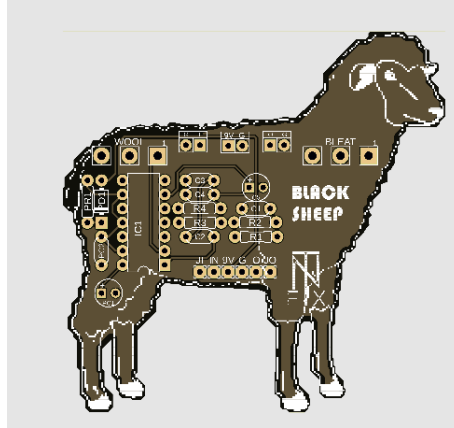


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Thank you for purchasing your PCB project from Noise Therapy FX. Here are your build documents and basic instructions. It is recommended that you read thoroughly before beginning your project. Included here are several key bits of information:

- A Bill of Materials by part # for ease of population.
- A Bill of Materials by value for ease of ordering.
- A PCB dimensional drawing to help you with enclosure layout and control drilling.
- A schematic drawing to help with diagnosis.

These instructions are designed with the expectation that you have some basic understanding of schematic reading, soldering skill, and such. Though these projects are designed in such a way as to be accessible to builders of at any level of experience. I hope you enjoy your project and if you do have any questions do not hesitate to reach out to us at Noisetherapyfx@gmail.com

Basic Design Philosophy

All PCBs are laid out according to quality best practices for ease of population, efficiency, and electronic integrity.

Unless otherwise specified, all PCBs are designed to be installed in a 125B sized enclosure with top-mounted jacks. I have also included pads on the lower edge of the board for use of side mounted jacks if you prefer. I recommend using my footswitch daughterboard with 6pin ribbon cable for ease of connection, but you can easily wire how you choose based on your particular need.

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All PCBs are designed as close to original specs as possible. Some exceptions will be using modern conventions with power protection and my simplified offboard wiring layouts. If a component is not readily available, I have tried to either provide a common replacement or, as in the case of JFETS, included both through hole and SMD support right on the board. No need for adaptors or to pay outrageous prices for obsolete parts.

Component Conventions

- Resistors. 1/4W 7.5mm lead spacing.
- Capacitors <100p. 2.5mm lead spaced MLCC or Ceramic.
- Capacitors 100p-100n. 5mm lead spaced, 2.5mm wide film or MLCC
- Capacitors 120n-1u 5mm lead spaced, 4.5mm wide film
- Capacitors 2u2-47u. Electrolytic 2.5mm lead spaced 5mm.
- Capacitors 100u. Electrolytic 2.5mm lead spaced 6.3mm.
- Potentiometers. 16mm PCB mount.
- Diodes. 7.5 mm lead spaced. Clipping LEDS are 3mm.
- All Op-Amps are spaced to use sockets
- All transistors are TO-92 packages

Assembly Conventions

While you can assemble your circuit however you like, there are some general guidelines that can help make assembly a bit easier.

First and foremost, populate your board one component type at a time based on size. Recommended order:

1. Diodes and Resistors
2. Ceramic and film caps
3. Sockets and Transistors
4. Electrolytic caps
5. Offboard wiring

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Always double check direction of polarized components and multipin devices. Diodes, LEDs, electrolytic capacitors, transistors, and ICs can only be installed in one direction to properly function. The square pads for LEDs, and polarized electrolytic caps correspond to the long lead of the device. The silkscreen is your key for diodes, transistors, and ICs.

Use sockets for ICs and any components you think you might want to experiment with. I've taken great care to leave plenty of space for flexibility.

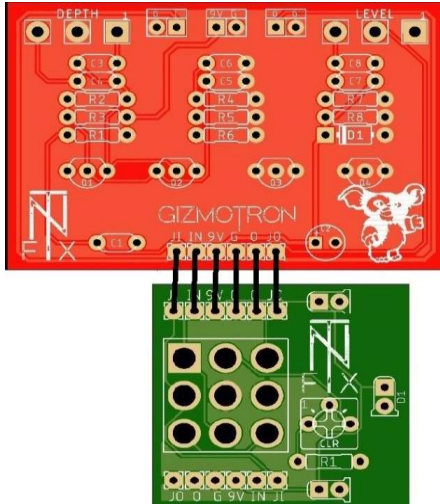
Never install ICs until you are ready to test your device as they tend to be heat sensitive and can be damaged from the heat of a soldering iron.

