



[PREVIEW]

How 2 build it

**The ultimate tube opto
compressor blueprint**



attention | disclaimer

this project is presented as artwork, and is solely intended as such.

build at your own risk

although this e-paper can help you to build a (legendary) functioning tube
opto compressor - due to the high voltages and possibilities of human error ,

analogvibes | martin zobel

hereby assumes no liability for injury/damage/loss
which might unintentionally occur.

this pdf is for information purposes only

Before we start...

I can understand if you have concerns building tube gear as there are serious voltages involved. So as always when dealing with electronic circuits and with tube gear in particular, you have to work carefully.

PRECAUTIONS

There are some essential rules which, if followed, should make building your own tube gear a safe ride.

1. ALWAYS unplug the unit from the mains before touching the circuit.

2. BE AWARE:

Capacitors act pretty much like a battery - they can hold their voltages for a pretty long time - longer than you might expect.

3. SO IF YOU'RE NOT SURE:

Go measure with a digital multimeter (DMM).

4. IF THERE IS VOLTAGE:

Use your DMM and a capacitor discharger/ bleed resistor to discharge the cap. There's more info on this on the next page.

5. IF IT SHOULD BE REQUIRED

to measure a live unit, use a crocodile clip, at least for one probe so you don't have to fumble around inside the box with both hands.

6. ALWAYS DOUBLE CHECK

your components before soldering them in - this can save you a lot of trouble later...



Before we jump right into it, I want to turn towards the basics one more time. If you are already experienced and already know how to measure etc. you can skip this page and go straight to the next one. If you are new to DIY, this can hopefully help you to get going:

TOOLS

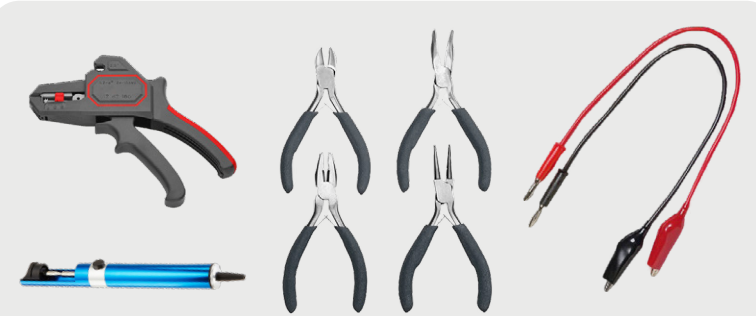
Obviously some tools are needed in order to build your own studio gear. Some of them are absolutely essential while others are nice to have. Here's my recommendation:

Essentials:



- **soldering iron**, adjustable temp. recommended
- **solder**: for most tasks I'd recommend a 1.0mm "Sn60 Pb40" or a "Sn60 Pb38 Cu2"
- **wire clipper** and **electronic pliers**
- **digital multimeter (DMM)**
- **screwdriver** and **spanners** to mount the hardware

Nice To Have:

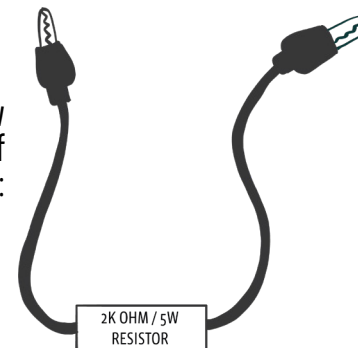


- **strip-off pliers**
- **desoldering pump**
- **more electronic pliers**
- **alligator clip wires** (+ alligator clips for your DMM)

Good To Do:

Follow this link to learn how you can easily build yourself a capacitor discharging tool:

[CAP DISCHARGER DIY >](#)



HOW TO:

Measure the voltage in your project:

Set your Multimeter to read AC or DC voltage. Connect the black probe to ground (use one with alligator clip here, so you don't have to focus on two probes at the same time).

Measure with the red probe. **Focus** - slipping off and causing a short can damage your gear!

