’57 MINI TWEED 5W
COMBO AMP KIT
ORIGINAL 5F1 CIRCUIT

ASSEMBLY INSTRUCTIONS

StewMac® ICON KITS

Contents

’57 MINI TWEED 5W

COMBO AMP KIT ORIGINAL 5F1 CIRCUIT

Iconic Tweed tone is now in your hands

Be excited!

Your new StewMac ’57 Mini Tweed will be a blast to play through and even more fun to build.

This one-knob titan of tone takes you from jazz to blues, from restrained to rockin’, and from clean to clobbered, all at volumes that won’t get you evicted.

This amp is an ICON

The ’57 Mini Tweed is a timeless studio darling whose tiny size contradicts its impressive punch and versatility.

Its 5F1 amp circuit was introduced in the mid-1950s as a “student” amp. It wasn’t kid stuff for long; rock’s finest guitarists adopted it for some of the greatest solos ever recorded. These artists include Joe Walsh and Eric Clapton (*listen to “Layla” while you build this kit!*).

StewMac® ICON KITS

StewMac ICON KITS bring classics that are no longer made, or are simply unaffordable, within reach. And the best part is you get to build them with your own hands.

We give painstaking attention to parts selection, authentic materials, and instantly recognizable details—everything that makes the originals so sought after.

Build it with StewMac

These immersive instructions walk you through every step of creating your pint-sized prince of rock-n-roll. And you’ll learn a lot, gaining a deep knowledge of your amp’s inner workings.

Follow our steps closely for safety, too: we’ve carefully laid out a path that even newcomers can follow in handling electrical components.

Building an amp can seem daunting, but nobody makes it easier than StewMac. Watch for helpful tips along the way, too—we’re here to help!

Let's get building!

Here's how to build this amp!

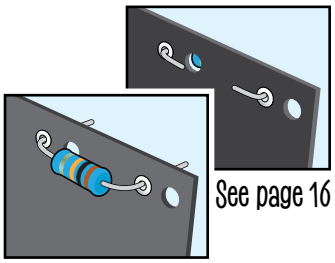
Quick look:

Sort your components by type, using the **parts list**.

Get the **cabinet** ready, starting at **Step 1** on page 9.

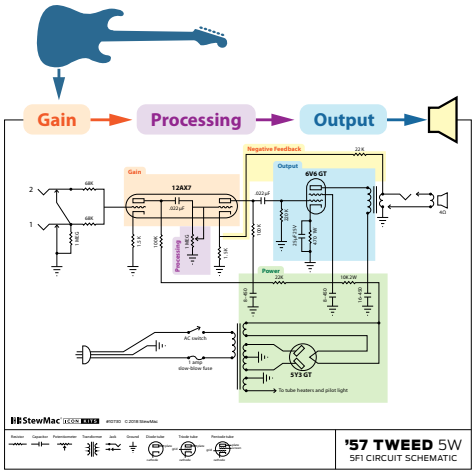
You'll prep the metal **chassis** and the **eyelet board** too.

Wiring goes like this:



See page 16

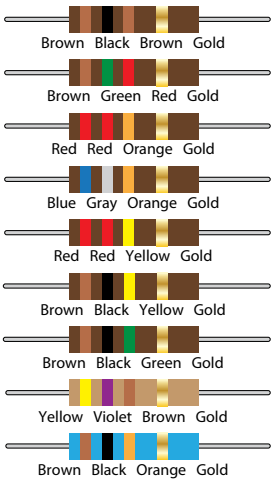
1. First, you'll **wrap** the leads, connecting them without solder.
2. Then **double-check** all the connections. Don't rush!
3. When everything checks out, it's time to **solder**. The numbered steps tell you when.



Learn more:
You don't need to read the **schematic**, but it's fun!
See how your guitar's signal gets processed into sound on **page 28**.

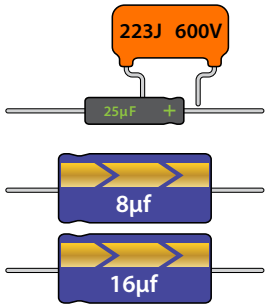
Parts list

Resistors



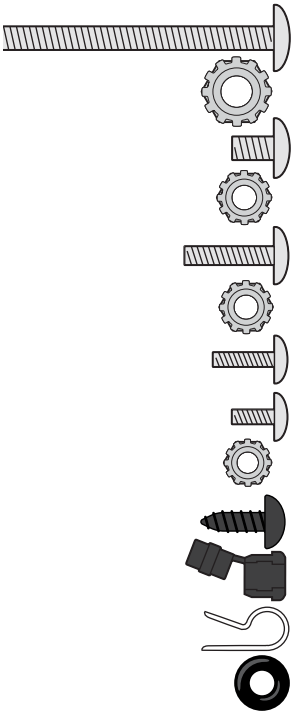
- ☐ (2) 100Ω .5W carbon composite
- ☐ (2) 1.5K .5W carbon composite
- ☐ (2) 22K .5W carbon composite
- ☐ (2) 68K .5W carbon composite
- ☐ (1) 220K .5W carbon composite
- ☐ (2) 100K .5W carbon composite
- ☐ (1) 1M .5W carbon composite
- ☐ (1) 470Ω 1W carbon film
- ☐ (1) 10K 2W metal oxide

Capacitors

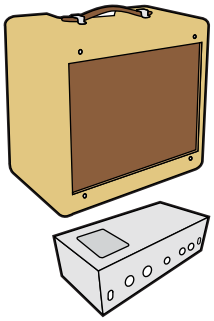


- ☐ (2) .022µF 600V Orange Drop
- ☐ (1) 25µF 50V Sprague Atom
- ☐ (2) 8µF 475V electrolytic filter cap
- ☐ (1) 16µF 475V electrolytic filter cap

Hardware



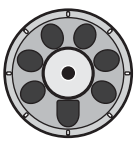
- ☐ (2) 10-32 machine screw, 1-1/2"
- ☐ (2) 10-32 locknut
- ☐ (2) 8-32 machine screw, 1/4"
- ☐ (6) 8-32 locknut
- ☐ (2) 6-32 machine screw, 1/2"
- ☐ (2) 6-32 locknut
- ☐ (4) 4-40 machine screw, 3/8"
- ☐ (2) 4-40 machine screw, 1/4"
- ☐ (6) 4-40 locknut
- ☐ (1) Black wood screw
- ☐ (1) Strain relief for power cord
- ☐ (1) Cable clamp for power cord
- ☐ (2) Rubber strain relief grommet



- ☐ (1) Cabinet
- ☐ (1) Chassis

- ☐ (1) Eyelet board

- ☐ (1) Insulation board



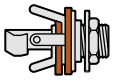
- ☐ (1) 4Ω, 8" speaker

Parts list

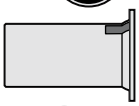
Tubes, lamps, fuses, and sockets

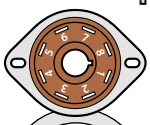

☐ (1) Speaker jack

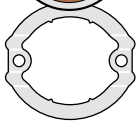

☐ (1) Speaker plug

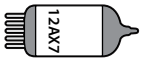

☐ (2) Input jack


☐ (1) 9-pin tube socket for preamp tube


☐ (1) Shield for 9-pin tube socket


☐ (2) 8-pin tube socket for power and rectifier tube

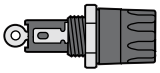

☐ (2) Tension clip for 8-pin tube socket



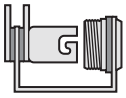
☐ (1) Preamp tube (12AX7, also called ECC83S)

☐ (1) Power tube (6V6 or 6V6S)

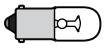
☐ (1) Rectifier tube (5Y3 or 5Y3S)


☐ (1) Fuse socket

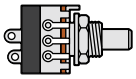

☐ (1) Fuse (1-amp, slow-blow)


☐ (1) Pilot lamp socket

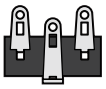

☐ (1) Pilot lamp lens

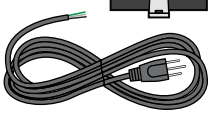

☐ (1) Pilot lamp bulb (#47)

Terminals, knobs, and cords

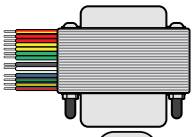

☐ (1) Control pot with switch (1M)

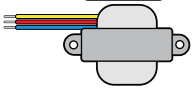

☐ (1) Chicken head knob


☐ (2) Three-lug ground terminal


☐ (1) Power cord

Transformers


☐ (1) Power transformer


☐ (1) Output transformer

Vintage-style **push-back wire** lets you push the insulation back instead of cutting it away.
BUT: We find that trimming the insulation still works better.

Wire


☐ (1) Yellow wire

☐ (1) Green wire


☐ (1) Speaker wire (two leads)

Heat-shrink tubing


☐ (2) 1/8″ diameter (2-1/2″ length)

Tools and supplies

Required

Phillips screwdrivers, #1 and #2
Item #3000 Guitar Tech Screwdriver Set

Needle nose pliers
Item #1610 Long Nose Pliers

Wire cutter
Item #1607 Wire Cutter

Wire stripper
Item #1606 Wire Stripper

Soldering iron (preferably 40W)
Item #0501 Solomon SL-30 Soldering Station

Solder (at least one Pocket-Pak)
Item #0505 Kester Pocket-Pak Solder

Solder sucker
Item #0503 Solomon Solder Sucker

Drill with a 5/32" bit
For mounting eyelet board to chassis

Ruler
Item #4905 StewMac Shop Rule

Digital multimeter
Item #3618 Fieldpiece Pocket Multimeter

Snuffer stick (bleed resistor)
Item #1552 Snuffer Stick

Copper shielding tape
Item #0028 2" Conductive Copper Tape

Pencil

Wooden chopsticks

Glue
Wood glue, white glue or contact cement for gluing a paper label inside the cabinet

Helpful

Round nose bending pliers
Item #1609 Round Nose Bending Pliers

Solder wick
Item #0504 Solder Wick, 5-foot roll

Soldering aids
Item #0521 StewMac Soldering Aids

Soldering stand
Item #0506 Solomon Soldering Stand

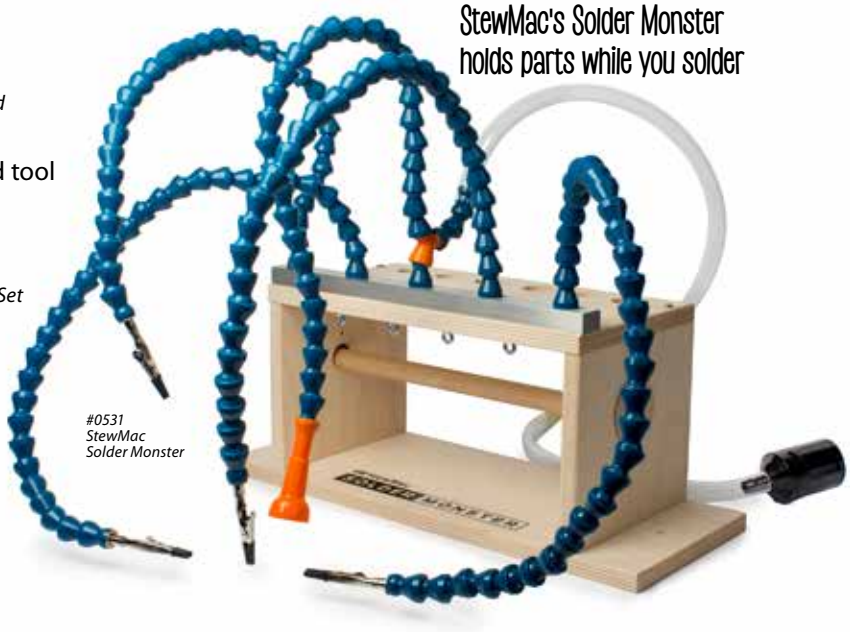
Printed circuit board vise

Solder Monster, or helping hand tool
Item #0531 StewMac Solder Monster

Fine tip permanent marker

Scratch awl or center punch
Item #3000 Guitar Tech Screwdriver Set

Tray for loose parts



Amp voltages are seriously dangerous!

High voltage, even when unplugged

When you turn on an amp, the capacitors are designed to take on a charge and hold it. That stored voltage is enough to injure you seriously, or even kill you.

These components aren't a threat until the first time you plug the amp in. The stored electricity can be safely discharged to ground with a snuffer stick. See how to use it below.

Once your amp has been turned on, don't touch the wiring with your bare hands—even after turning it off. If you need to press on a contact, use a chopstick or Sharpie marker, which are both non-conductive. Don't use a pencil, because graphite is conductive.

It's important that you understand the dangers so you're working safely. Here's how to do it right.

Wear rubber-soled shoes

Rubber soles increase the insulation between yourself and the ground.

Take off your ring

A metal ring on your finger can bridge a hot connection to ground.

Professionals who work on amps take these safety habits very seriously

Wear safety glasses

Rosin-core solder sometimes bubbles up, and it can spew molten specks into the air. You don't want molten solder in your eyes.

It's better not to work alone

Electrical shocks can incapacitate you, and having someone available to call 911 can be a lifesaver.

Take breaks and stop when you're tired

Fatigue leads to mistakes, and no one can afford mistakes when working with electricity.

Stay suspicious

Whether it's the first time you've been inside a live amplifier or the 100th time, don't become complacent. If you discharge the caps and walk away for a few minutes, check again for residual voltage when you return. Capacitors can self-charge through a phenomenon known as dielectric memory.

Check before powering on

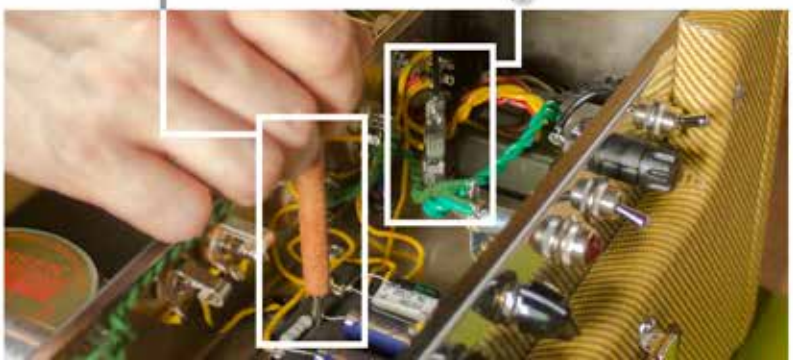
It's easy to forget that you a left a stray tool or wire in the chassis. It's also easy to forget to re-attach the speaker wire, and that can fry an output transformer in seconds. Constant vigilance is your friend when working on amps.

Always unplug it

Unplug the amp whenever you don't specifically need it plugged in. Some points are always hot when the amp's plugged in, even if the power switch is off. These points include the lugs on the fuse socket, power switch, and standby switch.

How to use a snuffer stick

To discharge a capacitor, clip the snuffer stick lead to ground—preferably a mounting bolt on the power transformer. Hold the tip of the stick to the cap's positive lead and use your multimeter to watch the voltage drain to less than 18V.



How to read resistor values

A resistor's value—the amount of resistance it creates—is rated in ohms (Ω). Larger ohm values mean more resistance. For example, a 100Ω resistor creates ten times as much resistance as a 10Ω resistor.

The resistors used in amplifiers are too small to have value numbers printed on them. Instead, a system of colored bands tells their values. The key to reading these bands is provided below. However, an easier way to decode these bands is to download one of the many smartphone apps for this purpose.

