

MAX BASS OPERATING GUIDE



WARNING

TO PREVENT ELECTRIC SHOCK OR FIRE HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. BEFORE USING THIS APPLIANCE, READ FURTHER WARNINGS FOLLOWING SPECIFICATIONS.

INTRODUCTION GENERAL DESCRIPTION

Congratulations on your purchase of the Peavey Max^{**} bass amplification system. After reading this owner's manual you will have a better understanding of the operating principles of the system. A thorough understanding of these instructions will also help you to achieve many varied tonal settings.

The Max[™] is, to our knowledge, the most powerful and advanced system of bass amplification available in a package containing the pre-amp and power amp. The Max[™] offers the bassist wide dynamic range inputs, pre **and** post EQ effects loops, eight bands of equalization, built-in variable crossover network, 800 watts RMS, or 400 watts RMS per channel bi-amped. Our patented DDT[™] (Distortion Detection Technique) compression circuit which automatically minimizes clipping has been included with both 400 watt power amps.

As with any sophisticated piece of equipment, there are some operating principles concerning the input stages, gain controls, equalization, and patching facilities which must be understood to obtain the best tonal results. Please read this manual and keep it handy for future reference.



THE INPUTS

The Max^{**} has two inputs labeled **high gain** and low gain. The high gain input is the input which should normally be used and would deliver the highest signal level from the input to the preamp. Sometimes however, bass guitars that are equipped with very high output "hot" pickups, or built-in preamps will overload the high gain input. This will be apparent because you will hear distortion. If this distorted sound does occur, plug your instrument into the low gain input which has less gain (-6 dB) then the high gain input. When two instruments or signal sources are plugged into both inputs, the high gain input is **automatically** switched to the same level as the low gain input. **NOTE:** When using two instruments or signal sources we strongly recormend that the speaker damage.

THE GAIN SECTION

THE PRE GAIN CONTROL

The **pre gain** control is the first volume control of the system. If the **post gain** control is set to its full number ten position for maximum power reserve, the pre gain control should be positioned somewhere in the middle of its range or lower. Placing the pre gain control higher than five may cause unwanted square waves (distortion) and result in premature clipping and/or activation of the DDT[™] compression circuitry. The **pre gain control** also employs a **pull bright switch** which adds approximately 8 dB of boost to the high end. As with the 4 Hz and 8 Hz rotary controls located in the equalization section, the **pull bright switch** can be used to enhance many of today's modern bass playing techniques.

THE POST GAIN CONTROL

In normal use, the post gain control should be operated **above** the 12 o'clock or number five position. To obtain maximum power reserve and headroom, rotate the control **fully clockwise** to number 10. **NOTE:** With the post gain control at its number 10 position, the pre gain control should not be operated above its 12 o'clock or number five position to avoid unwanted distortion. Also, while using maximum power and extreme high end boost in the equalization section you may find it necessary to back down (cut) the post gain control to approximately its number eight to avoid any unwanted residual noise.

The **post gain control** also utilizes an integral pull switch labeled "**punch**". When activated, "**punch**" creates a boost at 120 Hz and adds dramatically and effectively to the low end response and projection capabilities of the MaxTM.

THE EQUALIZATION SECTION

The Max[™] contains **eight** individual controls for shaping and contouring the instrument signal. Please be aware that these equalization controls employ active circuitry allowing you to have complete and **accurate** cut/boost capabilities of highs (treble), mid-band frequencies, and lows (bass). Because these controls are active, the equalization section can give you an accurate representation of the "natural" sound of your instrument without undue coloration by simply placing all eight controls at their 12 o'clock or zero positions. Rotating the controls to zero renders the system "flat" and is an excellent place to start when you begin to look for new tonalities and sounds.

Notice that the eight equalization controls are divided into two sections - low equalization and high equalization with each section containing four separate bands labeled in two ways for ease of operation. Above each control is a number stating its **center frequency** and below each control is the description commonly used to describe the tonality or sound of each band. The following explanation of each control and will serve as a general guideline to acquaint you with the Max^{**}'s equalization section.

