

Dear customer:

Thank you for choosing our products. Please read the following manual carefully. It contains important information and safety references.

The **TAD BiasMaster** is a portable, battery powered Instrument that lets everybody control the current through the power tubes of a tube amplifier. The **TAD BiasMaster** will not and does not adjust anything in your amp but will be a helpful tool for studios or touring musicians to get the maximum tone out of the amp in conjunction with **TAD Tubes™**.

The **TAD BiasMaster** unit consists of a high quality calibrated digital measuring instrument with illuminated 3-½ digit Display (18 x 61mm), four selectable Inputs, vintage Pointer Knob and two (BM2) or four (BM4) probes for octal sockets. With these sockets you are enabled to measure the quiescent current of all common tubes used in tube amplifiers like 6V6GT, 6L6GC, 5881, 7027A, EL34, 6CA7, 6550A, KT66, KT77, KT88, KT90, KT100 and others<sup>1</sup>.

Probes for EL84, 6BQ5, 7189A can be ordered separately (BMA2-EL84).

For measuring the probes are simply installed between the tube socket and the tube, connected to the **TAD BiasMaster**. In many cases you don't have to remove the Chassis out of the cabinet!

After switching on the Amplifier and the **TAD BiasMaster** you can read out the current directly on the display. For proper working conditions it is recommended to heat up the Tubes for at least 5 min. With a matched set of tubes the value should be in a tolerance of  $\pm 1.5$  mA. Exceeding of this value indicates a malfunction and the amp should be taken to qualified personnel.

The value in the display of the **TAD BiasMaster** is an easy possibility to find the appropriate tubes for your amp. That means:

If you installed a set of matched **TAD Tubes™** in the amp (in this example a Fender Super Reverb) and the readout is about 15mA that is somewhat to low for this model, then you can easily increase the current by taking **TAD Tubes™** with a higher PC value for achieving the appropriate current of 25-40mA for this amp.

The second way to get the right current for the amp is by adjusting the Bias.

We highly recommend leaving this kind of work to the people who are familiar with Tube amps. Again: TUBE AMPS CARRY HIGH VOLTAGES THAT CAN KILL!!!

If you don't have any idea of electricity than reading on is a book with seven seals.

You are still reading? OK: read on next page

Note <sup>1</sup>: In some amps with special solid-state drivers through the cathode of the power tubes like Musicman RD series and Peavey Classic 75/100 (old series) measurement can only be taken with **ONE** probe at the same time. This procedure has also to be made in amplifiers that have a Cathode resistor ( Mc Intosh MC30) . By installing more than one adaptor probe of the TAD Biasmaster chances are to make a faulty measurement.

The voltages of the grids, the plate and the tube itself determine the current through a tube.

The Plate and the Grid #2 voltage are fixed, non-changeable values, while the so-called Bias voltage at grid #1, which is negative, can be varied. NOT BY YOU but by a qualified person!

Lowering this value increases the quiescent current while higher settings of the Bias voltage will decrease current. This current can be monitored with the TAD BiasMaster in real-time!

The values of the suggested settings table are the experience of our service department. These values are for reference only. The difference in the current allows you to modify your Amp to your special needs and sounds. A lower setting increases headroom and cleans up your sound. A favourite of country or bass players. Higher settings of the current will increase gain and dynamic punch with more overdrive and a nice break up. Often used by Blues and Rock players. Please feel free to make some experiments with the adjustment to find Your Tone.

