Subject: Saving a Frankie
Posted by cassent5150 on Sat, 04 Dec 2010 22:11:41 GMT
View Forum Message <> Reply to Message

I just saved a Frankie from a junk heap somewhere and I'm in need of info to somewhat restore it. This is what I do know, its a model 695PA, it had 6 power transistors mounted on the back panel which are missing, there is 3 more 1/8" holes on the back where something was mounted and a 1" hole where maybe a 110 volt outlet would be mounted. I dont see a driver board like the B series amps have mounted to the back. Theres a 2" X 5" board, with the reverb wires soldered in, mounted to the bottom on one end of the chassis. Theres another board mounted on the bottom of the chassis just behind the the front panel. All the knobs, fuses and power switch are present and look to be original and conected. There are 2 Mallory electrolytic capacitors (1=50v and the other 75v. along side mounted to the bottom of the chassis is a plate with looks to be 4 diodes. Theres a red and a gray wire twisted together coming from the curcuit board along the front panel laying loose unconected. Theres a gray wire coming from the side board with the reverb wires also loose and unconected. Where do we start? Thanks Steve

Subject: Re: Saving a Frankie
Posted by stevem on Mon, 06 Dec 2010 12:15:08 GMT
View Forum Message <> Reply to Message

I will anwser your last question first, and this is not a smart ass reply.
YOU NEED TO GET ANOTHER AMP!!!

Your model 695 PA HEAD in regards to holes on the rear panel is missing.

1) The four output transistors.
2) the 2 similar transistors to the outputs that are part of the power supply voltage regulator circuit.

3) the whole driver board/regulator circuit.

4) the output driver/phase inverter transformer.

5) And I guess the four 10 watt output transistor emitther resistors and coupling caps.

It would also seem from your comments that your amp is missing the power transformer.

All the items you need other than the output transistors,power transformer and emitter resistors can only be had out of another Frank model head.

I guess if you had a real burning desire and the time for a long project you could swap in the power supply/driver and output stage from a A or B serise head which would be easyer and cheaper to find.

In rethinking what I just posted your best,cheapest and fastest bet would be to install one of the many 100 watt IC type output packs that can be had and a power supply to run it.

Subject: Re: Saving a Frankie
Posted by cassent5150 on Mon, 06 Dec 2010 14:21:28 GMT
View Forum Message <> Reply to Message

I've collected plenty of parts over the years. The info I need is, What is the two wires (Red and Gray twisted together) coming from the pre amp section along the front panel? What is the gray wire coming from the reverb section? I would assume that the gray wires are the signal output and the red wire would be the positive supply for the pre amp section itself. I NEED A SCHEMATIC FOR THIS AMP so I can get the proper supply voltages. I have several "KUSTOM" complete power sections to put in there and that would be my intention at this point because of the missing transformers. What is the pre amps operating voltage, you suggested the B model so is that going to be 8 volts? If you have the schematics for this could you scan and email them to me at cassent5150@hotmail.com or forward this message to someone that has schematics so I can get a copy? Thanks soooooo Much Steve C

Subject: Re: Saving a Frankie
Posted by chicagobill on Mon, 06 Dec 2010 17:33:28 GMT
View Forum Message <> Reply to Message

Is this the chassis that was on eBay?

Steve is right there is little hope of restoring this head with so many pieces missing. I guess that you could come up with some sort of power supply and a power amp and stick it in there and make it work as an amp, but that's your call.

The preamp needs +24vdc. The red wire is the power supply line and the grey wires are the signal outs from the preamps. The board right behind the front panel is the preamp circuit and the small board on the left side is the reverb circuit. The hole on the back of the chassis is a relief hole where the back of the 1/4" speaker jack used to fit. There was originally a black perforated metal panel that covered the power transistors and it also held the ac cord strain relief and the speaker out jack.

I will email you the schematic for this amp later today.

Subject: Re: Saving a Frankie
Posted by cassent5150 on Mon, 06 Dec 2010 19:35:30 GMT
View Forum Message <> Reply to Message

Thanks chicagobill that would be fantastic. My intent is to save the cosmetics of the amp and retain the appearance while still maintaining the "Kustom Vintage Sound". If the preamp section with the reverb section can be used I will just install one of the power sections from another Kustom. My first option is a Module unit that I believe to be from an extention cabinet for a K250. It has a 5065 board so I have to decide where to get the supply voltage for the preamps. Where as the PC703 or 900 have thier own regulated supply, I'm thinking power from the caps via resistored to supply voltage like it does in the K250 and K150's. Is this the way to go? I'd rather part out one of the 2 module units I have than a amp head if you know what I mean. Steve C

Subject: Re: Saving a Frankie
Posted by cassent5150 on Mon, 06 Dec 2010 19:36:59 GMT
View Forum Message <> Reply to Message

By the way, YES it is the chassis that was on ebay.