- **PSU before the rectifiers: AC**
- **Tube heater supply (H+) and audio signal: AC**
- **B+ voltage after the rectifiers: DC**

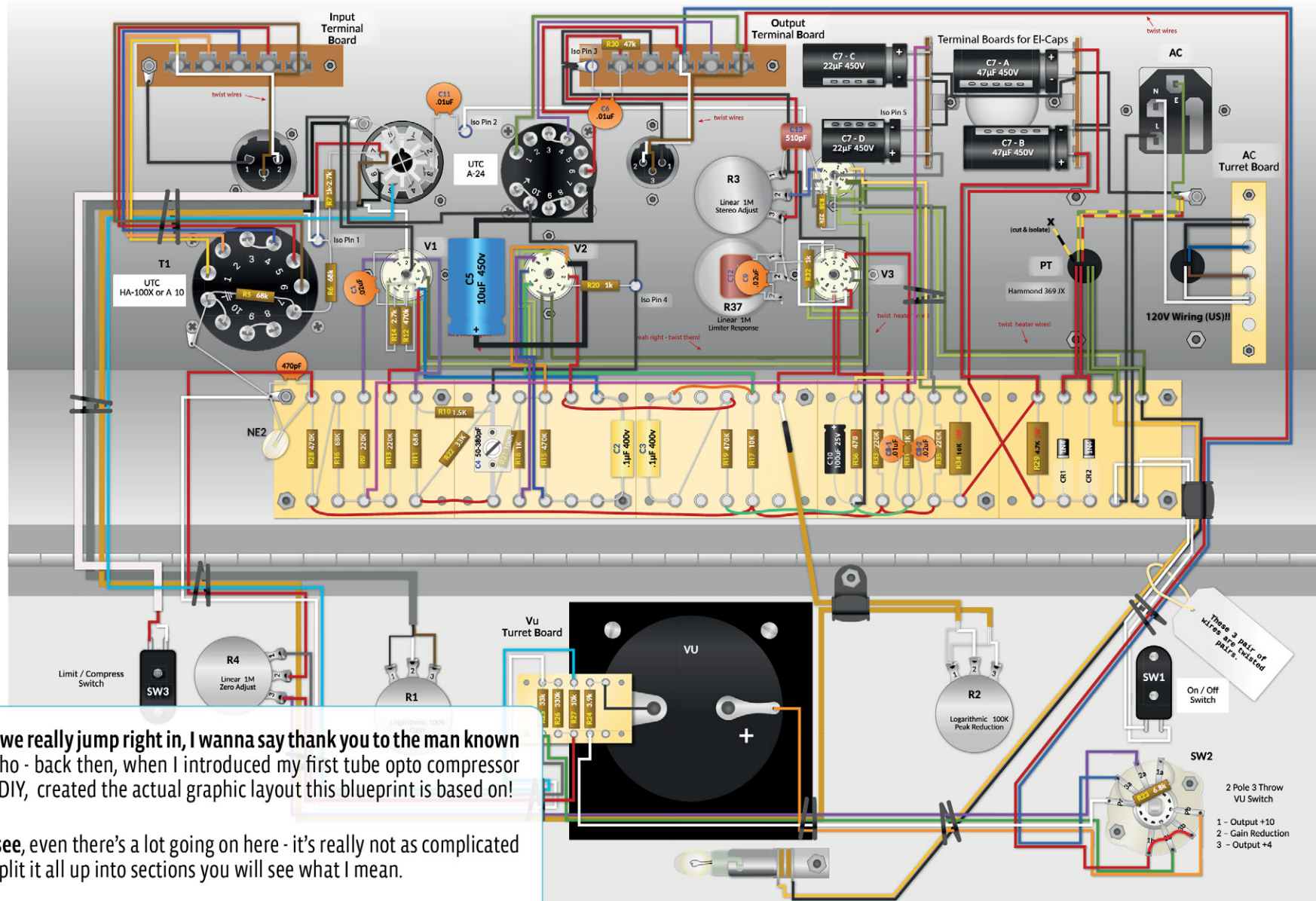
Solder and start with electronics:

[GREAT TUTORIAL ON SOLDERING AND BASICS >](#)

Discharge a capacitor:

Either connect your DMM across both legs of the cap to be measured or connect the black probe to ground and the other one to the positive side of the cap. Connect your cap discharger across both legs of the capacitor until the voltage is down. Again - alligator clips come in handy here.

