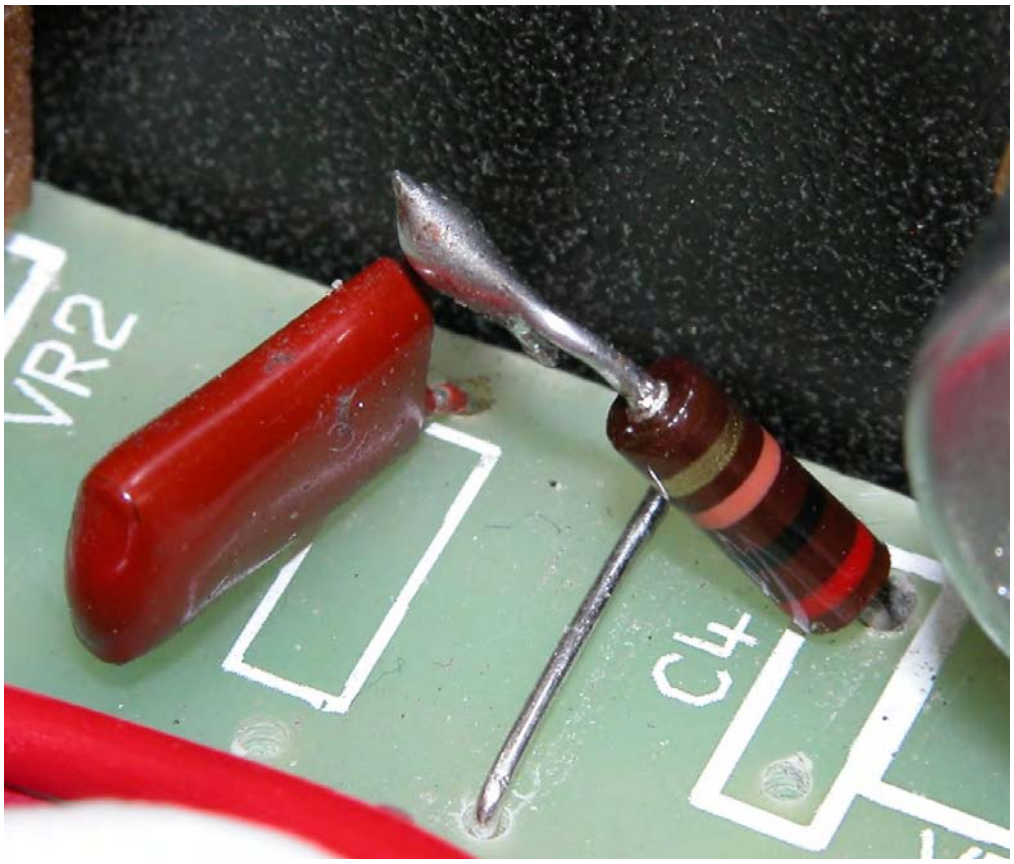
Detail of the 15KΩ resistor in series with the 2.2KΩ resistor as they appear in the ***Upgraded*** amp in location R23.


Detail of the 4.7ηF capacitor in series with the 20KΩ carbon comp resistor as they appear in the ***Upgraded*** amp to the left of the tone potentiometer.

