Subject: Kustom 100 blowing fuse
Posted by imsteinrecording on Tue, 08 Jan 2013 10:45:17 GMT
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Hi,

I'm new to the group also. I have a similar problem to the other user who has an amp blowing fuses. Mine is a Kustom 100, model K100 2. It blows fuses immediately. I read the other threads and was wondering if the possible fixes are the same, ie. a driver or output transistor. I'm not sure what a driver is! Thank you in advance and Happy New Year!

Sincerely,

Mark

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Tue, 08 Jan 2013 15:39:19 GMT
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Welcome!
Yes, your problem is likly to be the same and likly to be a blown output transistor(TO3 type mounted on chassis heat sink) which sometimes also takes out its driver transistor(TO5 type in heat sink box on driver board)when it pops.
Also likly to be bad would be the 5 watt resistor associtaed with that side of the output stage.
Your rectifier bridge diode may also be bad, this is the round case 4 terminal item bolted down to the chassis near the power transformer.
A good way to check that is to unhook the red and green wires that come from it from there termination point on each power supply filter.
When unhooked and place out of the way from shorting, replace the fuse and turn on the amp, if the fuse holds them you know that the power supply is ok and the problem resides in the output stage/driver section of the amp.
You could also disconnect the output side of each power supply filter(red and green wire) and do the same test.
Do not hook up a test speaker to the amp until you have it fixed and the steady state DC reads less than 1 volt on the amps speaker output other wise the 40 volts of DC output can blow your speakers.
Inform us on your progress, or if you need more help.

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Tue, 08 Jan 2013 17:03:25 GMT
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Please remember that working on amplifiers or anything electrical can kill you if you are not careful and well trained. If you don't know what a driver is, I doubt that you are qualified to do any real troubleshooting inside the amp.

I don't know you or what your skill set is, but if you are not up to it, please take the amp in for service.

With all of that being said, Kustom amps are very basic and most of the parts are either available or easily replaceable. They are standard designs that have been used for decades by many manufacturers, and any tech should have no problem in fixing your amp.

Subject: Re: Kustom 100 blowing fuse
Posted by imsteinrecording on Tue, 08 Jan 2013 21:16:21 GMT
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Hi Steve,

Thank you very much for the advice. Happy New Year!

Sincerely,

Mark

Subject: Re: Kustom 100 blowing fuse
Posted by imsteinrecording on Tue, 08 Jan 2013 21:17:42 GMT
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Hi Bill,

Thank you for the warning. I'll be very careful. Happy New Year!

Sincerely,

Mark

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Wed, 10 Apr 2019 21:58:52 GMT
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I have the same problem blowing fuse when powered on. I checked and replaced as needed parts listed above and still same problem. If i disconnect the preamp the fuse doesnt blow. I checked the diodes on the preamp circuits and they are working. ANy other suggestions?

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Thu, 11 Apr 2019 19:15:46 GMT

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How are you disconnecting the preamp? What model amp do you have?

If the fuse blows when the preamp is unhooked, there must be short in the power supply somewhere. It's not likely that a shorted transistor would cause the fuse to blow, but there could be a bad cap or a shorted wire somewhere in there.

If we knew what amp you have, we could suggest a few specific things to look for.

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Fri, 12 Apr 2019 10:10:06 GMT
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To help you better we atleast need to know if the K100 model you have is a combo type, or a piggiy back model?
Both the K100-1 and K100-2 are piggy back models and have but one main circuit board mounted to the front of the amp.

If you have replaced both output transistors and the driver Transistors you may still have a bad Tantaum type cap that is shorted, but I would think that a fully bad cap like that would be showing signs of being burned and black if not blown near apart to be taking the fuse out like that !
If you disconnect the red wire on each of the output Transistors on the chassis does the fuse still blow?