THE BLUEPRINT

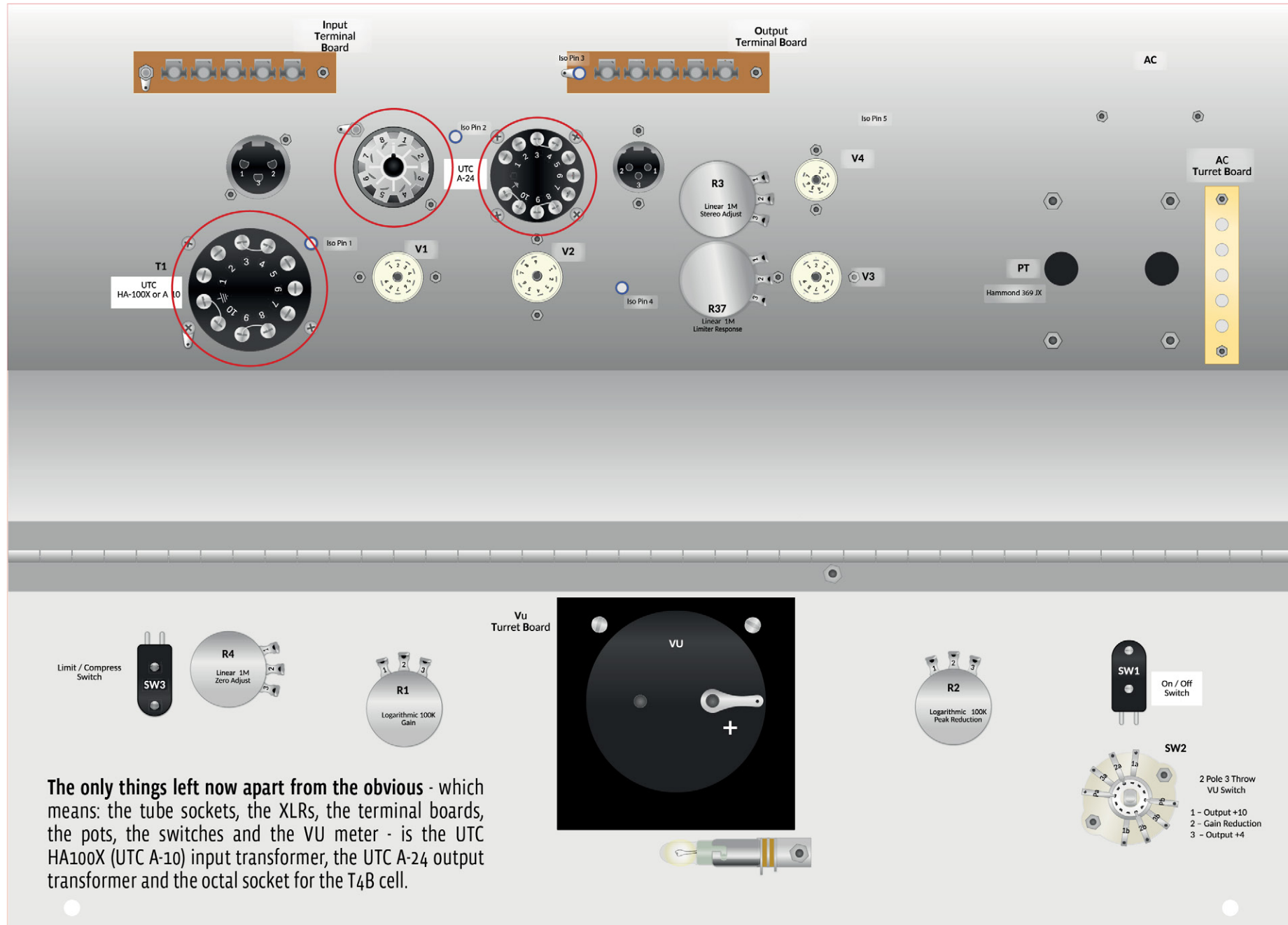


First of all before we really jump right in, I wanna say thank you to the man known as Gambaholic who - back then, when I introduced my first tube opto compressor project on Group DIY, created the actual graphic layout this blueprint is based on!