It is a good idea to test fit your pots and switches to your enclosure before soldering to your PCB. This will help ensure the correct height and fit of each device and make assembly simpler. Tape your components to your pcb and then install in your drilled enclosure. Install the nuts to lock the components in place on the enclosure, then once satisfied with the fit, solder the components to the PCB and remove the tape.

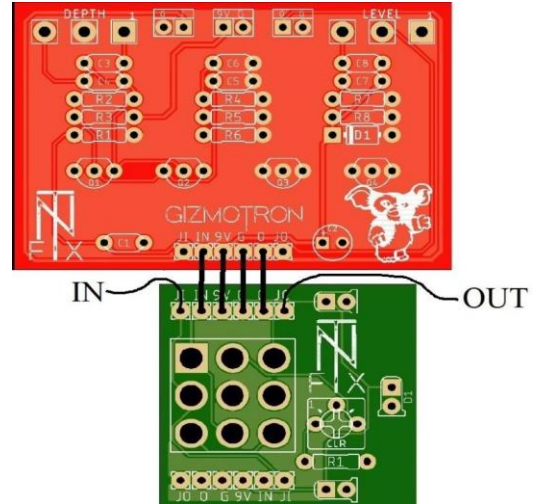
Wiring Conventions

- Designed to be used with top mounted or side mounted jacks.
- Pads IG and OG are only used if using top mounted jacks.
- Pads JI and JO are only used if using top mounted jacks.
- 9v and G are provided at top and bottom of PCB for your convenience. Use only one or both as a passthrough for your LED.
- There are 4 G pads provided on every board for your convenience. Use at least one or use them all.
- LEDs are offboard components with these designs. Follow the diagram below if you are not using an NTFX Footswitch Board.
- Using an NTFX FS Board and 6-ribbon cable is the easiest way to wire up your bypass switching.
- See images below for multiple bypass and LED wiring options.

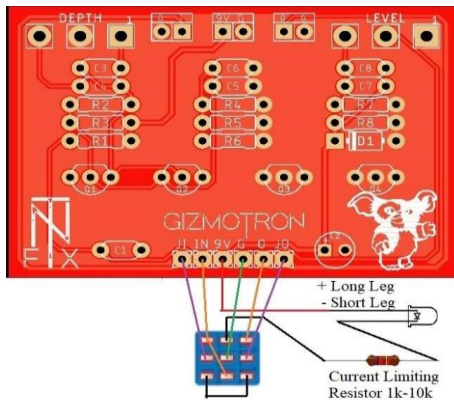
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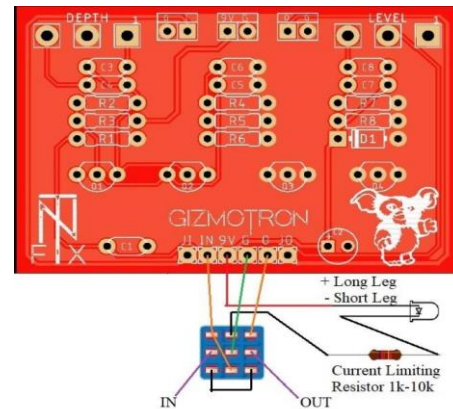
Top Jacks w/ NTFX FS Board



Side Jacks w/ NTFX FS Board

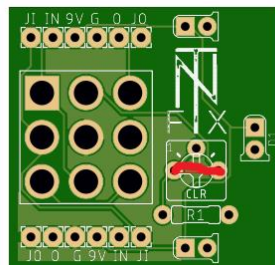


Top Jacks w/o NTFX FS Board



Side Jacks w/o NTFX FS Board

If using the NTFX Footswitch board and not using the trimpot, use a jumper between pads 1 and 3.



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Black Sheep Details

Controls Layout:

- Wool: Controls the amount of distortion.
- ABV: Controls the overall level of the circuit.

Black Sheep is designed to be installed in a 1590BB enclosure or larger. BBM or BBT or 125BB will make drilling for top mount controls more forgiving.

