Removing the Blues Junior Circuit Board

Some techs refuse to work on printed-circuit Fenders. It's too time-consuming and frustrating. The newer amps were definitely not designed with serviceability in mind. I hope this guide will help you.

The first thing you have to do before you can do any mods to your Blues Junior is get to the back of the circuit board. You don't have to remove it completely from the amp; it's more convenient, in fact, if you don't. Here's what I do to open up a Blues Junior.

Remember that tube amps run at temperatures that can burn you and voltages that can kill you. Work safely, and always *think* before you reach into an amp for any reason.

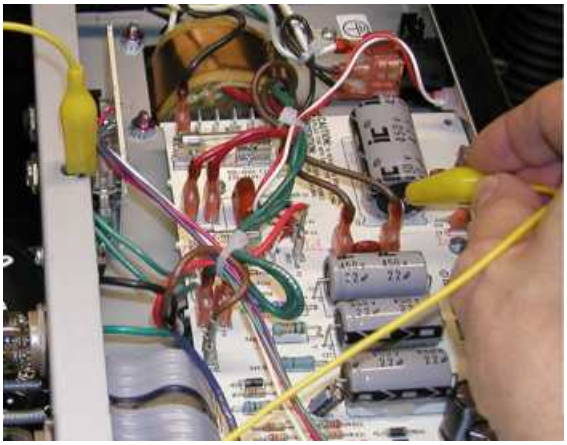
Disclaimer:
It's a shame to have to include this, but some people just like to make their problems somebody else's problem. Although all of these mods have worked well for me, you perform them entirely at your own risk. I do not warrant or guarantee that they will perform the same way for you or that you won't damage your amplifier, burn yourself, electrocute yourself, or stick an X-Acto knife through your palm. Tube amplifiers have components operating at high temperatures and lethal voltages. If you don't feel comfortable doing these mods, take the amp to someone who does.

These modifications *will* void your warranty. Peace and music, not lawsuits.

1. Unplug the amp.

Pardon me for stating the obvious. Then remove the back. If the back panel binds on the sides of the case, you may need to loosen the two screws on the sides of the case that hold the chassis. Don't remove them; just back them out a few turns to relax the tension on the case. Here's what you see when you open the back:

2. Discharge the power supply capacitors.
They're the four large gray and black tubular objects. Actually, if you turn the amp off while the tubes are warm, it will self-discharge in 20 seconds or so. Once you've turned it off, don't turn it back on. Ensure that all the stored charge is gone from the caps by touching the positive terminal of the big one to ground with an insulated jumper. The other caps are all connected together through resistors and will discharge any remaining charge at the same time.



3. Clip the wire ties.
You need some maneuvering room, and you'll also want to retwist some of the wires later for hum control. Be very careful not to cut or nick any of the wires.

4. Remove the knobs and input nut.
The knobs are pressed onto the plastic shafts of the control pots. Pull up with even, steady pressure. If knob doesn't come off easily, hold the pot body with your other hand to reduce stress on the circuit board. If the knob really won't come up, use a pair of spoons as levers. Pad the faceplate so you don't damage it.

5. Remove speaker/FAT jack nuts.
Use a 1/2″ nut driver or socket wrench to remove the nuts that hold the speaker and FAT switch jacks. The lock washers are located inside the chassis, not under the nuts.

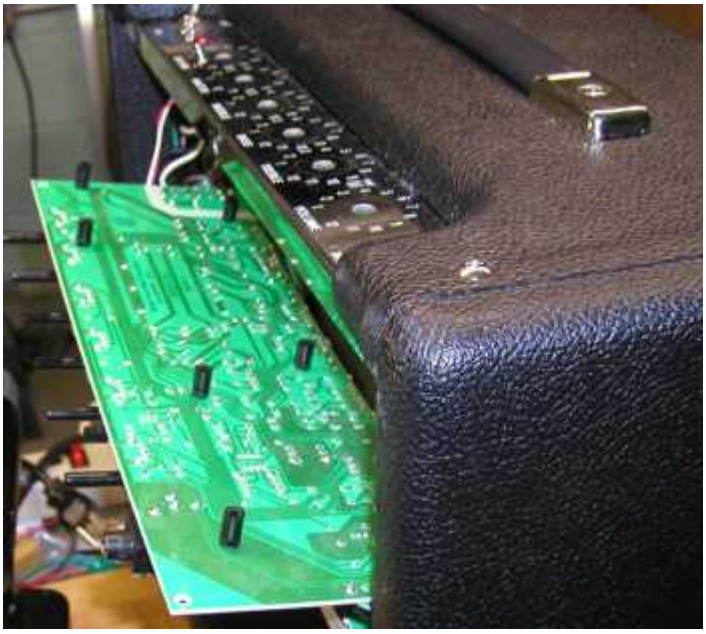
6. Unplug the power transformer and output transformer leads.
Do this before you unscrew the board. Pull up firmly and steadily on the red, brown, and blue leads while wiggling the connectors side to side. Pull the push-on end, not the wire. Note where they go. They're marked for color on the cream board, not the green board. The green, red, and brown pairs from the power transformer are AC, there's no polarity when you reassemble. They let go all of a sudden–make sure you're clear of the thin wires that run from the speaker jack board. Don't tear out any wires. **If you're working on an older (green circuit board) BJr, also remove the pilot light.** Do this by pulling gently on the "petals" of the white socket assembly. I use a bent-jaw long-nose pliers for this. The red lens may pop off; be careful not to lose it. The white LED assembly will remain attached to the wires.

