Mod your Bassman reissue for vintage tone

To start I´m sorry to point out that this here will NOT turn your Bassman reissue amp into an original, it´s NOT a 1:1 copy and it is NOT exactly sounding like the old, most sought after 5F6A Bassman version with the 4x10" speaker open cabinet. But that´s ok, the reissue amp is a fantastic sounding guitar amp, in some cases even better than the original. All this mods here will take you VERY close to the famous vintage Bassman sound and it is divided into three levels. Keep in mind that this works for the first reissue product line from Fender. I have never seen the "new" reissue Bassman amp from Fender, called the "Bassman LTD" from inside, so maybe they are somewhat different.

1st level (almost no work)

Slightly less volume, more warmth:

Remove the solid-state rectifier with a tube-rectifier, eg. GZ34 or 5U4G. Play through the normal channel and you´ll find that power output is reduced to about 40 watts, so you can get the same tones at slightly lower volumes. In addition, the highs smooth out, ovrall warmth/ambience/organic vibe increases, and the amp becomes more tonally reponsive to the way you attack your instrument.

Even less volume, sweet vintage tone:

Remove the first 12AX7 preamp tube (first socket from the right when looking in the amp from backwards) and replace it with a 12AY7. What you get is much less gain AND (if you can believe it), the amp gets even warmer and fuller.

Now try this fat, bluesy distortion:

Plug your guitar into input #1 of the NORMAL channel and run a shielded cable from input #2 of the NORMAL channel to input #1 or #2 of the BRIGHT channel. Start with the NORMAL volume on 4 and the BRIGHT volume on 9 and experiment from there. This suggested setting produces a rich, vibrant distortion at a slightly lower volume.

Bonus: Even if you use just one channel, the two volume controls interact. Try plugging your guitar into the NORMAL channel, set it up the way you normally do, then listen to how the sound changes as you rotate the BRIGHT channel volume knob.

2nd level (requires some work)

Cabinet modding:

The reissue cabinet is not made out of pine wood like the original. If you want, you can build a new one out of massive pine but I don´t think this is necessary. I only replaced the baffleboard for pine wood one and it sounds great. There are some additional optical mods you can do, to make your reissue look like an old tweed Bassman. I painted mine several times with a nitro laquer and added some brownish dye to make it look like a mixture of an old nitro paint, dust, dirt and nicotine. It works great and looks really cool. To do some more aging you can remove the socalled "oxblood grille cloth" from the baffleboard, put it into a bucket and cover it for some days with black coffee or tea. This will give it the look of 40 years and rough use on stage. You can also put all the metal parts, screws etc. from the cabinet into another bucket and cover it for some days with any coke, the brand doesn´t matter - I used Pepsi Coke and it worked fine ;-) After reassembling your cabinet, make sure to fasten everything firmly so that nothing can rattle and shake, this will also help you to enhance the sound of the amp. Take special care for the screws that are holding the speakers !!!

Tube modding:

Modern tubes are sounding different from old ones, that´s a fact. So try to find NOS tubes for your amp, to give it more of the real tone. Don´t use the original Tungsol or Philips 5881, they can only handle up to approx. 400 volts and our reisuue Bassman produces 450 volts !!!! I have good results with military surplus NOS tubes from GE, I use a GZ34, a 12AY7 and two 12AX7 and stronger Phillips 5881 that can handle the power. It will require some time and money to find all this parts but it´s worth the effort.

Technical spruce-up

It is a good idea to replace all the jacks with high-quality Neutrik or even better Switchcraft jacks, the original ones are a little bit weak and of poor quality. While you are doing this I recommend to replace all the cables coming from them for a high quality cable, the stock stuff is a very cheap and weak wire. I also recommend to completely rewire the speakers and to solder the speaker cables directly to the lugs of the speakers, the stock connectors gave me some trouble !!! I used a high quality much thicker speaker cable for that and soldered them to only one 6.3 mm standard plug. I also replaced the RCA connectors (amp output to the speakers) in the amp with a single mono jack. That´s not original but it gives you the freedom to use an attenuator or DI box without any hazzle ..... or have you ever seen such a unit with RCA input jacks ?!? ;-)

3rd level (requires a lot of work, tools and skills)

This is the point where you will need the circuit wirings of both amps, the reissue and the original old one. If you haven´t download it yet, this is the point to do so and print it.
All the work now is highly technical and requires good skills in basic electronics and how to solder on PCB´s. There are a lot of parts inside the reissue, that are different or simply not existing compared to the original amp. Again, don´t do this if you don´t know what you are doing !!!!!

