

# *MESA/BOOGIE*

MULTI-WATT



*Owner's Manual*

## *Hello from the Home of Tone*

*Discerning player and all around intuitive human that you are, you've put your trust in us to be your amplifier company. This is something we don't take lightly. By choosing this instrument to be a part of your musical voice, you have become much more than a customer to us, you're now a lifetime member of the MESA worldwide family.*

*WELCOME! Our goal is to never let you down.*

*Your reward is that you are now the owner of an amplifier bred of a 40 year heritage in high performance and it benefits from the many pioneering and patented MESA features and circuits contained in your model. Feel confident, as we do, that this amp will inspire many hours of musical satisfaction and years of lasting enjoyment.*

*With you in mind, this amp was designed and built by players who know the value of a fine musical instrument and the commitment it takes to make great music. The same commitment to performance, quality, value and support we make to you...our new family member and friend.*

## Important Safety Instructions

- Read these instructions.
  - Follow all instructions.
  - Keep these instructions.
  - Heed all warnings.
  - Do not use this apparatus near water.
  - Clean only with dry cloth.
  - Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
  - Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
  - Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
  - Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
  - Only use attachments/accessories specified by the manufacturer.
  - Unplug this apparatus during lightning storms or when unused for long periods of time.
  - Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
  - To insure proper ventilation always make sure there is at minimum four inches (101.6mm) of space behind the rear of the apparatus. The ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, tablecloths, curtains, etc. Do not impede ventilation by placing objects on top of the apparatus which extend past the rear edge of its cabinet.
  - No naked flame sources, such as lighted candles, should be placed on the apparatus.
  - The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.
  - **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
  - The AC plug is the mains disconnect. The plug should remain accessible after installation.
  - **WARNING:** EU: permission from the Supply Authority is needed before connection.
  - **WARNING:** Always make sure proper load is connected before operating the amplifier. Failure to do so could pose a shock hazard and may result in damage to the amplifier.
  - Do not expose amplifier to direct sunlight or extremely high temperatures.
  - Always insure the amplifier is properly grounded. Always unplug AC power cord before changing fuse, tubes or removing chassis. Use only same type and rating when replacing fuse.
  - Avoid direct contact with heated tubes. Keep amplifier away from children.
  - To avoid damaging your speakers and other playback equipment, turn off the power of all related equipment before making the connections.
  - Do not use excessive force when handling buttons, switches and controls. Do not use solvents such as benzene or paint thinner to clean the unit.
  - Always connect to an AC power supply that meets the power supply specifications listed on the rear of the unit.
- Export models:** Always insure unit is wired for proper voltage. Make certain grounding conforms with local standards.

**YOUR AMPLIFIER IS LOUD! EXPOSURE TO HIGH SOUND VOLUMES MAY CAUSE PERMANENT HEARING DAMAGE.**

*Your MESA/Boogie Amplifier is a professional instrument. Please treat it with respect and operate it properly.*

**READ AND FOLLOW PROPER USAGE INSTRUCTIONS**

# *Multi-Watt Recto-Verb Twenty-Five*

## TABLE OF CONTENTS

OVERVIEW _____	1-2
----------------	-----

### FRONT PANEL CONTROLS

Getting Started & Helpful Hints _____	3
---------------------------------------	---

#### CHANNEL MODES

Channel 1: Clean / Pushed _____	3-4
Channel 2: Vintage / Modern _____	4
Multi-Watt™ Power _____	4

#### THE CONTROLS

Gain, Treble _____	4-5
Mid, Bass and Presence _____	6-7
Master _____	7
Standby and Power On _____	7

### REAR PANEL CONTROLS, SWITCHES & JACKS

AC Socket _____	8
Fuse _____	8
FX Loop _____	8-9
Ext Reverb _____	9
Reverb _____	9
Speakers _____	9

Factory Sample Settings (2 Channels) _____	10-12
Personal Setting Sheets _____	13-15
Tube Noise & Microphonics _____	16
Diagnosing Pre-Amp Tube Problems _____	17
Tube Description & Task Charts _____	18-19
Speaker Impedance & Possible Hook-Up Schemes - Amplifier to Speaker Cabs _____	20-24
Parts Chart _____	25

# Multi-Watt Recto-Verb Twenty-Five Owner's Guide & Operating Manual

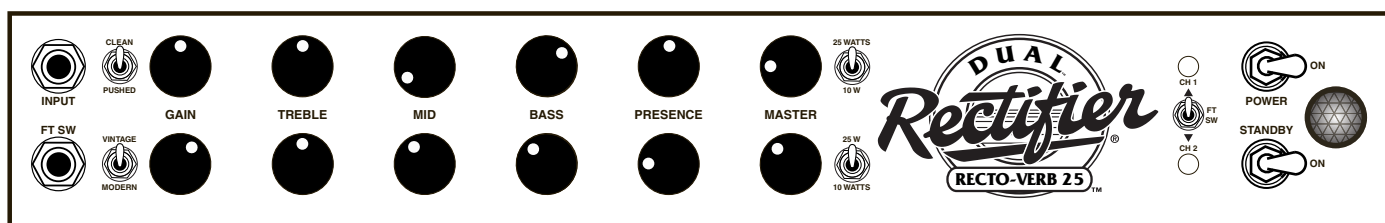
**CONGRATULATIONS** on your choice of the Rectifier™ Recto-Verb™ 25 and **Welcome to the MESA Family**. The instrument you have chosen rides atop a 20-year legacy of world-class high gain performance and hit-making sounds that have been at the core of – and even a catalyst for – some of the very best of Modern Rock. You will quickly find that its small footprint and manageable weight bear no resemblance to its stature, power and command over blistering-tight overdrive in the realm of big gain Tone.

Don't think for a moment this is a trendy down-line toy or marketing-derived imitation of our mighty Recto. This is the real deal... in every way a high-end instrument. Lurking within this unassuming combo lies one of our most expressive and nuance-enhancing circuits to date and it creates an exciting, adrenaline-producing Tone machine... one of the most fun to play in the entire MESA collection.

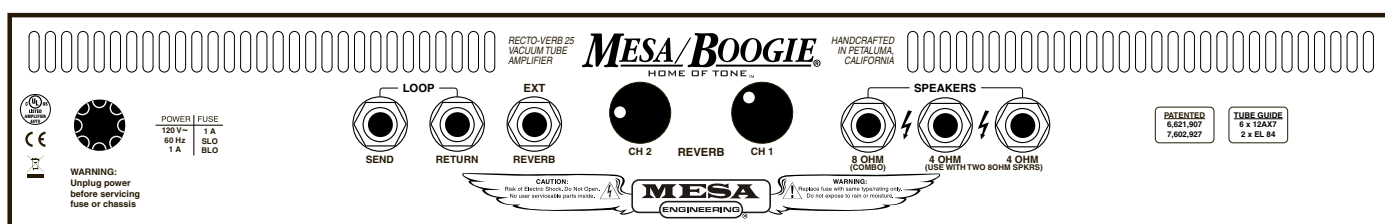
After the worldwide success of the Mini Rectifier Twenty-Five Head, we were frequently asked to pack all that lightweight expressiveness and fire into a Combo format so those needing a self-contained package could enjoy this mighty little-amp too. Never the kind to shy away from a Tone-dare, we picked up the soldering iron once more in the Recto name. The result is an even mightier package that is slightly larger to accommodate a 1x12 speaker and long-spring Reverb tank and boasts the same great performance the Mini Rec is famous for. This new Recto offers lush tube Reverb that widens the sound and sweetens the attack just a bit which increases its versatility and appeal for players that use lower to medium gain in their style. This Combo and classic wood/vinyl Head package rounds out the Rectifier line nicely and provides a slightly less-menacing voice that still has all the bouncy, dynamic Tone and feel this EL-84 based Recto has to offer.

Whether you're rockin' hard or putting the immense versatility of the Recto-Verb's four Modes to task on a variety of styles, you'll get years of inspiration and enjoyment from this little gas-in-glass-powered jewel. We always strive to build classics, icons that you'll treasure amongst your most valuable musical instruments. From the feedback we've received thus far... it seems the Recto-Verb 25 and its little brother the Mini Rectifier Twenty-Five is on its way toward achieving that status.

## FRONT PANEL: RECTO-VERB Twenty-Five Combo



## REAR PANEL: RECTO-VERB Twenty-Five Combo



**Overview** Like its original two channel forefathers, this Recto keeps things straight ahead and easy to navigate. This generation features two footswitchable Channels that each contain two Modes and while it looks basic and drives easy, a world of stylistic versatility lives within these two simple rows of controls.

**CHANNEL 1 (Green Indicator / Top Channel)** focuses on rhythm sounds, both clean and overdriven. The CLEAN Mode delivers sparkling, big-headroom rhythm sounds that breathe with rich, warm air on the bottom end. When driven to clip and combined with the 10 Watt Power setting, this Mode misbehaves with real attitude and shines for urgent, yet soulful, Blues solo sounds and furry Rock rhythm. PUSHED aptly describes what to do with the second Mode in Channel 1 and here you'll find the next region of gain. With a more stripped EQ and just enough added drive, PUSHED invites aggressive Rock rhythm and Crunch styles to the party and even taunts your mid-gain solo work, especially in the 10 Watt Power setting.

**CHANNEL 2 (Red Indicator / Bottom Channel)** features the iconic Recto high gain sounds – the iconic liquid wall of VINTAGE and the aggressive fury of MODERN.

**VINTAGE** excels at thick, high gain chording and single note soloing with an elastic feel and a broad harmonic spread. It has a looser, more organic sound and the overdrive drapes itself around the notes creating a huge, three-dimensional image. VINTAGE solo work is further enhanced by the 10 Watt Power position. Here, the attack envelope changes and becomes rounder and more voice-like, while upper harmonics recede slightly to create single note sounds of true beauty. VINTAGE and 10 Watt compliment each other in ways that will open new doors for the Recto that were previously open only to more “well behaved” or “cultured” amps. It may also open wide the eyes of current big-power Recto owners who experience for the first time, what this power range/wiring style does for a sound they had typecast. This is a new and exciting face of Recto and it will surely expand its stylistic footprint.

**MODERN** is the opposite in every way. This aggressive Mode comes right at you – maybe even for you – with stunning attack and a hi-mid bump that keeps things percussive and tracking with hyper-accuracy. It is almost hard to believe that this amount of gain can be infused and yet still deliver a response – especially in bass frequencies – with this much speed and definition. But this is pure Recto and MODERN contributes an equal part to achieving its status as the other most recorded sound in Rock. Needless to say, MODERN is all about all things Heavy and Metal. And while this sound is best demonstrated using the 25 Watt Power setting, be sure not to typecast MODERN too quickly. Using the 10 Watt Power setting to sweeten the mids and soften the attack here, shows another side to MODERN that's more forgiving and vocal, creating a great alternate solo voice with a little more punch and dynamic content.

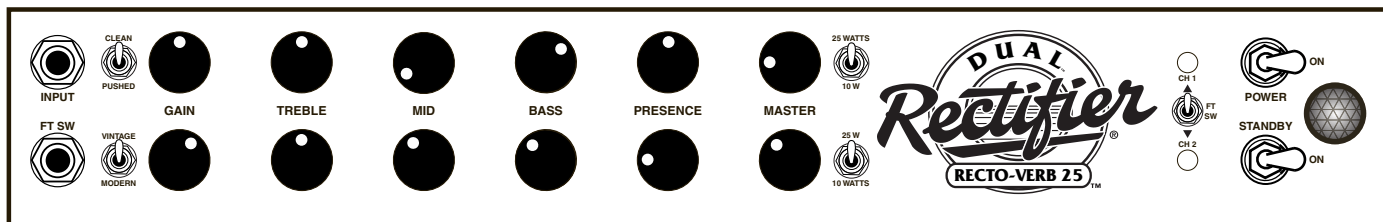
We keep saying it, but it's hard to overstate the value, effectiveness and stylistic “power” of the Multi-Watt™ Channel Assignable Power switches. These dedicated wattage range choices unveil different power characteristics and colors – so they are really power “voicing” switches as well. In this Recto, the choice of T power tubes with their amazing clip characteristics, prompted us to explore the different wiring schemes possible. This experimentation led to the 10 Watt Power Mode being wired for Triode operation. This “more vintage” wiring scheme sweetens and rounds out the sound, turning what might otherwise be a lower volume version of the same voice, into more “soulful” Recto experience. Use the 25 Watt setting for its bold attack, tight tracking low end, increased definition and all out headroom. This setting works great with all the sounds and certainly showcases the mightiness in this little Rectifier, shocking unsuspecting players and bystanders alike with power and sonic size. But any time you need to tame this little beast and put a vintage patina of warmth and silkiness around things... kick down to 10 Watts and enjoy a whole new and different world of Recto expression.

