

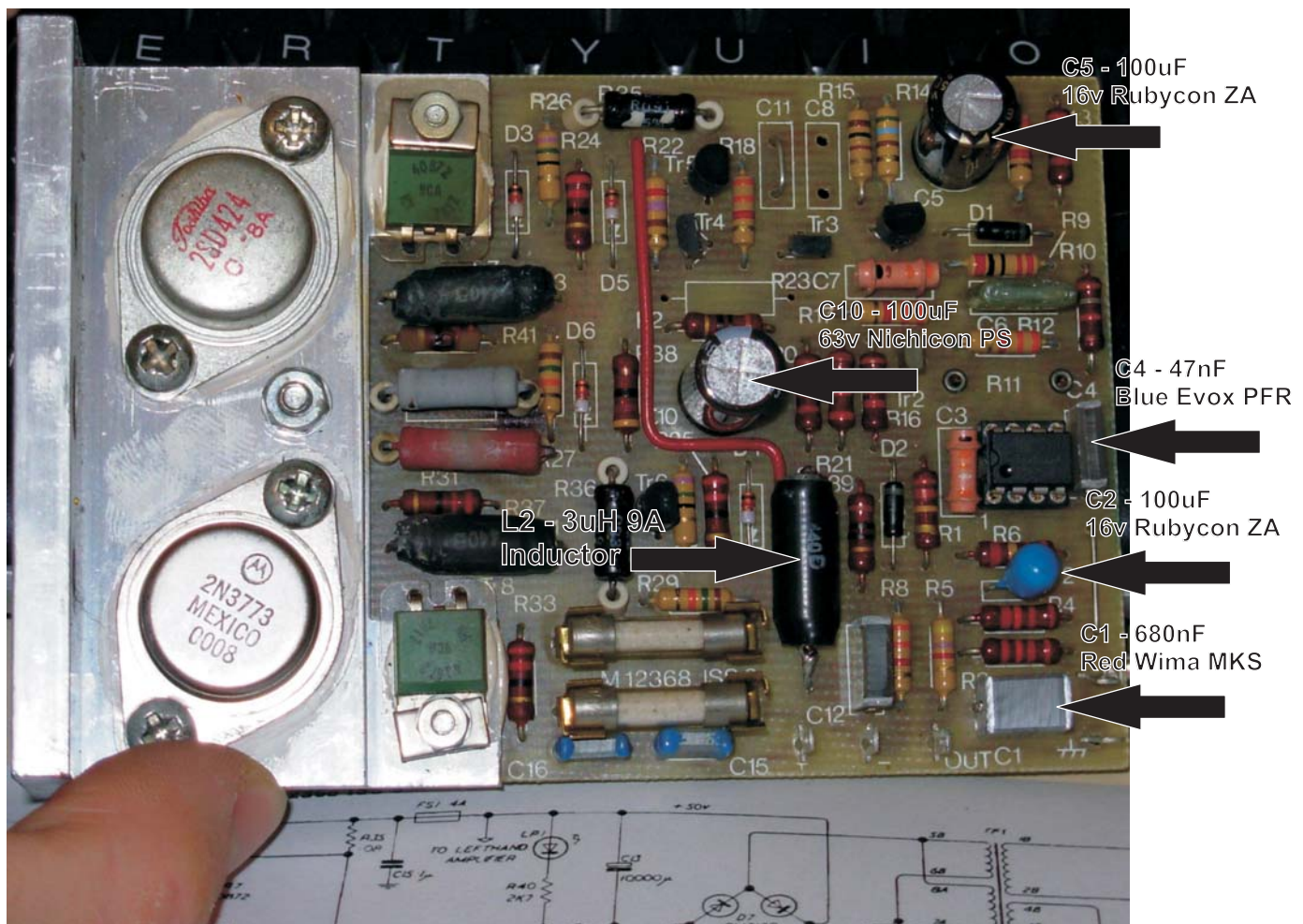
Quad 405 Upgrade Kit 2

Many thanks for purchasing one of my Quad 405 upgrade kits. This page is intended as a guide of what to fit and where to fit it. Basic soldering skills are required, but with some time and patience, you should have very few problems with these simple component upgrades.

Below is a picture of a MK1 405 (Board Iss 9). Some of the components have already been changed, it was like this when I received it, but it shows quite clearly where the parts are located.

If you get stuck, don't panic - just drop me an email or give me a call and I'll do my very best to help.

Some of the components are not the same lead-outs and won't fit directly into the existing holes, it is sometimes best to solder them onto the reverse of the board with their legs bent out. A more comprehensive guide will follow very soon, so if you get stuck, just email or phone.



