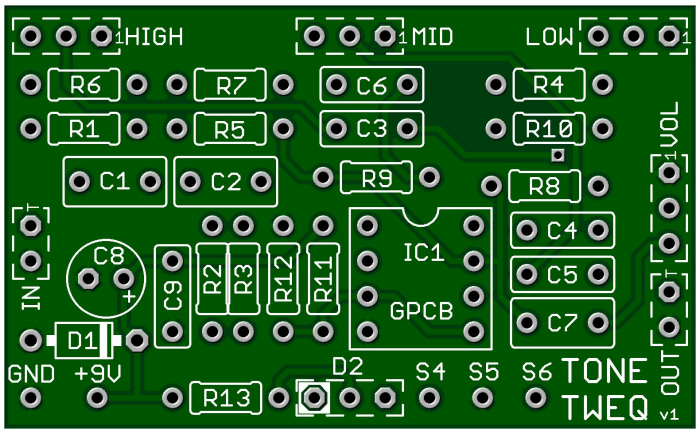
GuitarPCB.com

TONE TWEQ

This is an active, true tone control or equalizer. It is useful for both guitar and bass instruments. Each band will boost or cut the signal. Start with each control in the center or 50% position. Turn the control clockwise, CW to BOOST and counter-clockwise, CCW to CUT the signal. After achieving the desired tone setting, adjust the final volume level to suit. As with all active equalizers, best results are usually achieved by cutting frequencies rather than over-boosting. There is some interaction between adjacent bands. This permits smooth transitions in the tonal setup. Now you have the perfect tone ready for your next song!



Board Dimensions (W x H) only - 1.96" x 1.20" inches. This design will fit into a 1290NS/1590B size enclosure or larger.

PARTS LIST

Part	Value		Part	Value
R1	1M		C1	220n
R2	56k		C2	220n
R3	300k		C3	4n7
R4	10k		C4	56n
R5	1k8		C5	33n
R6	1k8		C6	6n8
R7	3k6		C7	220n
R8	10k		C8	47u
R9	3k6		C9	56n
R10	10k		IC1	TL072
R11	10k		Volume	A100k
R12	10k		Low	B100k
*R13	1k8		Mid	B100k
D1	1N4001		High	B500k

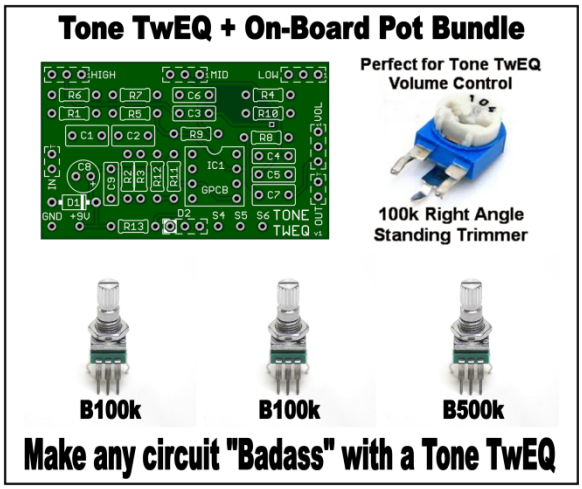
Build Notes

Boutique uses of circuits using a similar topology to the TONE TWEQ can be found in the March 13, 2015 issue of TONEREPORT

