

Fender Super Champ

Modifications

These details are believed correct but the author can't take any responsibility for what happens if you attempt them. Valve/tube amps store lethal voltages even when switched off and unplugged from the wall, and if you don't know what you're doing, you can be badly hurt.

RELIABILITY MODIFICATIONS

As I describe the works, I'm standing with the chassis front panel nearest to me and the row of valve/tube sockets (we're looking at the 'wires' side of those, not the 'valve' side) running along the far edge of the chassis. The output valve sockets are the last 2 on the right. Please note that this writer has only done these mods on a Princeton Reverb II, not a Super Champ, but the 2 amps are very similar.

If you're going to do both mods, test the amp after each one.

1 Upgrading the Bias Feed resistor

Failure of the bias feed resistor is the single most common reason a Super Champ will die. This mod makes sure it won't happen to your amp. After dismantling, this takes 5 minutes, costs about 35 cents US, and could save a lost gig and a trip to the tech.



PHOTO A

This photo is clipped from the excellent Super Champ chassis photo on

<http://www.acplink.com/chassis/>

(enter Super Champ in the search box at the left of the screen)

The little resistor identified by the green arrow in photo A is 47 ohms (yellow, purple, black). 47 ohms is correct, but the *wattage* isn't big enough on some Super Champs - in other words it's always in danger of overheating. The one in this photo is probably OK but on some models it's smaller and may be badly discoloured from overheating. If it fails there will be no bias supply to the output valves (tubes), and if that happens, there's nothing to stop the valves from running at a very high idling current, which they probably won't take for very long. The danger of this component overheating is the same at high or low volume.

The solution is to replace it with a 47 ohm resistor, *one watt or bigger, wirewound*. More than one watt is OK too, but much more might be too big physically. It will take you 5 minutes, not counting the trip to your local component shop, and dismantling time. Careful not to overheat the diode next door while soldering.

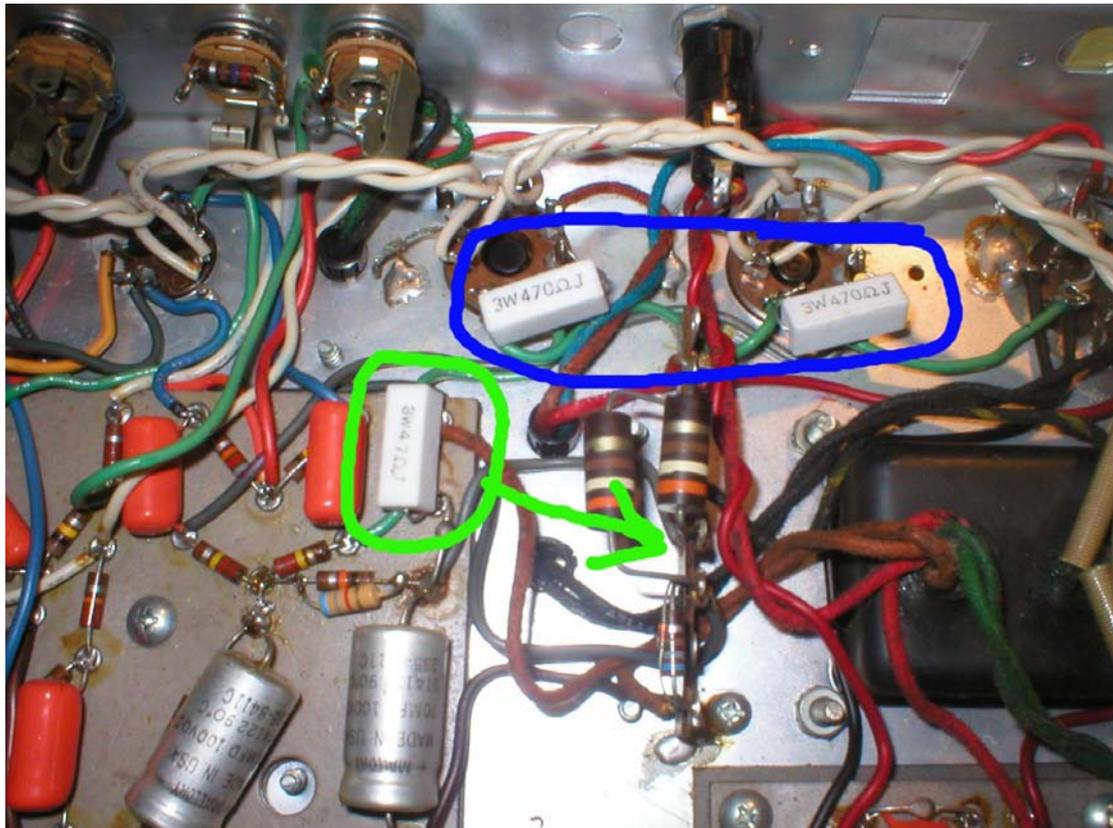


PHOTO B

NB this is a photo inside my Princeton Reverb II, NOT a Super Champ

In the photo above, the new bias feed resistor is the white rectangular component circled in green – that's one type of higher-wattage 47ohm resistor you could use. On your Super Champ the resistor will be mounted on the tag strip where the original resistor was (arrowed in green in photo A). In the Princeton Reverb II it's on the

circuit board as shown in this photo. The new screen-grid resistors (see mod below) are the white "3W470ohmJ", one on each power valve socket, circled in blue. Photo © A. Waugh.

