

Chris Hurley:

Squeal

Although I've been assured that even a monkey will be able to build rev 5 without squeal, I occasionally still get a little squeal in my builds. I have often removed the .68uf cap and/or the 470pf bypass on the first 470k/470k divider to patch against squeal.

I think removing the 470pF bright cap has less of an impact on the good tone than removing the .68uf. Pulling the .68 makes the response spongier.

James Peters:

Try the following changes:

- R18 = 5K
- Remove C12
- R16 = 220K, R15 = 800K (or thereabouts)

Try the first two, for a more "plexi" type of drive. If there's not enough power tube "jam", try the last point.

The general approach of my suggested "mods" is to reduce some preamp distortion, reduce some preamp gain, increase clipping slightly, and drive the power tube harder. All those elements combined in that way seem to work well.

Carl Berger:

The "Raffler" DC Drive Mod

- Replace R14 with a 10K.
- Replace R15 with a 22K.
- Replace R16 with a 330K.
- Replace C11 with a .047uF.
- Disconnect VR5.
- Connect R16 (the end that was connected to VR5) to V3A's plate.
- Connect C11 (the end that was connected to VR5) to the V2B's grid.

Paul Ruby:

Squeal

Get rid of that 68K grid resistor and replace it with a 10K , or better yet, get rid of it all together.

Tuning

I never include the bright cap on the 470k/470k divider. Always seems to be a bit too much top end to me.

I also never use the cathode bypass cap on the 2nd stage. However, I do like to keep the cathode resistors on those stages low in value to keep plate voltage down a bit. I like the tone better with these stages biased closer to saturation. This is more of a subjective taste thing, however. Higher resistance values will give more distortion because the tubes will cutoff sooner, "A little more hair".

Squeal

Another thought for reducing squeal would be to reduce the plate resistors on the 2nd and 3rd stage to reduce gain.

One more thought... Moving the bright cap to the second divider (after the 2nd stage) instead of the first divider might still give the nice Marshall bite without squeal. I just did this in my conversion of a G40V to JCM800 and it worked nicely.

Filaments

Here's something I do in my builds to simplify them. Since the P1 and HO are both cathode biased, we get ~9V of free DC voltage for referencing the filaments. So, that's a better place to reference than ground.

Also, since 9V is as high as the peak AC on the filament lines, there is no need for the 100 ohm referencing resistors. Just tie one of the filament legs direct to the cathode of the EL84. Since the cathode and filament lines are adjacent on the EL84 socket, I jumper them together right there when I'm wiring the filament line in. Just jumper pins 3 and 4.

Brenden:

Adding Dirt

Remove the 470K's that go to ground between stages. Bias the 1st stage with 220K plate and 1.96K cathode. Those values are for maximum 2nd degree harmonic distortion.

Igge:

Cold bias a gain stage

Add a cold-biased gain stage a la Soldano SLO-100: 100k/1nF anode resistor, 39k cathode resistor, 22nF coupling cap, 2.2M/330k to ground, and 220k grid-stopper for next stage.

AletheianAlex:

Various

There are some very simple mods that can (in my opinion) improve the sound and stability greatly... moving from the front of the amp to the back:

- Replace the R24 input resistor with a nice, non inductive 4.7k-10K resistor.
- Parallel another .68uF resistor with C16 to add a bit more bass punch around the guitar's fundamental frequency.
- Increase the value of C13. to .0022uF or .0033u to drop the frequency of the treble peaking circuit to 150Hz/100Hz respectively for more of that 'modern' high gain curve and a bit thicker sound.
- Parallel a .0047uF film capacitor across the C6 power supply capacitor.
- Place a 500p capacitor in parallel with R22 to reduce the zingy highs there.
- Change R11 to 47K and C8 to 680p for more crunch in the 1500-2000Hz region.
- Place .1uF capacitors across the D1 and D2 diodes to decrease some high end zzzt.
- Instead of grounding the R10 cathode resistor, run it to a transformer tap that will ground it THROUGH the secondary of the output transformer, adding some slight feedback and increasing the bass response. This is especially effective if you used a cheaper Hammond 125 'universal' series transformer.
- Last tip... buy a nice speaker cabinet!

SLO Cold Biased Stage

If you want to try the SLO cold biased stage, you can do it without adding another preamp tube by converting your cathode follower into the cold biased stage, and then scaling

your tone stack down to work at the higher impedance that you get running it off the plate. You'll lose about 3dB of voltage gain, but that is no biggie, just turn the master up a bit more.

I like the sound of a 24K resistor much better than the 39K... it doesn't cut out as much of the midrange as the 39k does.

I would scale the tone stack like this to run off of the anode:

- C8=1000p (.001u)
- C9=.01u
- C10=.01u
- R11=100k

I also like to run a little feedback loop from the plate to the grid on those clipping stages... a .047u cap from the plate, in series with a >22M (yes, that is greater than 22MEGS) resistor going to the grid. You can put that right on the tube socket... no problem. It's stabilize the stage, and smooth out the clipping a bit without killing the highs like a snubber... although you can do that too.

Bob Ingram:

SLO Mod:

I added another 12AX7 and used 1/2 of it for the cold biased stage between stages 1 and 2. 100K plate, 39k (actually 37.7k, a 33k and 4.7k in series) with a 1M grid load and 220k grid stopper. For the power supply I added one more 22uF cap and a 330ohm.

The result is slightly more gain, but much more fatness and that classic SLO OD tone.

Gain Master:

Harshness Reduction Mod:

OK guys, I've got a new one for ya. If you remember, one of the problems I was having with my high gain builds is a scratchy grating sound with the gains maxed and overall, too many highs. One of the guys had a post about a modeling amp that used a 10k/470p in parallel setup on the input instead of the typical 1M resistor to ground. Sounded like just what I needed so I tried it.

It completely cleaned up the scratchy grating sound and had an added bonus. The amp now goes from a nice shimmery, lightly distorted clean to rip roaring Mesa style distortion in a quarter turn of the guitars volume. Unbelievable! Got to get a patent on this. Just kidding;).

There are still some minor issues to work out. I need a little more signal out, lost too much from this mod and the LED mod. Also think I might want a little more highs but want to live with the amp for a while first. Anyway, just thought you guys would like to know. The 10k/470p mod to the input rocks. No need for a second clean channel unless you want totally clean. Somebody needs to try this on an HO and see how it works out.