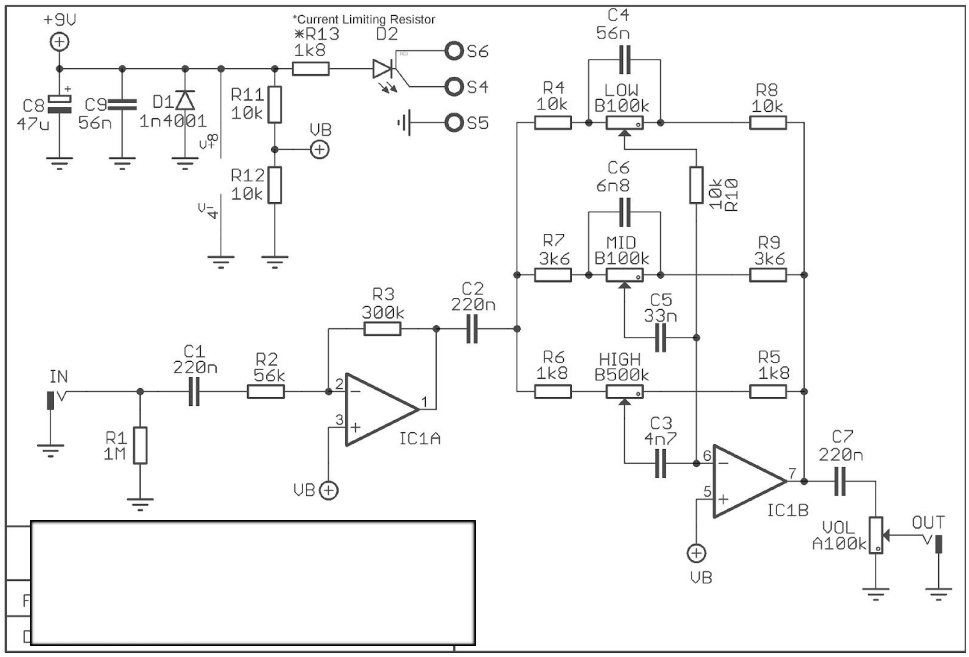
D2 is the on board LED if you choose and **R13** is the current limiting resistor. If you instead wire the LED to a foot switch there is no need to install.

***Mod Note: Standard 6 string Guitarists** who play loud and do not wish any possible sub-harmonics leaking through may populate **C1 and C2** with a value of 68n to 100n (whichever capacitor value you have more of) instead of 220n. **Note that 220n will make it Bass Ready.**

Note: You may optionally use 9mm pots as they will be in the proper orientation (as will the trimmer) be with the circuit board.



SCHEMATIC

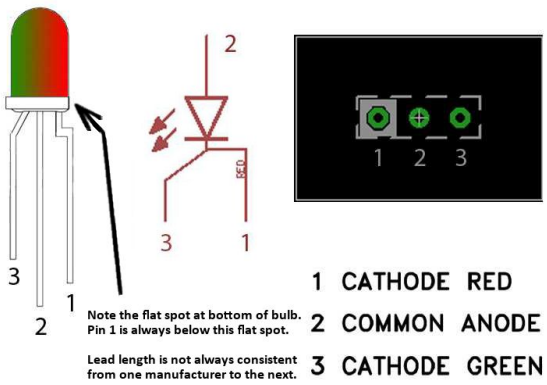


STATUS LED

D2 is a common anode bi-color LED. The diagram at right shows the pin-out, schematic symbol and pad connection for a common anode LED. The pin-out for the bi-color LED is typically (but not always) as follows:

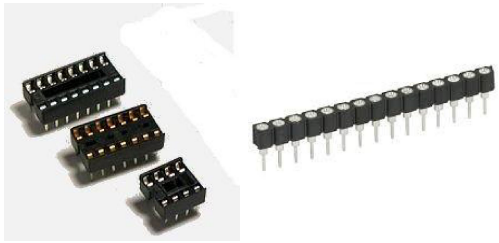
The lead 1 pad on the circuit board is marked with a white box.

