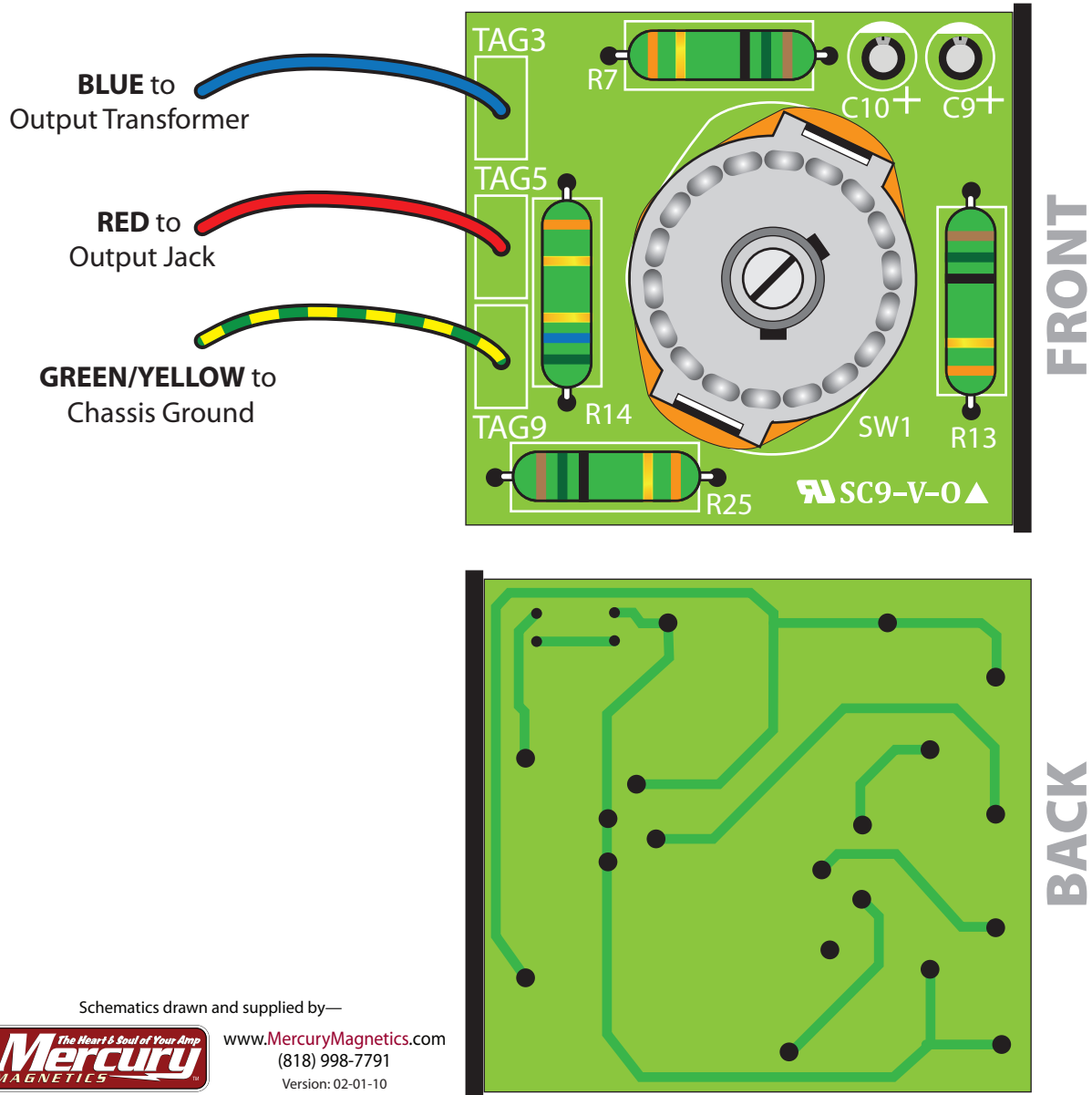


Figure 10b

## The OP LEVEL Switch PCB



Schematics drawn and supplied by—

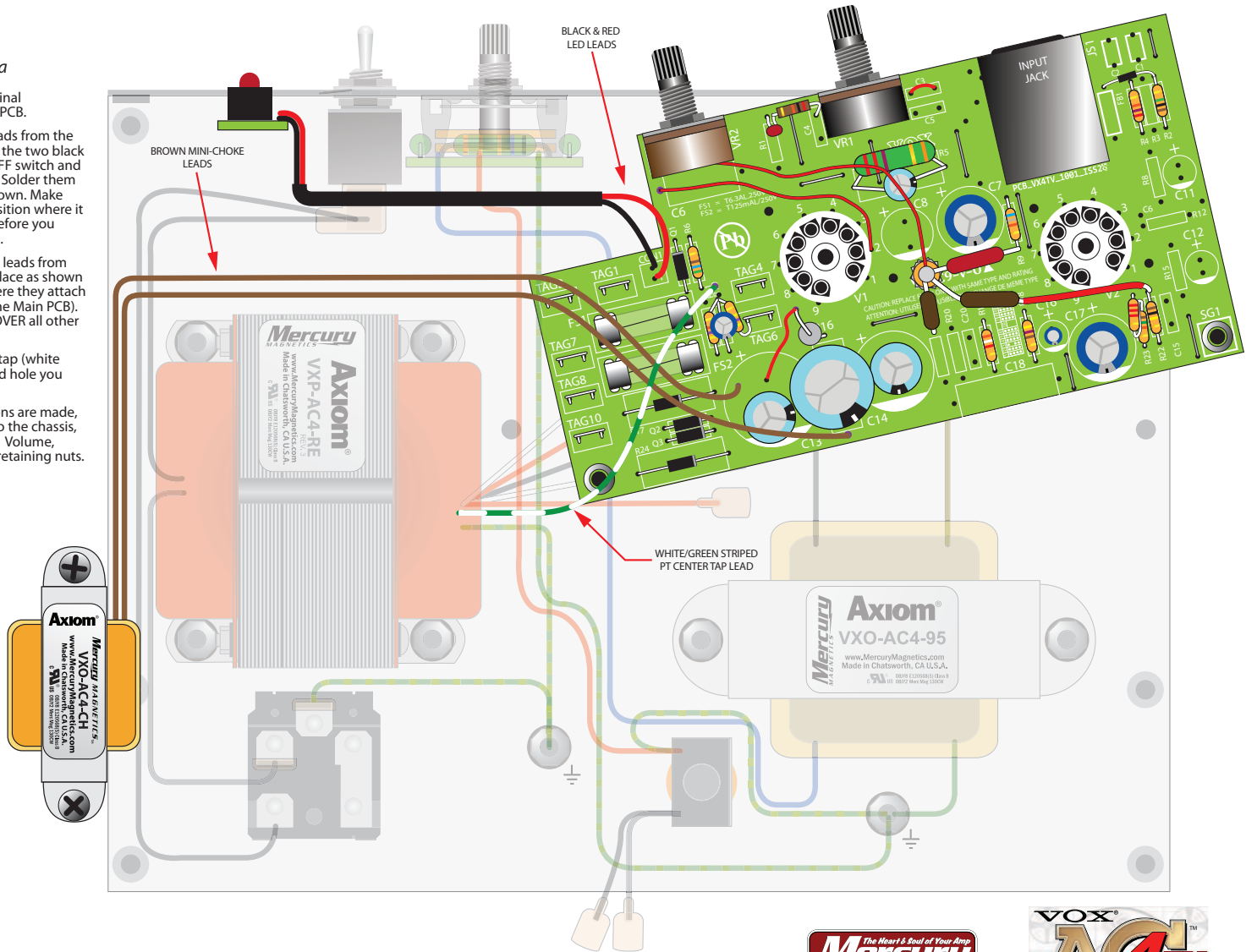


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Figure 11a

**Re-assembly – Part 3:** Final connections to the Main PCB.

1. Pass the red & black leads from the panel's L.E.D. between the two black terminals of the ON/OFF switch and under the other leads. Solder them directly to CON1 as shown. Make sure the PCB is in a position where it can be bolted down before you attach these two leads.
2. Solder the twin brown leads from the *Mini-Choke* into place as shown (see next page for where they attach on the under side of the Main PCB). Run the brown leads **OVER** all other amp components.
3. Solder the PT's center tap (white with green stripes) lead hole you made above R10.
4. When these connections are made, bolt the Main PCB onto the chassis, and finger-tighten the Volume, Tone and Input Jack's retaining nuts.



