THE PERCOLATOR

2 WATT TUBE AMPLIFIER – ELECTRONICS ONLY

Addendum to the Instruction Manual

This document is for those who purchased a Percolator 2W Tube Amp— Electronics Only, either ready-to-play or in kit form. It contains a revised Bill of Materials for the kit builders, and some notes on how to install the amp into your own cabinet, including a drilling template. Kit builders: For all other assembly instructions and safety warnings, be sure to download the Percolator Assembly Instructions. If the hyperlink does not work for you:

- Go to www.zeppelindesignlabs.com;
- find the Percolator product page;
- click on the Documentation tab;
- and download the Percolator Assembly Instructions.

WHAT'S IN THE BOX

TIP: Empty the parts of the kit onto a cookie sheet or into a big fruit bowl, NOT onto the cluttered workbench, or onto the living room carpet! This will protect you from losing tiny parts.

Table 1: Percolator Bill Of Materials (BOM) is a complete parts list of everything that should be present in your kit. Photos of each part appear in the main Instruction Manual. Print the BOM and carefully go through the kit, identifying every part. Note that some of the components are difficult to tell apart. Compare them carefully with the photos. Besides verifying that nothing is missing, this will acquaint you with the parts and their names. If ANYTHING is missing, first double-check: we double-checked before sealing the box at our lab! If it's still missing, EMAIL US right away at support@zeppelindesignlabs.com. Include your serial number (given via a sticker on the chassis) in your email. If we are reasonably convinced that we goofed and shorted your kit, we will get replacement parts in the mail to you as soon as possible. If you lose or damage anything, we will be glad to sell you replacements. The unusual or custom components can be ordered directly from us (contact support@zeppelindesignlabs.com). For more common parts, like resistors, caps, or screws, you may just want to go to a local electronics or hardware store.

Table 1: Percolator Bill Of Materials

Loose in the box:			
Part #	**Description**	**Notes**	**Qty**
CB03	Power Cable	IEC 6'	1
CH03.1	Chassis Top		1
CH03.2	Chassis Base Plate		1
PC23	PCB	Printed Circuit Board	1
PL11	Percolator Face Label		1
J3	Power Receptacle w/ Fuse		1
T1	Power Transformer	120V Primary	1
T2	Output Transformer	4W	1
V1	Vacuum Tube	NOS Compactron	1
In the Components bag:			
Part #	**Description**	**Notes**	**Qty**
CB10.1	10.5cm Hookup Wire 20/1	Feedback loop	1
CB10.2	10.5cm twisted pair Hookup Wire 20/1	Heater voltage	1
CB10.3	4cm Hookup Wire 20/1	Ground	2
CB10.4	6cm Hookup Wire 20/1	Output jumper	1
C9, C10, C11	Electrolytic Capacitor 100uF/250V		3
C2, C5, C8, C12	Electrolytic Capacitor 100uF/16V		4
C1, C3, C6	Film Capacitor 0.022uF/250V		3
C4, C7	Ceramic Disc Capacitor 470pF/50V		2
BR1, BR2	Bridge Rectifier 2A/1000V		2
F1	Fuse 1A 250V		1
J1	¼" Stereo Jack (w/ plastic nut)	Input (Plastic barrel)	1
J2	¼" Mono Jack (w/ metal nut and washer)	Output (Metal barrel)	1
KN05	Knob		1
D1	Red LED 5mm		1
VR1	Potentiometer 100KA		1
R1, R6, R11	Resistor 22K	Red, Red, Orange, Gold	3
R5, R9, R10	Resistor 220K	Red, Red, Yellow, Gold	3
R3, R8	Resistor 47K	Yellow, Violet, Orange, Gold	2
R4	Resistor 820R	Gray, Red, Brown, Gold	1
R7, R14, R17	Resistor 1.5K (or 1K5)	Brown, Green, Red, Gold	3
R16	Resistor 4.7K (or 4K7)	Yellow, Violet, Red, Gold	1
R2	Resistor 1M	Brown, Black, Green, Gold	1
R15, R12	Metal Film Resistor 120R 1%	Brown, Red, Black, Black, Brown	2
R13	Metal Film Resistor 2.2K (or 2K2) 1%	Red, Red, Black, Brown, Brown	1
SK05	Panel Mount LED Bezel		1
SK10	12 Pin Tube Socket		1
S1	SPDT Toggle Switch	PCB Mount	1

In the Hardware bag:			
Part #	**Description**	**Notes**	**Qty**
CB20	Solder Lug		1
CH05	Isolation Fin		2
GR02	Rubber Grommet		4
NU10	Keps Lock Nut M3		5
SC38	Philips Machine Screw – Pan head M3x6		17
SC63	Philips Sheet Metal Screw - Pan head 8x1/2”	Assembling the chassis	4
SC66	Philips Sheet Metal Screw - Pan head 6x5/8”	Mount to Cabinet from Inside	4
SC67	Philips Sheet Metal Screw - Flat head 6x1”	Mount to Cabinet from Outside	4
SC68	Philips Sheet Metal Screw - Pan head 10x3/8	Attaching the fins	4
SP11	Nylon Hex Standoff M3x12		6
WA07	Lock Washer M3		6

INSTALLING INTO YOUR OWN CABINET

You can easily install the Percolator into almost anything. We have supplied two sets of screws for mounting the amp to a box made of ¾" (19mm) thick wood, from either outside the box or inside the amp. To mount to thinner materials (a cigar box, a metal box, an apple crate, an acrylic plate, etc), you'll have to obtain the appropriate screws yourself (see the warning about screw length). Some notes follow in section 3 below. Do not attempt any installation without first removing power from the amp (unplug it from the wall)!

