

The Soul-o 45™

All tube “Pedal Friendly” guitar amp with tube reverb.

Congratulations

You’ve just purchase what we believe is the best amp on the planet! Welcome to the growing list of artists who share our mutual lust for tone. Now, we’d like to better acquaint you with your new Soul-o 45 amp.

Construction details:

1 - All components are hand soldered. There are no quick disconnects, wire nuts, or dipped connections and over 120 hand soldered connections on the tubes sockets alone.

2 - All transformers are custom designed and made exclusively for Groove Tubes.

3 - GT S45 amps are designed to use your choice of power tubes. Choose from a total of 11 different tubes which are currently available from our GT catalog. Customized your S45 for tone and power from 40 RMS watts to 65 RMS watts, depending on the selected power tube!

4 - We use only double sided, double thick PC boards with double thick traces. We use chassis mount type power tube sockets hand bolted, hand soldered, and hand wired to the PCB. This is the best of both worlds; PCB and point to point construction.

5 - Each amps is handbuilt to order. There are more than 18 hours of hand labor in each Soul-o Series S45 amp!

6 - There is no particle board in any part of our cabinetry, only solid core American plywood.

Of course these features and construction details cost more, but you can really hear the difference!

The Preamp Stage

Most amp designers use a nice Gibson or Fender guitar while developing their design. These of course have magnetic guitar pickups which are by definition high impedance, low level output devices. However, most players use a foot pedal before the preamp, and pedals are low impedance, high output devices. The result is the pedal adds two effects, the one you intended (maybe distortion or chorus), and the second effect “mush” as the pedal overloads the amp’s preamp which was intended to see a guitar pickup. With this common problem in mind, we designed the Soul-o 45 to be the first ever “**Pedal Friendly**” guitar amp,

with a preamp that will not overload when pushed by today’s high output pedals. This means it has “tons” of headroom so the pedal breaths better and remains open and transparent sounding...and improves the punch and tone of any pedal!

The S45 preamp stage has five dual triodes, each performing multiple functions in the circuitry. The preamp design has Gain, Bass, Middle, Treble, and Volume. We did not design this preamp for massive amounts of distortion as you can get distortion and other effects using your favorite foot pedals. The S45 was deigned to be pedal friendly, so the preamp will not “mush out” no matter how hard you play. Our design provides loads of headroom in the preamp stage to get the best possible results with your pedals. However, an increase of the Gain knob and decrease of the Volume knob will produce a fatter, warmer tone while the reverse produces a cleaner, brighter sound. And when the pedals are off, you get an amp that’s clean and loud, yet warm and rich in overtones.

The Passive Tone Controls

The tone controls of the S45 amp are the *Passive* type, similar to those used in older, classic tube amps. Many amps made today instead use *Active* type tone controls, which have a separate gain section for each tone band which literally “suck tone” from the preamp. That’s why we don’t use them. Passive controls use a common tube gain stage to boost the entire frequency range, then divide the Bass, Middle, and Treble with passive filters to shape your tone. Passive tone controls are more musical and interactive.

To get the most out of passive tone controls, start with all controls at the 12 o’clock position. If you want more bass, either: a) crank up the Bass control; or b) lower the Treble control (compensate the volume loss by increasing Gain or Volume). Because passive controls share a common gain stage, turning any one of them fully up (or down!)

diminishes the effect of the others.

Also, our Passive tone controls are “post Gain”, giving you a truly touch sensitive amp that reflects your personality. Strike the string harder, and the gain increases into the tone section, increasing it’s influence. As you play harder and “push” the tone section, the tone will brighten up. By contrast, if you play with a lighter touch, it gets rounder and fatter. Lastly, remember as you play at louder volumes, you will need progressively less Bass level to reduce a mushy bottom end. Experiment with this and have some fun!

The Presence Control

This control is a part of, and interactive with, the power amp stage. Increasing it adds highs into the feedback loop of the power stage and increases the “touch” and “drive” of the amp while also making it brighter. Use more Presence for an acoustically dead room, and less for live rooms. Season to taste!

The Reverb Control

We’ve included perhaps the one effect



Tech specs

Input
1/4 " phone jack
Input Level
-10 dB nominally
FX level
-10 dB nominally

Preamp Section

3 x GT12AX7
1 x 12AT7
1 x 12AU7
used as follows:
V1a - 1/2 12AX7
1st Gain stage
V1b - 1/2 12AX7
2nd Gain stage
V2a - 1/2 12AU7
Reverb recovery stage
V2b - 1/2 12AU7

Tone - Cathode Follower
V3a+b - 12AT7
Reverb Driver Stage
V4a - 1/2 12AX7
Loop send
V4b - 1/2 12AX7
Loop Recovery & Mixer
V5a+b - 12AX7
Phase Inverter or Driver

Power Section

Tube Options - 6L6 types
GT5881
GT6L6A
GT6L6B
GT6L6C
GT6L6CB
GT6L6GE
GT6L6S
GTKT66HP
GTKT66C
be Options - EL34 types
GTEL34C
GTEL34R
GTEL34R2
GTE34Ls
GTKT88C
GTKT88SV
GT6550C
GT6550R

AC requirement
internally selectable
100
117 VAC
230 VAC only

H.T Fuse
1 Amp Slo-Blo

AC Fuse
@ 100 -120VAC
use 3A Slo-Blo
@ 230 VAC
use 1.5A Slo-Blo

Weight
S45 Combo
42 lbs.

