Subject: Strange PC102 Board
Posted by JDinPA17603 on Tue, 15 Feb 2022 01:13:41 GMT
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Amp is end of A series A4.
Background 100uf white Mallory cap had split amp had set for number of years. In consult with the owner we decided to replace all of the Mallory caps that were in the amp and then other parts as needed. Long story short - 95% of all components on the board were more than 20% out of tolerance and that was from the stated values. So I pulled up my PC102 schematic and where the schematic showed 3 ea of 25 uf these boards had 4 and no a 25 had not been subbed for a 10 uf or for the 100 uf.
Upon further digging we find we have 25 fixed resistors instead of 23. I've taken shots of the component and trace side of the board trying to trace through but to be honest my head is swimming right now.
The board just says Ross PC102 but like I said totally different from the PC102 schematic I have.
If anyone can shed light on this or provide a schematic it would be a great help.
Thanks in advance.

Subject: Re: Strange PC102 Board
Posted by stevem on Tue, 15 Feb 2022 13:05:17 GMT
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You have a strange one without a doubt!!

My 102 schematic , for a as labeled 200A series model 2 has 23 fixed resistors also.

Can you tell if the added two resistors are part of a voltage divider network?

Does your board have more then 5 transistors?

Is this 4th 25uf cap you have off of the power supply rail, or is it used as a blocking cap?

Is this board powered by 24 volts, or 27?

I was so happy when the B series heads came about and a lot of the insane usage in the A series model 2 of precision value resistors went by the way side!

Subject: Re: Strange PC102 Board
Posted by JDinPA17603 on Tue, 15 Feb 2022 22:24:34 GMT
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Ok. First extra resistor is 1OK Brown/Black/Orange - 10% inserted between base of Q103 and the junction of R110 R111 R127 the 47pf cap (C108) goes from base of Q103 to ground.

Second change. Physically moved 100uf filter from above volume control to next to treble control -

no electrical change in circuit. Added 4.7K 10% resistor in series from the 15v bus to the 49.9K 1% R101 and 25uf cap between the junction and ground. There is another change between the original and our modified board ... they upped the value of the 25uf caps to 33uf.

Steve, if I do up an updated schematic and component layout in a pdf will you be able to upload it to the tech section for folks?
Thanks John

Subject: Re: Strange PC102 Board
Posted by stevem on Wed, 16 Feb 2022 16:38:45 GMT
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Yes, we should be able to get the schematic you make posted up.

What are the date codes on those pots attached to that board?

Subject: Re: Strange PC102 Board
Posted by JDinPA17603 on Tue, 22 Feb 2022 13:47:04 GMT
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Pots are stamped 13th week of 1968 according to the code.

Subject: Re: Strange PC102 Board
Posted by stevem on Thu, 24 Feb 2022 12:03:24 GMT
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The change over from the A series to B took place from Apr of 68 thru June of 68.

The highest serial number A series we know of is 25756, the first B series we know of is 23986 on June 7th of 68.

Does that one that you have use L style cord raps?

Subject: Re: Strange PC102 Board
Posted by JDinPA17603 on Tue, 01 Mar 2022 01:20:41 GMT
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Steve, serial on this is 24361 and it uses the L shaped power cord wraps.

The clean channel is now noise, hum, and static free.

All caps on the preamp boards were out of tolerance or leaky, there wasn't a resistor on the

preamp boards that was within 30% of value and everyone of the transistors were not just noisy but screaming hiss. So we said the heck with it and rebuilt them both.

I'm actually doing this remote so I can't scope it but it is onward to the effects next. Amazingly re-capping the driver board made it so silent he had to plug in a guitar to prove that it was working.

I'll update more on this as we wade through it. The owner is totally impressed with sound and the attack the amp now has.

Onward to kill the rest of the gremlins.

Subject: Re: Strange PC102 Board
Posted by JDinPA17603 on Mon, 18 Jul 2022 07:10:01 GMT
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Update on late series A4 amp...
I have been working with the owner remotely since February.
What we found:
50 year old plus small signal transistors are noisy.
50 year old capacitors get leaky and change value.
50 year old carbon comp resistors change value and get noisy.
New transistors, capacitors, resistors make a world of difference.

At this point in time, my customer has replaced all of the above in his amp.
The end result: A Kustom 200A-4 that all effects work, the channels are noise and hum free, and it seems we "lost" the trademark 200 hiss. At this point the only parts not changed out are the switches, jacks, pots, transformer, purple lens, driver transistors. He elected to overbuild and used all 1% metal film resistors, low esr electrolytic caps in the build. His last comment tonight was two part...
This thing ROCKS!
Dad wants to know when I can do his?

My thanks go out to all that have contributed their help and expertise to this site over the years.
Oh, if anyone has a schematic for a PC602 board my thanks in advance.
John Dickey

Subject: Re: Strange PC102 Board
Posted by stevem on Mon, 18 Jul 2022 09:56:42 GMT
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Thanks for the update John, and that's great to hear, for us and the happy owner!
I guess we have made another Kustom nut case, lol!

John what's is that PC 602 board, the negative regulator?

If so I think I have it right on one of my second Generation A series schematics.
I will let look later today when I get home.

Subject: Re: Strange PC102 Board
Posted by JDinPA17603 on Mon, 18 Jul 2022 15:11:37 GMT
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Steve,
Yes, the board in question is a 602 negative regulator.
Another interesting tidbit, while the 702 schematic shows R708 as 220k both my early A series amp and his late 68 amp have a 100k resistor in that position. Other than that it mimics the schematic.
He paid a premium price for the head. And in the end has close to $350 in parts in it but is totally thrilled with the performance and operation. Upgrading the the signal transistor alone have given him a boost oin attack and volume that he can't believe. Nice part is his dad wouldn't even pull the case on his A4 prior to this... now dad is begging to get his done. His dad spent $350 at a shop to reduce the hum and hiss on his and they didn't get the job done.

I certainly am not a fan of total rebuilds, but in this case with 95% of the parts being way out of tolerance it was the better road to follow.

Thanks again for all the knowledge and the 602 schematic if you have. I did look through what you had sent before and did not see it in there. Have a great week.
John

Subject: Re: Strange PC102 Board
Posted by stevem on Tue, 19 Jul 2022 10:46:05 GMT
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John I am away from home and my schematics until tomorrow, but I would check out the pc504 schematic in a 400 head from this site.

This board has both the positive and negative regulator on it.

Let me know if it helps.

Subject: Re: Strange PC102 Board
Posted by stevem on Tue, 19 Jul 2022 19:54:56 GMT
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I sent you a email with the 602 schematic, did you get it?

Subject: Re: Strange PC102 Board
Posted by JDinPA17603 on Tue, 19 Jul 2022 23:16:00 GMT
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Steve got the schematic. Thank you. This makes the fifth A series amp that I have worked on and got three more to go. The previous schematics you sent me have been a lifesaver. Bud must of really have been substituting parts on the fly in the early days because no two units so far have all had the same parts on the boards.
It has been keeping this 73 yr old kid busy. Think I have 12 in line now to get back to 100%. From Frankenstines, to A and B series plexi's to the 150 250 series. Heads, combos, cabs.
Finally got me a half decent scope and signal generator. Big time savers. Finding more older units with 70% or more of the resistors 30-40-50% out of tolerance. Also finding more and more of the 50 to 60 year old units filter caps showing leaky.
Good news is so far I've been able to bring them all back to life, with more gain, less noise, and low to no hum.
Thanks again for the help and sharing.

John Dickey Jr