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Subject: Schematic Accuracy

Posted by [bluezebra](#) on Mon, 10 Feb 2014 06:29:19 GMT

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After reviewing a PC104 board for values after I suspected a prior tech may have changed some things...I see where the schematic is not accurate all the time. Some resistor values are different and some caps on the board are not even listed. I thought this was only common to Silvertone's schematics. Is it true for Kustom also?

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Subject: Re: Schematic Accuracy

Posted by [stevev](#) on Mon, 10 Feb 2014 11:30:37 GMT

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Hello.

Kustom marks their boards with for example a REV 1 on the board after for your example the PC104 marking on the board.

If you dive into this site's technical section and then go under the schematic listings by amp you will see an early and a latter PC104 listed.

As far as what some other person may have done repair wise, who knows!

In regards to Silvertone tube amps, I have over the years worked on a good many of them and in regards to the model 1484 I know there are two schematics for that.

If I recall right the only difference in that model lies in change in one resistor or one cap in the tremolo circuit.

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Subject: Re: Schematic Accuracy

Posted by [bluezebra](#) on Mon, 10 Feb 2014 15:19:06 GMT

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I saw the two versions of the PC104 listed. My board has no markings other than PC104. When there was a rogue component I consulted both versions and found the schematics were usually in agreement with each other. I searched the internet for pictures of the PC104..but there were none to be found.

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Subject: Re: Schematic Accuracy

Posted by [bluezebra](#) on Mon, 10 Feb 2014 15:26:45 GMT

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Actually this is a result of a thumping noise in the tremolo circuit I'm trying to fix. I have already completed all of the recommendations that are mentioned on this forum. It has been recapped, cleaned, treated with Deoxit, new bridge rectifier, replaced every tantalum capacitor, all new transistors, new connection wires, all diodes checked, new three prong cord. The amp works fine (reverb and tremolo) and is now "studio" quiet, but has a thump in the tremolo that is affected only by the speed pot.

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Mon, 10 Feb 2014 17:40:38 GMT  
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Like all manufacturers, all of the production changes at Kustom may or may not have been fully documented. And even if they were, they may not have made it to the general dealership network where most of the available on-line schematics have come from.

I usually don't worry about mismatches unless there is a known common problem that can be fixed by a circuit revision.

Regarding the tremolo thumping, when you turn down the intensity control does it go away? And of course, if you turn it off with the footswitch it stops, correct?

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Mon, 10 Feb 2014 18:00:21 GMT  
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Thanks Bill,  
I saw different resistor values in about five different areas of both schematics so your explanation seems to fit.

The tremolo thump is on only when the tremolo footswitch is activated. The speed control speeds up the thump and the pitch. The intensity has no effect. Even if the volume is turned down, one can still hear the thump. Occurs with the reverb tank installed or removed. I probably need an O scope at this point but the one I have is broken. I'm trying to do this by feel and some good luck.

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Subject: Re: Schematic Accuracy  
Posted by [stevem](#) on Mon, 10 Feb 2014 18:17:52 GMT  
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Is the intensity pot good?

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Mon, 10 Feb 2014 18:41:38 GMT  
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Just checked it.  
Appears to be working ok.  
It does increase the intensity of tremolo  
we just have the noise running in the background.

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Mon, 10 Feb 2014 21:24:22 GMT  
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There are a few ways that the trem could cause a constant thump. One is because the intensity control doesn't really turn off the modulating signal and the another way is through the power supply lines.

Try directly grounding the wiper of the intensity pot and see if that helps. If the intensity control is working then try checking the plus and minus 8 volt lines for any signs of interference.

Beyond this, there could be interference from wiring or lead dress.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Mon, 10 Feb 2014 22:10:43 GMT  
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Thanks Bill  
gives me some idea of where to look. I do note that when the intensity pot is turned all the way up the thumping seems to be muffled somewhat.  
It didn't do this before I changed the tantalums to electrolytics and changed most of the carbon comps to get rid of the an intermittent crackle, that is now gone! Fix one problem and get another...!

