
Subject: Missing that "thump"

Posted by [rodak](#) on Wed, 17 Dec 2003 00:52:38 GMT

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My Kustom Kombo ("oh, no, it's that guy with the organ again!") doesn't have much of a "thump" when I switch it on. Could that be caused by aging filter caps in the power supply? Right now, I'm running it through a cheap 12" speaker until I get my 15's replaced - it's got a little bit of "oomph" when I switch it on, but nothing like the pronounced "thump" I remember from the 60's (the last time I had the pleasure of switching on a real Kustom).

Subject: Re: Missing that "thump"

Posted by [stevem](#) on Wed, 17 Dec 2003 12:54:16 GMT

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Hi, your lack of pop on turn on may well be from the cheap low SPL speaker. Is the speaker in the organ with the other speaker out? or is the speaker in a separate open back cabinet, in either case you will not have that air coupling that gives you the pop on turn on.

Subject: Re: Missing that "thump"

Posted by [rodak](#) on Thu, 05 Feb 2004 21:25:53 GMT

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Well, I finally got the speakers replaced in my Kombo, and put the back on, but still no "thump" to speak of.

A couple of ideas:

- 1) Replace the filter caps (I'm inclined to do that anyway).
- 2) There's an 8.2ohm resistor in the power amp (looks like 1 or 2 watts) that looks like it's partially toasted. It's companion, on the other side of the circuit, looks ok. At least, the schematic shows it as 8.2ohms, but it sure looks like the color code is grey-red-brown - that'd be 820ohms, right?

whaddyathink?

Robert

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Subject: Re: Missing that "thump"

Posted by [chicagobill](#) on Fri, 06 Feb 2004 15:48:42 GMT

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A couple of things regarding this subject. In all of the early K200 power amps that I have seen, the resistor that you describe as being a 2 watt should have a value of 820 ohms. The 8.2 ohm resistors are 1/2 watters.

As to the turn on thump, I have always been told that while usually harmless, turn on transients are actually a sign of mis-matched components in the power supply or power amp sections...a bad thing! So the smaller the thump the better.

Bill from Chicago.

Subject: Re: Missing that "thump"

Posted by [rodak](#) on Fri, 06 Feb 2004 18:18:26 GMT

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Well, I guess my eyes weren't deceiving me - they must be 820 ohm 2-watters.

I thought the "thump" at turn-on was sort of a trademark of the Kustom amps - I used to go in the music store and turn the Kustom's on just to hear that.

I'll replace those resistors and the filter caps, and see if it makes any difference.

Oh, BTW - the caps are currently 4500mfd, 50v - is that sufficient, or should I shoot higher?

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Subject: Re: Missing that "thump"

Posted by [QModer](#) on Sat, 07 Feb 2004 07:19:30 GMT

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It may be something to do with the speakers too. I get that thump even when one of my Kustoms is running thru my old Leslie.

Subject: Re: Missing that "thump"

Posted by [C4ster](#) on Sun, 08 Feb 2004 18:34:30 GMT

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First off, anytime you use the words never and always you get corrected, BUUUUUUT, EVERY Kustom 100, 200 and 400 I have ever heard, thumps like that. Kustom and most large power amplifiers use a bipolar power supply, that is both positive and negative power sources. If every voltage in the entire amp comes up to its proper voltage at the same time, no thump. But even though, Bud used the finest components at the time, by todays standards, there were probably serious mismatches in components. So, the distinct possibilities are that the voltages don't come up evenly and the thump occurs. Last night, I was doing sound for a local band, and the bass player had some deficiencies in his bass rig, a Crate, so I loaned him our K200 2x15 cascade rig and we have another convert. He never heard himself in the way he did last night. He and the guitar player loved the thump and the purple light. Hey, trademarks go a long way.

Conrad

Subject: Re: Missing that "thump"

Posted by [C4ster](#) on Sun, 08 Feb 2004 18:52:14 GMT

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I should have done this post first. I have put filter caps in that are 4 times larger than what was in there originally. My K100 had 2500 uF caps and I put in 10,000 uF. I see no reason not to increase the caps to 10,000 or larger. The most serious thing you need to consider is the working voltage. I believe that 50 volts or higher is required. If you put in too large of a capacitor, you could have an current inrush that would blow the fuse. A slightly larger fuse would be necessary to eliminate the problem. But then you would be compromising the protection of the amp slightly. But I have found that when the fuse blows, your amp has more serious problems. I am referring to an unmodified amp. The simplest capacitor check is to turn the amp off and listen for the hissing to stop. It should take a couple of seconds for the capacitors to completely discharge. If the hissing stops almost immediately, then the caps might be bad. The quality and health of those caps is somewhat age related with the electrolytic caps being the most susceptible to age related failures. Good Luck.

Conrad

Subject: Re: Missing that "thump"

Posted by [chicagobill](#) on Wed, 11 Feb 2004 15:47:41 GMT

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Conrad:

Do you have a "frankenstein" K200 head in your collection? I don't own any of the other series amps to compare with, but my two "95"s don't thump as much on turn on, as they do when they are shut down. I know that the "95" power amp design is dramatically different from the 200 A&B/250 design, and was wondering if the turn on thumps were different.