Subject: Re: Saving a Frankie
Posted by stevem on Tue, 07 Dec 2010 12:25:27 GMT
View Forum Message <> Reply to Message

Besides the resistors in the Kustom module,K150 and K250s Their is a Zenear diode on each leg of the preamps supply, and infact this methode of regualtion can get you the 24 volts you need for the franks preamps by using the proper voltage Zenear diode.
You would have to also use a voltage doubling cicuit to get you up to 24 volts from the 12 volt differentail supply that these latter preamp sections run on.

The only question is will you than have enought current to power the franks preamp section as the use of a doubling circuit cuts the avalible current in half.

Another way out would be to buy a 24 volt transfomer such as a Hammond 166JB24,then with a small hand full of parts like

3 amp rectifier bridge.
two 24 volt zenear`s.
two 10,ooo uf @50 volt caps
you have yourself a power supply.

Subject: Re: Saving a Frankie
Posted by cassent5150 on Wed, 08 Dec 2010 02:27:38 GMT
View Forum Message <> Reply to Message

Wow, thats great info, but its like way over my head!!! Lets see now if I understand any of that. I would use the module transformer and curcuitry as the output portion only and hook the gray wires to the input of the 5065 board. Now powering the preamp section with a seperate transformer, lets say the hammond one you mentioned, I would mount a 3 amp rectifier bridge (I'm assuming that this is to change an AC output from the transformer to a pulsating DC current) and the output of the rectifier bridge would be the Plus and minus voltage hooking to the two 10,000 uf fifty volt caps. I haven't a clue where the two 24 volt zenear diodes would go. You said hook one to each leg of the preamp supply. Lets say the plus being the red wire, the zenear would go from that leg to ground? Then there's another problem, (no green minus voltage wire coming from the preamps on this frankie) it looks as though the preamp uses the chassis for ground. Would you be hooking the other zenear from the minus leg off of the cap to ground? I'm just a beginner at this type of venture. Steve C

PS Thanks for all the help you give me, I learn so much from all of you that share the wealth of knowledge that ya'll have.

Subject: Re: Saving a Frankie
Posted by chicagobill on Wed, 08 Dec 2010 16:56:25 GMT
View Forum Message <> Reply to Message

If you are planning on using a PC5065 board for the output, you will need a power transformer, diode bridge and two filter caps to create the + and - 40vdc needed to power the output amp.

You can then take the feed from the +40 volt supply and send it through a resistor and into a 24 volt Zener diode to power the preamp board.

Subject: Re: Saving a Frankie
Posted by cassent5150 on Thu, 09 Dec 2010 04:29:27 GMT
View Forum Message <> Reply to Message

I bought that frankie chassis on ebay. Hope it has everything I need. I could see it had a tranny and reverb tank. We'll see when I get it. I still may use the spare frankie chassis to put that module unit into. The module unit has everything it needs to operate. I just have to remove it from its case and mount it inside the frankie chassis. Steve C

Subject: Re: Saving a Frankie
Posted by pleat on Thu, 09 Dec 2010 12:16:40 GMT
View Forum Message <> Reply to Message

I think I would really think about using a K250 power module to repair the Frankie. There are so few power modules in terms of numbers built compared to everything else Kustom manufactured in amplifiers. I'm not a tech, but it would seem that a K200 power amp section could be adapted to bring back the Frankie. Maybe find a ragged out K250 head to use instead. Kustom made two modules, one is the module for the K250 cabinets, the other one is for the Monitor column that is only 50 watts. The monitor module will have a volume control is an eay way to tell them apart. pleat

Subject: Re: Saving a Frankie
Posted by cassent5150 on Thu, 09 Dec 2010 14:51:14 GMT
View Forum Message <> Reply to Message

