

# ***MESA/BOOGIE***

**STEREO SIMUL-CLASS 2:90**  
**Operating Manual**

Congratulations.

You have just become the owner of the most "Tone Full" three and one half inches of rack guitar power available today. Don't let it's mere two spaces fool you - This amp has a BIG voice and was bred to be a serious contender in any arena. Though it weighs in at approximately 90 watts per channel, grueling tone and headroom tests confirm its authority even against amps boasting twice its rated power and yes...bulk. As with many of it's Boogie cousins - the concept "Shrink the package - Enlarge the Tone" was in full effect here. If you've already played your 2:90, you know how incredibly big and bold, sweet and juicy it sounds... If you chose it by reputation alone, stop! Put this down a second, connect it to your preamp (hopefully TriAxis) and favorite cabinets. Begin the tonal experience so many 2:90 owners rave to us about immediately! Don't wait! One chord and one note will tell you more about this amp than we could ever say here in print. Besides, you can come back and read the day after tomorrow - when your fingers are too sore to play anymore - and you can better enjoy this manual with a blown mind and your previous idea of tone well rocked!

Much of the 2:90's huge sound and spongy dynamic feel comes from its patented Simul-Class operation. For those just now discovering the magic of Simul - a brief explanation is in order. In late 1982 an experiment in tone shaping within the power section, using esoteric power transformers and unique power tube wiring configurations, gave birth to the first tube power amp that incorporated two types of tube power operating simultaneously. These two types or "Classes" of operation were Class A Triode and Class AB Pentode. The older Class A style of wiring was popular in the early tweed amps of the 50's and produced a sweet bubbling and bouncy tone - though not much power. As electric music became more popular, louder and more powerful amps were needed. Class A wiring was discarded in favor of the more efficient, cooler running Class AB Pentode wiring scheme. So ended an era of sweet tweed amps. As we all know, those gems of yesteryear are much sought after today. Well, both styles of wiring have their advantages; Class A Triode for sweet tone and a spongy easy to play feel, Class AB Pentode for power, punch and cool reliability. To us, it made perfect sense to marry all these attributes and combine two simultaneous classes of operation into one power section. Thus the name Simul-Class . A decade later Simul-Class has powered three generations of well loved Boogie combos and two generations of tour proven power amps. The Simul 2:90 Stereo carries on this tradition and improves upon its predecessors. By utilizing an even better, more "head-like" driver stage, this Simul delivers all the urgency and soul often missing in some so called "guitar" power amps.

## FRONT PANEL

One look at the 2:90's front panel probably told you "easy to use" ... right? We think so... but after a closer look, you notice three small LED's labeled - "Deep, 1/2 Drive, and Modern." Since the rest of the Front Panel is virtually self explanatory... let us first explain these three mystery lights. Following the law of "less is more", we decided that what you can't see can't confuse you. Spin the 2:90 around. See the box in the lower left corner labeled "Voicing Switch"? These three jacks are connected to the three mystery lights on the Front Panel. They each activate one Voicing Feature - and a light! All you have to do is connect any "tip to ground" switching jack to these and you can audition each of these features individually or combine them for the most radical tone shaping experience you ever heard come from a power amp. These Voicings are best suited for distortion sounds, but please... experiment... clean sounds can become great solo sounds simply by triggering one or more of these features. Before we go into what each of the voicings are and how to use them, a quick word on Pre-amps - namely the Pre-amp the 290 was designed to power and enhance. TriAxis. TriAxis, MESA/Boogie's long awaited all tube Midi Programmable Pre-amp, was designed to control the voicing features of all MESA "SwitchTrack Stereo amplifiers" and the Simul 2:90 Stereo power amplifier. As well as 8 programmable modes and a programmable effects loop, TriAxis incorporates a switching Matrix of 4 "collector to ground" type switches that appear on the TriAxis rear panel as four 1/4" mono jacks labeled "Switch 1-2-3-4". These jacks can be activated at the Loop/SW key on the TriAxis Front Panel individually or all at once and then stored under a preset number. Connect switches 1, 2 & 3 to the 290's voicing features and you're ready to go. Pressing the key toggles TriAxis' FX Loop and Function Switches through every possible combination of Loop and Switch. When the LED for the desired function switch lights up in the lower right corner, you may audition the voicing feature on the power amp you have chosen with the preset you are currently using on TriAxis. The possibilities are endless. Any type of cable is fine for this switching operation. It need not be shielded signal cable.

