
Subject: Repair advise

Posted by [Jonomega3](#) on Fri, 09 Aug 2013 19:44:15 GMT

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I had this on my other "Kustom Repairman" post but thought I should start a new one since I've decided to try to fix it myself, with a lit'l help from my friends! lol.

OK, I have this A-4 out of its cab and I'm checking around being very careful not to get electrocuted and not to mess anything else up. But with it plugged into a speaker cab and turned up I was tapping lightly on some of the caps and there is a static pop when I tap 4 of the white Malory caps at the top of PC boards 103 on both sides of the amp 2 are 25MFD 35VDC the other 2 longer ones are 100MFD 15VDC. I have another A-4 that I can compare with and works properly (just doesn't sound as good, lol)but it doesn't make the pop noise when I tap the same caps on that amp. So, I guess I'm wondering if this is familiar to anyone? I would really appreciate any input. I've been on CL and all over the internet doesn't appear to be any tech close to me, I'm pretty handy and I'd love to keep this amp working so.....thnx!

Subject: Re: Repair advise

Posted by [chicagobill](#) on Fri, 09 Aug 2013 20:28:28 GMT

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If the amp was affected by a lightning strike, I would think that the main power supply would have been damaged, not just one channel board. More likely the board just decided to act up.

What you are describing sounds like a bad solder joint. Either that or a bad cap. I think Pleat has a story about the white Mallory caps and the factory assemblers.

If you are handy with a soldering iron you can fix it up with no problems. You will need a low wattage iron (25 watts) and some rosin core solder.

Turn off and unplug the amp from the wall outlet. Then unbolt the PC103 board from the chassis. Be sure not to pull too hard on any of the wires that connect to it. Carefully inspect the bottom of board where the copper traces are and see if you can see any broken solder joints. Even though the noise happens when you touch the caps, check the entire board as it may be something else that is loose.

If you find something that is loose, reheat the joint with your iron, adding a small amount of new solder to help flow the solder on the joint. Reinstall the board and test to see if the noise has gone away and more importantly if the channel works again.

If the noise continues, a lead that goes into the cap may have come loose and while securely soldered to the board is still not making a good connection on the inside of the cap.

Let us know what you find.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Fri, 09 Aug 2013 23:56:34 GMT

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Thanks for the response chicagobill. I unbolted the PC boards (BTW,they were 102, my mistake) and on the left channel PC board one of the Malory caps solder looked cracked and the cap moved clicked when I lightly giggled it so I soldered it. Appears someone went through this previously and a lot of the joints looked re-soldered. The popping noise is now gone but the left channel still doesn't work and now the right channel is weaker and distorted. Think the caps need replacement? If so, where can I get them?

Subject: Re: Repair advise

Posted by [chicagobill](#) on Sat, 10 Aug 2013 01:36:29 GMT

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Do you have a multimeter with a diode test function? I think that you need to check the transistors on the dead channel.

I'd go back and double check whatever you did to the working channel board. If it was working well before you pulled it, then something happened while you had it out.

If the caps need to be replaced, equivalents are available from places like Mouser Electronics or Jameco or Allied or Newark, etc. Until you prove that they are bad don't worry about replacing them.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Sat, 10 Aug 2013 11:52:00 GMT

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I have a good multi tester but Im not sure about the diode function. I'll have to look it up online cause I've long since lost the paperwork on it. Its a Commercial Electric HDM4100 what would indicate that it tests diodes other than it saying "hey, I'm a diode tester" haha

Subject: Re: Repair advise

Posted by [pleat](#) on Sat, 10 Aug 2013 12:15:57 GMT

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When working on boards out of the chassis and powered up, Kustom states 'Be sure to Ground all controls to the chassis to complete the circuit'. Just a thought as to why, the board isn't working now after the repair.

pleat

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Sat, 10 Aug 2013 12:31:01 GMT

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Ah, so I need to bolt the boards back down before testing, thnx. I can't find an online manual for my multi tester but it needs to be able to send a small amount of voltage through the diode to properly test, correct?