- 2 x 100uF 16v Rubycon ZA - **C2**
- 2 x 100uF 16v Rubycon ZA - **C5**
- 2 x 100uF 63v Nichicon PS Low Impedance - **C10**
- 4 x 47uF 63v Elna Silmic (**405-2**) - **C18, C19**
- 2 x 10uF 63v Bi-Polar (Output Protection Board) - **C17 (Quad 405-1)**
- 2 x 680nF Polyester Film + 10nF Evox PFR Polypropylene Film bypass - **C1**
- 2 x 47nF Evox PFR Polypropylene Film - **C4**
- 2 x 9A Inductor - **L2**
- 2 x OPA604 Burr-Brown Opamps & Sockets - Be sure to fit this the correct way round - Pin1 is the bottom left pin, the one with the indentation.
- 2 x 150nF Evox MMK Film Opamp Bypass Capacitors - Connect to reverse side, between pins 4 & 7 of opamp. It's best to do this with the opamp removed from the socket.
- 2 x 10,000uF 63v F&T Cap power supply smoothing capacitors - **C14, C15**
- 2 x Capacitor Clips

The board layouts vary quite a bit from version to version, so please check very carefully the part numbers. If you'd like the service manual which contains valuable information regarding layouts and part-placement, then please email and I'll send you a pdf copy.

Detailed instructions overleaf:

Quad 405 Upgrade Kit Detailed Fitting Instructions

Whilst fairly easy to install, these Quad Kits do require basic soldering skills and some basic tools. You will need:

150mm long Posidriv No.2 or large philips screwdriver.

Long nose pliers.

Drill with 4mm metal drill bit, larger (15mm+) drill-bit to remove sharp edges and burr.

Soldering Iron.

Lead/Tin Solder - we recommend you only use lead content solder and not lead free. Lead free solder will not mix well with the old solder on the boards and may create dry-joints.

De-solder pump or braid.

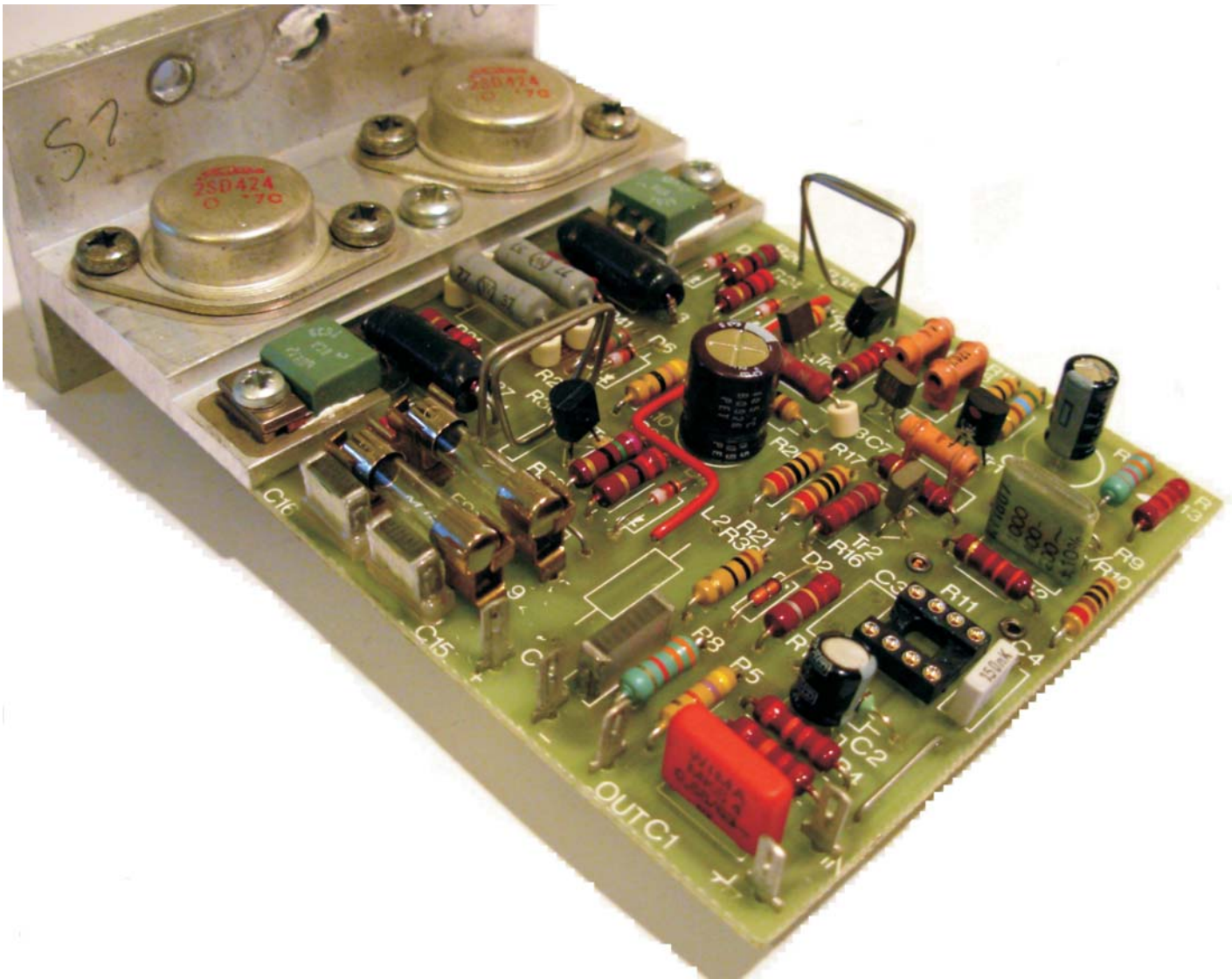
Small wire-strippers.

