
Subject: New K200 owner, some guidance needed
Posted by [penguinpaul](#) on Tue, 02 Aug 2016 20:14:51 GMT
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Hi All,

I've finally managed to get hold of a Tuck and Roll amp, so thought it was time to sign up here!

I've longed for one for quite some time (I tried to fill the void with a blue and then a red TR12L for a while), and recently found one. It's missing its badge on the rear unfortunately, but it has the "By Ross" printed on the front, and the output jacks stacked vertically behind the power cable, which seems to point towards being an A model. It has reverb too. It does have a fuse though, which seems to be a B thing - maybe someone added it?

The first two channels seem fairly normal sounding, but the second two sound very dark. I can't see anything in the way of caps on the input jacks.

The Tuck and Roll is in great condition, I'm really happy with it.

So now I'm ready to start tinkering inside. The reverb didn't work, and after measuring an open circuit on one side of the tank, I ordered a Mod replacement, which works fine.

This leads me on to my first question though - how should it be mounted? The old tank was cable tied to some holes in the top of the chassis. Should there be bars running across? I can't seem to find a picture of one with a reverb anywhere!

I'm about to do the 3 pin plug modification, but the only odd thing is that the pilot light negative appears to go to the chassis, via a resistor. Surely even in its current state with the death cap, this shouldn't work? But it does..

And finally, there is quite a hum - I'm not sure what level is regarded as "normal" for this amp. Looking inside, the large amount of white Mallory caps don't appear to match other images online of these, so I'm wondering if it has already had a recap at some stage in its life.

The hum and noise is post preamp - i.e, the volume controls don't make it better or worse.

Sorry for the long post, I'm trying to add pictures, but can't seem to find an attachments option. (And I can't use dropbox, as I can't post links yet)

Thanks in advance for any general advice anyone can give.

Paul

Subject: Re: New K200 owner, some guidance needed
Posted by [pleat](#) on Tue, 02 Aug 2016 20:56:22 GMT
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Welcome to the site. You describe the K200A series but I'm confused as to your description of the number of channels. If the back of the amp has a 1/4" reverb footswitch jack on the lower right of the back of the chassis, it would be a K200A-5 PA head. The reverb tank originally is suspended by two aluminum tubes that have flat ends and would screw into the top of the chassis, with the tank being bolted to the aluminum tubes. I would think flat aluminum strips would work as well.

The white Mallory caps are original to the A series. The hum? Should not be real noticeable, but back ground hiss would be more common, so I'll let the tech guys address that.

pleat

Subject: Re: New K200 owner, some guidance needed
Posted by [penguinpaul](#) on Tue, 02 Aug 2016 21:08:07 GMT
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Many thanks for the reply pleat, it has 4 channels with Volume, Reverb, Bass and Treble each. (No clipper or selective boost)
Yes, it has a footswitch 1/4 Jack and an RCA, presumably line output.

I'll use some flat aluminium to mount the reverb then, as I'm sure the chances of finding any originals are pretty slim - I've never seen one of these broken for parts on eBay.

The hum and hiss is more than I'd expect from an amp, but it's not by any means unusable.

Thanks again,
Paul

Subject: Re: New K200 owner, some guidance needed
Posted by [chicagobill](#) on Tue, 02 Aug 2016 21:52:25 GMT
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Welcome to the place and to the world of Kustom amps!

Could the hum be part of the reverb problem? Can you move the tank around and change the character of the hum? Do you have the side of the tank marked OUTPUT as far away from the power transformer as possible?

Pleat is right, there originally were two additional 3/8" diameter aluminum tubes with flatted ends that the tank mounted to. They are just like the two at the outer ends of the chassis, but were screwed into the top edge of the chassis instead of being pop riveted. Because the A-series chassis is deeper than the later B-series chassis, these parts are rarely if ever available. I had to make a set for my K200A-4. I couldn't get the same tubing as the original, but it came close enough to look correct. If you are handy with basic tools, you should be able to make a set for yourself.

As for the hiss and hum, you may need to replace a few small signal transistors and a few of those white Mallory caps. The two large main filter caps can go bad, but in my experience it doesn't happen very often.