Subject: Re: Repair advise

Posted by [chicagobill](#) on Sat, 10 Aug 2013 16:55:06 GMT

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The diode test function will usually be marked with the schematic symbol for a diode, which is an arrow with it's tip touching a short straight line.

If your meter doesn't have that function, then you can just use the resistance function.

Yes, as Pleat points out, the boards are grounded by the mounting points. If you do power up the amp without the boards being mounted, things may not work right if at all. If you have any jumper wires, you could ground the board with a jumper for testing purposes.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Sat, 10 Aug 2013 18:50:39 GMT

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Ok, yes my multi tester does have that symbol also 2m 200k 20k 2k 200 setting with that symbol. So, I'm good to go.....I have been reading some info online "using the multi tester as a diode tester, youtube etc to get familiar with this stuff but I feel like I'm learning my abc's again or another language, literally! I really appreciate you patience and I'm eager to learn anything I can to keep this great amp working, so thnx again.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Sat, 10 Aug 2013 22:09:18 GMT

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I'm thinking some pics would help give you a better idea of what I'm dealing with. The longer I look at this im seeing more pre boogered up work. And what looks like a diode (resister/transistor) that has been changed and seems to be leaking. I'll try to get them up later tonight if I can.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Sun, 11 Aug 2013 03:30:14 GMT

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<https://www.facebook.com/photo.php?fbid=10201268902499627∓set=a.10201268902299622.1073741825.1083941787&type=3∓theater>

This is the PC102 (left channel) that has the leaky diode upper right hand side. Which appears to have been changed from the sky blue diode.

<https://www.facebook.com/photo.php?fbid=10201268903299647∓set=a.10201268902299622.1073741825.1083941787&type=3∓theater>

and this is the back side of the same board and it only has 2 washers (spacers) I believe they are to keep the board from grounding out but there were only 2, the other channel has 4 washers. Which may have caused a short if the board touched the chassis.

<https://www.facebook.com/photo.php?fbid=10201268902459626∓set=a.10201268902299622.1073741825.1083941787&type=3∓theater>

Closer shot of the leaky diode (resistor)

<https://www.facebook.com/photo.php?fbid=10201268903019640∓set=a.10201268902299622.1073741825.1083941787&type=3∓theater>

This is the right channel board, looks like the treble boost switch was rewired, not a very clean job and the switch isn't locked into position like the left channels switch.

<https://www.facebook.com/photo.php?fbid=10201268902779634∓set=a.10201268902299622.1073741825.1083941787&type=3∓theater>

This is the flip side of the right channel board. The rest are pics of the pre amp and power section

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<https://www.facebook.com/photo.php?fbid=10201268903779659∓set=a.10201268902299622.1073741825.1083941787&type=3∓theater>

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<https://www.facebook.com/photo.php?fbid=10201268904059666∓set=a.10201268902299622.1073741825.1083941787&type=3∓theater>

Subject: Re: Repair advise

Posted by [chicagobill](#) on Sun, 11 Aug 2013 18:34:08 GMT

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The part that you are referring to is a resistor. I doubt that it is leaking. What you are seeing is more likely residue from the original one that burned up. That board also shows that two transistors have been changed. The original blue resistors are metal film types that are rated at 1%. They were chosen for their low noise characteristics. The one that is in there is a standard carbon comp resistor.

The tooth lock washers are there to keep the mounting nuts from coming loose and to insure that the board is grounded to the chassis. You do not want the board insulated from the chassis metal.

There is some stupid repair or mod done to the power amp board that shows the quality of the earlier work done on the amp. There are two resistors and a blue cap that are floating off of the board. If the power amp is working and you are happy with the sound, leave it alone and just fix the preamp.

Now that we've seen the amp, tell us which channel is dead, the straight or the fx channel?

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Sun, 11 Aug 2013 18:46:47 GMT

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It looks burnt in the pic but it just looks that way, there is some sort of dark goo that is partially on the resistor and dripping to the board. I tried to take a closeup pic but it was too out of focus. The fx channel is dead the straight one works but is kinda intermittent. I think the solder points on the board are touching the chassis cause there are only two tooth lock washers on it, I'll try it with alligator clips to see if the straight channel cleans up like mentioned before.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Sun, 11 Aug 2013 20:17:34 GMT

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I'm so sorry chicagobill, Its a case of "old geezeritis"! I took a better look with a BIGGER magnifying glass and you're totally right its a burn mark. It sucks getting old, as the eyes get worse I become more certain of what im not seeing, haha.

