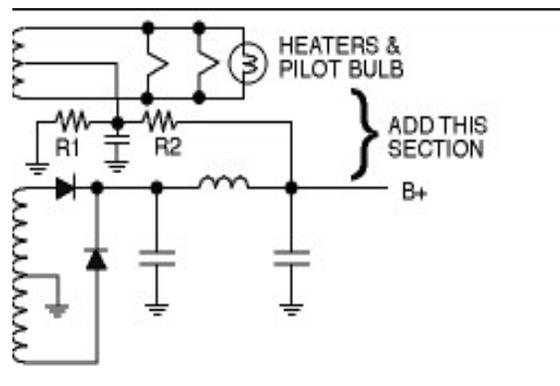


Applying DC Bias to AC Heater Voltage

The AC used for tube heaters can sometimes work its way into the audio path and cause hum in an amp. Gerald Weber wrote a column on this in a 1996 issue of Vintage Guitar, and seemed to indicate that it was more of a problem in single-ended amps like the Fender Champ, since push-pull configurations would cancel the hum out, but some high gain designs may benefit as well.

One solution is to convert the heaters to DC, but a simpler way to get the same effect is to change the reference point of the heaters from ground to about 35 volts. How to do this in a Champ was the main point of Weber's column, but more recently, Kevin O'Connor posted to some discussion boards about how he does it. Both Weber and O'Connor describe basically the same scenario.

You only need 3 components: R1, R2, and a 10 μ f/50v capacitor. O'Connor says to start with R1=82K and R2=270K, Weber says R1=27K and R2=220K. You're aiming for 35-40v, which will depend on the B+ of your amp, so adjust R1 accordingly.



If the heater winding isn't center-tapped, attach this voltage source to the junction of the 2-100ohm resistors. Make sure you've lifted all other connections to ground (Weber warns that in the Fender Champ the pilot bulb is grounded). If you don't do this in the Champ, you will cause damage and create some smoke!