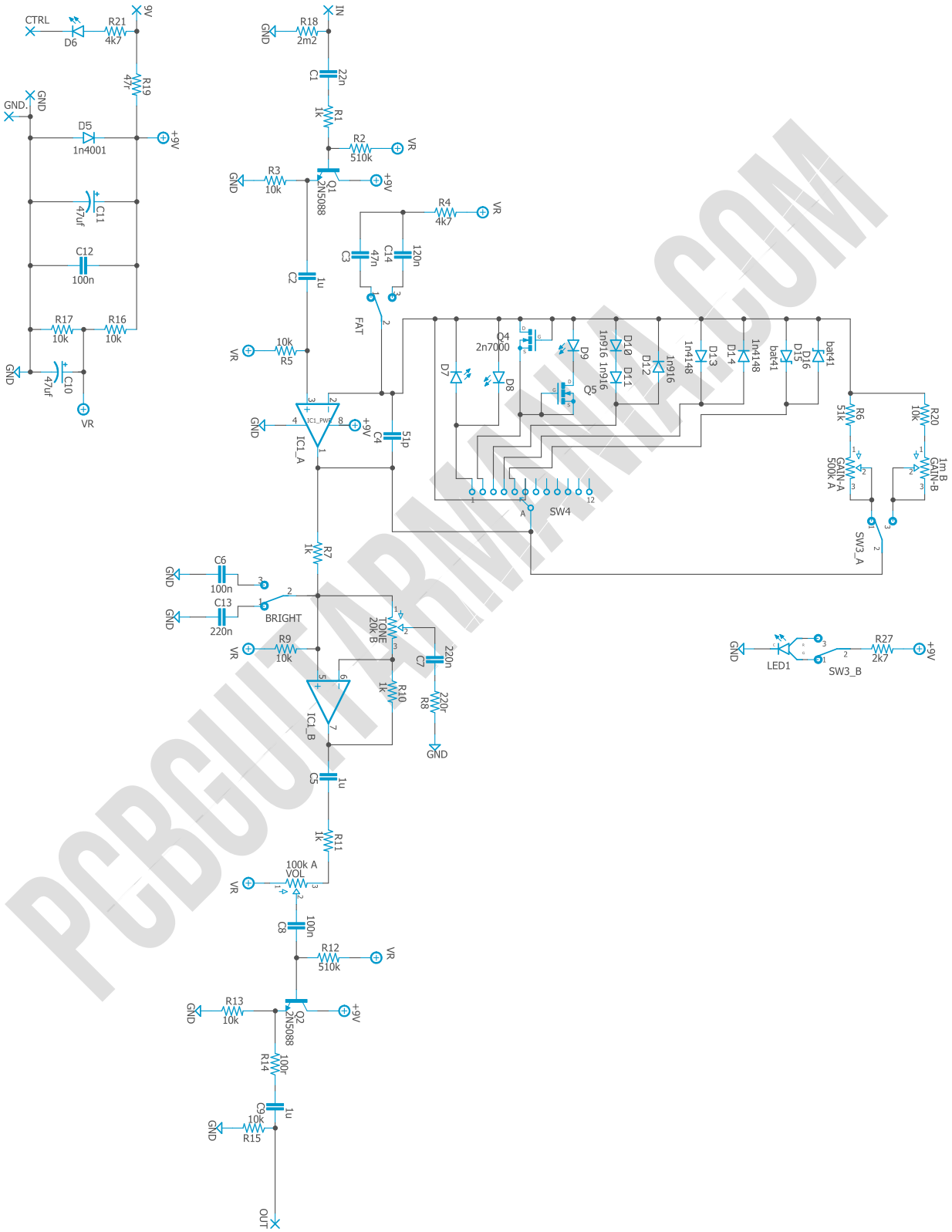
Diodes		
1	1n4001	D5
2	1n4148	D13, D14
3	1n916	D10, D11, D12
1	LED_DUAL	LED1
2	bat41	D15, D16
2	LED3MM Green	
1	LED3MM water clear	
1	LED3MM	

Switches		
1	DPDT footswitch	SW3
2	Toggle SPDT on - on	BRIGHT, FAT
1	Rotatory 1P 12T	SW4

This shopping list is based on our stock version. If you want to do some of the modifications above, please add the components you need before making the order to your supplier.

Also never forget to include the basic hardware such as 3PDT, audio jacks and dc connectors.

Schematic



Components Recommendations

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

This board has been tested using Film box capacitors for most of the values over 1nf and ceramics discs for those 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 exclusive regarding this project. It doesn't include all the hardware like the 3PDT bypass switch, audio/dc jacks, enclosure, etc.

Build Notes

If this is one of your first projects, I recommend you to take a look at 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

C7; C10; C14 *

In the original tube screamer C7-220n is a tantalum capacitor. You could use also a regular Filmbox capacitor; some people say this type has a better response. Also you could decrease the value for a 100n to open up a bit the response of the tone control.

