
Subject: Frankenstein Head: replacement cap values
Posted by [IdahoPicker](#) on Tue, 22 Dec 2015 18:33:39 GMT

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Hi all,

I posted a while back about a Frankenstein head, the help I received was fantastic! I have another Frank head on the bench (same customer). Here's what's up: It was distorting at all volumes (sounded like bad speaker). I replaced the 500uf cap on the Driver Regulator. It cleaned things up quite a bit. I've tested every transistor in the pre-amps and the driver regulator, every electrolytic cap as well. Everything is measuring within range. The only cap that looked questionable is a 90uf electrolytic in the driver regulator. All I have on hand are 100uf caps. Is this a safe replacement for 90uf in these amps?

The amp sounds decent, but it strikes me as a little underpowered, and it begins to distort a little bit with volume at 3 o'clock (both channels)

I have an image of the scope display, but I'm having trouble getting images on here. The waveform looks good on the top half, but the bottom shows a deviation. The deviation increases with volume.

I'm (obviously) pretty new to these amps, and I appreciate your advice!
Thanks!

Subject: Re: Frankenstein Head: replacement cap values
Posted by [IdahoPicker](#) on Tue, 22 Dec 2015 18:46:05 GMT

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I just answered my own question about the cap values.
insertTag(document.post_form.msg_body, ", ' '); I reread the previous post I made about the first Frank head I worked on. I did some research on the assymetrical waveform, it looks like a 3rd harmonic on the negative phase only. I'm pretty new to analyzing signals with a scope, i'm not sure what this is pointing to.

Thanks, and any advice, please, I'm all ears!

Subject: Re: Frankenstein Head: replacement cap values
Posted by [chicagobill](#) on Tue, 22 Dec 2015 20:38:16 GMT

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Yes, caps can be replaced with a fairly wide range of values and still be within spec. These are guitar amps, not rocket ships or medical devices.

As for your distortion, have you checked all of the resistors connected to the output transistors?

As there is no direct connection to the driver stage due to the transformer, the outputs are biased by all of those resistors. I find them drifted all over the place. Also have you compared the voltages that you have on the outputs with the ones posted on the schematic?

Subject: Re: Frankenstein Head: replacement cap values
Posted by [IdahoPicker](#) on Tue, 22 Dec 2015 20:58:06 GMT
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Thanks, good to know about the capacitors. I'm used to higher tolerances in tube amps, but I'm just getting to know solid-state. I'll make a note of the voltages as you suggest, and check those resistors.
Thanks for the help, I greatly appreciate it!

Subject: Re: Frankenstein Head: replacement cap values
Posted by [stevem](#) on Wed, 23 Dec 2015 11:33:52 GMT
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Change those output stage resistors , all of them and up the 5 watters to 7 or even 10 watt values !
If need be order up or use resistors in parallel or series to get dead on the value needed as stated on the schematic.
It does not take much resistance drift to knock near 40 watts of RMS power off of these amps from what I have seen, and on the non wire wound resistors do use carbon comp type use metal film.

Subject: Re: Frankenstein Head: replacement cap values
Posted by [IdahoPicker](#) on Mon, 28 Dec 2015 22:36:15 GMT
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Well, the customer was more than happy with the improvements thus far. For the level he plays at, there is no distortion, although I informed him that the extra money spent on replacing the output stage resistors would be worth the performance boost. He declined, but is very happy nonetheless. Good news: He's dropping off yet another Frank Bass head, this one he'd like to sell to me. I'll likely take him up on it, and then I'll give it the full going through, since cost is not an issue on my own work .

Thanks to you all again for the help! I've learned so much about these amps through this forum already, and I must say that I'm a bit taken with them!

Subject: Re: Frankenstein Head: replacement cap values
Posted by [chicagobill](#) on Tue, 29 Dec 2015 05:18:40 GMT
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What were the final repairs that you did? Did you test the resistors in the output stage?

Subject: Re: Frankenstein Head: replacement cap values
Posted by [IdahoPicker](#) on Thu, 31 Dec 2015 19:00:07 GMT
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I replaced c203 (500uf) cap on the driver board and cleaned the pots. I didn't get a chance to test the resistors, the customer was happy with the initial repair. I have yet ANOTHER Frankenstein head on the bench! You'll hear about it soon...

Thanks for your help.