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Fri, 12 Apr 2019 13:55:39 GMT
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THis is the 24-L model it has 3 circuit boards the PC5033 is power the PC5068 for tremolo and PC5066 for EQ there is a quick-connect jumper between the power and preamp boards when i disconnect this jumper it stops blowing fuses. I was going to start testing resistors but seems like might take awhile. THere is one Cap that has what looks like dried silicone caulk around it, I'm assuming this was to stop vibrations or something.

replaced so far: 2 driver transistors and 1 output transistor

Test: removed red wires from filter caps and fuse does not blow

checked bridge rectifier

checked diodes

checked for cold solder joints and shorts on board

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Fri, 12 Apr 2019 16:32:29 GMT
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This is a differential output stage and preamp , meaning they run on and need a positive and negative supply voltage .
Your act of unhooking just the red wire (positive supply) may have done damage to the amp on its own.

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Fri, 12 Apr 2019 17:31:15 GMT
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Not sure about that model, but if I remember correctly, that power amp board has a circuit ground that only connects with the three pin Molex plug.

If that is the case, then your problem may still be in the power amp, but it is being hidden by the fact that you are disconnecting the ground from the circuit.

I'd suggest that you go back to square one and retest all of the transistors and diodes on the power amp board. You might want to build or use a light bulb limiter on this one to save yourself a lot of trouble.

Subject: Re: Kustom 100 blowing fuse
Posted by JDinPA17603 on Sat, 13 Apr 2019 01:02:37 GMT
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Time traveler
You stated that when you unplugged the three pin molex connector from the 5033 board that the fuse did not blow.
Question - were the red and green wires connected to all boards at the main capacitors at that time?
If so was the pilot light working at that time?
If the red and green wires were connected to all of the boards and the fuse did not blow when the molex was unplugged then I agree with Bill, the cause of the overload definitely points to the 5033.
Also agreeing with Steve bad idea to just unhook the red wire from the 5033 or any of the boards by itself.
From the board configuration and model it appears we are discussing a Kustom Commander with 2 12" speakers. If my model is off then a Kustom Hustler with 4 10" speakers.
I also noted you stated that the fuse did not blow with the red wires disconnected from the caps. This is the reason for my question of were the red wires connected to the caps with the molex plug pulled.
Steve and Bill not trying to take over here, just trying to fully understand the situation.
John

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Sat, 13 Apr 2019 10:24:16 GMT
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On the 5033 board there are 4 caps that could make for blowing fuses, these are c3,c4,c7 and c8.
You can find these on any of the 5033 schematics listed in this site's technical listing.
Yank them out and resistance test them for shorts, or if they are getting brown or splitting open from getting hot then just replace them.
C3 does not even need to be in circuit to have the amp work , but there will be a slight hum out of the speaker with that out if the driver's and the rest of the output stage are working.

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Sat, 13 Apr 2019 16:08:13 GMT
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john

The the red and green wires WERE connected to all of the boards and the fuse did not blow when the molex was unplugged

I had disconnected both green and red from filters previously (not just the red as stated in previous post),

Ill be checking the caps next

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Sat, 13 Apr 2019 18:07:53 GMT
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ok i checked the caps in the 5033 board they all checkout within tolerance. the model is a hustler

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Sat, 13 Apr 2019 18:14:20 GMT
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the pilot light has been out all along.

Subject: Re: Kustom 100 blowing fuse

Posted by stevem on Sun, 14 Apr 2019 10:13:11 GMT
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Well it seem like your back to where Bill posted, that being testing the 2 output and the driver Transistors and the string of 3 bias diodes..
Be very careful with the leads of that metal cased diode in the clip between the output Transistors as they are very fagile!

Subject: Re: Kustom 100 blowing fuse
Posted by JDinPA17603 on Sun, 14 Apr 2019 15:01:45 GMT
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One more test when checking the output transistors is to go from the case which is the collector to the chassis. They should read open. If the case is shorted to the chassis you will have instantaneous fuse blown. They are mounted to the chassis using insulating washers and a mica film with heat sink grease. This usually can happen if someone over tightens the mounting screws.

John

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Sun, 14 Apr 2019 23:05:25 GMT
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Retested output transistors and one was blown. I replaced with a new transistor and turned on =blew a fuse again. Rechecked newly installed transistor and it is blown. I'm thinking I somehow managed to switch the yellow and blue leads around or is there something else that would cause the transistor to blow.