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Mon, 10 Feb 2014 22:33:47 GMT  
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Grounding the intensity pot did not help. I did notice that the +8 is at +10.6 and the -8 side is at -9.4. I'm assuming that it is higher due to higher line voltages since the sixties?

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Tue, 11 Feb 2014 17:22:16 GMT  
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The higher voltages could be caused by modern line voltages, but I'm more surprised to see the big difference between the two 8 volt supplies.

The negative supply tracks the positive one, so you don't normally see that much difference between the two. Maybe that could contribute to the thumping problem.

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Subject: Re: Schematic Accuracy

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Posted by [bluezebra](#) on Tue, 11 Feb 2014 18:25:22 GMT

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Yep. something is amiss with the dropping voltage near the speed and intensity pots. I see four or five volts higher in that the areas of the pots. Something is not dropping the voltage like it should. The voltage at the main caps is +40.4 and -40.2 which is about right. That's why I was confirming components to the schematic. I think a Bubba Mechanic has been in here..!

Thanks for the responses!

I'll keep looking...

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Subject: Re: Schematic Accuracy

Posted by [stevem](#) on Wed, 12 Feb 2014 14:26:21 GMT

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Have any transistors in the plus 8 volt reg circuit be changed out?

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Subject: Re: Schematic Accuracy

Posted by [bluezebra](#) on Wed, 12 Feb 2014 17:55:12 GMT

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Hello Stevem

Every transistor on this board was changed out to new and triple checked for orientation.

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Subject: Re: Schematic Accuracy

Posted by [stevem](#) on Wed, 12 Feb 2014 22:08:11 GMT

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How about the caps in that circuit?

The stock ones are not rated for the 40 volts that they get hit with if a transistor fails in those two regulator circuits.

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Subject: Re: Schematic Accuracy

Posted by [bluezebra](#) on Wed, 12 Feb 2014 22:20:48 GMT

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Changed every tantalum to electrolytic and, when available, the voltages were increased. The only ones not bumped were two 6.8uf at 15v. It was all the supplier had.

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I just noticed that two transistors Q124 Q125 are labeled on the schematic as 2N4249 and also RCA 38734. The first is a NTE159 part and the second is a NTE129. They both show 80 v rating and are PNP. Why would they list both?

The +8 and -8 are at -9.9 and +10.4. I'm changing that thermal diode 1N3754 just for kicks since voltages seem to be weird in that area of the board.

I'm beginning to not like solid state. Tube amps are so much simpler.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Thu, 13 Feb 2014 02:22:31 GMT  
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Anyone have a pic of a PC104 board?

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Thu, 13 Feb 2014 15:43:23 GMT  
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I don't own a 100 head so I can't help with a photo.

The question regarding the two PNP transistors is simple, while each one is rated for 80 volts they have different current ratings. The bigger one is used as the pass transistor for the regulator while the smaller one is just used to control the bigger one.

The 1N3754 diode is part of the bias string for the two output transistors. The only thing that it will change is the voltages at the bases of the drivers Q127 and Q128.

As for the caps in the regulators, unless there is a major circuit meltdown, they will never see the 40 volts from the main power supply.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Thu, 13 Feb 2014 18:57:30 GMT  
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Hi Bill

Thanks for your input.

Maybe I didn't explain it well enough about the transistors on the schematic as Q124 Q125 They are both labeled with BOTH numbers as 2N4249 and RCA 38734. Is this suggesting that both are acceptable?

I'm looking for a picture of the board since there are three components on this board NOT listed on the schematic. ie..Q131 is listed on the schematic but not listed in the transistor location diagram and not found on the board. I have a .1 100volt ceramic cap that is not listed but is on the board....strangely found clipped on one side.

I'm still trying to identify why the +8 is uneven. The schematic shows different resistor values in that section of the circuit. At last measurement it is +10.7 and -9.9. I installed the old rectifier and old wires and the mains are still +40.5 and -40.4

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Thu, 13 Feb 2014 19:40:59 GMT  
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Okay, I didn't understand and I also didn't look at the schematic. The 2N4249 is the generic number, the 38734 is the Kustom part number for the equivalent transistor.

