Subject: Frankie reverb tank
Posted by sunnhead on Fri, 23 Aug 2013 10:15:51 GMT
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I just bought a Frankie fixer up-er. The reverb tank is missing. where can I get one that would work with this amp?

Subject: Re: Frankie reverb tank
Posted by chicagobill on Fri, 23 Aug 2013 18:59:22 GMT
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It seems that it's getting harder to find the original style tanks nowadays. My notes say that the correct tank is an Accutronics part 4FB2C1A.

If you go to Antique electronics, they still have a few of the NOS Kustom tanks from the '80s tolex amps. The tank part number is P-R4BB2C1A.

That tank should work, or you might need to make a slight modification to the input jack if your reverb send wire shield is not grounded.

Subject: Re: Frankie reverb tank
Posted by stevem on Fri, 23 Aug 2013 19:20:02 GMT
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While she`s open take a good look at all white coupling caps on each board for popped out end, as those are for sure bad and may others that look good.
Olso I would replace the 500 mfd caps

Subject: Re: Frankie reverb tank
Posted by sunnhead on Fri, 23 Aug 2013 21:03:27 GMT
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Why replace the caps? Just curious what that means or does to vintage amps?

-S

Subject: Re: Frankie reverb tank
Posted by chicagobill on Sat, 24 Aug 2013 01:17:22 GMT
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Electrolytic caps can dry out with age and will lose value. This can cause increased hum, loss of frequency response and loss of gain, depending upon where they are used in the circuit.

Steve is pointing out a possible problem with your amp, based upon his past experiences. I've seen some of them go bad, but there are too many variations for me to suggest an overall shotgun replacement of all of the caps.

If there are symptoms that your amp has that can be atributed to bad caps then the only solution is to replace them. If you are concerned about vintage value, most players feel that a working amp with new caps is far more valuable than a dead one with all original parts. Museums may want them all original.

Subject: Re: Frankie reverb tank
Posted by sunnhead on Sat, 24 Aug 2013 03:20:30 GMT
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I always wondered when people said they need a cap job. I guess out of all my amplifiers I haven't had an issue with any excessive hum. Its just been something I have always wondered about. I guess over some 40 years things will start to fail. Do the Frankie amps have a referent serial number chart? I don't see mine on the chart. mine is 11447.

-S

Subject: Re: Frankie reverb tank
Posted by sunnhead on Sat, 24 Aug 2013 07:03:49 GMT
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On the Frankie, Turns out I'm missing the Choke that is by the power amp board. What is the value for that? Looks like Ill need to get on bought up to get this guy up and running!

-S

Subject: Re: Frankie reverb tank
Posted by stevem on Sat, 24 Aug 2013 11:55:22 GMT
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Well, unfortunaly that is not power supply choke as that would be easy to get a replacemt for, that is the output stage Phase inveter / driver transformer.
Many old tube and early SS amps used this type of set up.
I have done some research on the one in my Frank head and was make by a company called Northlake and they are still around.
My transformer has these numbers on it
4001
1005628 of which 1005 is their manufacturer code, and 628 is that date of manufacture Aug 1962.
160w3 which I belive is there part number.

Resistance check wise the input side/primary comes in at 9.7 ohms.
The output side/secondary comes in at 5.9 ohms across what was the tan and green wires, and 6.1 ohms across the brown to orange wires.
I tested mine with the amp working and driving the primary side with 12.85 VAC (max clean amp signal input) and the output side/secondary put out a total of 9.92 VAC. this was split up with 4 93 volts across the tan/grn and 4.99 across the or/brw wires.
Heres the important part this is a 1.3 turns ratio making the transformer a step down type.
Even with all this info we still need to know the all inportant Impeadance number for the primary and secondary side of this transformer, and tube type transformers of this type will not work for SS amps.
In the mid 60s Thomas VOX SS amps made here used driver transformers, I have never done a search for replacements, but I would guess that one for the 120 watt super Beatle model would work in the Kustom, but might need to be mounted different due to size.
If I have time over the weekend I will look for a new replacement, or get to it in the first part of the week, but you should get in contack with Northlake Enginerrings customer service dept with this info that I have posted and see if they may still have a old dusty new one stiing around, or can direct you to one that will work.