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Mon, 15 Apr 2019 10:12:55 GMT
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Just unhook all the connections to the output Transistors and see if the fuse still blows.

The yellow wire of the slip on connector goes to the Emitter of the transistor.
If your Transistors are mot marked on the bottom then if you look at them up side down with the slip on terminals closest to your left, the Emitter will be the top terminal.
At this point to not harm the power transformer with all this blowing fuses stuff I would derate the fuse just for now by 1/2 amp or like Bill posted for all of 20 bucks build yourself a light bulb limiter!

Subject: Re: Kustom 100 blowing fuse

Posted by chicagobill on Mon, 15 Apr 2019 16:23:13 GMT
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A bad driver transistor can cause an output to blow, also open resistors, etc. You said that you replaced the drivers, what did you use as replacements, 40409 and 40410's?

You can just pull the black connector plugs from the outputs and that will remove them from the circuit for testing. The red Collector wires can stay connected unless you need to remove the transistor from the chassis.

Be sure to leave the speaker disconnected from the amp until you can power it up without blowing fuses.

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Mon, 22 Apr 2019 21:02:44 GMT
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thanks for all the help. Right now im trying to replace a resistor but going from the 5033 hustler diagram the lower diagram says its r24 but the top diagram says r24 is a 5w .51 resistor and i know thats not right the resistor is burned so i cant read the stripes

Subject: Re: Kustom 100 blowing fuse
Posted by JDinPA17603 on Mon, 22 Apr 2019 23:12:04 GMT
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time traveler
There are three versions of the 5033 board.
On two of them they have R24 listed as a 0.51 ohm 5 watt resistor
They also both have R26 listed as a 510 ohm 5% resistor and R25 listed as a 150 ohm 1% resistor.
The third version lists R24 as a 200 ohm 1% resistor R25 as a 510 ohm5% resistor and R23 as the 0.51 ohm 5 watt resistor. The 5 watt resistors are rectangular in shape.
Hope this helps.

John

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Tue, 23 Apr 2019 14:42:24 GMT
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according to the schematic the r23 and r25 are supposed to be 150 ohm 1% the ones in my board now are 150 ohm 10% and not measuring to 1% so replacing those along with r26 ...

waiting on the parts. meanwhile gonna recheck transistors to see if they got screwed up because i turned on with resistors out of tolerance.

Subject: Re: Kustom 100 blowing fuse
Posted by JDinPA17603 on Tue, 23 Apr 2019 16:12:14 GMT
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time traveler
If one of the two resistor R23/R25 you changed out was a 200 ohm resistor then you need to use the schematic labeled 5033(8/70) from the PC boards by number list. On that schematic R22 and R24 are 200 ohm 1/2 watt 1% resistors. R20 and R25 are 510 ohm 1/2 watt 5% and R21 and R23 are 0.51 ohm 5 watt ceramics.

If the good one you replaced (R23 or R25) with a 150 was already a 150 then R24 and R22 are 0.5 ohm 5 watt ceramic resistors, and R21 and R26 are 510 ohm 1/2 watt 5% resistors.

John

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Tue, 23 Apr 2019 16:13:34 GMT
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Even 20% tolerance resistors in those two locations would not make the amp blow or not work.
The 5 watt resistors should be matched as close as possible .
I order 10 to 15 of them at a clip and test them resistance wise to match them with my ESR cap checker as it's far more accurate then the average multimeter.

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Tue, 23 Apr 2019 16:30:28 GMT
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The 1% resistors that you are talking about are part of the protection circuit. In a working amp, they read the voltage on the ballast resistors and when the voltage gets too high, they reduce the signal to the driver transistor to lower the output signal. Off values will cause the protection circuit to either trigger too early or too late.

The amp would work without the entire protection circuit if it was removed.

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Tue, 23 Apr 2019 16:35:45 GMT
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I have always felt that the protection circuit and its close tolerance resistors was a great idea, but since Kustom did not use matched drivers it's a strange deal in my book!

