

Quad 405 and 405-2 renew and upgrade instructions

Please call Robert at 916 337-8873 if you have any questions.
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CAUTION: 120VOLTS AC AND 50 VOLTS DC ARE PRESENT

UNPLUG AMP PRIOR TO OPENING TOP COVER

**IF YOU INSTALL THE CAPACITORS INCORRECTLY, THEY MAY
EXPLODE!**

List of contents:

- (2) Power supply caps (15,000uf 63v)
- (2) Burr Brown OPA134PA op amp
- (4) .1uf 50v metal film caps for op amp (L48 104)
- (2) 100uf 10v bi-polar cap for C2, Panasonic
- (2) 100uf 50v cap for C5, Nichicon
- (2) 47uf 100v cap for C10, Nichicon
- (2) .000120uf cap for C8 (1F7 121K)
- (4) 3.32kohm 1 w resistor for R7 and R8
- (2) RCA inputs with hardware



Tools required:

- Soldering iron
- Solder sucker
- Solder
- Silicone caulk
- ½" diameter drill bit
- 14 mm wrench or crescent wrench
- wire snippers
- Philips #2 screwdriver
- Volt/ohm meter

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Step1:

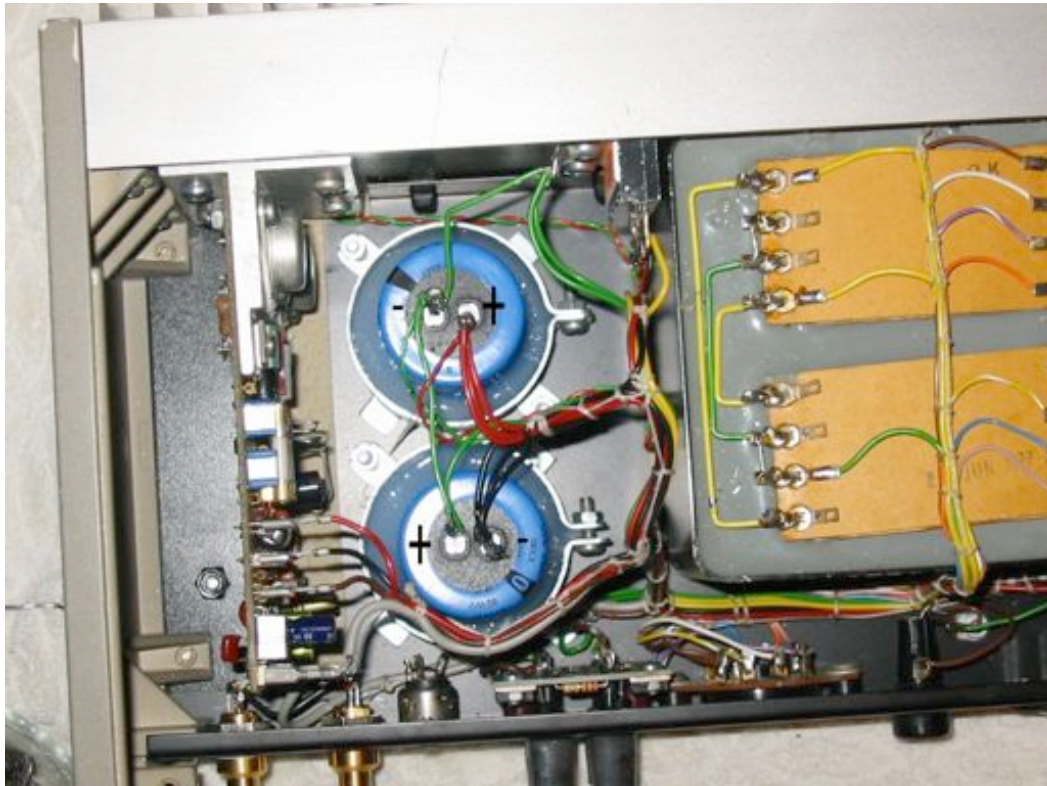
1. Remove top cover by unscrewing (2) screws.
2. Remove bottom cover by removing (4) screws.
3. Remove connectors from both circuit boards.
4. Remove both circuit boards by removing the (4) screws on each board
5. The picture shows one location for the RCA connectors. Another possibility is to place one on the left and one on the right.
6. Drill (2) ½" diameter holes. There are usually (2) rubber plugs covering holes on the left side and (1) on the right side. Unless I am going to hardwire the inputs to the circuit boards, I install the RCAs on the left.
7. Place the color-coded plastic ring and install the rectangular shaped on the RCA connector.
8. Install the RCA connector and place the other color-coded ring and the washer and nut on the connector.
9. Tighten them with a 14mm wrench and the ground tab should be at the bottom.
10. Remove the wire from the DIN plug using a soldering iron.
11. Solder a wire between the (2) RCA ground tabs.
12. Solder the red and white wire to the center pins of the RCA connectors.
13. Solder the braided shield to the ground tabs.
14. Using your volt/ohm meter, verify proper wiring and grounding.