Modding the power supply system (wrote by Hoffman Amplifiers)

The original 5F6A bassman power supply

Stage one: The old 5F6A Bassman circuit has a total of four stages of power supply filtration. There are five capacitors total, but two caps are joined together in **parallel** and count as one stage and this is stage one. Parallel means that the two positives are joined together and the two negatives are joined together. This gives you 40uf total capacitance in stage one of the power supply. Stage one is right off the rectifier tube/pin 8 and is the first stop for the power supply voltage on the circuit board.

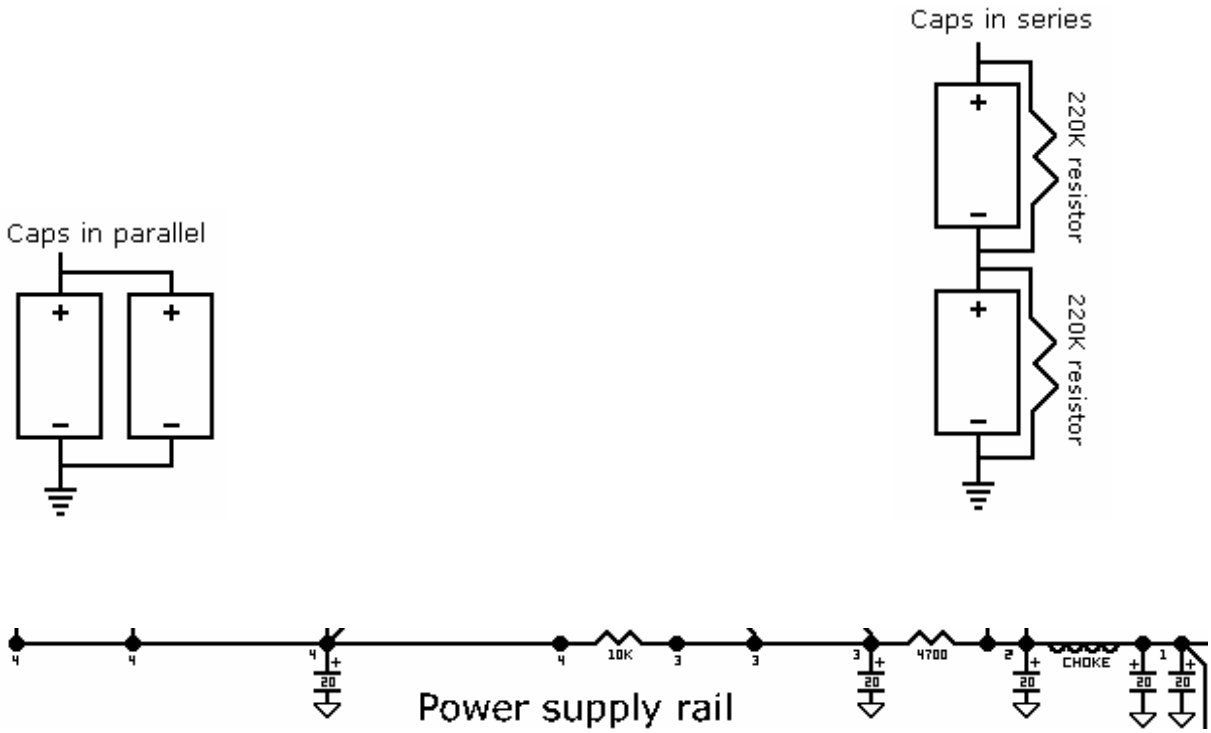
Stage two: From stage one, the power supply voltage travels through the choke. On the other side of the choke is stage two and there is another 20uf/500v cap connected to this stage. The 470 ohm screen grid resistors are connected to this stage and feed pin four of each power tube.

Stage three: The power supply voltage then goes through a 4.7k power supply resistor and ends up at stage three. This is the voltage supply for the phase inverter tube and there will be a 20uf/500v cap connected to this stage also. You will see a 82k and 100k resistor connected to this stage. These two resistors head towards the phase inverter tube and supply the plates, pins 1 and 6 with voltage.

Stage four: The power supply voltage then goes through a 10k power supply resistor and stops at the last stage, stage four. There will be a 20uf/500v cap connected to this stage also. Sometimes there is a smaller value on this stage but a 20uf/500v cap works great. There are three 100k plate load resistors connected here that feed the plates of the two pre-amp tubes.

That is all four stages of the power supply, look at one of my 5F6A layout diagrams to see this system presented in a simple linear fashion. I have small numbers on the layout diagram next to each power supply stage to show where stages 1,2,3 and 4 are located on my board kit.

Now we go onto the Bassman re-issue and the differences in the power supply.