Jumping around to the Rear Panel, you are met with a lesson in elegant simplicity. Nothing here but the essentials... AC Power Socket, Main Fuse, the FX Loop, External Reverb Switch jack, REVERB Controls and the Speaker Outputs. While this stands in stark contrast to many other MESA models, including the Recto-Verb 25's big power Recto brothers, it was a decision based on stylistic, genre-appropriate traditions and not a cost cutting road to a price point. In fact, many fans have requested simpler feature sets from us over the years and this format is the perfect arena for this conceptual downscaling.

The FX Loop on the Recto-Verb 25 is wired in Series. We are pleased by the added juice these tube stages impart on the signal as, after all, it's no easy feat to add a Loop that enhances – rather than robs – Tone.

Well that wraps up the fly-by overview of the Recto-Verb 25. Now it's time to get into the Modes and Controls of this little powerhouse.

## FRONT PANEL : Controls & Features



### HELPFUL HINTS

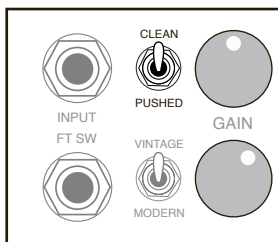
1. When powering up (especially from a cold start), always allow the power tubes time to warm up before hitting them with high voltage (STANDBY ON and playing). Turn POWER to ON, wait at least 30 seconds, then turn STANDBY to ON.
2. The center (3 position) mini toggle just to the left of the STANDBY and POWER labeled FT SW provides manual access to the Channels when the Footswitch is not connected. The top position calls up Channel 1, the bottom position calls up Channel 2. To use the Footswitch to access the Channels, select the FT SW (center position) and connect the Footswitch to the jack on the left bottom of the Faceplate labeled FT SW.
3. A good general rule to follow; As the GAIN goes up, the BASS should come down. This will help prevent low-end flub and tubbiness and keep the attack tracking tighter. This is especially true in the CLEAN and PUSHED Modes of Channel 1 and also the VINTAGE Mode of Channel 2 when searching for clipped sounds that lie somewhere between clean and dirty and maxed GAIN settings.
4. You will experience more footswitching noise (pop) when switching between Channels when only one is set to the 10 Watt Power setting. This is due to the more radical voltage changes that occur when knocking the power section down to the 10 Watt level from the higher 25 Watt power mode. (Using both Channels in 10 Watt will reduce excess noise as the voltage doesn't change radically between Channels set to the same Power setting). May we suggest when configuring your Channels for live performance footswitching applications, try using the 25 Watt power mode whenever possible as there will be no voltage swing. This will provide the quietest footswitching performance.
5. When reaching over the top of the Combo from the front, the REVERB Controls are in the center of the Rear Panel.

## CHANNEL MODES

Each of the Recto's two channels contain a choice of modes – two in Channel 1 and two in Channel 2, so that each channel may be configured for an array of sounds. These Mode Select mini toggles radically alter the voicing of the Channel and many internal changes occur as you switch through the Modes. How you choose to use these different modes is up to you, but we think you will agree that this scheme provides some of the most versatile footswitching available anywhere.

### CHANNEL 1: CLEAN / PUSHED

**CLEAN:** This is the lowest gain circuit of the Recto-Verb 25's four modes and is optimized for producing balanced pristine clean sounds. For the best understanding of how to achieve a great sound in this mode, please refer to the GAIN Control section of this manual. However, a great place to start is 12:00 or so on the GAIN Control with more sparkle available below this and more warmth apparent above. From there, adjust according to your guitar's individual response.



Because of its more traditional architecture this mode also works extremely well for vintage style drive sounds. As mentioned earlier in the Overview, these sounds are enhanced by coupling them with the 10 Watt Power selection where you can combine vintage preamp response with authentic power overdrive. By turning the gain all the way up, a beautiful vintage solo sound is possible, especially with neck pick-ups. The TREBLE and MIDDLE Controls can also add gain and sustain to this sound (reduce Presence to blend highs), but you will probably want to run the BASS Control below 10:30 to avoid flubby-ness and preserve a focused attack.

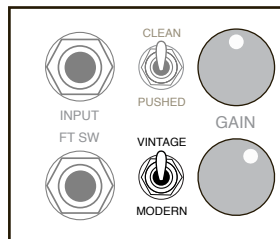


**PUSHED:** This mode is a radical departure from the sweet, shimmering blend of the CLEAN modes low gain character. Huge increases in gain in the first stages of the pre-amp produce one of the biggest differences between all four modes and transforms what you thought to be a tame and gentle clean channel into a raging crunch machine. This incredible amount of gain (for a low gain circuit) also creates one of the most expressive solo modes in your Recto. Because there are fewer stages of gain for the signal to travel through and the Tone control network is tuned for the brighter nature of clean sounds, this mode responds more quickly to your pick attack and has a more urgent, snappy feel. Don't overlook this mode for some of the Recto-Verb 25's coolest overdrive solo sounds.

**NOTE:** When using *PUSHED* with the *GAIN* Control maxed (5:00), avoid setting the *TREBLE* Control higher than (2:30). Settings above (2:30) may generate microphonic oscillation in certain preamp tubes in the V1 position. This can be avoided altogether by setting the *TREBLE* Control sensibly when the *GAIN* Control is maxed. Use the *PRESENCE* Control for additional brightness.

## CHANNEL 2: VINTAGE / MODERN

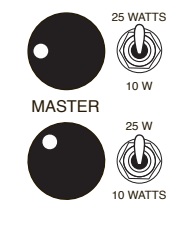
**VINTAGE:** This high gain mode is the famous liquid Recto voice. Its lush harmonic content and fat creamy feel is featured in so many recordings and is now a staple for so many headed to the studio for an album project. Combining this super juicy, expressive preamp with the Recto's black magic power section creates colors in gain that most players find truly addictive. Single note solo work is effortless as the strings become easy to play with the VINTAGE mode's musical and natural tube compression. Spend time learning the lower regions of the VINTAGE mode as this is a place where many beautiful sounds live.



**MODERN:** Aggressive. This is the word that best describes the menacing power of this Recto's most rebellious of all modes. A take-no-prisoners crushing assault of top-end cut and lightning fast response creates a sound of unparalleled aggression that has set a new standard for hardcore sounds. The added tightness of the low-end response combined with the radically more present top-end keeps the MODERN mode tracking accurately even at extreme gain settings.

## MULTI-WATT™ POWER

Each Channel contains our patented MULTI-WATT™ power switch that allows you to choose either 25 Watts of Pentode wired power or 10 Watts of Triode power enabling you to match the power output and feel to each of your footswitchable preamp sounds. The 10 Watt position (switch down) rewires the output tubes to Triode-style wiring for a vintage-voiced and oh-so-clipable 10 Watts of power. This produces a smoother, rounder voice that clips with a warmer attack characteristic and a creamier feel.



The 25 Watt setting (switch up) brings on line our patented Dyna-Watt™ Pentode based wiring for the full power and headroom. This setting is preferred for pristine clean sounds and tight-tracking high gain sounds as it delivers a burst of power and headroom far beyond the expectation of its rated power. This ingenious and unique MESA circuit stores up voltage in the power section and releases it at the instant of attack – when you need it – then sags down to a more “normal” voltage at a time-specific rate. All this translates into a bouncy, dynamic sound and an amazing, precise, yet elastic feel on the strings. Pure tube magic! This circuit has been appreciated by players around the world for decades and has furthered the original Boogie “little amp that could” legend since its introduction in the now-classic Studio 22 back in 1983.

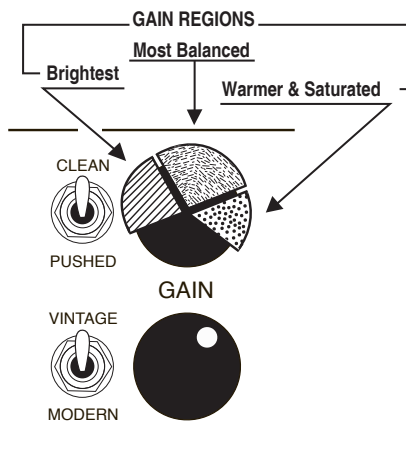
## THE CONTROLS

### GAIN

This control adjusts the predominant gain stage in each channel's circuit with the function and taper being optimized for each individual channel. Remember that your Recto-Verb 25 is really two separate multi-mode amplifiers built onto one chassis, so though each channel looks identical, the GAIN Control for each channel comes on in a different place and adjusts a different point in that channel's circuit.

In most guitar amplifiers, and especially in all-tube circuits, the GAIN Control is the most powerful control in the preamp. It shapes the overall style and character of the sound and is responsible for whether the sound is clean, overdriven or anywhere in between. In your Recto-Verb 25, the GAIN Control is even more powerful. It not only determines the amount of drive, but also acts as an integral part of the tone control string as well.





To simplify the GAIN Control's role in shaping the overall tone of the sound we will look at it in two ways: 1) alone and 2) in conjunction with the tone controls.

1) *GAIN has three tonal regions:* LOW (7:00 - 11:00) provides the cleanest, least saturated sounds and in this region the sound will be brighter and contain more upper harmonics lending a three-dimensional character to the sound.

MIDDLE (11:00 - 2:00) enhances the saturation and replaces some of the upper harmonics with a richer, warmer quality and a fuller bottom-end response. Not yet fully saturated, this region is the easiest place to get a great sound in both channels. This region contains many of the Recto's best sounds – especially for soloing – due to the crucial blend of an expressive attack combined with ample sustain.

HIGH (2:00 - 5:00) saturates the signal and enhances low and low-mid frequencies. While this region provides the maximum saturation and sustain, it also compresses and softens the attack characteristics. For this reason we suggest using this higher region of the GAIN Control sparingly and only when maximum sustain is needed.

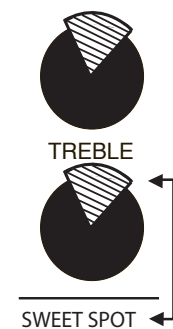
**NOTE:** Due to the Recto's extreme gain potential, the highest regions of the GAIN Control may possibly push the pre-amp tubes past what they can handle, producing microphonic squealing. While we screen and test the tubes your amplifier was shipped with and the tubes in your amp passed our rigorous test, we can't predict how the tubes will respond over time exposed to extreme gain settings. Your tubes are warranted for a period of 6 months under normal use, but you can save yourself the present and future inconvenience of having to deal with annoying microphonic tube problems by simply using a little common sense...Don't turn the Gain all the way up!

If you must for a specific part, or at very low volumes, back down the TREBLE and PRESENCE Controls. Your Recto-Verb 25 was designed to provide amazing gain and tone at less than extreme settings, removing the need for you to crank everything all the way up. If you are not able to achieve the sound you want at sensible settings on any or all of the controls, your problem may lie elsewhere in the signal chain, i.e. pick-ups, cabinetry, processing, etc. Keep in mind, you can always call on one of our Product Specialists, Monday through Thursday, and seek some advice should you find yourself struggling to get the sound you want.

2) *GAIN in conjunction with the Tone Controls:* Basically, a simple rule applies...as the Gain is increased the Tone control string has less and less effect on the signal until at 5:00, the signal is so saturated that you are getting mostly Gain and very little Tone. Again, this is the reason we suggest using the GAIN Control in its middle region. Here, the Tone control string is very active and provides maximum shaping power, allowing you to dial virtually any sound you desire.

## TREBLE

As in most tube guitar amplifiers, the TREBLE Control (in both channels of your Recto) is the most powerful of the Tone controls and is next in line only to the GAIN Control as a shaping tool. Because it is first in the signal path of the Tone controls (and from here the MIDDLE and BASS receive their signal) it is by far the dominant Tone control. Like most of the controls on your Recto, there is an optimum region of the TREBLE Control where ample top end is mixed in and yet enough signal is still passed on to the MIDDLE and BASS Controls.

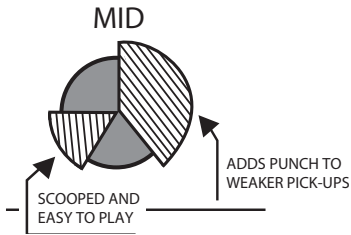


As you might surmise, 11:00 - 1:30 is the sweet spot. There are definitely great sounds above and below this middle region, but the balance between the TREBLE Control and the other two Tone controls is compromised.

The one place you may want to throw caution to the wind and set the TREBLE Control above this median zone presents itself in Channel 1 of your new Recto-Verb 25. In both modes (CLEAN & PUSHED), the TREBLE Control can be used to dump extra gain into the mix. This is especially effective in the PUSHED mode for crunch sounds. When doing so use the PRESENCE Control to roll off some of the more than ample top-end for a more compressed feel and fatter voice. The BASS Control's effectiveness will be reduced, so you may have to run a much higher setting than you are used to seeing to achieve a balance. That said, keep in mind that the TREBLE Control in Channel 1 PUSHED should not be set too much above 3:00 to avoid unwanted microphonic tube problems.

