Subject: Help with fixing Kustom L795RV
Posted by Smilan on Wed, 16 Nov 2022 23:59:56 GMT
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Hi,
I have on the bench a Kustom L795RV that came to me disassembled with burnt resistors at the power amp.
I replaced the faulty resistors and installed new 2N3055 transistors.
Now there's no smoke.
The voltages from the PSU seems to be right.
But what is going on is that as soon as I'm turning the amp on the amp start to squeal and the bulb on the current limiter starting to light bright.
When I disconnected the driver regulator board and connected the signal generator straight to the primary side of the output transformer with the signal on the RED wire and the BLUE wire grounded I got an output signal on the speaker.
When I disconnected the preamp and fed it with 25DCV from external PSU I got output signal on the wire that goes to the driver regulator board.
So it seems like the problem is with this board.
I replaced the three electrolytics on the board and tested all the transistors outside of the board and everything tested good.
Since I don't have a schematic for the L795RV I worked with the "Ross organ amplifier schematic" that I found on EL34 website that is pretty much identical to the driver regulator board and the power section of the L795RV.
What else can I do to make this amp works?

Subject: Re: Help with fixing Kustom L795RV
Posted by stevem on Thu, 17 Nov 2022 10:56:15 GMT
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Greetings to you.

Since you got this amp as a basket case I need to ask if it has all 3 circuit boards?

From your discription of the signal flow path it sounds like you do not have the reverb/ vib board.

I never tested it, but the signal coming out of that board may be of the needed phase to not throw the driver / phase inverter stage into oscillation which sounds like what is taking place to me.

So does the amp have all 3 boards.
The reverb/ vib board bolts in on the left side of the amp as you face the front and is mounted front to rear.

Another possibility is that one or both of the two main power supply rail filters are weak enough to not decouple the power amp section from the next up stream gain stages.

Jumping these two filters with new ones might be a easy test out.

Note that you have to make 5 post that I need to approve before your post just go right up to the site.
If you want to make make 5 reply's that just say test and I will approve them and then delete them and at that point your post will just go right up to the board.

Pm me your email and I will send you schematics for this amp.

Subject: Re: Help with fixing Kustom L795RV
Posted by stevem on Thu, 17 Nov 2022 11:09:11 GMT
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Also note that the small transformer on the driver/ reg board IS the phase splitter in this amp and here is how it should test out, who knows with the burnt up output stage parts the secondary side may be shorted or open .

The primary side should read out at some 9.7 ohms, and the red wire should have the power supply voltage going into it.
The tan and green wires are 5.9 ohms.

The brown and orange wires are 6.1 ohms.

Be sure to ohm test that these two windings are separate from each other.

Should the wires on the primary side happen to be reversed then that could be making the amp oscillate .

Subject: Re: Help with fixing Kustom L795RV
Posted by stevem on Thu, 17 Nov 2022 15:42:57 GMT
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I am just thinking about the schematic and the output section of this amp and nothing on the secondary side of the drive / PI transformer can be making for a oscillation issue because there is no feedback voltage from this section being pumped back into any other up stream section of the whole amp.

Subject: Re: Help with fixing Kustom L795RV
Posted by Smilan on Thu, 17 Nov 2022 16:30:11 GMT
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One more thing, does this amp should deliver 100W to the speaker?
The output coming from an 8 Ohms speaker is not what I would expect from a 100W amp.
I found this method to calculate the wattage of an amplifier E^2/R, where E is the voltage and R is the resistance.

According to this method the max output power of this amp is 81W.
With 1 kHz at 0db sent from a Boonton 1120 I measured 18V on the input section of the Boonton with a lot of distortion on the scope .
The max undistorted output was 13V so it's 42W in to 8 Ohms speaker.
Does it make any sense?

Subject: Re: Help with fixing Kustom L795RV
Posted by stevem on Thu, 17 Nov 2022 17:43:53 GMT
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One of these amps with the main rail filter cans in good condition will do about 88 to 90 watts RMS into a 4 ohm load.
That's the best I have ever seen from one of these.
With a 8 ohm load you will see about 1/2 that.
As I recall the last time I rebuilt one of those it made 17 volts, or 36 watts rms into a 8.2 ohm load.

I recall the factory wattage ratings being at 5% distortion.

I only drive these amps with -10 db, or about. .150 volts @ 1K because that's all that is needed to drive these and many many other amps of all makes to there maximum clipped output wattage.
Remember these amp where made to have enough preamp gain to deal with the weak single coil pickups of the day back then!

Subject: Re: Help with fixing Kustom L795RV
Posted by Smilan on Fri, 18 Nov 2022 09:15:01 GMT
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Thank you very much for the information!