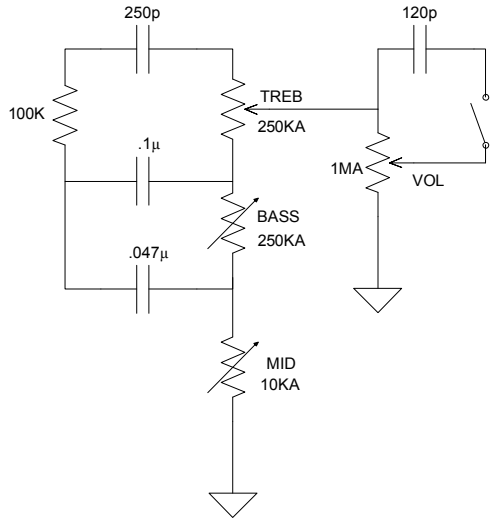
NORMAL TO BASS CONVERSION KIT (K-703)

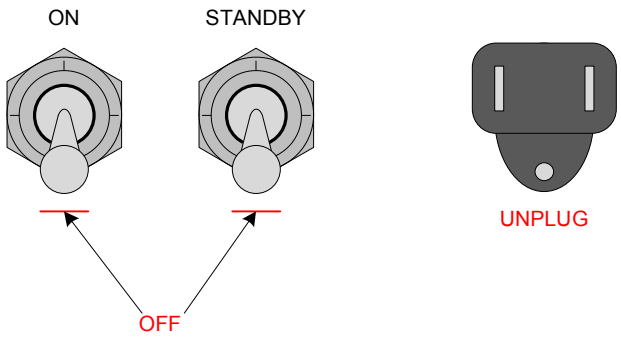


Use these instructions and your vintage Fender guitar amplifier to learn:

- How to locate the tone stack components.
- How to modify the normal channel tone stack components for a suitable bass guitar tone.

www.modkitsdiy.com

Table of Contents



Safety

"Caution: to prevent electrical shock,
do not remove chassis or metal cover attached to chassis.
No user serviceable parts inside.
Refer servicing to qualified personnel only."

-the back of an amp

We have quoted the back of an amp to stress the importance of putting safety first when working on this type of equipment. Tube amps operate at high voltages which have the potential to kill. Only work on an amp when you are wide awake and sober.

Please make sure you do the following before opening your amp:

- Turn the power switch off.
- Turn the standby switch off (down position).
- Unplug the power cord.
- Give the power tubes 10 minutes to cool down.

When the amp is open:

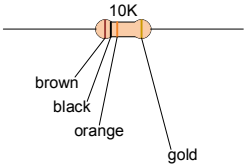
- Use a volt meter with alligator clips to measure for high voltage at several test points. (*see the "Preliminaries" section for details*)
- Use the one-hand rule. (*see the "Preliminaries" section for details*)

Parts List

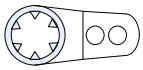
Part Number	Quantity	Description
C-MD1-630	1	0.1µF capacitor

C-MD047-630	1	.047µF capacitor

R-A10K	1	10 kΩ, ½W resistor



S-H112	1	locking solder lug



S-HHN6-32	1	nut

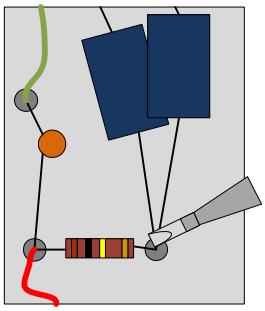
Tools

1. **Digital Multi-Meter** (DMM) – a meter for measuring voltage, current, resistance, and sometimes capacitance.
2. **Alligator Clip Test Leads** – connect to your DMM for hands free measurements. These are useful when setting the power tube bias and for safety when taking electrical measurements.
3. **Soldering Station** – soldering iron with a 1/8" screwdriver tip and a variable control capable of producing 25-40Watts. This will allow you to do some precise soldering of circuit components and wires (do not use a soldering gun for soldering of electronic circuits).
4. **Solder** – 60/40 rosin core solder.
5. **De-soldering Pump or Bulb** – this will assist you in removing solder for circuit modifications and correcting connection errors.
6. **Wire Strippers**
7. **Cutting Pliers** – These are great for cutting leads on resistors, capacitors, etc. before and after soldering.
8. **Needle Nose Pliers** – 6" long are good for bending component leads and holding components leads while de-soldering.
9. **Screwdrivers** – Phillips

