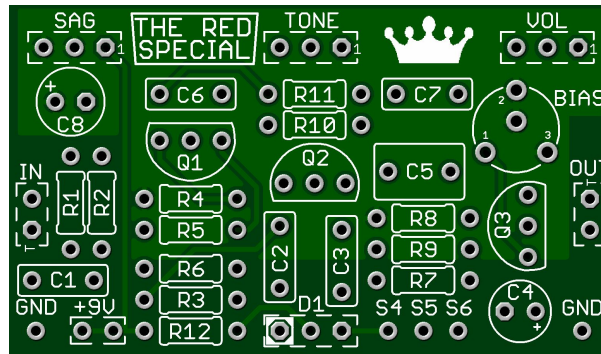


Red Special



Board dimensions 1.95" x 1.125"

Part	Value
R1	1M
R2	47k
R3	470k
R4	10k
R5	180R
R6	33k
R7	220k

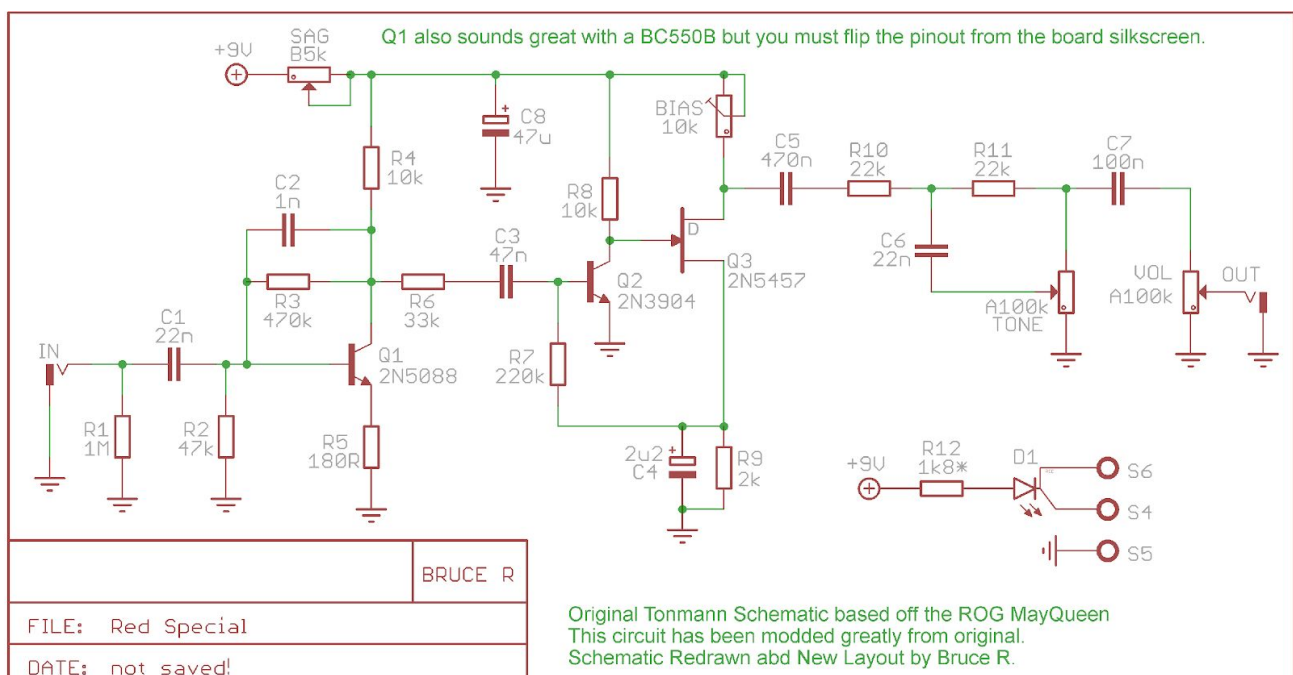
Part	Value
R8	10k
R9	2k
R10	22k
R11	22k
R12	1k8*
C1	22n
C2	1n

Part	Value
C3	47n
C4	2u2
C5	470n
C6	22n
C7	100n
C8	47u
D1	Bi-Color CA LED

Part	Value
Q1	2N5088*
Q2	2N3904
Q3	2N5457
SAG	B5k
TONE	A100k
VOL	A100k
BIAS	10k Trim

Red Special 6 Years in the making. We started off with the RunoffGroove circuit MayQueen which Tonmann modded by adding some tonal changes as well as an amazing SAG control giving ultimate versatility. This is not a One Trick Pony! Go from Queen style "Fuzz Boosted AC" sound to the Boston style tone with the bump of a mid control using our awesome Tone TweEQ circuit. See wiring diagrams below using the Tone TweEQ.