C10-47uf is actually a electrolytic capacitor beside the silkscreen point it as a no polarized one. Check the graphic above to see the right polarity.
C14-120nf Is in charge of the fat switch response. Feel free experimenting with other values, taking in mind that **C3-47nf** is the stock version.
C4 Could be replaced with a 47pf capacitor that is much more common to find.

R14; R15**

The values of **R14** and **R15** represent the ones on the original TS808. If you want to have sound closer to the TS9 replace the stock resistors with the following values.

- **R14- 470r**
- **R15-100K**

Bellow you will find and extra wiring diagram to wire and extra switch to select in between the TS808 and TS9.

Switches***

Sw3: controls the channel selection. You could use a normal toggle DPDT ON-ON, but I believe that its more useful to wire it as DPDT Footswitch. The dual led will show you which channel is on independently of which switch you chose.

SW4: 1P12T or 1P 6T will work fine. You could set up the 1P12T on 6 positions with the supplied washer. I believe that 2P12T or a 2P6T could work also.

You could get one of these switches here:
Small Bear
Das musikding

These two suppliers are just shown as an example.

GAIN-POTS ****

The original TS808 has a 500KA (logarithmic) gain pot, I found on my opinion that is a bit easier to control a 500KB (lineal) in some occasions. Feel free to experiment.

For GAIN-B I used a 1MB, based on it's a popular mod in many tube screamers kinda drives based. It will increase the total maximum gain.

ICs***

I set for this build the default JRC458D of the stock version. Just socket and try many different DUAL OP AMPS, on my experience I got the following results.

- TL072, a more bassy sound, coloured tone.
- OPA2134, more headroom, and crystalline sound. not so much clipping from the ic.
- LM833: Brighter and sharp tone
- RC4580, adds more presence and mids sound.

Transistors***

Q1 &Q2 I set them as stock cause of its medium gain capabilities. You could try with 2n3904 for lower gain settings, or 2N5089 and MPSA18 for higher gain results. Although the transistors are on the buffer part of the circuit and doesn't have that much inherency on the tone.

Q3 &Q2 4 The 2N700 could be replaced by BS170, just as they have reverse pin out you got to place them reverse as the silk screen.

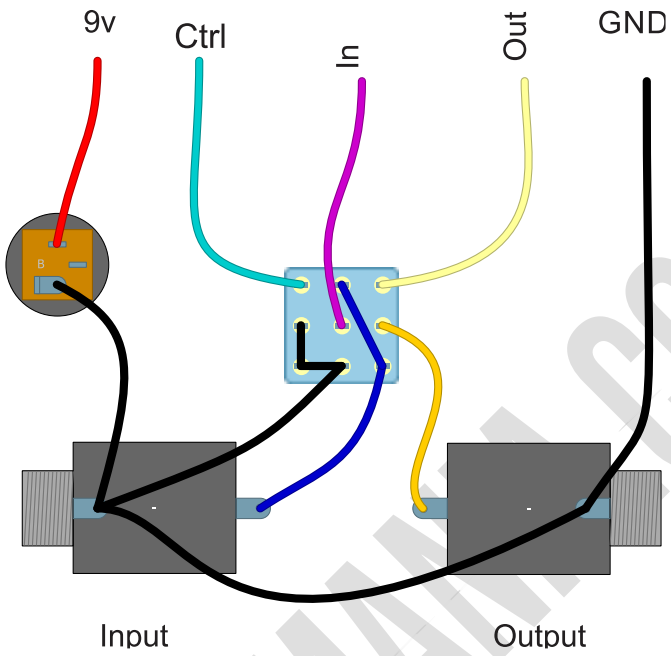
Wiring Diagram

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 the control slug of your 3PDT.

This board has been designed to match our EZ 3PDT PCB; check it here to access our Pedal Wiring Guide.

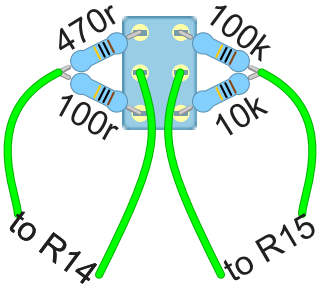
Off Board Wiring



Channel selector switch

To wire this switch just take a cable from each pad of SW3 and connect it in the same way on the terminals of your DPDT Footswitch.

CTs808/Ts9 voice switch mod



This is an additional mod you could add to the Green Screamer Deluxe, just take out two wires from the pads for R14 and R15 and wire it as it indicated on the graphic. This mod uses an extra toggle DPDT ON-ON.

Drill Template

This Project has been planned to fit into a 1590bb enclosure type.

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

Licensing and Usage

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

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

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

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

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