The reissue 5F6A bassman power supply:

Stage one and two: Bassman reissue
Stage one: Stage one and two are in the capacitor can on the back of the chassis in the Bassman reissue. This can has four caps inside but there are only two stages of power supply filtration in this can. You will see two 100uf/350v caps (stage one) that are joined together in **Series**, not parallel and two 47uf/350v caps (stage two) joined together in **series**. When you put two caps together in series, the capacitance is divided by two, and the voltage is added together. If you picture two caps stacked up like two flashlight batteries so that the positive of the bottom cap is connected to the negative of the top cap, that is series. You use the negative of the bottom cap and the positive of the top cap for the electrical connections.

So we have stage one, which is two 100uf caps, divided by two = 50uf of total capacitance and a voltage rating of 350v + 350v = 700volts. Stage one has a red wired soldered to the pc board. The red wire is connected to the positive end of the top 100uf/350v cap in the series stack. The red wire then goes through a hole in the chassis and ends up inside the amp connected to stage one on the circuit board.

Stage two: We also have stage two in this can which is the two 47uf/350v caps in series, divided by two = 23.5uf with a total voltage rating of 700 volts. Stage two has an orange wire soldered to the pc board. The orange wire is connected to the positive end of the top 47uf/350v cap in the series stack. The orange wire then goes through a

hole in the chassis and ends up inside the amp connected to stage two on the circuit board.

Both of these series arrangements for stage one and two have 220k bleeder resistors across the leads of each cap to balance the voltage and bleed down the voltage after the amp has been shut down. Leave all of this arrangement in the cap can alone, it is perfectly useable and just fine as a far as power supply filtration goes.

There are a couple changes that I like to do to the wires leaving the filter cap pc board. I like to run new stranded 18 gauge wires in place of the stock red, orange and black wires that leave this board. You could use the existing red and orange wires if they will reach the lugs on the board where they need to be connected. They are a little stiff and hard to work with, but they will work.

The black ground wires are not long enough to reach the power transformer grounding point and it is a good idea to run your grounds like I have explained below.

New black ground wires: Unscrew the four screws holding this pc board in place and turn it upside down so you can work on it. Make sure you have drained the capacitors first by touching the red and orange wires to the black wires. If you touch all four wires together for 30 seconds, you will be safe and the caps will have bled down enough so as not to shock you.

You are going to need one piece of black 18ga stranded wire that is long enough to go from the cap can pc board, through the hole in the chassis and end up over by the power transformer. This wire will be grounded on the same power transformer bolt as the other major grounds in the amp.

Find the spot where the two black wires are joined to the cap can pc board and remove the two black wires. Take your piece of black 18ga stranded wire and strip enough of the end of the wire so that you can bridge across the gap and connect the wire end to both places on the pc board where the old black wires were. You can just solder the wire flush to the surface of the copper pc board traces. You may have to scrape the copper clean to get a good solder connection. You do not have to stuff the new black wire into a hole, just laying it on the copper surface and soldering it to the surface will work just fine. Ok, now you should have just one black wire that is connected to both grounds on the cap can pc board. The other end of this black wire gets a ring terminal crimped and soldered to it. It is bolted down to the chassis on the same power transformer bolt as the power cord green wire, the black wire from the end of the board kit and the red/yellow center tap wire from the power transformer.

These are the major grounds of the amp and it is a good idea to put a soldered ring terminal on all the wires and use one of the power

transformer bolts to make a good chassis/ground connection. Do not try to solder wires to a chassis, always crimp and solder a ring terminal and bolt down your major grounds.

So basically you just replaced two separate ground wires with one big one. Stage one and two will share a common ground wire. This method has been tried and tested and makes for a very quiet amplifier, please do not try and re-invent the wheel here.

While I am on the subject of grounds, do not try any of that star ground crap that some techs preach. The star grounds create more problems than they fix. This method I am describing here has been proven to produce a very quiet amplifier as far as ground hum is concerned.

Now that we have our grounds for stage one and two taken care of we need to take care of the two positive wires for stage one and stage two. I replace both the red and orange wires with a new piece of stranded 18ga red wire. If you are using the old red and orange wire, you can skip this section and go to **Stage three and four.**

New red and orange positive wires: You will be replacing the red and orange wires with two red 18ga stranded wires. You will need to figure out how long each piece of red 18ga stranded wire should be and then solder them in place of the red and orange wires. The red wire is stage one and the orange wire is stage two of the power supply filtration. The red wire is connected to the positive end of the two 100uf caps and the orange wire is connected to the positive end of the two 47uf caps. Look at the layout diagram and find the turret lugs for stage one and two and solder the wires to the correct spot. Flip the cap can pc board over and bolt it down to the chassis. Put the cover back on and screw it down. You have just finished stage one and two of the power supply filtration circuit.

