

MESA/BOOGIE

Stereo Simul-Class 295

Operating Manual

Congratulations! You are now the owner of an innovative yet classic kind of power amplifier, designed and built exclusively for the guitarist: the Stereo Simul-Class 295. Like all MESA/Boogie amps, it's an all-tube circuit, because there just isn't a better-sounding way to build a guitar amp. And it features our patented "Simul-Class" circuitry, which combines two separate and different kinds of amplification - "vintage" Class A and "modern" Class AB power - on the same chassis. Using the 295 in conjunction with one of our superb pre amps - the Studio Preamp or the Quad Preamp - and a pair of MESA/Boogie speaker cabs, you've got the makings of state-of-the-art guitar sound, in stereo!

VACUUM TUBE AUDIO. People who don't know about MESA/Boogie are usually surprised when they learn that we make amplifiers using vacuum tubes. They think tubes are an obsolete relic of a primeval electronic age, long ago faded from the earth. And that's largely true - but with two notable exceptions: TV picture tubes, and audio.

Have you ever heard of a tube amp claiming to have "that great transistor sound"? Neither have we! And therein lies a clue that many knowledgeable types - even the latest MOS-FET designers - hold good tube sound as the standard for comparison. That's why we designed the Stereo Simul-Class 295: to provide a dedicated power amp for the guitarist that has all the magnitude - but not the "transistor-ness" - of a high power solid-state amp, and without the price tag of those few fabulously expensive "esoteric" tube amps.

WHAT IS "SIMUL-CLASS"? Simul-Class power is like having two different kinds of power operating simul-taneously on each channel of the amplifier. One power section is wired in "Class A Triode" and uses two EL-34 tubes. "Class A" power is the oldest and purest form of amplification; it's warm and "vocal" tone is the heart of the Simul-Class circuit. The other power section uses two 6L6 tubes, wired in the more modern and efficient "Class AB" configuration; this section provides the bulk of the "muscle" in the amplifier. And by combining these two "classes" of power design, the Simul-Class circuit reaps the rewards of both. The 30 watts of vintage Class A tone combines with 65 watts of efficient Class AB power to produce a total of 95 watts per channel of the warmest, most musical power you've ever heard! Or you can use the "Class A/Simul-Class" switch to turn off the Class AB (6L6) sections, and run the Class A (EL-34) sections by themselves. This allows you to drive the amp harder for greater power amp distortion, but at volume levels you can more easily control.

Now that we've briefed you on the 295 "philosophy", here are some specifics on its operation.

INPUT CONNECTIONS.

Each channel of the 295 has one 1/4" input jack. In addition, a separate 1/4" jack on the rear deck of the chassis (labeled "Parallel Inputs A & B") offers access to both channels simultaneously. It is vital when using this jack that both channels be connected to separate speaker loads, or damage to the output tubes and/or transformer may result. You can listen to each channel individually by using the Standby switches, although a slight distortion may occur when using the Parallel Input jack if one channel is operating and the other is "standing by" (This slight distortion disappears entirely as soon as both channels are switched on). The inputs on the 295 are sensitive enough to permit direct connection of an instrument without using a preamp (at least for test purposes, since good guitar sound generally needs a preamp stage for tone shaping). In practice, this means the 295 can deal with the output level of virtually any kind of preamp or effects unit, simply by adjusting the Level controls provided. When using the MESA/Boogie Quad Preamp, for example, settings of 2 to 5 are recommended for the 295's levels.

OUTPUT CONNECTIONS.

Each channel of the 295 offers two 8-ohm and two 4-ohm outputs (all 1/4" jacks) for connecting speaker cabinets. Unlike transistor amps, the 295 will deliver full power at either 4 or 8 ohms, and mismatching of speaker impedance will not cause damage or severe loss of power (extreme mismatches will decrease tube life, however). Avoid running either channel without a proper load - or damage may result! When using more than one speaker cabinet on a single channel remember that the total impedance goes down as more cabinets are connected. For example, if you use one 8-ohm cabinet, use one of the 8-ohm jacks. If you use two 8-ohm cabinets on the same channel, they will be operating in parallel and the total load will then be 4 ohms. In that case, each cabinet should be plugged into a 4ohm jack.

POWER and STANDBY SWITCHES.

AC Mains power is turned on via the Power Switch, and indicated by the pilot light. Before switching on the power, place the Channel A/Channel B Switches into their "Standby" positions. Allow 20 to 30 seconds of warm-up time before switching the Standbys to "ON". This helps extend tube life by preventing a high voltage turn-on surge, however, all of our amplifiers are tested to withstand this extra stress, just in case this procedure is neglected by the user.