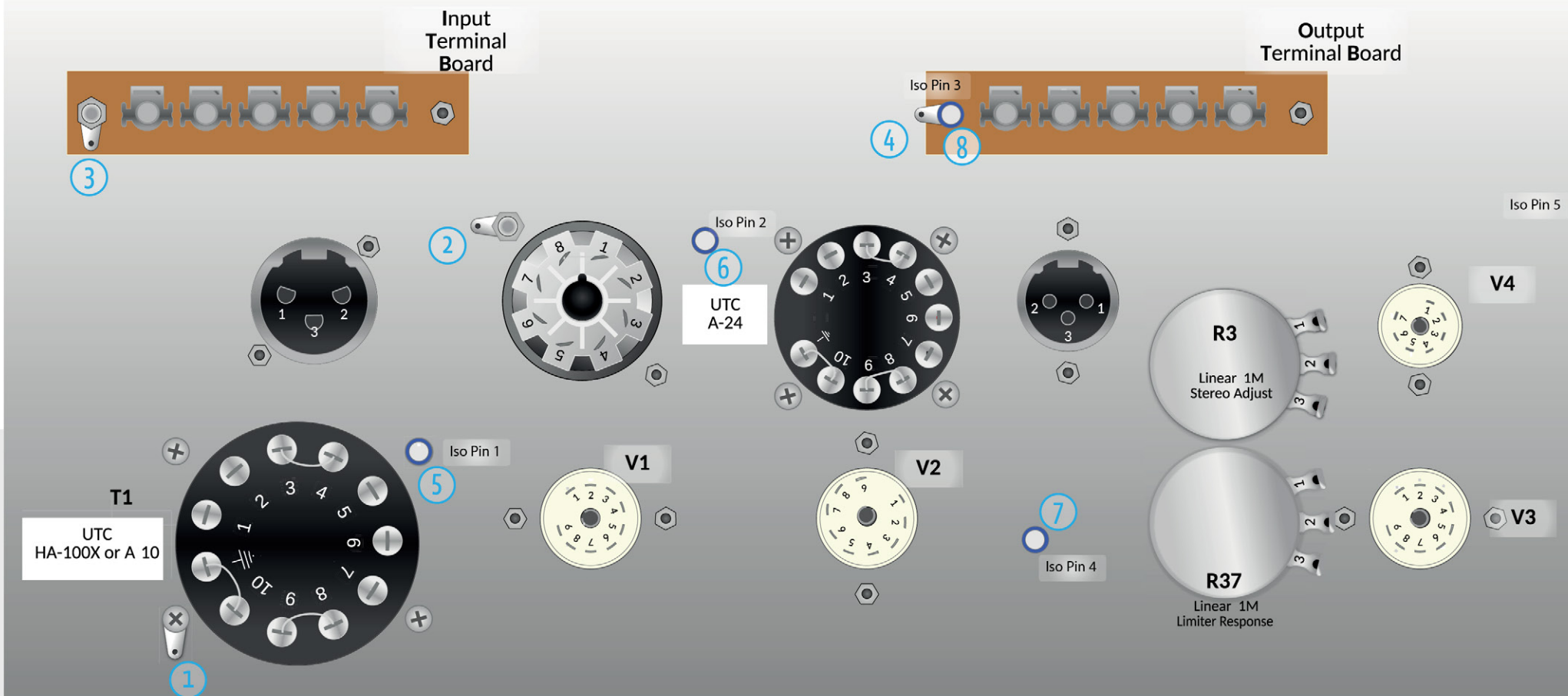
Now, as you can see, even there's a lot going on here - it's really not as complicated as it looks. If we split it all up into sections you will see what I mean.

So let's remove all the wiring.

