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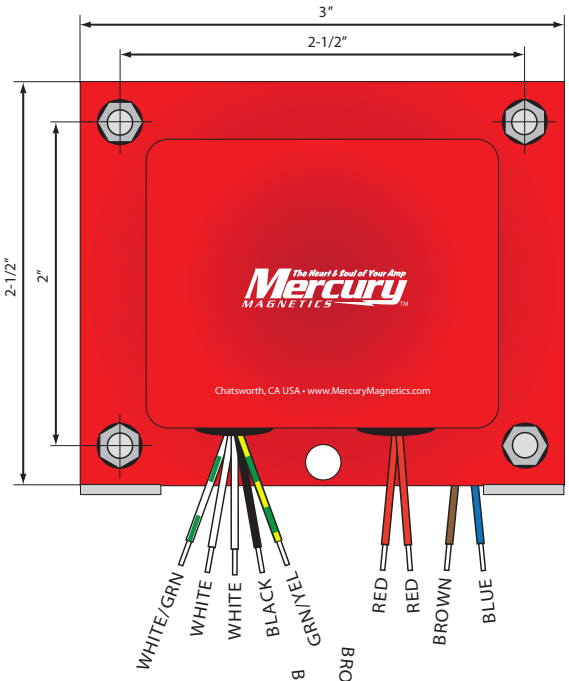
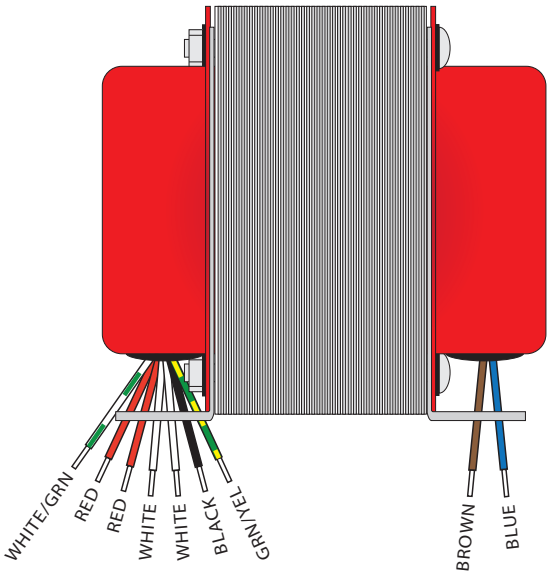
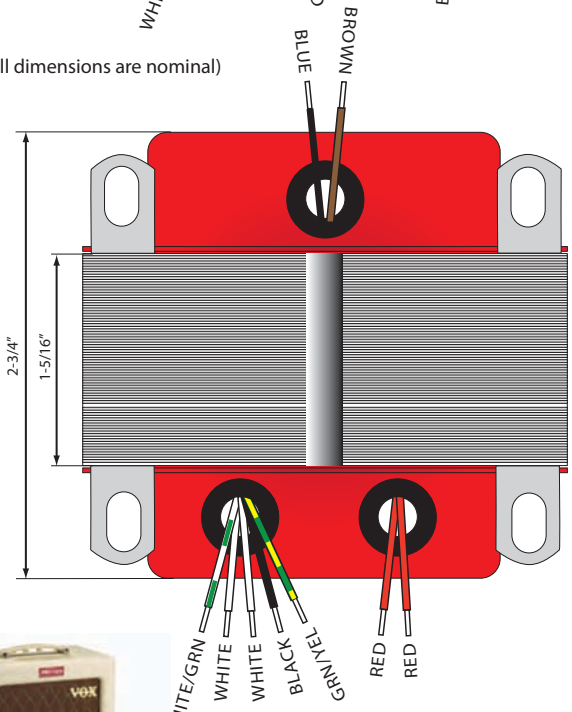
# VXP-AC4-RE-240

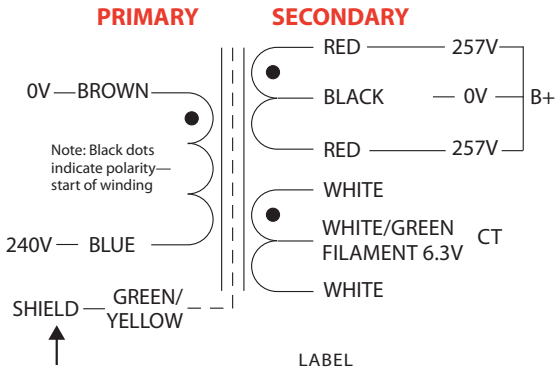
## 240V Version




(All dimensions are nominal)




Note: Grounding of the *Faraday Shield* is optional. It may reduce noise depending upon the source of the ground.