PRESENCE SWITCHES.

Located on the rear panel of the 295, these two switches - one for each channel - add an upper mid-range boost which may be found desirable for "cutting through" in loud situations. Its effect is subtle, however; if a more "radical" boost is needed, it should be dialed in on your preamp.

CLASS A / SIMUL-CLASS SWITCHES.

These two rocker switches on the 295's rear deck (again, one per channel) allow selection of either the "Class A" Mode or the "Simul-Class" Mode. In Class A, the outer or end pairs of power tubes (EL-34's) operate by themselves, while the inner or middle pairs (6L6's) remain in "standby". The EL-34's are wired in a "Class A Triode" circuit for optimal warmth of tone, and at lower output levels (about 30 watts per channel). The Class A mode is ideal for recording, rehearsing, or any situation where you need great tone at low volumes. In the "Simul-Class" Mode, all eight power tubes are operative (with the 6L6's adding about 65 watts of "Class AB" type power per channel) to produce a total of 95 watts per channel. It's this combination of "Class A" warmth and "Class AB" efficiency that makes the Simul-Class 295 ideally suited as an instrument for guitar amplification.

POWER TUBES.

The power tubes used in the 295 are MESA STR-420 type 6L6 GC's, and MESA STR-440 type EL-34's. All MESA tubes are tested under high-voltage conditions and installed in closely matched pairs. The 6L6's we use have very low 3rd harmonic output when overdriven. The four inside sockets on the 295 should be fitted with these 6L6's. The EL-34 tubes are characterized by a more prominent harmonic output when driven hard; this produces a brighter, more "grinding" high-end, usually preferred for guitar. The EL-34's are used in the four outside or end sockets in the 295.

You can expect 6 months to 2 years (or more) of outstanding performance from your MESA power tubes, depending on use. Tube wear is gradual and usually goes unnoticed until new replacements are installed. Worn power tubes tend to sound flat with reduced punch, clarity and high end. Occasional loss of power or sporadic blowing of fuses is nearly always caused by troublesome power tubes. Often, you can spot the tube at fault and replace it alone, at considerable savings over replacing all the output tubes. A tube that arcs or "flashes over" inside should be replaced immediately. (In an emergency, you can just remove the bad tube and go on with the show..."running on five cylinders."). Sometimes a tube will "short out" intermittently, turning red-hot all over the large metal plate inside, but usually a momentary switching off of the Standby or Power Switch will enable the tube to straighten out its electron flow and return to proper operation. Should this happen repeatedly, careful observation will usually reveal which tube is shorting, even though one or two others may also turn red-hot after a few moments. Try to see which one is reddest or turns red first - that is the bad one and the others are most likely unharmed. Internal circuitry is built to withstand tube failure as much as possible; even if damage were to occur, it would be minor and easily repaired.

When replacing tubes, please use only the MESA types specified. Using other tube brands and/or types will invalidate your amplifier's warranty! To remove tubes, you must first push back the black spring retainers clamped against the tube base. When reinstalling power tubes, check that the spring clamps are making good contact with the tube base; bend them in toward the center before plugging in the tube, if necessary. Avoid excessive wiggling of the tubes when removing or installing them, as it can break off the small plastic key which insures correct orientation of the tube in the socket.

BIAS.

As with all MESA/Boogie amplifiers, the bias is permanently set during construction and never needs adjustment. This saves you any technician's fee for readjustment when replacing tubes, and prevents the bias from "wandering" or being accidentally set improperly.

DRIVER TUBES.

The four small tubes are all type 12AX7A, also known as 7025 or ECC83. These tubes are very long-lasting and trouble free in the 295; should they ever need replacement due to a specific malfunction, genuine MESA replacements are recommended for best performance.

The input stage of your 295 uses a special "instrumentation grade" differential amplifier with a proprietary constant-current-source diode. This is a high-tech little solid-state component which enables the phase splitter to work in a simple, self-balancing mode - one of the keys to great performance. Occasionally a certain 12AX7 will not quite match this device and one channel will sound weak as a result. Merely try another tube, or exchange it with the one next to it. Generally though, our experience with the various MESA predecessors of Your 295 indicates that you should enjoy many years of trouble-free service.

Now that you've had this brief explanation of its functions and features, it's probably time to plug up! We think you'll be pleased with the sound of your 295 - so enjoy it and enjoy your music!