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*Figure 5*

## UPGRADING THE MAIN PCB

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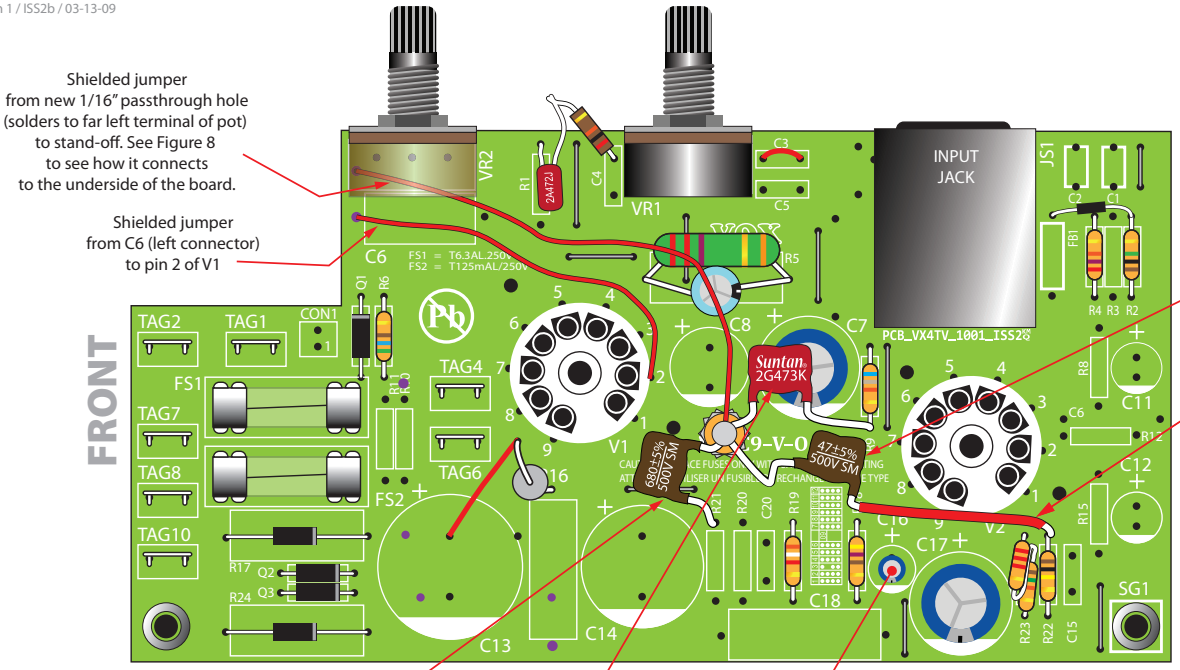