Ok I'm listening, but it brings up more questions than answers. I guess first, I was thinking the modules I have (I have 2 of them one works and the other doesn't) were the same as the K250 power section (When I say power section I'm talking Transformer, rectifier, power capacitors and driver board). I didn't know they were different, but I looked after I read your reply pleat and low and behold they're not 5065 drivers they both are 5071 driver boards. Are these that hard to work on or repair? At a glance they don't look any more complicated than the 5065. I need to find a schematic for the 5071 board though and I'll see if I can get the bad module up and running. I don't know much about these, do you know what the wattage is? Do you have a schematic you could email me or someone that has one that I could get a copy emailed to me at

cassent5150@hotmail.com Thanks Steve C

Subject: Re: Saving a Frankie
Posted by stevem on Thu, 09 Dec 2010 17:22:30 GMT
View Forum Message <> Reply to Message

I have never seen a K 250 module in person, but they put out the same amount of wattage as the K250s output section does, in fact they may put out more wattage than a fully loaded K250 does!.

As such they should basically be the same in large part.
A different board number could just be due to the driver board being a different size to fit in the compact module, which in turn rerquirs a different board layout.

Really the question I have is if the power transformer the same. They may have chose to use a smaller PT due to the fact that there was no need to have the currrent on hand that the K250s had since you are now minus two preamp boards and the effects board.
My output test have shown that the fully loaded K250 heads output 20 watts less then the non-effects heads due to the higher current draw.
So in short what I am saying here is that in the end, powering your Frank with the module may only give you a 75 to 80 watt amp.

Subject: Re: Saving a Frankie
Posted by pleat on Thu, 09 Dec 2010 18:19:29 GMT
View Forum Message <> Reply to Message

I sent Steve C some photos of the K250 power module. The module uses the PC5065 board. Same as the K250 head, same tranny, it's just really crammed into the space. The PC5071 board is not one I'm familar with. Looking at Kustom/Kasino as a company, Kasino was the first to offer the power modules. It the ones Steve C has, may be from a Kasino. If the modules have twist lock AC recepticals they are for the Kasino. I show the power amp boards as a PC5021 for the Kasino.

So the PC5071 boards may be for the powered monitor column that would be 50 watts and would have came with a volume control.
All the power modules were built on the same frame work. So they can easily be confusing since they are all the same size. The K250 modules would have 4 power transistors and the monitor module will have 2 transistors.
So the mystery continues.
pleat

Subject: Re: Saving a Frankie
Posted by pleat on Thu, 09 Dec 2010 18:22:32 GMT
View Forum Message <> Reply to Message

I forgot, the modules can be repaired. A qualified tech won't have a problem getting it back in

shape, and shouldn't cost too much, depending where you are located.
pleat

Subject: Re: Saving a Frankie
Posted by cassent5150 on Fri, 10 Dec 2010 02:58:51 GMT
View Forum Message <> Reply to Message

OK, I was mistaken on the driver board it is in fact 009-5021. I have both in hand and they are both Kasino type with the 5021 driver boards and like I said earlier one works and the other doesn't. One powers on and emits a hum to the speaker, I'll fix that one later when I can get a schematic for it. You don't have or know someone with a schematic that I can get a copy emailed to me at cassent5150@hotmail.com do you? They say 100 watts rms on their tag and there is a second tag on the side of the module that has the model(KPN 200-0080-01) and serial (1018). Chicagobill gave me the heads up on a Frankie chassis that was on ebay and I picked it up to complete the restoration of this Frankenstein head and what ever chassis is left I'm going to install the complete module components then decide where to get the 24 volts for the preamps. I'm thinking more towards the resistor, zenear source for the first go at it and see if that doesn't drag the wattage down too much. My biggest concern is just keeping that warm kustom sound rather than all out power. I just ran a test on the rails of the module and its 40 VDC on each side and 78.9 VDC from green to red. Do you have any ideas on the values of the resistors and zenears I would need to install? I would guess 24 volt on the zenears, but what watt? I haven't a clue how to figure the resistance of the resistors. I was told that the K250 did it like this and I could clone that setup but thats 12 volt I beleive and I dont know how to double it to get the 24 volts I need.

Subject: Re: Saving a Frankie
Posted by pleat on Fri, 10 Dec 2010 11:02:54 GMT
View Forum Message <> Reply to Message

Steve C, I emailed you the schematics for the PC5071 module. I did notice that off the power rails it shows 50V that powers the circuit board.
The PC5065 board shows 40.2 Volts to drive the circuit.
If you do use the Kasino module, the wattage of it will be a close match to the original power amp.
pleat

Subject: Re: Saving a Frankie
Posted by stevem on Fri, 10 Dec 2010 12:15:01 GMT
View Forum Message <> Reply to Message

Pleat, could you email me that schematic?
smag25ra5@yahoo.com. Thanks in advance!