I

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Tue, 23 Apr 2019 17:19:31 GMT
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R25 was a 150 R2 & r3 were also out of tolerance if replacing those wouldnt make a difference not sure what the problem is.

the 5w resistors read .7 ohms

i replaced the driver transistors with nte 128

and output transistors with MJ15001G one blew again so i replaced with nte 181npn

i think when i replaced the driver transistors the one legs got shorted to the heat sink box

---

Subject: Re: Kustom 100 blowing fuse
Posted by JDinPA17603 on Tue, 23 Apr 2019 22:00:50 GMT
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timetraveler I am a little confused so I am offering this to you for reference. I know how confusing and frustrating this can be.

Driver transistors
Q4 is a NPN 40409 equivalent is NTE128
Q5 is a PNP 40410 equivalent is NTE129
They can be had as a matched pair by ordering NTE129MCP
NOTE: the correct transistor must be installed in the correct position
Both of the driver transistors must have a heat sink installed on it and care must be taken not to short the heat sink to any nearby components.

Protection circuit
Q6 is a NPN 2N3567 equivalent is a 2N3567 or a NTE123
Q7 is a PNP 2N3638 equivalent is a 2N3638 or a NTE129
Note as with the driver transistors these must be installed in the correct position.

Output circuit
Q8 and Q9 are NPN 36892 equivalent is 2N3055 or NTE130
I recommend a matched pair - order NTE130MP
THESE ARE INSTALLED with a mica washer between the transistor and the chassis with heat sink grease applied to both sides of the mica film washer ... between chassis and washer and between washer and transistor.
They also use nylon washers and bushings to isolate the case from the chassis.

Diodes and electrolytic capacitors must be installed in the proper orientation.
Resistors should be as close as possible to the correct values.
Check for accidental shorts between traces on the board.
With the 1N3754 make sure that the leads are not broken or shorted to the clip or each other And insure that the diode is securely fastened in the clip.
All voltage measurements are with no load (speakers disconnected), no signal input (all plugs unplugged from the inputs) and all controls full up.

Since you are having an issue with parts continuing to blow, as others have suggested, use a light bulb limiter (100 watt incandescent lightbulb) wired in series with the power cord) and decrease the amperage on the fuse until you get this straightened out.

Good luck with the amp.

John

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Wed, 24 Apr 2019 11:40:19 GMT
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There's no need to use anything better in these amps then good old (cheap these days) 2N3055! In fact the higher gain of the nte181 might cause oscillation problems due to the way some amps are layed out!

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Wed, 24 Apr 2019 12:33:46 GMT
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that might be the problem i replaced Q5 with a nte128 when it should be a nte 129

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Thu, 25 Apr 2019 17:20:36 GMT
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Yes, that would be a big problem. Follow the parts listing that John posted for you and you should

be able to get it sorted out.

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Thu, 09 May 2019 18:19:45 GMT
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OK replaced the nte 129 and still blew the fuse. However, i disconnected the output transistors and it does NOT blow fuse when turned on

Subject: Re: Kustom 100 blowing fuse
Posted by JDinPA17603 on Thu, 09 May 2019 20:33:48 GMT
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1. See my previous long note.
2. Use a light bulb limiter
3. Recheck all transistors / diodes.
4. The 5 watt 0.5 ohm transistors shoul match each other closely and the closer to the 0.5 (1/2) ohm they are the better.
5. Drivers must have heatsinks on and not shorting to anything else.

When you put the wrong transistor in you probably blew the output transistor. With it gone putting in the nte129 with the output still blown most likely damaged it.

Note 3 above and previous note.
Good luck.

John

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Fri, 17 May 2019 15:43:33 GMT
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Just to double check what is the replacement part for Q3 transistor? part number is 007-0002-00

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Fri, 17 May 2019 16:21:10 GMT
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Q3 on the pc5066 board is a FET, it crosses to a nte221 or a ecg221.
You need to follow strict anti static techniques when handling and installing new one?

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Fri, 17 May 2019 16:51:13 GMT
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rca 38135 is what is in it now on the 5033 circuit board. rechecked the transistors and diodes one diode CR-2 was facing the wrong direction. reconnected everything and tested still some problem (fuse blows and Q8 output transistor gets blown)

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Fri, 17 May 2019 17:40:23 GMT
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Sorry, Q3 on the 5033 board crosses to a nte128 NPN type.