THE LOW EQUALIZATION SECTION

The four bands of the low equalization section consist of four knobs whose frequencies are centered at 60 Hz (bottom), 120 Hz (punch), 250 Hz (body), and 500 Hz (timbre).

The 60 Hz/"bottom" control serves to contour the extreme low end (bass) response of the system. In high volume situations, it may be necessary to reduce (cut) this control as low frequencies tend to absorb more headroom (available power) from the power amp. **NOTE**: Over boosting of the 60 Hz/"bottom" control **may** cause unwanted distortion at the loudspeaker and/or engaging the DDT" circuit on a constant basis. This problem can be corrected by setting the control flat (placing the 60 Hz/bottom control at zero) or reducing the system to any of the minus positions.

The 120 Hz/"**punch**" control is the element which should be used when extra projection of the bass guitar signal is required and it will also give the "appearance" of more bass response. As with the 60 Hz control, over boosting of this control in high volume situations may cause occasional lighting of the DDT" control. If this occurs render this control flat and/or set it to the minus (-) positions.

The 250 Hz/"**body**" control is useful for tailoring the fundamentals (basic pitches) on the middle portions of the bass guitar register. The 250 Hz/body control also adds a fullness to the overall sound of musical styles such as rock.

The 500 Hz/"timbre" control is set at the mid to high points of the bass guitar spectrum allowing you to easily obtain the fatness necessary in rock (boost positions) or the tight, well defined tonalities found in jazz and country styles (cut positions).

THE HIGH EQUALIZATION SECTION

The high equalization section consists of four controls centered at 1 KHz ("clarity"), 2 KHz ("bright"), 4 KHz ("presence"), and 8 KHz ("edge").

The 1 KHz/clarity control, in conjuction with the 500 Hz/timbre control of the low equalization section, can be used in its boost position to help obtain many of today's funk styles and, in the cut position, help round out the upper mids to give a characteristic "acoustic" sound to the bass guitar.

The 2 KHz/bright control begins the "upper end" tailoring to either add or substract many of the overtones for the brigthening or softening of the sound of the instrument. It is also useful for tailoring the high frequency section while using the Max[™] in bi-amp situations.

The 4 KHz/presence and 8 Hz/edge controls are the final controls in the high equalization section and serve to adjust the extreme upper end response of the Max[™]. In their boost positions, they will enhance modern

ELECTRONIC CROSSOVER SECTION



The electronic crossover control is located on the front panel and is continuously variable from 50 Hz to 500 Hz. This crossover network has a slope characteristic of 12 dB per octave on both high and low pass and crosses the system over internally when biamping is selected at the rear panel. No patch sequence is necessary for the Max™ Bass to become a biamped system but you must set the crossover control at the desired crossover frequency on the front panel. By switching the systems select switch on the rear panel to biamp the system is automatically patched through to both power amplifiers. In this mode of operation, the system is capable of 400 watts for the high pass and 400 watts for the low pass. Most bass systems cross over around 200 to 300 Hz but the exact crossover frequency should be determined by the speaker enclosures selected.

GROUND SWITCH

The ground switch is a three position rocker type which, in most applications, should be operated in its center or zero position. You may encounter some situations when audible hum and/or noise will come from the loudspeaker. If this situation arises, position the ground switch to either positive or negative (+ or -) or until the noise is minimized. NOTE: Should the noise problem continue, consult your authorized Peavey dealer, the Peavey factory, or a qualified service technician. Do not, under any circumstances, remove the ground pin on the mains (power) cable!!!

ON/OFF SWITCH

The on/off power switch is a two position "rocker type" and should present no problem in operation. In the on position, a red LED indicator will illuminate showing that power is being supplied to the unit.