**Description:** See the next page for more detailed instructions on how the components connect to the Stand-Off.

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*Figure 6*

# "Stand-off" Connections Detail

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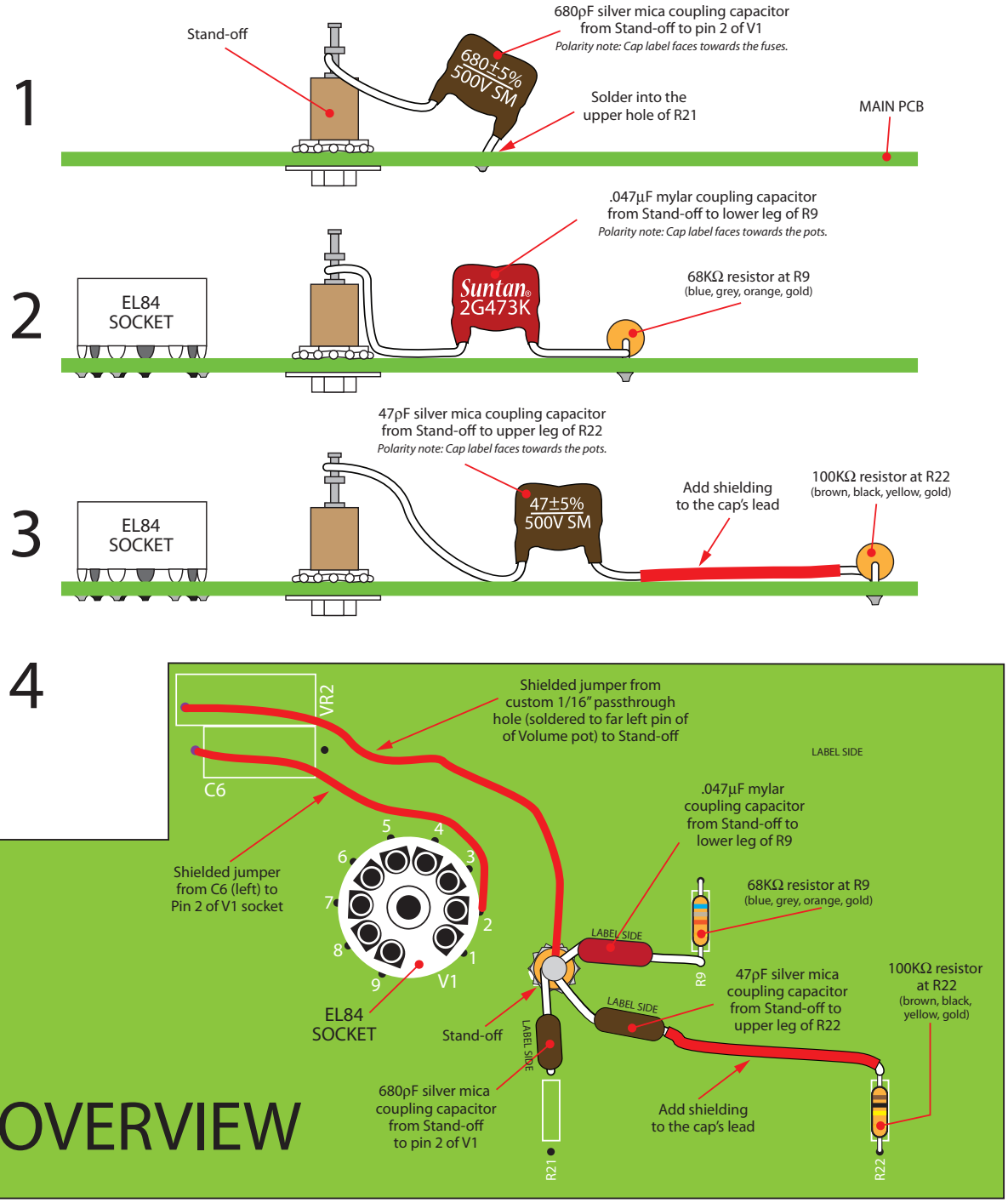
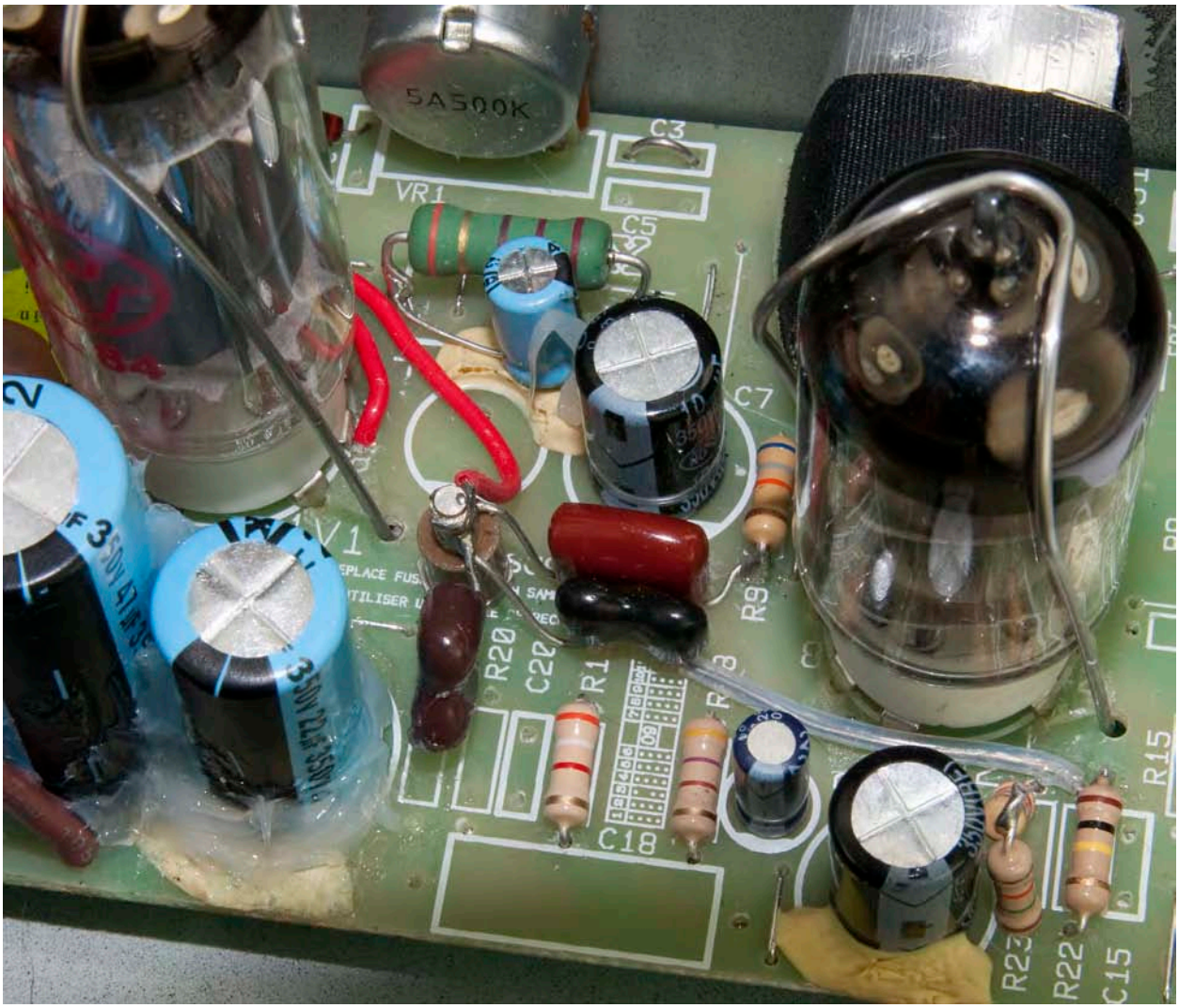



Use the illustrations on this page as a guide to building the connections to the Stand-off. Steps 1–3 are cross-sectional giving the ideal layouts of the three capacitors. Step 4 shows you an isolated overview of the Main PCB with ONLY the related connections to the Stand-off on the Main PCB.