LABEL


For upgrading the ***VOX AC4tv*** combo or ***AC4tvH*** head

**TYPE**: Power Transformer
**MOUNTING**: Horizontal Mount
**CLASS**: Axiom®

**PART NO.**: VXP-AC4-RE-240
**ORIGINAL VOX PART NO.**: 076-AC4U
**DATE**: 02-22-11


VXP-AC4-RE-240

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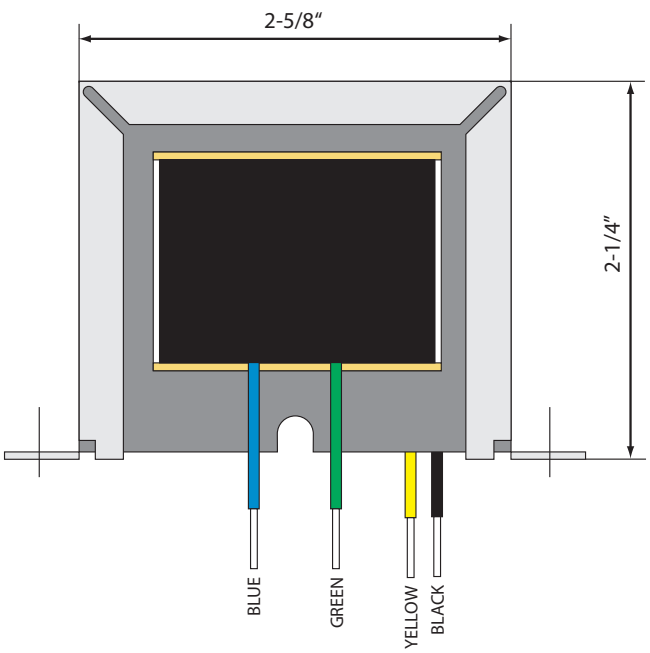
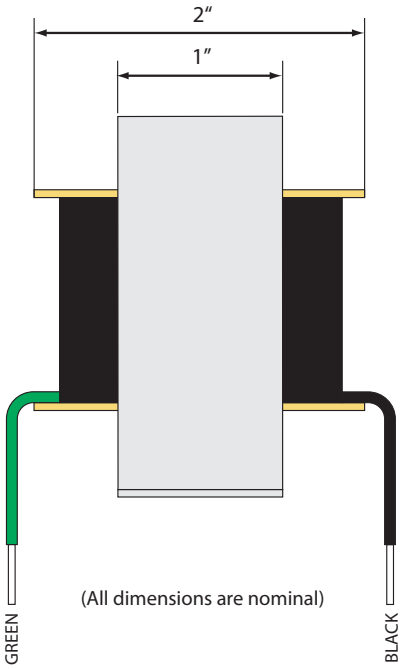
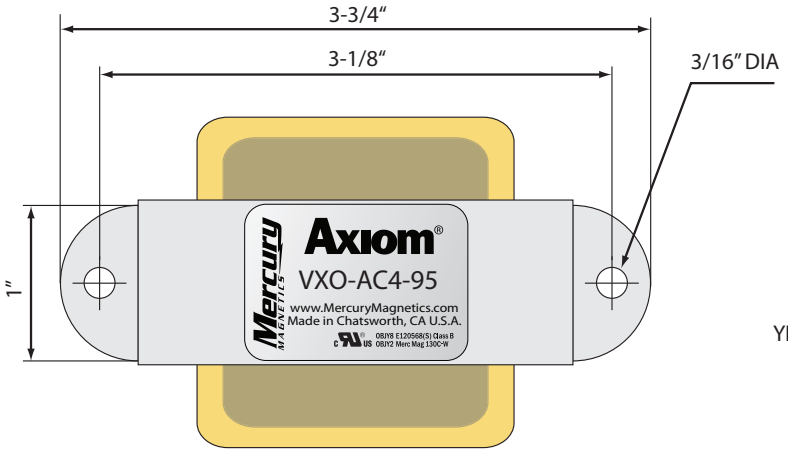
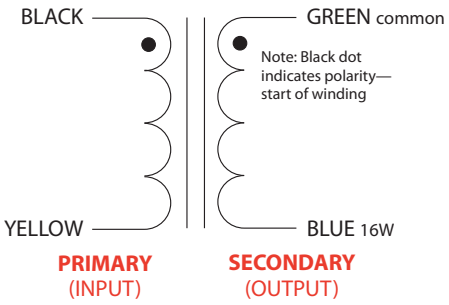
# VXO-AC4-95