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 Studio-Pro  
 Mercury Upgrade Kit



For the VOX AC4tv PCB version 1 / ISS2b / 03-13-09

Figure 11b  
UPGRADING THE MAIN PCB

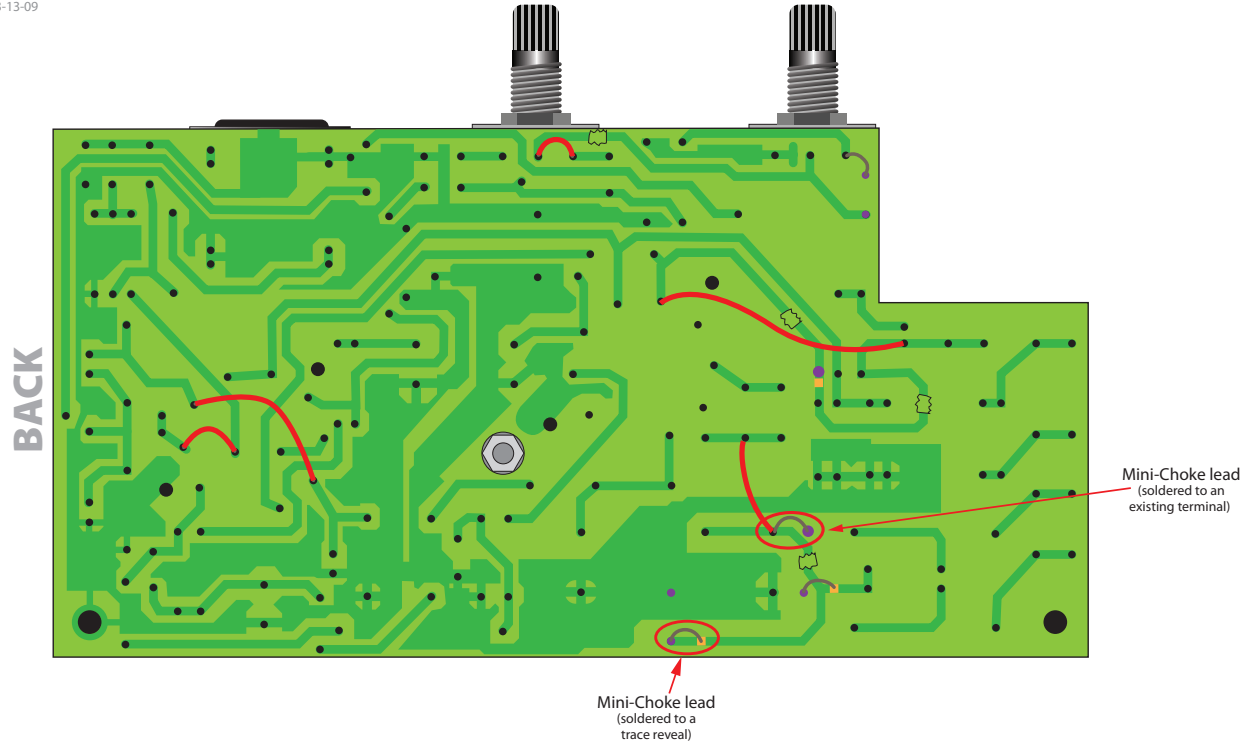
NOTE: THESE DIAGRAMS ARE NOT PRECISELY TO SCALE



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**Description:** Shows where the *Mini-Choke* leads come through the Main PCB and where they are soldered. One lead is soldered onto the revealed trace, the other lead onto an existing soldered terminal. Note that there is no polarity of the *Mini-Choke's* leads.

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Figure 12

**Re-assembly – Part 4:** This diagram shows all of the final connections to the **Mercury Upgrade AC4tv's** chassis. Be sure to also examine the reference photos on the next few pages for suggested positioning.

Note to reduce amp hum, and keep amp noise as low as possible, keep all leads high off the Main PCB and towards the power transformer (using cable ties). Twisting the twin white filament leads is also critically important in the war against noise. Make the twist as tight as possible before connecting to TAG1 & TAG2. See appendix for more information on filament leads.