REAR PANEL

ANGE ANGE

⊵

0.5V (-8 dBV)

SEND

RETURN

SYSTEM BALANCE CONTROL

This control offers a 10 dB relative sensitivity adjustment of the power amplifiers for the high and low pass signals when biamping. For instance, the full rotation counterclockwise to the high side will boost the high signal +3 dB, while at the same time the low pass will be cut -7 dB. Rotation of this control full clockwise to the low position will boost the low pass +3 dB, while the high pass will be cut -7 dB. This is a very useful control when speaker systems of different efficiency levels are employed and either the low pass or high pass needs to be referenced so that a better overall balance is achieved.

HIGH RANGE SEND AND RETURN JACKS

The high range send and return patch capability will allow an effects device to be interfaced in the audio chain of the high pass signal only. The output of this system is 0.5 volts (-6 dBv) and the return jack is of the switching type. When a 1/4" phone plug is inserted into the high range return jack, the signal path is broken for the high pass only thus allowing an effects loop capability. (see patch diagram) Many times bass guitarists would like to patch certain effects into only the high pass of a biamped system and these jacks provide that capability.

LOW RANGE SEND AND RETURN JACKS

The low range send and return patch capability works exactly like the high range system and provides the same patch facility for in-line effects loops. When additional equalization, effects devices, etc. are to be patched in-line with the low range signal, you may use the send signal out to that device and then back into the return thus creating the effects loop patch. The output of the send at this point is 0.5 volts (-6 dBv). NOTE: Best results are usually obtained when effects are used on high pass only when biamping. (see diagram)

HIGH AND LOW OUTPUT JACKS

The high and low output jacks are 1/4" phone and the signal level at this point is 2 volts (+6 dBv) which is very capable of driving other amplifier/speaker systems. In the event that another biamped system is necessary you may patch from these low out and high out jacks for a continuation of the electronically crossed over signal to an additional system. No switching takes place at either one of these output jacks and the MaxTH Bass system will continue to function as normal with 1/4" phone plugs employed at this point. (see diagram)

FULL RANGE OUT

The full range output jack is 1/4″ phone and contains the entire preamp signal from the Max™ and does not go through the electronic crossover. This output signal may be used to drive other amp/speaker systems that are necessary for full range operation. NOTE: No switching occurs at the full range output jack and the Max™ system continues to operate normally with a 1/4" phone plug employed at this point.

SYSTEM SELECT

The system select switch is a slide switch which internally allows the system to run full range or biamped. When the switch is located at the full range position, both 400 watt internal power amplifiers receive the same signal and speakers may be patched to one or both internal power amplifiers at the back panel. Each internal 400 watt RMS amplifier works into a minimum load impedance of 4 ohms. However, it is not necessary to load both channels of the power amplifiers in order to operate the system. If you should only have the correct speaker enclosures to operate one system at a 4 ohm load, then the other system does not have to have speakers attached. The other system which is not being used will simply sit there and not do any work. When the slide switch is placed at the biamp position, internally the two 400 watt RMS power amplifiers are automatically placed into the biamp mode. At this point the Max[™] Bass delivers 400 watts for the high end and 400 watts for the low end of a biamped configuration. Please notice once again that the minimum load impedance for each internal power amplifier is 4 ohms.

LINE OUTPUT

The line output section includes a 1/4" phone jack output as well as a low impedance, 600 ohm, balanced out (XLR). The signal level at this point is 0.25 volts (-12 dBv) and may be used to patch into a tape system or sound reinforcement situations, the balanced output should be used. For close patching into a studio console or tape deck situation, the unbalanced high Z output jack may be used (when outside interference is not a problem).







DCT

HIGH Z

0.25V (-12 dBV)

POST EQ SEND AND RETURN

The post EQ send and return 1/4" phone jacks are provided to facilitate in-line patching of effects devices after the equalization controls on the front panel. The signal level at this point is 0.5 volts (-6 dBv) and the return jack is of the **switching** type. This system allows a signal to be patched out from the send to an effects device and from that effects device back into the return thus creating a loop for the full range signal. Note that this patch point takes place **before** the electronic crossover.

