
Subject: C795 Frankie
Posted by [bluezebra](#) on Sun, 07 Jun 2015 04:22:12 GMT
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Opened up the new Frankie 2 X 15 cab and found a 4 ohm 50 watt resistor wired into the speakers at the bottom of the cabinet. Both 15" speakers measure about 8 ohms on the meter. This one doesn't have a horn...so what's the heavy resistor in there for...or has someone removed the horn. The cab looks original.

Subject: Re: C795 Frankie
Posted by [stevem](#) on Sun, 07 Jun 2015 10:01:49 GMT
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I can not say there are a couple of possible reasons why someone would add a resistor to the output circuit but in terms of what would be in there stock if it had a horn then the only thing would be the in line cap used for the crossover!

Subject: Re: C795 Frankie
Posted by [Iowa Boy](#) on Sun, 07 Jun 2015 15:59:32 GMT
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Could it possibly be an inline fuse of some kind? Also was wondering if at sometime or other that maybe one of the speakers might have been a siren and they forgot to remove the cap but that should have been at the top of the cabinet, not the bottom. Of course after 40 some years, who knows what's been done to this cabinet. Thinking it might help if we knew what speakers are in it now; if it has CTS its possible the guy wanted to use it for guitar and was wanting more high end and put a siren in there.....who knows.

By any chance is it orange.....they are in my siren cabinets.

Subject: Re: C795 Frankie
Posted by [bluezebra](#) on Sun, 07 Jun 2015 18:07:15 GMT
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Thanks for the responses.
The resistor is brown and was wired at the bottom between the input and the speakers. The speakers are about 8 ohms each and wired in parallel and the resistor is 4 ohm. The speakers are CTS with the big magnets dated Feb 1966 and are matched.

This thing looks to be untouched on the inside. No modifications at all.

Subject: Re: C795 Frankie

Posted by [bluezebra](#) on Sun, 07 Jun 2015 18:14:28 GMT

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A pic is a thousand words

Subject: Re: C795 Frankie

Posted by [bluezebra](#) on Sun, 07 Jun 2015 18:19:54 GMT

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What does a Frankie expect to see as far as impedance?

Subject: Re: C795 Frankie

Posted by [chicagobill](#) on Sun, 07 Jun 2015 18:29:27 GMT

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This has come up before. I can't remember if there was ever a final answer, maybe Pleat remembers.

Try searching the board and see if you can find the old post. I think that the one theory that made the most sense was that when the amp was sold with two cabinets, each cabinet needed to be 8 ohms to keep the load seen by the head at 4 ohms. In the early days if they didn't have 16 ohm speakers, this was one way to fix the problem.

Subject: Re: C795 Frankie

Posted by [Iowa Boy](#) on Sun, 07 Jun 2015 18:44:24 GMT

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I'm wondering if this was used to change the ohm output on the cabinet. I'm not sure but Kustom was one of the few companies that their amps were designed for 4 ohm total load. Just guessing here, but is it possible that these 15's are 16 ohms each and not 8 ohms? I still think this was put in as speaker protection. Bill, Steve and Pleat as well as Bart are the electronic experts here....I'm just taking some shots in the dark. Pleat is the one with the memory of an elephant, maybe he can shed some light on this thing.

Just saw Bills post.....looks like my guess was right then.

Subject: Re: C795 Frankie

Posted by [bluezebra](#) on Sun, 07 Jun 2015 20:10:47 GMT

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When I got the cabinet I metered the input jack at 8 ohms. Then I opened it up and saw the resistor. The two 16's are 7.9 ohms each. I'm thinking that in parallel it brought them to 4 ohms and then the resistor was added to get it back to 8 ohms? But I'm speculating here.

Subject: Re: C795 Frankie
Posted by [stevem](#) on Sun, 07 Jun 2015 20:59:53 GMT
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That 4 ohm resistor is in series so the total dc resistance would be 12 ohms and two of such cabinets in parallel would make for a very safe 6 ohm load on the amp so what Bill posted makes sense and the resistor would need to be 50 watts.

Subject: Re: C795 Frankie
Posted by [bluezebra](#) on Sun, 07 Jun 2015 21:04:32 GMT
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Good Lord....The place where I bought this had another red 11 pleat cabinet next to it with a Red Kustom 200 on it (a mismatch of course).

