

Nordic Metal

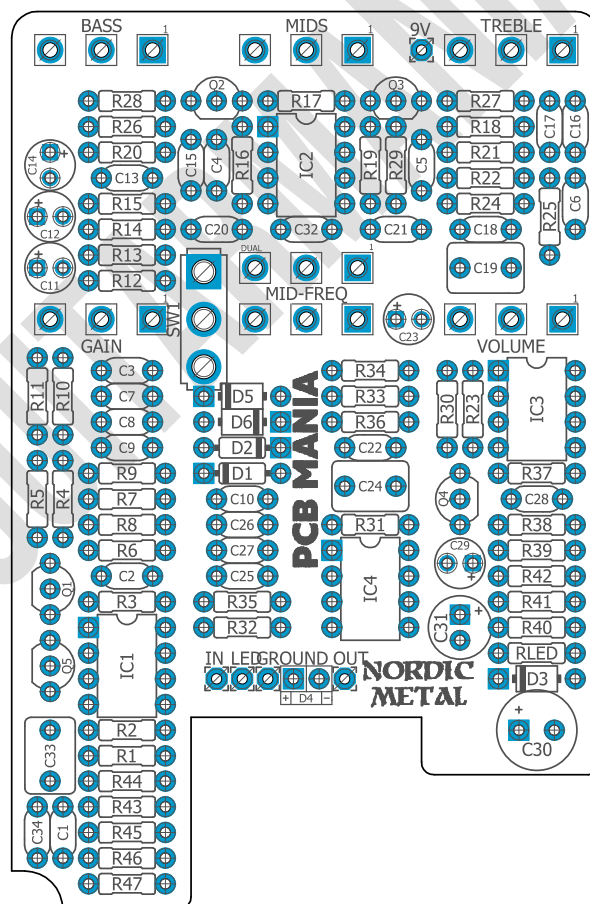
Based on:
Boss Metal zone
Effect type:
Distortion
Build difficult:
Advanced

Amount of parts:
High, total 101 components
Technology:
Op Amps
Power consumption:
9V

Enclosure type:
125b
Get your board at:
[Nordic Metal](#)
Get your kit at:
[Das Musikding \(Europe\)](#)

Project overview:

Can you hear that buzz?! It sounds like we're being swarmed by an army of blood-thirsty wasps... oh, no worries, actually, it's Steve testing his new Nordic Metal pedal!



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Introduction

Nordic Metal is inspired by the one and only Metal Zone. The unmistakable sounding circuit comes with a complete list of mods that is able to change the wasp nest into a metal sculpting machine.

TREBLE, MIDS, BASS, VOLUME, MID-FREQ and GAIN are the 6 knobs available on this pedal. VOLUME allows setting the loudness of the engaged unit. GAIN is the control over how metal the pedal sounds, and let's not lie to ourselves here - this knob will be stuck at the max all the time, we guarantee you. TREBLE, MIDS, and BASS are the pots responsible for the equalization of the tone, covering a full range of frequencies - from the top, through the mids, down to the low bass. MID-FREQ allows you to finetune the central frequency of the MIDS control to give your tone its unique character. In fact, the EQ controls of this pedal are so powerful that they might end up in a separate circuit... watch this space!

If you consider yourself a true metalhead, then there is nothing to think about twice. The Nordic Metal pedal is a must-have for any self-respecting sonic annihilator!

Controls

Potentiometers

- Bass
- Gain
- MIDs
- Treble
- Volume

Switches

- SW1

Bill of materials

Resistors	
Part	Value
R1	1M
R2	100K
R3	200K*
R4	2K2*
R5	10K
R6	47K*
R7	10K
R8	10K*
R9	100K
R10	1K
R11	1K*
R12	2K2
R13	10K
R14	4K7*
R15	100K
R16	3K3
R17	22K
R18	22K*
R19	470R*
R20	1K
R21	22K*
R22	2K2
R23	2K2
R24	100K
R25	22K
R26	10K
R27	10K
R28	47K*
R29	470K*
R30	47K
R31	47K
R32	1M
R33	330R
R34	330R

R35	2K2
R36	2K2
R37	1M
R38	10K
R39	1K
R40	100K
R41	10k
R42	10k
R43	100K
R44	10K
R45	1M
R46	10K
R47	1M
R48	15k or less
RLED	4K7

Capacitors	
Part	Value
C1	15n*
C2	100p
C3	47p*
C4	47p*
C5	47p
C6	10p*
C7	27n*
C8	10n*
C9	33n*
C10	47n*
C13	15n*
C15	15n*
C16	220n
C17	10n
C18	47n*
C19	1u
C20	1n5*
C21	47n*