## MID

The MID Control is responsible for the blend of midrange frequencies in the mix and though its effect is not as dramatic as that of the TREBLE Control, it plays an integral part in achieving any sound in your Recto. It is capable of changing the feel dramatically as it blends in a group of frequencies that tend to soften or stiffen the way a sound feels to play.



Most players tend to lean in the direction of lower MIDDLE Control settings (7:00 - 11:00) where a scoop in this region produces girth by letting the Bass become a little more dominant. Less punch lends a more compressed, even feel to the strings and therefore, a less apparent resistance to the pick. As the MIDDLE Control is increased, (11:00 - 1:30) the sound is rounded-out and filled-in with a focused midrange attack appearing rather quickly. As you

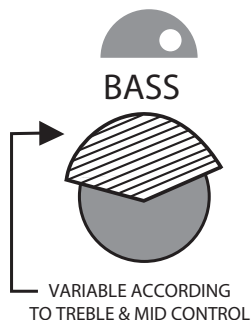
would guess, the feel starts to change – becoming slightly more resistant. Above this region the MIDDLE Control could be used to compensate for either weaker pick-ups or for times when a specific deficiency is created either by an extremely high setting of other tone controls, or a physical anomaly in the room. While these MIDDLE Control settings (2:00 - 5:00) can introduce added gain and create enhanced focus, the trade-off may be a stiffer, more forward, less compressed feel.

Channel 1 utilizes a different MIDDLE Control than that of Channel 2 with a custom-designed taper and value. In its low range (below 12:00) it functions as a normal midrange control with a taper suited to blending fine increments of these frequencies. Most players lean toward a fairly radical scoop (7:00 - 10:30) for clean playing, preferring to let Treble and Bass remain dominant, thus producing the signature sparkle and breath essential for a pristine clean sound.

As Channel 1's MIDDLE Control is swept past 12:00, it starts to add gain in these midrange frequencies, adding cut and punch. As the top end of the control is reached, (3:00 - 5:00) it becomes an additional gain control capable of taking both CLEAN and PUSHED modes to extremes. Experiment with this cranked region in conjunction with conservative settings of the other tone controls to balance both sound and feel. While this added flexibility may make Channel 1's MIDDLE Control a little more tricky to learn at first, it will become quite valuable as you start to realize the power of this super-versatile channel.

## BASS

Last, but not least in the string of Tone controls, we come to the BASS. This control works similarly in both channels in that it determines the amount of low frequencies present in a sound. However, the actual frequencies and style of lows it mixes in changes with the channels. Like the MIDDLE Control, it falls in line signal-wise after the TREBLE Control and the same scheme applies. When the TREBLE Control is set high, the effectiveness of the BASS and MIDDLE Controls is reduced. If the TREBLE Control is set low, these two controls become dominant.



For the most balanced sound and a balance of power between the three rotary Tone controls, try to use the TREBLE Control in its middle ranges. This scenario produces nearly equal representation of all the frequencies on the Tone controls and provides a great neutral starting point for further tweaking.

While the Recto-Verb 25's EL-84 power section is not capable of delivering the massive amount of bass frequencies that the big Rectos do with their 6L6 power tubes, it is still worth mentioning to use the BASS control with finesse. Too high a BASS setting can cause a bloated, flubby attack and create a sound that is unbalanced and even downright bad. A good rule to use as a guideline is this: as the GAIN is increased, the BASS should be decreased. The higher GAIN settings add fullness and warmth - and bass - allowing you to get away with lower BASS settings. Another thing that high settings of the BASS does is to eat up headroom. Low frequencies take more power to deliver at a given volume than high frequencies due to their longer wave length. Your amp will clip sooner if there is a large amount of bass it has to amplify. This is most noticeable in Channel 1 in the CLEAN Mode when looking for clean rhythm sounds. The highest headroom is attained for clean chording by keeping the GAIN and BASS not far above 12:00 - somewhere between 11:00 and 12:30. This will ensure that you are not "loading up" the front end with too much GAIN or low-end. Any clipping you experience will most likely come from the tubes reaching their limit of power.

## PRESENCE

This Control handles high frequency attenuation that is above that of the TREBLE control and its location in the circuit moves depending on the Channel and Mode you have called up. In some Modes it's a roll-off control at the end of the preamp, in others it controls the amount of Negative Feedback at a given frequency in the power section. It acts indepen-



## PRESENCE

ently of the other rotary tone controls and is crucial in voicing the Modes. It is a powerful global tone control. Lower PRESENCE Control settings darken and, in fact compress the signal, which works well to fatten single note solo sounds, giving them girth and focus. Some of the best lead sounds in your Recto will find the PRESENCE Control in its lower regions where a balanced, vocal response is achieved.

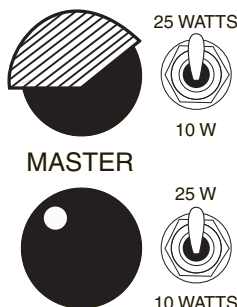
One example of this would be when dialing up Bluesy solo sounds in the CLEAN Mode. Here, it is helpful to add gain early in the preamp with the GAIN and TREBLE set higher than normal (5:00 & 2:00) and then roll back the PRESENCE (9:00 – 10:00) to get the sound to warm up again. This scheme can be repeated throughout all the modes and also in reverse where the PRESENCE is higher and the TREBLE is reduced. That said, many of the best sounds are achieved with both TREBLE and PRESENCE straying above 12:00 only occasionally, as they both pack powerful frequencies that can be dangerous at the top of their range.

Higher settings unleash the mighty roar of your Recto-Verb 25 and produce brighter, more pointed sounds that will cut through a mix. This can be great for sparkling clean sounds in Channel 1 and more aggressive crunch rhythm sounds in PUSHED, VINTAGE and MODERN.

## MASTER

This control is the feed from the end of the pre-amp to the driver stage and the FX Loop. As you can see, each Channel is fitted with its own MASTER Control, enabling the two channel's relative volumes to be matched regardless of their extremely different sound styles, settings and gain signatures. The MASTER Control makes possible a wide range of sounds through its ability to use very low GAIN settings at high volumes and conversely, high GAIN settings at low volumes and everywhere in between.

- MOST SENSIBLE RANGE
- EASIEST TO BALANCE CHANNELS
- REASONABLE FX LOOP SIGNAL LEVELS



Again, we suggest using the MASTER Control in its sensible ranges (9:00 - 2:00). Here, the channels will be easier to match with each other and the FX Loop will see more reasonable signal levels.

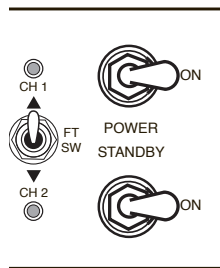
**NOTE:** Because the MASTER Control determines the send level of the FX Loop, extreme settings may cause possible overloading of FX processor's or pedal's Input stage, but also may make balancing the two channels' FX Send level difficult.

## STANDBY

Perfect for set breaks, this toggle switch also serves an even more important purpose. From cold-start, the STANDBY position allows you to warm up the tubes – especially power tubes – before applying the high voltage by switching the STANDBY to the ON position. Before POWER is switched to ON, make sure the STANDBY switch is in the STANDBY position. Wait at least 30 seconds and then flip the STANDBY switch to the ON position. This prevents the shock of high voltage hitting cold tubes and reduces the likelihood of tube problems and increases their toneful life substantially.

## POWER ON

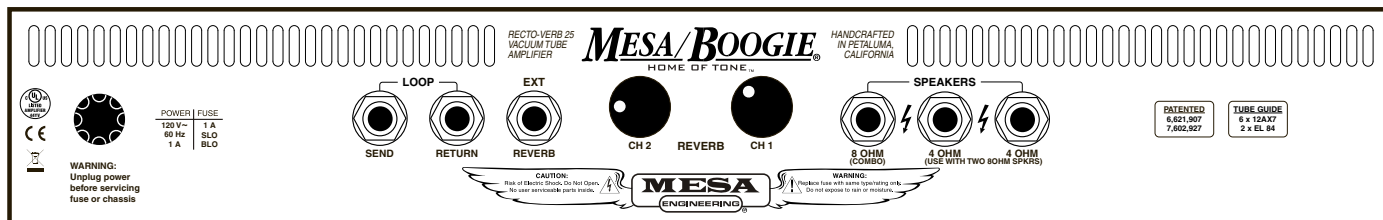
This switch delivers the A.C. power to the Recto-Verb 25. Make sure the unit is grounded (all three terminals of the A.C. power cord must be connected to avoid injury to the user as well as to the unit) and that the proper voltage is present.



Always follow the cold-start procedure described in the STANDBY section above when powering up your amplifier. This will reduce the likelihood of tube problems and increase their musical life.

That covers the Channels, Modes and Controls found on the Front Panel of your Recto-Verb 25. Now let's swing around to the Rear Panel and take a look at the FX Loop and Speaker Outputs.

## REAR PANEL : Controls & Features



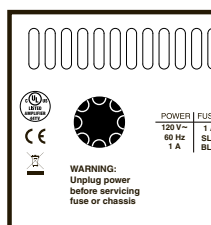
### AC SOCKET (Quick Disconnect Style)

*Far Left On Underside Of Chassis* This is the A.C. MAINS Power Cord Socket.

The standardized removable power cable supplied with your amp can only be plugged in one way. Always connect the male end to a grounded wall socket with the proper voltage present (117 Volts on U.S.A. Models). To Avoid The Risk Of Shock, Never Alter The Power Cable in any way. Altering the Power Cable will void your warranty and put you at risk while leaving your amplifier open to the possibility of damage.

### MAIN FUSE

This is the A.C. (Alternating Current) main fuse and provides amplifier circuit protection from power and/or rectifier tube failure as well as from A.C. voltage fluctuations. ALWAYS replace a blown fuse with one of the specific rating and type as (conveniently) printed on the back of your amplifier right next to the fuse holder. NEVER INSTALL A FUSE OF A HIGHER RATING than the value printed on the back of your amplifier. Doing so will very likely produce damage well beyond the original reason your fuse blew in the first place.



A power tube short or failure is often the cause of a blown fuse. Position yourself behind the amplifier and follow the cold-start procedure mentioned in the STANDBY switch section of this manual. Watch the power tubes as you flip the STANDBY to the ON position (and KEEP YOUR HAND ON THE STANDBY switch). If a power tube is going bad or is arcing you will often see it as you power up! Flip the STANDBY switch to STANDBY immediately if you see any signs of a “runaway” tube(s) and replace the faulty power tube(s) and the fuse as necessary.

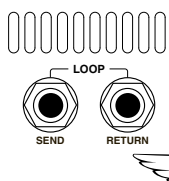
If you see nothing abnormal as you move the STANDBY switch to ON, it is possible that a power tube shorted ‘temporarily’ and caused the blown Fuse. Occasionally, whether from just luck or from cooling down, a short in a power tube ‘reconnects’ itself temporarily and can operate normally again, but this tube should be considered faulty and replaced as soon as possible to ensure uninterrupted performance. If you can identify a tube that is arcing or shorting by the method mentioned above and the tubes have minimal use, consider replacing the obviously faulty or failed tube and leaving the others in place.

If you haven’t changed tubes for a while after heavier use, this failure may be telling you it’s time to change all your power tubes. Save any working but used tubes as your new spares.

Spare fuses (of the proper type and rating) are a must for the fabled cord bag along with spare tubes. Always have both on hand – at the gig or at home – since tubes decide when it’s time to stop working – not your gig schedule. Spare tubes and fuses can be worth their weight in gold should you ever experience a tube failure.

### FX LOOP

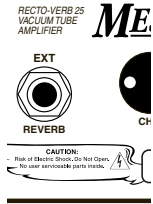
Your Recto-Verb 25 benefits from 40 years of high-performance amp design, and the FX Loop featured here is a result of that experience and expertise.



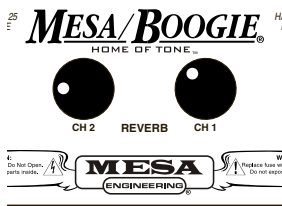
The FX Loop is wired in Series with the dry signal and as long as you are using processors of good quality, you should experience seamless interfacing with no tonal degradation. That said, anything you insert in this extremely sensitive junction of an amplifier (between preamp and power section) may have the potential to slightly alter the sound. Also, every company that builds processors has its own way of doing things and there are controls and features that empower, and some that make things more complicated while adding questionable sonic benefit. We suggest taking your amp and trying it with the processor you are auditioning to make sure you will have great performance when they are coupled.

While most pedal-type effects will work in the Loop, it is always best to connect overdrive, distortion, boost, compression and wah or envelope filter effects between the instrument and the INPUT of the amplifier. These effects are designed to alter the sound of the instrument before it is amplified, and you will get better results not using the Loop for these applications.