Subject: Re: Frankie reverb tank
Posted by sunnhead on Sat, 24 Aug 2013 12:14:30 GMT
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To be sure this is what I am missing, that in the part you speak of right?

-S

Subject: Re: Frankie reverb tank
Posted by stevem on Sat, 24 Aug 2013 12:28:14 GMT
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Yup! And those white mallory caps are the ones to check out close, and the black one next to it must get replaced.
If the amp has reverb there will be another black cap of the same value on the reverb board, and that should go also.
ALSO
Your postings on this formum are huge and we need to scroll way to the left to read them, what format are you using on your Computer?

Subject: Re: Frankie reverb tank
Posted by sunnhead on Sat, 24 Aug 2013 12:45:49 GMT
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format? i use Firefox, windows 7

Subject: Re: Frankie reverb tank
Posted by chicagobill on Sat, 24 Aug 2013 15:27:43 GMT
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It's the size of the photo that is causing the width problem.

Is the original transformer missing or dead? If it's still there, then it might be fixed or rewound. If it's missing then hold off on buying any other parts until you find a suitable replacement.

Subject: Re: Frankie reverb tank
Posted by sunnhead on Sat, 24 Aug 2013 15:34:02 GMT
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The part in the picture is actually missing of my amp, that one is in my kustom organ.

-S

Subject: Re: Frankie reverb tank
Posted by stevem on Sun, 25 Aug 2013 11:23:44 GMT
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The picture still shows the very edge of the transformer.
As luck would have it I had a 1974 Acoutic 150 to fix latter in the day yesterday and since it has been a good long while since I had worked on one of these I had forgot, I forgot that even in 1974 these model amps still use a PI transformer and I think this model was made untill 76, it blew my mind!
The good thing about this is it gives you another option for a sourse for the needed transformer. These amps do not use a + and - power supply layout like our Kustom amps so the transformer is made with two seperate secondary windings, but thats not a problem for use in the Kustom as all you need to do is combine two of the wires and you have the same set up as the Kustom trans.
If you can turn up a cheap blown up Acoustic 150 head that would be a dooner for the PI transformer.

Subject: Re: Frankie reverb tank
Posted by sunnhead on Sun, 25 Aug 2013 12:00:18 GMT
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Yeah this is really a mind bender, I could look for the 150, that is still hard to come across! There has got to be a way.. right I look at the positive side of things...

-S

Subject: Re: Frankie reverb tank
Posted by chicagobill on Sun, 25 Aug 2013 17:58:00 GMT
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Well there are two solutions, find a doner head or build a new replacement. Steve's idea of the Acoustic amp as a doner may work, but I don't know if the specs are close enough to make them interchangeable. Besides Acoustic, Vox and Peavey also used this power amp design, but again I don't know if any of those parts would work either.

If anyone out there has a dead one that can be dissected or if the original specs are somewhere to be found, it might not be that hard to hand wind one using the core from another transformer. Or it could be sent to someone like Edcor for a custom winding job.

Subject: Re: Frankie reverb tank
Posted by pleat on Mon, 26 Aug 2013 01:46:37 GMT
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I have a third solution. Buy a Kustom tolex covered or rack mount power amp, and stuff the amp inside in place of the bad amp. You might have to adjust the voltages to the pre amp boards, but you'd have a stable amp. The tolex and rack mount amps are cheap.
Steve Cass stuffed a Lead lll into a K200 head and cut it to fit into a K100 head case. Steve had it at the 2012 convention and it was impressive and loud.
pleat

Subject: Re: Frankie reverb tank
Posted by sunnhead on Mon, 26 Aug 2013 01:58:47 GMT
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possible, but this was a Frankie had so would the later parts work, plus newer kustom heads didn't have the phase inverter transformers. its a long way, but i think I'll get there.

-S

Subject: Re: Frankie reverb tank
Posted by stevem on Mon, 26 Aug 2013 13:49:28 GMT
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I would contack Northlake first to what might pan out for you.