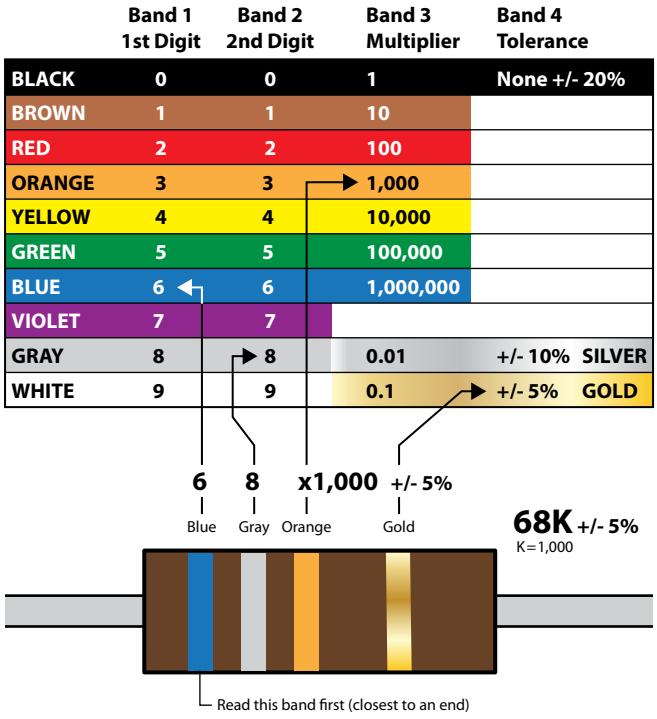
One band will be the nearest to an end of the resistor. That band tells the first value. Combine it with the value of band 2 to get a two-digit number (68 in our example below). Multiply that number by band 3 (68 x 1,000 = 68,000). Thousands are represented by the letter K, so this resistor is 68K (kilo-ohms, or KΩ).

If there is a fourth band, it will be either silver or gold. This indicates the tolerance allowed during manufacturing. The resistors used in this kit have a +/- 5% tolerance, represented by a gold band 4.

A magnifying glass helps a lot. The bands on a 470Ω resistor are yellow/violet/brown, and the bands on a 47K resistor are yellow/violet/orange. They're easily confused!

Can't read the colors?

You can always use a multimeter to test a resistor's value. Set your meter to ohms and connect the test leads on each side of the resistor.



Capacitor values

Capacitor values are typically printed on the component. The key values with caps are their capacitance and voltage.

Think of a capacitor as a container that can hold electricity. Capacitance, measured in farads, refers to how much electricity this container can hold—its capacity. One farad (1F) would be much too large for use in an amplifier. Caps for amps are rated in millionths of a farad, called microfarads (µF), or trillionths of a farad: picofarads (pF). The voltage spec for a cap refers to how much DC voltage it can handle at any given time.

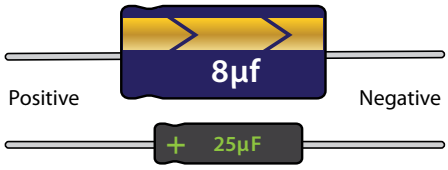
A unique property of capacitors is that they don't allow DC current to flow past them, only AC current. This is important in parts of an amplifier circuit, such as the path between a preamp stage and a power amp stage. Here, a "coupling capacitor" will block DC voltage, allowing only the AC guitar signal to pass.

Filter caps

Capacitors also filter out 60Hz hum, or "ripple," after the AC current from the wall is converted to DC. These capacitors are called filter caps, because they filter out the ripple from a power supply. The filter caps in this amp are the 8µF and 16µF electrolytic capacitors.

Electrolytic caps

Electrolytic capacitors contain electrolyte: a liquid or gel that gives them a large storage capacity. Electrolytic caps are typically polarized.

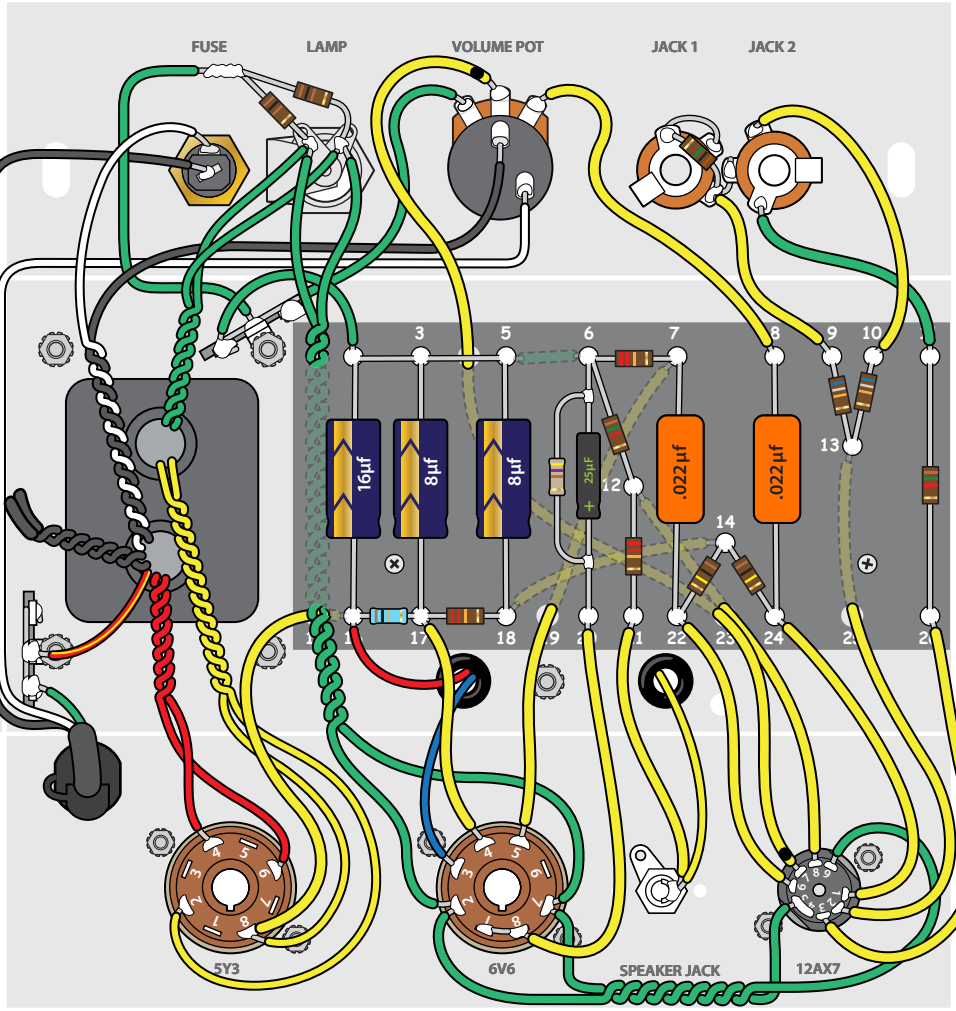


Polarized caps

Some capacitors have polarity and some don't. It's extremely important to install polarized caps correctly in a circuit. The positive lead of an electrolytic cap will be indicated by an indented ring around one edge of the capacitor. The negative lead will often be indicated by a band of arrows pointing to the negative lead.

Installing capacitors with the polarity backwards will make the circuit malfunction and quickly destroy the capacitor—even causing it to explode.

Complete wiring diagram



’57 TWEED 5W

5F1 CIRCUIT DIAGRAM

Our diagrams show a flat view of the metal chassis

Here’s the complete 5F1 wiring

When you’ve finished the kit, you’ll have connected all the parts shown in this wiring diagram. If it looks complex now, don’t worry; we’ll start at the very beginning and do this one step at a time.

Your amp-building skills will get stronger with each step!

Start by prepping the cabinet

Prepare the cabinet for mounting the amp chassis by first removing the two back panels.

☐ STEP 1

Mount the power cord clamp

Drill a 5/64" pilot hole to mount the nylon cable clamp. Locate the clamp on the left wall of the cabinet, near the lower-left corner as seen from the back, 2" from the bottom.

Don't drill through the cabinet! Use a piece of masking tape on your drill bit to mark the depth, or use a StewMac Depth-stop Drill Bit (item #1712).

Use the black cable clamp screw to mount the cable clamp. You'll secure the power cord with this clamp later, during final assembly.

☐ STEP 2

Solder the speaker leads

The speaker leads are black and white wires with vintage push-back insulation. Twist them together to keep them neat.

Push the insulation back 3/8" and insert the white lead into the speaker's positive terminal and the black lead through the negative terminal.

Before soldering these leads, place a business card or other protection under the terminals to prevent solder dripping onto the speaker cone. Solder the two leads to the speaker terminals. See "Tips for great soldering" on page 16.

☐ STEP 3

Solder the speaker plug

Push the insulation back 3/8" at the other end of the leads. Insert the white positive lead into the center post of the speaker plug until it reaches the tip. Solder this lead in place by heating the tip and feeding solder through the small hole at the end of the tip. Give the solder time to cool before soldering the negative lead.

Use wire cutters to trim the black negative lead so its end lines up with the edge of the speaker plug's cup. Solder it to the outside of the cup as shown above.

Don't leave any solder on the outside of the plug tip, or it won't fit into the jack.

☐ STEP 4

Install the speaker

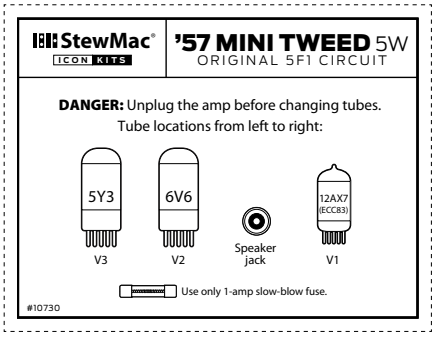
Remove the nuts from the four speaker mounting screws. Carefully slide the speaker onto the mounting screws until it's flush with the front panel.

Install the four speaker mounting nuts so they're lightly touching the speaker frame.

Do not tighten the nuts in a circular pattern around the speaker, because this can warp the speaker frame.

Instead tighten one nut with a quarter turn so it's just snug, then do the same to the opposite side. Then snug the third nut and fourth. Repeat this criss-cross pattern of quarter-turns until all four nuts have had one full turn. This will give proper tension to compress the speaker gasket. Overtightening can warp the frame, damage the cone, and cause unwanted distortion.

This criss-cross pattern keeps the speaker frame flat against the cabinet. Tightening in a circular pattern makes it warp.



☐ STEP 5

Glue the tube placement chart

Cut out the tube replacement chart on page 35. Put a thin coat of glue or contact cement on the back and glue it to the inside wall of the cabinet.

☐ STEP 6

Optional copper shielding

If you prefer extra shielding on your amp, apply copper shielding tape (item #0028) on the top back panel, covering the exposed wood. This helps shield the circuit from unwanted interference caused by other electrical devices.

Because this tape's adhesive will be subjected to heat from the tubes, it's a good idea to staple the corners to the wood panel.

Prepping the boards

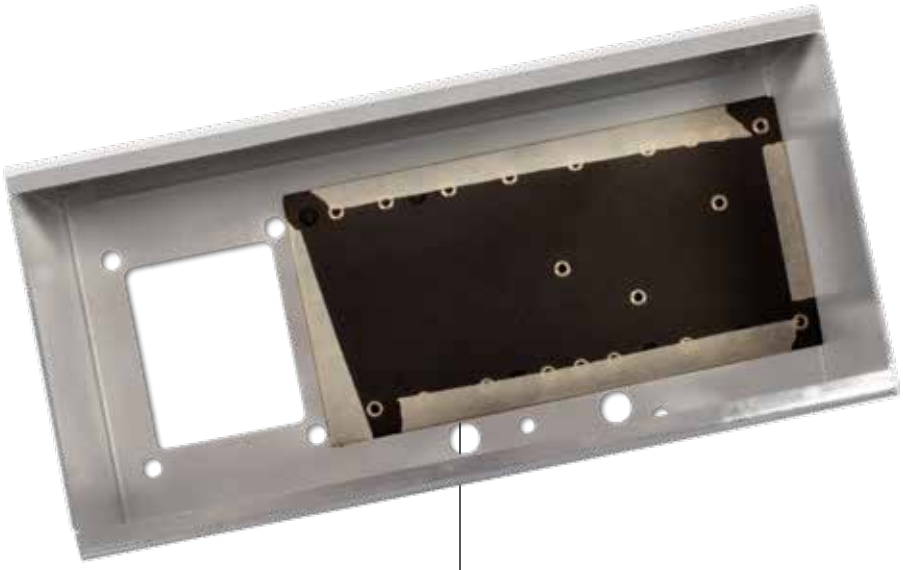
The components will be soldered to the eyelet board. The blank piece of fiberboard is an insulator to keep the eyelet board from touching the metal chassis.

Two bolts hold the eyelet and insulator boards to the chassis. The first step in preparing these boards is to drill mounting holes for these bolts.

☐ STEP 7

Drill two holes in the boards

Place the insulator board behind the eyelet board, aligning the two boards so the edges are flush. Tape them together with masking tape to keep them aligned for drilling.



Position the taped boards inside the chassis as shown above, with a gap of roughly 1/4" between the boards and the top of the chassis. The ends of the boards are flush against the side of the chassis.

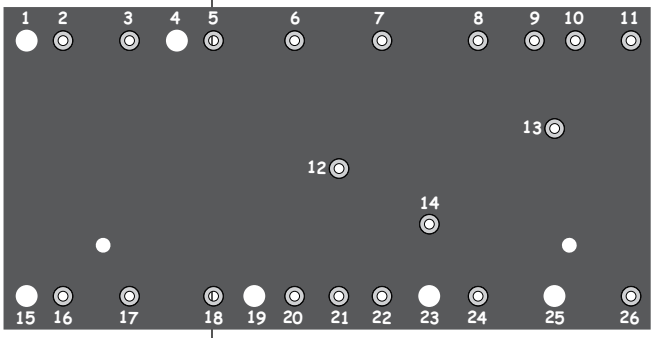
Holding the boards in place, turn the chassis so you can see the two mounting holes. Using a sharp pencil through the holes, mark the hole locations onto the insulator board.

Drill the 5/32" mounting holes through the pair of boards. Separate the boards and set the insulator aside for later.