The pedal cleans up nicely with the guitar volume and sounds great with single coil pickups too.



Build Notes:

***Q1 stock is 2N5088 but also sounds great with BC550B. To use it flip the pin-out from board silkscreen!**

The bias trim pot is nominally set for a voltage of 5.5v to 6v on the drain of Q3. This can then be adjusted by ear to obtain your favorite results.

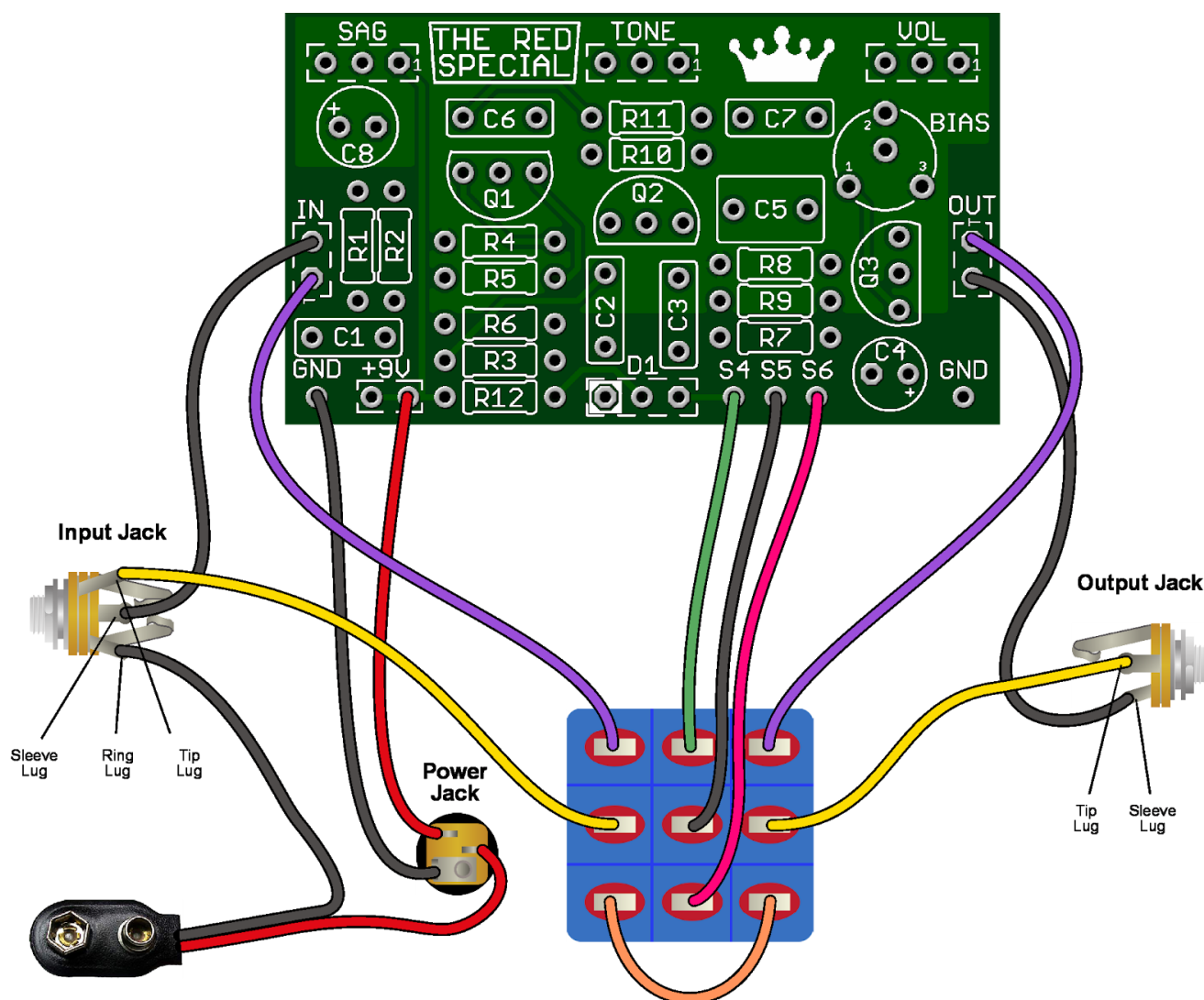
The Tone pot should use a **100k Log pot**. Changing this to a linear pot will produce unsatisfactory results.