Subject: Re: New K200 owner, some guidance needed
Posted by [penguinpaul](#) on Tue, 02 Aug 2016 22:18:20 GMT
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Thanks Chicagobill.

I don't know if the hiss could be thanks to the reverb - since replacing the tank, it works as expected, and the tank is currently situated outside of the cabinet. However, without trying a footswitch to turn off the reverb return, I can't rule that circuit out yet.

I have access to a capacitance meter at work, so will lift a few legs and see if any caps in the later sections of the amp are obviously bad. (I've heard lots of mixed feelings about how well meters work, due to the unrealistic low voltage).

Are there any transistors in particular to start looking at?

I'm looking forward to posting some pictures of it when I have a high enough post count to add links.

Subject: Re: New K200 owner, some guidance needed
Posted by [pleat](#) on Tue, 02 Aug 2016 22:19:21 GMT
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Too bad we don't have TV Antenna's anymore. The elements of the antenna are just right for making the tubes. I guess you could get some 3/8 copper tubing to make up a couple of supports.
pleat

Subject: Re: New K200 owner, some guidance needed
Posted by [chicagobill](#) on Wed, 03 Aug 2016 05:15:02 GMT
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Oh that's right Pleat, the old rooftop TV antennas used aluminum tubing like that.

Paul, I was thinking more about the hum from the reverb tank, not so much the hiss. Something to try is to short the RCA jack on the back panel and see if the hum or hiss changes. That would pretty much kill all of the signal from the mixer that is going into the power amp. Any hiss and hum that remains, would be generated in the power amp circuit.

You should try to isolate each of the different circuits to try and find out where the noise is being generated. Then look at each circuit and see what can be changed to quiet things down.

Subject: Re: New K200 owner, some guidance needed
Posted by [stevem](#) on Wed, 03 Aug 2016 10:09:18 GMT
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Welcome to our collective madness!

In regards to the hum issue take a look at the 4 output transistors on the bottom of the amp, are they all labeled RCA which would make them original and matched as they should be, as unmatched outputs can make for hum.

Another test would be to hook up a voltmeter set for DC across the speaker output of the amp to check for levels higher than .025 volts .

If you have a meter at work that has a frequency test setting you can hook it up to the output and pin down if it's 50 or 60 HZ AC hum from the power transformer, or 120 HZ hum from the DC side of the power supply .

All this being said ,I am betting that you mounted the output side of the reverb pan next to the power transformer which is a no no as Bill posted about!

Why you have two channels darker sounding is another issue and I have never heard a issue like that from those PA head preamps, this would lead me to believe that someone was in there and did that by intension .

Comparing Cap values between two different sounding boards may get you somewhere in that regard, I also think the amp has been gotten into due to the fuse on rear of the amp!

Subject: Re: New K200 owner, some guidance needed
Posted by [penguinpaul](#) on Thu, 04 Aug 2016 15:36:56 GMT
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Hopefully I'll get some time at the weekend to try and narrow down where it could be coming from.

The reverb pan isn't mounted yet, it's currently living outside of the cabinet, so it isn't a case of being too close to the transformer.

The transistors are all matching RCAs.

I'll post back after I get a chance to spend some time and look at all of the things suggested so far!

Stevem, I think you're right about it having previously been tinkered with. The fact that it has a fuse holder near the switch doesn't seem to be in keeping with being an A model, and of course the reverb mounts are missing.

Subject: Re: New K200 owner, some guidance needed
Posted by [stevem](#) on Fri, 05 Aug 2016 10:17:46 GMT
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I would think that even in the UK you can with ease find structural aluminum tubing for your rebuild as scale modeler's use it all the time.

Subject: Re: New K200 owner, some guidance needed

Posted by [slk854](#) on Fri, 05 Aug 2016 12:43:41 GMT

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How about trying to use an old aluminum arrow. They do come in different diameters. They are hollow. When I hit a tree with mine I just save them for certain projects. I am sure an archery shop would have a few that are not straight they would give you. Heck I would think even gas or brake line for cars would work.

Steve

Subject: Re: New K200 owner, some guidance needed

Posted by [myersbw](#) on Fri, 12 Aug 2016 03:41:17 GMT

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Before you give up on the old reverb tank (that fits perfectly). Try this....