Anyway, I put alligator clips connecting the straight board to the chassis and it was cleaner sounding. I did love the sound of the amp but you're right it had a little more noise than it probably should've. So, it probably wouldn't hurt to fix up the mess made in the power section if possible.

Subject: Re: Repair advise

Posted by [chicagobill](#) on Mon, 12 Aug 2013 02:20:54 GMT

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Your eyesight is probably better than mine, it's just that I've seen it before so many times that I can smell it from here.

If the FX channel is dead, then it will take a little doing to fix it, because the signal runs in series through all of the FX boards. The first step will be to try and find out where the signal stops. Which channel board has the changed parts, straight or FX?

Do you have the schematics for your amp? My K200A-4 is the newer version than yours, as you have the circuit breaker version, probably with the aluminum front panel. I'm not sure, but I think that electronically your version is similar if not exactly the same as the later version that I have.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Mon, 12 Aug 2013 02:41:54 GMT

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The fx channel has the changed out parts.

Sorry, no schematics, I hope yours will work, if not, is there somewhere I can get them maybe?

Subject: Re: Repair advise

Posted by [chicagobill](#) on Mon, 12 Aug 2013 02:53:20 GMT

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Go to the technical section of this site and look at the K200A schematics. They are mixed in with the schematics for the Frankenstein heads, but there is enough information there to cover your amp.

I will take a look and try and figure out a plan of attack for you to follow.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Mon, 12 Aug 2013 16:19:35 GMT

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OK, I looked over the schematics section under the K200a series, I was a little confused that the PC board 102 wasn't in K200A section but it was under the K400A series. I assume they are the same PC boards?

Subject: Re: Repair advise

Posted by [chicagobill](#) on Mon, 12 Aug 2013 16:57:42 GMT

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Yes, the PC102 circuits are the same for both amps.

Do you have the footswitch for your amp? If you do, turn on and off each of the FX and see if the signal on the dead channel comes through. If you don't have the footswitch, then use a jumper wire to short each of the 4 pins to the chassis.

On the K200A series amps, all of the FX are normally turned off until you turn them on with the footswitch.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Tue, 13 Aug 2013 02:43:07 GMT

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Yes, I do have the footpedal and I just went and tried the fx and you can hear the effect, rev (if you shake the can you hear the splash) and you can hear the vibrato (hiss and wavey sound) as well as selective boost (you can hear the eq change with the boost switch but the sound of the guitar doesn't come through just the effect itself.

Almost as if the input jack isn't making connection. I did try both input setting High and Low inputs

Subject: Re: Repair advise

Posted by [chicagobill](#) on Tue, 13 Aug 2013 04:26:40 GMT

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That's a good sign, I'll guess that the FX boards are all working. You can try and bypass the signal around the preamp board by jumpering from the input jacks to the output line from the preamp. If you hear the guitar signal, then you'll know that the problem is on the preamp board.

If you look at the bottom edge of the board, there will be four wires two red in the center and two single blue ones at the outer sides. One blue wire comes from the input jacks and the other one is the output that goes to the boost/clipper board. If you can jumper between the two blue wires the inputs will directly feed the the boost/clipper circuit. Then if you can hear the guitar signal you'll know for sure.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Tue, 13 Aug 2013 14:34:33 GMT

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I tried jumpering the two blues wires on the preamp board, Still no sound, I even tried jumpering directly from the input jack to the Boost/Clipper circuit board to eliminate the wiring. Nothing.

Subject: Re: Repair advise

Posted by [chicagobill](#) on Tue, 13 Aug 2013 15:35:38 GMT

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When you did that, were the fx still turned on?

Following that same idea, if you can jumper the input jacks to the input of the reverb/trem board and see what happens.

The circuit flow is from the preamp to the selective boost, to the clipper, to the vib/trem, to the reverb, to the power amp. You need to try and find out where the signal stops.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Tue, 13 Aug 2013 16:06:08 GMT

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Yes, I had the volumes up on the Boost/Clipper. I guess I jump the blue to the Purple on the Rev/Trem?

