# Killer Bee

This is the famous low to medium gain circuit with some modern features. Use this in front of an overdriven tube amp and push your amp into distortion or run it in tandem with other dirt pedals. All the sweet sound you would expect but what makes our version "Killer" is the addition of a foot switchable boost for more sustain and volume. Instantly add more gain and sustain under either setup than could be achieved using a similar circuit and still have the ultimate in touch sensitive expression.
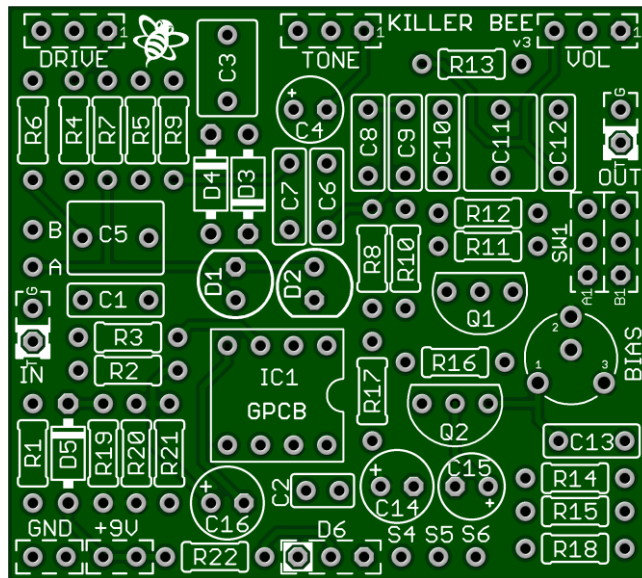
Part	Value	Part	Value	Part	Value	Part	Value
R1	1M	R16	33k	C8	10n	VOL	A100K
R2	360k	R17	1M	C9	22n	DRIVE	B500K
R3	15k	R18	1k	C10	100n	BIAS	20K
R4	3k	R19	100R	C11	1u	TONE	B50K
R5	1k	R20	47k	C12	4n7		
R6	1k	R21	47k	C13	100n	Switch	** DPDT
R7	27k	R22	1k8	C14	100u		
R8	10k			C15	22u	IC1	* TL071
R9	150k	C1	47n	C16	22u	Q1	2N5457
R10	1M	C2	100p			Q2	*** J113
R11	5k6	C3	220n	D1	LED		
R12	2k2	C4	2u2	D2	LED	D6	Status LED
R13	47k	C5	1u	D3	1n4001		
R14	33k	C6	4n7	D4	1n4001		
R15	68k	C7	22n	D5	1n4001		