I've not much Kustom experience, but plenty of reverb tank reworks. If this tank is sealed like the 150 series is, take a razor knife and slice through to separate the foam seal to the springs. Look really carefully at the spring area and the transducer leads. Often what happens is the vibration of the spring system can cause the wire leads to break away and cause hum, no reverb and the like. Often they can be very carefully soldered back into place. As it's broke...it can't hurt to try.

All the best!

Brad

Subject: Re: New K200 owner, some guidance needed

Posted by [penguinpaul](#) on Fri, 12 Aug 2016 10:01:38 GMT

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I haven't had a chance to touch the old Kustom in a week or so due to being so busy - mostly with gigs doing sound duties.

I have however had a chance to pick up some aluminium from a hardware store that should do the job perfectly for mounting the reverb inside.

I'm not 100% that the broken reverb tank is actually the original. It's a short tank (blues junior size), rather than the longer tank that I have now.. (Hoping the K200A and B models had similar tanks...)

Although I don't have it to hand right now, I'm fairly certain that the wiring was intact, and I was measuring open circuit on the tails from the transducer.

I'm looking forward to having a go at the amp this weekend!

Subject: Re: New K200 owner, some guidance needed

Posted by [stevem](#) on Fri, 12 Aug 2016 10:24:47 GMT

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9 inch reverb tanks never came in Kustom amps, only 14 inch tanks.

That tank will not work well although it may work some as its output impedance is close to what's needed, but its input impedance is like 75% too low!

Have you ever seen how the original tank support bars are flatten down at each end so they screw down nice?

Subject: Re: New K200 owner, some guidance needed

Posted by [penguinpaul](#) on Sat, 20 Aug 2016 13:04:53 GMT

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Right, finally had a chance to spend some time looking at the Kustom..

I'm measuring 90mV DC on the output, which is a bit higher than the 0.025 V suggested, I don't know if this points at anything in particular that's ageing in the power stage. The startup thump looks fairly large through my test speaker, but I haven't actually measured it yet.

Using an RTA on what's coming from the speaker (my meter doesn't do frequency), the hum looks to be around 150Hz, the second peak at 100Hz, and a third at 250Hz. I know this isn't an ideal way to measure it though.

I then checked the RCA line out. Both the hum and the background noise/hiss are present from this output.

I wondered if I could rule out the reverb circuit by using the footswitch jack, as of course the reverb controls are just send levels.

Unfortunately, the footswitch jack doesn't seem to work. There's a quiet pop/click when you engage the footswitch, but the reverb is always present.

Although I have the bits to mount the reverb tank inside, I'm going to leave this for a while, so it doesn't get in the way, and also so as to rule out the tank picking up any noise from anywhere in the amp.

It looks like my next step is going to have to be to take the preamp boards out and check cap values. And also check where the footswitch jack is wired to..

Subject: Re: New K200 owner, some guidance needed

Posted by [stevem](#) on Sat, 20 Aug 2016 23:01:20 GMT

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If the foot switch turns the effect on and off then it's wired right and I do not know why you would question it?

If you place a short across the end of the RCA Jack that goes to the output side of the reverb pan (the one you get a buzz off of) then that will kill all the gain from the reverb recovery stage and also any hum that may be coming from it.

The pop when you fire up the amp is normal , but the matching of the output transistors can make for output stage hum or not.

Subject: Re: New K200 owner, some guidance needed
Posted by [penguinpaul](#) on Sat, 20 Aug 2016 23:09:56 GMT
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The footswitch doesn't turn the reverb on and off - the reverb is always on. There's a quiet pop when you click the footswitch, so it must be wired somewhere, but the reverb doesn't go. That's the only effect on this amp (no tremolo, clipper or boost), so I presume that's what the footswitch is for?

It's late here in the UK, so I'll fire it up again in the morning.

Subject: Re: New K200 owner, some guidance needed
Posted by [chicagobill](#) on Sun, 21 Aug 2016 04:17:47 GMT
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The switching on Kustom amps are electronic, meaning that they use transistor switches to turn on and off the effects. It may be a bad transistor in the switching circuit that is keeping the reverb from turning off.

Have you tested all of the power supply dc voltages?
