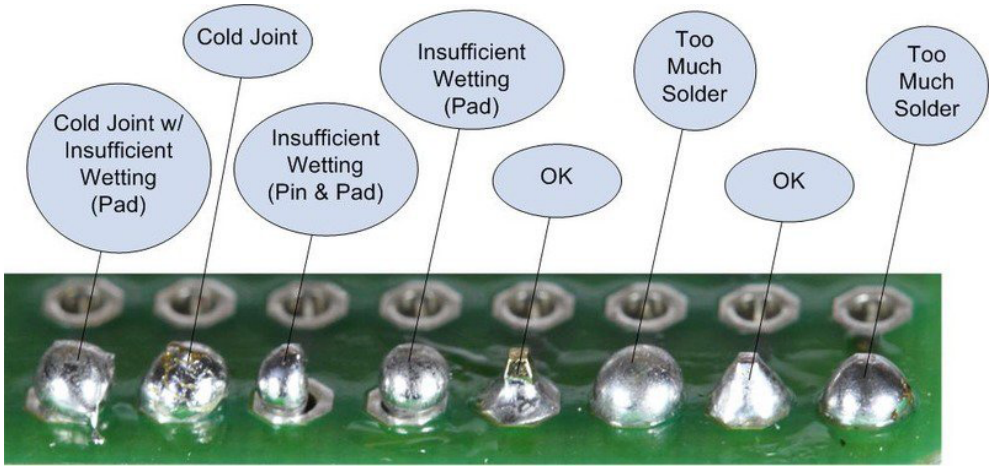
PAS3- Clone PC6 Phono Preamp
assembly and installation instructions
v2b 01-2022

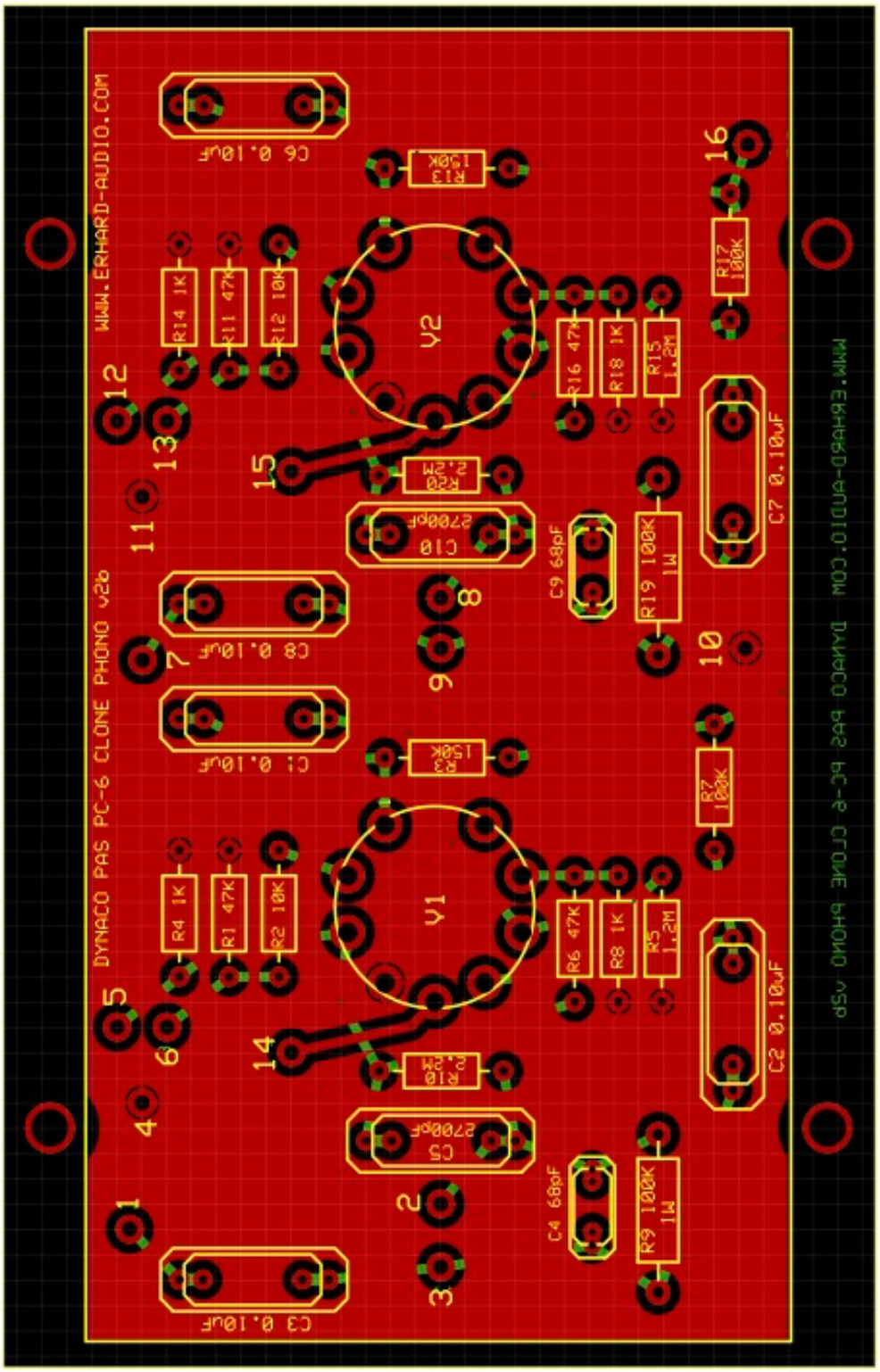
Overview
This is our clone PC6 pcb upgrade kit, a direct drop in replacement for the old original Dynaco PC6 pcb assembly.
The circuit is identical to the original, the only exception is that we changed some parts values in the RIAA circuit to improve it.
C5 has been changed from 2750pF to 2700pF and R10 has been changed from 4.7M to 2.2M
As with all our PAS3 upgrade pcb's, this PC6 has a ground plane on both the upper and lower layer, this will add additional 'screening' and will ensure a very low level noise environment.

