
Subject: Kustom Semiconductor Replacements
Posted by [chicagobill](#) on Fri, 18 May 2007 16:43:14 GMT
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Here is a short list of the major transistors, diodes and integrated circuits used in Kustom amps.

KEI Part No. / Marking / Std. No. / Description
007-0000-00 / 36892 / 2N3055 / nte130 / NPN Output Trans
007-0002-00 / 36735 / 40408 / nte190 / NPN Transistor
007-0005-00 / 2N3567 / nte123 / NPN Transistor
007-0006-00 / 2N3638 / nte129 / PNP Transistor
007-0007-00 / 2N3565 / nte123A / NPN Transistor
007-0008-00 / SE4002/PET8002/nte123 / NPN Transistor
007-0009-00 / 2N4249 / nte159 / PNP Transistor
007-0011-00 / 38736 / 40409 / nte128 / NPN Driver Trans
007-0012-00 / 38737 / 40410 / nte129 / PNP Driver Trans
007-0014-00 / 2N5033 / P-Chan JFET
007-0024-00 / 40841 / nte221 / N-Chan MOSFET

007-6004-00 / FD111 / nte177 / Silicon Diode
007-6005-00 / 1N3193 / nte116 / Silicon Diode
007-6006-00 / 1N3754 / nte5801 / Silicon Diode
007-6016-00 / Silicon Diode
007-6020-00 / 1N270 / nte109 / Germanium Diode
007-5349-00 / 1N5349 / nte5127A / 12v 5w Zener Diode

007-7015-00 / uA739 / XR4739/nte725 / 14 pin DIP Dual Op-Amp
007-7023-00 / 5558 / RC4558/nte778A / 8 pin DIP Dual Op-Amp
007-7041-00 / 80848 / LM3080T / Transconductance Amp

Please let me know if there any others that you know about or if there are any corrections to this list.

Bill

Subject: Re: Kustom Semiconductor Replacements
Posted by [stevem](#) on Fri, 18 May 2007 17:48:31 GMT
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Hey bill, great list to help us all.
Thanks man!

Subject: Re: Kustom Semiconductor Replacements
Posted by [drbambam](#) on Thu, 13 Mar 2008 22:40:07 GMT
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so glad you could put up that list, if you can please find out where to get some more listings of the components in the K100-1s, like the bridge rectifiers, the power transistors, the transformers, etc. ... some of the original stuff used, let alone compatible replacers, my particular amp's a K100-1 serial #57325... the specs are turning out to be a bear to find!?!?, especially for the components!!!, though there's been alot of help from several folks on the other kustom amp repair site(-s)!!!

thanks for your time,

'dr. bambam'-c. louis mcguire-butts, jr.

Subject: Re: Kustom Semiconductor Replacements
Posted by [stevem](#) on Fri, 14 Mar 2008 10:37:37 GMT

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All the semiconductors in your K100, other than the bridge, are in bills list up top here. Although I have never seen a Kustom with a burned up power transformer I guess it can happen, Hammond manufacturing and others make a nice torodal upgrade transformer that will work great once you drill one new mounting hole.

Mercury magnetics also makes a stock verticle mount PT that will work out nice!

Subject: Re: Kustom Semiconductor Replacements
Posted by [chicagobill](#) on Fri, 14 Mar 2008 16:43:47 GMT

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As far as I know, Kustom used only one output transistor in all of the tuck and roll amps, generically the 2N3055.

Subject: Re: Kustom Semiconductor Replacements
Posted by [eltumi](#) on Mon, 07 Apr 2008 07:46:25 GMT

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Thanks Bill, you da man!

Just picked up a Charger "for a song" on Friday and tryin' to spruce it up a bit, so your list is going to come in MIGHTY handy.

Any ideas on the IC that's on my PC5066 pre-amp, Texas Instrument SN16810N?

Have a pair of friends in Chicago, the Hulbert brothers, Michael and Sean. They're Stage Hand/Roadies. Sean (aka Butthead), is always on the road. Michael stays close to home. Also dated a girl while livin' in Miami from Chicago. She'd go apesh!t if anyone SAID they were from Chicago but were actually from one of the 'Burbs. Bit uptight, that one....

Thanks for the help,

Michael

Subject: Re: Kustom Semiconductor Replacements
Posted by [stevem](#) on Mon, 07 Apr 2008 10:03:57 GMT
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The 14 pin IC chip is on Bills list on the top of this post as a NTE725 replacement.

Subject: Re: Kustom Semiconductor Replacements
Posted by [eltumi](#) on Mon, 07 Apr 2008 10:48:56 GMT
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Thanks again Steve!

