



THE PERCOLATOR COMBO

Owner's Manual

2 WATT AMPLIFIER



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INTRODUCTION

Congratulations! You are now the proud owner of The Percolator 2W 1x8 Combo from Zeppelin Design Labs. The Percolator has been designed for electric guitar, cigar box guitar and harmonica. Intended to be used in a variety of situations from a bedroom practice amp, to a small stage gigging amp, to a small studio amplifier, the Percolator should give you a lifetime of great tone. With only 2 watts at full volume, the Percolator offers some serious cranked up tone at bedroom levels. Unlike any other production guitar amp, it has an all-tube signal path and uses only one (NOS) Compactron tube. The single volume knob allows for warm, rich, clear tones at lower levels and aggressive, overdriven tones at higher levels — all at a moderate volume.

Like all ZDL products, the Percolator was designed by musicians and audio enthusiasts, using only the best components. Each combo is hand-built right here in our lab by the owners of the company, giving each one its unique character. All of our products are thoroughly tested and inspected to make sure they meet our requirements before they are sent out to the customer. We make sure that each amplifier is the best it can be before you play it! We'd love to hear your feedback about any of our products. Send an email, or post on the ZDL forum.

In order to get the most out of your Percolator, please read this manual before you begin rocking out.

SOME HISTORY...

The Percolator was designed around a single tube developed by GE in the early 1960's under the brand name "Compactron." Compactron tubes have multiple amplifier sections in one bottle. The tube in the Percolator has two triodes and one sharp cut-off pentode. That's the same topology as the Fender Champ, but in one bottle! This tube was never intended to be used in an audio circuit (it was originally designed for use in various parts of a TV circuit), but it works and sounds great in a guitar amplifier. Since this tube is rarely, if ever, seen in guitar amps, it offers a rather unique tone.

Compactrons were developed in a time of fast technological growth. In the early 1960's transistors were becoming more stable and practical for use in more demanding circuits. They also were much smaller and didn't require as much power (via heating filaments). The tube market was being challenged and threatened by this new solid state competitor. The GE corporation (which was one of, if not the most prolific tube developers in the world at the time) was well invested in their miniature tube line and wasn't too interested in making the transition to transistor development. So to compete with transistors and give tubes a few more years in the market, the engineers at GE developed the Compactron that could take the place of several tubes with just one bottle. It was the tube equivalent to the integrated circuit. They were mostly designed for use in the color TV market, but some of them did find their way into radios and hifi amps. Ampeg even used a Compactron in some of their preamp circuits. GE made a big push to promote and use these tubes in their products, but eventually transistors did win the technology battle and tubes were altogether replaced in televisions, leaving large stockpiles of unused Compactrons in warehouses. The last Compactrons were made in the early 1990's and are still readily available today as "new old stock" (NOS) items. The Percolator, with its single Compactron tube, gives us a chance to re-purpose a piece of tube history, while offering unique tonality in this modern market.

USING YOUR COMBO

BREAKING IN THE SPEAKER

Your 1x8 Combo features a Jensen C8R speaker. We have found that these Jensen speakers are typically a bit stiff straight from the box. They tend to soften up the more you play through them, and they reach a nice bright, clear tone once they are mostly broken in. It will take a long time to completely break in your speaker because the Percolator is such a low wattage amplifier compared to the capacity of the speaker. It is possible to speed this process along by using a larger amplifier – provided it is less than 25 watts, and capable of accepting an 8 ohm load. Unplug the speaker from the Percolator and plug it into a larger amp. This step may be easier if you remove the speaker from the cabinet (see “REPLACING THE SPEAKER” on page 6). Keep the volume rather low for a while (about 10 minutes) with guitar chords or background noise. Then turn the amp up to about 15-20 watts and play full, fat, bass heavy chords on your guitar, or anything to get the cone really moving and stretching. Focus on the mids and the lows. Percussive playing is also very helpful. After about 15 minutes with this type of signal through your speaker, it will be about 90% broken in. It will slowly continue breaking in over the next few years of playing through it.

