

Adjustable Bias

To add adjustable bias to fixed bias amps with no bias pot you simply replace the bias circuit's second, larger resistor (connected to ground) with a mini-50k linear pot (or trim pot) and a resistor of about half the value of the original resistor. This mod allows wide range of adjustment to bias 6V6, 6L6, EL34, KT66, KT77 and KT88 power tubes.

The two bias resistors in a typical bias circuit form a voltage divider to reduce the voltage coming out of the bias rectifier diode. One or two electrolytic caps are filter caps to smooth out the pulsing DC from the bias diode.

If you find you run out of room and need to get a hotter bias then decrease the value of the second resistor. If you need more room on the cool bias end then increase the value of the resistor.

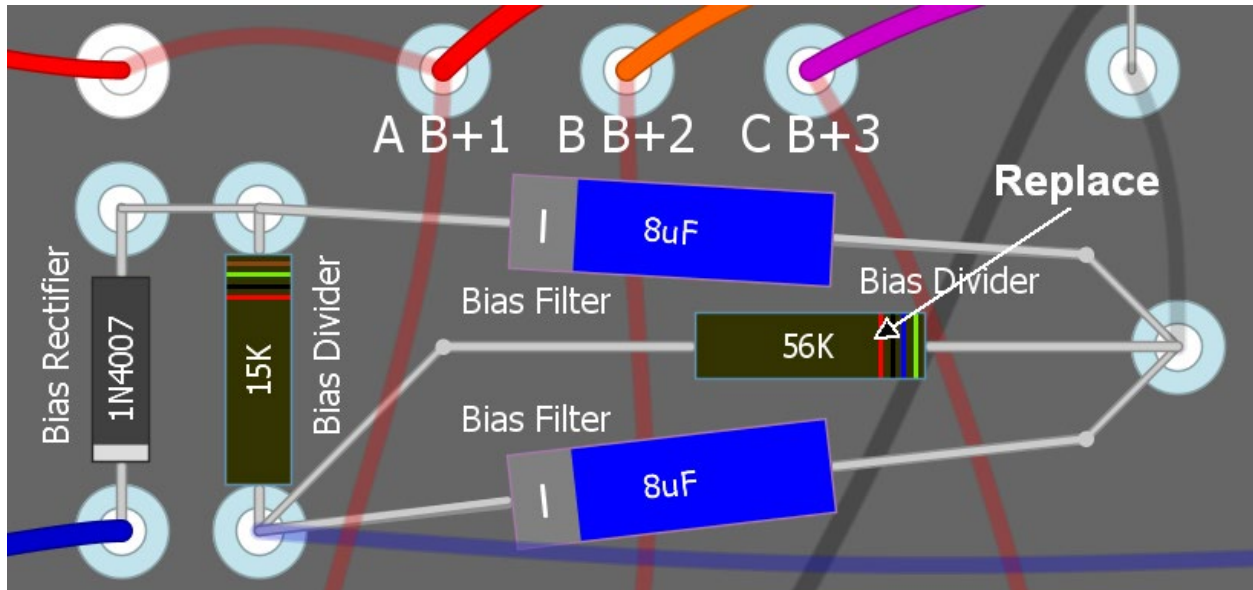
As you turn the pot clockwise the bias will get hotter (higher dissipation) as the negative bias voltage on the control grid will decrease toward 0v. For a new amp startup I recommend presetting the bias pot full down (counter clockwise, coolest bias). It's also a good idea to turn the bias down some before installing a new set of tubes and then bias them immediately upon power up. **Always watch new power tubes for red plating upon first power up.**

My Tung-Sol 5881 power tubes in my 5F6A biased at -45.1v on the grid, 443v plate, 40.7 milliamps (measured by OT shunt) for 69.3% of their rated 26 watts of plate dissipation. A set of JJ KT88's biased at -45.5v on the grid, 430v on the plates and 55ma of plate current for 68.7% of their rated 35 watts. That's with a JJ GZ34S rectifier tube. The Fender 5F6A schematic shows -48v as the bias voltage for 5881 tubes which would yield a significantly cooler bias.