PCB Assembly
First, solder all the resistors in place, and then the smaller capacitors, and then the larger capacitors. Be sure to confirm all the electrolytic capacitor orientations, as a reversed polarized capacitor can easily vent (or even explode) when presented with high-voltage.
Confirm twice, solder once.
Follow the attached circuit diagram and parts list to stuff the pcb.
All connections to our PC6 are again identical to the original Dynaco PC6, and all the connection pcb pads also have identical ID numbers.
You can re use the original wires, but we do recommend that you use 24gauge hookup wire, either multi strand or solid, the choice is up to you.



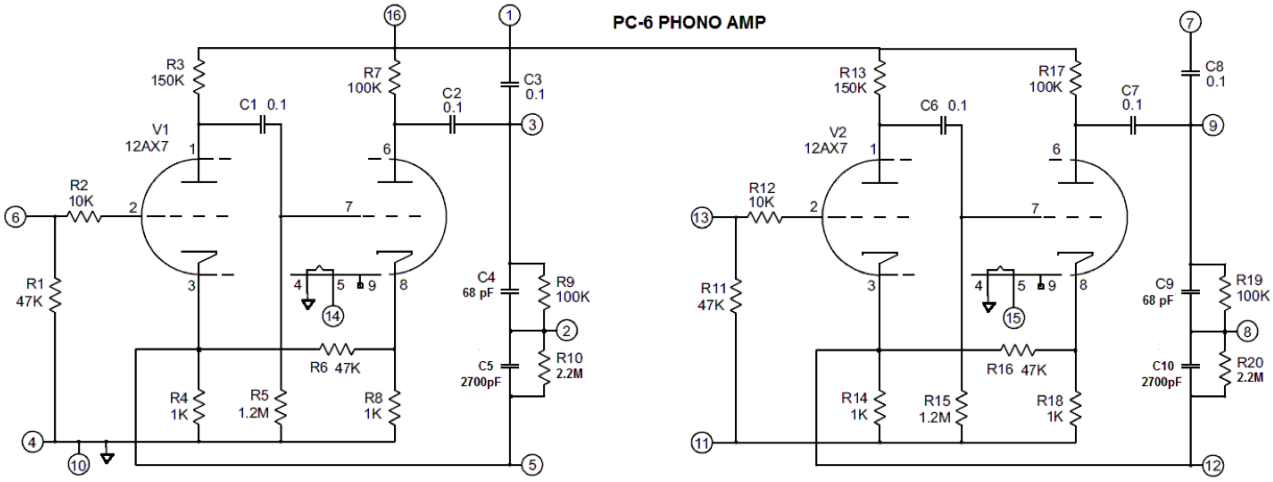
A note about resistors:
Some 1/2W resistors look like the size of 1/4W, but they are in fact 1/2W and can generally be told apart from 1/4W as they tend to have thicker gauge leads. They are perfectly fine to be used in 1/2W placings. Also, a 1W resistor may be the size of a 1/2W resistor, with modern and different materials, manufacturers are able to decrease the size of a component.