Subject: Re: Kustom Semiconductor Replacements
Posted by [cassent5150](#) on Tue, 15 Dec 2009 02:45:58 GMT
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I'm working on a K-150-2 so far it had a couple 470 ohm resistors, I believe R14 and R15 if I remember right, totally smoked thanks to a shorted cap, C8 I believe. I'm having other issues now that the pc-5033 driver is working again. Pre amp 5066 has very little signal output I was thinking Q1 or Q2 but they seem to be OK Question I have is, How typical is the malfunction of the IC nte-725? Next issue is in the effects pc-5068 "No Oscillation" I need a LM3080T can only find LM3080N or nte-996 anyone have any input here as in the compatability or where I can get the exact Transconductance amp. Thanks Ya'll from Texas cassent5150

PS I got a K-100-7 off ebay for parts a couple weeks back. I restored it back to life. Had to completely gut the amp replace a few items, all stock used Kustom parts and reassembled it. Its up and running and what a beast. Those 2X12's just sing. What puzzles me is the fantastic distortion that it will produce when pushed up around 9 on the volume. I've always known Kustom as punchy sweet clean and transparent sounding amps and thats how I always used them. I had no idea they could have that fat Stevie Ray Vaughn wall of sound. Is this a freek or does some of their models, like this one, have that ability? I have the K-50, K-100-1 head w/ 2X12 T&R Cab, K-150-2 W/2X12 Cab, more 200 heads than I'll count, K-III Lead and Bass heads also the K-IV Beast, I even have the 150 and 250 Kasino heads and none of them even come close to this K-100-7 Combo amp.

Subject: Re: Kustom Semiconductor Replacements
Posted by [stevem](#) on Tue, 15 Dec 2009 11:33:42 GMT
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Hi, in regards to the preamp problem the output of the preamp with selectone(PC 5067)gets mixed in with the output from the B section of IC 739 on the PC 5066 board. Then the mixed signals get boosted again by passing thru the A section of IC739.What this means is that if your selectone channel is working normal than at least the A section of that IC chip is OK and the problem lies back more in the circuit.

The B section of the IC chip could be dead, or FET Q3 or transistor Q1 or Q2 could be out. If you feed some signal into that channel you can even trace the signal flow with a volt meter set for A/C volts.

Make sure that the board(pc5066) has its jumper on that three pin Moldex connector(pin 1 and 2) or the signal flow will never get back into Q3 from the output of Q2.

Also I hope you are wrong about R15 on the driver board, as that resistor is 1.5K not 470 ohms. A NTE-996 should work for a LM 3080t replacement, you will find it easier to slip it into a 8 pin IC socket to which you have soldered leads on the bottom of to get it connected back into the circuit board.

Depending on the output of your guitars pickups and the speakers in your combo K100 they can get a great crunch distortion along with some scooped mids(and verb) for that SRV tone with great punch!

Subject: Re: Kustom Semiconductor Replacements
Posted by [cassent5150](#) on Fri, 25 Dec 2009 16:51:52 GMT

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OK, since that last email I found a K-100C-8 chassis to go in a K-100C-something(I believe it was 4 but I'm not sure)cabinet I had. Anyway, I had it professionally serviced. Expecting similar results as the K-100-7 with an added crispness from the 2X10's, the crunch on this is quite imbaresing. Don't get me wrong, the amp sounds fantastic,"Bright and clean with all kinds of spunk", but it all goes south when it breaks into distortion. Same guitar, I unplug from one to the other and the K-100C wont get'r done like the K-100-7. Got any ideas I might try to help the poor thing. I've got speakers and I was thinking of maybe that had something to do with it. The problem with it is the bottom gets loose and she gets real hollow sounding. Tight and crisp is what I'm going for. steve c

Subject: Re: Kustom Semiconductor Replacements
Posted by [stevem](#) on Mon, 28 Dec 2009 11:33:21 GMT

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Are you comparing apples to apples by playing both amps thru the same speakers?

Here aare some things to check, or have checked.

1) just because the amp works does not mean it is not in need of new power supply filter cans, (2500uf at 50 volt or higher)these store voltage and when they start to go, the amp will have no reserve power for dynamic changes when cranked.

This can be compared somewhat on both amps by how much the pilot light dims down when hammering a fat 1st postion A cord.

The dimming of the pilot light is in direct relation to how far the power supply voltage is dropping down.

When comparing both amps at the same volume (spl) the one who`s light is dimmer is having a harder time producing that output level.

2) AS you crank a amp up louder and the speakers move more air you need less bass. To get a good lead sound out of any of my amps played above 5, the bass setting on my amps(and even more so the tube amps of mine)is down to 4 or less!