VOX AC4tv Studio-Pro Mercury Upgrade Kit

For upgrading the ***VOX AC4tv*** combo or ***AC4tvH*** head

**MOUNTING**: Horizontal A-Frame
**POWER RANGE**: Our OTs are rated to handle up to 50% more power than the original manufacturer spec.
**CLASS**: Axiom®
**TYPE**: Single-ended output transformer
**PART NO.**: VXO-AC4-95
**ORIGINAL VOX PART NO.**: 066-AC4 OPT
**DATE**: 01-27-11

VXO-AC4-95

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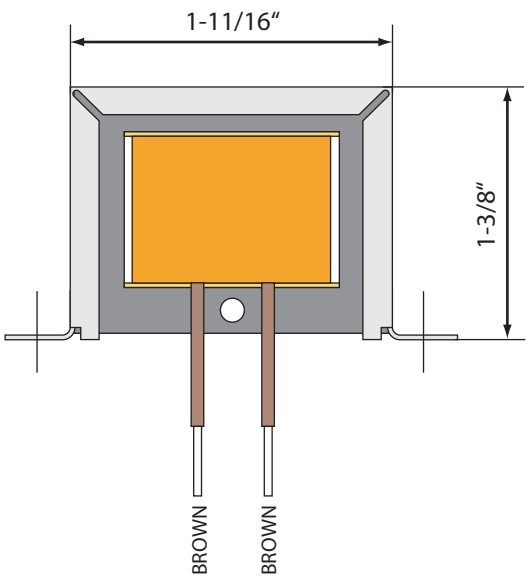
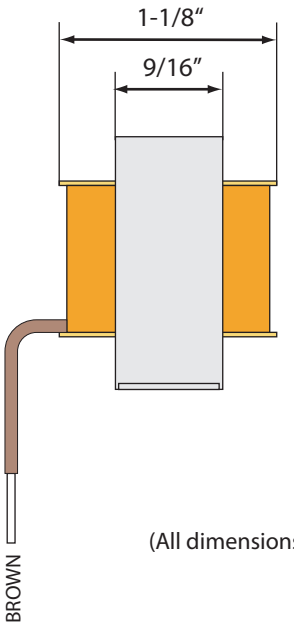
# VXO-AC4-CH

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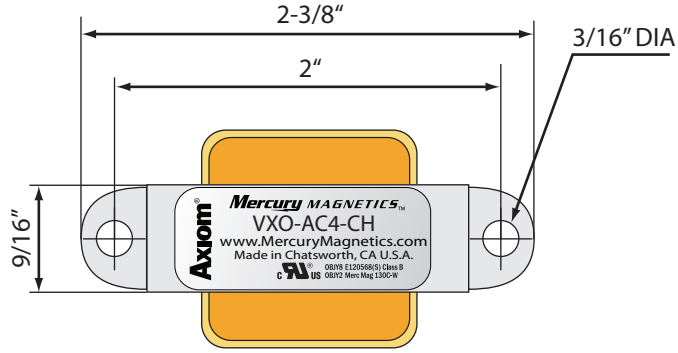
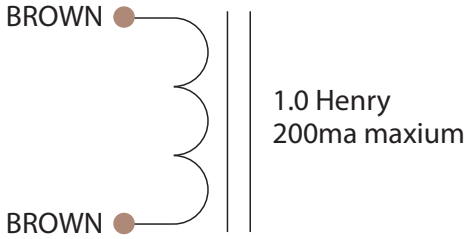




VOX AC4TV Studio-Pro Mercury Upgrade Kit

For upgrading the ***VOX AC4tv*** combo or ***AC4tvH*** head

**MOUNTING**: Horizontal A-Frame
**POWER RANGE**: 1 Henry / 200ma max.
**CLASS**: Axiom®
**TYPE**: Mini-Choke™
**PART NO.**: VXO-AC4-CH
**ORIGINAL VOX PART NO.**: N/A

**DATE**: 11-17-09
**REVISION**: N/A

VXO-AC4-CH


*Step-by-Step*

# An Overview of the *Upgrading* Process

The following outlines the sequence you'll follow to apply the ***Mercury Upgrade Kit*** to your ***VOX AC4tv's*** chassis. Both the head and combo have identical chassis, therefore all instructions, other than the direct speaker connection for the combo versions, is exactly the same. Also be sure to read through the various appendices for helpful hints and tips.

## 1st SEQUENCE

You're about to strip your stock ***VOX AC4tv*** and prepare it for the ***Mercury Upgrade***. It's good practice to place all of the components you remove into holding containers so they are easy to locate and won't get lost. Most of the components you are stripping will not be used again. But hold onto everything for now until your ***Upgraded*** amp is up and running.