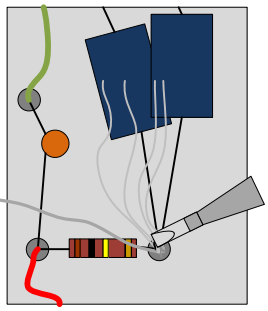
Soldering Tips (circuit boards)

- Work in a ventilated area with a fan to blow the smoke away from your face.
- Allow the soldering iron to heat up to the point where the solder melts quickly when touched to the iron's tip.
- Clean the soldering iron's tip by wiping it across a wet sponge before applying solder to it.
- Be very careful not to unintentionally burn any wires in the vicinity of the soldering iron.

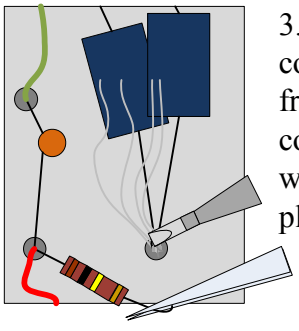
De-soldering Tip



1. Heat up the connection point until it starts smoking and becomes a liquid.

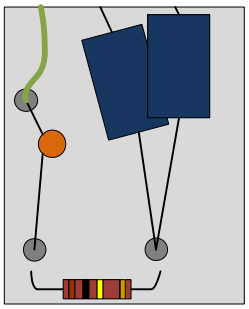


2. If necessary, add new solder to the connection point to help it become a liquid.

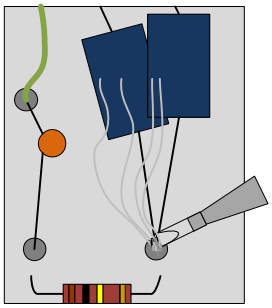


3. Remove the component lead from the connection point with needle nose pliers.

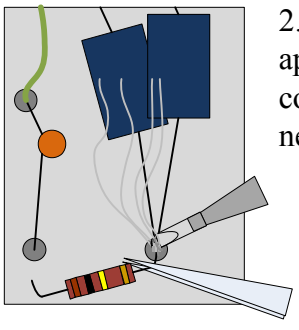
Soldering Tip



1. Cut and bend the component leads for a neat fit to their connection points.



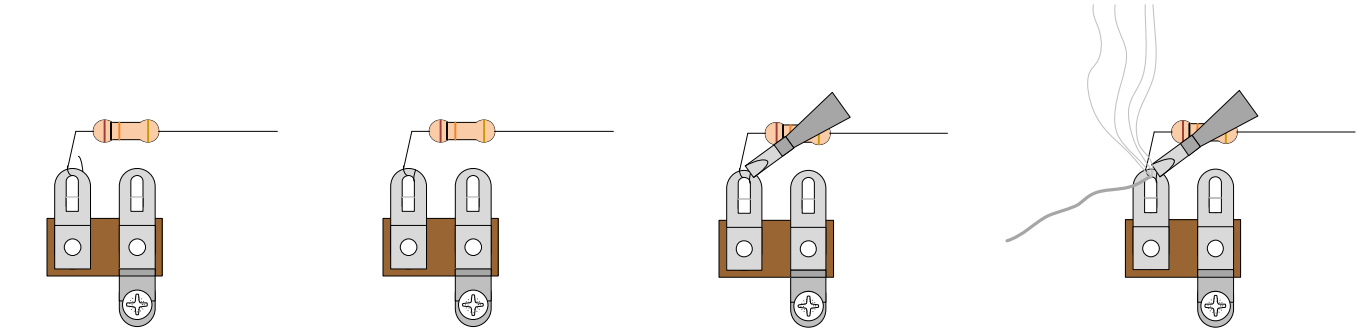
2. Heat up the connection point until it becomes a liquid.



2. Insert the appropriate component lead with needle nose pliers.

Soldering Tips (solder lugs)

1. Bend the component lead or wire ending and wrap it around the connection point.
   - Make sure it is not too close to a neighboring component which could cause an unintended connection.
2. Wrap the component lead so that it can hold itself to the connection point.
3. Touch the soldering iron to both the component lead and the connection point allowing both to warm up just before applying the solder to them.
4. Be sure to adequately cover both component lead and connection point with melted solder.
   - Remove the soldering iron from your work and allow the solder joint to cool. (The solder joint should be shiny and smooth after solidifying.)
   - Cut off any excess wire or component leads with cutting pliers.
   - Clean the soldering iron's tip by wiping it across the wet sponge again after making the solder joint.