What you're saying is....I left the second cabinet behind...?

So if I just run one cabinet as is...should the resistor stay or go?

Subject: Re: C795 Frankie
Posted by [chicagobill](#) on Mon, 08 Jun 2015 01:03:27 GMT
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If you read the dc resistance of a speaker with your ohm meter, the reading will always be slightly less than the rated impedance of the voice coil. You have two 8 ohm speakers in there.

If you are only using the one cabinet, I would rewire it as a 4 ohm without the resistor. Save the resistor in case you ever want to return it to original.

Subject: Re: C795 Frankie
Posted by [bluezebra](#) on Mon, 08 Jun 2015 02:39:47 GMT
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That's what I'm leaning to for now....unless I come into the other cabinet.

Thanks!

Subject: Re: C795 Frankie
Posted by [steve](#) on Mon, 08 Jun 2015 10:12:11 GMT
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Ok, I am confused now!
Early in this string of post you said the drivers where 8 ohms each which would not make sence with having that 4 ohm resistor in there and now your saying each driver measures over 7 ohms which would make them the needed 16 ohm drivers for running two such cabinets on one head?

Subject: Re: C795 Frankie
Posted by [Iowa Boy](#) on Mon, 08 Jun 2015 13:13:30 GMT
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I noticed that also but thought that Bill had the answer. What do you bet those are not the original speakers and they got switched out and the resistor was not removed? Either that or someone was trying to be creative.....hard to follow the logic but who knows.

Subject: Re: C795 Frankie
Posted by [bluezebra](#) on Mon, 08 Jun 2015 15:23:34 GMT
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I know it's confusing but I'm just reporting what I found. Before I opened up the cab I measured 8 ohms at the jack. When I opened up the cabinet I saw the resistor. Cleaned it off and found it was a 50 watt 4 ohm. It was wired in between the positive and negative side of the speakers. Each speaker was removed and measured at about 8 ohms and they were wired in parallel.

I now have the speakers in parallel without the resistor and the cab is at 4 ohms.

The location I found the amp had another 11 pleat cabinet with a K200 head on it and I never realized that the other cab went with this head. So a two cab setup was very possible. The drivers appeared to be original. The insulation on the brown speaker was wire was falling apart as I touched it.

Subject: Re: C795 Frankie
Posted by [carlc](#) on Mon, 08 Jun 2015 16:55:06 GMT
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The Frankenstein heads are looking for a 4 ohm load.

Subject: Re: C795 Frankie
Posted by [pleat](#) on Mon, 08 Jun 2015 17:24:42 GMT

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Reading the posts is very interesting. First off, the resistor is something that someone added to bring the cabinet back to 8 ohms.

Kustom never added resistors to any cabinet in the T&R series. First give a way is all black wiring.

Kustom only used 16 ohm speakers in their cabinets for guitar and bass cabs. Since the replacement speakers are 8 ohms each wired in parallel gives a 4 load, adding the 4 ohm 50 watt resistor in series, bring the cab back to 8 ohms. You mentioned there was another 11 T&R cab where you bought the first cab and Frankie head, I'd guess the second cab may have the same situation going on in the cabinet, so running both cabs on the Frankie head would get the impedance to 4 ohms.

In the early days of Kustom, Kustom did include a choke inside the cabs to correct for a motorboating issue that the very early Frankies had. I've only seen two cabinets that included the choke, one was a 2x15 cab and the other was a self contained 2x15 Frankie amp and speakers in the same cabinet.

pleat

Subject: Re: C795 Frankie

Posted by [bluezebra](#) on Mon, 08 Jun 2015 17:59:34 GMT

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Thank you pleat for those details...it brings closure to some of the questions. I couldn't figure out why the speakers were 8 ohms. They are both marked Feb 66 and do not appear to have been reconed. I see no modifications to the cab or the chassis (with exception of the resistor). I just wish I would have gotten the second cab but I didn't think the store would want to split the cab and the K200 on it.

Also, carlc..thanks...that's where the cabinet is now...at 4 ohms!