It's original RCA number is 38735.

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Sun, 19 May 2019 12:48:51 GMT
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the .5 ohm 5 watt resistors are reading .7 ohms which is outside of the 10% tolerance range would that cause the fuse to blow?

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Sun, 19 May 2019 19:13:08 GMT
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If you touch the two meter leads directly together what does your meter read? I will guess that you are reading the resistance of the two meter leads, maybe 0.3 ohms plus the resistance of the ballast resistor 0.51 ohms.

No the off value of the resistor will not cause a fuse to blow. The main reason that fuses blow is shorted transistors, diodes or other parts.

In very broad terms, the power amp is designed to work as a balanced system. The upper part amplifies the positive half of the audio signal and the bottom half amplifies the negative side of the signal.

When something happens that upsets the balance between the two halves there is a larger amount current drawn and that's when the fuse blows. If you really want to fix your amp, we will help you get there, but you need to start taking a more systematic approach to the repair, otherwise you will continue to throw away time and money on parts.

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Mon, 27 May 2019 09:45:57 GMT
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No, that difference in the value of Emitter resistance would no be the cause of fuses still popping on you.

Actually it takes a darn good ohm meter and really short lenght test leads to read resistances under 1 ohm , or even under 1.3 ohms with accuracy!

I use my cap ESR tester to check things under 1 ohm

Most known manufacturer 5 watt wire round resistors these days are darn accurate, the 2 amps I am working on now use .47 ohm resistors and 3 tested out at .51 ohms and the 4th at .52 ohms.

Since your still popping fuses one thing to check that is easy to over look is that the metal cased bias diode leads are not shorting out to its hold down clip inbetween the output Transistors

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Tue, 04 Jun 2019 17:31:08 GMT
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theres two capacitors with a red dot is that the positive side? there one with a white dot as well is that the negative side?

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Tue, 04 Jun 2019 17:34:31 GMT
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what is the replacement for cr3? 5033 circuit hustler

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Wed, 05 Jun 2019 03:28:08 GMT
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The generic number for that diode is 1N3754.

It has not been made for about 20 years now, so they are difficult to find. Is your's dead?

You can replace it with a typical signal diode like a 1N4148, but you will need to try and figure out a way to mount it close to the power transistor heatsink. It is supposed to sense the temperature of the output transistors and adjust the bias as the transistors heat up.

As for your capacitor question, I assume that you are asking about the tantalum caps. The dot

usually identifies the positive lead, but there is a marking style that uses a color dot to signify part of the caps value (color code). Are the caps marked with the usual number markings?

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Wed, 05 Jun 2019 16:26:33 GMT
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Last night I pulled out my Hustler chassis and looked at the tantalum caps. There were a few different styles, but all were value marked with numbers and some had red dots and some had white dots which noted the positive lead.

So to answer your question, yes the dots are the positive leads.

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Wed, 05 Jun 2019 16:35:21 GMT
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There are 2 of these nos diodes for sale on EBay for 10.99 before shipping.

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Thu, 06 Jun 2019 00:19:09 GMT
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the diode lead broke off right where it comes out of the cylinder dont know of a way to repair it. I had the amp connected to a light bulb limiter before the diode wire broke off and it was still lighting up so i dont think that is the problem. I feel confident that i checked everyhing so i dont know if its worth it to buy more parts if i cant get it working. is it possible to install the nte 128 and nte129 transistors in the wrong way? the transistor leads are configured in the same direction as the circuit board holes (triangle shape)

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Thu, 06 Jun 2019 00:27:12 GMT
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I may have the capacitors instaled in the wrong direction

using this diagram is confusing as to which direction the positive side goes. on the lower diagram it has a plus sign on some of the caps but they are configured differently in the upper diagram.

file:///C:/Users/anoth/Downloads/Kustom%20PC5033%20Power%20Amp%20(Rev.6)%20Schematic%20(1).pdf

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Thu, 06 Jun 2019 03:45:48 GMT
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The transistors leads will line up with the pc board correctly as long as the replacement transistors have the same case and pin out as the original ones. Of course, the transistors could be inserted into the wrong places on the pc board.