Subject: Re: Frankie reverb tank
Posted by chicagobill on Mon, 26 Aug 2013 16:10:03 GMT

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No, what Pleat was suggesting was to buy cheap Kustom power amp or tolex head and refit the entire new power amp inside the Frankie chassis, eliminating the need for the driver transformer.

Definitely not original but it would work.

Subject: Re: Frankie reverb tank
Posted by sunnhead on Mon, 26 Aug 2013 18:34:11 GMT
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Ah I see, well im gonna try my hardest to find a output transformer. I wanna keep it as original as possible.

Subject: Re: Frankie reverb tank
Posted by sunnhead on Tue, 03 Sep 2013 15:41:31 GMT
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Well today I called Northlake and they dint have any info for me No specs nothing. I'm at a loss here.. looking for any help finding this damn Transformer!!

-S

Subject: Re: Frankie reverb tank
Posted by chicagobill on Wed, 04 Sep 2013 15:46:57 GMT
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Well, you could try contacting Mercury Magnetics, they offer a rewind and rebuild service. They may have rebuilt one in the past and could have the specs on file. Even if they don't have it listed on the website, they may have the info on file.

You could try and find a doner head to steal it from. I have to imagine that there is a dead, trashed head out there that is in too bad a shape to be wanted by the collectors out there. Search eBay and Craig's list and see what you can find. Post a wanted ad in the classified section here and see if you get any response.

Try posting on other guitar amp boards like Music Electronics Forum, etc. That will expand the pool of knowledge and the possible sources for replacements.

Good luck.

Subject: Re: Frankie reverb tank

Posted by smackoj on Thu, 05 Sep 2013 10:35:22 GMT
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I have a suggestion re: finding out what the specs are on an unknown transformer. Gerald Weber has several books about tube amps and a couple dvds also. I know there is a section that uses a method whereby the tech puts exactly 1 volt on the secondary and then measures the primary to get the primary impedence. I will look thru my copies later today and find the exact book and page for you. I'm sure one of the members here wouldn't mind doing the lab work with a working model so that the specs on this imp. matching (sorry all, I mean interstage) transformer could be recorded for future reference.

I think if you do some more research into figuring out the specs on your missing transformer, you can then find a working replacement without having to pay the high re-wind price.

I am sure with heebay, Mouser electronics and places like the Triode Store you could find a good match.

jacko

Subject: Re: Frankie reverb tank
Posted by stevem on Thu, 05 Sep 2013 11:19:49 GMT
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If you hace another Frank head to pull one out of you could send it out to be reviewed and get one made, since you do not have the old core they would have to supply that also.
Just a note to you hear, I am sure Murcury magnetics could get you going, but they are by no means cheap.I just had to send out a early model 200 watt Marshall Major OT for a rewind and it was 350 bucks, Murcurys on the sheif replacemnet is 350 bucks.
This is not to say that it would cost you this much, but there are other rewinders that could handle it and not rape you on the cost!
AES sells a couple of these with different windings that I am wondering might work, or atleast be a starting point for a rewind, and there only some 30 bucks.

Subject: Re: Frankie reverb tank
Posted by smackoj on Thu, 05 Sep 2013 12:52:59 GMT
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I have had excellent service and very good prices from Magnetic Components Co. in Chicago IL. they are on the web. they make a large variety of high quality transformers for vintage amps but they don't sell direct. you have to go to the Triode Store which is also on the web. BUT, the Mag Comp people in Chicago are very helpful and you can either email them or call them and I am confident they will give you some guidance if a re-wind is what you decide on. Of course you would need a 'core' to do a re-wind which is noted earlier.

smacko

ps. is a 'frankie' a kustom amp made from donor parts?

Subject: Re: Frankie reverb tank
Posted by chicagobill on Thu, 05 Sep 2013 16:57:06 GMT
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A few things here. The part we have been discussing here is a driver/phase inverter or interstage transformer. This was a fairly common part back in the '50s and '60s, but has not been used in any modern amp designs. Finding a generic part is probably no longer an option.