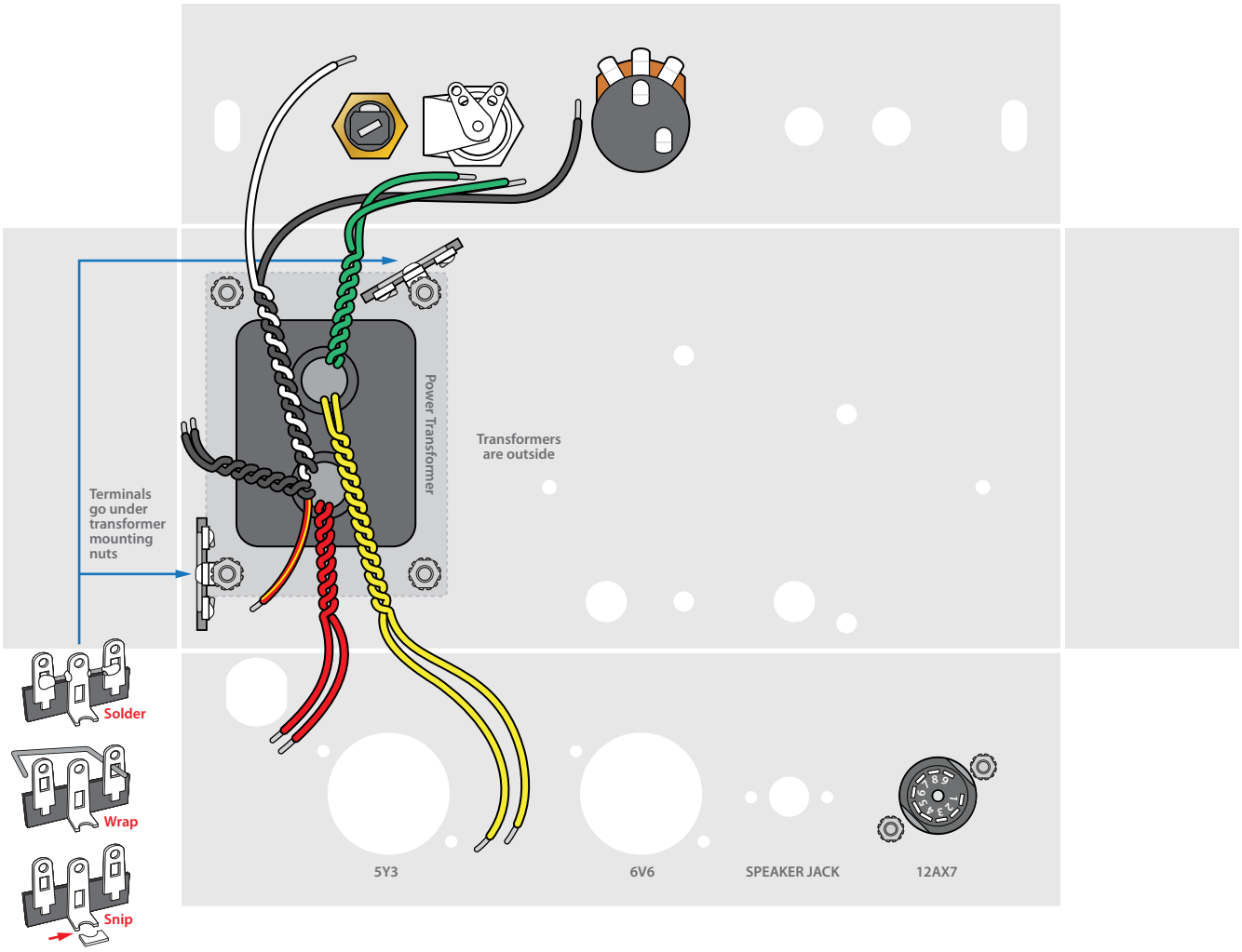
☐ STEP 8

Number the eyelets and holes

These instructions will refer to the eyelets and holes by number. Use a pencil to mark these numbers onto your eyelet board:



Installing the chassis-mounted components



☐ STEP 9

Prep two terminal strips

With a wire cutter, snip the mounting holes on the three-lug terminals as pictured. Cut two 1" pieces of green wire and remove the insulation. Wrap and solder the wires to the terminals, electrically connecting all three lugs. These are used as grounding strips.

☐ STEP 10

Mount the power transformer

The power transformer has thirteen leads, including three pairs with matching colors, plus six wires with different colors. Twist the same-color pairs together and pull the red lead with a yellow stripe off to the side.

The other five wires allow you to wire the unit for different voltages, depending on the electrical system where you live. The black wire is used in all cases, and it's twisted together with another wire depending on your country's voltage:

100V:	black/blue striped
120V:	white
220V:	black/yellow striped
230V:	black/green striped
240V:	black/red striped

In North America for example, you would twist the white wire together with the black wire for 120V.

Twist the four unused transformer wires together. You'll terminate them independently in a few steps.

Uncover the mounting bolts and install the transformer on the outside of the chassis, with four 8-32 locknuts inside. Mount the two grounding strips at the corners as shown.

☐ STEP 11

Install the fuse socket

Mount the fuse socket so its side lug is facing the open side of the chassis. This makes it easier to solder later.

☐ STEP 12

Install the pilot lamp socket

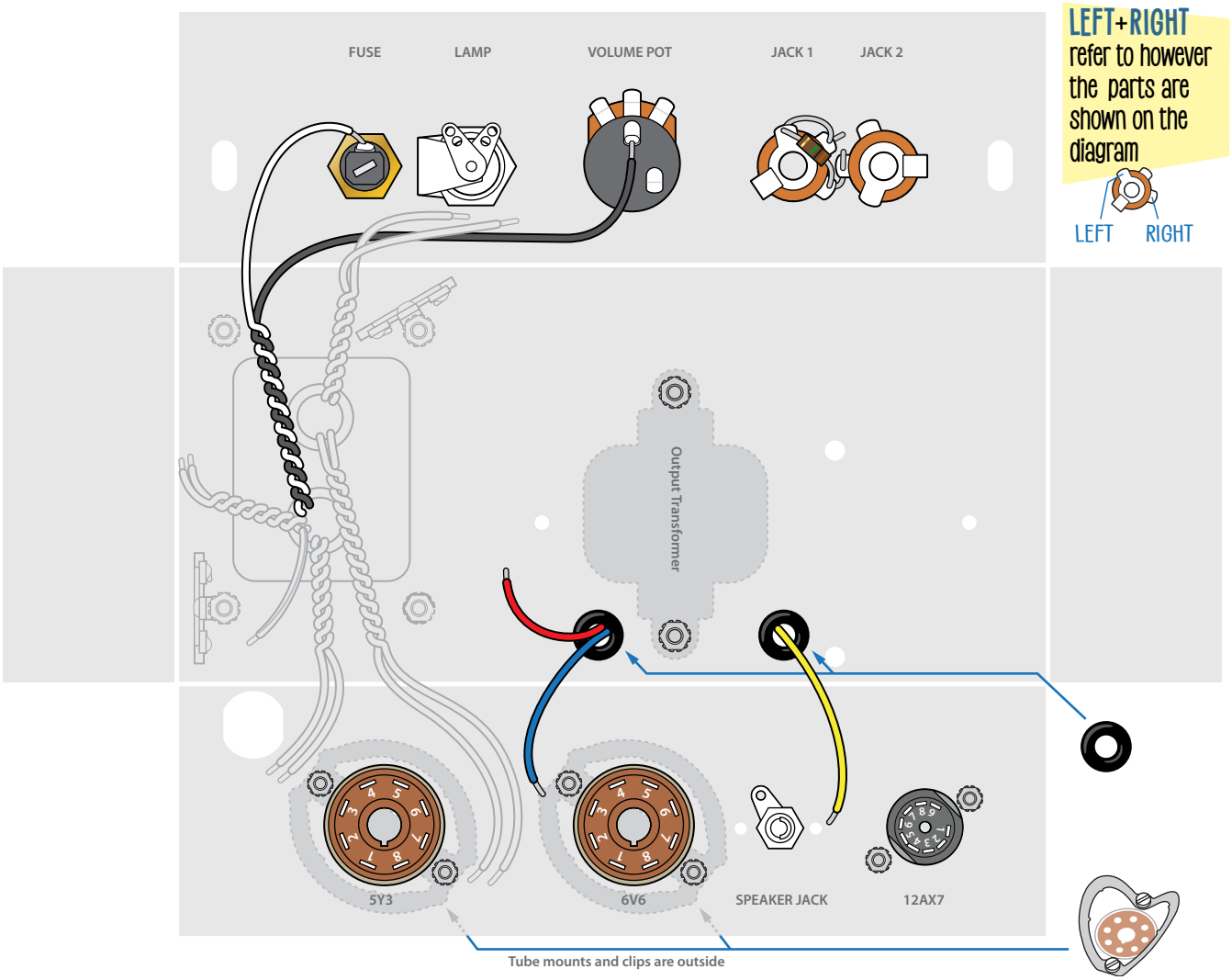
Mount the socket by screwing the lens from the outside into the socket assembly. Turn the arm supporting the lamp toward the fuse.

☐ STEP 13

Install the volume pot

A small metal tab protrudes from the face of the pot. Bend and snap this off, so the pot can mount flush to the surface of the chassis.

Mount the pot so its three lugs face out toward the chassis opening.



☐ STEP 14

Install two rubber grommets

Squeeze these into the two holes as shown. These provide strain relief for the transformer wires that will pass through the metal chassis.

☐ STEP 15

Mount the output transformer

The output transformer has red, blue and yellow leads. Thread the red and blue leads through one rubber grommet as shown, and the yellow lead through the other grommet.

Using two 8-32 x 1/4" machine screws, mount the transformer to the outside of the chassis.

☐ STEP 16

Install the speaker output jack

Mount the speaker jack to the chassis with the large washer on the outside

☐ STEP 17

5Y3 tube socket + tension clip

The sockets for the 5Y3 and 6V6 tubes are identical, so you can use either of the two for this step. Orient the socket so pin 1 is nearest the open side of the chassis. Use two 4-40 x 3/8" machine screws to mount the socket outside of the chassis. Include a tension clip on the outside to support the tube.

☐ STEP 18

6V6 tube socket + tension clip

Mount the 6V6 tube socket in the same way as the 5Y3 socket.

☐ STEP 19

12AX7 tube socket

With two 4-40 x 1/4" machine screws, mount the 12AX7 socket. Position the socket so pin 3 is toward the open side of the chassis.

☐ STEP 20

Install two jacks + 1M resistor

Add the two input jacks. Turn the jacks so the right lug of jack 1 is close to the center lug of jack 2 as pictured.

Run one lead of the 1M resistor through the right lug of jack 1 and through the center lug of jack 2. Make sure the lead won't be in the way when an instrument cable is plugged in.

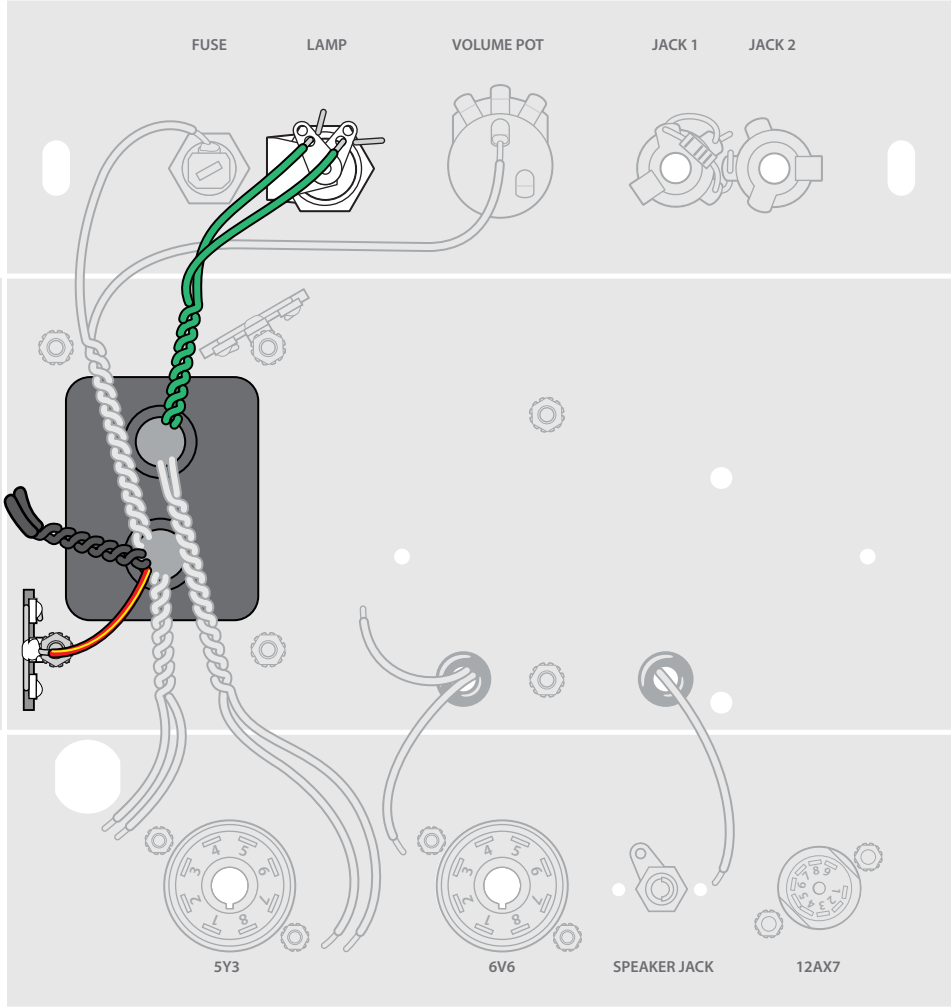
This resistor connects to all three lugs of jack 1. Run the resistor's other lead through the left lug of jack 1 and connect it to the center lug of jack 1.

Don't solder these connections yet.

☐ STEP 21

Install power transformer leads

Run the white lead from the power transformer to the side lug of the fuse socket. Trim it to fit and solder it. Trim and solder the black lead to the left lug on the power switch.



☐ STEP 22

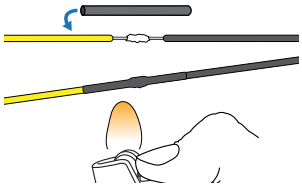
Terminate unused power transformer leads

The four unused leads from the power transformer will carry hundreds of volts, so they need to be safely terminated and not tucked away in the chassis.

If you ever change location and want to wire this amp up for different wall voltage, you will have the leads to modify the amp to handle that. These leads will be connected to the fuse socket if that happens, so stretch the unused leads to the fuse socket and trim them at a length that will allow them to be soldered to the fuse socket later.

After these leads are trimmed, with one hand hold the leads where they come out of the transformer and with the other hand pull the insulation of each lead until it stretches about a 1/4" past the wire inside. This creates further insulation over the internal conductor of each lead.

Once the insulation is stretched out, apply 1" of heat-shrink tubing to the end of each lead. This will seal the end of each lead, preventing a shock hazard.



Once the heat shrink cools, twist these leads back up and tuck them in between the left side of the power transformer and the chassis wall.

☐ STEP 23

Power transformer green leads

Run the two green wires from the power transformer to the lugs on the pilot lamp socket (either wire can go to either lug). Trim these wires to length and wrap them onto the lugs. Don't solder these connections yet.