I couldn't get your image to open so I don't know what the diagrams show.

If you want to take photos of the board and email them to me, I will review them for you.

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Thu, 06 Jun 2019 05:36:30 GMT
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I checked my board and there are 4 tantalum caps on there. Looking from the filter cap side of the board, there are 2 27uF caps in the center of the board. They both mount with the positive leads facing towards the filter caps.

At the lower right side of the board there is a 1uF cap with the positive side towards the filter caps.

Nearby is a 33uF cap that has the positive side facing away from the filter caps.

I've sometimes been able to grind away some of the epoxy filler from the bottom of the 1N3754 diode around the broken off lead. Just enough to solder a wire to the stub end. I would suggest that for the time being just replace it with a 1N4148 or similar diode until you get the problems straightened out. In fact you could just use a jumper wire to replace it for the time being.

Still looking at the board from the filter cap side, the two driver transistors are located at the upper left side. The outermost one should be a 128 and the inner one should be the 129.

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Thu, 06 Jun 2019 16:08:18 GMT
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the c2 (.1uf) its a larger black toward top center) capacitor has a white line on one side im guessing that is the negative side and looking at the schematic the negative side goes towards the filter caps is that correct?

Im checking the output transistors to make sure they arent grounding to the chassis. I put one test lead on the back of the actual transistor and the other test lead to the chassis and i have it on ohms setting. it is reading ohms when i do this. am i doing that correctly? I used the plastic spacers and the heat goop stuff (messy as heck)

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Thu, 06 Jun 2019 16:25:38 GMT
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At this point with all the fuse blowing that's been going on I would confirm that it's not a shorted secondary in the power transformer that's responsible for blowing the fuses!

To do this on the 2 big filter cans disconnect the red and green wires and turn the amp , does the fuse hold?

Also note the the heat sink compound used on both sides of the output Transistors mica insulator should only be a thin film, excess compound wil impead heat transfer into the chassis.

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Thu, 06 Jun 2019 16:53:14 GMT
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yes i did disconnect the red and green from filter caps and fuse holds fuse holds if i disconnect the output transistors as well. I also started using a light bulb limiter to save parts.

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Thu, 06 Jun 2019 19:34:14 GMT
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C2 is not polarized, so it shouldn't matter how it is inserted into the board.

Does your meter have a diode test setting? If it does use it to check for continuity from the output transistor cases to the chassis. If the transistors are not connected to the rest of the circuit, there will be no reading between the case and the chassis. If the red wires are connected to the transistors, there will be a slowly rising reading as the filter caps will be charged by the meter battery.

No matter what, there should not be a steady zero ohm reading from the case to the chassis.

Steve, if you are going to walk him through this repair, I will defer to you. He is getting too many instructions to follow and he is bound to get mixed messages from too many of us.

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Fri, 07 Jun 2019 10:06:37 GMT
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Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Fri, 07 Jun 2019 16:17:25 GMT
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looks like the one output transistor is grounding to the chassis. any recommendations? do they sell just the plastic washer things or do i need to buy another transistor.

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Fri, 07 Jun 2019 19:28:46 GMT
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Before you order new parts, remove the red wire from the transistor and pull off the connector plug. If the transistor case still reads any resistance other than open in reference to the chassis, then you know that the insulator or the washers have failed.

The insulators are made from mica and are available from places like Mouser. They may also be sold on Amazon or eBay. Look for TO-3 insulator or TO-3 mounting hardware.

Please check the nylon step washers on the two mounting screws as well, because they can crack and cause the screws to touch the chassis as well.

If you need them and can't find them, I can look them up for you.

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Sat, 08 Jun 2019 09:30:31 GMT
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Well the good news is here that a output transistor who's case is shorted to the chassis will just blow the fuse yet again but not harm the transistor itself!