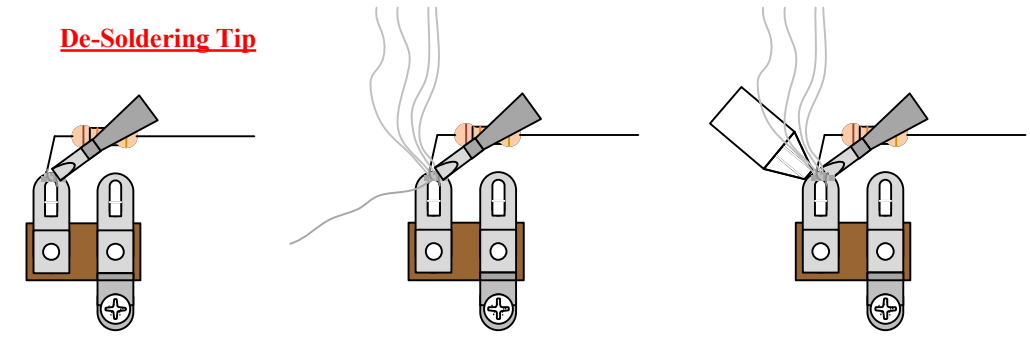
1. Bend the component lead and wrap it around the connection point.

2. Wrap the component lead so that it can hold itself to the connection point.

3. Heat up both component lead and connection point with the soldering iron.

4. Apply solder to both component lead and connection point.

De-Soldering Tip



1. Heat up old solder joint with the soldering iron.

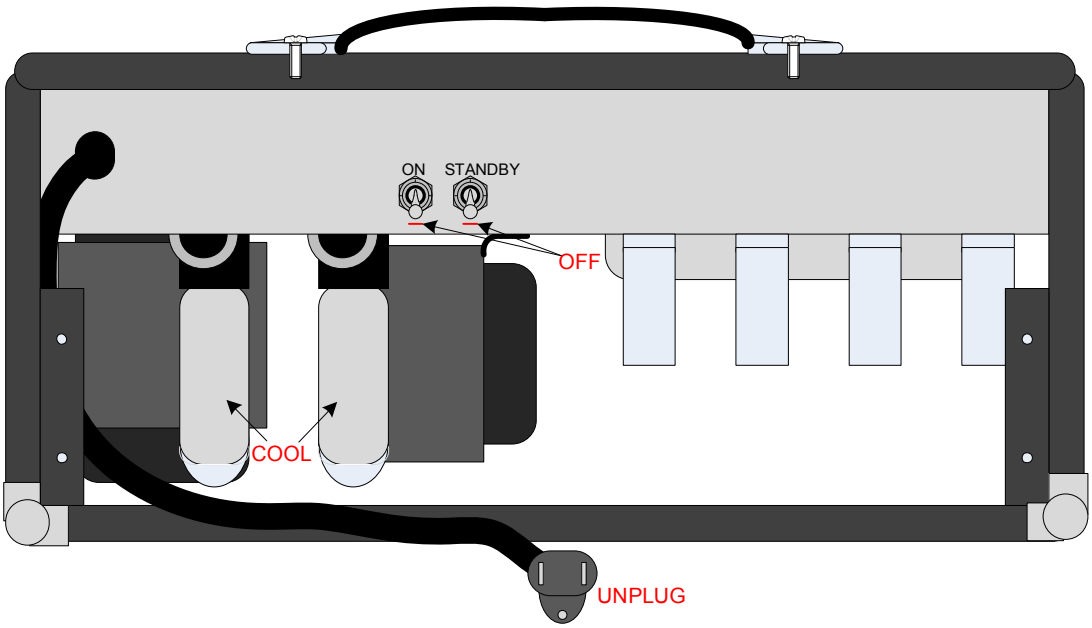
2. Apply fresh solder to mix in with old solder joint

3. Use a de-soldering tool to remove the old solder joint while it is heated.

Preliminaries

Please make sure you do the following before opening your amp:

- Unplug the power cord.
- Turn the power switch off.
- Turn the standby switch off (down position).
- Give the power tubes 10 minutes to cool down.