☐ STEP 24

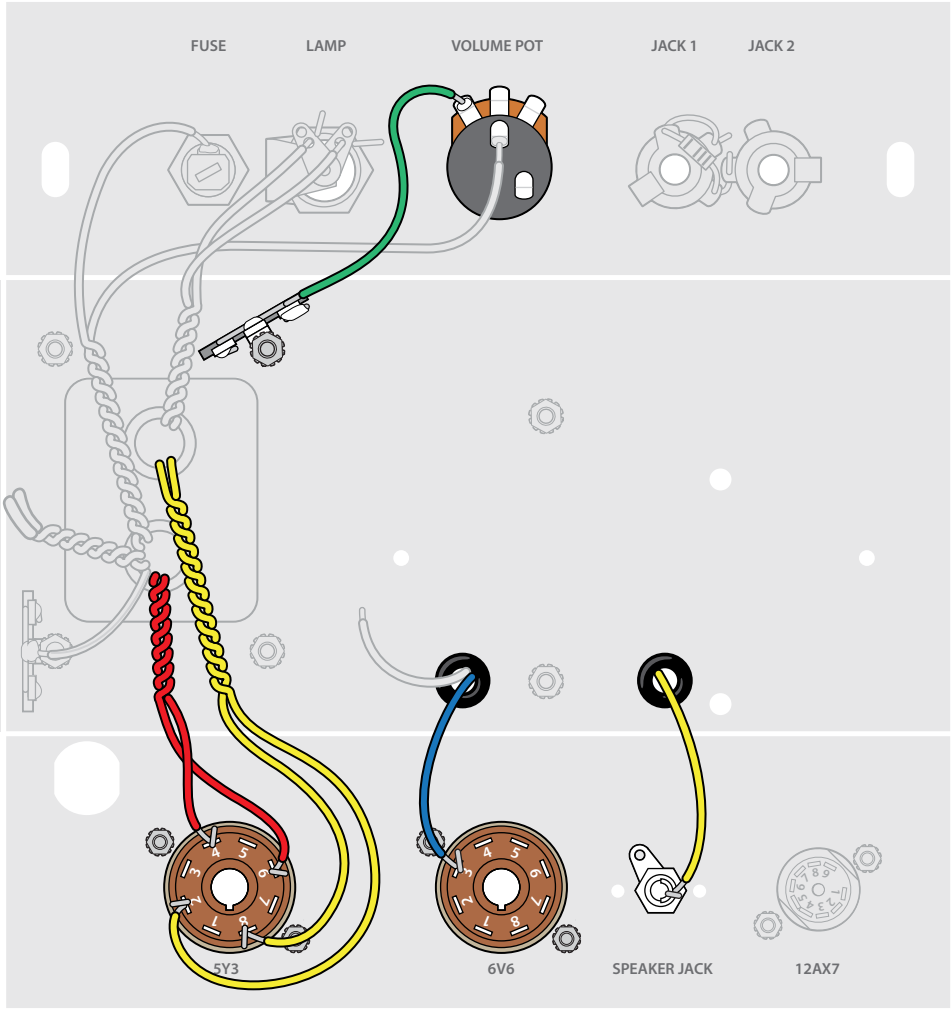
Power transformer red/yellow lead

Trim the power transformer's red/yellow lead to an appropriate length and solder it to the 3-lug terminal strip along with the green wire from the power cord.

☐ STEP 25

Power transformer red leads

Trim the power transformer's red leads to an appropriate length and wrap one lead onto pin 4 of the 5Y3



socket.

Wrap the other red lead onto pin 6 of the same socket. Don't solder these red leads yet.

☐ STEP 26

Power transformer yellow leads

Trim the power transformer's yellow leads to an appropriate length. Wrap one yellow lead onto pin 2 of the 5Y3 socket.

Wrap the other yellow lead onto pin 8 of the same socket. Don't solder these yellow leads yet.

☐ STEP 27

Output transformer blue lead

Trim the blue wire from the output transformer to a suitable length and wrap it onto pin 3 of the 6V6 socket. Don't solder this connection yet.

☐ STEP 28

Output transformer yellow lead

Trim the yellow wire from the output transformer to an appropriate length and wrap it onto the center lug of the speaker output jack.

☐ STEP 29

Ground the volume pot

Cut a 3" piece of green wire and solder it to the left lug of the volume pot as pictured.

Wrap and solder the other end of this wire to the three-lug grounding strip near the pilot lamp.

A wire between two parts like this is called a jumper. Don't cut this piece too long, because there's just enough green wire to create all the jumpers you're going to need.

☐ STEP 30

Inspect and double-check

This is a good time to step away from the project for a few minutes and take a break.

When you're ready to go at it again, carefully review every connection you've made so far.

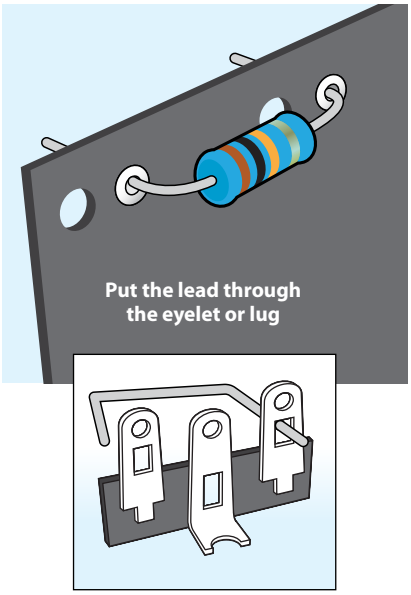
When everything checks out, you're ready to move on to the eyelet board.

Be suspicious
Assume there's a mistake and you're the one who'll find it!

How to wrap and solder the eyelet board

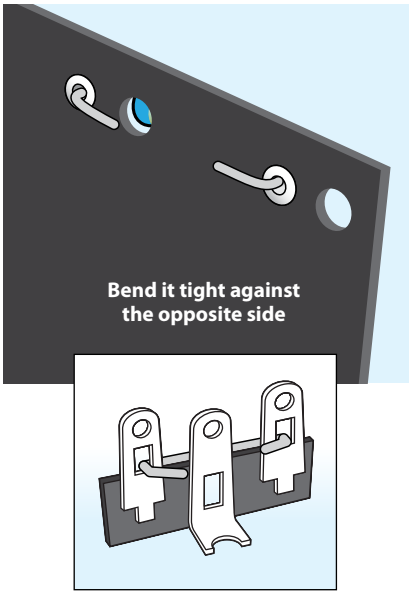
Wrap

Don't solder the components as they go onto the eyelet board. Instead wrap all the parts onto the board, bending their leads tightly so the parts stay in place without solder.



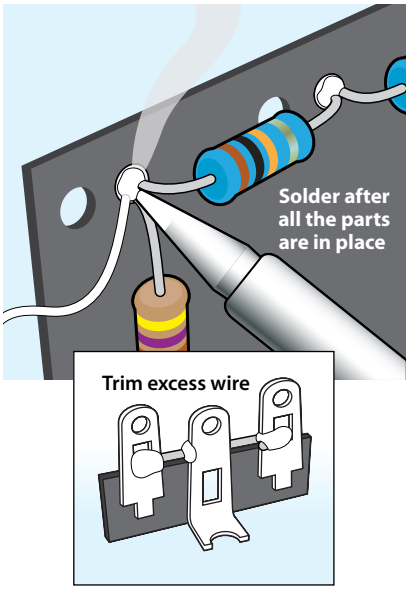
Inspect

When all the parts are in place, stop and inspect. Go back over every step. Careful inspection is the best way to make sure your amp works the first time you turn it on.



Solder

Solder each connection point only once. Reheating to add another part makes a messy, faulty solder joint. Use the soldering tips below to get professional results.



Don't think of solder as glue

Good mechanical connections make good electrical connections. Solder's job is to finalize an already good joint, not to hold the parts on the board.

Make the specs visible

Attach components with the specs facing out so you can read them. Many builders also align resistor bands to read in the same direction.

How much insulation to strip?

With plastic insulation, strip 3/8" from the wire ends. Push-back wire works best when you strip away about 1/4" of the cloth wrap.

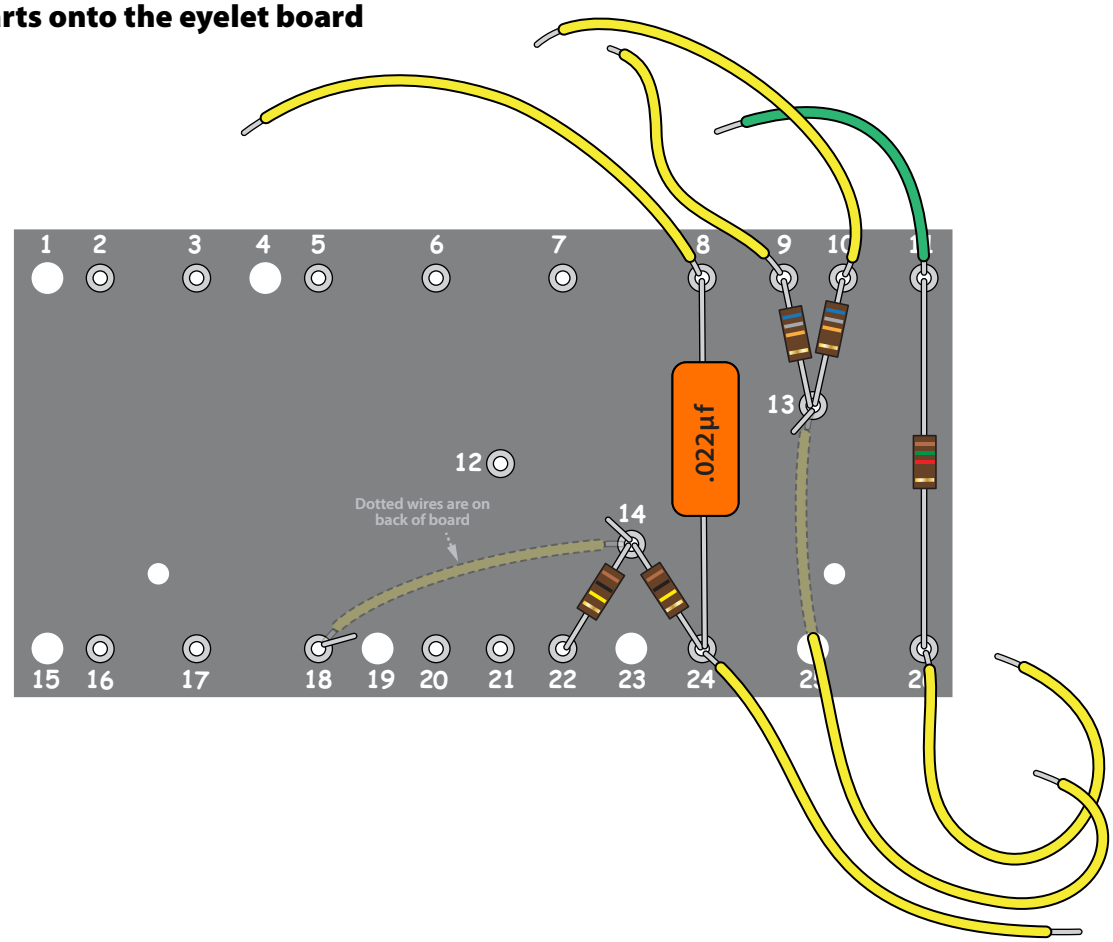
Tips for great soldering!

- **Wrap the leads tightly** for good electrical contact before soldering.
- Melt a small amount of solder onto the tip of the iron ("**tinning**" the iron). Hold the tip against the connection until the connection reaches soldering temperature. This should take just a few seconds.

You should also tin component leads, like coating multi-strand wires to help the solder flow for a more solid joint.

- Keep your soldering tip clean by wiping it often on a damp sponge. Also keep it tinned by occasionally melting a little solder onto it.
- Feed solder to the connection, not to the iron. Stop feeding solder once the eyelet is filled. Keep the iron on the connection for a second longer; this pause gives time for all of the flux to cook out of the joint.
- Don't blow on the hot solder or touch anything until the joint has cooled completely. A good solder joint is shiny—a sign that it was left to cool undisturbed.
- After the joint has cooled, trim away the excess wires.
- Plan so each joint is only soldered once. Resoldered joints are messy and more likely to fail.

Wrapping parts onto the eyelet board



☐ STEP 31

Install a 1.5K resistor + two jumpers

Wrap a 1.5K resistor's leads onto eyelets 11 and 26. These leads aren't long enough to wrap onto the back of the board, but masking tape will hold this resistor in position temporarily.

Resistors have no polarity, so they can be installed in either direction.

Cut a 3" piece of green wire and wrap one end of this jumper onto eyelet 11.

Cut and wrap a 3" yellow jumper onto eyelet 26.

For neat looking wiring, use wire strippers to trim 1/4" of the insulation from the ends of the push-back wire.

☐ STEP 32

Add two 68K resistors + three jumpers

Place one 68K resistor between eyelets 10 and 13, and the other 68K resistor between 9 and 13.

Cut a 2" yellow jumper and wrap it onto eyelet 9. Wrap a 4" yellow jumper onto eyelet 10.

Turn the board over and add a 5" yellow jumper from the back at eyelet 13. Run this jumper to the front of the board through hole 25 and pull it tight to keep it in place.

☐ STEP 33

Install a .022µF cap + one jumper

Wrap one of the .022µF Orange Drop capacitors between eyelets 8 and 24. This cap is not polarized, so it can be installed in either direction.

Add a 4" yellow jumper to eyelet 8.

☐ STEP 34

Add two 100K resistors + one jumper

Place one 100K resistor between eyelets 14 and 24.

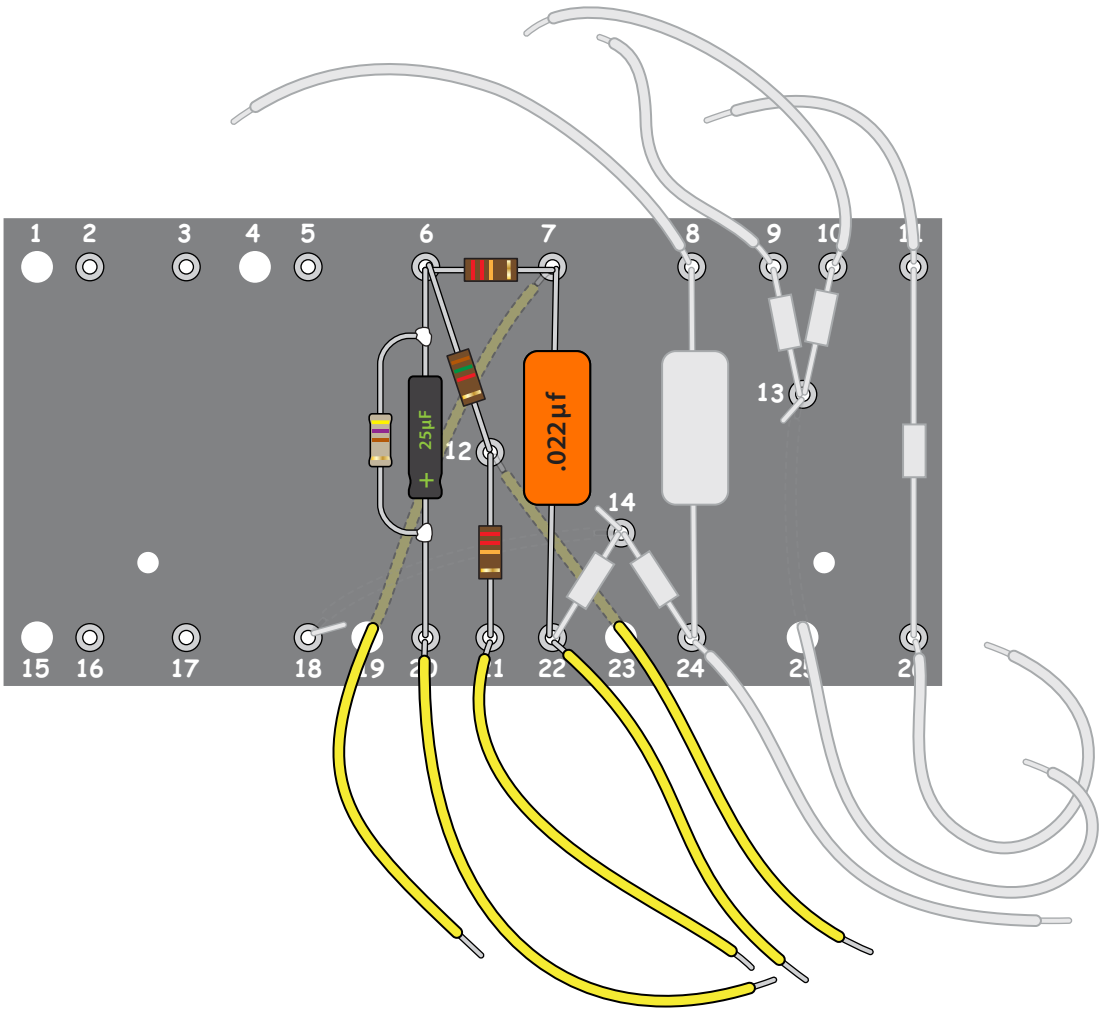
Attach one 3" yellow jumper to eyelet 24 with the capacitor and resistor leads.