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Tue, 13 Aug 2013 17:33:15 GMT

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I guess it must be in the Rev/Trem boards I've tried jumpering input jack to the purple and the green which are both wires coming from the Boost/Clipper board and nothing. I went to the schematics section and there is only PC402 not 302A/B which is what mine is. Could 402A/B be the same?

Subject: Re: Repair advise

Posted by [chicagobill](#) on Tue, 13 Aug 2013 17:38:58 GMT

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I'm not sure, I'll have to look, but the A and B refer to the separate boards that are stacked together.

I checked, and the PC302A and B are there under the by number section.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Tue, 13 Aug 2013 17:48:50 GMT

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Its very strange though because I can hear eq change with the switch on the Selective Boost as well as the reverb pan feeding back as well as Trem noise, you shouldnt hear any of that if there wasn't a through signal, correct? could there be a ground issue maybe causing this? there is a resistance of 1.303 reading on my meter when I touch both positive and ground on the input jack. Maybe that's normal?

I got a little zap when I touched the ground on the reverb pan, lol.

OK got it, I was looking in the model section, thanks!

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Tue, 13 Aug 2013 19:03:01 GMT

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latest update, I unplugged the reverb tank and jumpered that and I have sound. Guess that means the problem should be in the Trem/Vib or could it still be in the Rev? I Just to note, some of the wire colors on the 302a/b schematics don't match mine. The input and output on the 302b were right but almost all the colors between the Trem and Rev were different

Subject: Re: Repair advise

Posted by [chicagobill](#) on Tue, 13 Aug 2013 19:08:03 GMT

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Without knowing what the 1.303 value refers to, I can't tell you if the jacks are okay or not. 1.303 megohms, kilohms, volts?

Yes, if you can hear sound through the output from the clipper then the signal should be passing the other circuits.

Set you meter up to read dc voltage. Attach the black lead to the chassis. Touch the red lead to the input of the boost/clipper circuit. There shouldn't be much voltage there if any, but touching the red lead to the audio input should cause a hum through the speaker. Just like touching the end of a guitar cord that is plugged into an amp.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Tue, 13 Aug 2013 19:23:15 GMT

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It was ohms but not sure of value, I had the meter set to continuity. the Boost/Clipper input is reading about 6v. No sound like you explained

Subject: Re: Repair advise

Posted by [chicagobill](#) on Tue, 13 Aug 2013 20:16:44 GMT

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Can you try the same test at the input to the trem/rev board?

If the meter was set to continuity, then that would probably be 1.303 ohms or nearly a dead short.

Did you have a cable plugged into the jack when you tested it? There is a shorting contact on the jacks that grounds the inputs when not in use to kill any hum.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Tue, 13 Aug 2013 20:37:39 GMT

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No sound at the Trem board with the volt test but at input for the reverb tank there is sound like you explained.

I did the ohm test without the guitar cable plugged so that makes sense then.

Subject: Re: Repair advise

Posted by [chicagobill](#) on Tue, 13 Aug 2013 21:16:54 GMT

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Okay, it's time to test the preamp board. Do you have an old RCA cable around? Something from an old stereo or video unit would work. If not a regular jumper wire will do. Either plug in the RCA cable into the jack on the back of the amp, the monitor jack or hook a jumper wire to the back of the jack. This is a direct line into the power amp.

Connect the other end of the cable to the output wire of the preamp. If you disconnect the output wire from the rest of the amp circuit you can disregard the fx units for now. If the rest of the circuits are still connected, then turn down all of the fx controls and turn on the fx.

If the preamp is working, you should hear the signal through the speaker. If not, then we will start testing parts on the preamp board.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Tue, 13 Aug 2013 21:37:45 GMT

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I did the RCA plug test still no sound

Subject: Re: Repair advise

Posted by [chicagobill](#) on Tue, 13 Aug 2013 22:16:12 GMT

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Start by turning off and unplugging the amp.