Black Sheep is a CMOS Drive taking its inspiration from such classics as the Way Huge Red Llama, EHX Hot Tubes, and Anderton Tube Sound Fuzz. Very dynamic and powerful, CMOS drives offer more power with less coloration, hence the “Tube” reference.

Take care when installing your CD4069 IC as it is not reversable. The cutout should line up with the silk screen on the board. If your chip does not have a cutout, a dot will appear over pin 1 which corresponds to the square pad on the PCB.

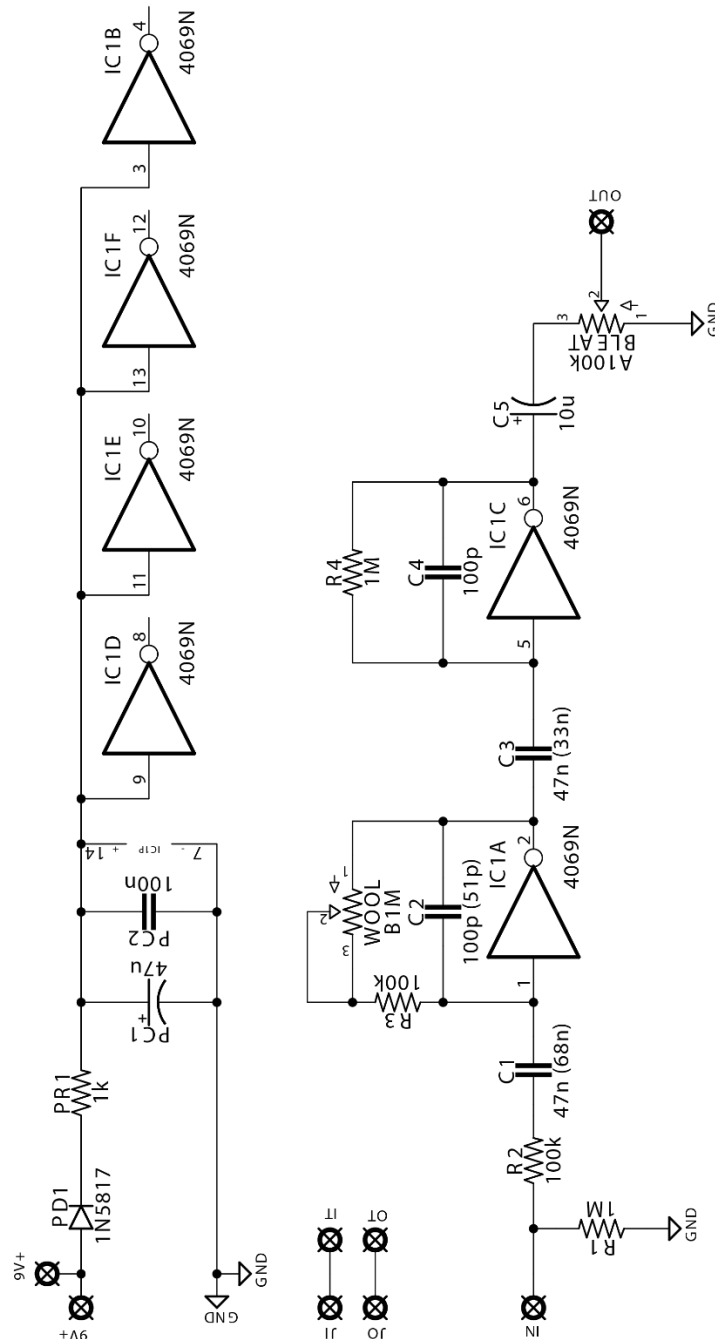
Bill of Materials

Black Sheep BOM	
Part	Value
C1	47n
C2	100p MLCC
C3	47n
C4	100p MLCC
C5	10u electro
PC1	47u electro
PC2	100n
PD1	1N5817
PR1	1k
R1	1M
R2	100k
R3	100k
R4	1M
IC1	CD4069
BLEAT	A100k
WOOL	B1M

Parts by QTY		
Type	Qty	Value
Resistors	1	1k
	2	100k
	2	1M
Capacitors	2	100p
	2	47n
	1	10u
	1	47u
ICs	1	CD4069
16mm	1	A100k
Pots	1	B1M
Diodes	1	1N5817

BLACK SHEEP

Schematic



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