



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 which allows you to 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-EL84) or four (BM4-EL84) probes for noval sockets.

With these sockets you are able to measure the quiescent current of EL84, 6BQ5, 7189A tubes. Probes for 6V6GT, 6L6GC, 5881, 7027A, EL34, 6CA7, 6550A, KT66, KT77, KT88, KT90, KT100 and others¹ can be ordered separately (BMA2).

To start the measuring process, simply install the probes between the tube socket and the tube and connect them 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 ± 1.5 mA. Exceeding this value indicates a malfunction and the amp should be taken to a specialist.

With the help of the shown value in the display of the **TAD BiasMaster** it is easy to find the appropriate tubes for your amp. This means:

If you have installed a set of matched **TAD Tubes™** in the amp (in this example a Peavey Classic 30) and the readout is about 15mA, what is somehow too 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 25-30mA 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 persons who are familiar with tube amps. Again: TUBE AMPS CARRY HIGH VOLTAGES THAT CAN BE DEADLY!

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

You are still reading? OK: read on next page

Note ¹: The bias cannot be adjusted for amps with cathode bias resistor (autobias) like Vox AC15 and AC30, Peavey Classic 20, some Bad Cat and Matchless Amps, Marshall 1974X and many more. The Biasmaster enables the user to monitor the bias only. Usually the idling current exceeds the tube's data massively. This is deliberately accepted by the manufactures. A change of the idling current would require a massive modification and will also change tone!

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 (only 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. 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 the 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 the amp (They may be hot!)
2. Place the TAD BiasMaster noval probes into the free sockets, the 9-pin sockets will only fit in one single position. DO NOT USE FORCE!
3. Insert the power tubes into the probes.
4. Connect the cables of the noval 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. If the amp does not have a „Standby“ proceed with step 7
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 off the amp, let the tubes cool down a bit and re-plug the power tubes.

Caution:
EL84-tubes 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 and measured values: (to be completed)

Amp	Tube Type	P _{max} (W)	U _A (V) ca.	I (mA)
ATT, Little Willie	EL84	12	320	35-45*
Bad Cat, Lil' 15	EL84	12	330	36-42*
Bad Cat, Hot Cat 15	EL84	12	340	35-45*
Blackheart BH15	EL84	12	330	35-45*
Blackstar Artist 15, 30	EL84	12	320	35-45*
Crate VC15, VC30	EL84	12	315	40-45*
Echolette M40	EL84	12	335	22-28
Egnator Rebel 20	EL84	12	355	20
Engl Gigmaster 15	EL84	12	328	20-25
Epiphone Valve Standard	EL84	12	332	35-42*
Fender Pro Junior	EL84	12	319	25-30
Fender Blues Junior	EL84	12	329	20-28
Fender Tremolux 6G9	EL84	12	398	20-25
Fisher X202	7189	13.2	390	22-27
Framus Ruby Riot	EL84	12	327	40-50*
Hughes & Kettner Tube 20, Edition Tube 20th	EL84	12	400	20-24
Hughes & Kettner Statesman	EL84	12	390	20-25
Marshall, 1974X	EL84	12	340	40-50*
Marshall, DSL 201	EL84	12	350	20-28
Marshall, DSL 401	EL84	12	360	20-26
Matchless DC30	EL84	12	345	35-50*
Matchless Lightning 15	EL84	12	345-360	35-45*
Mesa Boogie 20/20 Power Amp	EL84	12	390	20-25
Mesa Boogie .Cal 50, 6BQ5 Model,	6BQ5/EL84	12	400-430	20-22
Mesa Boogie Express 5:25	6BQ5/EL84	12	400-425	20-24
Mesa Boogie Studio 22, DC2, DC3, F30	EL84	12	360-400	22-26
Orange AD30, AD15	EL84	12	350-365	35-40*
Orange Tiny Terror	EL84	12	345-360	35-45*
Peavey Classic 30	EL84	12	320-340	24-30
Peavey Classic 50	EL84	12	380-400	18-23
Standard 10-30 W Amp, Class AB	EL84	12	300-380	20-30
Standard 30-50W Amp, Class AB	EL84	12	320-400	12-25
Standard 10-30 Amp, Class A	EL84	12	280-350	35-45*

* Idling current not not adjustable due to cathode bias, value depends on tube data

Scope of supply:

1x TAD BiasMaster including 9V Battery (6 LR 61, PP3)

2x (BM2-EL84) or 4 (BM4-EL84) Noval probes

1x Operation manual with suggested settings

WARNING!

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

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



TAD BiasMaster

With adaptors for EL84

Operation Manual

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