CARE AND USE OF YOUR COMBO

To get the most out of your amp and decades of great tone there are several things to keep in mind when using it. Most importantly, never turn it on with out an **8 ohm** speaker load plugged into the output jack! The Percolator was designed specifically to be used with Jensen’s C8R speaker, but you can use any speaker cabinet or combination of speakers you’d like, as long as the sum of the output impedance is 8 ohms. Just unplug the 1/4” jack from the back of the Percolator chassis and plug in your own cabinet. Make sure that you are using a good quality, 1/4” speaker cable – not instrument cable! If you don’t know the difference, go talk to the guy at your local pro sound or guitar shop.

It is also important to be mindful of the line voltage (from the wall outlet) that you are subjecting your amp to. The Percolator was designed to use either 118VAC or 230VAC from the wall outlet, depending on the configuration you bought. If your outlet has less voltage than that across its terminals, then the amp will not be as loud as it should be. On the other hand, electronics in general, and tube amplifiers specifically hate voltage surges. It is true that tube amps are fairly robust electrically, but they also have a step-up transformer that multiplies the voltage from the wall to something much higher, and voltage spikes are multiplied by that ratio too. During these voltage spike situations, it is common for tube amplifiers to experience arcing in the secondary of the power transformer and also in the tubes. The fuse will protect your amp most of the time, but sometimes the transients are much quicker than the reaction time of the fuse. Therefore, it’s a good idea to use some sort of surge protector to protect your amp from these transients.

If your amp has been sitting in a cold environment for a while, then let it warm up to room temperature before turning it on. The heat generated by the filaments inside the tube is enough to crack a cold glass enclosure.

Use common sense with your Percolator. Never touch the tube when it’s on (it gets quite hot). Never get the amp wet. Never use with an ungrounded IEC cable. Do not use with the wrong value of fuse. Heed all warnings. Follow all instructions. Rock out. Have fun.

Note there is a serial number sticker on the chassis. Reference this serial number when and if you ever need to contact us for assistance.

CHANGING THE TONE OF YOUR COMBO

If you are the type of person who likes modifying gear, then you may be interested in experimenting with changing some things about your combo. One of the easiest tone mods you could perform on your cab is to change the speaker. We have chosen this Jensen speaker because of its response and tonal qualities when driven by the Percolator. However, tone is mostly a matter of preference and taste, so there could be an endless number of different 8" speakers that could be used depending on what you like. We encourage you to try them out (see the section called "REPLACING THE SPEAKER"). Find one that works well for the type of music you want to play.

Another mod is to experiment with different port sizes. This cab is mostly open-back, which gives some nice dimensional presence to the sound when playing in a smaller room or if the back of the cab is near a wall. The sound seems to swirl around as our ears are affected by the phase differences, but you could add some more ports to make it more closed-back. This takes away from the natural, swirling sound, but gives a much more punchy, stronger mid-range tonality. This is one of the reasons the classic Marshall (closed back) sound can cut through a mix so well. You can always mix and match port sizes too. You could even bore holes in some of them to "port" the box. Between changing the speaker and playing with the ports, the possibilities are endless! Be creative, experiment and explore!

REPLACING THE TUBE

Tubes are made of several fragile mechanical components closely spaced in a vacuum sealed glass enclosure. There are several factors affecting the tube's longevity, which include how hard the tube is pushed and how often the tube is used. In the case of a tube guitar amplifier, vibration from the speakers, traveling on the road, and setup and tear down all have a negative effect on the longevity of the tube. Any time you hear a change in the amp's performance the tube should be the first thing you check. If your amplifier loses power, fades in and out, loses dynamic or tonal range, or makes unusual sounds or excess noise, you should look into replacing the tube.