**EXT REVERB** This ¼” jack allows control of the REVERB (on/off) remotely from a single tip-to-ground on/off footswitch. The logic used in this jack is standard “tip-to-ground” latching (not momentary) logic that is common among most manufacturers that make control Footswitches. Use non-shielded (speaker) cable as shielded cable is not required for this function. You can obtain both tip-to-ground on/off footswitches and non-shielded cables from your local Mesa Dealer or from us directly.

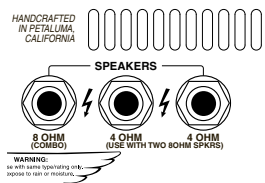


**REVERB (Channel Specific)** These two knobs provide individual adjustment of the REVERB for each Channel. Dial in the desired amount of the gorgeous tube REVERB for each channel with its corresponding Control.



**NOTE:** Extremely high settings of the REVERB can cause howling or oscillations when combined with very high GAIN and/or MASTER settings. Avoid using your amplifier with maximum settings of GAIN, MASTER and REVERB at the same time whenever possible.

**SPEAKERS** One 8 Ohm and two 4 Ohm jacks are provided for speaker interfacing. MESA/Boogie cabinets are built wired to 8 Ohms unless custom ordered or modified by an outside party (i.e. a previously owned cabinet). One 8 Ohm cabinet should be connected to the 8 Ohm output. When using two 8 Ohm (MESA) cabinets, connect each cabinet to a 4 Ohm output. This scheme provides a proper impedance match when using two 8 Ohm speaker cabinets.




















If you are using non-MESA cabinets with your Recto-Verb 25, it is very important to know your cabinet's impedance and make sure you are connecting speakers correctly and safely to the amp. Failure to connect speakers correctly can cause expensive damage to tubes, transformers and the amp in general. ALWAYS make sure to connect your cabinet correctly to your amp. Check out the information later in this manual regarding speaker impedance and speaker hook-up schemes. No matter how unusual your speaker setup, it is generally possible to get good performance.



# FACTORY SAMPLE SETTINGS


















## Sample Settings #1:

**TITLE: Sweet Clean (CH1) / Soulful Solo (CH2)**

 INPUT FT SW	 CLEAN PUSHED							 25 WATTS 10 W
	 VINTAGE MODERN							 25 W 10 WATTS


















## Sample Settings #2

**TITLE: Fat Clean (CH1) / Classic Rock (CH2)**

 INPUT FT SW	 CLEAN PUSHED							 25 WATTS 10 W
	 VINTAGE MODERN							 25 W 10 WATTS


















## Sample Settings #3

**TITLE: Edge Clean (CH1) / Fat Crunch (CH2)**

 INPUT FT SW	 CLEAN PUSHED							 25 WATTS 10 W
	 VINTAGE MODERN							 25 W 10 WATTS

## Sample Settings #4

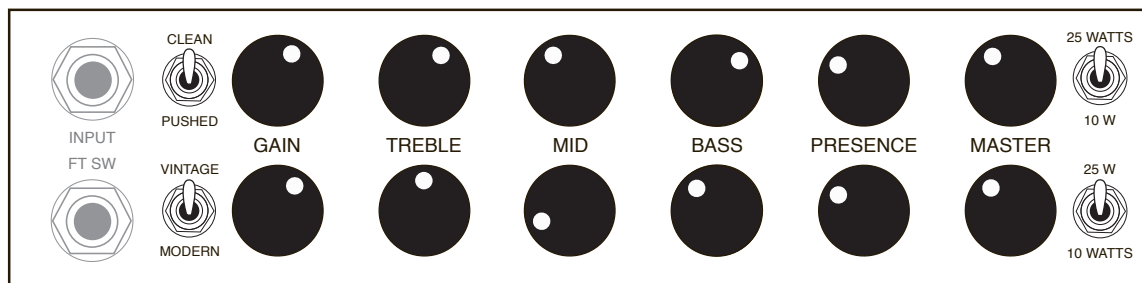
**TITLE: Old School Cranked (CH1) / Stinging Blues (CH2)**

 INPUT FT SW	 CLEAN PUSHED							 25 WATTS 10 W
	 VINTAGE MODERN							 25 W 10 WATTS

# FACTORY SAMPLE SETTINGS

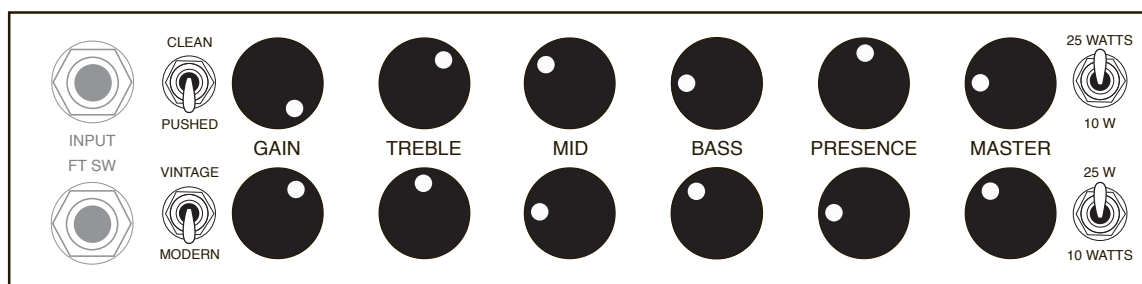
## Sample Settings #5:

**TITLE: Rock Clean (CH1) / Liquid Gain Solo (CH2)**



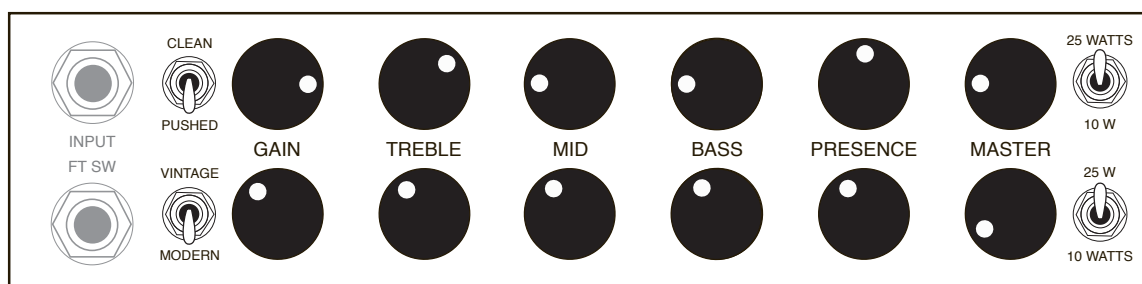
## Sample Settings #6

**TITLE: Tight Crunch (CH1) / Blistering Lead (CH2)**



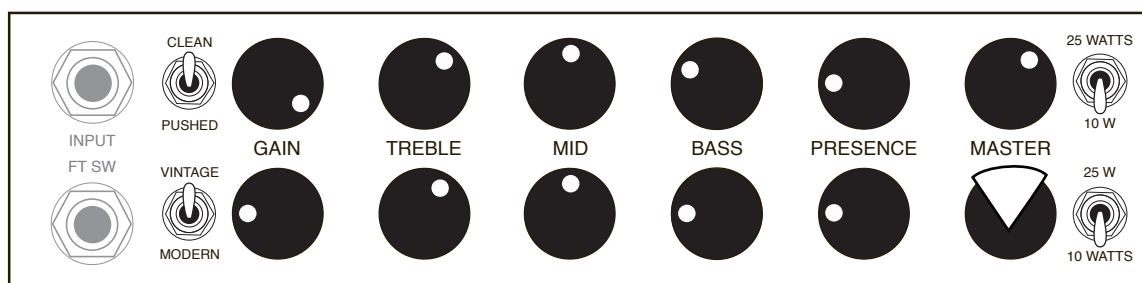
## Sample Settings #7

**TITLE: Punk Rhythm (CH1) / Fast Bright Lead (CH2)**



## Sample Settings #8

**TITLE: Little Amp Cranked (CH1) / (CH2)**

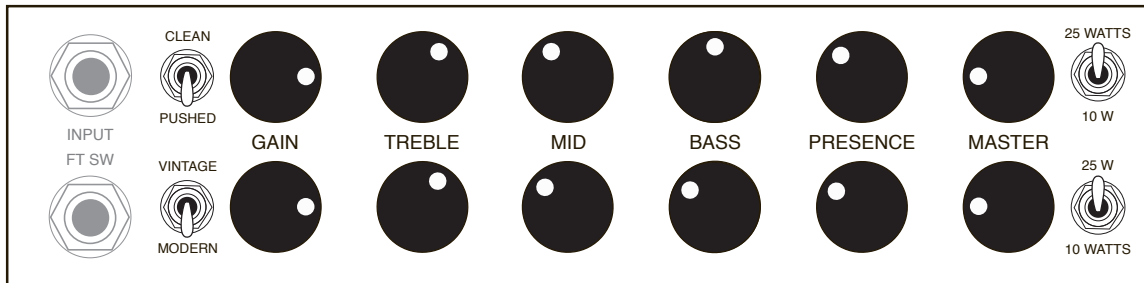




# FACTORY SAMPLE SETTINGS

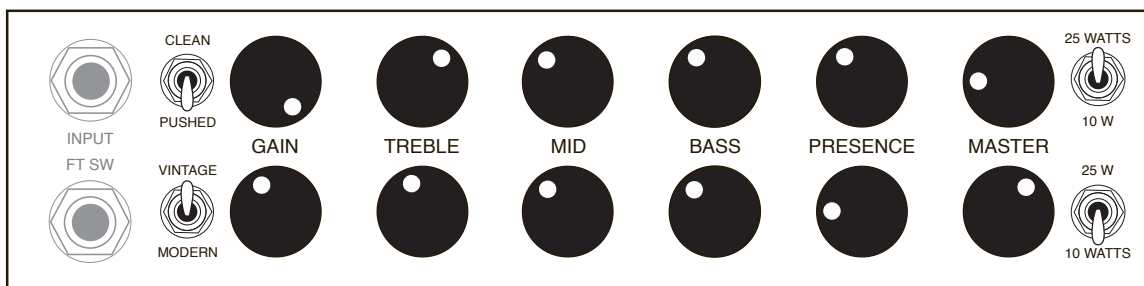
## Sample Settings #9:

**TITLE: Rock Rhythm (CH1) / Ridiculous Gain Lead (CH2)**

























## Sample Settings #10:

**TITLE: Tight Gain Rhythm (CH1) / Lo Power Lead (CH2)**

























# PERSONAL SAMPLE SETTINGS























TITLE:

 INPUT FT SW	 CLEAN	 GAIN	 TREBLE	 MID	 BASS	 PRESENCE	 MASTER	 25 WATTS
	 PUSHED							 10 W
 INPUT FT SW	 VINTAGE	 GAIN	 TREBLE	 MID	 BASS	 PRESENCE	 MASTER	 25 W
	 MODERN							 10 WATTS























TITLE:

 INPUT FT SW	 CLEAN	 GAIN	 TREBLE	 MID	 BASS	 PRESENCE	 MASTER	 25 WATTS
	 PUSHED							 10 W
 INPUT FT SW	 VINTAGE	 GAIN	 TREBLE	 MID	 BASS	 PRESENCE	 MASTER	 25 W
	 MODERN							 10 WATTS

TITLE:














 INPUT FT SW	 CLEAN	 GAIN	 TREBLE	 MID	 BASS	 PRESENCE	 MASTER	 25 WATTS
	 PUSHED							 10 W
 INPUT FT SW	 VINTAGE	 GAIN	 TREBLE	 MID	 BASS	 PRESENCE	 MASTER	 25 W
	 MODERN							 10 WATTS

TITLE:














 INPUT FT SW	 CLEAN	 GAIN	 TREBLE	 MID	 BASS	 PRESENCE	 MASTER	 25 WATTS
	 PUSHED							 10 W
 INPUT FT SW	 VINTAGE	 GAIN	 TREBLE	 MID	 BASS	 PRESENCE	 MASTER	 25 W
	 MODERN							 10 WATTS

# PERSONAL SAMPLE SETTINGS














TITLE: \_\_\_\_\_

	CLEAN							25 WATTS
INPUT	PUSHED							10 W
FT SW	VINTAGE							25 W
	MODERN							10 WATTS














TITLE: \_\_\_\_\_

	CLEAN							25 WATTS
INPUT	PUSHED							10 W
FT SW	VINTAGE							25 W
	MODERN							10 WATTS

TITLE: \_\_\_\_\_














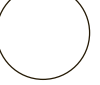
	CLEAN							25 WATTS
INPUT	PUSHED							10 W
FT SW	VINTAGE							25 W
	MODERN							10 WATTS

TITLE: \_\_\_\_\_














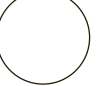
	CLEAN							25 WATTS
INPUT	PUSHED							10 W
FT SW	VINTAGE							25 W
	MODERN							10 WATTS

# PERSONAL SAMPLE SETTINGS














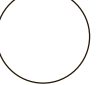
TITLE: \_\_\_\_\_

	CLEAN PUSHED							25 WATTS 10 W
INPUT FT SW		GAIN	TREBLE	MID	BASS	PRESENCE	MASTER	
	VINTAGE MODERN							25 W 10 WATTS















TITLE: \_\_\_\_\_

	CLEAN PUSHED							25 WATTS 10 W
INPUT FT SW		GAIN	TREBLE	MID	BASS	PRESENCE	MASTER	
	VINTAGE MODERN							25 W 10 WATTS

TITLE: \_\_\_\_\_

	CLEAN PUSHED							25 WATTS 10 W
INPUT FT SW		GAIN	TREBLE	MID	BASS	PRESENCE	MASTER	
	VINTAGE MODERN							25 W 10 WATTS

TITLE: \_\_\_\_\_

	CLEAN PUSHED							25 WATTS 10 W
INPUT FT SW		GAIN	TREBLE	MID	BASS	PRESENCE	MASTER	
	VINTAGE MODERN							25 W 10 WATTS

## **TUBE NOISE & MICROPHONICS**

You may occasionally experience some form of tube noise or microphonics. Certainly no cause for alarm, this quirky behavior comes with the territory and the Tone. Much like changing a light bulb, you don't need a technician to cure these types of minor user serviceable annoyances and in fact, you'll be amazed at how easy it is to cure tube problems...by simply swapping out a pre-amp or power tube!