Mercury Magnetics is well know as being on the high priced end of the cost scale. They have advertised themselves and marketed themselves directly to the public in all of the major guitar and music magazines. That costs a lot of money. I personally do not use or recommend their products, but I have installed them for customers that buy them directly and bring them into the shop.

The Magnetic Components transformers that I have used, have been very good quality parts and fairly priced. Triode used to have a retail store that was a ten minute drive from my house, so I used to buy stuff from them all the time.

The Frankenstein reference is to the earliest of the Kustom K200 heads. The reverb tank was screwed to the inside top of the case, so to hide the reverb tank the top front frame had to be wider than the other three sides. The wide forehead reminded people of the Frankenstein monster's head and the nickname Frankie or Frankenstein was born.

Subject: Re: Frankie reverb tank
Posted by Kustom_Bart on Thu, 05 Sep 2013 19:13:01 GMT
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PM sent about the difference between the Frankie and a later K200

Subject: Re: Frankie reverb tank
Posted by smackoj on Thu, 05 Sep 2013 21:54:00 GMT
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question for Steve M; does the driver transformer in your Frankie have a center tap on the primary side? How many wires on each side are there? I'm still trying to get the correct method to find the impedences. I have found the formula for finding the primary impedence after finding the primary turns ratio (turns ratio squared x output impedence) however, this method is based on testing an output transformer that is connected to a known load i.e. 4, 8 or 16 ohm spkr.

I realize that the prospect of finding an 'over the counter' replacement is considered unlikely, but I'm still intrigued by the prospect of at least notating the specs for future reference if nothing else.

smacko

Subject: Re: Frankie reverb tank
Posted by smackoj on Fri, 06 Sep 2013 12:26:59 GMT
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more stuff on the i-stage trans. i have searched sneebay and found several possible candidates. what i need to know from those with more knowledge and a working Frankie is:

1. does the I.S. trans have a lower or higher secondary than the primary?

2. what would be an approximate current on the primary side?

thanks, jack

Subject: Re: Frankie reverb tank
Posted by sunnhead on Fri, 06 Sep 2013 13:28:03 GMT
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Gosh I hope someone finds the cure!

Subject: Re: Frankie reverb tank
Posted by chicagobill on Fri, 06 Sep 2013 17:01:41 GMT
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Jack, it may help you to go to the technical section and look at the schematic for this amp.

The transformer has a single primary winding and two independent secondary windings. I have no specs for the windings and would need to carefully run some tests on a good one to know what the impedance ratios are.

Steve's resistance measurements are really not a good indication of the ratio, as the primary and secondary windings could be wound with different gauges of wire which would make the dc resistance per turn completely different primary to secondary.

The closest set of specs that I have been able to find are from a Delco Radio transistor manual, which for their design calls for a 6:1:1 primary to secondary ratio, and a primary winding current of 50mA. Of course these specs may be completely wrong for the Kustom design.

R.G.Keen has been working on this same problem for years now, and may someday come up with the instructions for recreating one of these transformers for a VOX Beatle transformer. His

research may ultimately be the solution for the Kustom transformer problem.

If we could get our hands on a dead original one to dissect, we could end all of the guess work and just have them reproduced.

Subject: Re: Frankie reverb tank
Posted by smackoj on Fri, 06 Sep 2013 21:09:56 GMT
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hi again. maybe this info will shed light on this mission to find a suitable I.S. transformer. I e-mailed Gerald Weber at Kendrick-amplifiers.com. he knows a lot about many amp type questions and he was kind enuf to send back instructions on how to test a working I.S. transformer and get the specs needed to find a replacement. Here are Gerald's instructions copied and pasted from his email.

"To find a turns ratio, you simply put a small AC voltage on one side of the transformer, let's say the primary. Then you measure that voltage very carefully and write it down.

Now measure the AC voltage on the secondary. You would then divide the secondary voltage into the primary voltage

and the result is the turns ratio. You don't need to know the impedance. If you get the turns ratio right, it will work because an impedance transformer is like a transmission which matches the power to the load.