1 CHASSIS & COMPONENTS

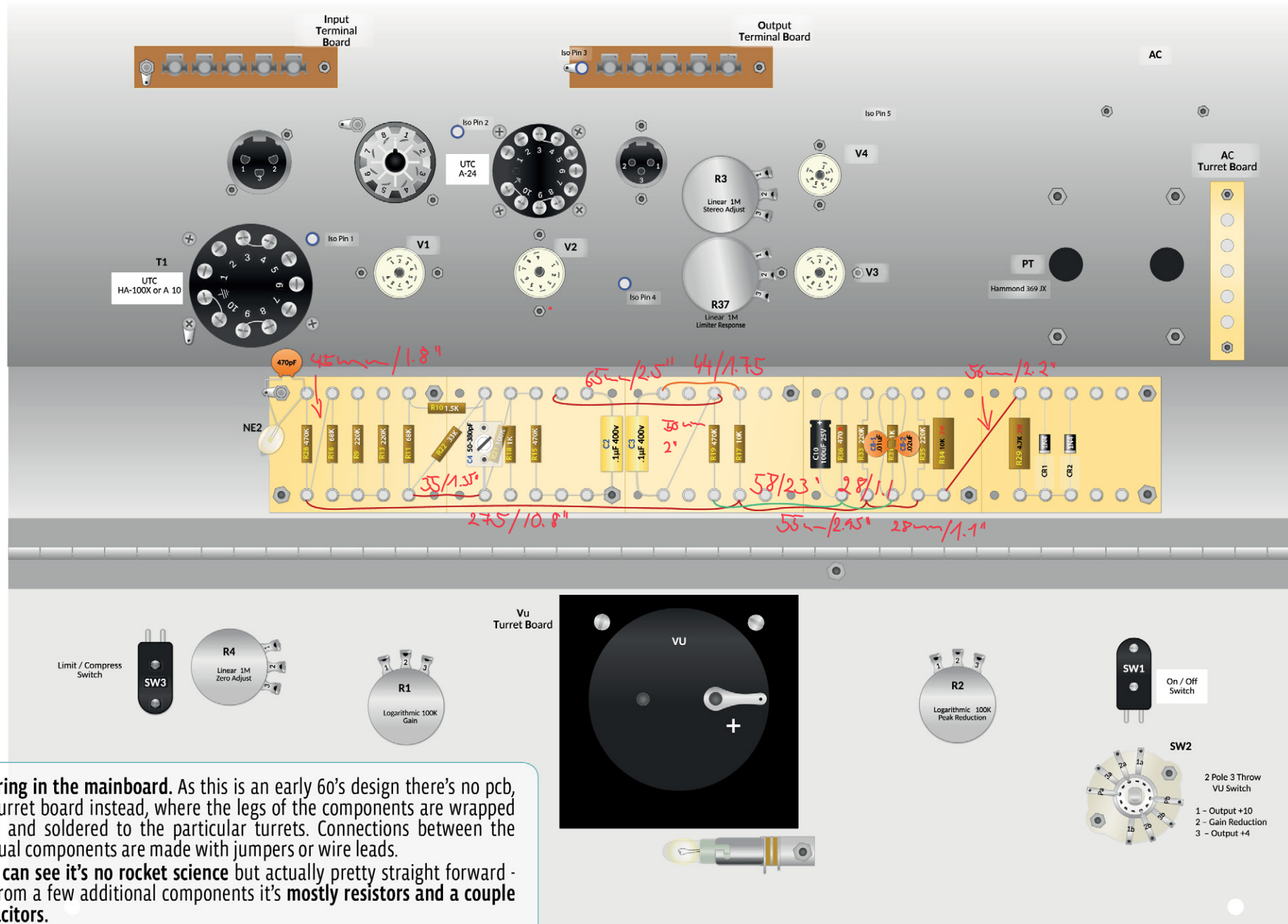


2 GETTING READY

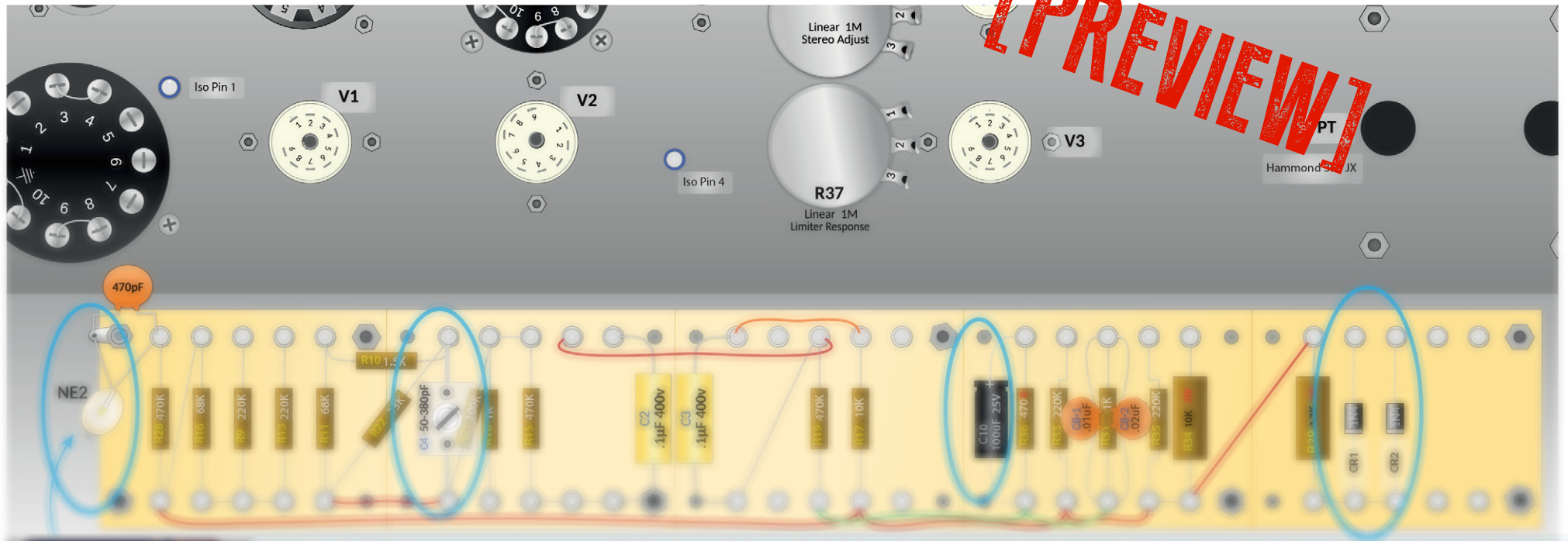


In this graphic I already mounted the solder lugs for the ground wires (1-4) as well as the floating single turrets (4-8) which allow for connecting several components across the chassis without actually „touching“ it. I also soldered in the jumper wires on the transformers as needed.

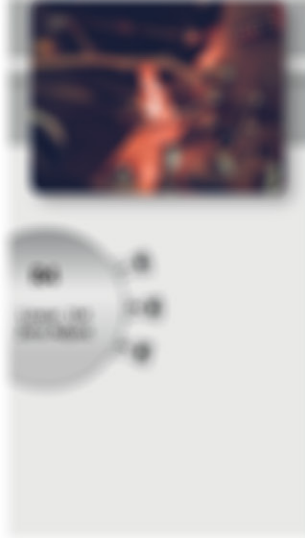
3 THE MAINBOARD



4 MAINBOARD COMPONENTS



[PREVIEW]



There are some spots where you have to pay attention though, as let's take a closer look.

Beginning on the right, there's the **variable capacitor C4**. This one's a bit tricky, as it's a variable capacitor, which means it's not a fixed value. It's a bit of a pain to work with, but it's a good thing to have. It's a bit of a pain to work with, but it's a good thing to have.

Another interesting component is the **electrolytic capacitor C10**. This one's a bit tricky, as it's an electrolytic capacitor, which means it's not a fixed value. It's a bit of a pain to work with, but it's a good thing to have. It's a bit of a pain to work with, but it's a good thing to have.

On the left, there's a component that's a bit tricky. It's a bit of a pain to work with, but it's a good thing to have. It's a bit of a pain to work with, but it's a good thing to have.

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Finally, the component with the green on top is a **variable capacitor C1**. It's a bit tricky, as it's a variable capacitor, which means it's not a fixed value. It's a bit of a pain to work with, but it's a good thing to have. It's a bit of a pain to work with, but it's a good thing to have.

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