First may we suggest that you set the amplifier up on something so that you can get to the tubes comfortably without having to bend down. It also helps to have adequate lighting as you will need to see the tube sockets clearly to swap tubes. Use caution and common sense when touching the tubes after the amplifier has been on as they may be extremely hot! If they are hot and you don't want to wait for them to cool off, try grasping them with a rag and also note that the glass down around the bulbous silvery tip is considerably less hot which makes it easier to handle. Gently rock the tube back and forth as you pull it away from its socket.

## **DIAGNOSING POWER TUBE FAILURE**

There are two main types of tube faults: shorts and noise. Both large and small tubes may fall prey to either of these problems but diagnosis and remedy is usually simple.

If a fuse blows, the problem is most likely a shorted power tube and shorts can either be mild or severe. In a mildly shorted tube the electron flow has overcome the control grid and excess current flows to the plate. You will usually hear the amp become distorted and begin to hum slightly. If this occurs, quickly look at the power tubes as you switch the amp to STANDBY and try to identify one as glowing red hot. It is likely that two of a pair will be glowing since the "shorted" tube will pull down the bias for its adjacent mates, but one tube may be glowing hotter — and that one is the culprit. The other two are often fine — unless they've been glowing bright red for several minutes.

Because there is no physical short inside the tube (just electrons rioting out of control) merely switching to STANDBY for a few moments then back to ON will usually cure the problem...at least temporarily. Watch the tubes carefully now. Should the problem recur, the intermittent tube will visibly start to over heat before the others and thus it can be identified. It should be replaced with one from the same color batch, shown on its label. Call us and we will send one out to you.

The severe short is not nearly so benign. In the worst cases, a major arcing short occurs between the plate and the cathode with visible lightning inside the glass and a major noise through the speaker. If this is seen to happen, IMMEDIATELY turn the amp to STANDBY. By this time the fuse probably will have blown. Such a short is usually caused by a physical breakdown inside the tube including contaminate coming loose or physical contact (or near contact) between the elements. Replace it and the fuse with the proper slo-blo type and power up the amp using the power up procedure as we described earlier in this manual.

## **TUBE NOISE**

Often caused by contamination within in a tube, the culprit can usually be identified, and by lightly tapping on the glass, you will probably hear the noise change. Hearing some noise through the speakers while tapping on the 12AX7's is normal however. And the one nearer the INPUT will always sound louder because its output is being further amplified by the second 12AX7.

The power tubes should be all but quiet when they are tapped. If crackling or hissing changes with the tapping, you have probably found the problem. To confirm a noisy power tube, merely put the Recto on Standby, remove it from its socket and turn it back on. It will cause no damage to run the Recto briefly with one power tube missing. You may notice a slight background hum, however, as the push-pull becomes unbalanced. Whenever you are trying to diagnose a suspect tube, keep your other hand on the POWER and STANDBY switches ready to shut them off instantly in the unlikely case you provoke a major short.

If you think you've located a problem tube but aren't sure, we recommend substituting the suspect with a new one just to be sure of your diagnoses. You will be doing yourself and us a big favor by just following the simple guidelines previously mentioned regarding tube replacement. You'll probably be successful with much less effort than is required to disconnect everything and haul the unit to a technician who will basically perform the same simple tests. If the tubes are still within their six-month warranty period, we will happily send you a replacement. Just note the color designation on the tube label so that we can send you the appropriate match.

## DIAGNOSING PRE-AMP TUBE PROBLEMS

Because your amplifier is an all tube design, it is quite possible that you will at some point experience minor pre-amp tube noise. Rest assured - this is no cause for alarm and you can take care of the problem yourself in a matter of minutes by simply swapping tubes.

Let us begin by saying; It is a "very good" idea to keep at least a couple of spare pre-amp tubes on hand at all times to insure uninterrupted performance. These minor pre-amp tube problems can take many forms but can generally be described in two categories: Noise and Microphonics. Noise can be in the form of crackling, sputtering, white noise/hiss and/or hum. Microphonic problems usually appear in the form of a ringing or high pitched squealing that gets worse as the gain or volume is increased thus are more noticeable in the higher gain "HI" modes. Microphonic problems are easily identified because the problem is still present even with the instruments' volume off or unplugged altogether - unlike pick-up feedback which ceases as the instrument is turned down. Microphonic noise is caused by mechanical vibration and shock: think of banging a microphone around and you'll understand where the word came from.

The best way to approach a pre-amp tube problem is to see if it occurs only in one specific mode or channel. This should lead you to the tube needing replacement. Then all that remains is to swap the suspect tube for a known good performer. If you cannot narrow down the trouble to a specific mode or channel, the problem may be the small tube that drives the power tubes which is operational in all modes and channels. Though rare, a problem with the driver tube would show up in all aspects of performance - so if you can't narrow the problem down to being mode or channel specific, you may want to try replacing the driver tube. Driver problems generally show themselves in the form of crackling or hum in all modes of performance and/or weak overall output from the amplifier. Occasionally an anemic driver tube will cause the amplifier to sound flat and lifeless, but this is somewhat uncommon, as worn power tubes are a more likely suspect for this type of problem.

Sometimes making the diagnosis is more trouble than it's worth and it's faster and easier to merely replace the small pre-amp tubes ONE AT A TIME with a replacement known to be good. But MAKE SURE you keep returning the tubes to their original socket until you hit the one that cures the problem. You'll notice that tubes located nearer to the INPUT jack always sound noisier...but this is because they are at the start of the chain and their noise gets amplified over and over by the tubes that follow. The tube that goes into this "input socket" (usually labeled V1) needs to be the least noisy of the bunch. The tube that goes at the end of the preamp chain - just ahead of the power tubes - can be quite noisy without causing any problem at all. The tubes in your amp have already been located in the most appropriate sockets and this is why you should NEVER pull them all out at once and ALWAYS swap them one at a time. ALWAYS return a perfectly good tube to its original socket. Also it's a good idea to put the amp on STANDBY when swapping tubes to reduce the heat build up in the tubes themselves and to prevent explosive noises (which can still occur even if you are pulling the tubes away from their sockets gently) from coming through the speaker.

Remember, take your time, be patient and chances are real good that you can fix your amp yourself by finding and replacing the bad tube. It kills us to see someone who has shipped their amp back to us...and all it needed was a simple tube replacement! If you must send back your amp, remove the chassis from the cabinet by unscrewing the four mounting bolts on the bottom top. The chassis then slides back like a drawer and comes out from the back. Remove the big power tubes and mark them according to their location from left to right 1, 2 etc. They need to be wrapped separately with plenty of wadded up newspaper around them and put in a smaller box within the larger carton. Remove the Rectifier tubes and wrap them also. You can leave the preamp tubes in or remove them and wrap them separately being sure to label their location. (See Tube Task Chart.)

To wrap the chassis, use plenty of tightly wadded up newspaper so there is at least six inches of "crush space" between the chassis and the cardboard box. Bubble wrap also works well, but please DON'T use styrene peanuts - they will shift during transit and get lodged inside your electronics as well as allowing your amp to end up at the bottom of the box unprotected and possibly damaged.

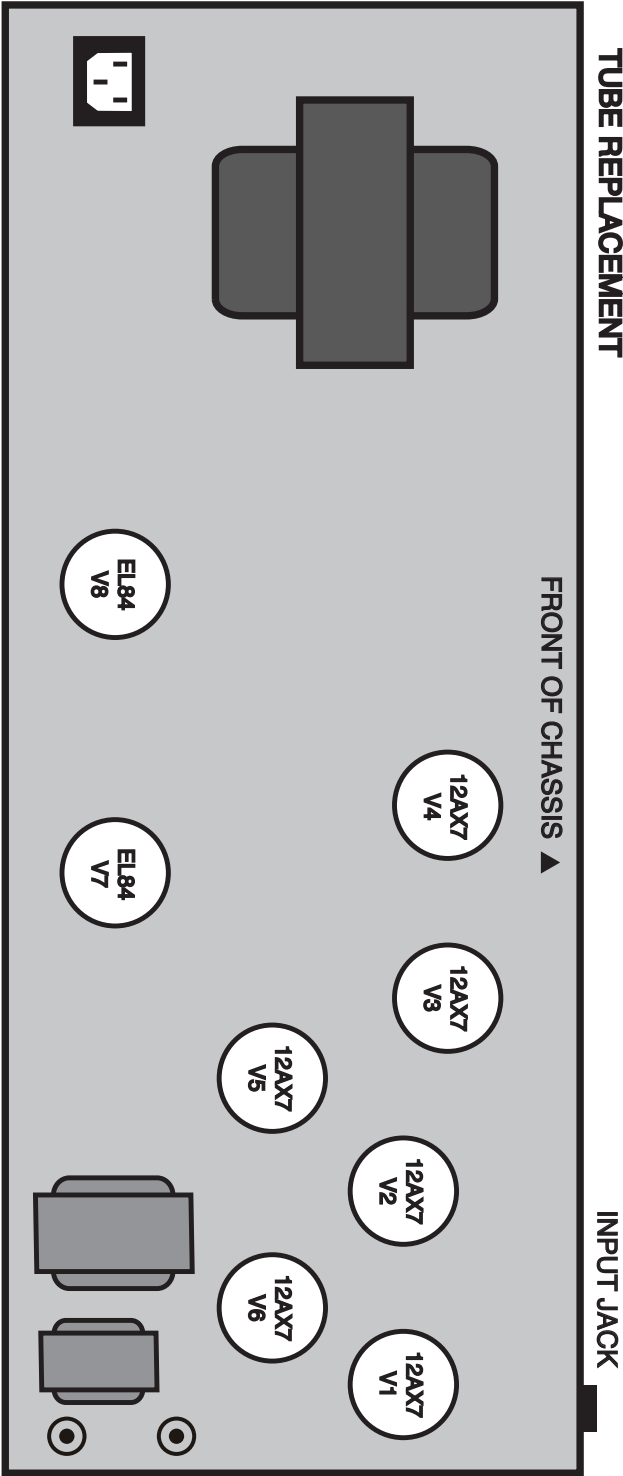
Pre-amp tubes don't normally wear out as a rule. Therefore, it is not a good idea to change them just for the sake of changing them. If there isn't a problem - don't fix it. If there is no result from your substitutions, it may be possible that you have more than one problematic tube. Though rare, this does happen and though it makes the troubleshooting process a little more intimidating, it is still possible to cure the problem yourself.

NOTE: It is normal to hear a slight metallic ringing sound when tapping on the preamp tubes. As long as the tube does not break into oscillation or start crackling or any other form of bizarre noise, it is considered normal and functional.