If, when you are looking for a replacement transformer, you only have the impedance spec of the new transformer you are thinking of purchasing, you can easily determine the turns ratio by dividing the secondary impedance into the primary impedance and then finding the square root. That will give you the turns ratio.

For example, lets say you are looking at a 40K primary 8 ohm secondary transformer.

8 divided into 40,000K is 5,000. Then the square root of that is 70.71 which is the turns ratio.

Since it is an interstage transformer, it might be used for phase inversion, in which case it will have a centertap on the SECONDARY and it will be a low turns ratio, maybe 10 to 1.

Hammond organs (A100, B and C models) used such a transformer and it would probably work in your application."

Gerald Weber

ps. In Gerald's book when using a Variac to diagnose amp problems, he recommends using exactly 1 volt AC when checking for turns ratio of a transformer. it keeps the math easier I assume but I'm sure 10 volts would work equally well. When he says "carefully measure" the voltage you apply, that is a must to keep from blowing the experiment and getting a false reading.

Subject: Re: Frankie reverb tank
Posted by sunnhead on Fri, 06 Sep 2013 21:59:42 GMT
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But Hammond's are tube and if I was told right tube transformers wouldn't work? It would be awesome if that would be the ticket.. I have a guy that would know where to score them...if we got this figured out it would make my day!!!

-S

Subject: Re: Frankie reverb tank
Posted by smackoj on Sat, 07 Sep 2013 02:27:46 GMT
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You are correct that Hammond tube amp transformers would not be suitable for this interstage application. At least not the power trans and the output trans that would be specific to a tube organ amp. however, the interstage transformer that we are talking about doesn't care if it's operating in a tube amp or a 747 jet liner. it won't matter because you just need to be sure that the primary impedence, or 'turns ratio' is correct and the current to the primary is the right amount of miliamps. the transformer will also need the same number and type of connections on the secondary side so it can do the same phase inversion that the orig design called for.

the Hammond organ models that Gerald referenced are models that used an interstage transformer along with the power trans and the output trans. you might have to buy the whole chassis with all three transformers in order to get the one you need off it, but they don't cost that much even to buy the whole chassis.

Subject: Re: Frankie reverb tank
Posted by sunnhead on Sat, 07 Sep 2013 10:29:51 GMT
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So the next step is how to be certain that that would work!

Subject: Re: Frankie reverb tank
Posted by pleat on Sat, 07 Sep 2013 11:53:49 GMT

I know you have several Frankie heads. I'd remove the part from a good unit and have someone check it out for windings and impedance etc. Seems to be the quickest way to get accurate data. Then we all know.
pleat

Subject: Re: Frankie reverb tank
Posted by smackoj on Sat, 07 Sep 2013 12:03:44 GMT

shead; hopefully, one of the forum friends with a working Frankie will run the tests on their interstage transformer and then post the turns ratios on both sides. It will be important also to have clear directions on how many wires there are on each side of it. after you have those clues, you can begin a search for a transformer that has similar qualities.

my search of heebay turned up a couple possible donors and the prices are very reasonable (15-20 usd). there are several guys pulling the Hammond organ amp chassis and the 100 models are also avail at a price of about 60-100 dollars. they are tube amps and there would be lots of parts you don't necessarily need, but many of them such as the pwr tubes, preamp tubes and the pwr and output transformers are re-sellable.

ALSO: there are also many good guitar amplifier forums and other types of electronics forums, Ham radio enthusiasts for ex., and all of those offer 'buy and sell' threads. you might want to run some ads asking for help finding the actual part or similar part from guys who always have parts collecting dust in their shops. I would guess there are numerous people who have Hammond organ amps that they scavenged and never used the interstage trannies.

then, after you find a replacement, if you are using a tech to do the work, give him the part and he should know how to proceed. Caution, you should make sure if you are trying a new/old transformer in the Frankie that you only test it by running it with a current limiter first. this helps to protect all the guts if you have it wired wrong. current limiters can be made for a couple bucks with common elec. parts and a lamp with a 100 watt light bulb.