Attach the other 100K resistor between eyelets 22 and 14.

☐ STEP 35

Wrap a jumper wire onto the back of the board

Turn the board over and attach a 2-1/4" yellow jumper between eyelets 14 and 18.



☐ STEP 36

Install a .022µF capacitor + one jumper

Wrap the second .022µF 600V Orange Drop cap between eyelets 7 and 22 (not polarized; okay in either direction).

Cut a 2" yellow jumper and add it to eyelet 22.

☐ STEP 37

Add a 220K resistor + one jumper

Add the 220K resistor between eyelets 6 and 7.

Turn the board over and add a 5" yellow jumper at eyelet 7. Run the jumper up through hole 19 and pull it tight so it stays in place.

☐ STEP 38

Add a 22K resistor + one jumper

Attach a 22K resistor between eyelets 21 and 12.

Add a 1-1/2" yellow jumper to eyelet 21.

☐ STEP 39

Add a 1.5K resistor + one jumper

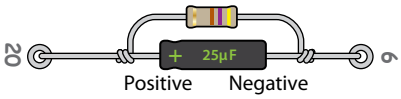
Add the other 1.5K resistor between eyelets 6 and 12.

Flip the board and add a 5" yellow jumper to eyelet 12. Run the jumper up through hole 23 and pull it tight.

☐ STEP 40

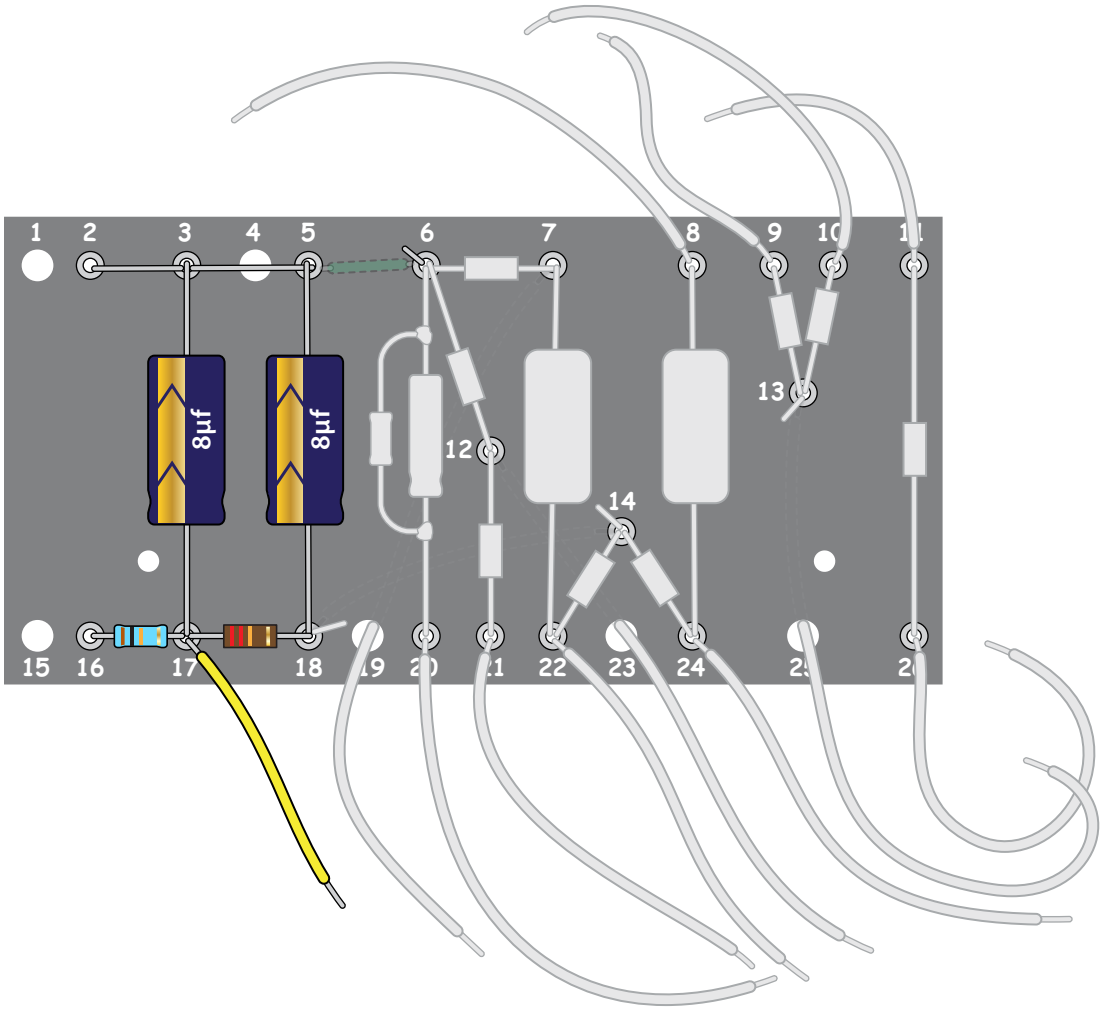
Install a 25µF cap + a 470Ω resistor, soldered together

Wrap the leads from the 25µF 50V capacitor around the leads on the 470Ω resistor.



Note the polarity of the capacitor. Install this resistor/capacitor assembly between eyelets 6 and 20, making sure the capacitor's negative lead goes to eyelet 6.

Add a 2-1/2" yellow jumper wire at eyelet 20.



☐ STEP 41

Create the ground bus for the filter caps

A wire connecting multiple components is called a bus. Using two pieces of wire, you'll create a bus connecting eyelets 2, 3, 5 and 6.

Cut a 1-3/4" piece of green wire and remove all but 5/8" of the insulation.

Turn the board over and wrap the wire onto eyelet 6, placing the insulation between eyelets 6 and 5 on the back of the board.

Run the exposed wire up through eyelet 5 to the front of the board, and wrap it down into eyelet 3.

Cut a 3/4" piece of wire and remove the insulation. Wrap this between eyelets 2 and 3. These wires make the ground bus for the three filter capacitors.

☐ STEP 42

Add one 8µF capacitor

Wrap the leads from one of the 8µF electrolytic caps through eyelets 5 and 18. Take care to match the polarity shown on the wiring diagram: the negative lead connects to eyelet 5.

When electrolytic capacitors do not show a positive or negative symbol, look for the arrow design, which points to the negative lead.

☐ STEP 43

Add a 22K resistor

Connect a 22K resistor between eyelets 17 and 18.

☐ STEP 44

Add the other 8µF capacitor

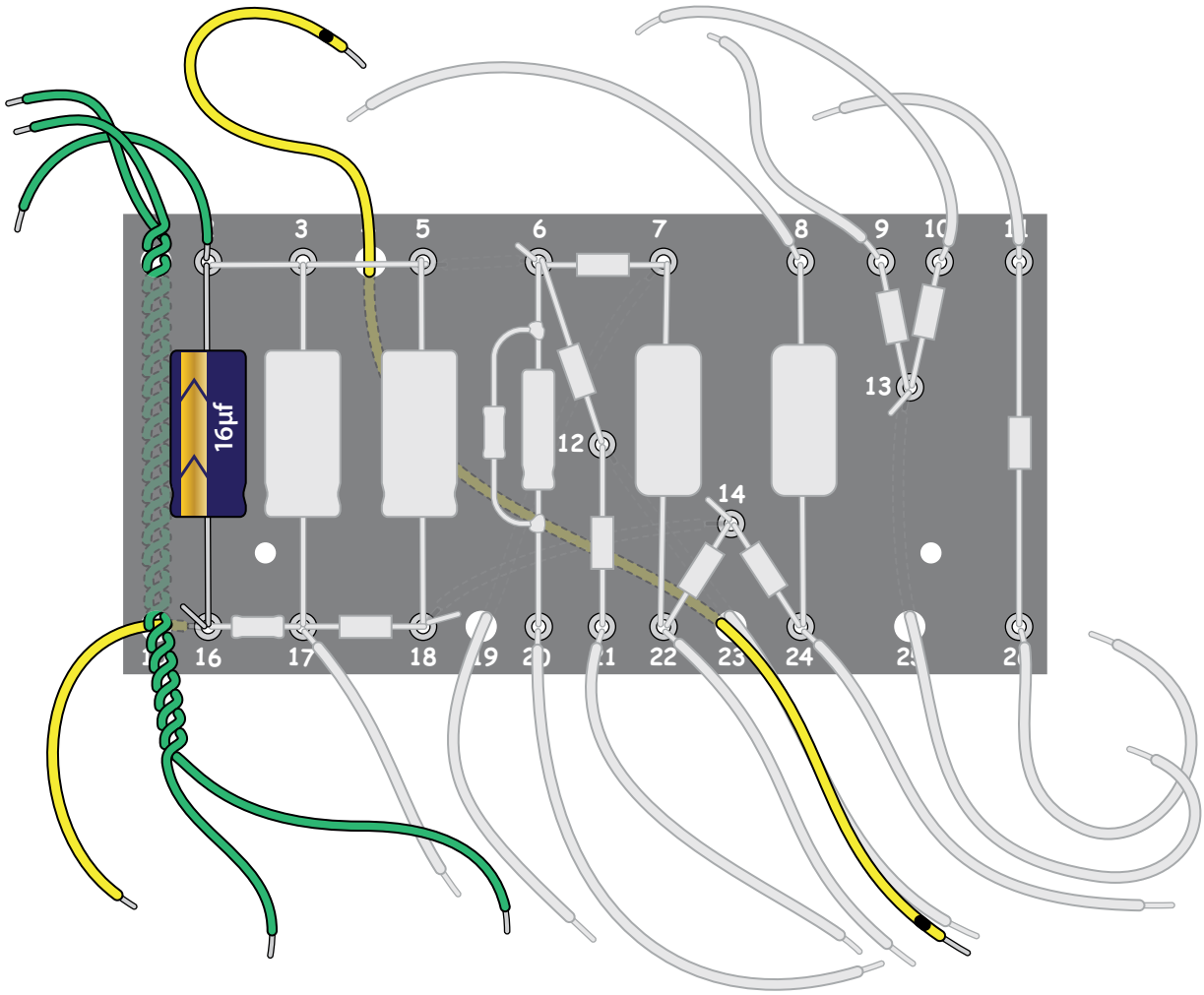
Wrap the other 8µF electrolytic cap onto eyelets 3 and 17. Connect the negative lead to eyelet 3, wrapping it over the ground bus to make a tight connection.

☐ STEP 45

Add a 10K resistor + one jumper

Place the 10K metal oxide resistor between 16 and 17.

Connect a 2" yellow jumper wire to eyelet 17.



☐ STEP 46

Install the 16µF capacitor + two jumpers

Connect the 16µF electrolytic cap between eyelets 2 and 16, with the negative lead through eyelet 2, which connects to the ground bus established in Step 43.

Cut one 3" yellow jumper. Flip the board over and add it to eyelet 16. Run the jumper to the front through hole 15 and pull it tight.

Cut one 3" green jumper and wrap it onto eyelet 2.

☐ STEP 47

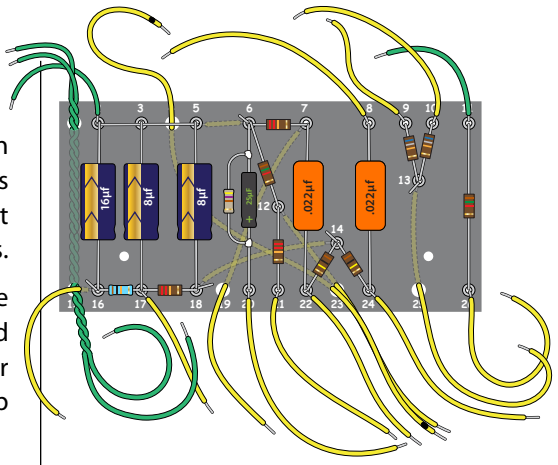
Add three long jumpers

Cut one 8-1/2" yellow jumper. Put an ink mark on each end of this jumper's insulation so that later you can tell it apart from the other yellow jumpers.

On the back of the board, run the jumper between through holes 4 and 23. Pull at least 2-1/4" of this jumper up through hole 4, and at least 2" up through hole 23.

Cut two 10" green jumpers and twist them together. Twisting these wires reduces unwanted hum and noise.

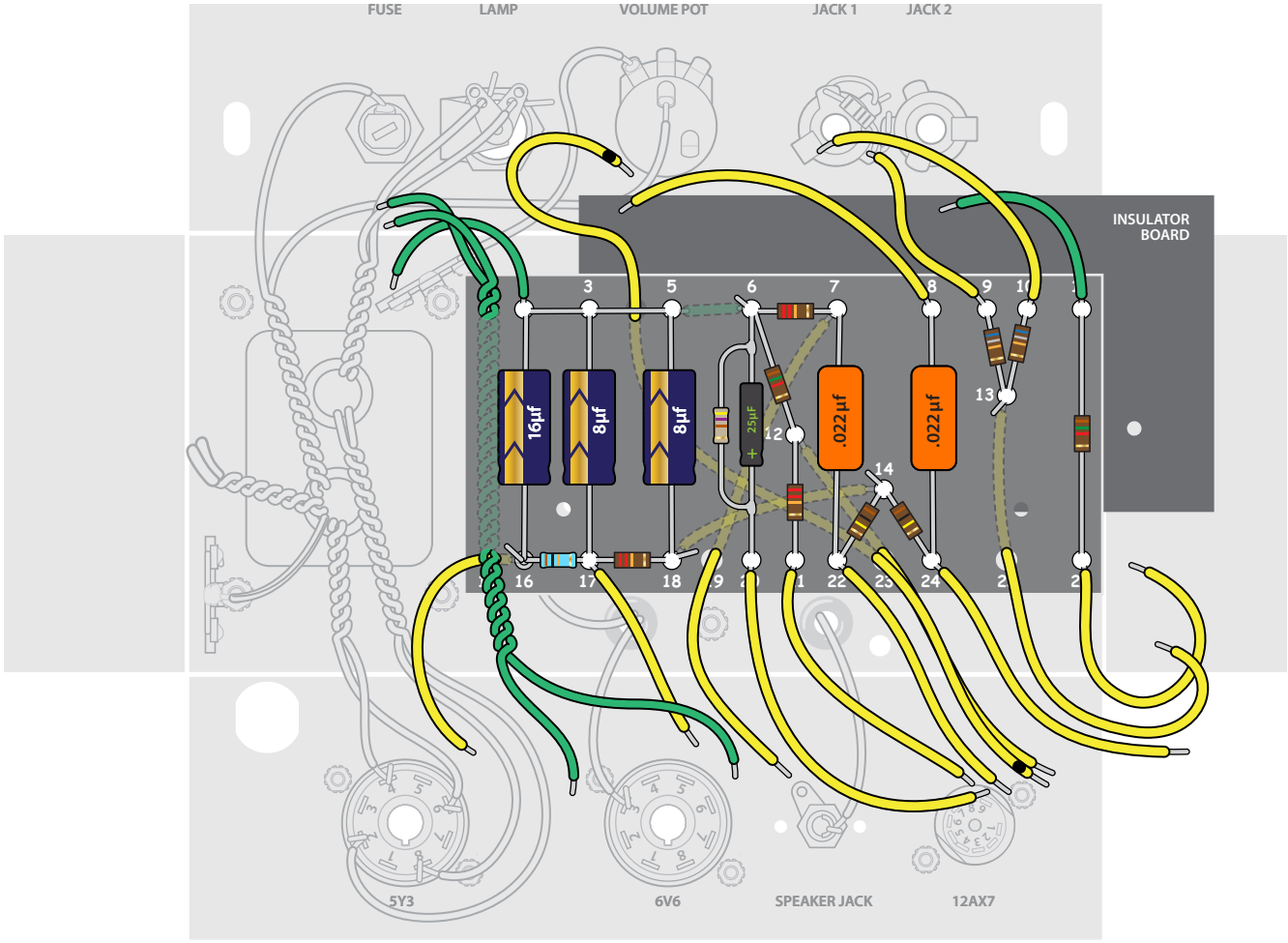
Run them behind the board and pull them to the front through hole 1 and 15. Leave 2-1/2" of lead coming through hole 1 and about 3-1/2" at hole 15.