C22	100p*
C24	1u
C25	22n
C26	100n
C27	8n2
C28	47n
C32	220n*
C33	1u
C34	47n*

Electrolytic Capacitors	
Part	Value
C11	10u*
C12	10u
C14	1u
C23	10u
C29	1u*
C30	100u
C31	47u

Potentiometers	
Part	Value
BASS	100K B
GAIN	250K B
MIDS	100K B
TREBLE	100K B
VOLUME	50K A
MID-FREQ	50K B Stereo

IC	
Part	Value
IC1	C4558
IC2	C4558
IC3	C4558
IC4	C4558

Transistors	
Part	Value
Q1	2N3904
Q2	2N3904
Q3	2N3904
Q4	2N3904
Q5	2N5457

Switch	
Part	Value
SW1	MINI SPDT ON-OFF-ON**

Diodes	
Part	Value
D1	1n4148
D2	1n4148
D3	1n5817
D4	3mm red LED
D5	Of your choice
D6	Of your choice

Custom Values

Resistors custom values*		
Part	Value	Effect
R29	Remove	More boost/gain
R18	Increase until 100k	More volume
R19	Remove	More boost/gain
R14	Jumper	Boost bass and mid. Cuts treble
R28	Remove	Cut treble bump
R8	Remove	More bass
R11	4k7 or 680	4k7 cut gain, 680 more gain.
R3	1k	Cut gain and mid peak
R4	10k or 1k	10k cut mid, 1k boost mid
R6	Remove	Cut mid and less treble cut

Capacitors custom values*		
Part	Value	Effect
C6	100pf	Mid boost
C22	220pf	Mid boost and a bit treble cut
C21	Remove or 1uf	Boost mid
C32	Remove	Cut bass and boost treble
C15	1uf	More boost/gain
C20	10nf or remove	More treble
C3	100pf	Cut high gain
C9	1uf	Bass boost
C10	Remove	No treble cut
C1	1uf	Bass boost
C7	47nf	More mid and bass
C8	Remove	Flat mid and boost treble
C34	1uf	Subtle Bass boost

Electrolytic Capacitors custom values*		
Part	Value	Effect
C11	47nf	Cut gain in the bass and mid
C29	100nf	Bigger mid pot range

Transistors		
Part	Value	Effect
Q2, Q3	Remove - Empty	Cut bass and trebles, boost mids

Shopping list

Resistors		
Qty	Value	Parts
6	100K	R2, R9, R15, R24, R40, R43
9	10K	R5, R7, R8, R13, R26, R27, R38, R44, R46
2	10k	R41, R42
4	1K	R10, R11, R20, R39
5	1M	R1, R32, R37, R45, R47
1	200K	R3
4	22K	R17, R18, R21, R25
6	2K2	R4, R12, R22, R23, R35, R36
2	330R	R33, R34
1	3K3	R16
1	470K	R29
1	470R	R19
4	47K	R6, R28, R30, R31
2	4K7	R14, RLED
1	15k or less	R48

Capacitors		
Qty	Value	Parts
1	100n	C26
2	100p	C2, C22
2	10n	C8, C17
1	10p	C6

3	15n	C1, C13, C15
1	1n5	C20
2	1u	C19, C24
1	1u	C33
2	220n	C16, C32
1	22n	C25
1	27n	C7
1	33n	C9
5	47n	C10, C18, C21, C28, C34
3	47p	C3, C4, C5
1	8n2	C27

Electrolytic Capacitors		
Qty	Value	Parts
3	10u	C11, C12, C23
2	1u	C14, C29
1	100u	C30
1	47u	C31

Potentiometers		
Qty	Value	Parts
3	100K B	BASS, TREBLE, MIDS
1	250K B	GAIN
1	50K A	VOLUME
1	50K B Stereo	Mid-Freq

