Subject: K200b-6
Posted by Daytopper on Thu, 04 Sep 2014 18:01:08 GMT
View Forum Message <> Reply to Message

Hi, I'm a newbie to this Forum and look forward to being a part of what seems to be a pretty good one!
I received a K200 bass amp for repair and since its been a very long time since i've worked on Solid State amps, I'm somewhat stuck on this repair. The original complaint is noise and popping which I have not yet observed. During my initial testing I've noticed that the negative side of the output is clipping way before the plus side. I've done all the preliminary troubleshooting and all voltages both the high rails and the =- 8volts are on the money. I've tried to swap the 2 pairs of output transistors and clipped the diodes in the protection circuits and checked multiple resistor values to no avail. Am I looking at driver transistor replacement? Any ideas would be greatly appreciated.
Thanks
Kenny

Subject: Re: K200b-6
Posted by chicagobill on Thu, 04 Sep 2014 18:35:36 GMT
View Forum Message <> Reply to Message

Welcome to the place. While not rare, a model 6 is fairly unusual.

If you know that one half of the signal is reduced, I will assume that you have a scope to look at the waveforms in the power amp. A couple of weeks back we were discussing a very similar problem that turned out to be the protection circuit turning on too early on one side of the amp.

Tell us what has been done to this one in the past. Are the drivers and outputs original? I assume that both the +40 and -40 supplies are solid and clean.

If you haven't already done so, look up the schematics for your amp in the technical section, that way we can discuss with part numbers, etc. First check would be voltages on the power amp board.

Again, welcome.

Subject: Re: K200b-6
Posted by Daytopper on Thu, 04 Sep 2014 18:58:24 GMT
View Forum Message <> Reply to Message

Thanks for the quick response. Yeah all voltages are on the money and protection circuits disabled by clipping one side of the diodes. Looks to be fairly untouched so far. I also have the schematic. I have a pretty solid bunch of test eqipment including a scope and generator etc...

Subject: Re: K200b-6
Posted by stevem on Thu, 04 Sep 2014 20:58:35 GMT
View Forum Message <> Reply to Message

How does R725 and R728 test at the base of Q706and Q707 respectively ? In fact how do all the 1% resistors test out?
Be sure to test out the 5 tantalum electrolytic caps in the output stage, since you have check the 8 volt regulators those can be passed over!
Noise and popping could be just a good old bad solder connection, have you pounded on that pc703 board yet, gave a good dance to all the components ?

NOTE that when you do voltage checks by the schematic that they are taken with no signal, no load and all controls full up!

Subject: Re: K200b-6
Posted by Daytopper on Fri, 05 Sep 2014 00:49:43 GMT
View Forum Message <> Reply to Message

Bill
Right on! Found voltages off on Q703 found a bad Tantalum (c707) dead short. I owe you a beer! Just gotta pick it up and I'll let you all know how I made out. oh almost forgot, r719 did look a little funny like it was drawing a lot of current!
Thanks
PS Boy am I glad I found this Forum.

Subject: Re: K200b-6
Posted by stevem on Fri, 05 Sep 2014 01:18:24 GMT
View Forum Message <> Reply to Message

There ya go!
couldn't have been anything too bad if it was not popping fuses, but now while it's out in the open you might want to replace all of those caps before another one goes south!

There is one cap right near the 5 watt resistor for Q705 and whenever I am in a amp I bend it as far clear of that 5 watt heat maker as I can to extend its life!

What revision number is your 703 board?

Subject: Re: K200b-6
Posted by Daytopper on Fri, 05 Sep 2014 01:43:55 GMT
View Forum Message <> Reply to Message

Steve
Thanks again, question, Q703 is marked 38735. Is this a NTE128? Can you explain to me what

this transistor does?
The board id marked "KEI-1 PC703"

Subject: Re: K200b-6
Posted by chicagobill on Sat, 06 Sep 2014 06:06:03 GMT
View Forum Message <> Reply to Message

steve probably missed your question. My list shows that a 36735 transistor is an RCA 40408, which is crossed to an NTE190.

Q703 is a voltage amp which boosts the signal from the input transistor and sends it on to the drivers.

Subject: Re: K200b-6
Posted by stevem on Sat, 06 Sep 2014 14:51:22 GMT
View Forum Message <> Reply to Message

Got a late start today, sorry!
What gives on the NTE site when I cross a 40408 I get a nte 16004 or nte16005?

Subject: Re: K200b-6
Posted by Daytopper on Sat, 06 Sep 2014 15:19:49 GMT
View Forum Message <> Reply to Message

Now i'm totally confused. The transistor in my PC703 is marked 38735 RCA I see no references to it on the parts list that is on this forum. The schematic that I have shows Q703 as a 38735.
Chicago Bill may have made a mistake due to the fact he references " 36735 transistor is an RCA 40408"
Bottom line is i'm about to give up a replacement because the transistor "Q703" appears to be good anyway although the thought was in my case the shorted cap that I found (c709 tantalum 6.8ufd) stressed out the 2 470 ohm resistors and transistor q703 looked like it got real hot. The NTE190 that Bill references is a completely different casing. I guess I'll put the original back in when I get the cap and the 2 470ohm resistors.

Subject: Re: K200b-6
Posted by chicagobill on Sat, 06 Sep 2014 16:02:28 GMT
View Forum Message <> Reply to Message

Yes, that is a typo in my original list.

KEI part #007-0002-00 38735 RCA 40408

The current NTE cross reference gives the NTE16005 as a replacement.

Subject: Re: K200b-6
Posted by Daytopper on Sat, 06 Sep 2014 16:11:42 GMT
View Forum Message <> Reply to Message

The problem is that the NTE190 shows a different case altogether.

Subject: Re: K200b-6
Posted by chicagobill on Sat, 06 Sep 2014 16:30:55 GMT
View Forum Message <> Reply to Message

And the newer NTE16005 has a TO-39 case like the original. I'll have to look up an old NTE book to see what case the NTE190 had in the past.

NTE transistors are guaranteed to meet the electrical specs of the original transistors. Sometimes the cases and pinouts don't match the original ones. If the case has to fit a specific physical specification, then it won't work.

Subject: Re: K200b-6
Posted by stevem on Sat, 06 Sep 2014 17:20:39 GMT
View Forum Message <> Reply to Message

It's one of those shrunk down TO220 cases (more rectangular)with the thin metal tab on top.

Subject: Re: K200b-6
Posted by Daytopper on Sat, 06 Sep 2014 18:07:58 GMT
View Forum Message <> Reply to Message

Well, like I stated before I'm not going to replace Q703 since it checks ok on my meter. Just thought it would be a good idea to change it since it looked stressed.
I do want to thank you all for the quick responses. I wouldn't have fixed this without you folks.

Subject: Re: K200b-6
Posted by stevem on Sun, 07 Sep 2014 10:55:49 GMT
View Forum Message <> Reply to Message

Yeah, if it's good keep it in there!
I love helping folks out here on the board , all I ask in return is the winning power ball numbers!
Lol!