Just wondering, Bill from Chicago

Subject: Re: Missing that "thump"

Posted by [C4ster](#) on Thu, 12 Feb 2004 05:57:15 GMT

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Sorry, no. I don't have any Franks and probably never will. I am on a K100 mission right now.

Conrad

Subject: Re: Missing that "thump"

Posted by [rodak](#) on Wed, 28 Jul 2004 02:46:32 GMT

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Hey, Conrad - would 12,000uf/63V caps be pushing it too far for a K200 head?

Subject: Re: Missing that "thump"

Posted by [stevem](#) on Wed, 28 Jul 2004 11:09:41 GMT

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Hi, you can stuff in the 12000 mfd caps, but I would change out the stock rectifier bridge for a 15 or 30 amp one, and it will bolt right in. The most stress full time for any solid state device is at fire up, If you have the funds I would buy a small variac(3 amps is good) and start your amp up slow.

Subject: Re: Missing that "thump"

Posted by [C4ster](#) on Wed, 28 Jul 2004 12:51:58 GMT

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While a variac is used for testing purposes, I think that would be a bit of overkill. I have often wondered if there is a point in the ramp up when the biases would not be symmetrical from positive to negative and damage could result. I agree that tuning on a defective amp can be quite spectacular. I have a Sunn amp with transistors missing part of thier plastic. Snap, crackle, POP!!!

Subject: Re: Missing that "thump"

Posted by [stevem](#) on Thu, 29 Jul 2004 11:09:21 GMT

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Yea, I know it sounds like a poorly placed funds, but if you can only afford 1 Kustom, then heres a dirt cheap way to bypass the ac viriac method that everyone should do to extend the amps life. Get a good 16 GA extention cord, open up one leg of the A/C line (hot or neutral it makes no difference) and get to light bulb sockets, mount them to a board wired in serise and install 2 light bulbs of 100 watts. Now plug your amp in and turn it on, now you have slowed down your amps start up time for about 10 bucks and 1/2 hour of you time. And you may just have the stuff sitting around the house to make it right now.

Subject: Re: Missing that "thump"

Posted by [rodak](#) on Thu, 29 Jul 2004 13:48:45 GMT

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Thanks, guys. I've already swapped the bridge out for one of those big 35A jobs. No need for a Variac here, though - the amp works fine now, just not "thump"ing at turn on the way I'd expect. I did listen for the hiss at shutdown, and it only hissed for less than a second, and made a couple of little sputtering sounds in the process, so I imagine the caps could use replacing.

I've heard about the light bulb trick before - gotta try that some time. Thanks for reminding me!

Subject: Re: Missing that "thump"
Posted by [chicagobill](#) on Thu, 29 Jul 2004 17:21:49 GMT
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Robert:

Not to thump a dead horse here, but in re-reading the earlier posts, your descriptions of the power amp circuit lead me to believe that your power amp is an earlier "Frankenstein" style amp. Does your Kombo have a large driver/phase inverter transformer in the output stage? If it does, then I think that it will never thump the way that the later B-Series amps do.

Up until recently, all I owned were Frankenstein heads. I just bought my first 200B series head and it does thump more at turn on than the earlier series heads.

As a matter of economy, our shop uses a light bulb current limiter system, to save time, fuses and to keep the explosions down to a minimum. This will work for 95% of the amps out there, but in some circuit designs, there can be a problem created by the use of this device. As Conrad noted in his post, the unbalanced ramp up voltage when held at a lower than normal level, will sometimes cause excessive current draw, leading to overheating and possible component damage. Kustoms seem to be okay here, but some others like SWR amps are not.

Bill

Subject: Re: Missing that "thump"
Posted by [rodak](#) on Thu, 29 Jul 2004 23:26:57 GMT
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Well, I was always under the impression that the Kombo had the equivalent of a K200 power amp in it, but I've only ever seen the schematic for the Kombo. I have it posted in it's entirety on my web site - look here:

<http://www.combo-organ.com/Schematics>

And see what you think.

It does make sort of a mild "thk" sound at power-on, but it's just not as satisfying as the "thump" I remember from turning the Kustoms on in the music shop 30+ years ago.

Subject: Re: Missing that "thump"
Posted by [pleat](#) on Fri, 30 Jul 2004 03:26:35 GMT
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The Kombo organ I had used the frankie power amp inside the lower left side of the organ. It even had the punched holes where the pre amps would be mounted.

Don

Subject: Re: Missing that "thump"
Posted by [chicagobill](#) on Fri, 30 Jul 2004 16:26:46 GMT

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Robert:

Yes, it does have the Frankenstein style power amp. T2 is the driver/phase inverter transformer that I asked about. So in my opinion, it will not thump in the same way that the later K200-B series amps do. Maybe later models of the Kombo came with the updated power amp and will thump more.