3) if useing different speakers are both set ups wired for 8 ohms? If one amp is being played thru a 4 or 16 ohm set up, that amp will be outputting 1/2 of the wattage of the other amp at 8 ohms.

4) Have any output transistors been replaced in the lower performing K100?

If both of them are not matched close enough the amp my not be outputting its full 50 watts RMS into a 8 ohm load.

Do both of your output transistors mounted on the bottom of the amp Have RCA stamped on them?

For eample. Just this week end I was giving a new K200 I picked up a check out session on my test rig and I found out it was only putting out 76 watts rms.

On my O-scope I saw that the top of my 1k test tone wave form was cilpping way before the bottom of the wave form which indicated a mismatch to some degree in the output transistors.

Now this amp still had all its original RCA output transistors, and Kustom back than did a good job of matching them, but I guess this was a off day at the factory!

To try and correct the problem I took one transistor out of the pair for one side of the output stage and swapped it with another.

When retesting the amp with this simple change, the amp then put out its normal K200 level of 92.5 watt RMS, A GAIN of some 166 watts!

This amp still had

Subject: Re: Kustom Semiconductor Replacements

Posted by [stevem](#) on Mon, 28 Dec 2009 11:37:19 GMT

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Sorry, some how an extra 6 got into the output wattage. It should have read 16 watts.

Subject: Re: Kustom Semiconductor Replacements

Posted by [cassent5150](#) on Tue, 29 Dec 2009 03:00:42 GMT

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THANKS for the info, you pointed out a couple obvious things to check out. 1st, I pieced together this K-100C out of parts I had collected over the years. The pre amps are the only things I could salvage. I bought the chassis off ebay as it was being sold as parts. I installed the pc-900, power transistors, power transformer and the two large power caps. The tranny, caps and driver board came from a K-100 Kasino PA if that makes any difference. I have another set of caps I'm going to try cause the power light does dim more than the K-100-7. Among the box full of used RCA originals I have several new nte130 transistors still in the plastic, but my question is how can I tell if 2 of them match? Then its off to the speaker idea, the kick'n K-100-7 has two 12's 7.2 and 7.0 ohms. The problem child K-100C is two 10's 8 ohm both are original, but I had one reconed. All the speakers in question here are the alnico (Metal Strap Kind and I'm going to guess CTS). I have a set of square magnet Kustom 10's that read 3.5 and 3.7 ohms I'm going to series together and see what she does with a 8 ohm load. Do ya have any tricks for pairing those power transistors? Steve C

Subject: Re: Kustom Semiconductor Replacements
Posted by [steve](#) on Tue, 29 Dec 2009 18:08:45 GMT
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Matching wise unless you have a oscilloscope you will not be able to check which nte130s you have on hand that are better. you can get the 130s in matched pairs from NTE, order part number NTE130MP, but a better choise would be a set of NTE181MP transistors, as these have a higher gain factor and can pump out more clean wattage than the 130s and handle more current which means if a short happens in the output stage the amps fuse stands a better chance of blowing than a output transsistor. This is good news for your speakers which can be taken out due to a shorted output transistors.

In regards to the speakers, if they fart out on low notes that could mean that its time to get them reconed, as the suspension parts(outer surround and spider) may just be old and can not keep control of cone movement any longer!

Subject: Re: Kustom Semiconductor Replacements
Posted by [cassent5150](#) on Thu, 31 Dec 2009 03:06:24 GMT
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Man, what a brain fart I just pulled the chassis out of the k-100C-8(problem child) and I was totally mistaken about this chassis. I did get it off ebay but this is the one I just got back from Freeman/Tuell speaker service and repair shop in Dallas and these guys usually do great work. They do alot of work on my gear for the band. I'm going to see if they'll run a few tests on her and make sure she's still peaking out at full power. I bought it off ebay with problems and took it there about a month ago (when I got it), I ask them to clean all the pots and jacks, check it out and fix what was wrong. 108 dollars later I took her home (I believe the day after I posted about that K-100-7 I put together and the awesome sounds I was getting out of her). Man, I wish I had taken before and after pictures of that project, its the one I totally gutted and piece together and if the guy that sold it to me saw it all cleaned up sounding like this he'd be kicking himself. Anyways, they'll have some suggestions I might try to get her sounding like the K-100-7. I think it'd be easier to just give these amps names than all the letter dash number dash letter, you get the drift, so I'll refer to them as K-100-7= The Beast and K-100C-8 = Trouble Child

Subject: Re: Kustom Semiconductor Replacements
Posted by [earache](#) on Fri, 05 Mar 2010 12:31:26 GMT
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Instead of the NTE123 parts listed as subs for the SE4002 transistor above I have learned that either 2N5088 or 2N5089 are a more accurate and cost effective substitute. They're available for like .07 each from Mouser whereas the NTE part goes for \$1.25 ea.