Subject: Re: C795 Frankie

Posted by [pleat](#) on Mon, 08 Jun 2015 19:35:47 GMT

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What color is the K200 head that is sitting on top of the cab you didn't buy? There is a collector in GA that might be interested if it's a -5 PA amp.

pleat

Subject: Re: C795 Frankie

Posted by [bluezebra](#) on Mon, 08 Jun 2015 20:44:22 GMT

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No, it's a K200 B and the red tuck and roll is faded and rough.
Not a collector item.

Subject: Re: C795 Frankie
Posted by [bluezebra](#) on Mon, 08 Jun 2015 22:51:19 GMT
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Well I swung a deal on a trade and got the second red 11 pleat cabinet.
It'll be interesting to see what I find when I open that one up....
Stay tuned...!!

Subject: Re: C795 Frankie
Posted by [steven](#) on Tue, 09 Jun 2015 10:28:21 GMT
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So are we!

Subject: Re: C795 Frankie
Posted by [bluezebra](#) on Thu, 11 Jun 2015 23:02:27 GMT
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OK, got the second cabinet in. I took off the back and Voila!
It's identical to the first. Two 8 ohm 15 inch CTS speakers
wired with a 50 watt 4 ohm resistor to bring back to 8 ohms.
It does not appear to be have had a speaker change out.
No marks on the speaker nuts. Similar bracket and wiring to
the first one.
The only thing of interest is the speaker code shows Feb of 1960...?

Subject: Re: C795 Frankie
Posted by [steven](#) on Thu, 11 Jun 2015 23:36:24 GMT
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Thanks for the report on the second cabinet and I would have to say that this confirms that this is
the way Kustom handled placing two cabinets on one amp and during the near 4 ohm load!
It's not odd to turn up a speaker that old, it just means it sat in the CTS warehouse a few years

Subject: Re: C795 Frankie
Posted by [Iowa Boy](#) on Fri, 12 Jun 2015 00:22:16 GMT
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So with this new revelation, imagine a 400 head with eight 2-15's cabinets with 16 ohm speakers in it. That would be a roadies worst nightmare. lol

Subject: Re: C795 Frankie
Posted by [bluezebra](#) on Fri, 12 Jun 2015 01:06:08 GMT
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You think they could have added a 4 ohm tweeter or mid range speaker into the mix rather than just a resistor but then again there's not much room left in that smaller cab.

With only one input on the head I have no choice other than using a quarter inch Siamese to connect the two cabs...?

Subject: Re: C795 Frankie
Posted by [pleat](#) on Fri, 12 Jun 2015 03:52:12 GMT
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With a date code of 1960, that should tell you the speakers are not original to the cabinet. Kustom did not use 8 ohm speakers in the 15" size speakers.

pleat

Subject: Re: C795 Frankie
Posted by [Iowa Boy](#) on Fri, 12 Jun 2015 03:57:59 GMT
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You could always add another speaker jack to the cabinet and wire it in parallel like they do on monitors and just plug one cabinet into the other.

Subject: Re: C795 Frankie
Posted by [chicagobill](#) on Fri, 12 Jun 2015 06:16:55 GMT
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Exactly what is the EIA code on the speakers? The first photo shows the 2nd week of 1966.

My horizontal 2X15 Ross and Myers cabinet has no ports or holes and has 2 15" CTS, 8 ohm speakers that are wired for 4 ohms.

Subject: Re: C795 Frankie

Posted by [stevem](#) on Fri, 12 Jun 2015 10:15:55 GMT

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My horizontal 2-15 cabinet is the same deal, two 8 ohm drivers!

I have worked on 3 all original Ampeg Fliptop B15 amps who's speaker was dated 1 to 3 years earlier than the manufacture date of the amp!

Subject: Re: C795 Frankie

Posted by [pleat](#) on Fri, 12 Jun 2015 12:35:47 GMT

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I sent Bud the photo and asked him if he can shed some light on the resistor in the cabs.

I really can't believe that CTS or any other speaker company would have speakers stocked in their warehouse for a few years before selling them to an amp manufacturer.

I would imagine a speaker company would be out of business if they sold speakers that slowly. I think the opposite, especially after the British Invasion in the early 60's and everyone took up playing musical instruments.

pleat

Subject: Re: C795 Frankie

Posted by [stevem](#) on Fri, 12 Jun 2015 12:45:09 GMT

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Yeah, but you got to remember not many USA made amps in the early 60s used 15" drivers but for Ampegs and the Fender showman or duel showman line!