Connect the power transformer's remaining black lead to TAG7, and the twin red leads to TAG8 & TAG10.

Insert the EL84 and 12AX7 tubes and their retaining clips. Hook up the speaker if you have a combo, or jack in an external 12Ω speaker cabinet if you don't.

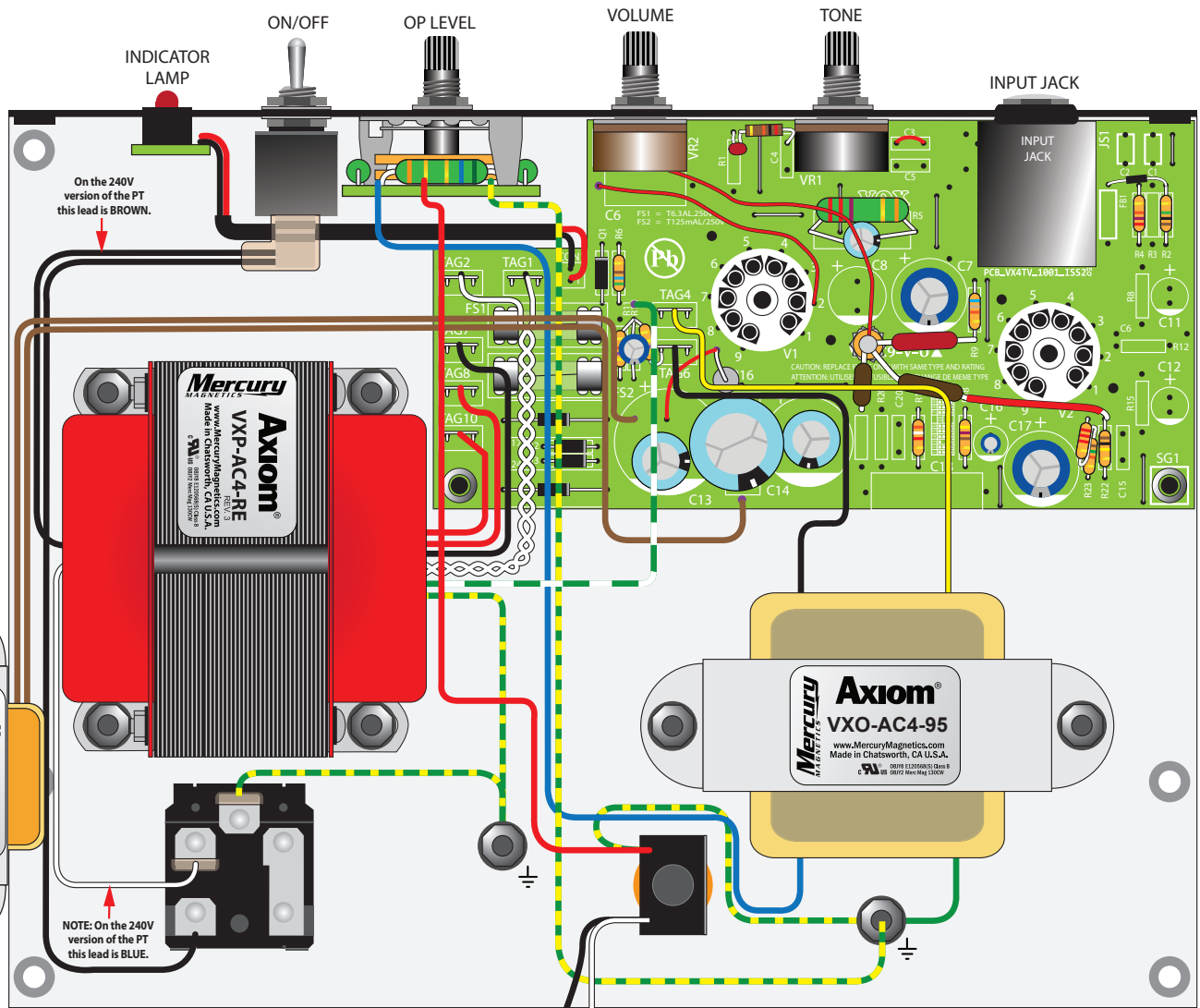
BEFORE TESTING THE AMP, be sure to read and understand the appendix on using a Variac (or variable AC power supply). If there's an error you run the risk of damaging the amp and/or hurting yourself. Firing up the amp with the proper equipment is the safe way to do it and can easily save you a lot of expense if something goes wrong.