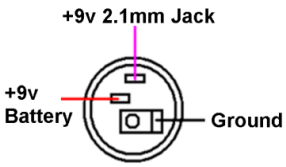
When connected correctly, the LED will light red when power is applied and the circuit is in bypass mode. The LED will light green when in effects mode. **If you wish to use a standard LED, connect the anode to the middle pad and the cathode to the right (non-white) pad to show the circuit in effects mode.** If you use a 3PDT wiring board that includes an LED, you can omit this LED and R13. *R13 is the LED's Current Limiting Resistor (CLR). If you use a different LED, you may want to change this value to adjust LED brightness



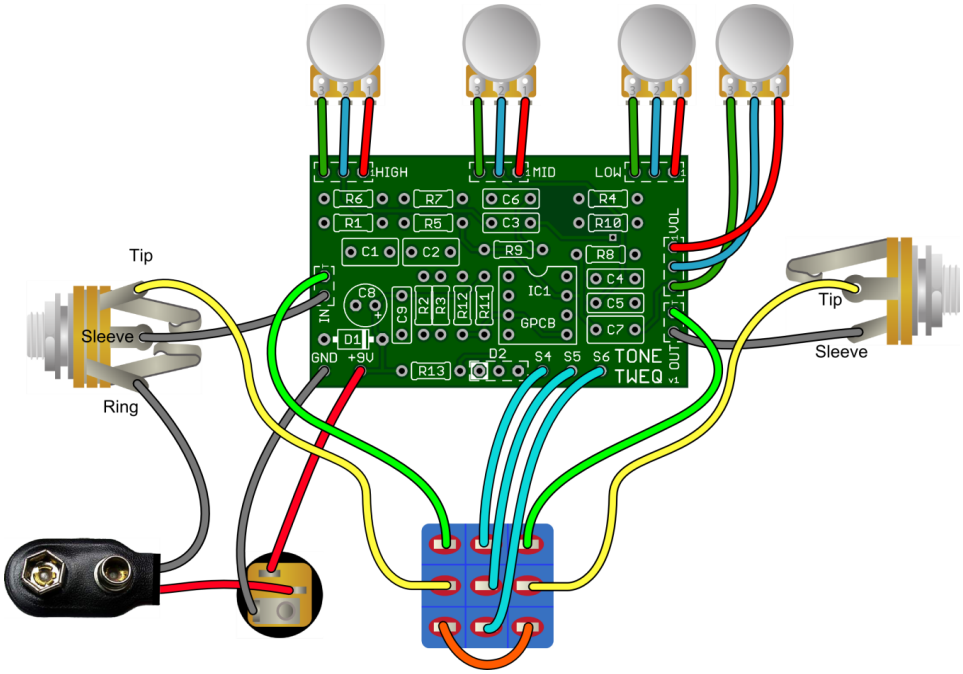
IC's and transistors are easily damaged by heat from soldering and should never be directly soldered to the PCB.

For transistors, diodes, and LED's, use SIP (Single inline package) sockets. You simply cut the number of sockets required with an Exacto / Stanley knife or by gripping and rocking with pliers. This allows for easy changes and troubleshooting.





Tone TwEQ - Isolated Wiring Diagram

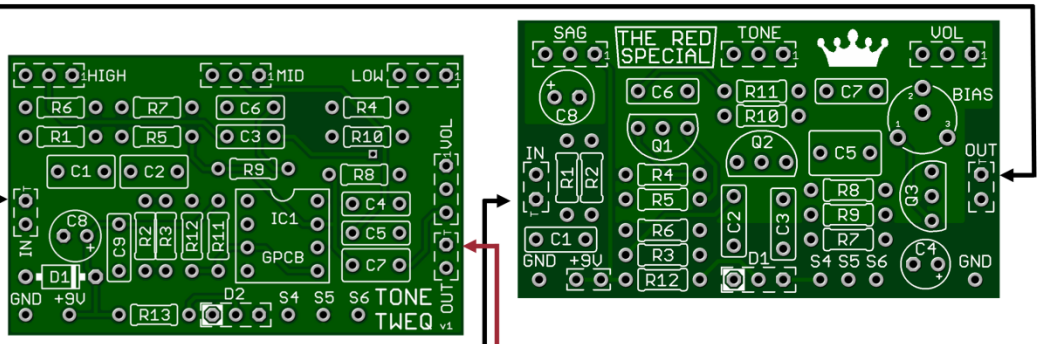


In the wiring diagram above, you notice that the sleeve of each jack is connected to a ground pad on the board next to the input pad or output pad. It does not matter to which ground pad each jack is connected, as long as the sleeve is connected to ground. The pad marked "T" is the input or output, and the adjacent pad is ground.