Let's get started:

1. Unplug the amp from the power source (AC).
2. Remove all chassis retaining screws from the back and the two on the top of the amp.
3. Remove the chassis from the amp – if you have a combo, disconnect the two speaker wires first.
4. Discharge the capacitors.
5. Remove the following from the Main PCB:
   a. Tubes
   b. Transformer clips (TAG1, 2, 4, 6, 7, 8 and 10)
   c. Pull the Tone and Volume "chicken head" knobs, and remove their retaining nuts/ washers.
   d. Remove the Input jack's retaining nut and washer.
6. Remove the two Main PCB retaining screws/ washers.
7. Carefuly pull the Main PCB out of the chassis and unsolder the red & black LED wires.
8. Unsolder the blue wire going from the Output Transformer to the OP LEVEL switch's PCB.
9. Unclip or unscrew any remaining wires attaching the transformers to the chassis, then unbolt and remove the Power and Output transformers.

## 2nd SEQUENCE

With the Main PCB removed and completely disconnected from the chassis, the next step is to strip and prepare the board for the ***Upgrade***. Use Figures 1 & 2 for reference.

You will be clipping some components, and unsoldering others. The difference is mainly for speed. Clipped components and their locations will not be re-used*. Whereas unsoldered components, or their locations, will be.

*It is a good idea to not unsolder the components we've recommended to clip (even if you want to). The idea is to save the PCB from unnecessary stress. The Main PCB is made in Asia and not designed to withstand a lot of punishment. As you will see as the ***Upgrade*** progresses, there will be mainy times when it is necessary to make repairs or workarounds to hold the PCB together. Don't be intimidated, though. They're easy to do.

**Special note**: The solder used in these amps is *RoHS* compliant – a term for a new industry standard that basically means the solder is

lead-free. This also means that you'll need to use a good quality iron running hotter than traditional solder melting temperatures (set it for about 800° F). Although *RoHS* compliant solder melts at higher temps than the original soldering alloys it's likely you'll be using regular electronics solder for this project. You may also want to do a web search to study up on working with *RoHS* solder.

For drilling or resizing holes we recommend that you use a *Dremel Tool* with a 1/16" bit and a hole reamer bit. A hole reaming bit will come in handy to enlarge existing holes. And a small grinding head will serve as a trace-cutter. A sharp pocket knife or *Exacto* is recommended for carefully scraping away PCB insulation to reveal traces.

See appendixes for special instructions regarding trace cutting, trace revealing, and adding jumpers.

1. Use the illustrations on the following two pages to strip the board in this order:
   e. Clip items
   f. Unsolder items
   g. Hole drilling and enlarging
   h. Cut traces
   i. Reveal traces
   j. Add jumpers
2. Carefully compare your stripped and modified Main PCB so that it matches the illustrations in this sequence. A missed step or mistake will bite you later on. Take your time to do a methodical and thorough approach.