\*\*\*

After you've determined that the amp is working properly, tighten the Volume, Tone and Input Jack's retaining nuts. Reattach the chicken head dials. Apply Loctite 232 to the two retaining bolts of the Main PCB, and the grounding lugs. Then close everything up by bolting the back of the cab back onto the case. Finish by attaching the **Mercury Magnetics** nameplate to the cab and you are done.

Note that new transformers require approximately 30 hours of playing to "break in." Your amp will actually sound even better at by the end of this period.

Thank you again – ENJOY your new amp!



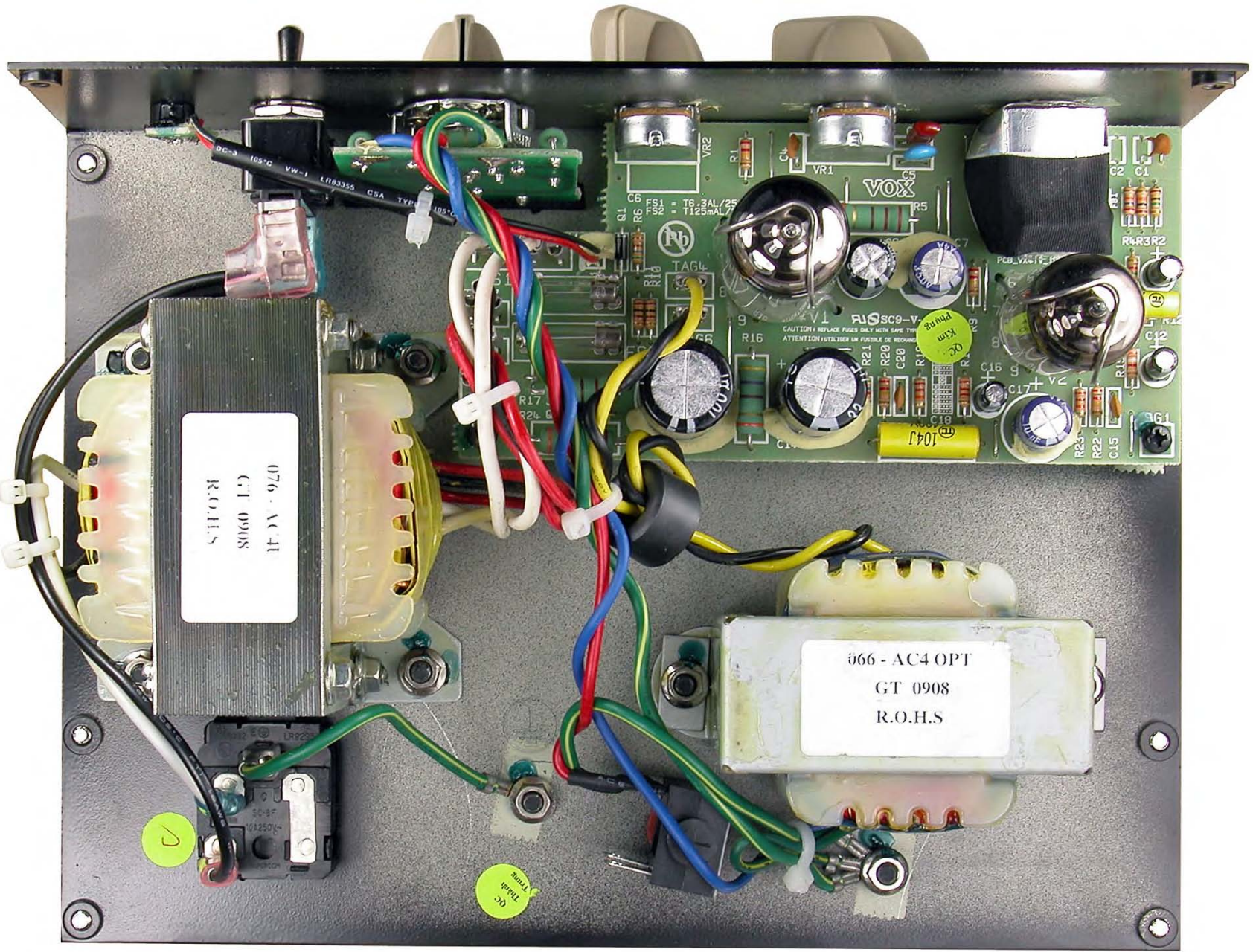
NOTE: For optimum tone **Mercury** recommends swapping the stock speaker for a 10" **Celestion Gold**. See [www.Celestion.com](http://www.Celestion.com) for more information.