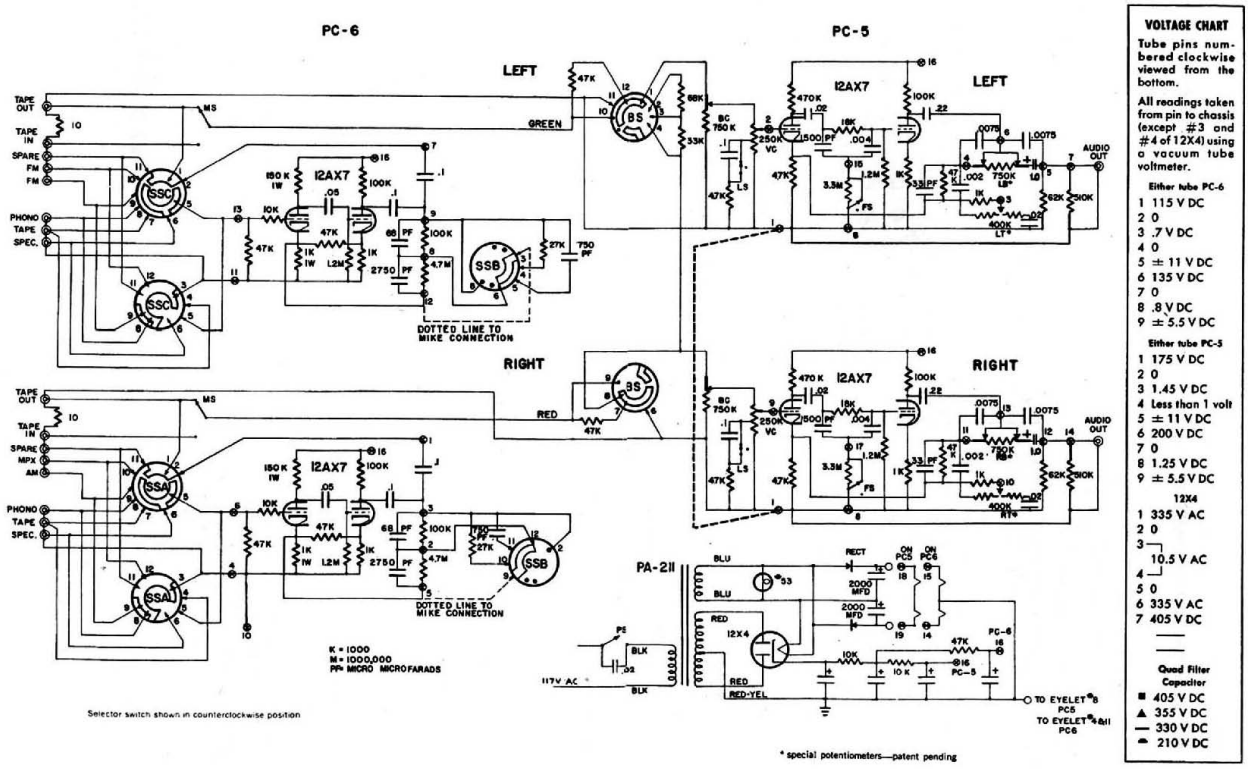
PCB Layout


DYNACO PAS PC-6 CLONE PHONO v2b
WWW.ERHARD-AUDIO.COM
V1
V2
R1 47K
R2 10K
R3 150K
R4 1K
R5 1.2M
R6 47K
R7 100K
R8 1K
R9 100K 1W
R10 2.2M
R11 47K
R12 10K
R13 150K
R14 1K
R15 1.2M
R16 47K
R17 100K
R18 1K
R19 100K 1W
R20 2.2M
C1 0.10uF
C2 0.10uF
C3 0.10uF
C4 68pF
C5 2700pF
C6 0.10uF
C7 0.10uF
C8 0.10uF
C9 68pF
C10 2700pF
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

Parts List

Dynaco PC-6 2b Phono Clone					
Resistors		Qty			
1K 1/2W	R4,8,14,18	4			
10K 1/2W	R2,12	2			
47K 1/2W	R1,11	4			
150K 1/2W	R3,13	2			
100K 1W	R9,19	2			
100K 1/2W	R7,17	2			
1.2M 1/2W	R5,15	2			
2.2M 1/2W	R10,20	2			
Capacitors	Type				
68pF 250V	C4,9	2	Film 5/10mm		
2700pF 250V	C5,10	2	Film 5/10mm		
0.1uF 250V	C1,2,3,6,7,8	6	Film 10/15mm		
PCB					
PC6		1			
Tube Socket					
9 pin		2			





VOLTAGE CHART

Tube pins numbered clockwise viewed from the bottom.

All readings taken from pin to chassis (except #3 and #4 of 12X4) using a vacuum tube voltmeter.