1. Install To Wood Cabinet From Outside The Box

If you just want to set the amp inside a wood box and mount it from the outside, this is the same procedure we use for the Percolator's own stock cabinet. You can study the manual and assembly videos to see how this is done. Here is the basic procedure:

1. Use the provided template to lay out the mounting holes on the bottom of your cabinet. See "Assembling the Box" step 3, page 44 of the Percolator Instruction Manual. Position the template, drill 9/64" holes through your cabinet, and countersink the holes. See "A Word On Countersinks", page 43.
2. Place the completed kit, or the ready-to-play amp, over the holes. Hold it firmly in place with one hand and run a Flat Head #6x1" sheet metal screw (part #SC67) through one of the holes and into the chassis bottom. Use a #2 Philips screwdriver, NOT a screw gun. See "Installing The Amp", page 67. Continue to the other three 1" screws. That's it!

WARNING: Using a screw that penetrates more than ¼" (6 mm) into the interior of the amplifier could interfere with the components, possibly damaging or destroying the amplifier and potentially exposing you and others to the risk of electric shock! Do not use the 1" screws if your cabinet material is less than 11/16" (17 mm) thick! NEVER USE A SCREW THAT PENETRATES MORE THAN ¼" (6 mm) INTO THE INTERIOR OF THE AMPLIFIER!

2. Install To Wood Cabinet From Inside The Amp

If you want to hide the mounting screws, you may be able to install the amp from the inside. This assumes there is enough space inside your cabinet for your tools, and enough vertical clearance to seat the amp down over the Chassis Base Plate. Try a dry run of the whole process before committing yourself.

1. Use the template as described above to lay out four pilot holes inside the cabinet.
2. Drill four pilot holes ½" deep. If your cabinet is made of soft wood like poplar or pine, use a 1/16" drill bit. If it is made of hardwood like birch, oak, cherry, walnut, etc, use 5/64" bit, or even 3/32" for very hard wood like maple. If you are not sure what wood your cabinet is made of, start with 1/16".
3. If you have a ready-to-play amp, open the chassis by removing the two screws near the bottom of the front and back. This is the reverse of "Assembling The Amp" Step 2, page 41 of the Instruction Manual.

DANGER: The amplifier contains capacitors which hold a charge of high-voltage electricity for a LONG TIME after the amp is unplugged. If you touch anything inside the amp, you could receive an electric shock! Wait several hours, or overnight, after turning off the amp before you open the chassis!

4. Use a 9/64" drill to enlarge the four holes in the bottom of the Chassis Base Plate.
5. Position the Chassis Base Plate inside your cabinet over your pilot holes. Use the four Pan Head #6x5/8" sheet metal screws (part #SC66) to mount the plate into cabinet. If the first screw is so tight that you begin to strip out the head, back it out and re-drill the pilot holes using the next larger drill bit. Beware you do not twist so hard that you break the head off the screw. That is always a drag.

CAUTION: Do not use the #6x5/8" screws if the cabinet material is less than 5/8" (16 mm) thick! The screws will poke out of the bottom of your cabinet. You MUST go fetch a shorter screw for use in thinner materials! See section 3 below.

6. Now hold the completed amp chassis directly above the base plate and lower it into place. It should be a snug fit. See "Assembling the Chassis", page 41.
7. Use the four Pan head 8x1/2" Sheet Metal Screws (part #SC63) to secure the amp to the base plate. That's it!

3. Mounting To Thinner Materials

As mentioned above, if you want to mount to something other than ¾" wood, you will need to run to the hardware store and get different screws, or nuts and bolts.

1. Mounting From Below: The holes in the chassis bottom are sized to receive the threads of a #6 Type AB sheet metal screw and hold it tight. Use the template to lay out and drill 9/64" pilot holes in the cabinet material. Choose a screw head type appropriate to the material. Thin or brittle materials, such as acrylic or a fruit crate, may need a pan-head screw with a flat washer or a fender washer to spread the stress over more surface area. Countersink or counterbore the pilot holes if appropriate. *Choose the length of the screw carefully!*

WARNING: Using a screw that penetrates more than ¼" into the interior of the amplifier could interfere with the components, possibly damaging or destroying the amplifier and potentially exposing you and others to the risk of electric shock! NEVER USE A SCREW THAT PENETRATES MORE THAN ¼" INTO THE INTERIOR OF THE AMPLIFIER!

2. Mounting From Inside: We do not recommend that you install the amplifier from inside into wood less than ½" thick. Do not use a screw less than 3/8" long to mount into wood. For thin wood, mount from below as described above. Or, you may want to install tee nuts into the bottom of thin or brittle wood and mount the chassis base plate from inside using machine screws. In this case, re-drill the holes in the chassis base plate to accommodate the machine screws.