Let me thank you here for the great schematics on your site, are they new? I've never noticed (found) them before. I've been looking for the Vox 301H schematics for years now. I've bought the 301J version on eBay but was never able to find the Havenhurst model. Again, many thanks for the great site! Bill

Subject: Re: Missing that "thump"

Posted by [rodak](#) on Fri, 30 Jul 2004 17:02:56 GMT

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Ahh, another combo aficionado, eh? Somehow colored plastic rocker tabs and chrome legs just seem to go well with tuck-n-roll Naugahyde, don't they?

Yes, the V301H schems are a very recent addition. The Schematics page I pointed you to is a "hidden" page - you won't find it off the main site. I'll link to it eventually, though.

So the Kombo uses a Frank power amp, eh? Guess I'll have to update my Kustom page with that tidbit. Maybe Bud decided to use the leftover chassis' in the Kombo's after he went to the K100/K200 series. I'll take a picture of it next time I'm in there and put it up somewhere for ya'll to have a look at.

Subject: Re: Missing that "thump"

Posted by [rodak](#) on Fri, 30 Jul 2004 19:18:19 GMT

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Oh, I forgot to ask - what's "Havenhurst"? Is that what the "H" stand for? That would be revelation indeed. I'm 99% certain that "J" (V301J) means "JMI", and "E" (V301E, V302E, V301E/2) stand for "EME", but I was always puzzled by what the "H" meant.

Subject: Re: Missing that "thump"

Posted by [chicagobill](#) on Fri, 30 Jul 2004 19:52:15 GMT

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Robert:

Yes, but my personal combo collection doesn't include Tuck and Roll organs (yet!). Remember that the Frankenstein heads were the first version of the K200/100 watt amps, so technically it is a K200 in there. Although I also noticed that the pre-amp is of the later B-series design. So maybe you're right about them using up old stock. In fact weren't the earliest Kombos made without the

pre-amps?

FYI-Havenhurst was the street location for the Thomas organ plant in Sepulveda, California, where all of the Thomas Organ/VOX amps of the sixties were produced. Bill

Subject: Re: Missing that "thump"

Posted by [rodak](#) on Fri, 30 Jul 2004 20:41:11 GMT

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Well, that's how the story goes, anyway, tho I've yet to see a Kombo without a preamp.

Where did you hear that the "H" stood for Havenhurst (or was that just a guess)?

Subject: Re: Missing that "thump"

Posted by [chicagobill](#) on Fri, 30 Jul 2004 22:10:02 GMT

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Years ago I was searching for info on the 301H to repair mine. I was introduced to an engineer that had worked for Warwick here in the Chicago area. He used the Havenhurst reference for all things that were done in Sepulveda back in the 60's before they moved the design department to Chicago. I got the feeling that he didn't care for the way that they did some things there, so it was almost like swearing. Sadly he was too late in the history of the company to be of any real help for VOX info. Bill

Subject: Re: Missing that "thump"

Posted by [rodak](#) on Mon, 02 Aug 2004 23:22:42 GMT

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Just to verify - I dug out a picture of the power amp (albeit, only the back of the chassis:

<http://www.combo-organ.com/Kustom/IM002285.JPG>

Does that look like a Frank power amp? Next time I'm in there, I'll take a shot of the other side.

Subject: Re: Missing that "thump"

Posted by [stevem](#) on Tue, 03 Aug 2004 11:34:19 GMT

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Yes, that is the frankie output/driver/phase splitter section.

Subject: Re: Missing that "thump"

Posted by [pleat](#) on Tue, 03 Aug 2004 21:14:08 GMT

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This is part of a reprint I wrote from a conversation with Bud Ross in December 2000. Bud related the story with the first batch of kustom model one organs. Bud said that kustom had shipped the first batch of organs to some of the giant dealers of the time, and there was a major problem in the electronics. Buds fix for it, and not to show his hand, made up the pre amp panel and sent Techs to the dealers to install the pre amp panel on the back side while also fixing the electronic problem. Bud told the dealers that kustom was intending to have the pre amps installed but the organs got shipped before they could mount them. If there hadn't been a problem, I doubt that the organ ever would have that pre amp panel. The time of the model one organ release and the "68" catalog, notice that the organ did not have the pre amp or speaker jack output. Also in the model one organ I owned, it used the older Frankie power amp.

We sold two of the model one organs new, both within a few months from the first one, so maybe after all the Frankie amps inventory were depleted, they may have used the newer K200A power amp section.

Don

Subject: Re: Missing that "thump"

Posted by [rodak](#) on Wed, 04 Aug 2004 00:30:11 GMT

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Excellent story, Don - thanks!

The story on my web site (which I got, I think, from Jimm Bennett) is very similar, but identifies the "problem" as with the keyboard, not the electronics. You mention "reprint...from a conversation" - is the entire conversation available?

Do you know if there's any way to tell if a particular organ's preamp was "aftermarket-modded" or "factory original"? My Kombo is dated, I *think* Aug 11, 1968, so I suppose it could have been either way. The preamp panel cutout looks very professionally done, so I would suspect it was a factory job.

(should we move this discussion to a different thread, perhaps?)
