

### Description:

This is arguably the most popular and best known guitar effects pedal ever. The venerable Tube Screamer has been used by countless guitar players to create legendary tones on many classic recordings. Useful by itself or in conjunction with an overdriven tube amp – this pedal has a little something for everyone.

This PCB is true to the original circuit, with the additions of user-selectable features such as clipping (symmetric/asymmetric), a FAT switch and a BRIGHT switch. It is very easy to create an accurate TS808 or TS9 with this board by simply changing a two components.

Complete credit for the modifications and the schematic layout goes to Madbean over at [www.madbeanpedals.com](http://www.madbeanpedals.com). This PCB would not be possible without the release of the O.S.P. (Open Source Project) Tube Screamer which was made available over on the Madbean pedal forums! Madbean also has great PCB projects on his site...check it out!

## Effect Controls Washington, DC

The PCB is your basic overdrive (actually, THE basic overdrive which many pedals are based on!)

- **VOLUME** sets the overall volume (yes, really it does!)
- **DRIVE** adjusts the amount of distortion or gain
- **TONE** adjusts the amount of treble/bass. Clockwise for more treble and vice/versa
  - **CLIP** is an added feature which changes the clipping type
  - **FAT** adds extra bass when these pads are connected
  - **BRIGHT** adds extra treble when these pads are not connected

### Bill of Materials:

Caps			Resistors		Pots	
Position	Value	Type	Position	Value	Position	Value
C1	47n	film	R1	1M	DRIVE	B500k
C2	1uF	film	R2	1k	VOL	A100k
C3	100pF	ceramic	R3	470k	TONE	W20k
C4	47n	film	R4	10k	<b>IC</b>	
C5	68n	film	R5	10k	IC1	4558
C6	220n	film	R6	47k	<b>Transistors</b>	
C7	220n	film	R7	4k7	Q1-Q2	2n5088
C8	1uF	film	R8	1k		
C9	100n	film	R9	10k		
C10	1uF	film	R10	220R		
C11	47uF	electro	R11	1k		
C12	10uF	electro	R12	1k		
<b>Diodes</b>			R13	470k		
D1-D5	1N4148		R14	10k		
D6	1n4001		R15	100R*		
			R16	10k*		
			R17	47R		
			R18	10k		
			R19	10k		

## Component Types

**Resistors:** standard 1/4w carbon film or metal film, axial leads.

**\*TS9 Mod:** Simply change R15 to 470R and R16 to 100k.

**Film capacitors :** are either box type or Panasonic ECQ series. 5mm lead spacing.

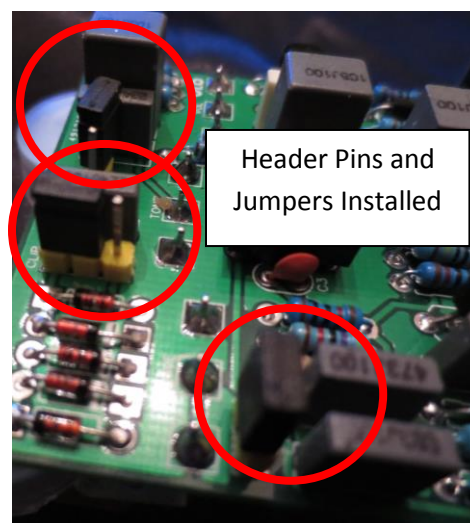
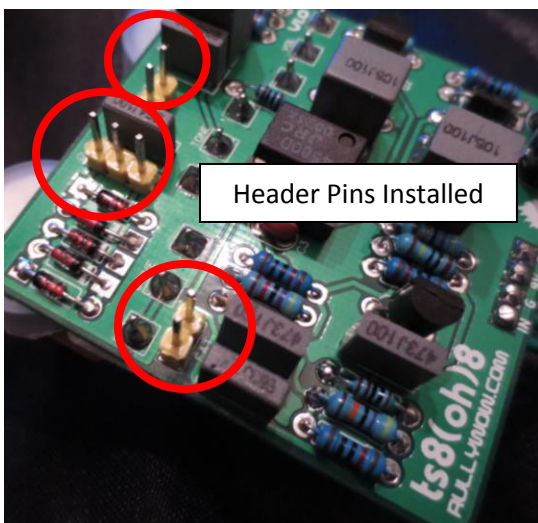
**Electrolytic capacitors:** 5mm diameter, height as short as possible (5mm or 7mm preferred). 16v or 25v recommended here.

**IC (opamp):** This is a topic of much “cork sniffing.” The original used the JRC4558 and many claim that this op amp is essential to the original sound. Most any dual op amp will work here so you may try others such as TL072, OPA2134, NE5534, etc. It is recommended to socket the IC for experimentation and to facilitate replacement. It’s fun to swap and see what each one sounds like.

**Tone Pot:** is a “W taper” 20k. This is an uncommon value to most pedals, but common to the Tube Screamer series. A regular 20kB will work if that is all you have on hand, however it will be “notchy” and not as easy to dial in as a “W” taper.

**Diodes** are “regular” 1n4148. You may choose to substitute these with other types (LEDs, 1n914, etc) for different clipping flavors. You may want to socket these for experimentation.

**Header Pins** and Jumpers (shunts) are optional, but come in handy if you wish to try out the various FAT, CLIP, BRIGHT, settings without installing switches. Standard 0.100” (2.54mm) straight header pins and jumpers (shunts) fit these pads nicely and are great for experimenting. You may wish to leave them on the PCB as a quick and easy way to change these settings internally as shown in the pictures below.







## Tips for a Successful Build:

- Take your time and ensure each component is the right value before soldering!
- R.G. Keen's "Technology of Tube Screemers" is a great resource to understand this timeless circuit, and can be found at his awesome website ([www.geofex.com](http://www.geofex.com))
- It is recommended to populate starting with the shortest components to the tallest. In this order it would be diodes, resistors, film caps, electro caps, and IC
- PCB mounted pots are 16mm Alpha type. It is suggested to put them in the enclosure first, tighten the nuts, then solder them to the PCB. This avoids stress on the PCB and ensures they are aligned properly.
- The IN/GND/9V/OUT pads on the PCB are a perfect match for the 3PDT boards available at [www.rullywow.com](http://www.rullywow.com)
- Always "rock it before you box it"...meaning make sure the circuit works before putting it into an enclosure. If it doesn't work "outside the box," it won't work inside...I promise!
- For wiring the 3PDT footswitch and all jacks, it is highly suggested to use the great "Madbean Standard Wiring Diagram" available at [www.madbeanpedals.com](http://www.madbeanpedals.com) Madbean's site (and forum) is a wealth of great information and they have excellent PCB projects as well.

## Terms of Use:

- PCBs from [www.rullywow.com](http://www.rullywow.com) are intended for DIY use and are not allowed for commercial resale. It is OK to build (and sell) a few pedals for your friends, bandmates, yourself (that is what the DIY guitar pedal community is all about!). It is not OK to start your own boutique "pedal company" using this PCB or any other Rullywow Industries PCB.