VOX AC4TV Studio-Pro Mercury Upgrade Kit

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

*Figure 1*

## STRIPPING & PREPPING THE MAIN PCB

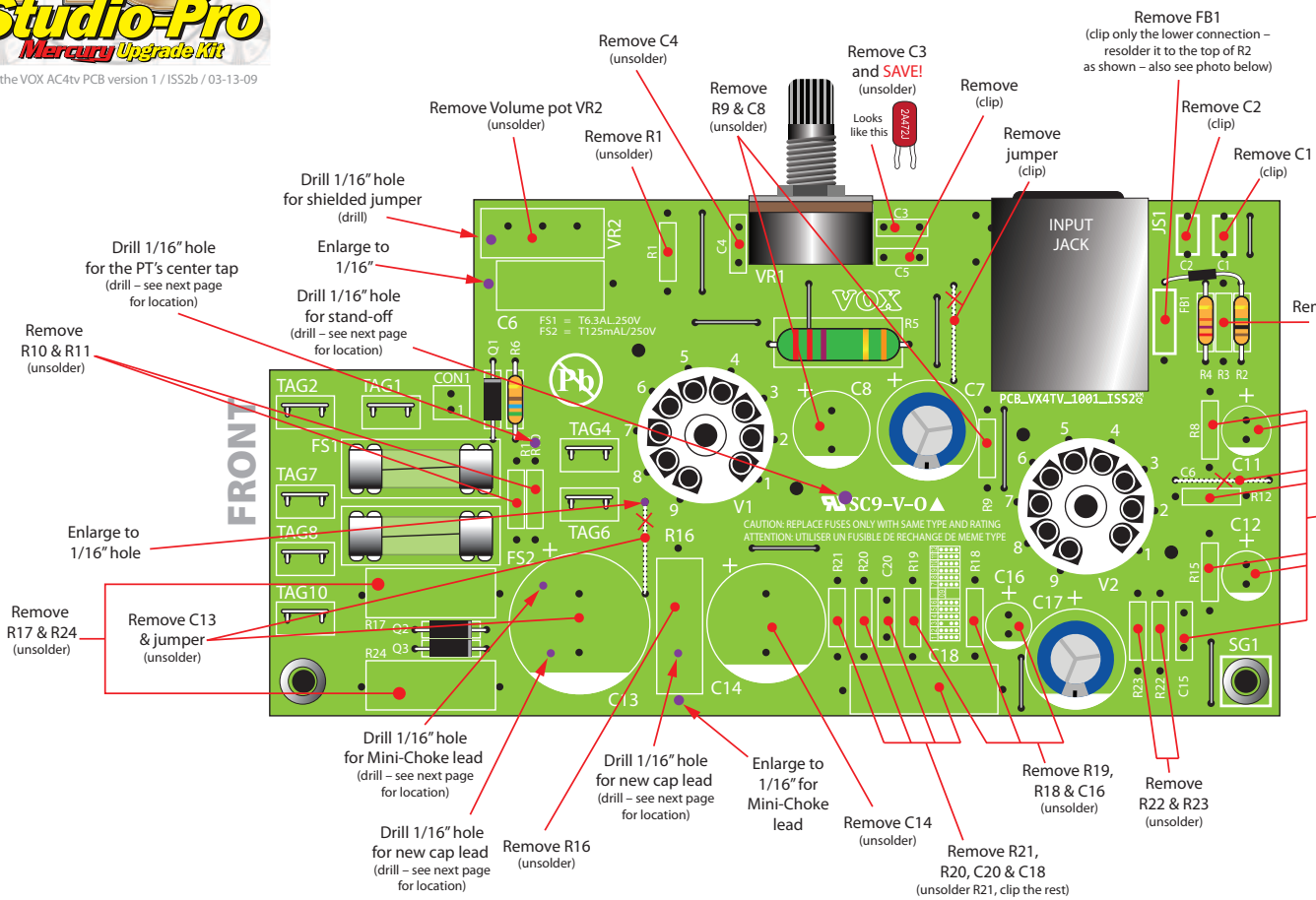
NOTE: THESE DIAGRAMS ARE NOT PRECISELY TO SCALE

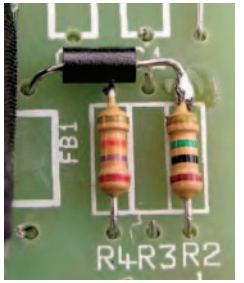
VOX AMPLIFICATION LTD.

Stock AC4TV

www.VoxAmps.com

VOX AC4TV PCB version 1/ ISS2b / 03-13-09




Detail of FB1 modification

**Description:** In preparation for the ***Mercury Upgrade Kit*** follow the diagrams on this and the next page to strip and prep the Main PCB. We've indicated the components that should be clipped *vs*. unsoldered. See appendices for special instructions on what to do if one of the PCB's eyelets is accidentally detached. Do not fully remove FB1 (ferrite bead) – instead, reconnect to R2 as shown. Also, carefully remove C3 (4.7ηF cap) – because you're going to be re-use it in another location of the tone circuit.

The next page shows the underside of the PCB and gives the locations of trace cuts and trace reveals. Also, where to add jumpers. To learn about these techniques, see the appendixes of this manual. Note that you'll need to drill several holes in the PCB – use a 1/16" drill bit in a *Dremel Tool* for best results.

Schematics drawn and supplied by—

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VOX AC4TV Studio-Pro Mercury Upgrade Kit