If you are not familiar with the Quad 405, before starting it is advisable to take a few close-up photographs of the connections for future reference.

1. Remove rubber bungs from the four holes on rear panel. Insert screw-driver through these and remove the right-channel board. This is the board closest to the large smoothing capacitors.
2. Remove the original smoothing capacitors by undoing their clips. We recommend snipping the adjoining wires as close to the terminals on the capacitors as possible. This will make it easier to strip them back a little for soldering to the new capacitors later on.
3. Desolder the four wires connected to the output terminals. Remove the crow-bar protection board from the terminals. This can be tricky and we find the easiest way is using a long, flat screwdriver to gently prise the board away, whilst heating the solder on the pins. You will need to heat each pin a few times, and slowly "walk" the board off.
4. If you're fitting new binding posts, now is the time to do it. You may need to drill the holes larger for new, wider posts. Be sure to check with your multimeter that these new connectors are isolated from the chassis.
5. Desolder and replace the original 10uF non-polar electrolytics with the new 10uF 63v NK non-polars included in the kit. You may also need to drill the holes on this board larger to fit any new binding posts you have installed.
6. Push the crowbar circuit board back onto the output terminals. Ensuring it is the correct way round (this is the first instance when those photo's may come in handy) and solder into place. Resolder the wires to the terminals too at this point.
7. Push the new smoothing caps into their clips, but do not tighten them up just yet. Don't worry about their small physical size compared to the original parts. These modern components will sound vastly superior.
8. Place the new capacitors and their clips into their positions in the case, align the correct pins with the wiring loom and mark on the bottom plate where to drill.
9. Place the capacitors to one side and drill four new holes, remove the sharp burr with a large drill bit. Using an old paint-brush and vacuum cleaner remove all the dust and metal clippings from inside the case as we don't want them shorting any tracks or components.
10. Clamp the 10,000uF 63v F&T smoothing capacitors into their clips and fit into the case.
11. Strip 5mm or so of insulation off the wires on the wiring loom then carefully wrap these wires around the pins on the capacitors, long-nose pliers or tweezers are perfect for this. Solder the wires into place.
12. Moving onto the circuit board that we removed earlier, locate C1 on the edge of the board and remove. Replace with red 680nF 63v Wima MKS capacitor.
13. Replace C2 with 100uF 16v Rubycon ZA. Be careful to check the polarity of the original capacitor, it should have a small + printed above one of the legs.
14. Locate C3 next to the opamp and remove.
15. C4 is also next to the opamp and should be replaced with a small, blue 47nF Vishay MKP. It is easier to fit these to the copper track side of the board with their legs bent outwards.
16. Desolder and remove the opamp socket, if you're not confident doing this then simply unplug the original opamp from the existing socket.



17. Solder small, grey 150nF 63v MMK cap across pins 4 & 7.
18. Fit new LME49710 opamp into socket.
19. If it is fitted, and you are not using Quad ESL loudspeakers, remove R11. It should simply unplug from the holders.
20. Remove L2 inductor and solder in new 3uH 9A Epcos inductor. Again it is easier to snip the legs short and solder this part to the underside of the board as the original holes are too small. You can of course re-drill the holes to accommodate the new inductor.
21. If you are fitting new rca/phono sockets it is probably best to widen the two outermost holes originally made for accessing the screws on the T-shape heatsinks now, before you re-fit the boards. Don't fit the new sockets yet though, as you'll need these holes to tighten the heatsink screws.
22. Check, check and check again that you have all the components in the correct places, that the opamp is the correct way round and that there are no solder-splashes or bridged tracks on the boards.



Disclaimer:

Diy Hi-Fi accepts no responsibility for damage to equipment or injuries incurred whilst performing upgrades on any electrical equipment. These upgrades are performed at your own risk. If you are not confident or able to fit these parts yourself, please get us or someone else to do it for you.