Stage three and four: Stage three and four filter caps are on the main pc board in the Bassman reissue. There should only be two 22uf/500v caps on that board, but there are 3 for some unknown reason. We only need two more caps for stage three and four and you can do one of two things here. You can remove two of the 22uf/500v caps from the main pc board and reuse them or you can use two new caps. I reuse two of the original caps, but the leads are kind of short. New caps are nicer because you have longer leads, but the old caps work just fine unless they are 15 years old. Get new caps if the caps are really old.

The best way that I have found to mount stage three and four caps is this. Your main board kit circuit board should already be installed and all the wires in the amp should be installed except the wires that lead to the pots. Install the pot harness, but do not install the pot wires yet. Take the two 22uf/500v caps and make a little hook at the very end of the negative wire. This hook will hook onto the pot harness ground buss wire that runs down the back of the pots.

Put the two 22uf/500v caps down inside the amp, underneath the pot harness so that they are parallel to the front pot panel and as close to the front metal panel as is possible. Make sure the caps are not near the high voltage power supply rail that runs down the front of the circuit board. The caps are sitting on the blank area of the circuit board, towards the pots side of the chassis. If you move the caps around, you will find a spot that lets you connect the positive ends to the correct lugs on the circuit board and the negative ends will be facing each other. In other words, the positive ends are far apart from each other and both caps are in a straight line like a couple flashlight batteries.

Face the two negative cap ends towards each other and wrap the hook onto the pot ground buss wire. Solder the negative ends in place. I like to take a piece of the PVC coating off the red 18ga wire and slide it onto the positive ends of each 22uf/500v cap. This lets you know that the wire is hot and to keep your fingers away and keeps you from accidentally touching the positive end of the cap. Make a small hook on the positive end of each cap and solder each cap to stage three and stage four on the circuit board.

You will notice that stage three and four each have several lugs that the 22uf/500v caps can be soldered to, you do not have to solder it to the lug that you see on the layout diagram. If three lugs are all connected in a row with a piece of buss wire, then any of those lugs will work. That is called a buss and you can figure out which lugs work best for the stage three and four capacitors.

Stage three and four capacitors do not have very long leads and this is a good thing. The ground noise level is very low after doing the capacitors and grounds the way I have described.

One last ground tip: The ground wire coming from the preamp end of the board kit should be soldered to the pot buss wire or to a input jack ground tab. If you use an input jack for the grounding connection, make sure the jack is making good contact with the chassis. I prefer to solder this ground wire to the pot buss harness wire. Again, do not do any star grounds; you will have problems and ground noise. I have removed many star grounds on amps over the years because people were told "This is great, you must do it". There is more resistance in a piece of wire than there is in a good chassis ground. Chassis grounds have always worked well if done properly. Look how many millions of amps were built that way and work just fine. The only reason you see some Fenders having problems is because the brass ground plate under the pots corrodes and is not making good contact with the chassis. I prefer not to use the brass plates and do it like Marshall did it, solder a buss wire down the back of the pots and let all the pots make a ground connection to the chassis. The ground currents make their way through the chassis and back to the main grounding point at the power transformer. You should have four ground wires connected to ground through a bolt on the power transformer. The

power cord green wire, the black wire from the end of the board kit, the red/yellow center tap wire from the power transformer and the black wire from the filter cap can.

Parts tuning

+ Desolder and remove C25 if it´s populated in your amp

+ Desolder and remove C21

+ R28 (82 kOhm): solder an additional 100k resistor in parallel

+ R41 (46 kOhm): solder an additional 150k resistor in parallel

The most important reasons why the reissue is not a 1:1 copy

1. The original is point-to-point wired

2. The original has a different layout

3. The original uses different parts (carbon comp resistors, mica caps, Astron caps ……)

4. The reissue uses a higher current of approx. 450 volts, the original only 400 volts. So the reissue is louder and more dynamical but also harder and brighter

5. The original uses a TRIAD transformer that sounds completely different from the reissues transformer. There is a good copy available from Mercury Magnetics (USA)

6. The old Bassman uses Tungsol or Phillips 5881 tubes but they can only handle 400 volts (look at No. 4 !)

7. The original uses a cabinet out of massive pine wood, the reissue cabinet is made out of plywood, so it sounds harder and without some of the vibe.

8. The speakers are sounding completely different from the original Jensen speakers. You can buy good copies from Weber VST

So you see it´s not that easy to make the reissue a real 1:1 copy of the original but it´s still possible ! If you want to take your time and spend a lot of money you can buy almost original parts to convert the reissue into the real thing. you can buy the following things:

1. 400 volt transformer from Mercury Magnetics (USA)

2. Speaker from Weber VST (USA)

3. Ton-Caps from SOZO (USA)

4. Electrolytic Caps from Ruby Tubes (USA)

5. Pine Cabinet from Mojotone (USA)

6. Point to Point eyelet board from Ruby Tubes (USA)