S45 Top
32 lbs.

that pedals or rack effects units just can't seem to duplicate at any price...a 3 spring all tube Reverb. Our Reverb is deep and harmonically rich, designed to run in parallel so it doesn't sap highs as you crank it up. If your heart is set on Surf Music, our reverb will oblige....so go for it!

The Power Amp Stage

Your Soul-o 45 can use any of 14 different Pentode tube types currently available from our GT catalog allowing you to customize your amp for you're playing and to dramatically change the power, tone or response. Order you S45 with any tube you like, and rest assured you can always change them later if the mood hits you with just a simple bias adjustment.

Speaker Impedance Selector and Speaker Output Jacks

The GT custom designed output transformers not only work with many types of power tubes, but also have secondary windings for selection between 4, 8, and 16 ohms speaker loads. You have two speaker jacks. Use the #1 speaker jack if using one speaker, the #2 jack is for adding a second speaker. The #1 jack has shorting circuitry which turns the amp off if there is no speaker connected.

The Parallel FX Loop

This is the most tonally transparent FX loop you have ever heard. When properly set, this loop allows you to use any digital or analog FX unit mixed in parallel with your original preamp signal **with no sacrifice of tone**. Most guitar amp loops are Series types, so the FX is between the preamp and power stage and the nice, fat tube preamp signal is converted to a thin, wimpy transistor tone. We call this **"the tone sucking transistor FX loop syndrome"**. Our exclusive design cures it! Our parallel loop has two signal paths; the original dry path and the FX path. These are mixed on the rear panel via the Mix control. **Set your FX unit for 100% Wet and 0% Dry** then use the FX loop Mix control (b/w your in/out on the rear panel)to blend in the desired level of FX. Best results happen with the Mix level set @ 98% Dry signal and 2% of FX signal.

Another neat trick is to insert an ordinary foot volume pedal between the output of the FX and the Return of our loop. You increase or decrease the FX level with the volume pedal without changing the actual volume!

NOTE: When not using your loop, be sure the Mix control is set fully to the "preamp" side. Otherwise it can reduce your amp's volume level. Worse yet, if the Mix is fully to the FX side without an FX unit in use, there will be NO output from the amp at all!

"Power Tube Tone Tips"

- **Warm & bouncy round old USA Tweed type tone**, try any of the 6L6/KT66 tubes. Power output of a S45 ranges from 40 to 55 watts depending on 6L6/KT66 used.
- **British Metal punch/crunch tone**, try any EL34 type. Our favorite is the new high power GT E34Ls. Estimated power output of a S45 ranges from 45 to 60 watts depending on EL34 type used.

Soul-o 45 Combo on a SFX 112 decoder card w/ Backrack attaching SFX E1 encoder and Stereo FX unit

Biasing Your S45 Amp

This is the most critical setting of your amp and should **always be readjusted when changing tube types or performance rating**.

NOTE: Be sure to have your amp biased by a qualified amp service tech each time you change to a different tube type. Do NOT attempt this procedure yourself as you can seriously damage your amp as well as yourself!

The bias control pot is located inside the amp on the PCB but can be accessed without removing the chassis from the wood. Use a small slotted head screwdriver and look for the rubber isolated hole on the underneath side of the chassis just behind the power tubes.

Soul-o Speaker Cabinets

Our cabinets are "tuned" for guitar playing and made fundamentally different than any other commercially available guitar cabinets on the market. We use a lightweight 5/8" baffle board and slant it upward on an angle for better projection. They can be either open back, or closed back at your option. Lastly, we have a baffle board designed to raise the cabinet resonance for guitar which produces a tight, powerful bass without the common mushy "Big E" string syndrome. They come loaded with one of our Classic Clone speakers including: the CC112/A made in America by Eminence; the CC112/B, or the or the CC10/B made by Celestion.

- EX112** - 1 x 12" CCB speaker
- EX212** - 2 x 12" CC speakers
- EX410** - 4 x 10" CCB speakers.
- COMBO** - 1 x 12" CCA speaker



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GROOVE TUBES LLC
"Hear the Difference"

Groove Tubes LLC
Custom Shop Products
1543 Truman Street
San Fernando, California 91340 USA
Tel 818 361 4500
Fax 818 365 9884
www.groovetubes.co