Detail of the Stand-off component cluster on the ***Upgraded*** amp.

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*Figure 7*

## UPGRADING THE MAIN PCB

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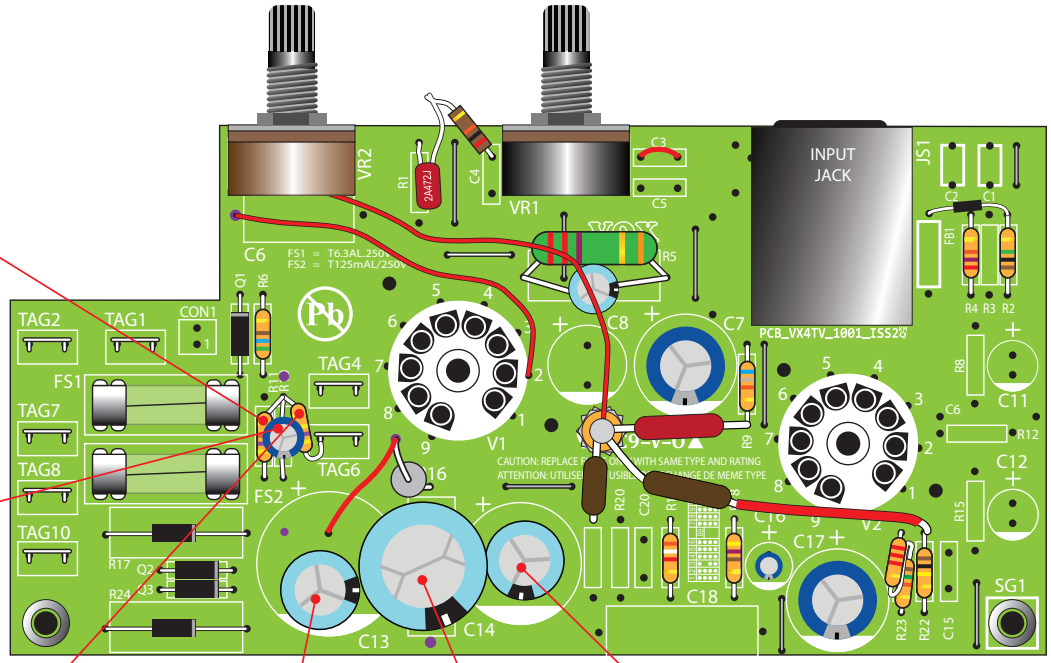
Capacitor Values:
µF = micro-farad
ρF = pico-farad
ηF = nano-farad




47KΩ resistor
(yellow, violet, orange, gold)
into R10 (top)
and R11 (bottom)
*See illustration below*

10µF - 50V
electrolytic
capacitor
into R10 (top)
across to R10 (bottom)
(note polarity)
*See illustration below*

470KΩ resistor
(yellow, violet, yellow, gold)
into R10 (top)
across to left leg of TAG6.
*See illustration below*

10µF - 350V
electrolytic
capacitor
(see back of PCB
for instructions)
(note polarity)

47µF - 350V
electrolytic
capacitor
(see back of PCB
for instructions)
(note polarity)

22µF - 350V
electrolytic
capacitor
into C14
(see back of PCB
for instructions)
(note polarity)

**Description:** Note the polarity of these capacitors. See the next page for how these capacitors connect to the underside of the Main PCB.