Transistors are three element devices. They have a base, a collector and an emitter. On the schematic they are drawn like a letter Y on it's side. The single element side is the base and the side with the two lines are the collector (plain) and the emitter (arrow).

To test the transistor you set the meter to diode test and then connect the red lead to the base and then touch the black lead to the collector. You will either get a reading or it will test the same as having the meter not connected to anything. Then you will reverse the two connections. If the junction is working properly there will be a low reading maybe .6-.7 volts in one direction and a wide open reading in the other direction. Then you need to repeat the same test, but this time touching the leads to the base and the emitter. And again touching the collector and the emitter.

There are two types of transistors in the preamp, NPN and PNP. The NPN will read low when the let's say the red lead is connected to the base and high when the black lead is connected to the base. The opposite will be true of the PNP transistors they will read low when the black lead is connected to the base. This will actually be dependent upon the voltage polarity of your meter, but I hope you get the difference.

Now test all of the transistors on the board. They all should have high and low readings from base to collector and base to emitter. And they should all have open readings from collector to emitters.

There may be a few cases where the reading will be skewed by resistances in the circuit that parallel the transistor elements. If you can't get a good reading, you may need to remove the transistor from the circuit to get a final answer.

I don't know if you have a known good transistor available to test out of circuit. If you do, it may help you to understand the process better.

Subject: Re: Repair advise

Posted by [pleat](#) on Wed, 14 Aug 2013 01:18:03 GMT

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Again, I'm not a tech, but from reading the posts. The effects turn on by the footswitch, or if all wires are shorted to ground at the Footswitch jack. I understand that you have the correct footswitch to activate all effects. Two things come to mind.

First the Jack and the plug on the footswitch cable makes it ground thru the set screw of both jack and plug. If the set screw is loose, you might not have a good ground in either the jack side or the plug. Kustom did a dealer memo on this issue that can be found on the tech section.

The second thing might be a bad or break somewhere in the wire of the footswitch could cause problems in checking the effects boards. I'd eliminate using the footswitch for now, and just ground the wires on the footswitch jack to ground.

pleat

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Wed, 14 Aug 2013 01:52:32 GMT

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Thanks pleat I'll do that, think it would be ok to just wrap a bare wire around the the four jack wires then set the wire to ground at one of the jack holding screw? or should it be soldered?

Subject: Re: Repair advise

Posted by [pleat](#) on Wed, 14 Aug 2013 11:23:12 GMT

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I just wrap a bare wire around all the wires short to ground. This works great when I'm about to purchase a K200A sereis amp, to make sure the effects on the amp work, since so many footswitches have been lost over time.

pleat

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Wed, 14 Aug 2013 13:07:02 GMT

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Thanks pleat, I'll do that.

Chicagobill, I don't have any spare transistors but there is a one-off electronics parts supply not too far from me (40mins), if I have a list of common failing parts to get that I can just keep as spares if need be. Even if I don't need them on this Kustom I could probably use them in the future. I can use the new parts as test guides, also, I have another non working later A-4 (without the circuit breaker) that I wouldn't mind trying to fix eventually. I just got that back from a repair guy that didn't have a clue how to fix it.

Subject: Re: Repair advise

Posted by [chicagobill](#) on Wed, 14 Aug 2013 16:33:33 GMT

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It's always handy to have a few parts on hand to fix these old gems. A few different transistors and maybe a couple of caps would be helpful. I'd guess that there is a Radio Shack closer to you than 40 mins., so you could go there to pick up a few parts. They don't really carry the selection that they used to, but in a pinch they will sometimes have what you need.

Unlike these Kustom amps, a lot of modern electronics are designed to be manufactured as inexpensively as possible, without any thought given to repair. Every major manufacturer has what they call a do not repair list. These are items that are cheaper for them to replace than to pay to have fixed.

Every vintage Kustom amp was designed and manufactured with the highest quality parts. They were using high tech space age grade components like G-10 epoxy pc boards, metal film resistors and tantalum caps long before the rest of the industry. The worst of the damage that I see in these is badly done repairs. So I like working on them, and whenever I can, I like getting another one fixed and back into service.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Thu, 15 Aug 2013 12:59:12 GMT

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I was thinking this Baynesville electronics <http://www.baynesvilleelectronics.com/index2.ivnu> would have a better selection of parts. Also, I was thinking, would there be a benefit to getting some NOS parts online? I guess its hard cause there are so many values but I was just wondering your thoughts. I see there are 7 metal film resistors in just this one preamp board and all but 2 are different values in ohms.