FILE: KillerBee_v3

DATE: 7/12/2021 10:31 PM

BRUCE R
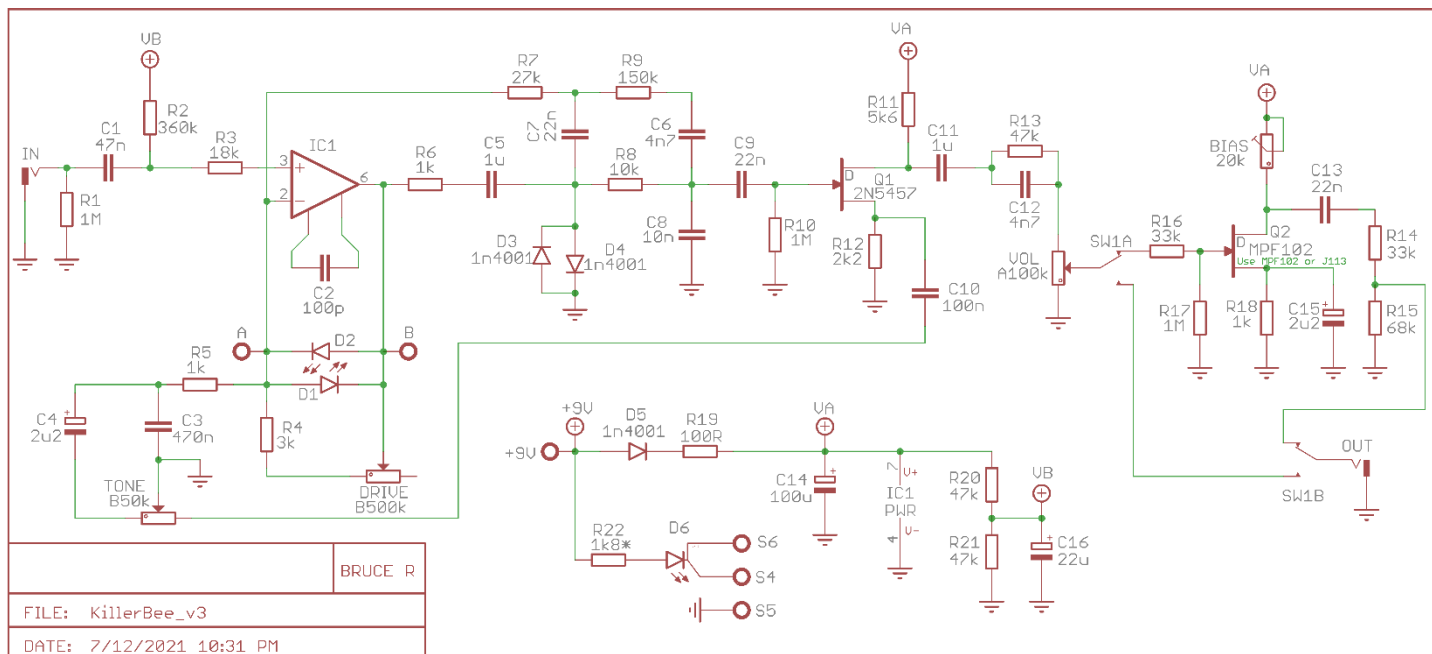
Build Notes:

* Use TL071, CA3130, NE5534 or other Mono Opamps. If you use CA3130, populate C2. If you use either of the other two choices suggested C2 is not needed and can be simply left off the board.

** We recommend the use of a DPDT foot switch although you may use a toggle. By using a footswitch, you have much more flexibility. You may also use a 3PDT in order to add an LED to the switch.

*** While J113 is an excellent choice a N.O.S. MPF102 is equivalent. The orientation for both is identical to the silkscreen on the board. Both should be biased at approximately 6 volts on the drain leg to ground. Be very careful not to purchase counterfeit FETs from eBay, Amazon or similar. Kits may come with either genuine transistor.

A /B Pads: The DPDT Wiring Board above is an optional mod. Use the DPDT wiring board to load your own favorite combination of clipping options and simply do not install D1 and D2.

Mods are typically not included with KITs.

Controls:
Drive: Turn clockwise for more overdrive.
Tone: Turn clockwise for a brighter tone.
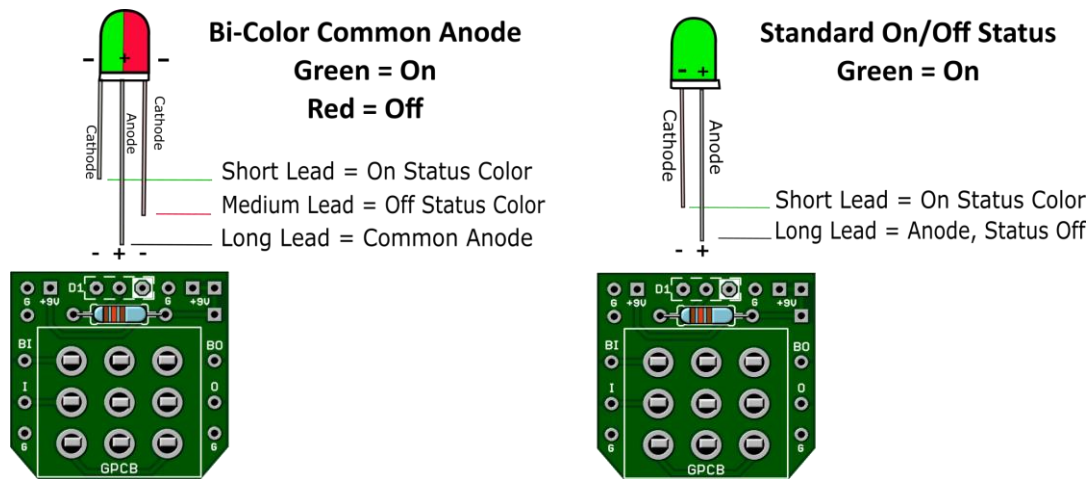Volume: Turn Clockwise for more Volume
Trimmer: Bias the drain (or D) leg of J113 or (MPF102) using a Digital Multimeter to about 6 volts.