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Sat, 08 Jun 2019 13:24:32 GMT
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checking if output transistor is grounded to case. using the diode setting i get a rise in ohms from chassis to back of transistor, i disconnect the red wire and the transistor plug and get open circuit. when i put the meter on continuity test with the transistor connected i get a beep when i place the red test lead to the chassis and the black test lead to the back of the transistor. If i switch the test leads i get no beep. I get no beep when the red wire on transistor and transistor plug are disconnected.

Subject: Re: Kustom 100 blowing fuse

Posted by chicagobill on Sat, 08 Jun 2019 16:01:37 GMT
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Then there is no problem with the insulators and mounting hardware.

Test each transistor with the diode test function of your meter. You can leave the red wires connected or remove them, it doesn't matter. Pull the black connector plug and note which pin the blue wire was connected to. That pin is the base. The yellow wire connects to the emitter.

Test by putting the red lead to the base pin and then touch the black lead to the emitter pin and then the collector mounting screw. You should get a reading of approx. 0.6 volts on the meter with both connections. Next reverse the two meter leads putting the black lead on the base and touch the emitter and collector with the red lead. You should get an open reading on the meter (the same as when the two leads are not touching anything).

Finally test the collector to emitter junction by touching the red lead to the collector mounting screw and the black lead to the emitter pin (yellow wire). Also test by reversing the two meter leads. In either test, there should be an open reading on the meter.

Something to watch out for is the fact that on these chassis', the two output transistors are mounted in 180 degrees from each other, that is the emitter and base pins will not appear on the same side.

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Mon, 10 Jun 2019 19:16:50 GMT
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ok i tested both output transistors and they both look good on all tests

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Mon, 10 Jun 2019 23:47:54 GMT
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The next tests should be of the transistors on the pc board. You need to test all 7 of them. Start with the driver transistors Q3, Q4, and Q5. Then test the protection circuit transistors Q6 and Q7, and finally the two input transistors Q1 and Q2.

There are 4 PNP transistors and 3 NPN transistors. The difference will mean that you will get low readings from base to emitter and base to collector with the red meter lead connected to the base or with the black lead connected to the base of the transistors. Typically the NPN's Q3, Q4 and Q6 will read low with the red lead on the base and the PNP's will read low with the black lead on the base.

There will be a little problem with testing the two protection transistors as there are low value resistors that connect the base and the emitter. As long as there are no zero readings, you can probably assume that the transistors are okay. If there is any real doubt, then remove them from

the board to test them.

Finally test all 5 diodes in the circuit. With your meter, they should read just like a transistor junction, low reading in one direction and open in the other.

Tell me what transistors and diodes you have replaced, and what you used as replacements for them.

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Wed, 12 Jun 2019 12:51:53 GMT
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So i rechecked the Q5 transistor i had previously replaced with nte 129 and it was reading .0005 where it was supposed to read open i made the mistake of not checking it before i put it in so it might have been bad from the manufacturer unless i gave it too much heat putting it in? anyway got it all back together and did the light bulb limiter test and i was surprised when the light bulb did NOT light up! Do i need to test the output before connecting it to speakers next?

Subject: Re: Kustom 100 blowing fuse
Posted by stevem on Wed, 12 Jun 2019 16:07:00 GMT
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Very good news!
Just confirm that with a meter you read only D.C. millivolts across the speaker jack and then you should be ready to rock.

Subject: Re: Kustom 100 blowing fuse
Posted by chicagobill on Wed, 12 Jun 2019 16:09:15 GMT
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Good, you're making some progress.

Right now, are all of the sections of the amp connected to the power supply. Preamp, FX and power amp? If they aren't, reconnect them and see if the bulb stays dim.

If all goes well, keep the light bulb limiter in circuit and add the speaker to the mix and see if the light bulb stays dim. If it does, plug a guitar in and see if the amp is passing signal.

What did you do about the bad thermal diode?

Subject: Re: Kustom 100 blowing fuse
Posted by timetraveler on Thu, 13 Jun 2019 01:24:27 GMT

replaced the thermal diode. didnt think to do the light bulb test with a guitar plugged in but i played through it without the limiter and it sounds nice. i guess i can still test it with the limiter hooked up. thanks for all the help. do you guys work on other amps? might need your help again