Same with the carbon comps, speaking of values, what value transistors should I get or are there different values would be better question? I couldn't tell from the schematics and is there a specific make (name) would be best for my use? Update...I'm looking for numbers SE4002 and SN4249 with the transistors? As far as caps, electrolytic or axial or other? metal film resistors seem still available. What type are the black rectangular caps?

Subject: Re: Repair advise

Posted by [chicagobill](#) on Thu, 15 Aug 2013 17:26:33 GMT

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That place looks like a lot of fun. They most definitely will have a better selection of parts than RS. There used to be a lot of those types of place around here, but sadly all are long gone.

For the preamp circuit there are two types of transistors used. One is the SE4002 NPN and the other is the 2N4249 PNP. These are both very basic transistors. Almost any modern transistor will replace them with no problems. The easiest types to find will be the 2N3904 and 2N3906. These are used in so many items they have become a sort of industry standard part. That's why you can find them anywhere electronic parts are sold.

In most cases finding NOS parts is really not worth the time and trouble as the parts will be expensive and their performance will not be any better than that of the modern parts. In fact sometimes the old parts will be worse than their modern equivalents. So unless there is no modern replacement, I tend to stay away from NOS parts, except the ones that I bought when they were new and have stored for 40 years.

If you plan on repairing amps as a hobby, then yes buying a stock of parts to have on hand will be a good thing to have. What I usually do is when I need to order a part, I will order a few more than I need. That way I will build up a stock of parts for future use. Of course I only do this when ordering parts that are generic enough to be used in other things. I just needed to order a memory backup battery for a Jupiter 6 synth. The last time I needed one was probably 10 years ago. I only ordered one.

I have never seen a preamp resistor burn out in a Kustom amp before. I have seen them get noisy, go off value or break into pieces, but never burn out. Under normal circumstances there is never enough current being drawn in the preamp circuits to cause one to burn out.

Personally, I am a firm believer in only replacing parts that need to be replaced. Generally the only times I will break this rule is when there are certain needs for reliability or safety and when there

are known high failure rates of certain components.

Just my 2 cents.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Thu, 15 Aug 2013 17:41:00 GMT

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Yea, I've been in that store a few times years ago since it is right next the Guitar Center. I was always kinda there looking around, bewildered. It will be nice to go there knowing what I'm looking for for a change, ha.

OK, gotcha, no need for resistors at this time.

What type of Caps should I be looking for, there are many types, do I try to find some that are made like the white Mallorys and the black rectangle caps by GE in it? or just anything the same values?

Subject: Re: Repair advise

Posted by [chicagobill](#) on Thu, 15 Aug 2013 19:17:18 GMT

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The white Mallory caps are electrolytic capacitors. Mallory has been out of the cap business for about 20 years now. Almost all of the modern caps are made in the far East. Sprague, Nichicon, Panasonic are a few names of current manufacturers.

Electrolytic caps are one of the common parts that are known to go bad. A lot of it depends upon how the amp was stored and used, but they can dry out and go open circuit or worse short circuit.

Any modern cap you find will probably be half the size of the old ones. Just make sure that you get the correct values for capacitance in microfarads (uF), and voltage ratings. There are two styles of cases/mounting, Axial where the leads come off of the ends of the casing for horizontal mounting and Radial where the leads come off of one end of the cap for vertical mounting.

There are 8 electrolytic capacitors on the preamp board: 4-10uF, 3-25uF and 1-100uF. The only value that is different from modern values is the 25uF, you will more likely find 22uF caps. Use the 22uF value if that is what you find.

The voltage ratings should be a minimum of 25 volts. The one 100uF cap is a filter cap, the rest are used in the audio circuits.

When you replace the electrolytics, be sure to install them in the correct orientation, as they are polarized. They will all be marked with either a plus or a minus sign pointing to one of the legs. Make note of how the original ones were installed, and install the new one the same way.