The Sag Pot is an added extra, if you don't wish to add this pot, put a jumper between pads 1 & 2 of the Sag Pot on the PCB, but we highly recommend it.

The original circuit had a lot of high frequency content and the output was extremely high. If you want more treble in this circuit, I would suggest changing C2 to something like 560pF. The cap at C5 can be adjusted from 100n to 470n, feel free to experiment. This circuit goes great with the Tone TwEQ circuit for added tonality!

I am indebted to Mr Jack Orman at www.muzique.com for the inspiration for the tone control section. Thank you to Runoffgroove for the original circuit design from which this is based.

There are now (2) 9 volt pads for those building combo pedals. Use either one you like!

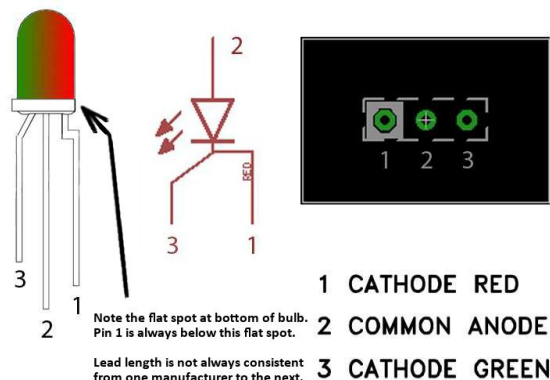


STATUS LED

D1 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:

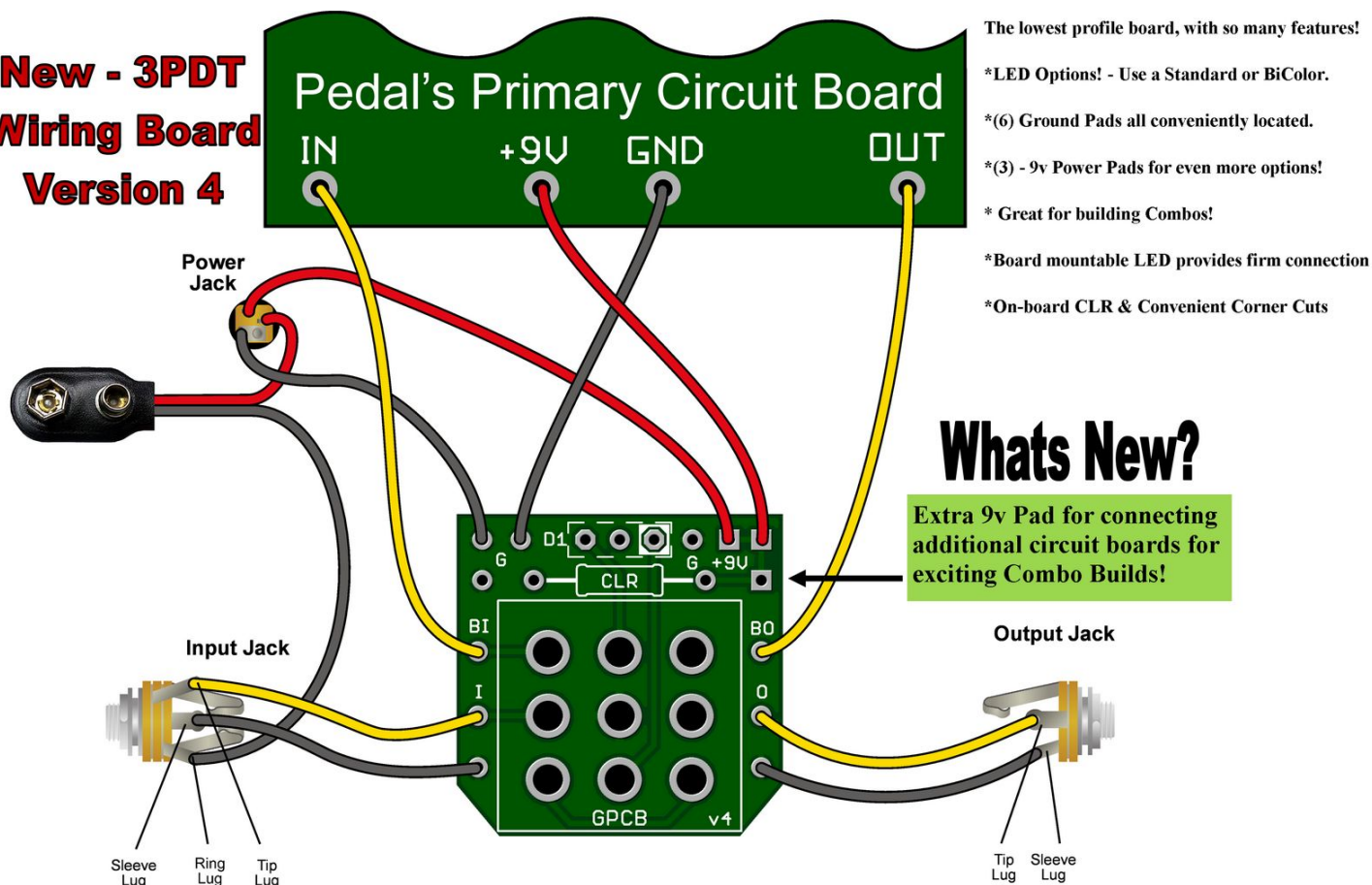
The lead 1 pad on the circuit board is marked with a white box.