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

*Figure 2*

## STRIPPING & PREPPING THE MAIN PCB

NOTE: THESE DIAGRAMS ARE NOT PRECISELY TO SCALE

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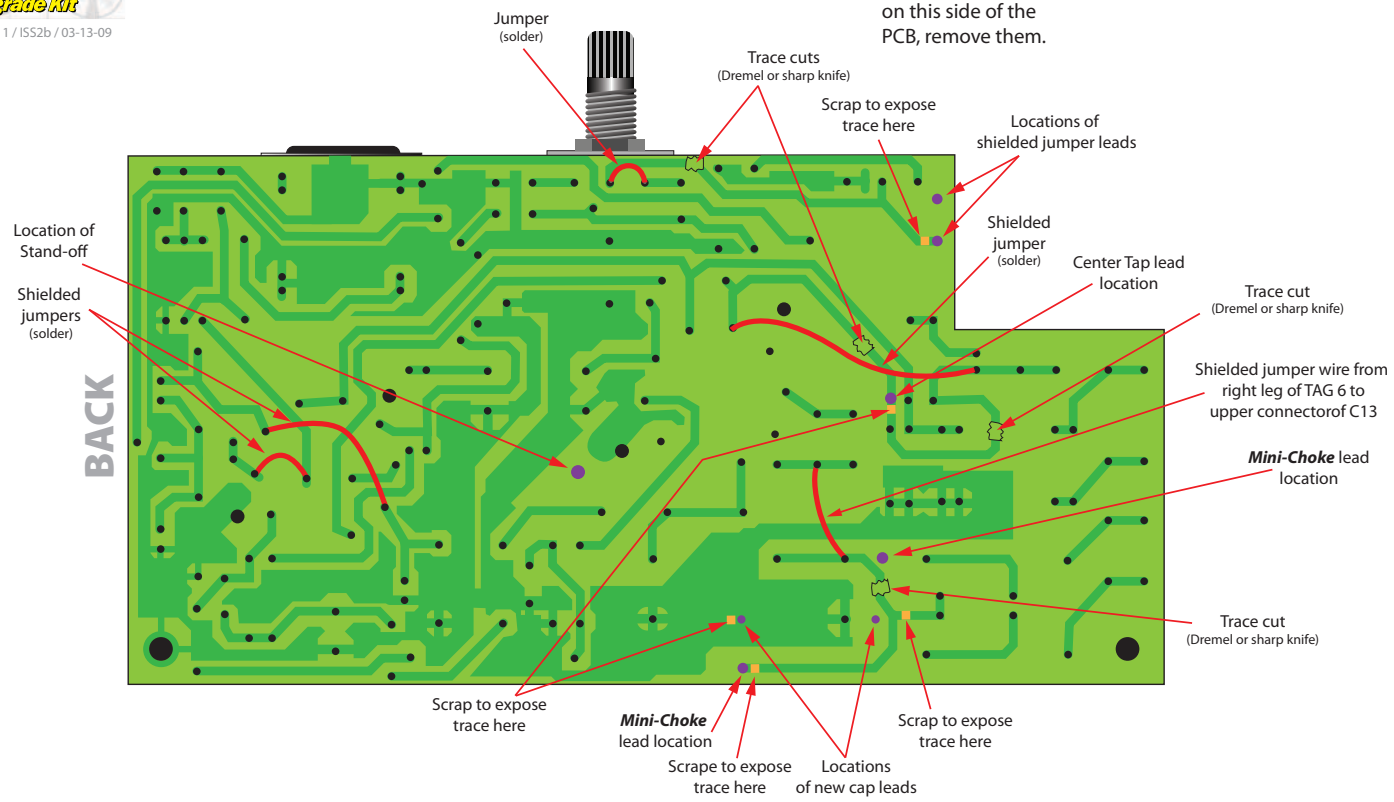


**Description:** The dark green areas on the back of the PCB represent "traces." Traces are literally flat copper alloy strips that serve the same function as wire. The traces are covered with a thin insulation film. It is sometimes necessary to scrape the film away to "reveal" the trace for soldering wires or making trace repairs. Likewise, you can cut completely through a trace to interrupt a circuit. Not represented on this illustration (in order to make it easier to follow the traces) are the various blobs of solder used to make connections between the various components of the circuit. Holes in the traces intended to pass through components have conductive "eyelets" built into them. And these eyelets, unfortunately, are easily damaged by the high heat of the soldering iron when you work on these Asian-made PCBs. So, don't worry if this happens, even the old pros experience these problems, and there are several workarounds to fix things.

Also note that when you are soldering jumpers or component leads, wires, *etc.*, it will often be necessary to scrape the insulation from a trace in order to have a reliable surface to solder to. Likewise, if there is another terminal on the same trace you may solder to that instead of trying to work with a damaged or missing eyelet. The manual's appendices show several photographic examples that will help make this easier to understand.

Note that holes for pass-through wires, such as the ***Mini-Choke*** or insulated jumpers, will need to be enlarged. If this is necessary, we recommend that you use a *Dremel Tool* with a reaming bit when needed.

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## 3rd SEQUENCE

In this sequence you'll be adding components to the Main PCB. We've broken down what you'll need to do into a logical set of steps to make it easier. The next few pages of illustrations (Figures 3 thru 8) will guide you through.