As far as the smaller value caps, these are all mylar film types and should not need replacement.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Thu, 15 Aug 2013 19:40:55 GMT

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OK great, I'm starting to get this now after reading what you have given me a couple dozen times, haha. A silly question, should I just disconnect the PC board while testing the components? or would you leave it in?

So, should worry about the 4 black rectangle Caps at all? What are they?

Subject: Re: Repair advise

Posted by [chicagobill](#) on Thu, 15 Aug 2013 20:15:54 GMT

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You can leave the board in the amp, but be sure to unplug the amp from the wall.

The black caps are probably mylar film caps, what are the values marked on them 0.22uF or 0.022uF maybe?

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Thu, 15 Aug 2013 20:29:32 GMT

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Yes, I had her unplugged and yes, that's the values, mylar film. I'll wait for them but I'll get a few electrolytic caps. I was just wondering what they were, thanks!

Subject: Re: Repair advise

Posted by [chicagobill](#) on Fri, 16 Aug 2013 16:16:16 GMT

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I don't know if you have started testing things yet, but something that I thought of was to connect the output of the working preamp board to the input of the clipper/boost circuit and see what happens.

Just a thought.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Fri, 16 Aug 2013 17:12:00 GMT

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Ah HA! that worked! So, that means its deffinatly the fx channel preamp and not in the fx pc boards?

I went and got some parts today from Baynesville, they had the SE4002 transistor but not the 2N4249. I did test all the transistors and the 4229 does not read the way you said it should it reads less than 1/2 v in all leads, they'll have it next week they said. The rest of the transistors (SE4002) seem to have the correct readings

Subject: Re: Repair advise

Posted by [chicagobill](#) on Fri, 16 Aug 2013 17:36:25 GMT

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Progress, good to hear. There may be parallel circuit paths around the 2N4249, retest out of circuit if you can.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Fri, 16 Aug 2013 17:39:51 GMT

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Do you mean take the 4249 out of the board to test? update, I tested the 4249 on the straight non fx channel board and it read 6-7 v just like you described prior.

Update..took 4249 out of circuit still read less than 1/2 v on all leads

Subject: Re: Repair advise

Posted by [chicagobill](#) on Fri, 16 Aug 2013 18:55:42 GMT

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Good thinking there to compare the two parts. Next step will be to replace the 2N4249 and see what happens.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Fri, 16 Aug 2013 19:27:55 GMT

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Thnx! AND, that did it, it works great again!!!! Thank you so much for all the time you invested in helping me.

Subject: Re: Repair advise

Posted by [chicagobill](#) on Fri, 16 Aug 2013 19:52:18 GMT

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Okay, great news I guess. What did you do to fix it?

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Fri, 16 Aug 2013 20:00:55 GMT

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It was the 2N4249, Baynesville didn't have it but can you believe radio shack had the equivalent! miracles never cease lol It sounds great but maybe soon I'll go through the power section because that previous repair mess in the middle there cant be right? I kinda hate to fix it if it aint broke though you know?

Subject: Re: Repair advise

Posted by [chicagobill](#) on Fri, 16 Aug 2013 20:41:20 GMT

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Like I told you before, if it's working and it sounds okay, then leave it alone and move on.

Congrats! Your first repair.

Subject: Re: Repair advise

Posted by [Jonomega3](#) on Sat, 17 Aug 2013 00:44:03 GMT

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Yes, and good advise too. I've moved on to playing this thing instead of standing over it scratching my head, haha. Oh, and brilliant idea testing the fx through the straight channel! That worked perfectly.

I mainly use the (RCA plug) preamp out of the A-4 in front of my 65 Fender DR, much better sounding than any digital fx I've heard and at a reasonable playing level. Anyway, I haven't played it through my Kustom 2x15 cab in a while so I thought I'd try it out and, the power section does sound a bit noisy (slightly distorted)The preamp is very clean with very little noise. So maybe down the road I'll go through the power section. Hopefully you wouldn't mind giving me some more pointers then? I'm going to print out this thread and keep it for future reference. What a great experience, I learned so much and really enjoyed it, thanks again!