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 R12. *R12 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.



If you are using one of GuitarPCB's handy [3PDT wiring boards](#), pads S4, S5, S6 and D1 would be ignored and R12 would not be installed.

New - 3PDT Wiring Board Version 4

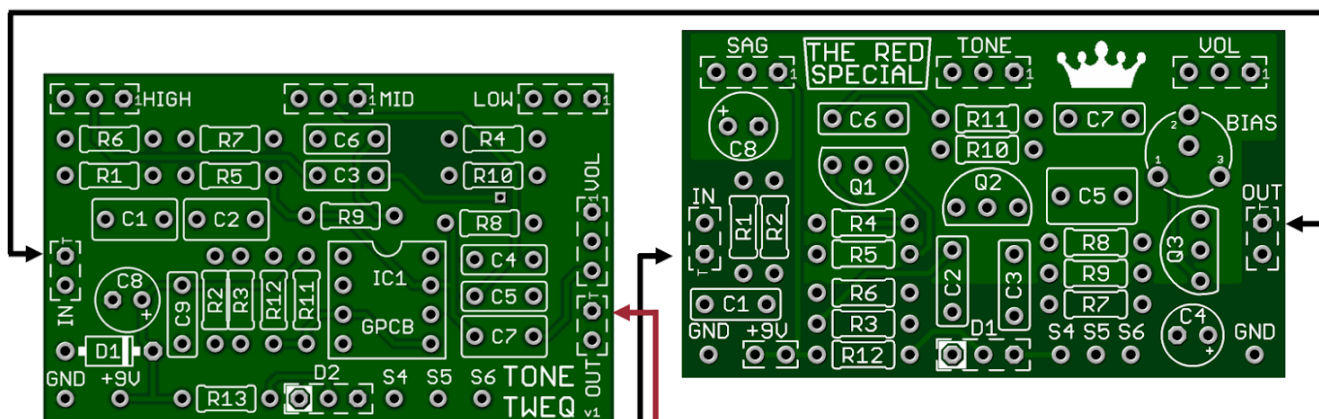


Wiring Scheme for use with the Tone TwEQ active EQ circuit also available in our PCB Shop. Here is a video using the above example for you to hear for yourself. <http://www.youtube.com/watch?v=lqPmZKisJaM>

Wiring Scheme 1 using the Tone TwEQ in tandem as demonstrated in the Red Special video above:

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.