BEFORE CHANGING TUBES FLIP POWER & STANDBY SWITCH TO OFF

# Recto-Verb 25 COMBO

TUBE REPLACEMENT



PREAMP TUBES		POWER TUBES	
V1A - Input Stage CH1 & CH2	V4A&B - Driver / Phase Inverter	25 Watts = V7, V8 Pentode	
V1B - 3rd Gain Stage CH1		10 Watts = V7, V8 Triode	
V2A - 2nd Gain Stage CH1 & CH2	V5A - FX Loop Return		
V2B - 3rd Gain Stage CH2	V5B - FX Loop Send		
V3A&B - Tone Control Driver CH2	V6A - Reverb Return		
	V6B - Reverb Drive		

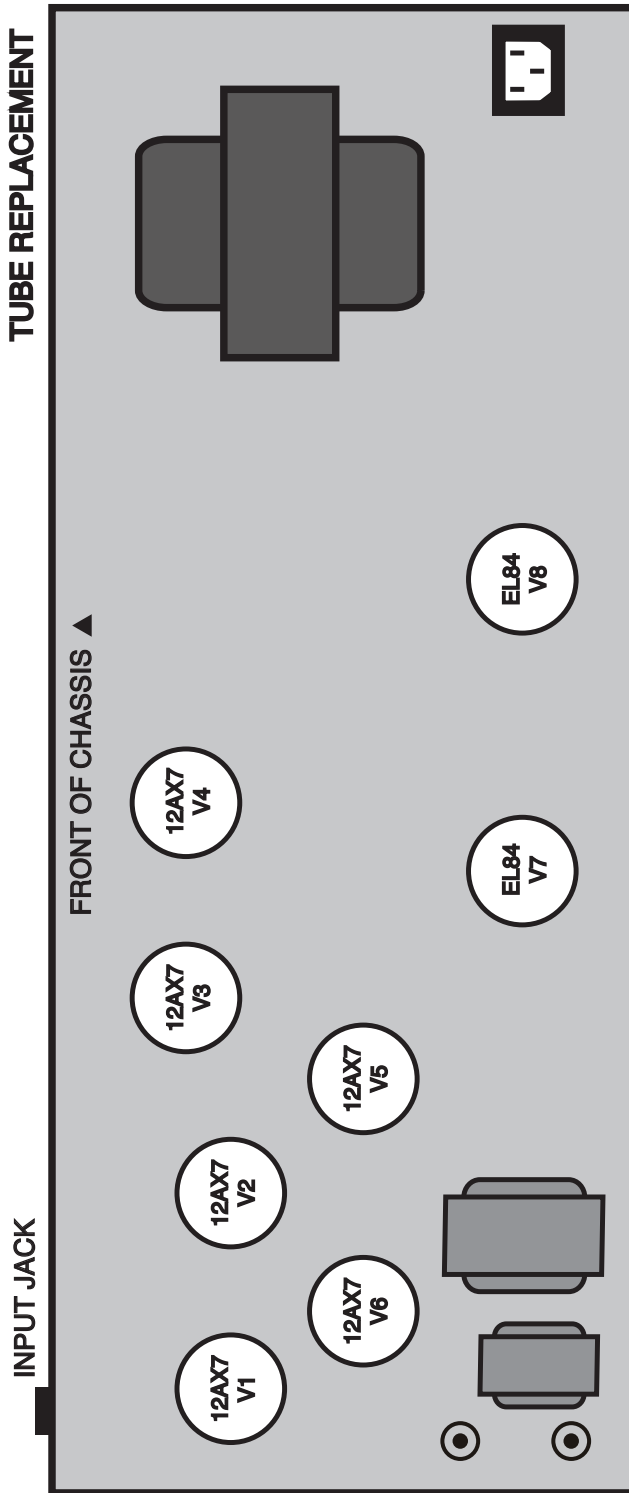
TO MAINTAIN WARRANTY, USE MESABOOGIE TUBES WHEN REPLACEMENT IS NECESSARY  
FOR CUSTOMER SUPPORT, PLEASE CALL 707-778-6565 MONDAY-THURSDAY 9-5 PST, OR EMAIL US AT [INFO@MESABOOGIE.COM](mailto:INFO@MESABOOGIE.COM)



BEFORE CHANGING TUBES FLIP POWER & STANDBY SWITCH TO OFF

# Recto-Verb 25 HEAD

TUBE REPLACEMENT



PREAMP TUBES	
V1A - Input Stage CH1 & CH2	V4A&B - Driver / Phase Inverter
V1B - 3rd Gain Stage CH1	V5A - FX Loop Return
V2A - 2nd Gain Stage CH1 & CH2	V5B - FX Loop Send
V2B - 3rd Gain Stage CH2	V6A - Reverb Return
V3A&B - Tone Control Driver CH2	V6B - Reverb Drive

POWER TUBES	
25 Watts =	V7, V8 Pentode
10 Watts =	V7, V8 Triode

TO MAINTAIN WARRANTY, USE MESA/BOOGIE TUBES WHEN REPLACEMENT IS NECESSARY  
FOR CUSTOMER SUPPORT, PLEASE CALL 707-778-6565 MONDAY-THURSDAY 9-5 PST, OR EMAIL US AT [INFO@MESABOOGIE.COM](mailto:INFO@MESABOOGIE.COM)

## SPEAKER IMPEDANCE MATCHING & HOOK-UP GUIDE:

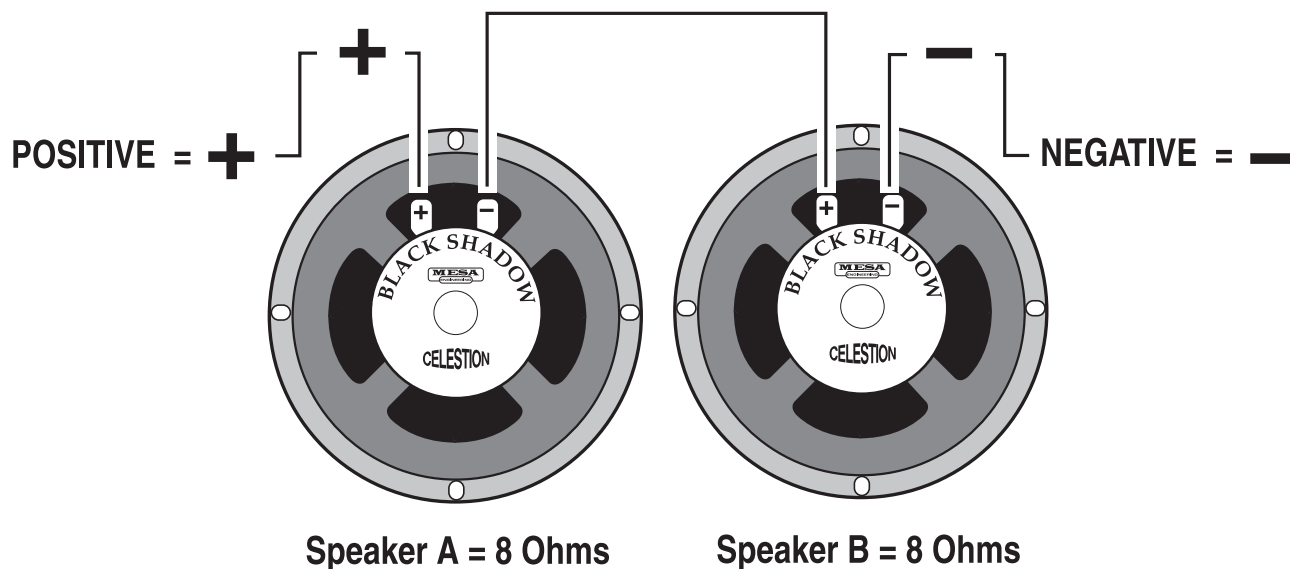
**IMPEDANCE** Wiring up speakers to provide the most effective load and making sure that all of them are in phase will help in creating the best sound possible. This is not too difficult, as long as you understand a few things about loading and how to connect your speakers to provide an optimal resistive load.

MESA/Boogie amplifiers can handle 4 and 8 ohms effectively. Never run below 4 ohms in a tube amplifier unless you are absolutely certain that the system can handle it properly; this can cause damage to the Output transformer. A few amplifiers can handle 2 ohms effectively without damaging them (for example the MESA's Bass 400+). You can always have a higher resistance (16 ohms, for example) without damaging results, but too low of a resistance will likely cause problems.

**MIS-MATCHING:** When running a higher resistance (for example: 8 ohm output into 16 ohm cabinet), a slightly different feel and response will be eminent. A slight mismatch can provide a darker smoother tone with a little less output and attack. This response is a result of the amplifier running a bit cooler. Sometimes when using more than one cabinet a mismatch will be the only option.

**WHAT IS MY CABINET'S IMPEDANCE?** If you have only a single speaker, you just match that single speakers impedance to the amplifier, and you are done. In many cases, you will have a number of speakers, and then you must calculate the "load" that the amplifier will need to support. There are generally three ways to wire multiple speakers together. They are as follows:

**SERIES:** When you wire (hook-up) speakers in Series, the speakers resistance (as measured in ohms) is additive - i.e. putting two 8 ohm speakers in Series results in a 16 ohm load.

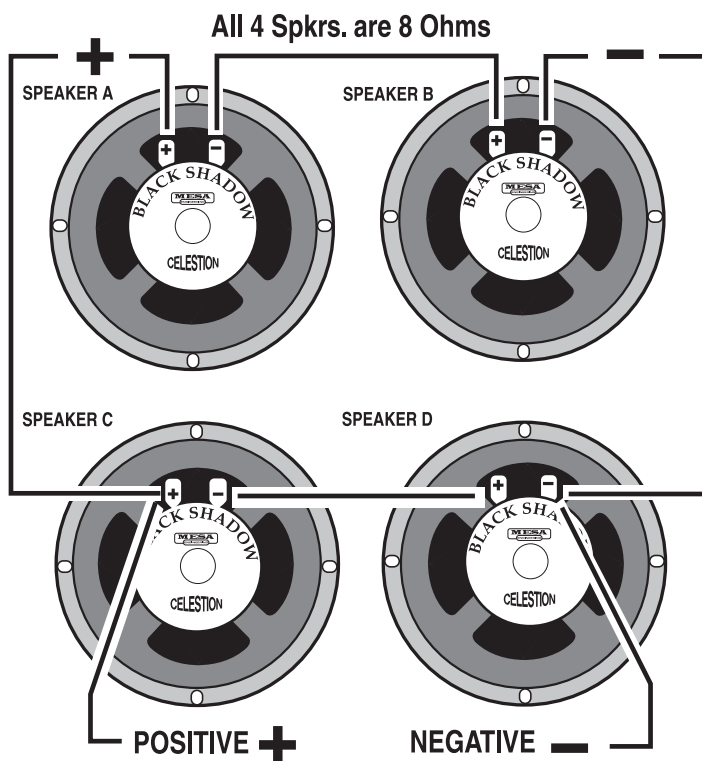
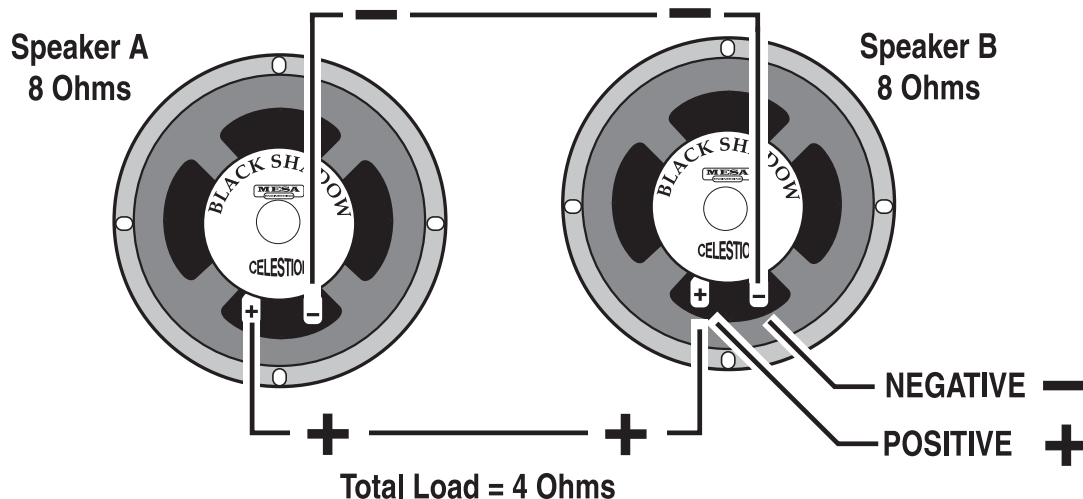


**SERIES:** Connect the Negative side of Speaker A  
to the Positive side of Speaker B

## SPEAKER IMPEDANCE MATCHING & HOOK-UP GUIDE: (Continued)

### PARALLEL:

When wiring in parallel, the resistance of the speakers decreases. Two 8 ohm speakers wired in (hooked-up) Parallel results in a 4 ohm load. It's easy to calculate the effect of a resistive load when all the speakers are all the same resistance. It is really not suggested to wire different resistive load values in Parallel (8 and 4, 16 and 8 etc.) The formula for figuring the total impedance in Parallel is the multiplication of the two loads divided by the sum of the two loads - i.e. putting two 8 ohm speakers in Parallel results in a 4 ohm load. Connect the Positive side of Speaker A to the Positive side of Speaker B - Connect the Negative side of Speaker A to the Negative side of Speaker B.