Now all the components and wires are on the eyelet board. Take a break to rest your eyes before making sure you've followed each step correctly. To find no mistakes at this stage is surprising, and it's much less work to find them now than after soldering!

As you check your work, make sure all the connections are tight.

Soldering and installing the boards



☐ STEP 48

Solder the components on the eyelet board

The components and jumpers are on the board, and double-checked for correct placement and tight wraps. It's time set the connections with solder.

Review the tips for great soldering on page 16, then solder each connection on the eyelet board, except for one: don't solder eyelet 16 yet.

Trim the two leads connected to eyelet 16 (the 10K metal oxide resistor and the 16µF filter cap). Trimming these leads is important to avoid a short in your power supply. Don't solder eyelet 16 yet. Wait until you've installed the eyelet board to the chassis, because you'll be adding the red wire from the output transformer to this eyelet.

After all the joints are soldered, clip the excess leads on both the back and the front of the board.

Check all your solder joints to make sure they're shiny, and to make sure you didn't miss one.

☐ STEP 49

Install the eyelet board, backed by the insulator board

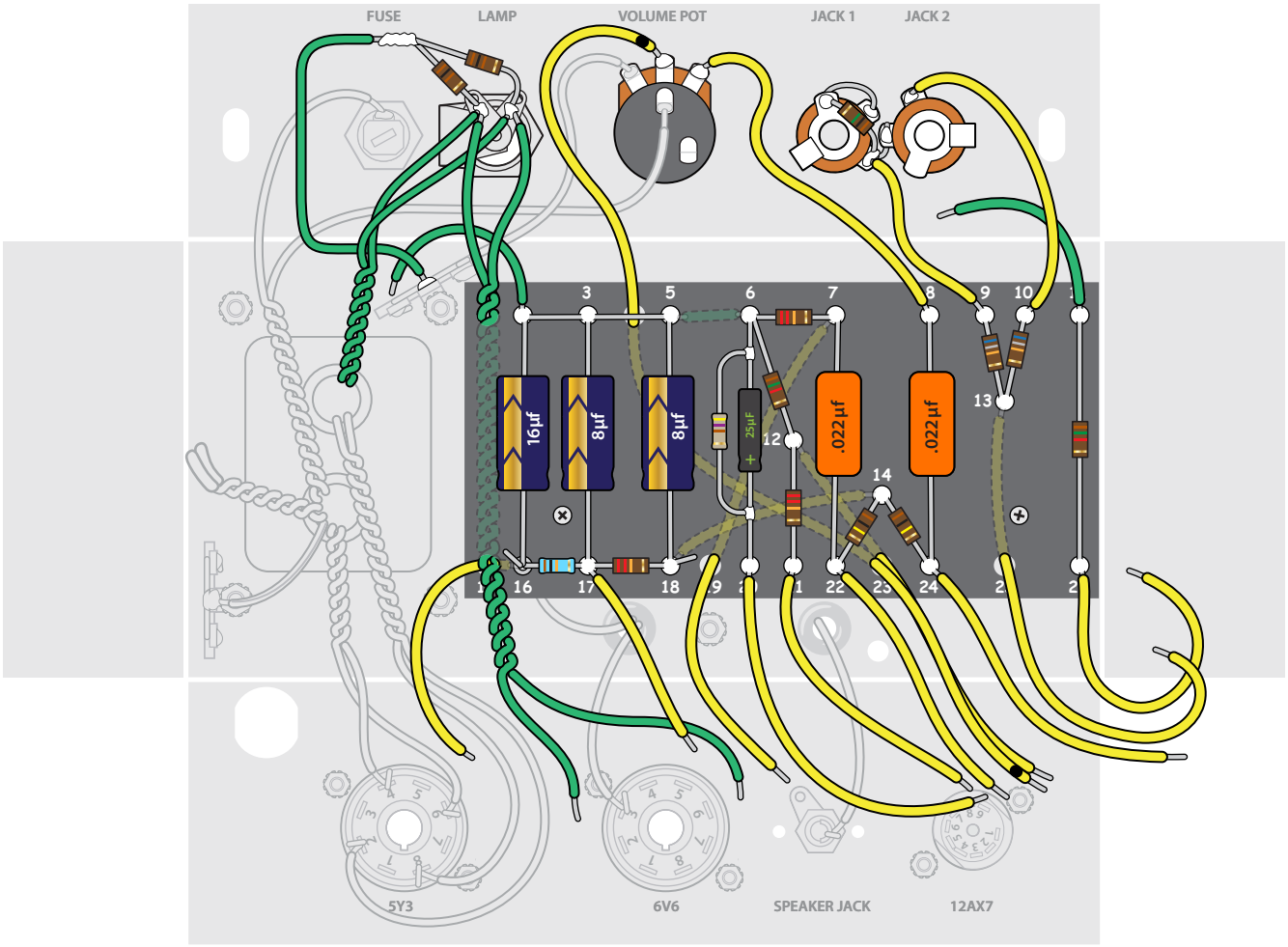
Before installing the eyelet board and insulator board in the chassis, make sure you have enough length on the unsoldered jumpers coming through holes 1, 15, 4 and 23 to reach their components.

Hole 1: 2-1/2"
Hole 15: 3-1/2"
Hole 4: 2-1/4"
Hole 23: 2"

Lay the insulation board on the bottom of the chassis, aligning it with the mounting holes.

Run a 6-32 x 1/2" machine screw through the eyelet board, the insulation board and through the chassis. Secure it with a lock nut on the outside of the chassis. Do the same with the second machine screw.

Connecting the eyelet board and chassis components



☐ STEP 50

Connect two 100Ω resistors to the lamp socket

Twist one lead from each of two 100Ω resistors together to join them. Wrap the other leads of these resistors to the lugs of the pilot lamp socket. Don't solder these connections yet.

☐ STEP 51

Add a ground wire

Solder a green jumper to the joined leads of the 100Ω resistors.

Solder the other end of this jumper to the ground strip near the pilot lamp.

☐ STEP 52

Connect two green jumpers to the lamp socket

Wrap the twisted green jumpers from hole 1 onto the pilot lamp socket lugs along with the resistor leads and green transformer leads. Solder these connections.

Trim the excess lead wire and inspect the pilot lamp lugs to be sure there is no contact between them.

☐ STEP 53

Solder two volume pot connections

Solder the jumper from hole 4 to the center lug on the volume pot.

Solder the jumper from eyelet 8 to the right lug on the volume pot.

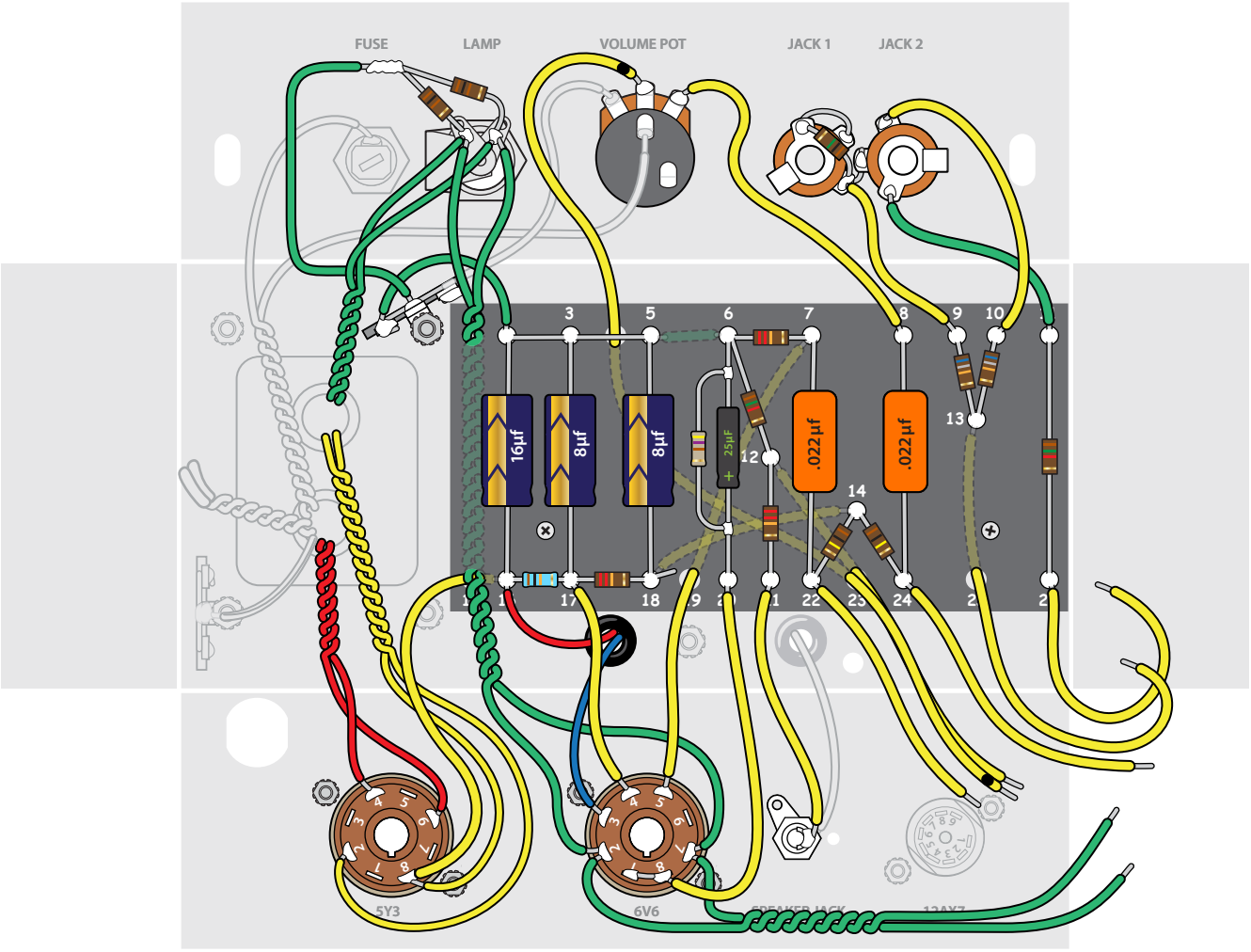
☐ STEP 54

Connect the input jacks

Solder the jumper from eyelet 9 to the to the right lug (tip connection) of input jack 1, along with the resistor lead. This resistor lead connects to the center lug of input jack 2; solder that connection now too.

Solder the other lead of the resistor to the left lug (sleeve connection) of input jack 1, along with the short jumper from that lug to the center lug on jack 1. Solder that center lug also.

Solder the jumper from eyelet 10 to the right lug (tip connection) of input jack 2.



☐ STEP 55

Solder two green jumpers

Solder the green jumper from eyelet 11 onto the remaining lug on input jack 2.

Solder the green jumper from eyelet 2 to the ground strip near the pilot lamp.

☐ STEP 56

Solder the 5Y3 tube socket

Wrap the yellow jumper from eyelet board hole 15 to pin 8 on the 5Y3 tube socket, along with the yellow transformer lead which is already wrapped on that pin.

Solder the connections to this socket (five wires). Trim away the ends of the wires.

☐ STEP 57

Connect the red + blue output transformer wires

Trim the red wire from the output transformer to an appropriate length and solder it to eyelet 16 along with the other wires wrapped there.

☐ STEP 58

Solder the 6V6 tube socket

Wrap one of the two green jumpers from hole 15 onto pin 2 of the 6V6 socket. Add a second green jumper to this pin, long enough to reach the 12AX7 socket.

Wrap the other green jumper from hole 15 onto pin 7 of 6V6 socket. Add another green jumper here, long enough to reach the 12AX7 socket. Twist these added green jumpers together.

Wrap the jumper from eyelet 17 onto pin 4 of the 6V6 socket.

Wrap the jumper from hole 19 to pin 5 of the 6V6 socket.

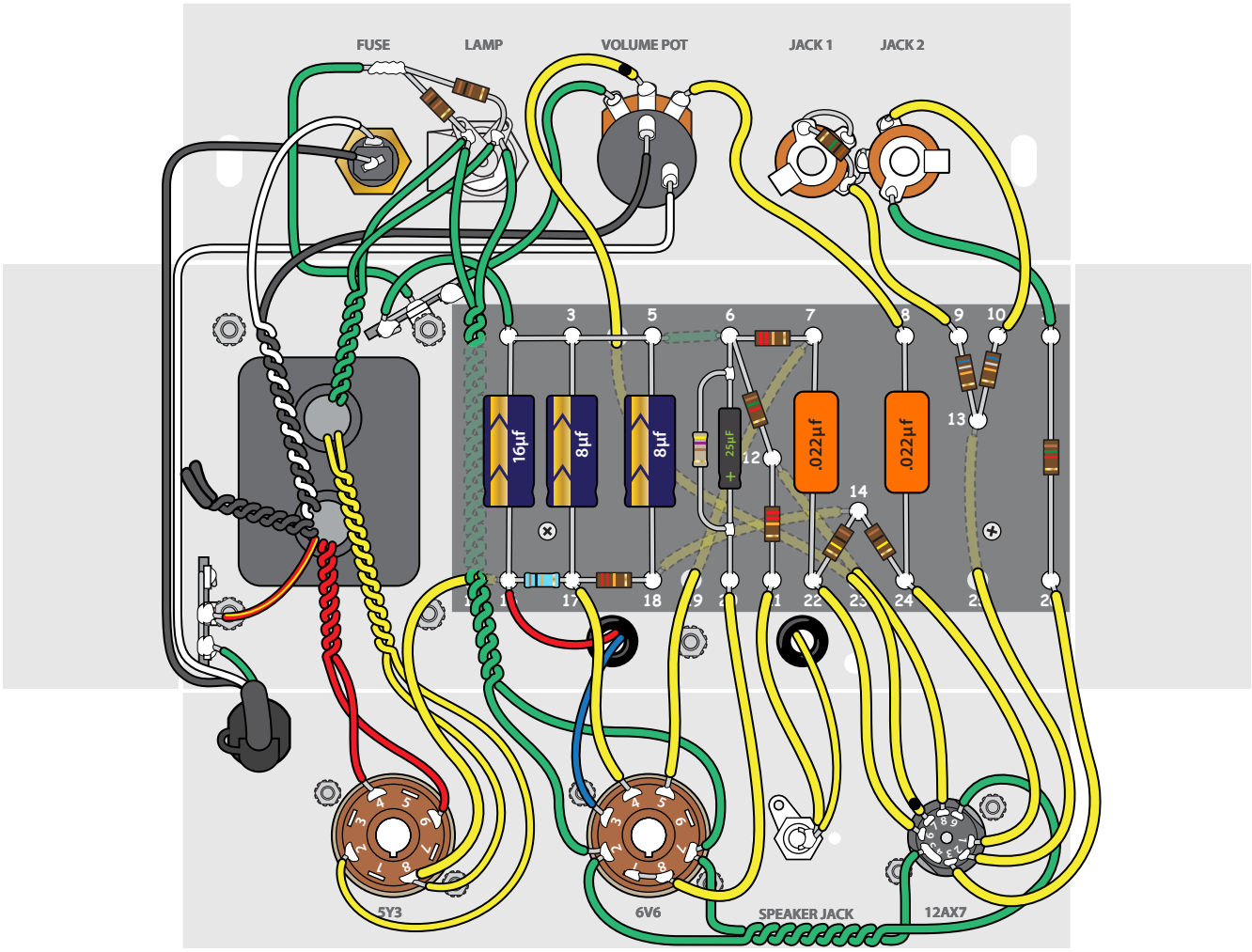
Strip 3/4" of insulation on the jumper from eyelet 20. Pass this through pin 8 of the 6V6 socket and wrap it onto to pin 1 of this socket. This creates a short jumper between pins 8 and 1.