Diagram courtesy of GuitarPCB.com

*Do not repost on other sites. Please use direct links only.

IC's 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.



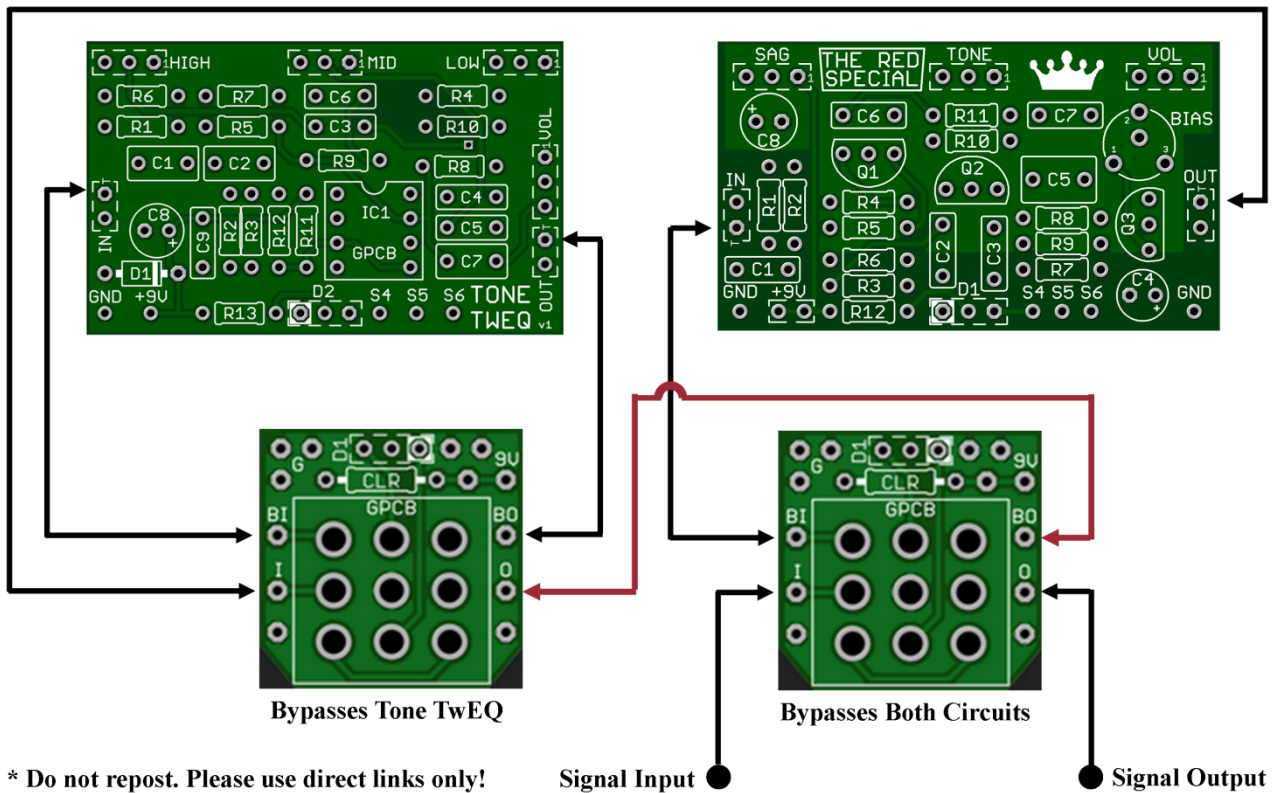
Alternate Wiring Scheme when using the Tone TwEQ in tandem:

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!



Of course the Red Special may simply be wired by itself or each circuit may be wired individually to a 3PDT foot switch to allow activating or bypassing each circuit individually.

Need a kit? Check out our authorized worldwide distributors:

USA – Check out [PedalPartsAndKits](#) for all your GuitarPCB kit needs in the USA.

Europe – [Das Musikding](#) Order either boards or kits direct from Europe.

[PedalPartsAustralia](#) - Order either boards or kits direct from Australia

If they do not have a KIT listed send them a note asking if they can help you out.



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