### COMBINATION OF SERIES & PARALLEL:

This is really just two sets of Series wired speakers connected in Parallel. This is how you maintain a consistent load with multiple speakers. The importance of this is more evident when you have more than one cabinet to connect to your amplifier. This is when you need to figure out the loads and how to wire them up without applying too low of a resistance on the amplifier.

Simply connect the Positive side of Speaker A to the Positive side of Speaker C.

Connect the Negative side of Speaker A to the Positive side of Speaker B. Next, connect the Negative side of Speaker C to the Positive side of Speaker D.

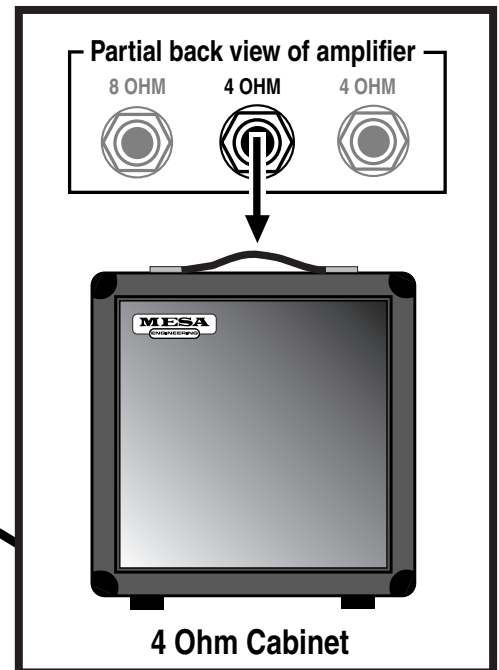
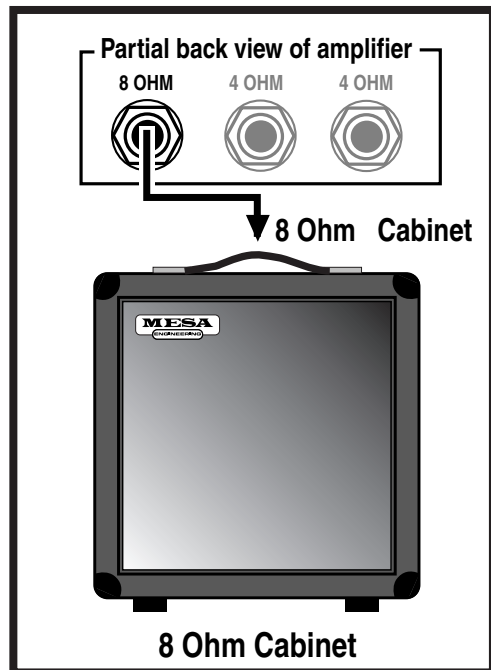
And lastly, connect the Negative side of Speaker B to the Negative side of Speaker D.

4 Eight ( 8 ) Ohm speakers wired in Series Parallel = a Total Load of 8 Ohms.

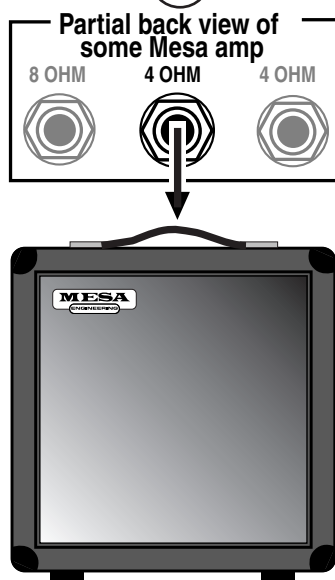
1

## WIRING SCHEMES...Amplifier to Speaker Cabinets

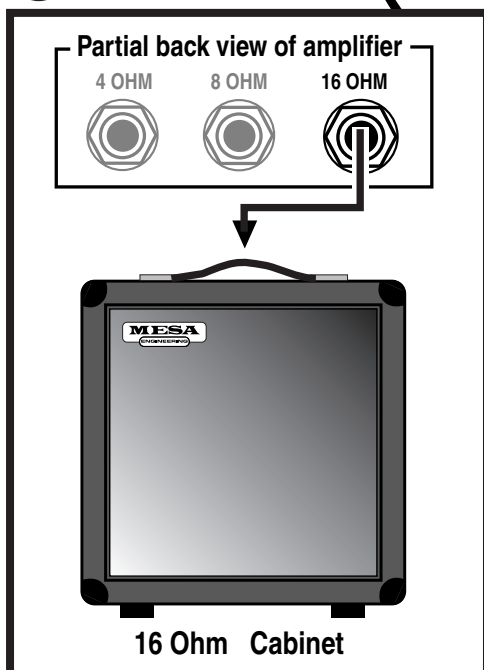
2



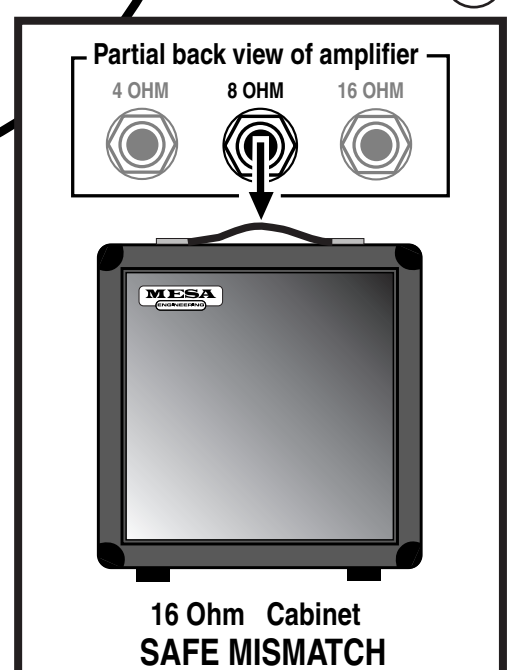
3



4



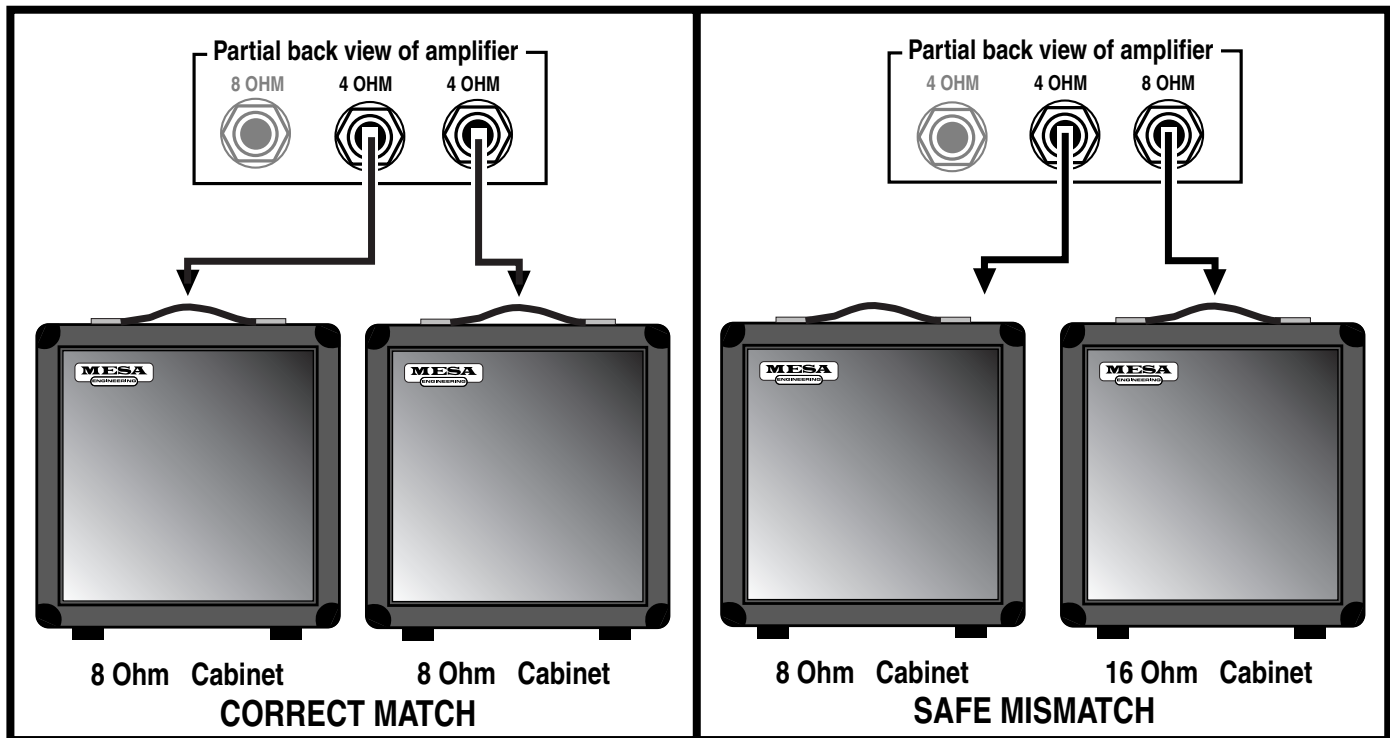
5



6

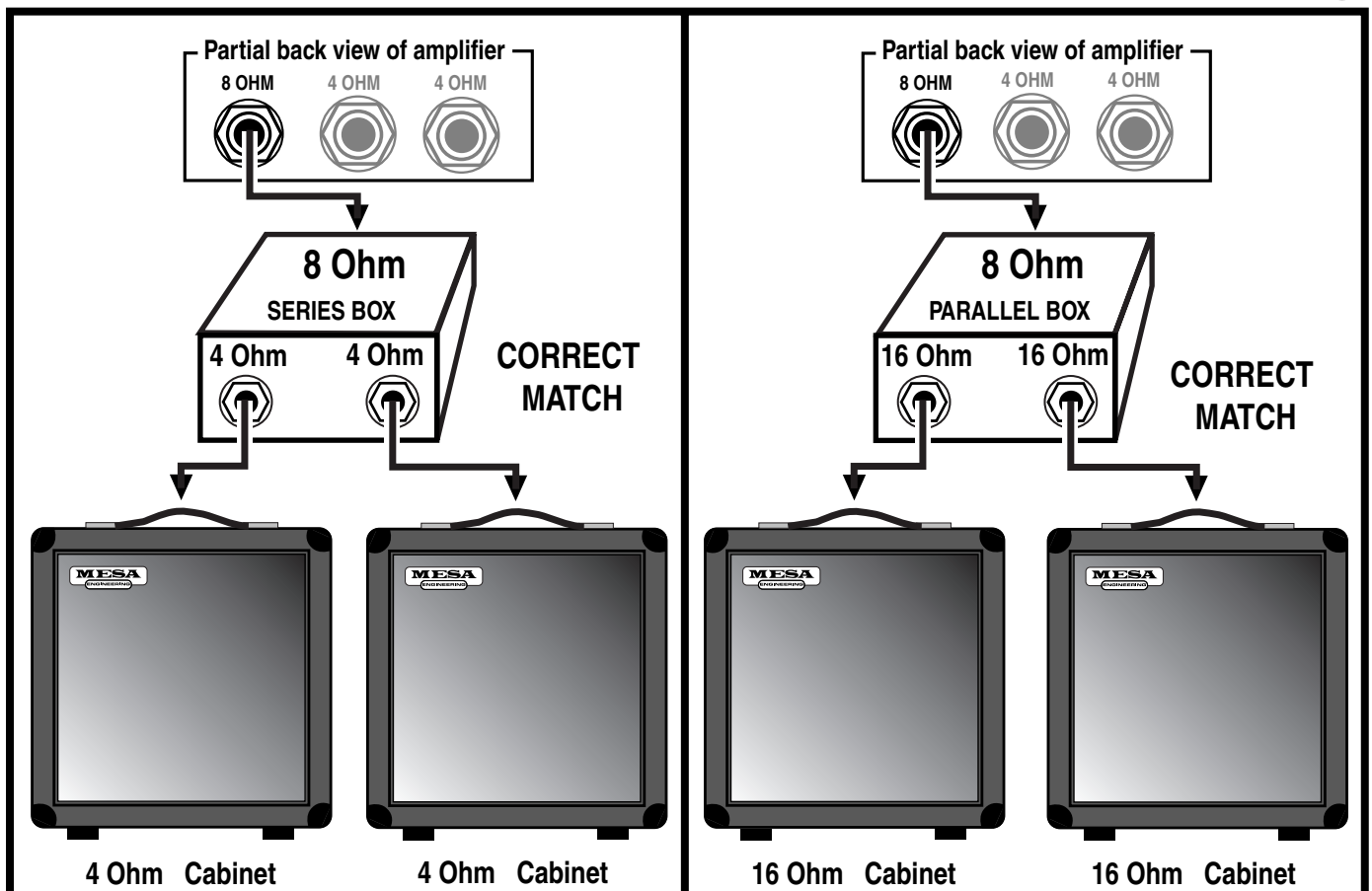
# WIRING SCHEMES...Amplifier to Speaker Cabinets