Solder the connections to this socket (eight wires). Trim away the ends of the wires.

☐ STEP 59

Solder the speaker output jack

Solder the jumper from eyelet 21 and the yellow lead from the output transformer to the center lug of the speaker jack.



☐ STEP 60

Solder the 12AX7 tube socket

Wrap the jumper from eyelet 22 to pin 6 of the 12AX7 socket.

Wrap the jumper from the volume pot, coming through hole 23, to pin 7 of the 12AX7 socket.

Wrap the jumper from eyelet 12, coming through hole 23, to pin 8 of the 12AX7 socket.

Connect one green jumper from the 6V6 socket (from either pin 7 or pin 2) to pin 9 of the 12AX7 socket. Wrap it, but don't solder it yet.

Wrap the other green jumper from the 6V6 socket (from either pin 7 or pin 2) through pins 4 and 5 of the 12AX7 socket, joining those pins in one connection.

Wrap the jumper from eyelet 24 to pin 1 of the 12AX7 socket.

Wrap the jumper from eyelet 13, coming through hole 25, to pin 2 of the 12AX7 socket.

Wrap the jumper from eyelet 26 to pin 3 of the 12AX7 socket.

Solder the connections to this socket (eight wires). Trim the wire ends.

☐ STEP 61

Add the power cord + strain relief

Strip away the power cord's outer insulation to reveal 7-1/2" of the three leads inside.

Trim the black lead to 5".
Trim the green lead to 3".
Leave the white lead 9-1/2" long.

Pull the power cord leads through the hole in the chassis and secure with the black strain relief.

The strain relief is a tight fit. Use pliers to squeeze it onto the power cord outside the chassis, and keep squeezing to fit it into the mount hole.

☐ STEP 62

Connect the power cord leads

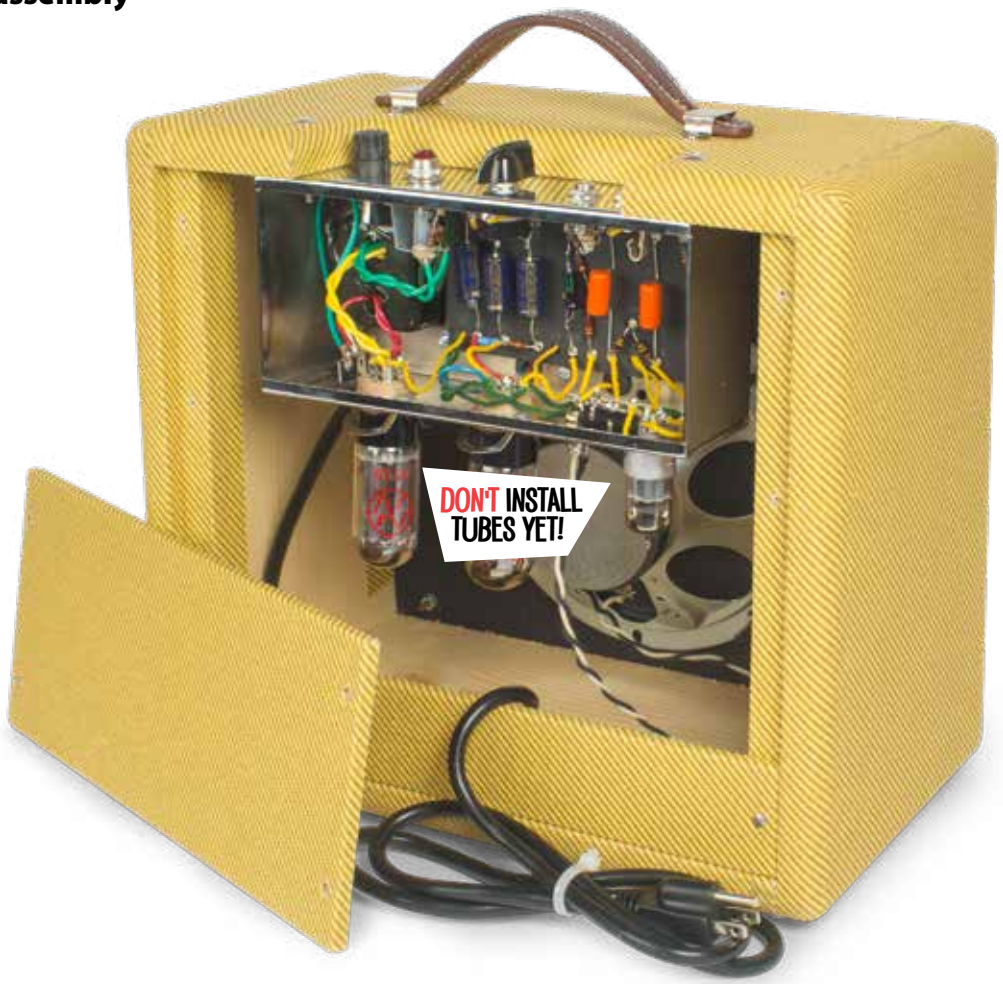
Route the power cord's white lead around the edge of the chassis to the volume pot. Solder it to the lower right switch lug on the back of the pot.

Solder the power cord's black wire to the center/back lug of the fuse socket. **Danger:** Soldering this lead to the side lug of the fuse socket will create a shock hazard.

Solder the power cord's green ground wire onto the nearby grounding strip.

Now that you've soldered the components and wires, take a break. Rest your eyes. Review your work later, carefully looking again for any errors before moving on.

Final assembly



☐ STEP 63

Mount the chassis

Place the chassis into the cabinet and run the two 10-32 x 1-1/2" machine screws through the top of the cabinet, into the chassis. Fasten loosely with locknuts.

Hold the top back panel in place, flush with the edge of the cabinet. Move the chassis so it's flush with the back panel, and tighten the locknuts.

☐ STEP 64

Install the fuse

Insert the 1-amp fuse into the fuse socket from the front of the chassis. Make sure the socket cap is securely in place. Never use a fuse rated above 1 amp in this amplifier.

☐ STEP 65

Install the pilot lamp

Insert the pilot lamp bulb into its socket from the front of the chassis and twist until it locks back in place. Screw the red jewel lens over the socket.

☐ STEP 66

Install the volume knob

Turn the shaft of the volume pot to zero and install the chicken head knob so that the indicator line points to number 1.

☐ STEP 67

Clamp the power cord

Remove the cable clamp from the cabinet wall and wrap it around the power cord, about 6" from the chassis. Remount the clamp with the cord.

Any multimeter will work fine for the two types of tests we're about to do: checking **continuity** and reading **voltages**. The instructions that came with your meter will be helpful.

Continuity testing is simply making sure current flows between two points successfully. Touch the meter's red lead to one end of the section being tested, and the black lead to the other end. If the continuity is good, your meter will beep or register this on the display.

Voltage testing is where you need to be careful. Some steps require the amp to be plugged in and turned on. This becomes dangerous if you're not cautious. Respect the voltages and follow the directions, and these tests are safe and easy.

☐ STEP 66

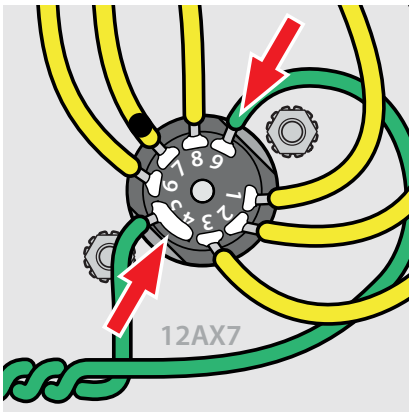
Perform a safe power-up

At this point, there should be no tubes installed, and the speaker should be disconnected.

Before plugging the amp in, turn the volume knob to 3, which turns the on-off switch to ON. Switching the amp on before the first power-up protects you from shock if a mistake in your wiring has created a short to the chassis. If this short exists, an indication would be that the pilot light will not turn on, since the AC current is going directly to ground.

Plug the power cord in. The pilot lamp should light.

For a few minutes, watch for smoke or unusual smells. If anything seems unusual, unplug the amp immediately and carefully review all your connections.



☐ STEP 67

Test the standard AC voltage

Set your multimeter to 20V AC. Check the heater voltage across pin 9 and pins 4+5 on the 12AX7 socket. This should read between 5-7V AC. If this reading is drastically different, unplug the amp and check your connections.

If the multimeter reading is good, and the amp seems normal, **unplug it** and install the 5Y3 rectifier tube. Use one hand to open the tension clip while while you put in the tube with your other hand.

☐ STEP 68

Test the dangerous DC voltage

The dangerously high DC voltage that passes through the 5Y3 rectifier tube and the filter caps is referred to as "B+". The next step is to test this B+ voltage.

Plug the power cord back in. The pilot lamp should light, along with the filament inside the 5Y3 tube.

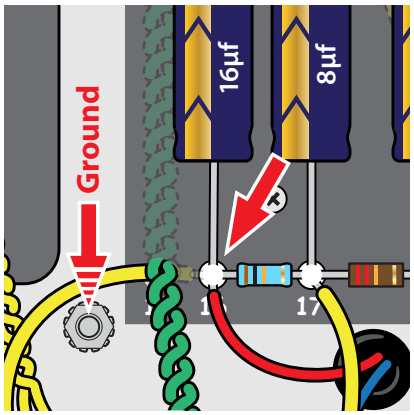
Again, spend a few minutes watching for smoke or smells.

At this point, dangerous voltages are forming in the filter caps. They'll hold a potentially lethal charge until you discharge them, even after the amp is unplugged.

For safety, only have one hand on the amp during DC tests.

Keep your other hand behind your back when you need to probe a component. This way, you can't be a path between B+ voltage and ground—a mistake that would send a dangerous charge through your heart.

Seriously, keep one hand behind your back!



Set your multimeter to 500V DC and connect the black (negative) probe to ground. Once that probe is secured to ground, measure the DC voltage at eyelet 16. This B+ voltage should be roughly 479V DC.

If this reading is correct and the amp continues to behave normally, unplug the amp.

Always discharge the filter caps before working on the circuit.
See how to use a snuffer stick on page 6.

☐ STEP 69

Test the 12AX7 preamp tube

Install the 12AX7 preamp tube.

After this tube is correctly installed, plug the amp back in. The pilot lamp should light up. Let the amp warm up for a few minutes. If you notice smoke or smells, unplug immediately.

Connect your multimeter's negative lead to ground. Because the power cord's ground lead is connected to the metal chassis at the three-lug terminal, any mounting bolt on the chassis is a ground.

Set the multimeter to 5V DC and check eyelet 26, which should read around 1.65V.

Set the multimeter to 200V DC and check eyelets 22 and 24, each should read around 235V.

If all of these voltages come within approximately 10% of their expected values, unplug the amp before moving on.

If the readings at eyelets 22 or 24 show no voltage or low voltage, **unplug the amp** to do a continuity test. With your meter set for reading continuity, make sure you've properly installed the behind-the-board jumper from eyelet 18 to eyelet 14.

☐ STEP 70

Test the 6V6 power tube

Install the 6V6 power tube.

Connect the speaker. Perform these next tests with the speaker turned away from you. If the amp starts to oscillate and squeal, this will help protect your ears.

Plug in the amp. After a few moments you should hear a low hum. If the hum becomes very loud, unplug the amp immediately and review your connections.

Allow the amp to warm up for a few minutes and attach your multimeter's negative lead to ground.

Set your multimeter to read 5V DC and test for voltage at eyelet 12. This voltage should read around 1.65V.

Set your multimeter to read 20V DC and test for voltage at eyelet 20. This voltage should read around 19V.

Set your multimeter to read 400V DC and test for voltage at eyelet 17. This voltage should read around 325V.

If your voltage readings are correct, plug a guitar in and begin playing at low volume. If the amp is behaving as it should, keep increasing the volume. It should start to break up nicely as you increase the volume.

If there are any strange oscillations, squeals, or the amp seems at all unstable, use a wooden chopstick to probe for loose connections:

- from the input jacks to the eyelet board
- from the tube sockets to the eyelet board
- from the tube sockets to the front panel controls.

It usually takes just a minor wiring adjustment, perhaps resoldering a loose joint, to correct this sort of distortion.

It's finally time to let it rip!

If the amp's stable and your tests match the voltages specified, unplug the amp and install the tube shields and the back panel. It's time to rock!

Play with your guitar's volume and tone knobs to see how they interact with this amp. A single-coil pickup set to 10 creates gorgeous clean tones with the amp volume set between 3 and 6.

Between 6 and 8, you'll find early tube distortion, and there's full-on tube saturation from 9 to 12.

Use the controls on your guitar to shift between distorted and clean when the amp's turned up past 6. Humbuckers and P90s push you into distortion a lot faster than standard single-coils. Enjoy your tone quest!

Tube life

The life of the power tube is affected by how hard you drive the amp. If you are overdriving the amp for hours every day, expect the power tube to have a shorter life span.

We encourage you to experiment with different tube brands and find the brand that is most favorable to your ears and your wallet.

StewMac is here to help

For more than fifty years, StewMac has supplied instrument builders and repair shops with high-quality tools, parts, and expert advice. Our customer service team really knows how to help if you run into questions.

Call 800-848-2273 from 9AM–6PM Eastern time, Monday–Friday.
Email: service@stewmac.com

Thanks for choosing this StewMac kit, and welcome to the world of amp building!

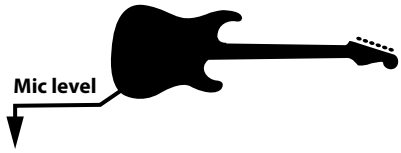
Learning more: secrets revealed in the schematic

You don't need to read a schematic to build this kit. But it's fun to see how the circuit works, and to see the different subcircuits that interact to shape your sound.