Alternative Series Combo Wiring – Make any Circuit Boutique by adding an Active 3 Band EQ

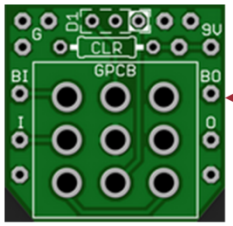
Easy Wiring Diagram two boards in series

In this example we will discuss the Red Special in tandem with the Tone TwEQ



How to use the Tone TwEQ in series with the Red Special or any other circuit for that matter.

1. The **Tone TwEQ** is an **Active EQ** so do not turn things to 10 just because you can!
2. General rule of thumb is to adjust the Volume to unity gain first. Do not add and perhaps reduce a little.
3. Set the Tone Controls to roughly 12:00 for a flat response.
4. Now that you have it setup, each Tone control can add up to 15dB of gain or cut in the same manner.
5. As a Bad example do not turn the Volume up and then turn the Treble up or you will get noise and hiss!
6. Take time following the steps to learn how to properly work the Tone TwEQ and you will be rewarded.



With Regard to the Red Special & using the Tone TwEQ

Finally keep in mind that with the **Red Special** you can fine tune your Tone with its on board Tone control as well and add to that adjust the SAG control to dial out some of the Fuzz till it suits your rig (ears) and still sustains nicely.

With Regard to Tone TwEQ settings:

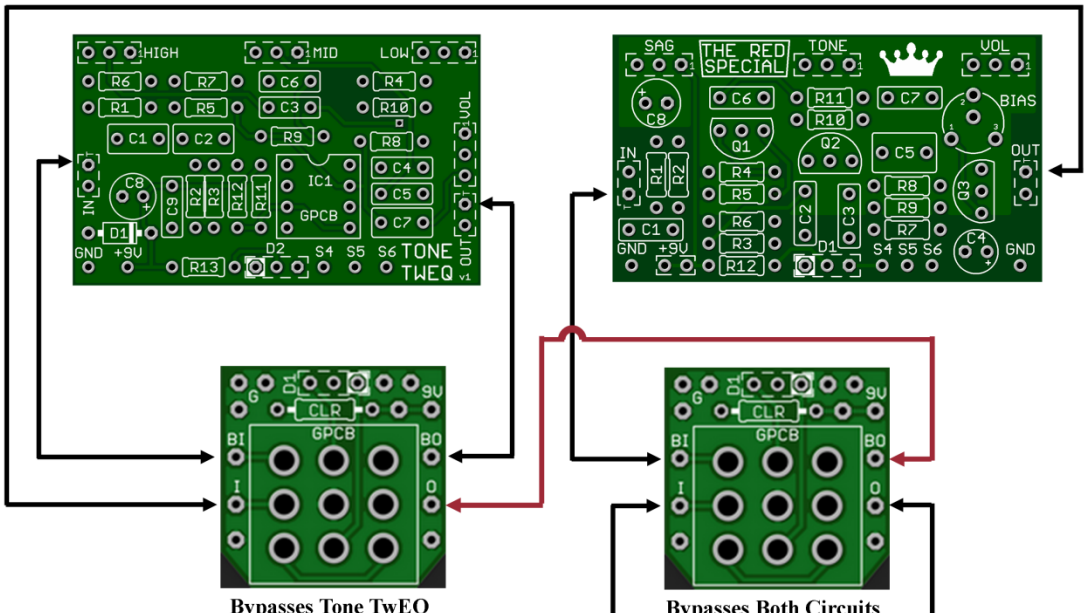
Good Example1: Boost Mid to 2:00 leave everything else flat. Now you are close to a Boston style tone.