Subject: Re: Kustom Semiconductor Replacements
Posted by [cassent5150](#) on Fri, 05 Mar 2010 13:51:54 GMT
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Thanks for the info man, I've been getting alot of supplies from a surplus electronic store here in Carrolton Texas "Tanner Electronics". se4002 is one they didn't have so i'll see if I can get hold of a supply of these you listed. They located some of those, I believe they're TO-32 case, 2N3638 and I'll swing over there today. I never got a cross # NTE-123 for the SE-4002 come to think of it, that keeps coming up as a NTE-70. Anyway Thanks again for the info I will use it!!! Steve C

Subject: Re: Kustom Semiconductor Replacements
Posted by [stevem](#) on Fri, 05 Mar 2010 14:50:47 GMT
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I do know if I would bother to go nuts searching out surplus NOS semiconductors, as new ones cost less, have better gain, and the better gain comes with less noise!

Subject: Re: Kustom Semiconductor Replacements
Posted by [chicagobill](#) on Fri, 05 Mar 2010 15:47:22 GMT
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I don't really think that it's necessary to replace the transistors with original numbers, as Steve points out the newer ones will be less noisy.

The use of NTE numbers in the above list was only as a reference, as they are generally available everywhere. They are overpriced for what they are, and nearly any modern transistor will work in these circuits, even the lowly 2N3904 and 2N3906.

Subject: Re: Kustom Semiconductor Replacements
Posted by [earache](#) on Sat, 06 Mar 2010 14:48:41 GMT
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Hi ChicagoBill

In one instance I used a 2N2222 to replace a "hissy" SE4002. It was the first transistor after where the wires from the two preamp boards come together - Q700 on the Kustom 200B I was working on. The amp WAS subsequently much less noisy...but much quieter. The transistor did work but had too little output.

Subject: Re: Kustom Semiconductor Replacements
Posted by [chicagobill](#) on Sat, 06 Mar 2010 17:06:52 GMT
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Yes, that can happen. The circuit expects the transistor to have a minimum gain figure to work properly. You just happened to pick one that was too low to work.

I bet if you had a bag full of the 2N2222s, the next one could have worked just fine. I buy small signal transistors in 100 lot quantities. Maybe 2-3% will fall below that minimum gain level, while the rest will test at either mid or high gain levels.

Glad to hear you got it figured out anyway.

Subject: Re: Kustom Semiconductor Replacements
Posted by [cassent5150](#) on Sat, 06 Mar 2010 21:35:01 GMT
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I'm just responding to stevem's comment about the importance of trying to find exact original # transistors.

Stevem, thats why I wrote the comment earlier about how great you guys are to have this wealth of information and the willingness to share that with us that need it. Your point well taken on original part #'s cause I wouldn't know what could work as a substitute so I had the idea that if I had original part # replacements, that would be a good thing. I'm learning as I go so thanks again!!! steve c

Subject: Re: Kustom Semiconductor Replacements
Posted by [jmaroto](#) on Tue, 08 Feb 2011 14:43:20 GMT
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Hi Everyone. I'm having problems finding the equivalent part for the CR3 007-6018-00, in the power connections of my K-250.

Does anybody knows a replacement part?
Thank You All in advance.

Subject: Re: Kustom Semiconductor Replacements
Posted by [chicagobill](#) on Tue, 08 Feb 2011 17:03:30 GMT
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Welcome to the place.

The part that you are asking about is the full wave bridge rectifier module, that is part of the power supply in your amp. The original ones I believe were made by Westinghouse and are no longer available. This is not a problem though as there are many substitutes available that will equal or surpass the original specifications.

You need a part rated at minimum for 100 volts and 3 amps. I normally use a part rated for 400 volts and 25 amps as a replacement for these. The only problem with this replacement plan is that the push on connectors in the amp need to either be replaced with larger ones or removed and the wires soldered directly to the terminals on the new rectifier bridge.

You will find a variety of rectifier bridges at any major electronics distributor like Mouser, Digikey, Jameco, etc. I know in the past even Radio Shack carried a suitable replacement, but I haven't been there in awhile so I don't know if that is true or not anymore.

When you mount the replacement to the chassis be sure to clean the metal surface and to add a dab of heatsink compound to the rectifier case to aid in cooling. Then just be certain that the transformer wires connect to the correct AC input terminals and that the positive and negative DC lines to the filter caps are correct.