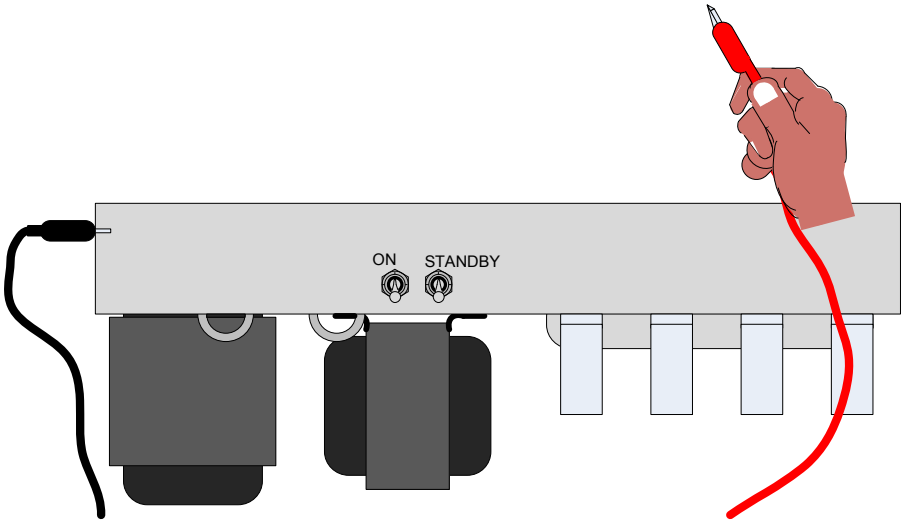


- Make sure the power tubes have cooled down enough to touch.
- Remove the power tubes from the amp and store them someplace safe.
- Remove the amplifier chassis from its cabinet and set it on a safe workplace.

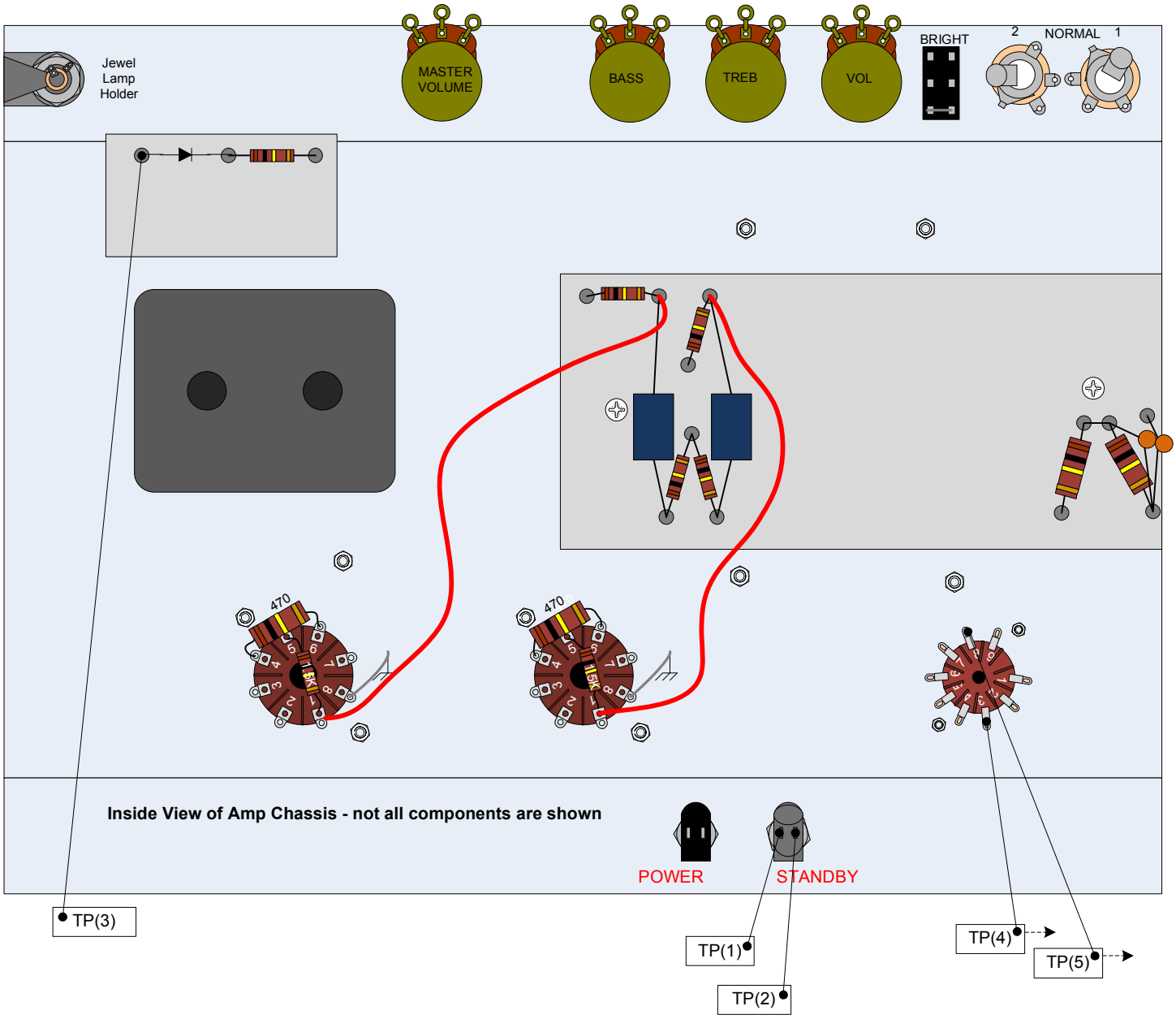
When the amp is open:

- Follow the one hand rule and use a volt meter with alligator clips to measure for high voltage at several test points.

(test points are on the next page)



The one hand rule (pictured above): is a safety precaution for working on an amp that is plugged in or could potentially have high voltages present. Using alligator clips with your DMM, clip the ground side to the chassis and use the other side to probe at various test points with one hand. *This prevents a fatal shock which can result from current passing through the heart. (Many people even put their other hand in their pocket or behind their back).*



Test Points

If there is a high voltage present at any of these test points, there may be something wrong with your amp. Please have it checked by a qualified repair shop.

TP(1), TP(2): These test points are both on the standby switch. When the amp is in operation, these two points have a very high voltage present. By 10 minutes after turning off the standby and power switches, all the voltage should have been drained.

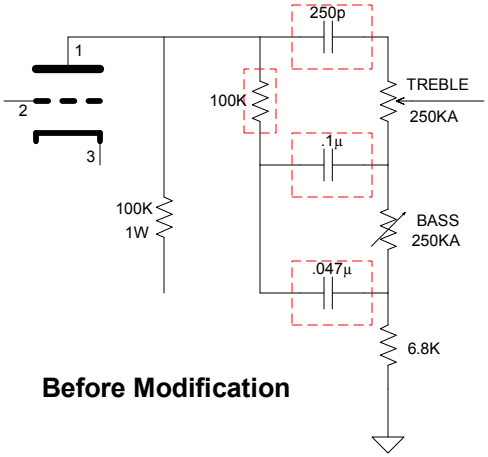
TP(3): This is the anode side of a solid state diode.

TP(4), TP(5): These test points are the cathode pins of the preamp tubes. It is not a bad idea to check these two pins on each one of the preamp tubes.

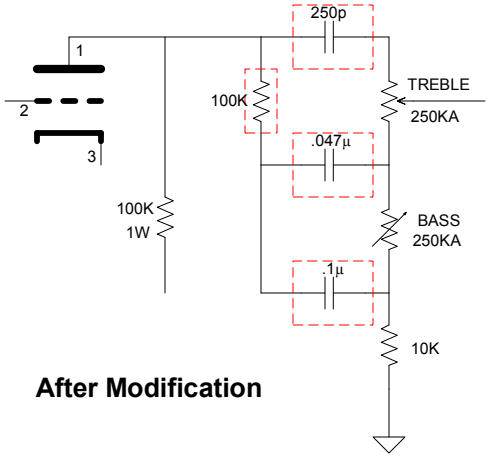
(**Tube Rectifier TP:** If your amp has a GZ34/5AR4 tube and no standby switch, then check the GZ34 pins 2 and 8 for voltage.)