To remove the tube, gently rock the tube back and forth while slightly lifting. Put a tube into the socket in just the opposite way. In working with new tubes, first check to make sure all the pins on the tube are straight (sometimes they come from the factory with slightly bent pins). If any pins are bent very gently straighten them with some needle nose pliers until the tube fits into the socket. Be patient and take your time in doing this; you can easily break the glass enclosure if you are not careful!

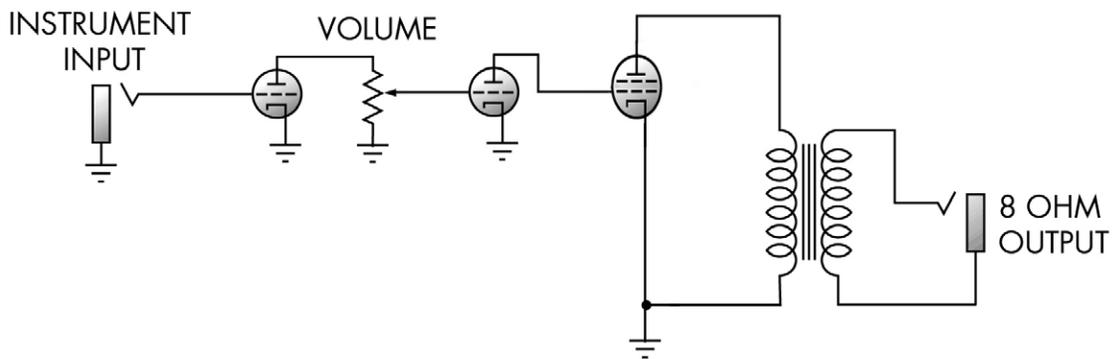
The tube used in the Percolator is what is known as a "new old stock" item, meaning that they are still available new, but are no longer being made. This particular tube was last made in the early 1990's but we maintain ample stock here at the lab. The tube was originally used in tube televisions but there are very few of those still around! This was one of the main reasons we decided to design the Percolator around this tube: they are easy to find, but unusual in instrument amplifiers, creating a unique tone. When the time comes to replace the tube in your amp, we here at Zeppelin Design Labs would be happy to sell you a replacement, but you can also check the standard NOS tube dealers around the web, and even places like Ebay. While you are at it, you might want to pick up a backup tube for the future.

REPLACING THE SPEAKER

Some people like to swap out the speaker in their cabinets from time to time, and for various reasons – usually because they destroyed the original speaker, or they obtained a special or vintage speaker and they are dying to try it out. We recommend you service your speaker from the rear, by removing the top port and loosening the machine screws from the t-nuts in the baffle board.

You could loosen the baffle board from the front, but we recommend rear-service because we do not want you to run the baffle screws in and out of the cleats more than necessary. It is important for this connection to remain structurally sound, since these are the screws that hold in the vibrating baffle board. If you must replace the speaker from the front, and you feel the wood screws are not holding well when you replace the baffle, you can replace the screws with #8x1-1/4 or even #8x1-1/2 screws. If you use longer screws, re-drill the pilot holes with a 3/32 bit, and go all the way through the cleats. If you don't like how a #8 screw looks when seated in the #8 countersink washers, you can use #10 washers.

SYSTEM BLOCK DIAGRAM



TECHNICAL SPECIFICATIONS

Output Power	2W rms, 8ohm load
Input Impedance	~1M ohm
Gain	~32dB
Tube	6AF11
Speaker	Jensen CR8, 8" Ceramic
Faceplate controls:	Volume, On/Off, LED power indicator
Power Requirements	120VAC, 60Hz, or 230VAC, 50Hz
Size (HxWxD)	16-1/2" x 11-1/2" x 5-1/2"
Weight	12.7 lbs
Wood	Solid Poplar
Finish	Dark walnut stain, with satin polyurethane top coat
Edge Detail	3/16" radius round-over
Grill Cloth	Black/Silver/Beige