Good Example 2: Lower Bass to 10:00, Flat Mid and Boost High to 2:00. Now you have a Queen style tone.

Alternate Tone TwEQ Combo Wiring Scheme - Courtesy of Wilkie1 @ GuitarPCB.com

This scheme will permit bypassing both circuits at once or punch in the Tone TwEQ - EQ to the Red Special.

By adding the 2nd bypass switch for the Tone TwEQ, you can preset those filters for that special sound "like Boston" and then punch it in for that number in the set. So many options!
You may want a Tone TwEQ Combo for every circuit!



Bypasses Tone TwEQ

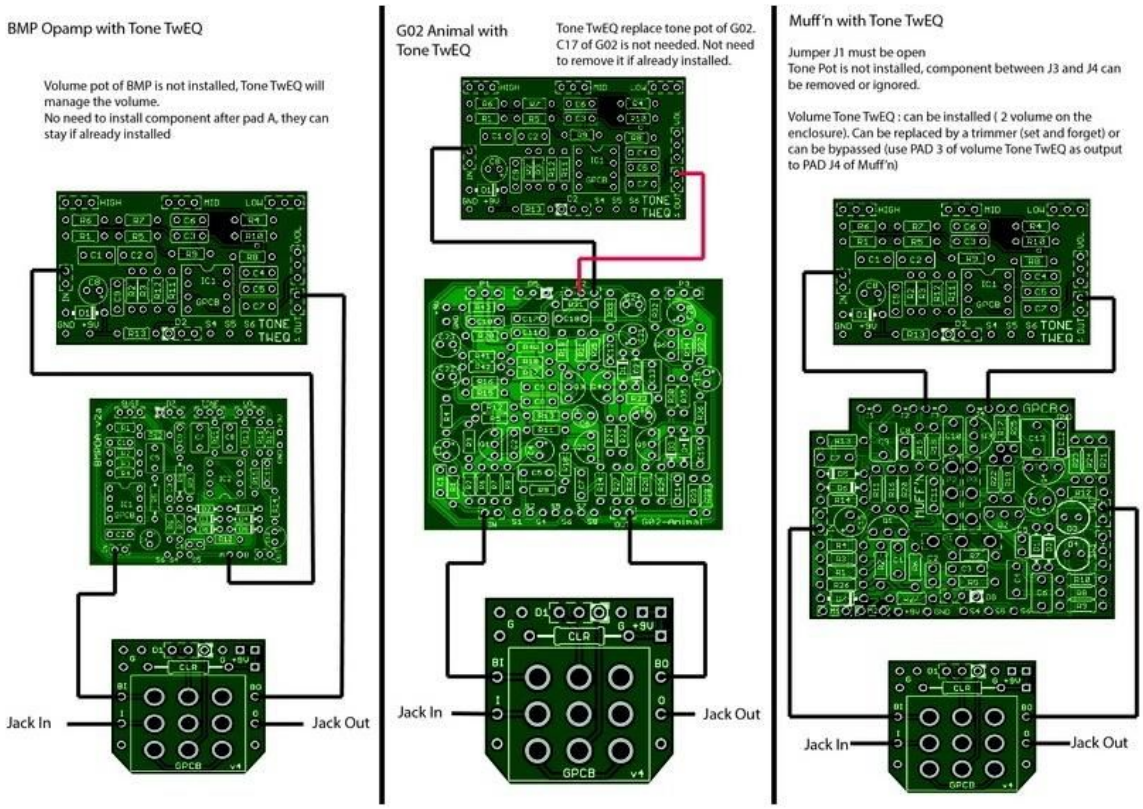
Bypasses Both Circuits

*** Do not repost. Please use direct links only!**

Signal Input

Signal Output

Additional Wiring Ideas – Featuring Popular GuitarPCB Projects



Thanks to Wilkie1 for the inspiration, diagrams and assistance!

Enjoy a look at a few finished Tone TwEQ'd projects.

[Soldering Tutorial on Youtube]

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