What is it about the main 40 volt supply that you are trying to fix?

Q131 is shown on the transistor layout between Q115 and Q107 just above the speed control R148.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Thu, 13 Feb 2014 20:20:34 GMT  
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I'll have to look again for Q131. I'm having schematic neuro block right now. The copy I have would not print fine and is slightly blurry. I have my laptop nearby to confirm things, but it's all becoming a blur of symbols lately. I've been at this for a week now....!

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Thu, 13 Feb 2014 20:25:01 GMT  
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Q115 and Q116 are near the speed control. Q131, all alone according to the schematic, is nowhere to be found in that area of the board. I really need a pic....

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Thu, 13 Feb 2014 21:14:06 GMT  
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I have access to two versions of the schematic Rev.3 and Rev.4, the Q131 circuit mod is shown on both and the transistor is drawn in on the location diagram directly under the "sis" in word transistor.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Thu, 13 Feb 2014 22:39:56 GMT  
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Ill give it another look!

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Fri, 14 Feb 2014 00:36:07 GMT  
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Well, I found the elusive Q131...and it is NOT in the location the diagram has it in. It is mounted at the extreme corner near the reverb pot. Looks like the transistor I have in there is wrong... Could that be the problem?

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Fri, 14 Feb 2014 03:03:40 GMT  
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There are 32 transistors on the diagram and only 29 present on the board. Go figure!

---

Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Fri, 14 Feb 2014 03:40:21 GMT  
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Just found some photos on my digital camera. Disregard the PC104 board pics request.

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Fri, 14 Feb 2014 18:04:34 GMT  
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If your board is early enough, there may not be a Q131. I haven't been able to find any earlier K100-2 schematics than Rev.3.

On the Rev.3 version the entire section that contains Q131 is in bold, which usually means that it has been revised from the original version. So maybe it was added in later to correct some problem.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Sat, 15 Feb 2014 03:38:01 GMT  
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As Charlie Brown would say, "Good Grief"....!

That would explain the differences...no doubt!

I think my pics will help. I'm changing the footswitch input jack. It blew the fuse when I pulled out the footswitch plug.

Thanks Bill for your time in this!

Mike

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Subject: Re: Schematic Accuracy  
Posted by [stevem](#) on Sat, 15 Feb 2014 12:43:38 GMT  
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I have a K100-2 with a rev-1 board in it, and I think I have a schematic and transistor location diagram for it.  
I will look this afternoon for ya.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Sat, 15 Feb 2014 15:28:52 GMT  
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Thanks Stevem  
I thought I was losing my mind when neither schematic was following the circuit and I had missing transistors.

Mike L.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Sat, 15 Feb 2014 17:11:57 GMT  
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Thanks Stevem.

I just changed the effects jack with a brand new Switchcraft double shorting stereo jack...and now I can't turn the reverb off. Used a Dremel tool with brush and brushed the metal face plate clean. Put a touch of Deoxit on washers and tightened the jack good. I believe in good grounds!

I have two footswitches and both won't turn it off so I test both footswitches on the meter and the reverb switch works perfectly just not on the amp...!

I installed a second new jack....same thing...!

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Subject: Re: Schematic Accuracy  
Posted by [stevem](#) on Mon, 17 Feb 2014 11:33:08 GMT  
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Transistors Q117 and 118 are the controls to turn off the reverb, do they check good?  
Also since you recaped the whole amp did you reinstall C130 the right way with its negative end coming off the base lead of Q117.  
These two transistors are in line with each other at the three O clock position of the speed control.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Mon, 17 Feb 2014 16:07:06 GMT  
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Hi Stevem

I got the reverb issue fixed. It now turns off and on...but now the tremolo no longer works...I guess it fixes the thumping problem...lol

Also, another schematic thing...I don't have a Q117 Q118 in the position shown on the Rev 3 or Rev 4 schematic. I do have a transistor about to fall off the corner of the board where the grey effects wire comes into the board. That's not shown on the diagram either. That's part of reverb circuit so I'm good on that one.