2 Fitting Screen-Grid Resistors

An important mod especially if you're using your Super Champ at high volume most of the time. This takes *10* minutes once you're inside. And *two* resistors, *each* costing about 50 cents US. Photo B shows the finished mod in a Princeton Reverb II.

The idea is to insert a 470-ohm 2 watt wirewound resistor in the wire running to pin 4 on each output valve (V5 and V6, 6V6GTA). These new resistors will prevent the tube grids drawing as much current under heavy load, and also make sure they remain at lower voltage than the plates. At very high volume, the plate voltage can actually drop below the screen grid if no resistors are fitted, which results in a massive increase in screen grid current (because it begins to act as a secondary plate) and very shortened tube life, or even sudden failure. It is strange that Fender didn't fit them to all their amps - the larger amps all have them.....

see <http://home.rochester.rr.com/piazza/AudioTubes/6v6gta.html> for a drawing of the tags, with the tags numbered.

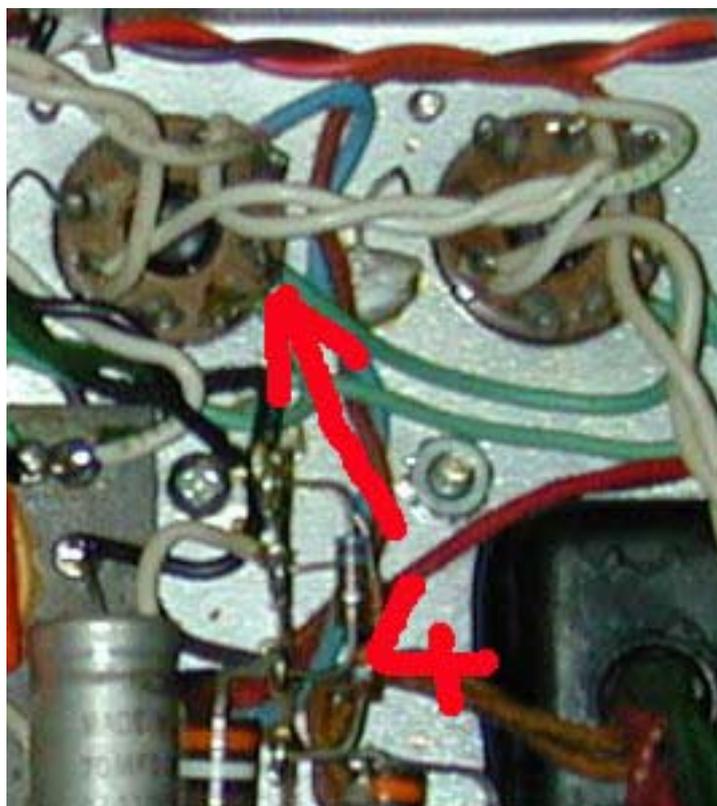


PHOTO C

Photo C shows the power valve sockets inside a Super Champ. Pin 4 is shown on each power valve/tube socket. The pin numbers go up clockwise. Pin 8 has the short bare wire soldered to the chassis.

As you can see in photo C, more clearly on the right-hand socket, pin 6 on each power valve socket is unused (pin 6 goes nowhere in the valve) so it's available as a spare solder mounting tag. Remove both power valves from sockets. On the left socket, pin 4 has a wire, probably green, going to pin 4 on the right socket, which also has another wire going away to power supply capacitors. On the left socket, unsolder the wire from pin 4 and resolder it to pin 6. On the right socket, unsolder both wires from pin 4 and resolder both of them to pin 6. On each socket, solder the new resistor to pin 4 and pin 6. Keep the resistor leads short so the resistor can't vibrate too much. It will now look like the power valve sockets in Princeton Reverb II photo B, circled in blue. Replace the valves. Job done

After doing this mod on my PR11, I've noticed that the **amp's bass response seems better** in a way that's hard to describe. It's like there's less wasted effort, or more energy focussed in the right place. The bottom end cuts through the band more clearly and there's no added 'boom'. This didn't show up when playing quietly at home. Your experience may be different. Good luck!