Tone Stack Modification

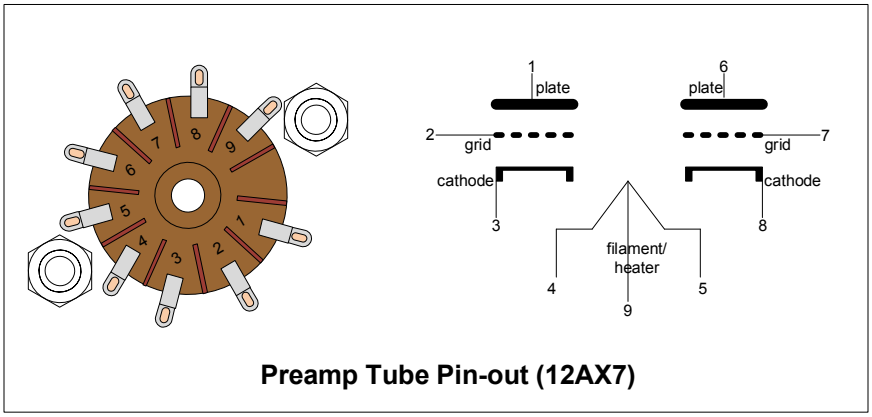
Here is a schematic representation of this mod. It is not necessary to be able to read the schematic in order to complete the mod.



Before Modification

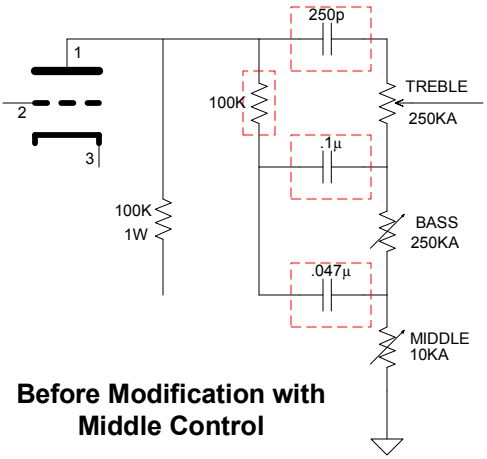


After Modification

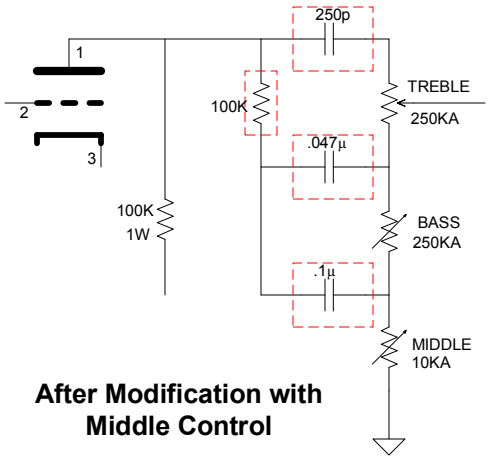


Preamp Tube Pin-out (12AX7)

The modification has fewer steps for amps with a middle tone control.