Even Plush amps that used a lot of 15" drivers in there model line did not come about until 1968.

Subject: Re: C795 Frankie

Posted by [bluezebra](#) on Fri, 12 Jun 2015 18:01:57 GMT

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Bill,

The speaker code showing on the both speakers in the second cab is 137 602

Subject: Re: C795 Frankie

Posted by [chicagobill](#) on Fri, 12 Jun 2015 18:04:51 GMT

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I searched back in my archives and I found a message that Pleat posted regarding a choke that was added to some of the early cabinets. Bud noted that some amps would oscillate at a very low

frequency, causing the speaker cones to slowly move in and out. He also noted that JBL speakers did this more than the other types.

He attributed the cause to the change in the power amp design, removing the driver/phase inverter transformer. If this was the case, then we're talking about the K200A series amps and not the Frankie heads.

We need to find out the correct date codes that are on the speakers. As I posted earlier, the photo shows a EIA code of 137 602. 137 is the code number for CTS, 6 is for the year 1966 and 02 is for the 2nd week of the year. If in fact the date code is for Feb of 1960 it would have to be something like 137 005.

Subject: Re: C795 Frankie
Posted by [bluezebra](#) on Fri, 12 Jun 2015 18:09:26 GMT
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I'm probably reading the date code wrong (brain fart)....02...second week of 6...1966... if so all four speakers match. Unfortunately one is doa.

Subject: Re: C795 Frankie
Posted by [bluezebra](#) on Fri, 12 Jun 2015 18:20:40 GMT
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I also find the wheels are different on both of the cabinets as are the Handles.. they are solid black plastic (3 of the 4 broken). The head Serial No. is 2172

Subject: Re: C795 Frankie
Posted by [chicagobill](#) on Fri, 12 Jun 2015 19:18:46 GMT
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Nice looking rig. It'll look even better with both cabs.

Wheels without mounting plates and all plastic, black handles are correct for the early amps.

I wouldn't be surprised that the casters could be changed. The handles are sort of like a guitar case handle. All plastic with metal mounting pivots.

The other sign of an early version is the space between Ross and Inc. The earlier artwork said Ross and Myers, Inc. When Myers left, they removed his name from the silkscreen artwork,

leaving the big gap.

Check the wiring and the wiring on the doa speaker itself. If there is a cold solder joint or something it might be fixable. If not I'd look to have the doa speaker reconed to match the originals.

Subject: Re: C795 Frankie
Posted by [bluezebra](#) on Sat, 13 Jun 2015 00:00:13 GMT
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Thanks Bill,
I didn't know that part about the name change. Interesting.

Also, the castors are different but one is bent and hard to roll. I have two sets of the normal looking wheels. If these are original I'd hate to change them out for just one (it still kinda rolls). If these have never been used...I have replacements. I've already found some handles that match.

I was almost in shock when I walked into the store in Irving, Tx and found these. They had been on their floor for sale for over two years....!

Subject: Re: C795 Frankie
Posted by [pleat](#) on Sat, 13 Jun 2015 16:05:54 GMT
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I received two emails from Bud yesterday. The first one,
"Good morning Don,
This was in the fall of 67 when we started shipping the first direct drive units. The amplifiers would motorboat, especially when we used JBL. I don't remember a choke but we did ship a few with a resistor."
The problem was fixed in a couple of days. I thought we recalled the ones that were shipped with resistors. Maybe we didn't get all of them.
Bud
The second email,
"Do say hello to everyone. You are probably right about the speakers being replaced."
Bud
I'd be interested in seeing the back panel of the amp to see how many power devices are on the back.
I've seen 3,5 and 6 power devices on Frankie heads. It looks like the cabinet in the photo has no port holes behind grill cloth, which would date the cab to a very early year. Bud told us the reason some cabs have no port holes is he broke his little hand saw that was used to cut the holes. As ChicagoBill mentioned, the early cabinets used an all plastic handle as seen in the 65-66 catalog.
Bob Brinkman was the head tech when the company moved to Chanute. Bob told me they used the local hardware store for some items. Handles, knobs and the chrome amp glides, that also are

used on the legs of furniture. About 1" in diameter and has a nail in the center. I once owned an early no port 2x15 Frankie cabinet that must have shipped from the factory without casters. I saw the remains of the nail hole follow by several different caster plate patterns. My cabinet didn't have the dividing board between the speakers, just a 1x2" slat across the middle of the back panel.