Caution: An increase of current will lower tube life span. You must not exceed the power dissipation of the tube, which is  $P_{max}$  (W) of our diagram. For the maximum of the current ( $I_{max}$ ) through the tube:

$$I_{max} = P_{max} / (U_P - U_C)$$

with  $P_{max}$  = max. Plate dissipation #  
 $U_P$  = Plate voltage  
 $U_C$  = Cathode voltage

# For Tube data see: Essential Characteristics, GE, TAD ordering no. "BT/GEC"

## Operation:

1. With the amp turned off, remove output tubes from amp (They maybe hot!!!)
2. Place the TAD BiasMaster octal probes into the free sockets, make sure the "guide pin" on the base lines up correctly. Remember: one probe in each socket.
3. Insert Power Tubes in the probes.
4. Connect the cables of the octal probes with the TAD BiasMaster.
5. Turn Amp on, but leave on „Standby“. Wait for about 5 min. for proper warm-up of the tubes.
6. Switch the "standby" to "on".
7. The measurement is started by turning the control knob from the "off" position to the desired tube socket ("1" to "4")
8. After finishing the procedure switch Amp off, let tubes cool down a bit and replug the power tubes. Again:

## Caution:

**Tubes may get very hot under normal working conditions!  
 The adapter must NOT be used in continuous operation.**

**Amp must be switched off for any installation  
 or removing of the TAD BiasMaster**

**Suggested Settings: (to be completed)**

Amp	Tube Type	P <sub>max</sub> (W)	U <sub>A</sub> (V)	I (mA)
Ampeg SVT	6550A	42	660	20-28
Ampeg V4/V4B, VT40, VT22	7027A	35	530-550	20-40
Bogner Ecstasy	6L6GC/EL34	30/25	470	25-40
Fender Amps ca. 20-30W	6V6GT	14	410-430	18-30
Fender Amps ca. 40/45 or 85/100W	6L6GC	30	420-470	25-40
Fender Amps ca. 70/135W Ultralinear	6L6GC	30	460-500	20-30
Fender, Tweed Amps, Class A (Deluxe 5E3)	6V6GT	14	300-390	35-50
Fender, Tweed Amps, Class A (Pro Amp 5E5)	6L6GC	30	300-390	45-80
Hiwatt 50 W	EL34	25	460	30-45
Hiwatt 100W	EL34	25	460	20-40
Hiwatt 200W	EL34	25	650	20-28
Hiwatt 200W	KT88	45	650	20-35
Hiwatt 400W	KT88	45	680	15-30
Marshall, 50 W	EL34	25	400-460	25-42
Marshall, 100W	EL34	25	450-500	25-40
Marshall JTM 45	KT66	30	450-490V	30-40
Marshall, Major 200	KT88	45	620	25-30
Mesa Boogie, 60-100W	6L6GC	30	470	25-35
Mesa Boogie Bass 400+	6L6GC	30	490	20-30
Mesa Boogie Dual/Triple Rectifier	6L6GC/EL34	30/25	470	20-40
Mesa Boogie Simul Class 75W	6L6GC/EL34	30/25	470	25-35
Mesa Boogie Studio 22, Cal. 50, DC3, Subway	EL84	12	380-420	20-30
Orange 60W, OR80	EL 34	25	400-460	30-45
Orange OR120, Matamp	EL 34	25	470-490	25-40
Peavey Classic 30	EL 84	12	340	20-35
Leslie 147/122 Class A	6550A	42	410	60-100
Standard 50-60W Amp, Class AB	6L6GC	30	420-490	25-42
Standard 80-135W Amp, Class AB	6L6GC	30	450-500	20-40
Standard 50-60W Amp, Class AB	EL34	25	420-490	20-40
Standard 80-135W Amp, Class AB	EL34	25	450-500	20-40

**Supplied:**

- 1x TAD BiasMaster
- 2x (BM2) or 4 (BM4) Octal probes
- 1x Operation manual with suggested settings
- 1x 9V Battery

## WARNING!

**Tube Amps contain lethal voltages. Leave internal amp service to qualified personnel. Even with switched off and disconnected AC plug there might be highly dangerous voltage present in your Amp.**

„TAD“ is a registered Trademark of the „Tube Amp Doctor Musikhandels GmbH, 67551 Worms, Germany.  
„BIAS MASTER“ is a registered Trademark of the „Tube Amp Doctor Musikhandels GmbH, 67551 Worms, Germany.



# TAD BiasMaster

## Operation Manual

**Premium Dynamic Selected TAD Tubes** and the **TAD BiasMaster**  
The perfect team for the ultimate Tone