If all this hidden versatility is a bother to you, guess what... YOU don't have to use the voicing features and you'll still get the best Tone you've probably ever heard out of your rig. But just in case you ever get brave or you just want to have some fun exploring... read on.

### DEEP

This LED indicates that the Deep function has been activated. To trigger this function - simply connect one of the TriAxis Switch jacks to the 1/4" jack labeled "Deep" on the jack panel at the left rear side of the 2:90. Program the TriAxis corresponding switch to be on under the desired preset. You should now hear the Deep function. The low end fundamental will get lower and "breathier" and the high end will sound warmer and more three dimensional. The Deep feature enhances both clean and distorted sounds equally, so experiment to your liking. NOTE: If you are using the 290 with another Pre-Amp and not a TriAxis, you may use a standard tip to ground switch to trigger the Deep or any of the three voicing features.

NOTE: MESA/BOOGIE STUDIO PRE-AMP OWNERS: The Channel Switching jack labeled "Footswitch" on both front and back panels of your Pre-Amp are wired in parallel. Since you probably need only one footswitch, the other unused jack could be connected to any of the three voicing features. The logic may not work to your preference ... but there may be situations where only one feature is necessary and this trick could be applied.

## **1/2 DRIVE**

Like Deep, this LED indicates the 1/2 Drive mode has been selected. Again - connect the TriAxis switch jack to the 1/2 Drive jack on the rear left of the 290. Program it to be activated under the desired preset. When 1/2 drive is activated the 2:90's overall output is reduced by roughly half and you will hear the volume drop correspondingly. Notice that the top end gets a little brighter in a higher frequency and just starts to break up. When listening to 1/2 Drive pushing a clean sound these break-up brights may seem excessive. Switching to a high gain sound however, tells the real story right away! The top end gets softer and the harmonies line up and start to dance. The whole amp gets spongier and feels easier to play. When using 1/2 Drive for giant crunch chords it provides the haze that's hard to beat, especially when used in conjunction with the Deep feature. Half Drive was originally conceived as a way to get more gain from the power section to combine with high gain sounds in the preamp. This works beautifully. There is, however, another great way to put this feature to work that is easily overlooked. Dial up a clean sound from the pre-amp, then increase the front end gain as high as possible without pushing it into full blown distortion ... you know, just to the threshold of distortion. Trigger the 112 Drive to unleash a truly cool and bluesy medium gain lead sound. Darken or brighten to taste either at the tone controls or with the 2:90 presence controls. With an "analog" (non-programmable) pre-amp this becomes a useful "extra mode". With TriAxis many such possibilities await. As we mentioned earlier, engaging the 1/2 Drive causes a volume decrease. This is a possible problem only to non-TriAxis owners. Since the 2:90 was, from its inception, the TriAxis counterpart in a "system" to other pre-amp owners, we now apologize for any inconvenience and hope you make a B-line to your nearest MESA/Boogie Pro Center straight away to hear the TriAxis. To all you TriAxis owners, you will soon find this "could be fault" a truly great feature! You've now doubled all your great programs at lower volumes, great for choruses where the vocal needs to stand out but you want more gain or "intensity". Or you might program the TriAxis Master higher and whip the 2:90 in 1/2 Drive harder for that extra grind when moshing. Whatever your individual application, 1/2 Drive will enhance the 2:90's already toneful nature greatly.

## **MODERN**

Again, this LED indicates the Modern voicing feature has been selected. Derived from the presence shift switches found on our Mark IV amplifier, and the "Red" or Modern Channel of our Dual Rectifier Solo Head, this sound pushes at the boundaries of today's high gain crunch. To the tame and timid, Modern is a scary sound. It is the opposite of soft... it's hard... hard core aggression. If you love to get way agro with super gained out crunch, Modern will re-focus your attack and clean up the slop. Often times when trying to dial the amount of gain necessary to get the scream and grind... you quickly find the low notes falling apart or becoming too washy. Modern is the cure for "anemic chunk". It places emphasis on the percussive mids and highs and tightens those flubby lows where they tighten up right at the power section. Modern also provides a little more headroom resulting in a volume increase. When Modern is used in conjunction with Half Drive there is virtually no volume change and the benefits of both are incorporated to achieve more gain, more aggression, more harmonics, more scoop, more attack etc. Then try the ultimate enhancement Deep, Half Drive and Modern! We'll spare the adjectives ... just try it out and you'll see why we think this is the most advanced and easiest to use two spaces of Tone Power on the planet.