Speaker wires (for Combo only)  
Note: White goes to positive (+) terminal on speaker

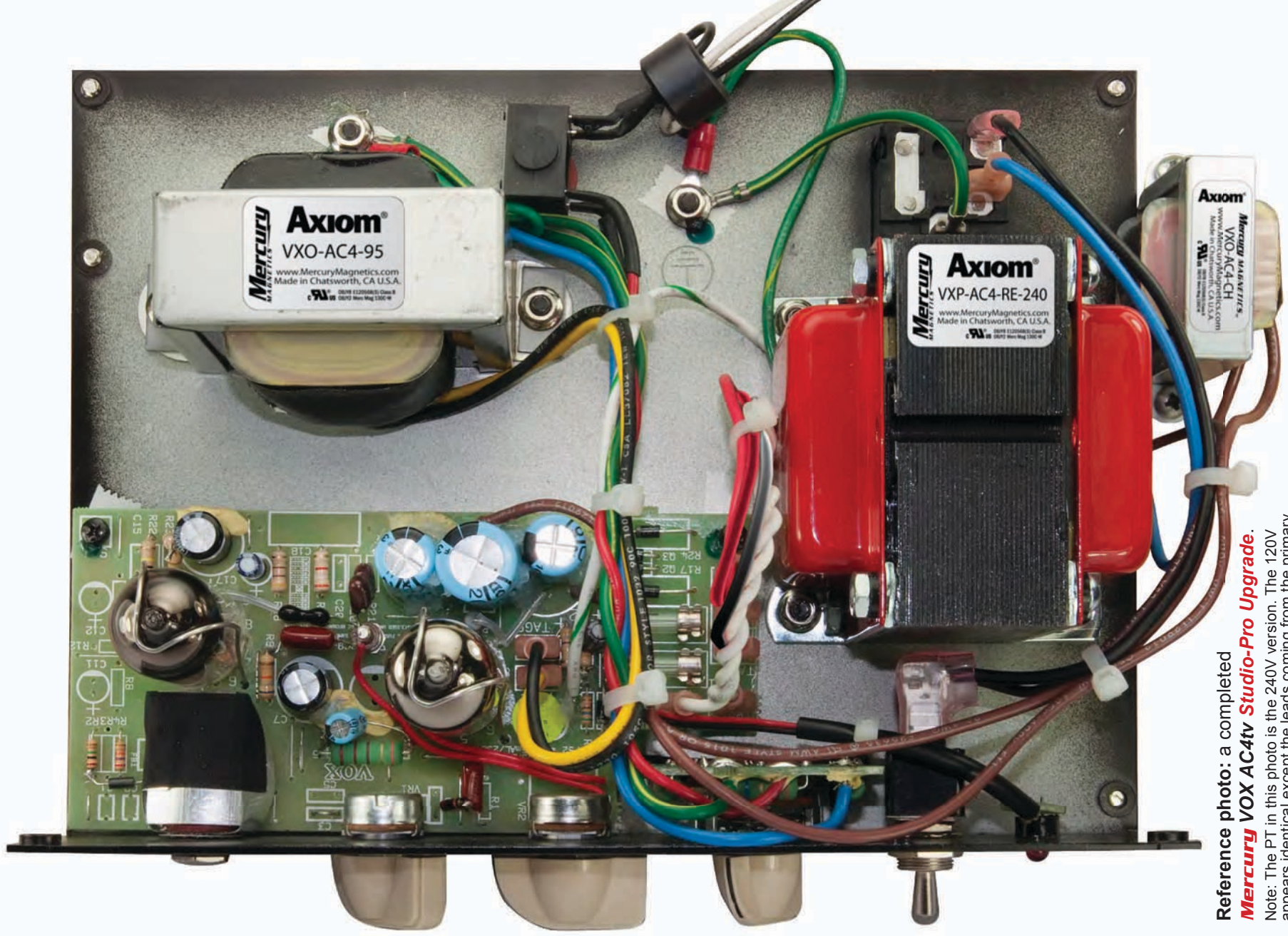
**WARNING: DO NOT POWER UP THE AMP WITHOUT CONNECTING THE SPEAKER (OR SPEAKER CAB). DO NOT POWER UP THE AMP WITHOUT THE USE OF A VARIAC!**