Either tube PC-6

1 115 V DC
2 0
3 .7 V DC
4 0
5 ± 11 V DC
6 135 V DC
7 0
8 .8 V DC
9 ± 5.5 V DC

Either tube PC-5

1 175 V DC
2 0
3 1.45 V DC
4 Less than 1 volt
5 ± 11 V DC
6 200 V DC
7 0
8 1.25 V DC
9 ± 5.5 V DC

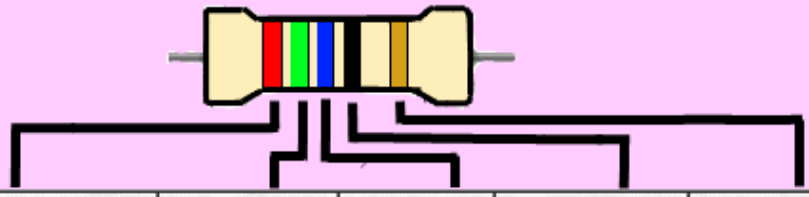
12X4

1 335 V AC
2 0
3 10.5 V AC
4 10.5 V AC
5 0
6 335 V AC
7 405 V DC

Quad Filter Capacitor

■ 405 V DC
▲ 355 V DC
— 330 V DC
◓ 210 V DC

5 Band Resistor Color Coding



COLOR	1ST BAND	2ND BAND	3RD BAND	MULTIPLIER	TOLERANCE
BLACK	0	0	0	x1Ω	
BROWN	1	1	1	x10Ω	±1%
RED	2	2	2	x100Ω	±2%
ORANGE	3	3	3	x1000Ω	
YELLOW	4	4	4	x10000Ω	
GREEN	5	5	5	x100000Ω	±0.5%
BLUE	6	6	6	x1000000Ω	±0.25
VIOLET	7	7	7	x10000000Ω	±0.10
GREY	8	8	8		±0.05
WHITE	9	9	9		
GOLD					±5%
SILVER					±10%

How to read Capacitor Codes

Large capacitor have the value printed plainly on them, such as 10.uF (Ten Micro Farads) but smaller disk types along with plastic film types often have just 2 or three numbers on them?