Steve C, give me about a week to check some stuff out as I want to open up my Frankie head and measure what the total preamp current draw is.
I am tending to think at this point that a regultor circuit IC like a 7812 may be the best way to go

as these can be feed with a wide range of different dc input voltages and then set for a given output voltage, I just do not know if the Kustoms preamp current needs will out strip what the regulator can pass.

Subject: Re: Saving a Frankie
Posted by pleat on Fri, 10 Dec 2010 18:01:50 GMT
View Forum Message <> Reply to Message

Stevem, schematics are sent. The one question I posed to Steve C.
Are the pre amps, working pre amps or will they need work once the power supply section is resolved?
pleat

Subject: Re: Saving a Frankie
Posted by stevem on Fri, 10 Dec 2010 19:36:05 GMT
View Forum Message <> Reply to Message

Yes that will be another question as there is one black paper cased cap on the reverb board and many other (most times white plastic cased Mallory) caps on the preamp board and the reverb board that need to get replaced, there failure numbers will be even higher if the amp has not been used for long periods.

In fact if it where me while I was at it I would replace all of the electroliytic caps in the amp.

Subject: Re: Saving a Frankie
Posted by cassent5150 on Sat, 11 Dec 2010 19:23:18 GMT
View Forum Message <> Reply to Message

Yea, they say 100 watts on the side tag of the module. I might be dragging it down a bit by powering the preamps from the same transformer. I dont exactly have it figured out yet. I'm kind of waiting on the frankie chassis I just bought the other day on ebay to get here and see if I can restore this head back to original. Then I'll see about putting the module in the spare chassis. At this point its unknown if the preamps even work. I wont know that till I get the missing parts in to find out. That is a good idea to replace all the electrolitic caps like stevem said. I'm going to see what I got to work with first and go from there. Thanks Steve C

Subject: Re: Saving a Frankie
Posted by stevem on Mon, 13 Dec 2010 17:27:30 GMT
View Forum Message <> Reply to Message

Well I opened up my Frankie over the weelend and proceeded to measure the currnet draw of the preamp board and the reverb board.

Getting these values also let me make a estmate of the current draw for a amp that would have a tremolo board, which mine does not.

The reverb board draws 9.25 ma.
The preamp draws 21 ma.
This is a total of 30.25 ma, if the amp has a tremolo baord it would seem to pull 13.80 ma for a total of 44.05 ma.

In this light a 7824 type regulator (a 3 treminal 24 volt regulator) would be running at half is max rated amperage.
I found in my amp that its running on a bit over 27 volts though so the 7824 regualtor would have to be biased up off of its ground lead thru two 1N1007 doides.
Also this regulator can take a max input voltage of 32 volts so a resistor would still be needed to drop down the 39.5 volts from the + side of the power supply.

This all reminded me of another thing I always froget to post about with these amps, that being that the voltages on these Frankie scheamtics seem to be take with the amp running into a load at its max RMS wattage as the output stage volatge is noted as being 34 volts which can only be seen with the amp driven hard.
I just do not know why this is not noted on the schematic with the other notes.

Subject: Re: Saving a Frankie
Posted by cassent5150 on Tue, 14 Dec 2010 03:58:44 GMT
View Forum Message <> Reply to Message

I will have to come back to this. This is great info stevem. Ive got so much going right now, but this is what I was thinking of doing. Just so I understand, your taking positive from the red positive wire leg of the power cap via a power resistor to get the voltage dropped to 24 volts. This will be the source for the postive terminal of the 7824 type regulator. The chassis is the ground for the preamp CORRECT? The postive output from regulator is the red wire postive input to preamp. I think the reverb board gets power from the preamp doesn't it? This chassis come to think of it, wont have effects. I bought a complete chassis off Ebay and it hasn't got here yet. I'm going put that 100 watt module components into which ever chassis is left. Steve C

PS I'm kind of elbow deep in a little Challenger at the moment. Having issues with a tremolo like effect to the output. I cant seem to get rid of it ,cant turn it down with the controls and cant shut it off with the brown wire. I did notice that there is a .1 DC reading at the out put of the intensity control when tremolo is on and when you switch it off it drops to O. I dont know if its on this thread tho.