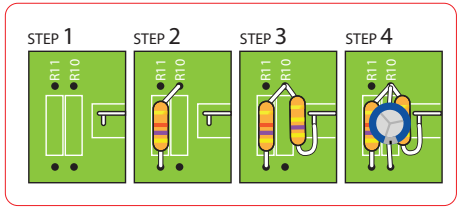



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*Figure 8*

## UPGRADING THE MAIN PCB

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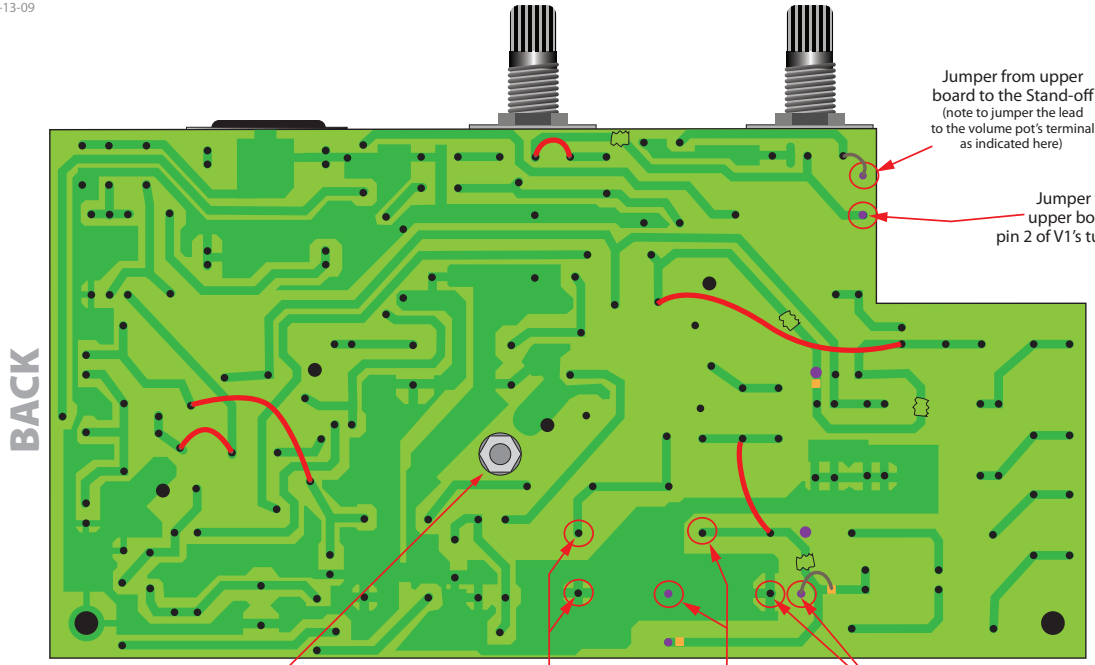


Jumper from upper board to the Stand-off (note to jumper the lead to the volume pot's terminal as indicated here)

Jumper from upper board to pin 2 of V1's tube socket

Stand-off lock-washer & nut

Location of 22µF electrolytic capacitor (lower hole is the negative lead connection)

Location of 47µF electrolytic capacitor (lower hole is the negative lead connection)

Location of 10µF electrolytic capacitor (left hole is the negative lead connection)

**Note:** You may need to make trace repairs, or extend leads by soldering them onto revealed traces, *etc*. See appendices for tips and tricks for working with traces.