**Notes**:

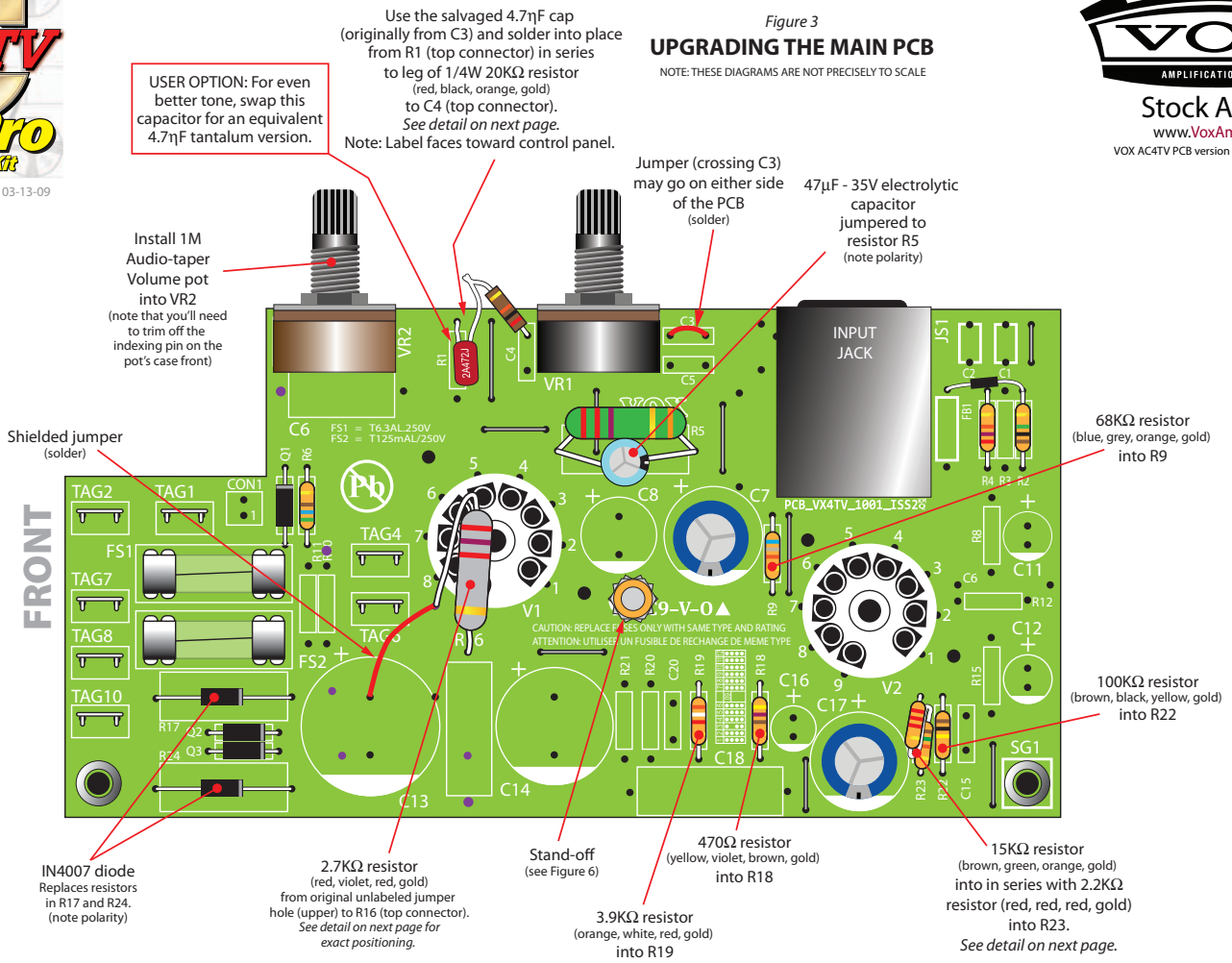
- Polarity on the electrolytic caps is important (narrow stripe is the negative/ground side).
- Some existing holes may have to be enlarged for some connections. Use a *Dremel Tool* with a reaming bit.
- The PCB's traces and especially the soldering eyelets are easily damaged. See this manual's appendices for trace and jumper damage and repair tips. Eyelets are pass-through holes used to solder components onto the PCB. They join and make contact from one side of the board to the other. Typically an eyelet is made of thin copper or similar conductive metal. If an eyelet is badly damaged there won't be a connection. Please be sure to understand this concept.