Subject: Re: Saving a Frankie
Posted by stevem on Tue, 14 Dec 2010 17:18:29 GMT
View Forum Message <> Reply to Message

A 7824 reg can only accept a max of 32 volts so your dropping resistor will need to be sized to

drop the 39 volts or so from between the red wire off of the filter and chassie ground down to about 29 volts.

Like I posted yesterday I measured my amps preamp section as running at 27.5 volts and biasing the reg up with two 1N1007 diodes will get you up from 24 volts to 25.5 which should be fine for powering the two boards.
Radio shack has a great liitle book on these regulators and presents how to apply them.
I can not help you much at least for now with the charger untill I get my hands on a schematic.

Subject: Re: Saving a Frankie
Posted by cassent5150 on Wed, 15 Dec 2010 03:55:35 GMT
View Forum Message <> Reply to Message

Thanks again for the great info!! Send me a blank email to cassent5150@hotmail.com cause I dont have your address to send it to you and I'll reply with the schematic. Thanks Steve C

Subject: Re: Saving a Frankie
Posted by cassent5150 on Mon, 27 Dec 2010 01:29:15 GMT
View Forum Message <> Reply to Message

OK I finally got the Frank chassis and am having a look. This is a model C-495. The chassis is powering up. left channel no or faint signal getting to speaker. right channel has a very weak signal. I've got DC readings on the power caps and the right side of the transformer mounted on the inside of the back plate on the left side. It still has the cardboard caps in the preamp along with the white plastic ones. Looks like this is the one I'll restore first. I dont have the radial caps for this so I'll get by the parts store and see if I can find replacements for all the caps and transistors. Germanium transistors that will be sweet!! I haven't tested any components yet. I'm going to get all the new parts I can and update this a little first then test whats left. Does anyone have a schematic for this C-495 they can Email me at cassent5150@hotmail.com ? Thanks Steve C

Subject: Re: Saving a Frankie
Posted by cassent5150 on Fri, 31 Dec 2010 22:36:14 GMT
View Forum Message <> Reply to Message

OK I have some update info for YA"LL: I got the 24 volts I needed from the power cap + red wire terminal of the module through a 24 volt zenear diode, reading 28.3 volts out and sent it to the + red wire on the frank chassis. I grounded the module chassis to the frank. I pulled the power from the same cap terminal for the power light on the frank and voala!!! Powers on and both channels work fine. I did notice a lot of signal so for good measure I dampened the signal through a 100K resistor to the input of the module. Things went a little distorted so I went with 2K and so far all looks good. The reverb gets real deep and theres plenty of clean volume. I replaced the 500uf paper cap with a 416 uf 100 volt on the reverb board, it was a good fit but do you thing thats going to be a problem? I now have to decide what I really want for this output section. The modules are 100 watt rated not to mention rare and I have several of the K-III models I never use and not very

collectable I might add, rated at 125 watts. Hummmm what do you all think? Steve C

Subject: Re: Saving a Frankie
Posted by kybrdmn on Mon, 09 May 2011 22:22:08 GMT
View Forum Message <> Reply to Message

I have a well fuctioning KPN 200-0080-?? (can't read it) and I love it. It was removed MANY years ago from a powered PA cab. This forum is the only place I've found that even mentions this Kustom model. Can you tell me what ohms load is acceptable? I've only used it on 8ohm, just to be sure, but I'm setting up a small 4ohm keyboard speaker system and would really like to use this.

Help, anyone??

Mine was intended to be mounted in a speaker cab and, as such, it mounts in a 8" X 10" hole (approx). If I can help anyone with physical description of components or wiring, let me know. I may have replaced a few parts, I just don't remember. But feel free to ask anyway.

Subject: Re: Saving a Frankie
Posted by Kustom_Bart on Mon, 09 May 2011 22:47:23 GMT
View Forum Message <> Reply to Message

If I remember correctly, it is for 8 ohm load.

Subject: Re: Saving a Frankie
Posted by cassent5150 on Tue, 10 May 2011 00:47:13 GMT
View Forum Message <> Reply to Message

That is exactly what I used for the output section on the modified frank. The 200-0080 which is 100 watts RMS rated and has run fine at 4 ohms for three of four (4 hour) rehearsals now. I wouldn't be afraid ot use it on a gig. It has the warmth of the Franky but all the punch of any 200 model I have. See it at the link below:

http://www.flickr.com/photos/57807996@N04/sets/7215762573345 4862/

See the 4 ohm cabinet I run it through below:

http://www.flickr.com/photos/57807996@N04/sets/7215762610127 9983/