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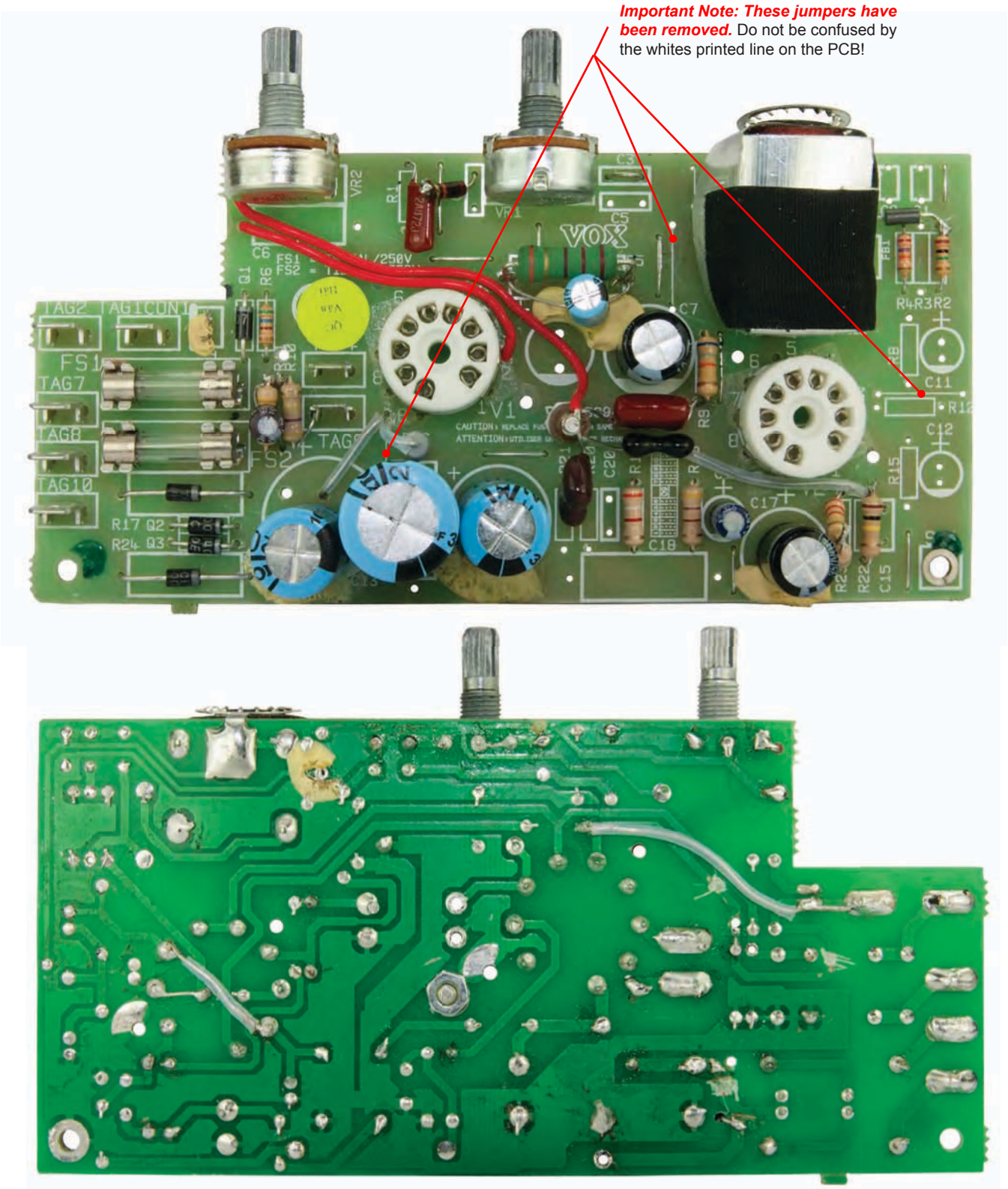


**Reference photos:** Shows front and back of a Main PCB with the completed upgrade, ready to reinstall in the AC4tv chassis.

## 4th SEQUENCE

In the final sequence (Figures 9 thru 13) you'll be reassembling your amp. Use the illustrations and notes to guide you through the procedure.

Here's an overview of the steps:

Triple-check your modifications. If you have any questions the time to get them answered is now. Call ***Mercury*** if you are in doubt about *anything*.

First, bolt in the transformers and the ***Mini-Choke***. Bolt down the grounding leads. Solder the output transformer's blue lead to the *OP Level Switch PCB* (as shown). Apply *Loctite 290* (green) to the retaining nut heads of the transformers, ***Mini-Choke*** and the chassis grounds.

Now, solder the two brown ***Mini-Choke*** leads into place on the Main PCB so that they pass over all the other components. Then, pass the LED's leads between the ON/OFF switch terminals and under the *OP Level Switch PCB's wires*, soldering its leads into place onto the Main PCB.

The Main PCB is now bolted onto the chassis (do not use Loctite, yet) until the amp has been tested (you may have to pull the board to make adjustments or repairs). Use the retaining nuts to temporarily bolt on the Volume, Tone and Input Jack.

Clip the following leads to the Main PCB –

1. Output transformer's yellow & black leads.
2. Power transformer's red & black leads, being sure to tightly twist the twin white leads before connecting. Twisting these wires substantially reduces amp noise.

Position all leads as high off the Main PCB and as close to the power transformer as possible.

Inspect the illustrations to ensure that all other connections from the power transformer and the I.E.C. (AC cord) are in place.

Replace the tubes and attach the tube retainers.

If you have a combo amp, connect the speaker leads. If you have a head, connect a 16Ω speaker.

**DO NOT BYPASS THIS STEP!**

After triple-checking your assembly, connect the amp's power to a *Variac*, or even better, a variable AC power supply, and with a current metter ready follow the testing/start-up proceedure as outlined in this manual's appendix.

Debug if necessary and repeat this process until you are satisfied that the ***Upgraded*** amp is working correctly.