7



8

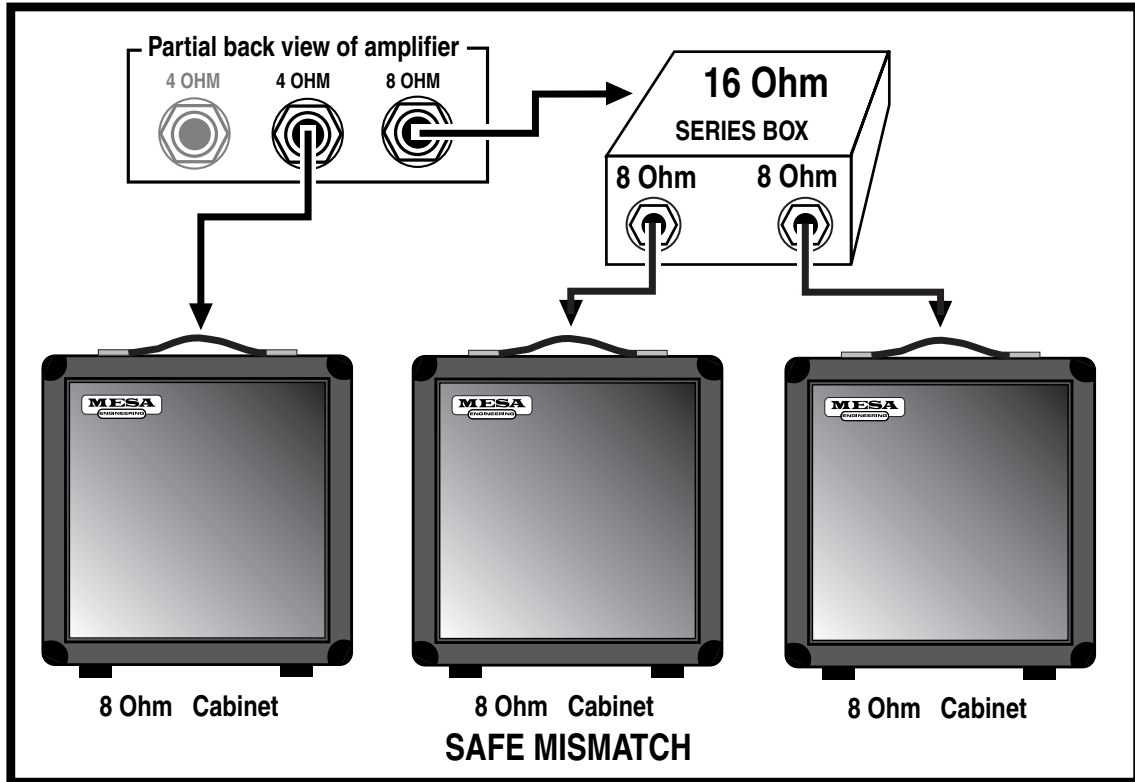
9



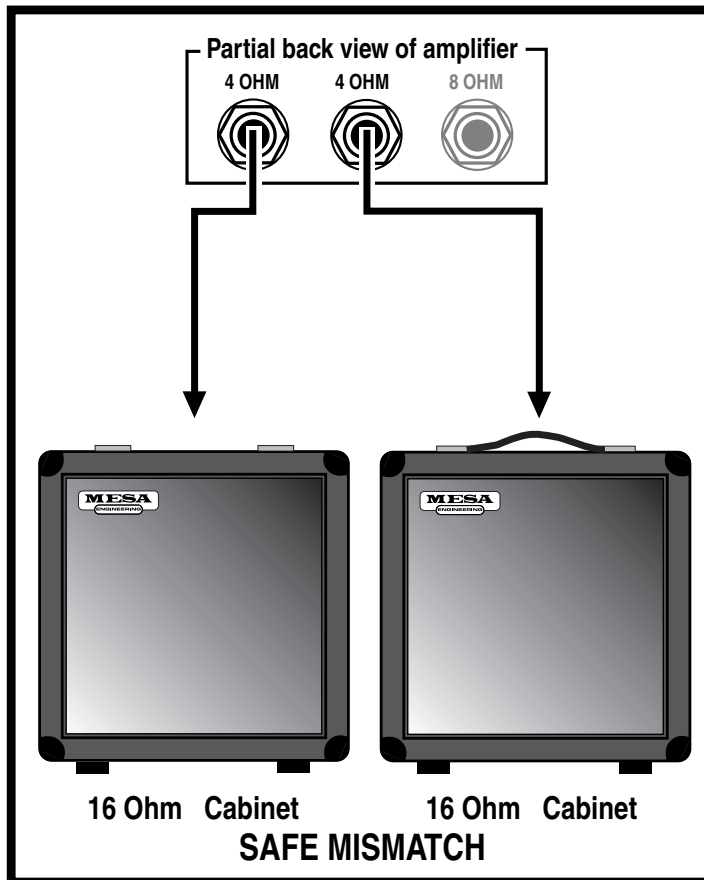
NOTE: Both Series and Parallel boxes may be purchased through Mesa/Boogie by contacting Customer Service: 707-778-6565, Mon-Thurs 9am-5pm PST

# WIRING SCHEMES...Amplifier to Speaker Cabinets

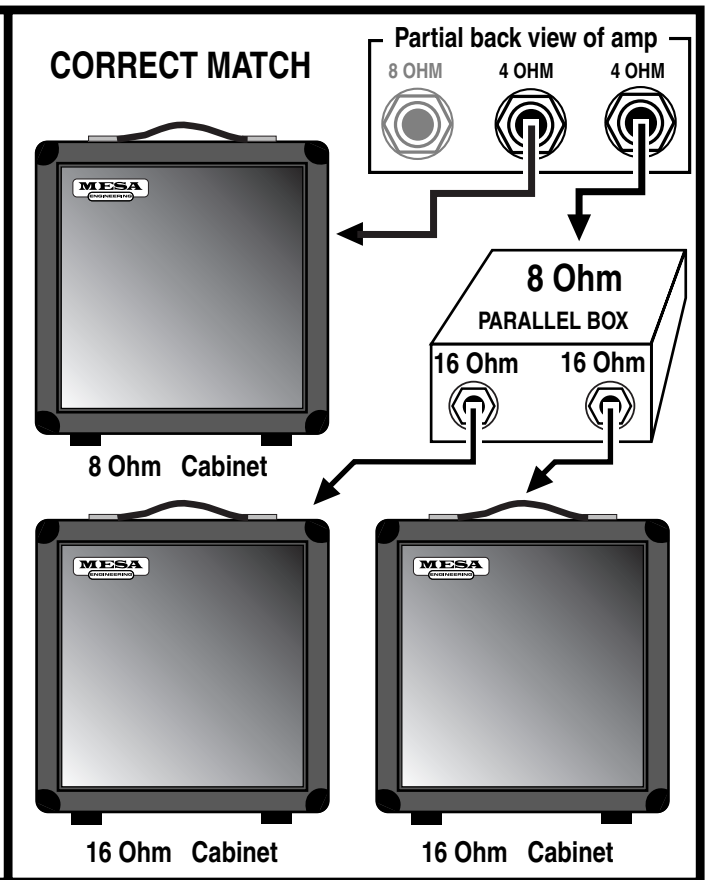
10



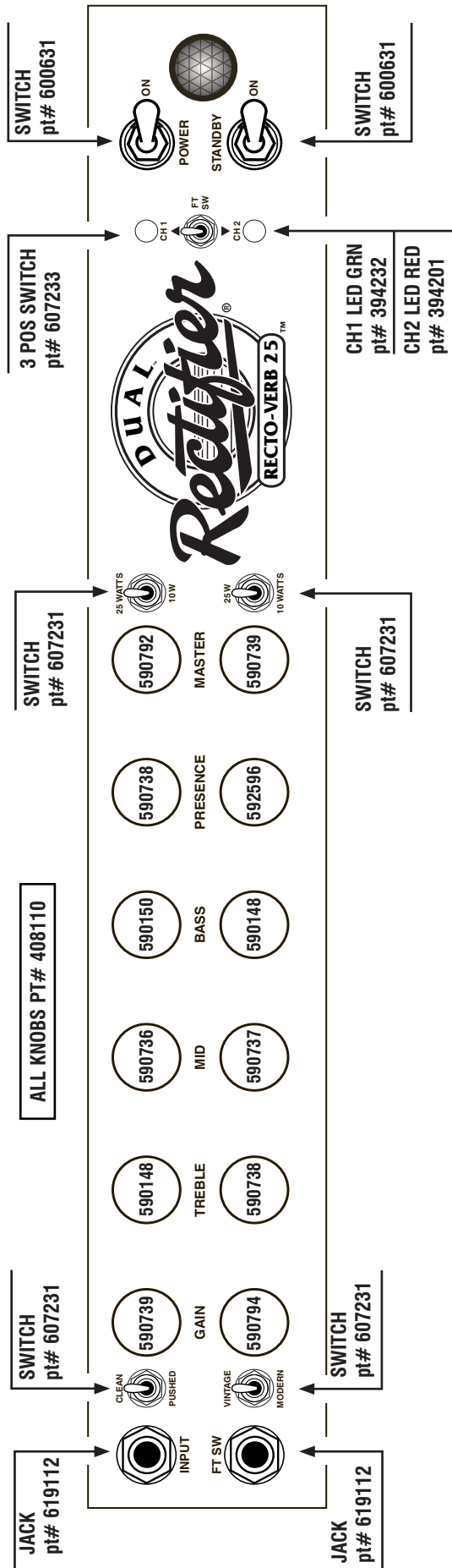
11



12



# FRONT PANEL: RECTO-VERB 25



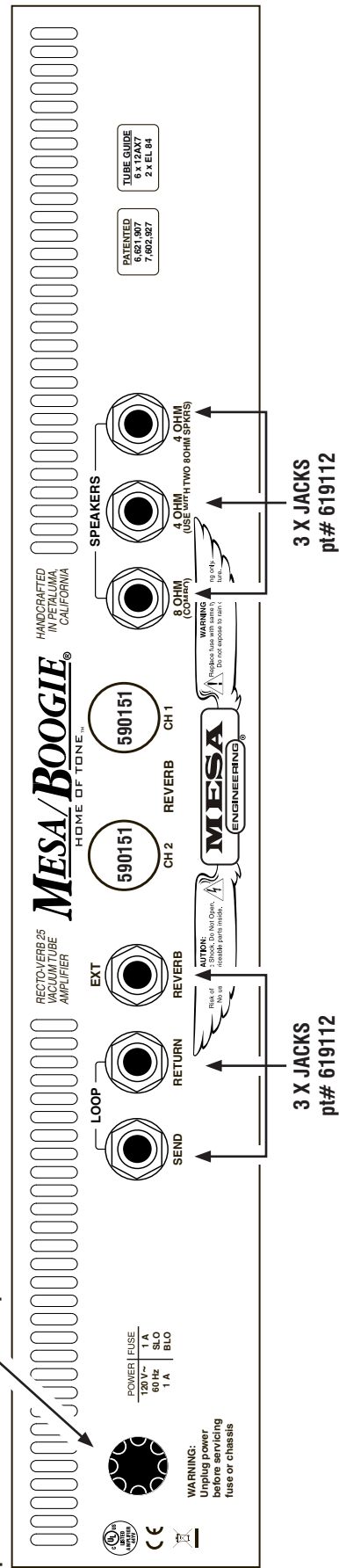
# REAR PANEL: RECTO-VERB 25

**FUSE: EXPORT**  
pt# 795630

**FUSE: DOMESTIC**  
pt# 790101

**FUSE HOLDER:**  
EXPORT pt# 790346

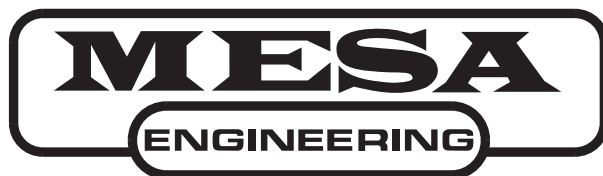
**FUSE HOLDER:**  
DOM pt# 790347





## NOTES

*Thank you for trusting MESA/Boogie to be YOUR amplifier company.  
We wish you many years of toneful enjoyment from this handbuilt, all tube instrument.*



***MESA/BOOGIE***<sup>®</sup>  
*The Spirit of Art in Technology*<sup>™</sup>

1317 Ross Street • Petaluma • CA 94954 • USA

**Customer Service**

707.778.6565

Fax 707.756.1503