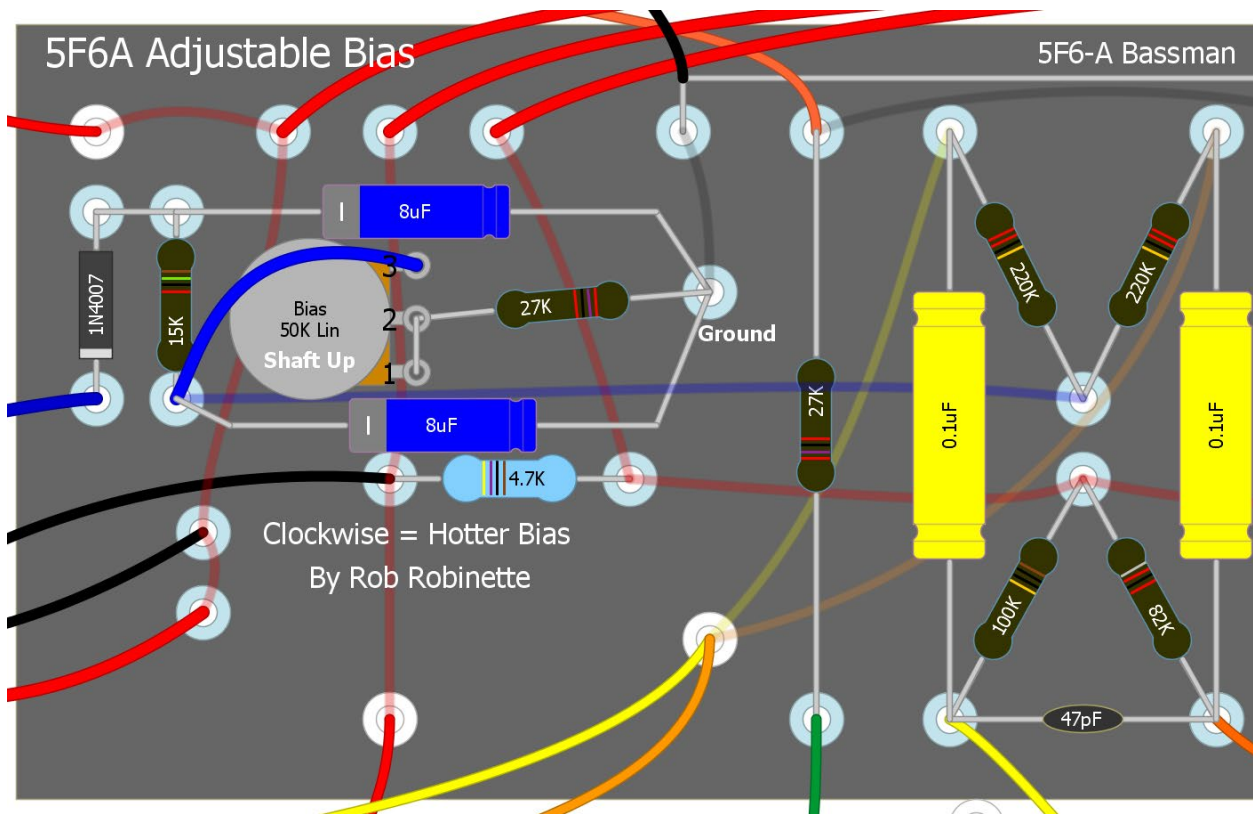
I glued my bias pot to the circuit board as shown in the layout below but you can mount it anywhere. Just run the blue bias wire to the bias pot's #3 terminal, connect the 27k resistor to the center (wiper) #2 terminal and use the resistor's lead to form the jumper to terminal #1.

Then ground the other end of the 27k resistor at any convenient ground. Many people put the bias pot in one of the unused speaker jack holes. If you make the bias pot accessible from the amp's exterior I recommend you use a [screwdriver slotted pot](#) or [this one](#) to make it more difficult to accidentally alter the bias.

Standard 5F6A Bassman Non-Adjustable Bias



Adjustable Bias



The bias pot wired as a variable resistor and 27k resistor replace the 56k resistor above.

How I Did It In My 5F6A