When the amp is working to your satisfaction use the cable ties (supplied) to group and hold the various wires away from the Main PCB (especially the tubes – they'll melt the leads!). In particular, gather up the red, black, double-white and blue leads tying them as close to the Power transformer as possible. See final photographs for examples.

Apply *Loctite 290* (green) to the two retaining bolts and screws of the Main PCB.

Reassemble the chassis into the case. If you own a combo, attach the black speaker wire to the unmarked negative terminal and the white speaker wire to the "+" (positive) terminal on the speaker.

Apply the ***Mercury*** metal place to properly I.D. your ***Mercury Upgraded VOX AC4tv***. And you are done!

*Figure 9*

**Re-assembly – Part 1**: Preparation for the final assembly. Ensure that these leads are in place. Your chassis should look like this.

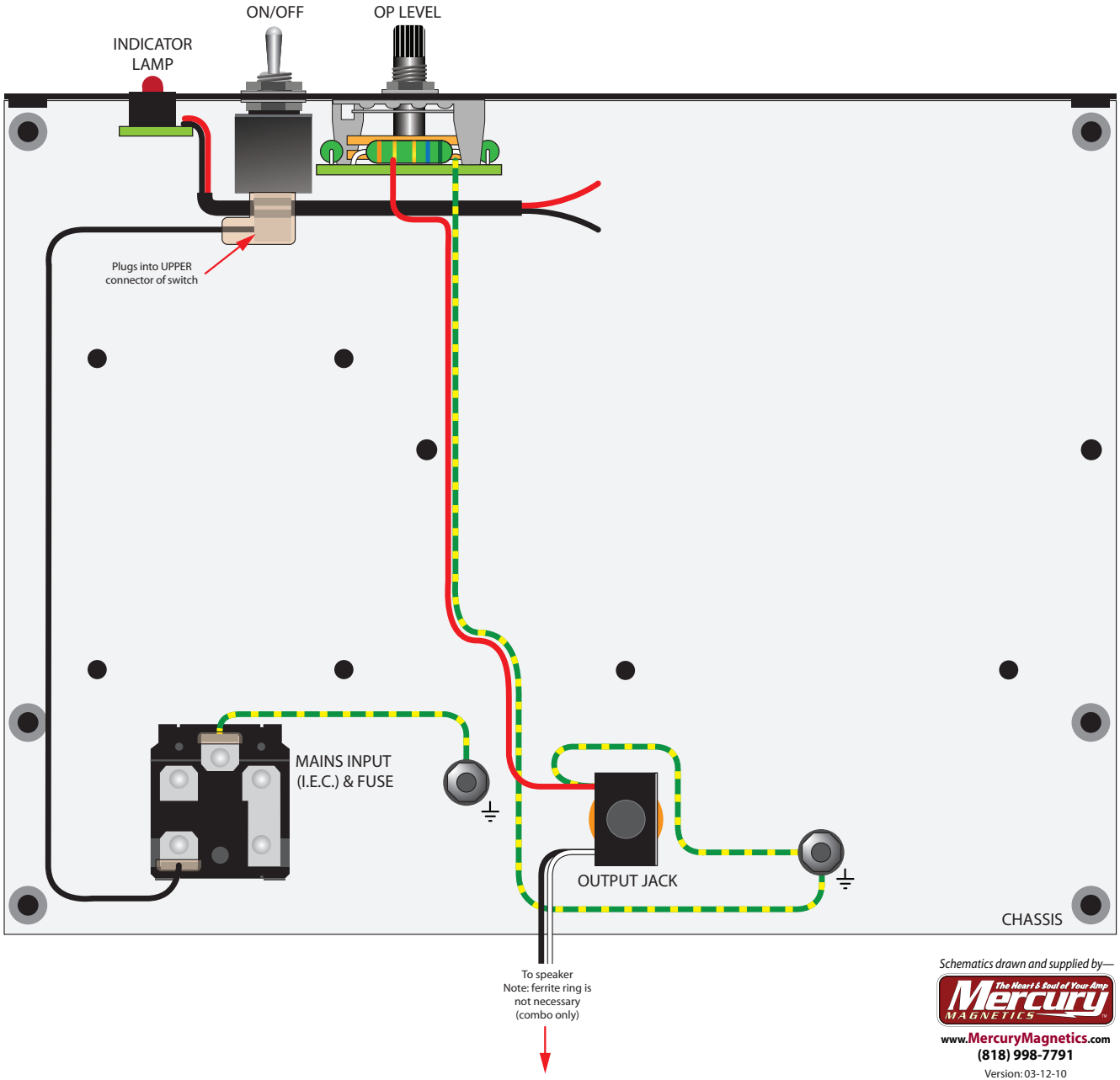


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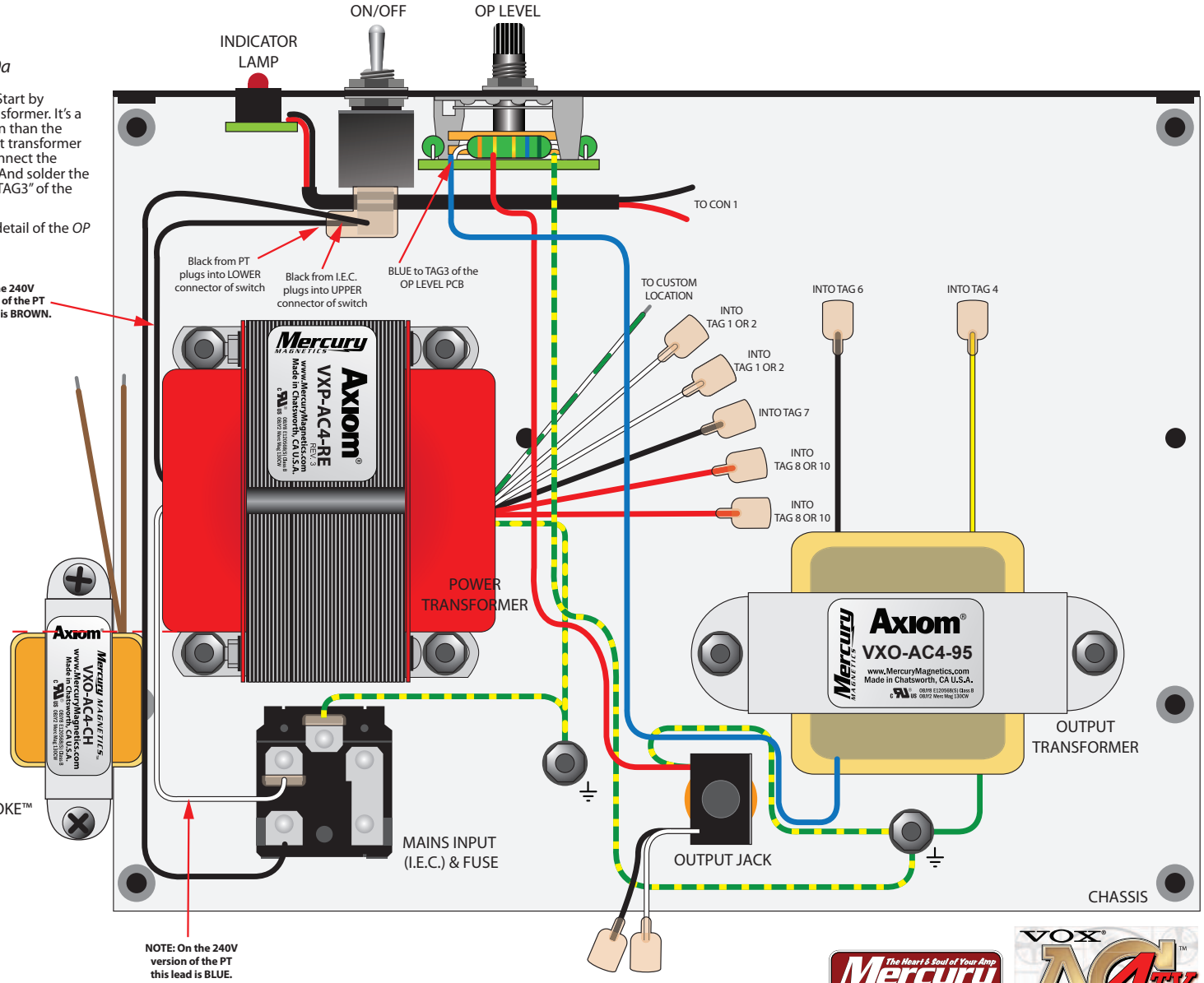
*Figure 10a*

**Re-assembly – Part 2**: Start by installing the power transformer. It's a little trickier to bolt down than the output. Install the output transformer and choke as shown. Connect the indicated ground leads. And solder the output's blue lead into "TAG3" of the *OP Level Switch* PCB.

See the next page for a detail of the *OP Level Switch PCB*.





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