After changing a few value resistors and checking all of the transistors my +8 is now at +10 and -10.4. That's closer than what it was. Coming out of the transformer I read +41 and -39.9. I don't know if it is supposed to be perfectly equal or I have a transformer problem. The amp sounds great.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Mon, 17 Feb 2014 16:33:34 GMT  
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The tremolo schematic seems to be following my board very close. The only questionable component seems to be R152 which according to the revision was penciled in as a 15k from a 10k. My board has a 47k (which appears to be original). I don't know whether to stay original or follow schematic.

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Mon, 17 Feb 2014 18:25:11 GMT  
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The 40 volt power supplies will rarely be exactly equal. There are far too many variables that can cause a volt or two difference.

The 8 volt supplies are normally fairly close in value, as the negative supply tracks or follows the positive supply.

As far as R152 is concerned, it is there to limit the amount of signal from the low frequency oscillator going to the tremolo modulator. So it is sort of like a pre-depth control resistor that will limit how deep the effect will go.

If you take a voltage reading at R152, you should find a rising and falling voltage that changes rate with the speed control. If you don't find this voltage, then the oscillator may not be running.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Mon, 17 Feb 2014 19:20:44 GMT  
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Checked R152 and there is no voltage variance. I saw that when it was running. The oscillator is not functioning.

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Mon, 17 Feb 2014 19:54:08 GMT  
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Check voltages around Q109-Q112. Be sure that the footswitch jack is grounding the tan wire.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Mon, 17 Feb 2014 21:56:57 GMT  
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Only thing screwy is voltage at Q109 is -1.8 instead of -.44. When I engage the footswitch, I see voltages go from 0 to a value, so I'm guessing that's working.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Mon, 17 Feb 2014 22:14:10 GMT  
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Oh boy...I just saw Q112 is in wrong. Could be a real problem...eh?

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Mon, 17 Feb 2014 22:36:13 GMT  
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Everything working now, even tremolo again, but it still has that thumping.

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Tue, 18 Feb 2014 17:24:47 GMT  
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Glad to hear that it's back to working again. As we were discussing before, the thumping could be caused by transfer from wiring or through the power supply lines.

If you have an oscilloscope, try viewing the 8 volt dc supply lines around Q110 to Q112 to see if there is any ticking being induced into the power supply.

Earlier you stated that a lot of the resistors were changed in this amp. Were the 1% resistors like R156-R159 changed? If they were what were they replaced with?

Were caps C133 and C134 replaced in the 8 volt power supplies? And if they were what were they replaced with?

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Tue, 18 Feb 2014 18:31:00 GMT  
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None of the 1% resistors were changed out. Just the carbon comps with carbon film. The tantalums at Q132 Q133 were changed out to electrolytics with a higher voltage value. Last night all transistors and capacitors were checked for orientation.

I took a chop stick and adjusted lead dress (although I didn't think that in an amp with such low voltages would matter) and got no results or change in tone.

I grounded the wiper of the intensity pot with no change. I ground the wiper of the speed pot and it turns the tremolo off.

I changed the large cement 1 ohm 5 watt resistors (one of them was 260 ohm) to 1 ohm wirewound 5 watt.

I also changed the ground from the power cord from the chassis to a lug of the power transformer (just experimenting). No change. I'm going to get a friend's O scope to have a look around.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Tue, 18 Feb 2014 18:37:39 GMT  
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Would a change of type of capacitors cause an amplification of a stray signal?

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Tue, 18 Feb 2014 18:58:00 GMT  
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Good catch on the ballast resistor. "Gee, I've got a resistor that's the right size to fit in there!" Unless it was meant to be R215 in the pilot lamp circuit.

Changing the tantalums for an normal electrolytic should not make any difference, at least not in these amps. As long as the correct values and voltage ratings are observed.

Interference is possible at any voltage level, frequency is probably more of a factor though.