IC		
Qty	Value	Parts
1	C4558	IC1, IC2, IC3, IC4

1	C4558	IC1, IC2, IC3, IC4
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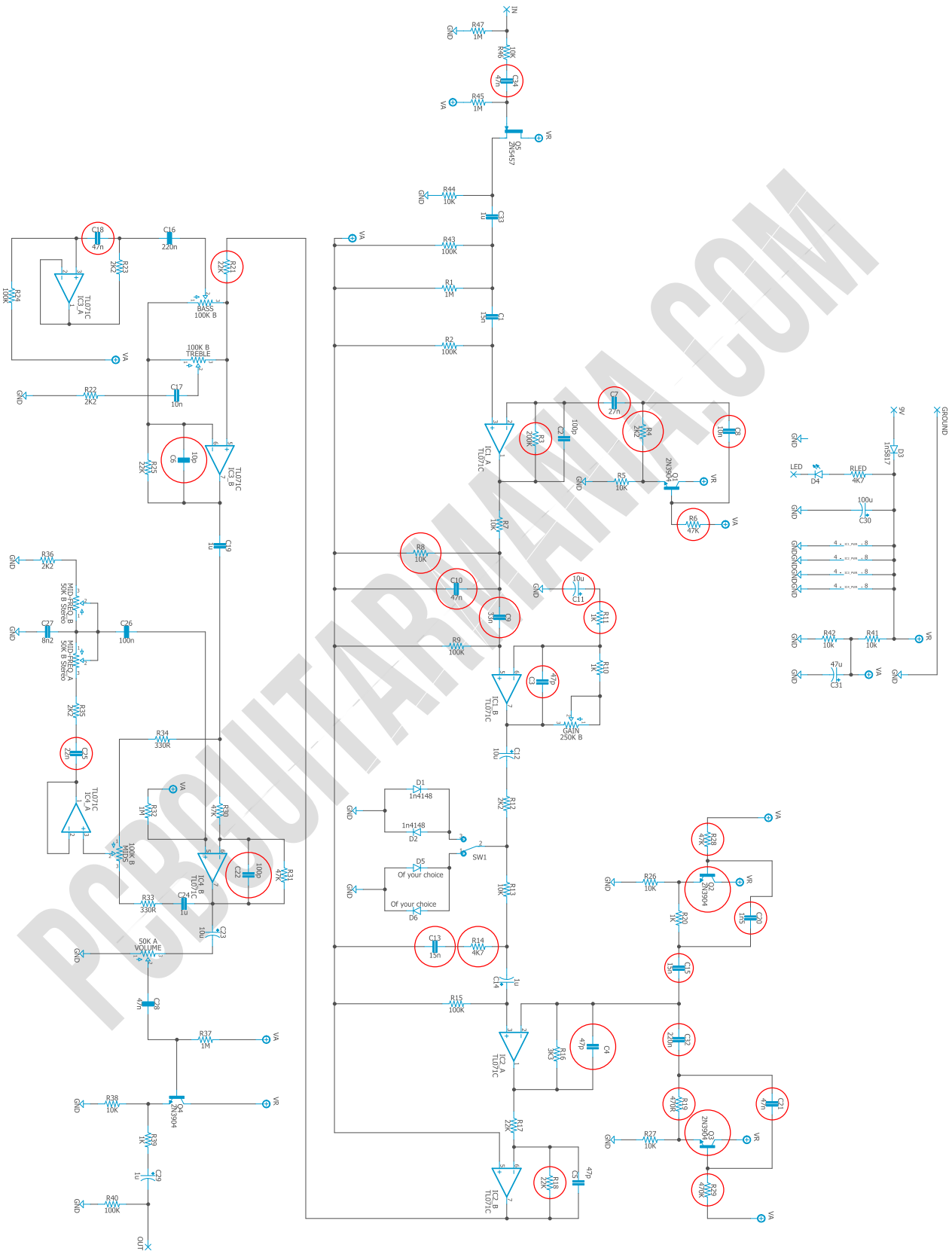
Transistors		
Qty	Value	Parts
4	2N3904	Q1, Q2, Q3, Q4
1	2N5457	Q5

Switches		
Qty	Value	Parts
1	SPDT On-Off-On Mini Toggle Switch*	SW1
1	3PDT 3PDT Stomp Foot	-

Diodes		
Qty	Value	Parts
2	1n4148	D1, D2
1	1n5817	D3
1	3mm red LED	D4
2	Of your choice	D5, D6

Jacks		
Qty	Value	Parts
1	DC JACK	-
2	AUDIO JACK	-

Schematics



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

SW1*

You cannot use a standard SPDT due to lack of space. If you don't have the microswitch, it is better to put a jumper between pads 2 and 3 for the stock version or between 2 and 1 for the custom version.

- <https://www.taydaelectronics.com/sub-mini-toggle-switch-2m-series-spdt-on-off-on-pcb-pins.html>
- <https://www.musikding.de/Mini-Toggleswitch-SPDT>

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](#).

Drill Template

This Project has been planned to fit into a 125b 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.

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 to 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 silkscreen 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 designs with your brand and logo, we could undoubtedly reach an agreement.

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