When biasing simply put the red probe on the (D) or drain leg, black probe on any ground, supply the circuit with (9) volts power and use the trimmer to dial in the correct voltage.

J113

TO-92

STATUS LED

Bi-Color Common Anode
Green = On
Red = Off

Short Lead = On Status Color
Medium Lead = Off Status Color
Long Lead = Common Anode

Standard On/Off Status
Green = On

Short Lead = On Status Color
Long Lead = Anode, Status Off

If you are using one of GuitarPCB handy 3PDT wiring boards, pads S4, S5, S6 and D6 would be ignored and R22 would not be installed. See wiring guide below for reference.
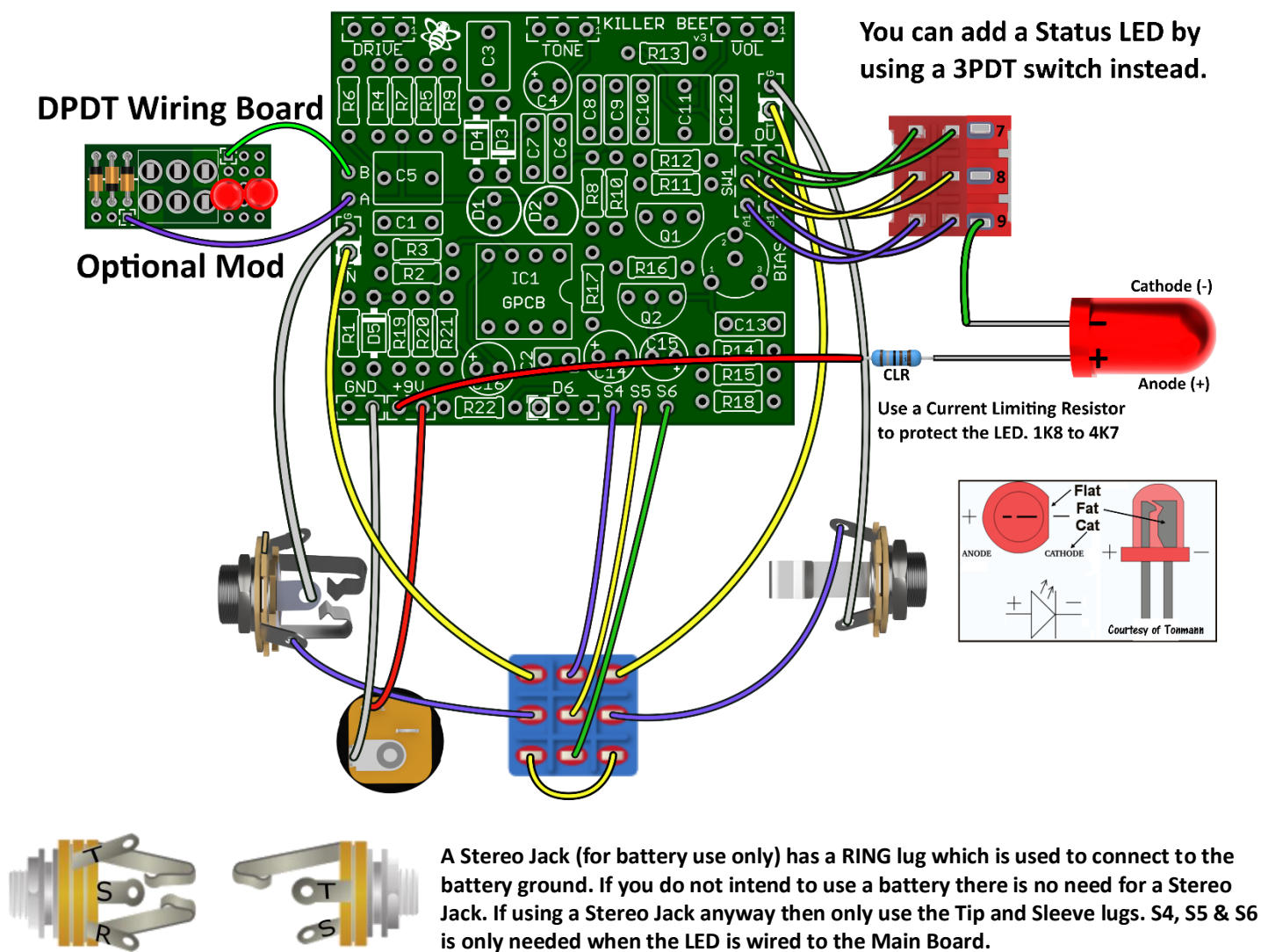
Wiring Diagram (no status LED) on Boost switch SW1:
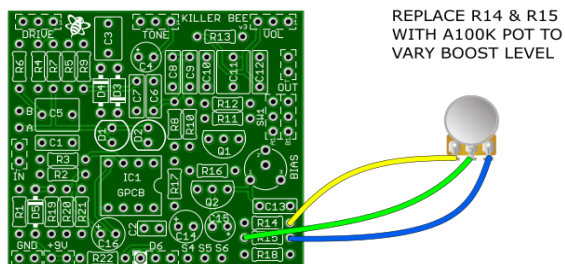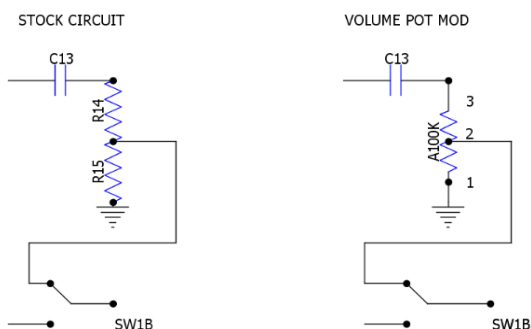
The DPDT Wiring Board above is an optional mod.
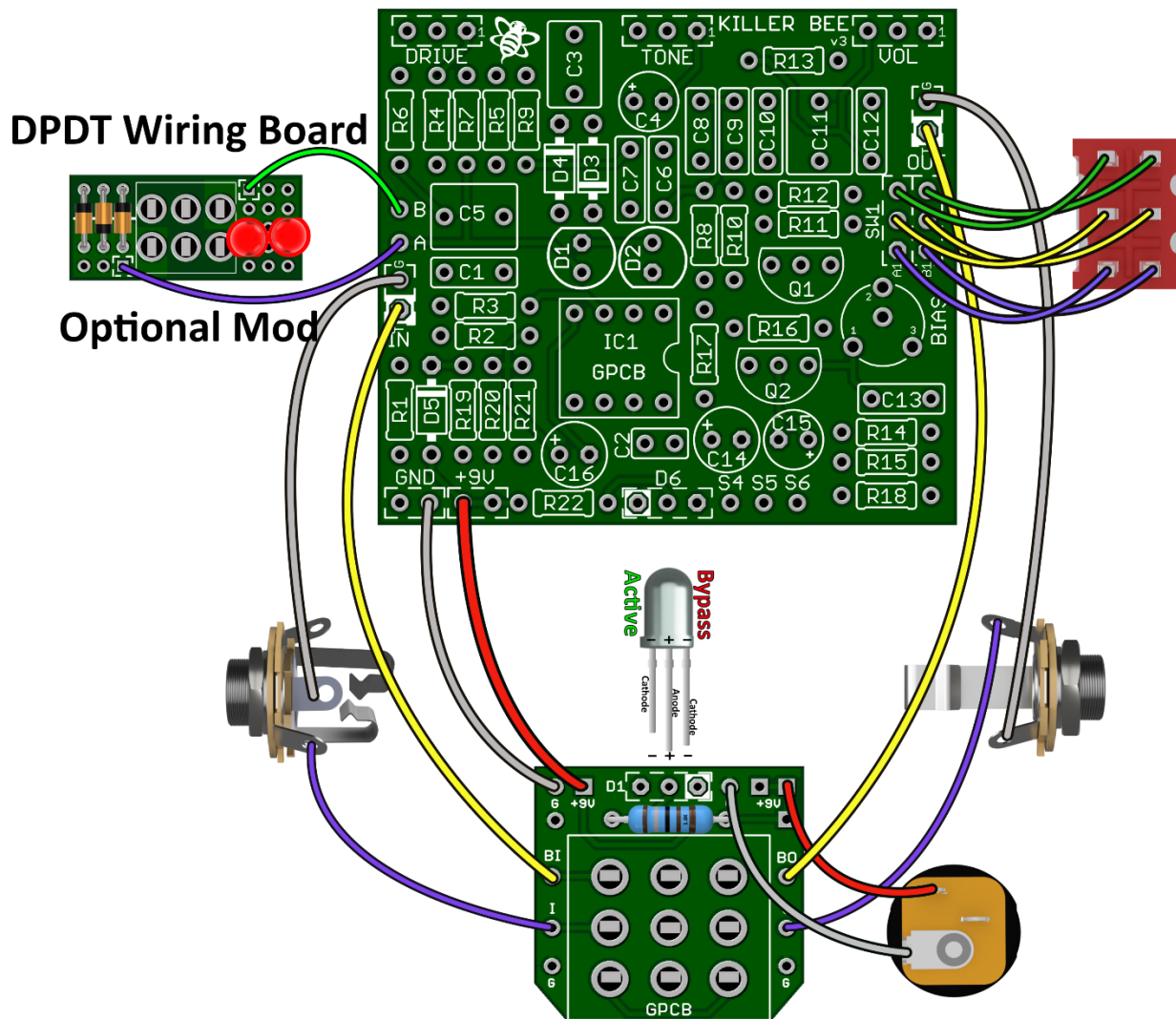
Wiring Diagram (w/ status LED) on Boost switch SW1:

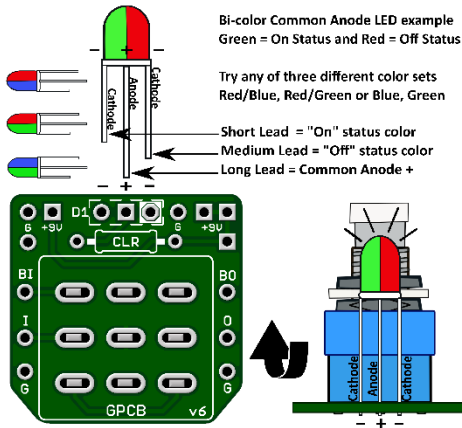**The DPDT Wiring Board above is an optional mod.**

DPDT Wiring Board

Optional Mod

You can add a Status LED by using a 3PDT switch instead.

Cathode (-)

Anode (+)

CLR

Use a Current Limiting Resistor to protect the LED. 1K8 to 4K7

Flat
Fat
Cat

ANODE   CATHODE

Courtesy of Tonmann

A Stereo Jack (for battery use only) has a RING lug which is used to connect to the battery ground. If you do not intend to use a battery there is no need for a Stereo Jack. If using a Stereo Jack anyway then only use the Tip and Sleeve lugs. S4, S5 & S6 is only needed when the LED is wired to the Main Board.

KILLER BEE BOOST POT MOD

STOCK CIRCUIT

VOLUME POT MOD

C13

R14

R15

SW1B

C13

A100K

3

2

1

SW1B

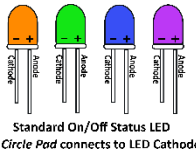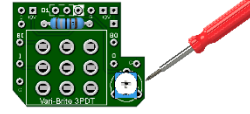**REPLACE R14 & R15 WITH A100K POT TO VARY BOOST LEVEL**