I wouldn't add a second speaker jack to either cabinet. I would want to keep the cabs original. I'd make up a simple junction box that all three ¼" jacks are wired in parallel to hook the cabs to the amp head. Using a Y cable, you would want to make sure it's not a shielded audio type. Not sure if they make a speaker Y cable, but then I haven't looked for one either.

In the early days and cash flow a daily struggle, you will always find some interesting ways the early models will differ from one amp or cab to the next.

I personally have never seen a Ross & Meyer Inc. logo on a Kustom amp. I've seen the Ross MFG. logo that is narrow and the labels over the inputs are Guitar and Bass.

So the cabs may contain original speakers but as production grew and things were stabilized, Kustom used only 16 ohm speakers until the slant face era amps of 1971.

So Bud didn't recall using 8 ohm speakers, but then again in the early days, Bud was also turning over the daily production to his people and he was concentrating on the front end of building a dealer network to grow the business.

By the way Bud just celebrated his 75th birthday on May 30th.
pleat

Subject: Re: C795 Frankie

Posted by [chicagobill](#) on Sun, 14 Jun 2015 03:37:17 GMT

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Well Happy Birthday to Bud!

Pleat, I will take a photo of my head and try to post it here. When I was in Chanute for the reunion a few years back, I had photos of my amp that Bud signed for me. It was at that time I heard the story about the problems that Bud had with his partner and why they split up.

I know that the later service manuals clearly stated that all of the K200 amps used 16 ohm speakers and I know that most of them did have 16 ohm speakers, but I have seen 8 ohms in a some of the earlier cabs like mine. It's been a while since I had the back off of the cab, but as I recall mine does not have a center divider either. I know I've heard the story about the broken saber saw before, but did all of the cabinets have ports or did the earlier ones come without them?

Bud's note about the speaker oscillation must be referring to the A-series amps, or what he called the direct drive design.

So my personal feelings here are that these two cabinets are matched and original with the resistors for use with a Frankie head. Which by the way is a pretty dumb solution to the problem, as half the amp power is wasted by the resistors. This is the reason they went to the 16 ohm speakers. I would also assume that the owner probably used the amp at times with only one cabinet, which would reduce the power even more.

Subject: Re: C795 Frankie
Posted by [bluezebra](#) on Sun, 14 Jun 2015 04:48:01 GMT
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WOW!!!

What a history lesson and from the man himself.

Of interest to me is the fact that many years ago I worked as police officer and used a Kustom radar (it even had tuck and roll covering)

not knowing it was related to the Kustom of many years ago....!

BTW...the head has six power transistors.

Now to bring it back to spec I would have to find four more speakers. Think I'll just put back the resistors...why mess with history?

Thanks pleat for the research.

Subject: Re: C795 Frankie
Posted by [stevem](#) on Sun, 14 Jun 2015 10:17:29 GMT
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Yes your head has 6 TO3 type power transistors on the rear , but only 4 comprise the main output stage.

One is the driver for the output stage and the other is part of the voltage regulator for the preamp section.

Bill I your right about the wasted power that the resistor will soak up and I am not sure if in the end with two cabinets running (4-15") that you will still end up with more sound pressure level then just running 2-15s or just reach a break even point?

If it's just around the break even point then dragging around that second cabinet will just be for exercise and showi guess!

Subject: Re: C795 Frankie
Posted by [bluezebra](#) on Sun, 14 Jun 2015 17:14:15 GMT
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Is there a schematic for this model? I don't see any listed on the site.

If what I'm reading is correct. The loudest this thing will ever get is the way I have it now. With one cab running without the resistor in line.

Subject: Re: C795 Frankie
Posted by [stevem](#) on Sun, 14 Jun 2015 19:31:33 GMT
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Yes it's under the K200A listing for some reason and it's the first set of schematics that comes up and says K200 in the lower left.

If your cabinet is wired for 4 ohms then that may be the loudest it gets, but sound pressure can be a funny thing dependant on the room so trying it with both cabinets wired up with the resistor may be worth a try also.

Too bad the cabinet has no ports as then you could wire up a reachable switch to just short across that resistor when you want!