Hope this helps.

Subject: Re: Kustom Semiconductor Replacements
Posted by [chicagobill](#) on Wed, 27 Aug 2014 16:17:21 GMT
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I'm bumping this thread to add a few new numbers.

There is a typo in the original list. Here's the correction:

KEI part #007-0002-00 38735 RCA 40408

KEI Part No. / Marking / Std. No. / Description
007-0000-00 / 36892 / 2N3055 / NPN Output Trans
007-0001-00 / 36734 / 40406 / PNP Transistor
007-0002-00 / 36735 / 40408 / NPN Transistor
007-0005-00 / 2N3567 / NPN Transistor
007-0006-00 / 2N3638 / PNP Transistor
007-0007-00 / 2N3565 / NPN Transistor
007-0008-00 / SE4002/PET8002/ NPN Transistor
007-0009-00 / 2N4249 / PNP Transistor
007-0011-00 / 38736 / 40409 / NPN Driver Trans
007-0012-00 / 38737 / 40410 / PNP Driver Trans
007-0013-00 / 2N4248 / PNP Transistor
007-0014-00 / 2N5033 / P-Chan JFET
007-0024-00 / 40841 / N-Chan MOSFET

007-6004-00 / FD111 / Silicon Diode
007-6005-00 / 1N3193 / Silicon Diode
007-6006-00 / 1N3754 / Silicon Diode
007-6016-00 / 1N4148/FD100/FD111 / Silicon Diode
007-5349-00 / 1N5349 / 12v 5w Zener Diode
007-6020-00 / 1N270 / Germanium Diode

007-7015-00 / uA739 / XR4739/ 14 pin DIP Dual Op-Amp
007-7023-00 / 5558 / RC4558/ 8 pin DIP Dual Op-Amp
007-7041-00 / 80848 / CA3080A / Transconductance Amp

Subject: Re: Kustom Semiconductor Replacements
Posted by [Jerrybass1955](#) on Fri, 26 Sep 2014 13:08:56 GMT
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Looking for a sub for FD111 other than NTE177. I see someone has used 1n3938, and Bill suggested that 1n4148 would likely work. Does anyone have actual experience in a sub for this part? Doesn't look like it should be too specialized as used. I am looking at power amp problems in a K100.

Jerry

Subject: Re: Kustom Semiconductor Replacements
Posted by [steven](#) on Fri, 26 Sep 2014 13:28:00 GMT
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That diode is nothing special , that 1n4148 that Bill posted has the needed spec to work!

Subject: Re: Kustom Semiconductor Replacements
Posted by [Jerrybass1955](#) on Fri, 26 Sep 2014 13:41:12 GMT
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Thought so. Got loads of those!

We should expand the parts sub list to more formally include info like this.

Jerry

Subject: Re: Kustom Semiconductor Replacements
Posted by [chicagobill](#) on Fri, 26 Sep 2014 17:45:01 GMT
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That FD111 diode was originally listed as Kustom part number 007-6004-00 / FD111 / Silicon Diode.

In later parts lists, that number was replaced with the 007-6016-00 / 1N4148/FD100/FD111 / Silicon Diode. So Kustom used the 1N4148 interchangeably with the FD111.

Is this one of the bias string diodes that you are replacing?

Subject: Re: Kustom Semiconductor Replacements
Posted by [Jerrybass1955](#) on Sat, 27 Sep 2014 16:28:28 GMT
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Very good to know! I'll update the list I am creating.

Not sure if I will be replacing that or not, but wanted to be ready. I haven't been able to work on it for a couple of weeks, but when I worked on it last I discovered one side of the power amp wasn't working. I replaced the 100 and 470 ohm resistors in the driver circuit and when I powered it back up I accidentally "let the smoke out" of R205. In circuit most things seem to check out OK, but I was going to check out the protection circuit next and replace the driver transistors which are quite mismatched. The power transistors check good on a transistor checker and are pretty well matched. The diodes I was concerned about were CR107 and 108 (in the K100-2 1970 schematic).

So far, I pulled the 1ohm 5/W resistors and they read .81 and .95 ohms. I have a couple that read .85 each that I am going to replace them with. The 510 ohm resistors are drifted up to about 560 and 580, but I don't have any on hand. Gonna get some next week and replace them too and check check out Q129 and 130. Not sure what could turn on Q128 hard enough to fry R205 though unless I replaced something with a wrong part value that is dragging the base to the neg supply. Have to check that, and I am also trying to document the circuit diagram for the area around the elusive Q131 that I don't have.

Lots of adventure with this amp!