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

*Figure 3*

## UPGRADING THE MAIN PCB

NOTE: THESE DIAGRAMS ARE NOT PRECISELY TO SCALE

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Stock AC4TV

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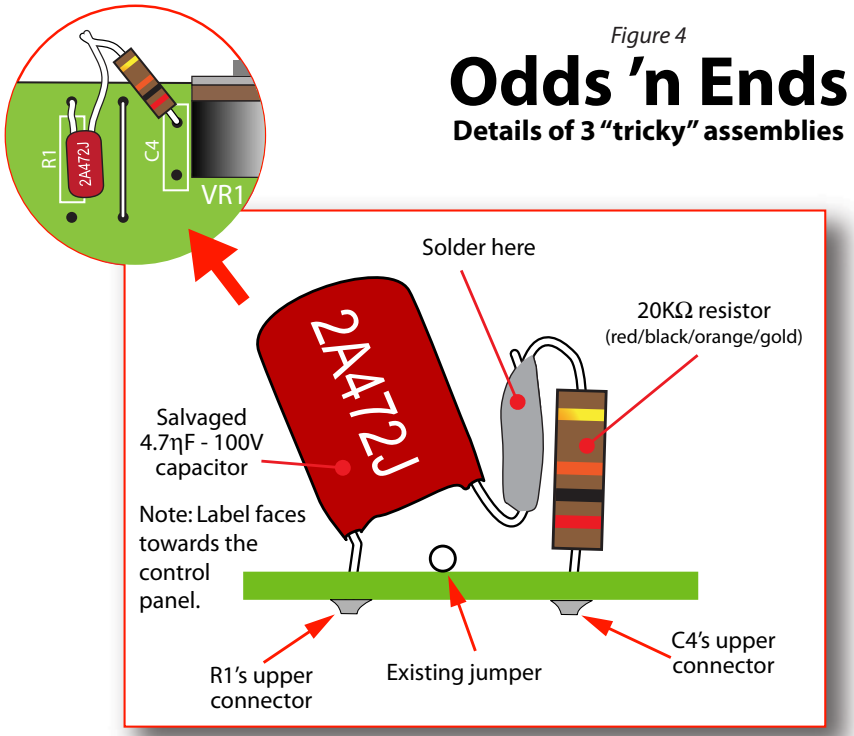
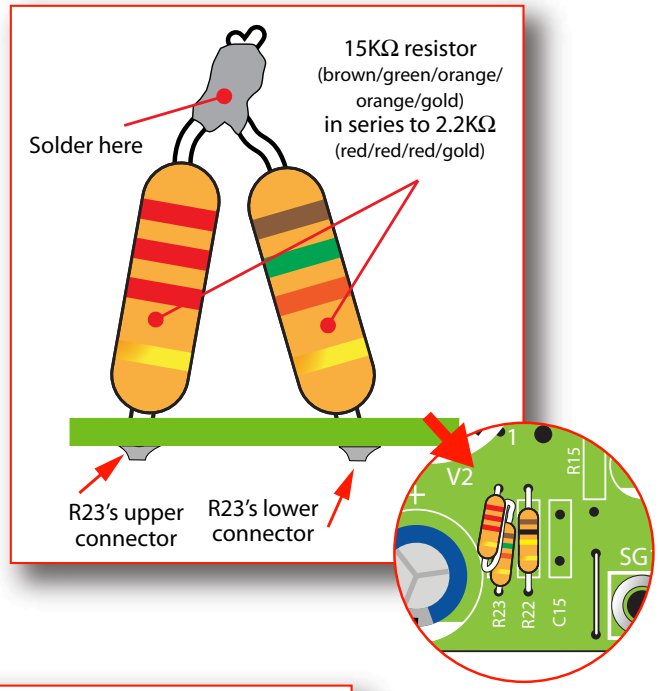
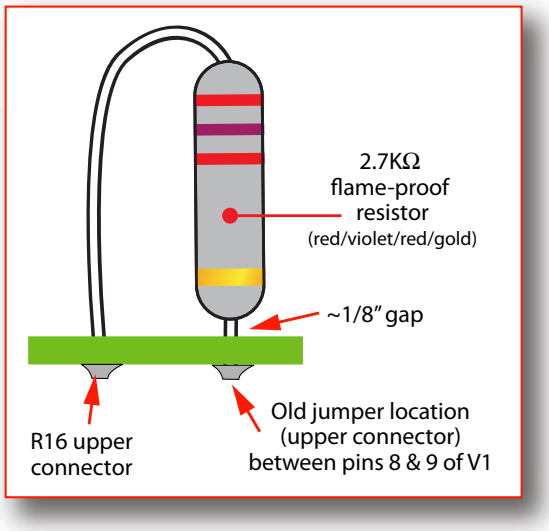
*Figure 4*

# Odds 'n Ends

**Details of 3 "tricky" assemblies**

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