Working with the tiny signal from the guitar, the amp creates the power needed to drive the speaker. The signal is affected by the **gain**, **processing**, **output** and **power** stages as it passes through the circuit.

We've color-coded these stages on our schematic, to show how the parts work together. Symbols for components are in the key at the bottom of the frame.

On the **wiring diagram** we build step-by-step in these pages, the parts are easier to recognize. But studying these color-coded stages will help you understand where each component fits into the creation of your sound.

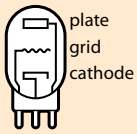


Gain

Line level →

The gain circuit increases the signal strength to line level (about 1 volt), by passing it through 12AX7 preamp tubes.

Inside the airless capsule of a tube, electrons flow from a heated **cathode** to be received by the anode **plate**. Between these two elements is a **grid** receiving the tiny voltage from the guitar. The guitar's varying musical signal controls the flow of electrons to the plate.



This three-part component is called a triode. The 12AX7 tubes are dual-triode tubes; combining the elements of two tubes in one housing.

Processing

Line level →

The processing stage shapes the **tone** of the signal. Compared to most guitar amplifiers, the 5F1 circuit design has little in the way of processing, because there's no tone control on the '57 Tweed.

With this amp, players fine-tune their tone by varying the volume and tone controls on the guitar.

Output

Speaker level →

The output stage increases the line level signal to **speaker level**, which is typically 8 volts or greater.

Amplifiers under 10 watts, like this one, only need one power tube to amplify the signal to the appropriate voltage.

The output transformer adjusts the impedance to **4 ohms** to drive the speaker. Amp output is typically 4, 8, or 16 ohms.

A 4 ohm speaker is used in this amp.

Power

The power supply stage provides power to the other circuit stages, as well as the tube heaters and pilot light.

This circuit receives the **AC power** from your wall and passes it through the power transformer to create higher voltage. The electricity then goes to the rectifier, which converts it to a pulsing **DC current**.

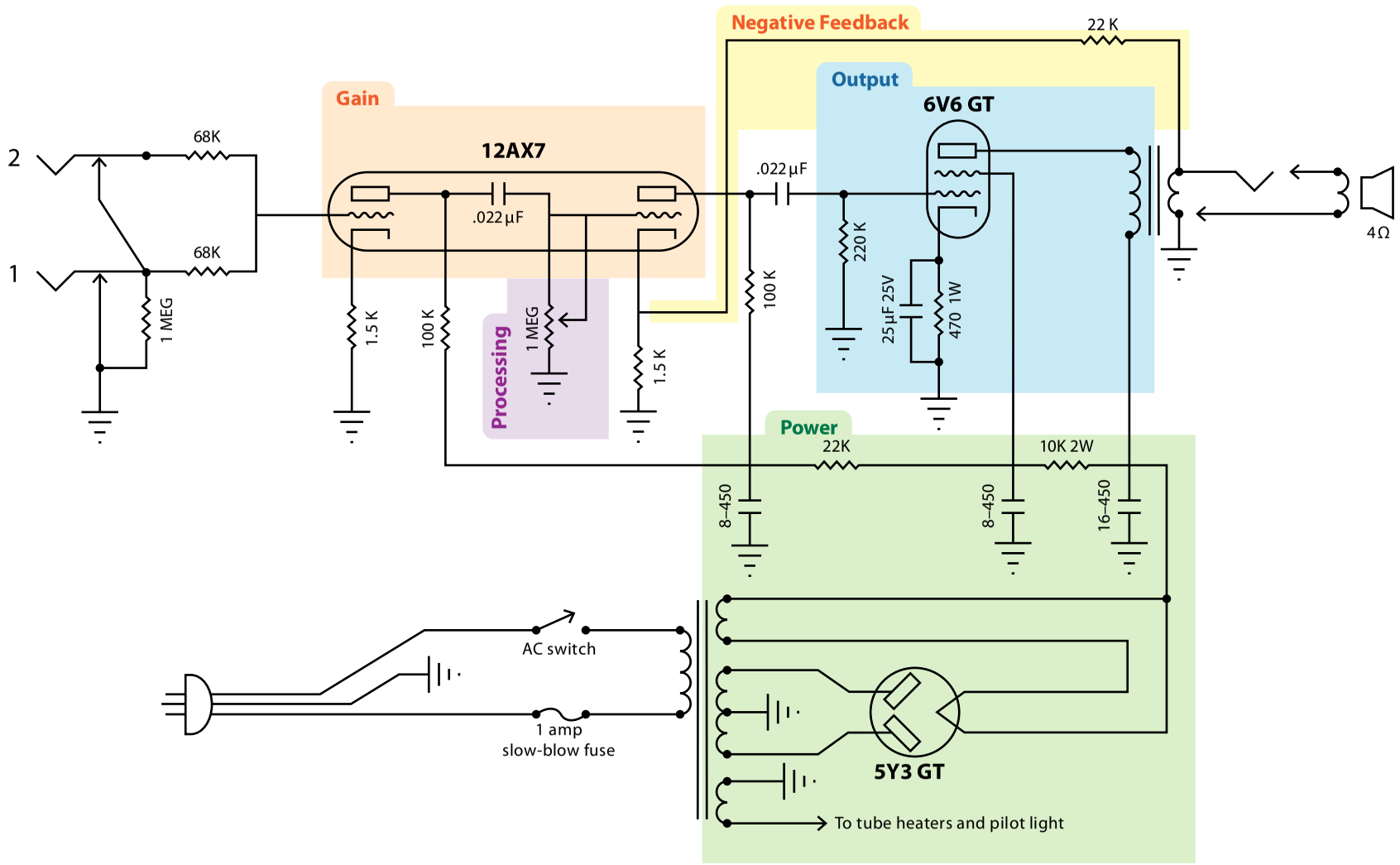
This then passes through a series of three large electrolytic capacitors which filter out the pulsing to create a smooth current. As each cap smoothes a bit more, the current is also passing through resistors that lower the voltage.

As the signal from the guitar becomes more amplified, the ripple of DC current becomes less evident and the fully filtered current is sent to the most sensitive part of the amplifier, the first pre-amp tube in the Gain stage.

Negative feedback

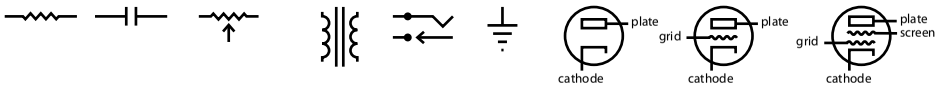
The negative feedback loop flattens and extends the amp's frequency response, reducing distortion generated in the output stage. This makes the amp's sound cleaner and more hi-fi.

Some players disable this loop completely or add a potentiometer in place of the resistor to create a "grit" control. We don't recommend doing this, because it places stress on the output transformer.



StewMac ICON KITS #10730 © 2018 StewMac

Resistor Capacitor Potentiometer Transformer Jack Ground Diode tube Triode tube Pentode tube



'57 TWEED 5W

5F1 CIRCUIT SCHEMATIC

It's your amp. Your tone. You built it!

StewMac **ICON KITS** teach you the world of amp building, then turn you loose with amazing hand-built tone machines!

'57 MINI TWEED 5W AMP KIT

One-knob titan of tone.

A timeless studio darling whose tiny size hides tremendous punch and versatility.

The 5F1 circuit was meant to be a student amp but wasn't kid stuff for long; rock's finest guitarists hijacked it for some of the greatest songs ever recorded. Listen to Eric Clapton ("Layla") or Joe Walsh ("Rocky Mountain Way") while you build this amp!

Our simplest kit; the quickest way to get into amp building.

#10730 5 WATTS / 8" SPEAKER / ORIGINAL 5F1 CIRCUIT

DIFFICULTY
HOURS: **6**

'59 TWEED 15W AMP KIT

Dirty little devil that shaped guitar history.

With mysteriously fat saturated tone, this little monster makes it easy to achieve seismic distortion.

This amp's 5E3 circuit is an enigma: Why do the controls on the channel you're NOT using make your tone so great? The answer: Who cares? This is one of the greatest tone monsters ever created! Listen to Neil Young's *Rust Never Sleeps* while building this kit.

Our most popular amp kit and a great learning experience.

#10731 15 WATTS / 12" SPEAKER / ORIGINAL 5E3 CIRCUIT

DIFFICULTY
HOURS: **8**

'65 P-REVERB 15W AMP KIT

Sparkling bright, perfect for the surf.

Plug your single-coils straight in for that signature clean American tone, or go surfing with onboard effects.

The smallest member of the black-panel family to offer reverb and tremolo, this amp made its name as a jangly pop dream machine. Aficionados treasure its early low-end breakup powered by a pair of 6V6 tubes.

Listen to "Surfin' USA" and the great sounds of Ryan Adams.

#10734 15 WATTS / 10" SPEAKER / ORIGINAL AA1164 CIRCUIT

DIFFICULTY
HOURS: **12**

'66 D-REVERB 22W AMP KIT

Famously clean, with enough guts to gig.

Perfect for recording as well as performing, the D-Reverb produces stinging clarity that absolutely refuses to get lost in the mix.

One of the most popular designs ever, this amp lives in the happy middle between bright clarity and rich distortion. It excels in the studio and on the stage. While capable of crystal clear tones at good volume, you can push this one into beautifully saturated, play-sensitive distortion.

It's all here: clarity, distortion, and rectifier tube sag.

#10737 22 WATTS / 12" SPEAKER / ORIGINAL AB763 CIRCUIT

DIFFICULTY
HOURS: **16**

Beginner-tested. Pro quality.

StewMac **ICON KITS** are fun to build, with friendly instructions to guide you and loads of info to add to your knowledge.

'62 BRIT-PLEX 45W AMP KIT

The original British showstopper.

This amp started a revolution. It's been rocking the world for over 50 years, and we still can't get enough.

Favored by blues and rock players for exceptional sustain and rich creamy tone, the '62 Brit-Plex is chock-full of harmonic gain, yet it still stays articulate and even a little crispy. Put this head on a classic 4x12 cab and watch out!

While building, listen to Gary Moore's "Still Got The Blues."

DIFFICULTY
HOURS: **12**

#10736 45 WATTS / ORIGINAL 1962 CIRCUIT

'81 BRIT-800 50W AMP KIT

This hairy monster lives to shred.

The defining British circuit that dominated the '80s.

This 50W giant created your favorite heavy rock and metal albums. Used by Slayer and Pixies, and recorded on early Metallica albums, this circuit produces that screaming guitar tone that your mother despises. With solid-state rectification there's no sag, and the distortion created by this circuit is way more about treble than mids or bass.

Listen while building: Smashing Pumpkins' *Siamese Dream*.

DIFFICULTY
HOURS: **16**

#10735 50 WATTS / ORIGINAL 1981 CIRCUIT

'66 BRIT-74X 18W AMP KIT

Leave your half-stack at home.

Born in London, this little blues blaster earns its living every night, gigging in clubs across the USA.

Launched in 1966, this amp quickly became a low-wattage holy grail. This is a stripped down blues machine: two channels, one tone knob, no master volume. Buckle up and go where this gritty beast takes you! It comes with a footswitch to kick in the onboard tremolo.

Get the plexi tone without blowing the roof off the joint!

DIFFICULTY
HOURS: **12**

#10732 18 WATTS / 12" SPEAKER / ORIGINAL 1965 CIRCUIT

'64 REVERB UNIT KIT

Reverb you can't get from a pedal.

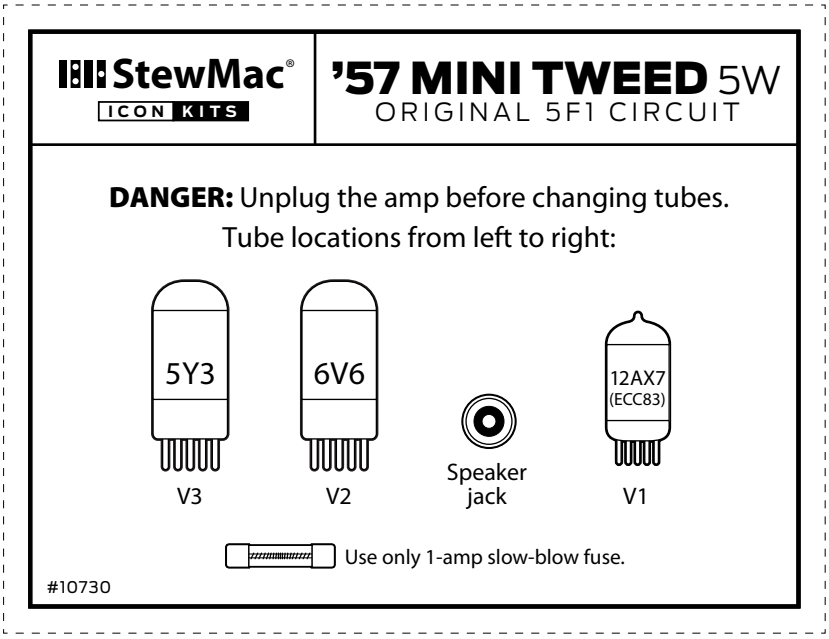
This is the unit that put the waves in surf music! Looks like an amp, sounds like a beach party.

This tube-driven reverb tank relies on good ol' physics for a perfect effect. Your guitar signal travels along two large suspended springs to produce the reverb that launched the iconic surf sound. This isn't a pocket-sized digital simulation; this is the real deal!

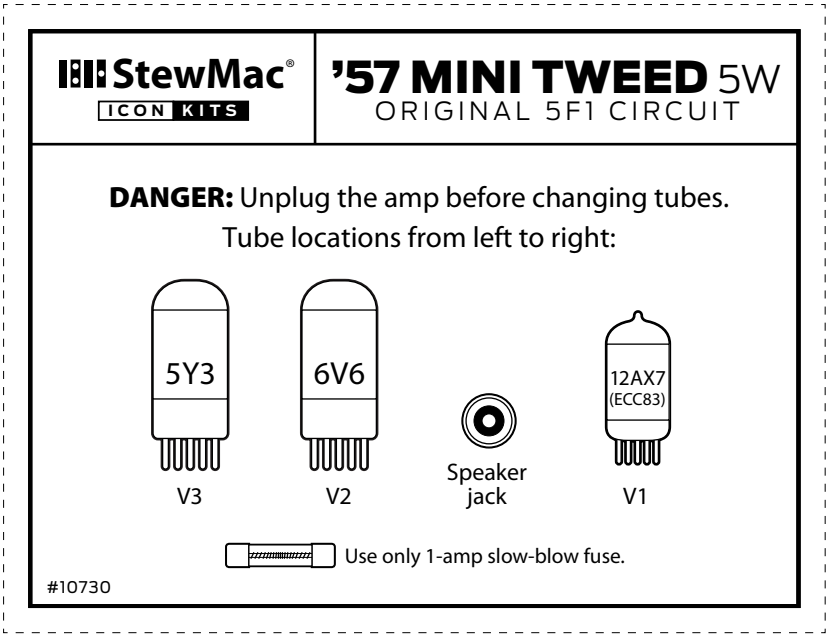
Listen to Dick Dale's "Misirlou" while doing this easy build.

DIFFICULTY
HOURS: **8**

#10733 ORIGINAL 6G15 CIRCUIT



Cut this label on the dotted line with a razor knife and metal straightedge.
Fasten it to the bottom of the cabinet using thinned wood glue or contact cement.
The duplicate copy is included as a backup.



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#i10730 Updated August, 2019