## **LEVEL A/B**

These two pots control the volume level of each side or channel of the 2:90. Since there's only one Standby Switch on this unit they may also be useful as channel muting controls. NOTE: If only one speaker is to be used on one channel and no speaker load on the other, always turn the unused channel's Level Control to zero. To prevent oscillation (motorboating) turn the Presence Control of that channel all the way up.

## **PRESENCE A/B**

These controls "open up" the 2:90 producing brightness and sparkle for clean sounds at higher settings or sizzle and edge when set high for distortion sounds. At lower Presence settings you can darken and compress lead sounds making them warmer and fatter. Turning the presence controls to zero "chokes the brights" completely, making the 2:90 great for jazz clean sounds or round vocal lead work.

## **POWER/STANDBY**

These two toggles located next to the Presence controls deliver A.C. Mains voltage and D.C. filament voltage. When powering up cold - always turn the power on first - wait 30 seconds - then turn the Standby on. This procedure reduces shock on cold tubes and prolongs tube life. Remembering to use the Standby on set breaks also prolongs tube life. NOTE: Power tube life varies depending on many factors i.e. how much you play, how long you play, how you treat your equipment etc. We've found that most discerning pro's who use their gear five to seven nights a week start noticing some tone loss somewhere around 8 months to a year. Some people, however, use the same set of power tubes for years with no complaints. We recommend changing your power tubes once a year if you play a lot. This way you're ensured of smooth operation and optimum tone. Always use MESA power tubes of matching color codes whenever possible. These are matched correctly and hammer tested, and actually cost less than the so called matched competitors in most cases. Also, it keeps your 2:90's warranty intact.

## **MAIN FUSE**

The recessed grey fuse cap located above the Pilot light holds the 290's main fuse. Should this fuse blow, replace it with SLO-BLO type of an appropriate rating. Domestic and Canada use 6 1/4 amp SLO-BLO. Disregard the 4 amp labeling - this is for units not wired for 117v operation.

## **BACK PANEL**

Now that we've mastered the Front Panel and found its simple layout easily digested let's move aft for some jacks and tubes. Let's take the connections first and start with the jack panel.

### **INPUTS B/A:**

Here in the upper left corner of the jack panel you'll find two 1/4" insulated jacks. These are the inputs for pre-amps and/or effects, depending on how you wire your system. You may drive the 2:90 with your pre-amp directly or choose to come from the last effect in a chain and drive the power amp this way. Either way is fine and up to your preference.

We have also provided an input sensitivity switch that toggles you between instrument level and the less sensitive line level position. If you have too much signal in your system by the time you get to the 2:90, use Line Level. This tends to be the more common position. If your Pre-amp doesn't have enough send level or you want to plug a guitar straight into the 2:90 use Instrument Level. Yes... you did hear right, you can plug right into the 2:90 with a good guitar and get a sweet clean rhythm sound. Crank the level all the way up and check out a vintage solo sound. Use the voicing features in this setup and you just may find yourself wondering what you need a pre-amp for! Seriously though, the 2:90 all by itself could and has been used as a stand alone guitar amp. Try that with your standard solid state power amp!

### **VOICING SWITCHES**

As mentioned in the Front Panel section; these are the 1/4" jacks that trigger the 2:90's three voicing features. They are described earlier under Deep, Half-Drive and Modern. Again, they are activated with a "tip to ground" or "collector to ground" type switch. TriAxis owners find these jacks especially useful, as they can trigger any or all of these features with the on board function switches and store these settings under a program number. If you don't own a TriAxis... order one... now, or use any "tip to ground" on/off switch. Shielded cable need not be used.

### **SPEAKERS**

These six jacks deliver the 2:90's incredible tone to your favorite speaker cabinets. One eight ohm and two four ohm jacks per channel are provided. Use one eight ohm cabinet in the eight ohm jack. Use two eight ohm cabinets into the two four ohm jacks. Use one four ohm cabinet into one four ohm jack. Use one sixteen ohm cabinet into the eight ohm jack. Two sixteen ohm cabinets into a "y" cable works even better in the eight ohm jack. This should cover most all the popular speaker configurations. Don't forget: Duplicate the proper load for both channels: Turn it's Level control to zero and its Presence control all the way up. It's also best not to send signal to the unused channel input.