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Reference photo: A bone stock VOX AC4iv chassis (version 1).



Reference photo: a completed **Mercury VOX AC4tv Studio-Pro Upgrade**.

Note: The PT in this photo is the 240V version. The 120V appears identical except the leads coming from the primary are black (brown on the 240V) and white (blue on the 240V).



**BE FOREWARNED!**  
**IF YOU BYPASS THIS STEP**  
**THERE IS A VERY REAL**  
**POSSIBILITY THAT YOU WILL**  
**CAUSE DAMAGE TO THE AMP**  
**AND/OR SERIOUS HARM TO**  
**YOURSELF!**

## **Using a Variac & Current Meter** ***Don't power-up your amp without 'em!***

**NOTE:** IF YOU ARE NOT A QUALIFIED AMP TECH, DO NOT ATTEMPT TO POWER UP YOUR MODIFIED AMPLIFIER, YET. INSTEAD, **Mercury** RECOMMENDS THAT IT BE INSPECTED BY A QUALIFIED TECHNICIAN. AN AMP TECH WILL GO OVER YOUR WORK AND VERIFY THAT IT IS SAFE TO POWER IT UP.

After modifying your amp, the next step is to power it up using a *vari*ac and current meter.

The *Variac* and current meter allows you to slowly add voltage while checking the indicators to make sure that your handiwork is correct. Without a *vari*ac you run the *extreme* risk of frying your amp or some of its components, getting hurt, electrocuted, *etc.*

A *Variac* is a standard amp tech tool. No amp tech should be without one. They are available from many electronic stores or online, eBay, *etc.* Prices start at about \$50 and go up from there. The better units (such as the *Tenma* isolated variable AC power supply shown in these photos) include output current metering. Consider that the cost of a *Variac* is free, because a single error without one can easily cost more than the *Variac* itself!

As the following instructions show, you'll need to monitor the output current while increasing power to the amp with the *Variac*. If your *Variac* doesn't have a self-contained current meter this can also be done with a separate amperes meter connected to the fuse-holder of the amp (with the fuse removed).

Specific instructions for how to use *Variacs* and current meters are beyond the scope of this manual. Check the web or owner manuals of the devices for specific methods.



**STEP A:** Make sure that your amp is OFF. Plug it into the *Variac*. The *Variac* is OFF with the output voltage knob set to zero (0). Turn on the *Variac*'s power. Then, turn on the amp's power.



**Variac:** A variable transformer used to vary AC voltages. Also the tradename for a brand of variable AC transformer. There are other brands, but the term is generically used to describe all of them. A *variatic* allows adjustment of the incoming AC mains voltage. The better quality units have meters for voltage and current, or both, and fuses for protection. *Variatics* come in many shapes and sizes. But their function is basically the same. If your *variatic* does not have an amperes (current) meter, you'll need to use a separate meter.

**NOTE:** The *Variac* in the photo to the left does not have an amperes meter whereas the *Tenma* model does.



**STEP B:** Turn on the amp's power.



**STEP C:** While watching the current (amp) meter, slowly roll on the *Variac's* output voltage knob. The amp should turn on at about 45 volts.

When you get to about 60 volts you don't want to see more than a few hundred milliamps. If the current meter reaches anywhere above half an amp, roll the *Variac* back to zero, shut everything down, discharge the caps, and look for the error, short or bad component. Correct the problem and repeat until this test passes.



**STEP D:** Once you can reach 120 volts drawing less than half an amp, you are in good shape.

**NOTE:** If you don't have a current meter on your *Variac*, remove the fuse from the amp, and with an amp meter across the empty fuse holder socket, turn on the amp and perform the test above.