You can try increasing the values of C133 and C134 on the output of the two 8 volt supplies. You can also try bypassing C133 and C134 with a 0.1uf cap.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Tue, 18 Feb 2014 23:25:21 GMT  
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Putting a .1uf across the caps did not help. I upped the 33uf caps to 100uf in the +8 supply and changed the resistor on the intensity pot back to 15k as per the specs. The thumping has decreased about 50% in volume but is still noticeable.

I checked with the DVM around the transistors you noted. All of them have pulsing voltages when the tremolo is activated. When I unground the jack, the noise stops and the voltages stabilize.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Wed, 19 Feb 2014 01:53:33 GMT  
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Also, I lied about the 1% resistors (not intentionally). I was just noticing that R124 a 392k 1% was changed to carbon film by someone else.

I found a 390K that actually read 392k and put it in. Don't know if that would account for the difference in the + - 8.

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Wed, 19 Feb 2014 02:38:39 GMT  
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Was it the increase to 100uf or the replaced resistor that reduced the thumping?

The three transistors in the oscillator will/should have fluctuating voltages, as that is the function of the circuit. What I would look for is any modulation of the 8 volt supplies being caused by the oscillator circuit.

Kustom used 1% resistors not only for the value matching, but also for the fact that they are low noise metal film resistors.

Exactly how bad is the thumping?

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Wed, 19 Feb 2014 04:15:31 GMT  
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The thumping was reduced after the increase to 100uf. The resistor had already been changed.

I see where R155 (69k) near the Intensity pot is also 1% and that has been changed to a 68k and a 1k in series using carbon film 2% from the prior mechanic. I just checked all of the 1% resistors remaining and they are all dead on with the exception of the 69k and 392k. Is not having a 1% resistor in a position that critical?

Just reassembled the amp and now there is a noise in the circuit.  
Time to call it quits for today. Thanks!

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Wed, 19 Feb 2014 04:17:00 GMT  
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To answer your question Bill...  
of how bad the thumping is.... it is noticeable enough to hear  
it while playing. It should be noted that the tremolo does work and you can hear the guitar coming  
through...just with a thump in relation to the speed of the tremolo.

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Wed, 19 Feb 2014 06:44:44 GMT  
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The tremolo circuit is a ring/balanced modulator design centered around the four diode ring CR100-CR103. The audio signal is sent into the diode ring where it is modulated by the low

frequency signal from the oscillator circuit.

The modulation driver Q113 sends a two phase signal to the diode ring. The resistor 1% values are there to insure that the two out of phase oscillator signals are as even as possible so that the diode ring will work evenly.

I'm not sure what is causing the thumping as you have checked everything that I can think of. Have you tested the four ring diodes? If you want to try finding 4 matched diodes and install them to see if that helps.

It may help to isolate the trem oscillator power lines from the rest of the power supply.

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**Subject: Re: Schematic Accuracy**  
Posted by [bluezebra](#) on Wed, 19 Feb 2014 15:32:33 GMT  
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Definitely will give that a try. This all started after I changed out carbon comps to carbon film on the board in the area of the effects pots trying to eliminate an occasional crackle.

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**Subject: Re: Schematic Accuracy**  
Posted by [chicagobill](#) on Wed, 19 Feb 2014 16:13:26 GMT  
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So the thumping only happened after the resistor changes?

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**Subject: Re: Schematic Accuracy**  
Posted by [bluezebra](#) on Wed, 19 Feb 2014 17:21:47 GMT  
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If I remember correctly, yes. I changed the last twenty or so carbon comps in the area of the Intensity, Speed, and Reverb pots all the way to the end of the board. None of them 1% resistors, however!

Of interest in the schematic (which does not follow my board) is in the sections that handle the +8. On both ends the resistors at R180 R181 are 1k and the other end is R190 R191 is 1.5k. All of my resistors here are 2.2k.

I also wonder what the addition of Q131 and that whole part of the circuit is supposed to address?

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**Subject: Re: Schematic Accuracy**  
Posted by [chicagobill](#) on Wed, 19 Feb 2014 18:20:43 GMT  
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Resistors R180/R181 and R190/R191 are dropping resistors used to reduce the 40 volts down to a level that will make it easier for the pass transistors to regulate the 8 volts needed by the preamp circuits.