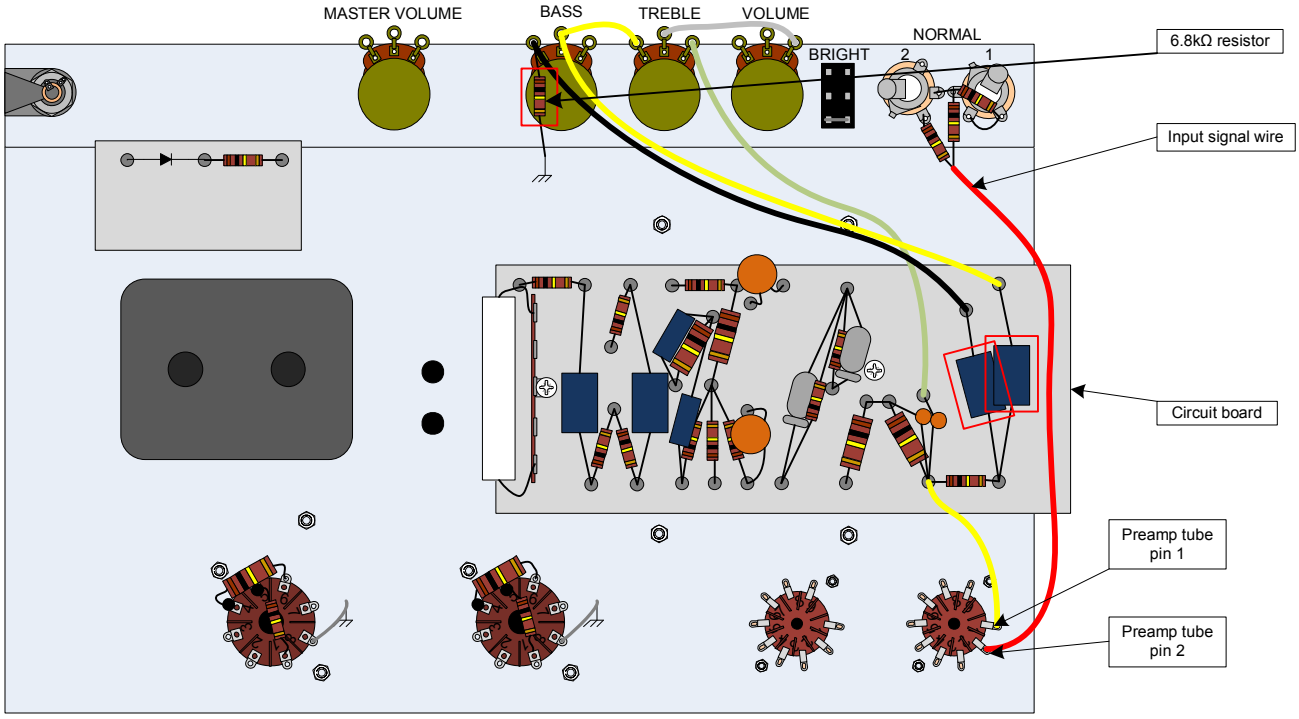
Before Modification with Middle Control



After Modification with Middle Control

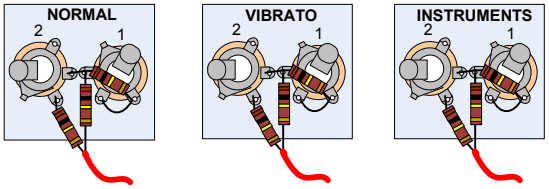
Tone Stack Component Location

Depending on your amp model and which channel you want to modify, the inside of your amp chassis will look slightly different than this example. Follow these steps to find the tone stack components you want to modify.

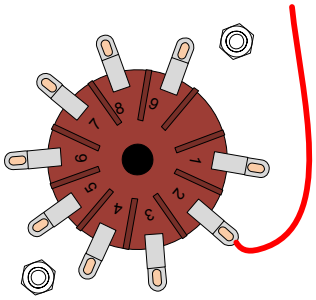


Inside View of Amp Chassis – not all components and wires are shown

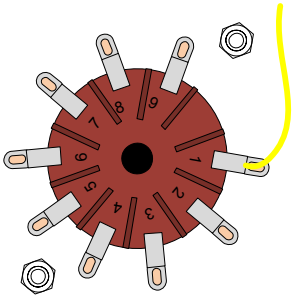
Step 1: Choose which channel you would like to modify and find the input jacks related to that channel. (They should be labeled like one of the drawings below).



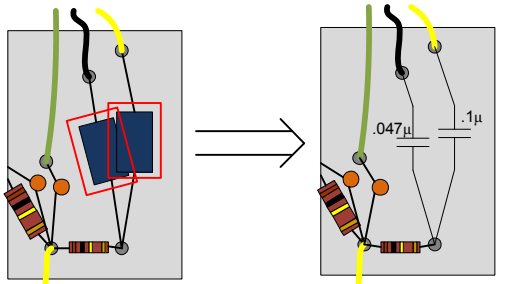
Step 2: Follow that channels input signal wire to its preamp tube pin 2.



Step 3: On that same tube socket, find pin 1 and follow its wire to the circuit board.



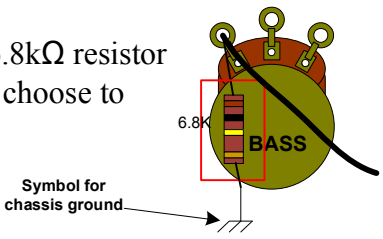
Step 4: On the circuit board, identify the two capacitors to be modified.



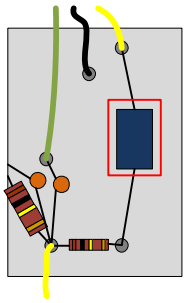
Actual components on the circuit board

Schematic symbols for components to be modified

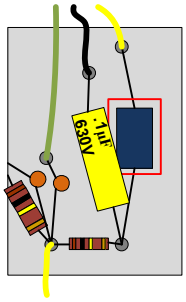
Step 5: If your amp does not have a middle control, find the 6.8kΩ resistor connected from the bass control to ground for the channel you choose to modify.