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Step2:

1. Remove the wires from the existing power supply capacitors
2. Note + and – terminals and wire locations.
3. Remove capacitors and brackets.
4. Reinstall brackets.
5. Fill the bottom of the brackets with silicone caulk.
6. Place the new power supply capacitors in the silicone caulk. Let them set for at least 8 hours.
7. Wrap the wires around the power supply capacitors terminals and solder them.
8. Verify + and – terminals are correct and wires are located properly.



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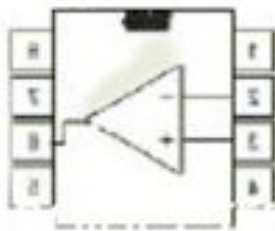


Step4:

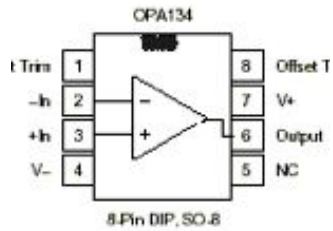
1. Replace C5 with a 100uf 50v capacitor. C5 is located on the top right corner of the circuit board. Verify proper "-----" marking.
2. Replace C10 with a 47uf 100v capacitor. C10 is located near the center of the board. Verify proper "-----" marking.
3. Remove C3. It is located next to the op amp and connected to pins 1 & 8. Some of the later versions may not have this capacitor. There is no use for this with the new op amp and should be removed.
4. Replace C2 with a 100uf 10v bi-polar capacitor. There is no orientation with a bi-polar capacitor.
5. Replaced C8. There is no orientation for film capacitors.
6. Remove and replace 3.32 kohm resistors at R7 and R8.
7. Mark location of pin 1 of op amp for correct orientation.
8. Remove the op amp. Place a thin screwdriver under the op amp and pry upwards. All 405 circuits have the op amp in a socket. Most 405-2 circuit boards do not use a socket, but solder the op amp directly to the board. If this is the case, carefully remove the op amp.
9. Op amps are static sensitive. Avoid touching the pins and ground yourself out before touching the op amp is possible.

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10. Install the op amp in the socket or solder it in place.
11. Verify pin1 and proper orientation.
12. On the backside of the board, place the small .1uf metal film caps between pin 3-4, and pins 3-7.



View from solder trace side of PCB board.



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Step5:

1. Double-check all solder joints.
2. Make sure all capacitors are orientated properly as far as + and -. If the 12,000uf 80v power supply capacitors are wired incorrectly, they will explode.
3. Reinstall the circuit boards to the heat sink and connect the wires.
4. Double check to make sure the wire connections are in the proper order.
5. REPLACE THE TOP COVER prior to powering on the amplifier for the first time, just in case the power supply capacitors are wired incorrectly.
6. Put on safety glasses.
7. Remove any speaker wires connected to the amp.
8. If you are sure you double-checked everything, plug the amp in.
9. Use a volt ohmmeter and using the DC voltage millivolt range, the amp at idle should have about 30-40 millivolts of DC offset. Immediately unplug the amp if the voltage is above +/- 10 volts.