Rather than use a larger wattage resistor they opted to use two smaller resistors in parallel. The value really shouldn't be that critical as the regulator circuitry ultimately controls the final output voltage.

The added circuitry around Q131 is a non-inverting buffer that amplifies the straight signal before it is mixed in with the reverb signal at the reverb depth control. The depth control is actually more like a balance control: CCW straight signal only, CW reverb signal only. This is why when the reverb tank is bad and the reverb signal is not present, the depth control acts like a volume control.

It may be that originally there was not enough straight signal to mix with the reverb signal and keep the overall volume up to spec.

As for the earlier resistor replacement, it's not just the 1% resistors that can change things. Is it possible that you put a wrong value in there? Or swapped the position of two resistor values?

If it was working before the resistor swap, then there is reason to believe that the problem was created by the change. Go back and check what you can, and see if there is anything that seems wrong.

Did you replace a lot of transistors as well? If you did, there may have been a change in the gain of a stage or something that has caused the new problem.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Wed, 19 Feb 2014 19:02:29 GMT  
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I found a couple of pictures on my camera of the circuit. I used this to confirm resistor values after I changed a few going by the schematic that later turned out to be the wrong revision.

I was pretty careful and marked the positive position of every capacitor. I can see all of the resistor values with the exception of three or four. I need to review some of the values since some of these resistors is hard to tell the yellow and orange. Brown looks like purple sometime.

I just had some loud noise in the circuit with the volume all the way down. When I checked I had no voltage at the main caps.

I changed the rectifier and now everything is back. May have a solder joint going to the pilot light where the +40 comes in. Another problem to resolve. Everything working right now. Tremolo still has a bump in it. I completely rebuilt the diode circle you mentioned earlier.

Maybe I can find another one of these and use this one for parts.....

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Wed, 19 Feb 2014 19:05:52 GMT  
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As for the transistors...yes I changed them all...I guess I could test the old ones and start replacing the ones in the tremolo circuit. Just a thought.

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Subject: Re: Schematic Accuracy  
Posted by [chicagobill](#) on Wed, 19 Feb 2014 22:06:23 GMT  
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Try and resist the temptation to change more things without at least honing in on the circuit that is causing the problem. If you are not careful, you may end up with even more problems.

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Thu, 20 Feb 2014 04:21:44 GMT  
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Lesson well learned....thank you!

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Subject: Re: Schematic Accuracy  
Posted by [steven](#) on Thu, 20 Feb 2014 11:49:42 GMT  
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Just to make you feel better, I have a K100-2 with the same thumping tremolo issue ( thats why I got it for 20 bucks) and since I have two of them the one with this problem has been side linged for a good while.

When you put up your post about your amps trem issue I pulled out my problem K100-2 and dove back into the circuit 2 nights ago.

Since it seemed the problem was in more than likly to be in the osc the first thing I did was replace / shot gun the 4 transisors and all the electro caps from the foot switch jack on back thru the circuit and got no change, then it was O scope time.

With my scope I could see the + 8 volt rail being modulated by what ever is producing the voltage pump, and at that point my 40 year old scope gave uo the Ghost, so now its electrolytic replacement time for that first before I get back to sniffin out my K100 more!

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Subject: Re: Schematic Accuracy  
Posted by [bluezebra](#) on Thu, 20 Feb 2014 17:03:54 GMT  
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Stevem,

You make me feel so much better knowing I'm not the only one with an amp with this problem. This amp did not have a thump until I shotgun approached the components to get rid of an occasional crackle. I suspected a carbon comp and proceeded to change them all until the crackle disappeared..(which it did). In my shotgun install, I also changed every tantalum to aluminum electrolytic and new transistors after I read somewhere that the newer transistors were much quieter than the old.

I don't know what version you have, but my board does not have the elusive Q131 and associated mod on the board. I have a transistor at the extreme corner of the board where the grey (reverb) wire is attached.

Amp plays so well, reverb works, tremolo works with a thump in the background.....

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