First, most will have three numbers, but sometimes there are just two numbers. These are read as Pico-Farads. An example: 47 printed on a small disk can be assumed to be 47 Pico-Farads (or 47 puff as some like to say)

Now, what about the three numbers? It is somewhat similar to the resistor code. The first two are the 1st and 2nd significant digits and the third is a multiplier code. Most of the time the last digit tells you how many zeros to write after the first two digits, but the standard (EIA standard RS-198) has a couple of curves that you probably will never see. But just to be complete here it is in a table.

Third digit	Multiplier (this times the first two digits gives you the value in Pico-Farads)

0	1
1	10
2	100
3	1,000
4	10,000
5	100,000
6 not used	
7 not used	
8	.01
9	.1

Now for an example: A capacitor marked 104 is 10 with 4 more zeros or 100,000pF which is otherwise referred to as a .1uF capacitor. Most kit builders don't need to go further, but I know you want to learn more. Anyway, Just to confuse you some more there is sometimes a tolerance code given by a single letter. I don't know why there were picked in the order they are, except that it kind of follows the middle row of keys on a typewriter. So a 103J is a 10,000 pF with +/-5% tolerance

	Tolerance of capacitor
D	+/- 0.5 pF
F	+/- 1%
G	+/- 2%
H	+/- 3%
J	+/- 5%
K	+/- 10%
M	+/- 20%
P	+100% ,-0%
Z	+80%, -20%

Picofarad (pF)	Nanofarad (nF)	Microfarad (uF)	Code	Picofarad (pF)	Nanofarad (nF)	Microfarad (uF)	Code
10	0.01	0.00001	100	4700	4.7	0.0047	472
15	0.015	0.000015	150	5000	5.0	0.005	502
22	0.022	0.000022	220	5600	5.6	0.0056	562
33	0.033	0.000033	330	6800	6.8	0.0068	682
47	0.047	0.000047	470	10000	10	0.01	103
100	0.1	0.0001	101	15000	15	0.015	153
120	0.12	0.00012	121	22000	22	0.022	223
130	0.13	0.00013	131	33000	33	0.033	333
150	0.15	0.00015	151	47000	47	0.047	473
180	0.18	0.00018	181	68000	68	0.068	683
220	0.22	0.00022	221	100000	100	0.1	104
330	0.33	0.00033	331	150000	150	0.15	154
470	0.47	0.00047	471	200000	200	0.2	254
560	0.56	0.00056	561	220000	220	0.22	224
680	0.68	0.00068	681	330000	330	0.33	334
750	0.75	0.00075	751	470000	470	0.47	474
820	0.82	0.00082	821	680000	680	0.68	684
1000	1.0	0.001	102	1000000	1000	1.0	105
1500	1.5	0.0015	152	1500000	1500	1.5	155
2000	2.0	0.002	202	2000000	2000	2.0	205
2200	2.2	0.0022	222	2200000	2200	2.2	225
3300	3.3	0.0033	332	3300000	3300	3.3	335

We cannot take ANY responsibility for mains, and for that matter, ALL high voltage AC and DC wiring you carry out. We have described in this, and all of our other manuals, as best as we can, on how to wire up these high voltage connections.
You MUST take EXTREME care, that no wires are shorted together, or to the chassis, or any other part of the assembly and pcb's.
All these high voltages can be life threatening, and can hurt you or others if carried out incorrectly.
Use your meter in the continuity setting to make sure no high voltage wires are shorted together or to chassis ground.
Apart from bodily harm, incorrect high voltage wiring can and will damage components!
You are totally and solely responsible for all high voltage wiring and the general assembly of this kit!
We have wired our prototype amp exactly as described in this and all of our other manuals, so we know that the amp will work as designed and intended!

If you are unsure of how to carry out some of our instructions, PLEASE contact us via e-mail, we provide, as part of our service, full support for this and all of our kits!
No question is stupid. The ONLY stupid question is the one you do not ask!