7. Remove the circuit board screws.
Seven screws hold the circuit board. The black plastic standoffs may be stuck to the chassis. Pull gently at each standoff location to pop them free.

Now you're ready to actually maneuver the board so that you can get to the back. Move the speaker/FAT daughterboard out of the way, letting it hang over the lower edge of the chassis. Press the output transformer and reverb (black) wires flat against the chassis. The lower edge of the circuit card will want to catch on these wires, so keep pressing them down as you gently move the circuit board down far enough for the pot shafts and input jack to clear the edge of the chassis. Unkink the power transformer wires so that they don't resist. Keep wiggling and pressing and sliding, making sure that you're not stressing any wires. When the shafts clear the chassis, bend it out gently, lifting the lower edge of the circuit board, until it is nearly at right angles to the chassis. This will give you full access to the back of the board.

Don’t pull on the big filter capacitor. Put pressure on the empty quick-connect stakes at the left edge of the board, instead.

This is what your circuit board should look like in “working” position. You have full access to the back of the board. and can operate the amp in this position after you replace the red, brown, and blue output transformer wires.



For access to the component side of the board, it’s easier and less wear and tear to lay the amp down on a soft cloth or carpet than to continually bend and flex the wires.

The printed circuit traces are fragile! When you solder/unsolder, keep the heat on the component lead. Use a temperature-controlled iron. Too much heat on the board can cause the copper trace to lift and curl.

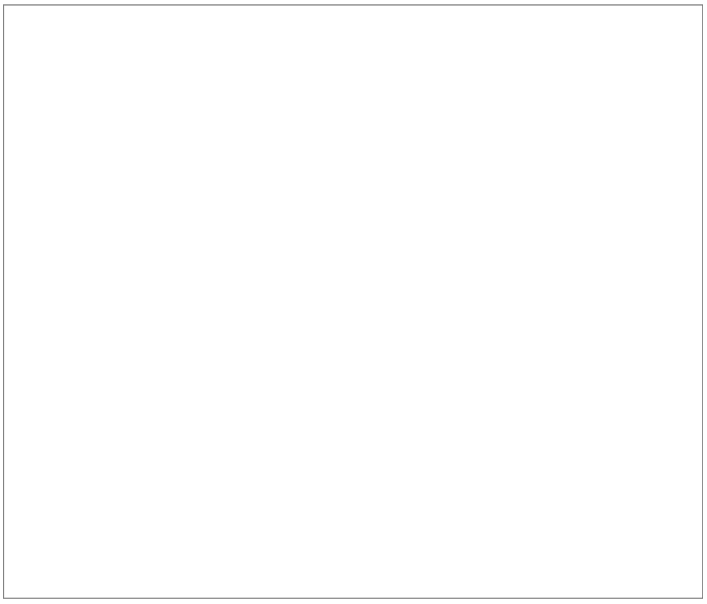
The unsuccessful mods that come to me for repair almost always have burns on the circuit board from a too-hot iron. You CANNOT use a crappy little plug-in iron with no thermostatic control! And definitely not a soldering gun!

See my **mistakes** page for examples of how not to do it. (I haven’t moved this page to the new site yet.)

If you have difficulty, it’s likely to be when you unsolder the tone stack capacitors. The bent-over leads can be difficult to straighten without damaging the printed circuit. The traces and solder pads on the back of the board are rather small and

Instead, **clip the capacitors from the other side and use a solder sucker to lift the solder and the stub of the lead.** Do not try to salvage the old parts by removing them intact! It’s far more likely that you will destroy the traces on your board. Flush cutters are a better choice than standard diagonal pliers. The picture shows the cream board tone caps, but the same technique works for the green board.

After you've clipped the caps, you'll see that even with flush cutters, the upward force on the lead has caused a dimple in the solder. It's best to remove the solder and the lead stub with a solder sucker, as shown here. You'll have a clean hole with no damage.



When it's time to button everything up, reverse the above procedures. When you get the circuit board back into the chassis, twist the green, red, and brown wire pairs together to reduce the possibility of hum. Secure them with wire ties. Dress the wires so they arch over the circuit board and back down.

Very Important!
The plastic jacks for the input and FAT switch are fragile. Any attempt to tighten them snugly *will* strip the threads. Just bring them up to the point where the nut stops turning by hand, then give them a little bit more with the wrench. Be gentle.

If you've loosened the screws on the sides of the amp, don't forget to retighten them.