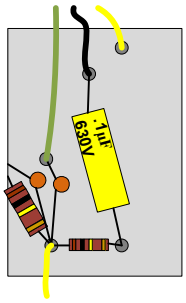
Tone Stack Component Modification



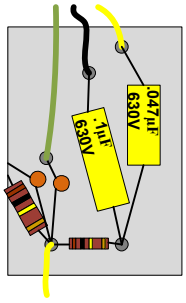
Step 1: De-solder and remove the .047µF cap.



Step 2: Insert and solder the 0.1µF cap in its place.

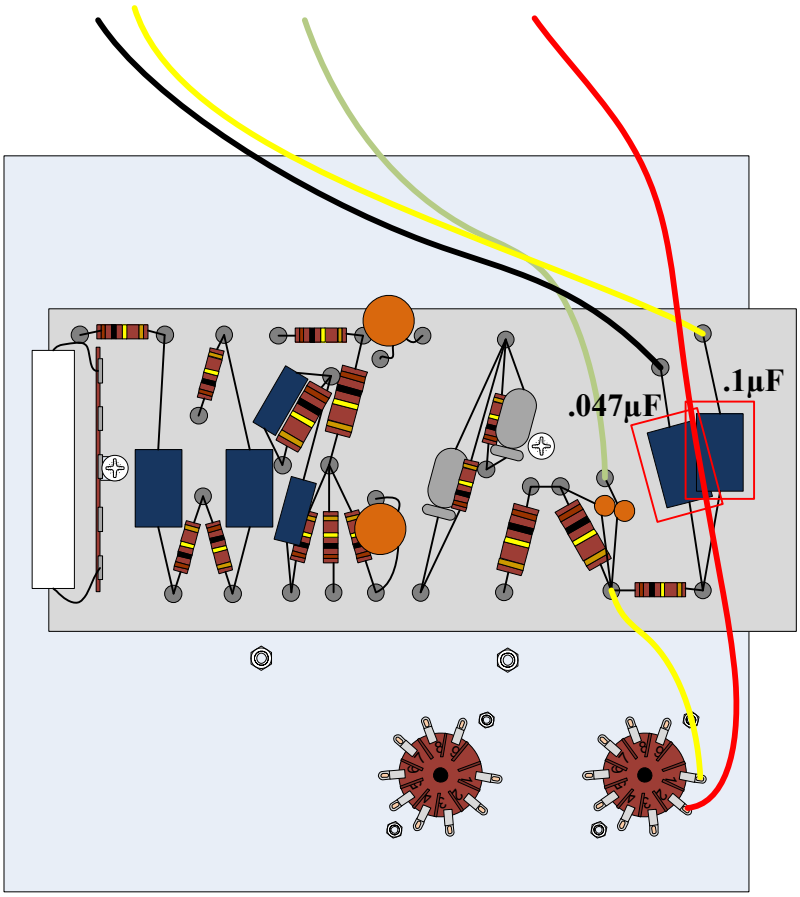


Step 3: De-solder and remove the original 0.1µF cap.

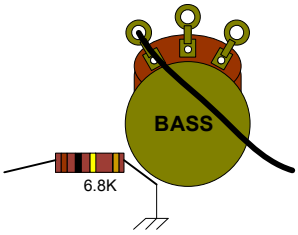


Step 4: Insert and solder the .047µF cap in its place.

(If your amp has a middle control, do not implement the following steps 5 and 6.)



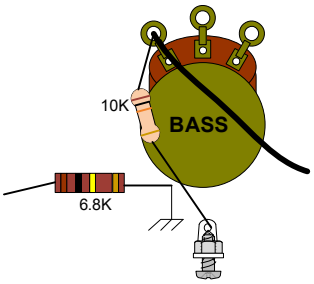
Inside View of Amp Chassis – not all components and wires are shown



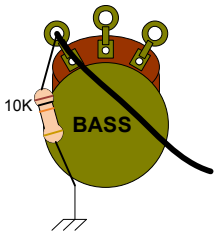
Step 5: If your amp has no middle control, de-solder the 6.8kΩ resistor connection at the bass pot.

Step 6: Insert and solder the 10kΩ resistor.

If there is a grounded screw nearby, use the locking solder lug and nut to connect the grounded lead of the resistor.



You may choose to remove the 6.8kΩ resistor completely and solder the 10kΩ resistor in its place, in stead.



Step 7: Close the amp back up and you're done.