Adding a 100K Volume pot to control the amount of Boost you want. Anything below 1:00 will attenuate. Important: If you have the boost pot <u>set too low</u> you will not have enough volume over unity when in boost mode. Mod courtesy of Wilkie1.
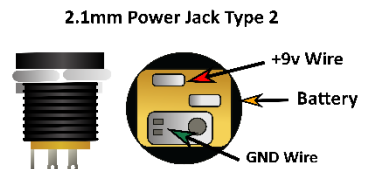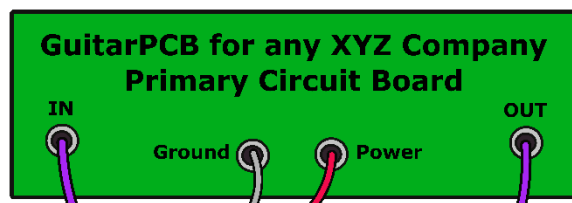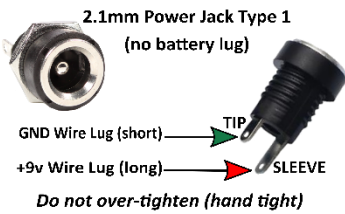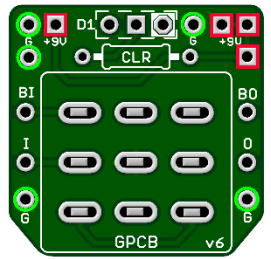
GuitarPCB Tip Sheet

Bi-color Common Anode LED example
Green = On Status and Red = Off Status

Try any of three different color sets
Red/Blue, Red/Green or Blue, Green

Short Lead = "On" status color
Medium Lead = "Off" status color
Long Lead = Common Anode +

Try our 3PDT Vari-Bright version w/
on-board Trimmer to adjust brightness

Standard On/Off Status LED
D1 Circle Pad connects to LED Cathode

Green = Ground Pads (5)
Red = + 9v Power Pads (4)
D1 = LED Pads
CLR = Current Limiting Resistor
BI = From Main Board IN
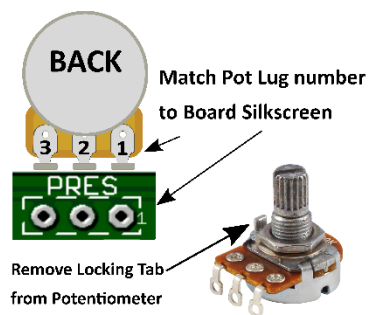BO = From Main Board OUT
I = To Jack Tip IN
O = To Jack Tip OUT

2.1mm Power Jack Type 1
(no battery lug)

GND Wire Lug (short) — TIP
+9v Wire Lug (long) — SLEEVE

Do not over-tighten (hand tight)

GuitarPCB for any XYZ Company Primary Circuit Board

IN   OUT
Ground   Power

2.1mm Power Jack Type 2

+9v Wire
Battery
GND Wire

T = Tip
R = Ring
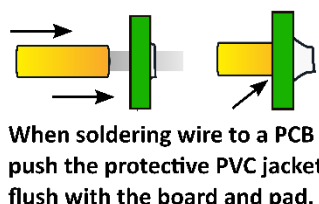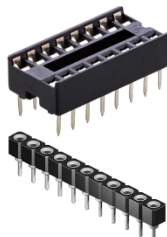**S = Sleeve**

Stereo Jack (T-R-S)

Mono Jack (T-S)
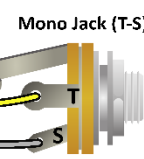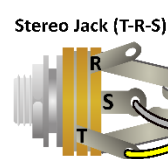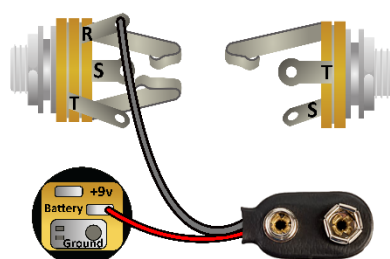
T = Tip
S = Sleeve

Multiple +9v and Ground Pads are convenient hookup points for additional circuits within the same enclosure. This also allows for diverse wiring schemes to suit indiviual needs.

BACK

Match Pot Lug number to Board Silkscreen

3 2 1
PRES

Remove Locking Tab from Potentiometer

Sockets make troubleshooting easier

When soldering wire to a PCB push the protective PVC jacket flush with the board and pad.

Main Board IN/OUT Pads

G   T

Extra Ground Pad

Audio Path to 3PDT

Input/Output Jack Wiring
T = Tip | R = Ring | S = Sleeve

A Stereo Jack is only needed if using a Battery. Otherwise use a Mono Jack
Battery Strap RED wire is connected to Power Jack
Battery Strap Black wire is connected to RING (stereo jack)
If wiring an LED to our 3PDT Wiring Board then S4, S5 & S6 are not needed

+9v
Battery
Ground