PRE EQ SEND AND RETURN JACKS

The pre EQ send and return 1/4" phone jacks provide the capability of patching in effects devices before the equalization on the front panel. The signal level at this point is 0.3 volts (-10 dBv) and the return jack is of the **switching** type. A signal may be patched out before the equalization to an effects device form the send jack and then from that device patched back into the return where the signal is switched, thus allowing the in-line loop patching of effects devices, etc., before the equalization.

SPEAKER OUTPUT SECTION

Both internal power amplifiers have been provided with 1/4" phone jacks as well as binding posts for speaker connections. Notice that one power amplifier is labeled **low pass** and the other is labeled **high pass**. NOTE: In the full range mode, both systems will produce exactly the same signals. In the biamped configuration, the high pass speaker output jacks should patch to the **high range** speaker system and the low pass speaker output jacks should patch to the **high range** speaker system and the low power amplifier produces full power into a minimum load impedance of 4 ohms.

LINE CORD

For your safety we have incorporated a three-wire (mains) cable at the back of the chassis with proper grounding facilities. It is not advisable to remove the ground pin under any circumstances. If it is necessary to use the amp without proper grounding facilities, suitable grounding adaptors should be used. Much less noise and greatly reduced shock hazard exists when the unit is operated with properly grounded receptacles.

FUSE

The fuse for the Max[™] is located within the cap of the fuseholder near the line cord. If the fuse should fail, it must be replaced with the same type and value in order to avoid damage to the equipment and to prevent voiding the warranty. If your Max[™] repeatedly blows fuses, it should be taken to a qualified service center for repair.

DDT^{**} COMPRESSION

Both internal power amps are equipped with our patented DDT^{**} (distortion detection technique) compression. DDT^{**} is a unique compression circuit which senses the onset of power amp clipping and eliminates most audible distortion. The durability of speaker components is greatly increased with DDT^{**} as power amp clipping is held to a minimum.

The LED's for compression are activated at the point of clipping (full power) and the indication (LED's) appears through the front grille cloth of the Max[™] approximately three inches from either side.





DST-EO

PAE-EO

0.5V (-6 dBV)

0.3V (-10 dBV)

SEND

MAXTH BASS SPECIFICATIONS:

POWER AMPLIFIER SECTION:

RATED POWER & LOAD:

400 W RMS into 4 ohms each channel (both driven) with DDT™ compression and LED indicators FULL BANGE MODE:

800 W RMS total into two 4 ohm enclosures BI-AMP MODE:

400 W RMS low pass, 400 W RMS high pass into appropriate 4 ohm bi-amp enclosure

POWER @ CLIPPING:

(Typically each channel @ 1% THD, 1 KHz 120 VAC line) 280 W RMS into 8 ohms 460 W RMS into 4 ohms

2 ohms not recommended

FREQUENCY RESPONSE:

+0, -1 dB, 5 Hz to 40 KHz @ 1 W RMS into 4 ohms TOTAL HARMONIC DISTORTION:

Less than 0.1%, 40 mW to 400 W RMS,

20 Hz to 20 KHz, 4 ohms, typically below 0.04% SLEW RATE:

Greater than 20V per micro-second HUM & NOISE:

(20 Hz to 20 KHz unweighted) Greater than 95 dB below rated power

LOAD IMPEDANCE:

4 ohms or greater Stable into any load configuration

LOAD PROTECTION:

Short, Mismatch, Open Circuit Proof, Voltage/ Current Limiting Instantaneous with no Cutout

SPEAKER PROTECTION:

Instantaneous crowbar circuit clamps output upon the advent of amplifier failure

DAMPING FACTOR: (1 KHz, 4 ohms

Greater than 100

DDT" DYNAMIC RANGE: Greater than 20 dB

DDT^{**} MAXIMUM THD: Less than 0.5% for 6 dB overload Less than 1% THD for 20 dB overload POWER CONSUMPTION:

1500 watts, 50/60 Hz, 120 VAC (domestic)

PREAMP SECTION:

THE FOLLOWING SPECS ARE MEASURED @ 1 KHz WITH THE CONTROLS PRESET AS FOLLOWS:

(UNIT OPERATED IN FULL RANGE MODE) PRE GAIN PULL BRIGHT OFF (IN) POST GAIN PULL PUNCH OFF (IN)

POST GAIN @ 10 BOTTOM EQ @ +6 dB PUNCH EQ @ +6 dB BODY EQ @ -6 dB TIMBRE EQ @ -3 dB CLARITY EQ @ +3 dB

BRIGHT EQ @ +3 dB PRESENCE EQ @ +6 dB EDGE EQ @ 0 dB

NOMINAL LEVELS ARE WITH PRE GAIN @ 5 MINIMUM LEVELS ARE WITH PRE GAIN @ 10 PREAMP HIGH GAIN INPUT:

Impedance: High Z, 220K ohms Nominal Input Level: -28 dBV, 40 mV RMS Minimum Input Level: -50 dBV, 3 mV RMS Maximum Input Level: +8 dBV, 2.5 V RMS

PREAMP LOW GAIN INPUT: Impedance: High Z, 44K ohms Nominal Input Level: -22 dBV, 80 mV RMS Minimum Input Level: -44 dBV, 6 mV RMS Maximum Input Level: +14 dBV, 5 V RMS

PRE-EQ SEND:

Function: Low Level Pre-EQ Effects Send Load Impedance: 1K ohms or greater Nominal Output: -10 dBV, 0.3 V RMS Maximum Output: +14 dBV, 5 V RMS

PRE-EQ RETURN:

Function: Low Level Pre-EQ Effects Return Impedance; High Z, 220K ohms (Switching Jack providing Pre-EQ Send to Pre-EQ Return connection when not used) POST-EQ SEND:

Function: Medium Level Post-EQ Effects Send Load Impedance: 1K ohms or greater Nominal Output: -6 dBV, 0.5 V RMS Maximum Output: +18 dBV, 8 V RMS

POST-EQ RETURN:

Function: Medium Level Post-EQ Effects Return Impedance: High Z, 33K ohms Designed Input Level: ~6 dBV, 0.5 V RMS (Switching Jack providiong Post-EQ Send to Post-EQ Return connection when not used)

LINE OUTPUTS:

Function: Balanced and Unbalanced Low Level Equalized Outputs for Sound Reinforcement Mixer Load Impedance: 600 ohms or greater Nominal Output: -12 dBV, 0.25 V RMS Maximum Output: +10 dBV, 3 V RMS

FULL RANGE OUTPUT:

Function: High Level External Power Amp Feed Load Impedance: 1K ohms or greater Nominal Output: +6 dBV, 2 V RMS Maximum Ouptut: +18 dBV, 8 V RMS

LOW OUTPUT: (Bi-Amp Low Pass) Function: High Level External Power Amp Feed Load Impedance: 1K ohms or greater Nominal Output: +6 dBV, 2 V RMS Maximum Output: +18 dBV, 8 V RMS

HIGH OUTPUT: (BI-Amp High Pass) Function: High Level External Power Amp Feed Load Impedance: 1K ohms or greater

Nominal Output: +6 dBV, 2 V RMS Maximum Output: +18 dBV, 8 V RMS

LOW RANGE SEND:

Function: Medium Level Bi-Amp Low Effects Send Load Impedance: 1K ohms or greater Nominal Output: -6 dBV, 0.5 V RMS Maximum Output: +6 dBV, 2 V RMS LOW RANGE RETURN: Function: Medium Level Bi-Amp Low Effects Return Impedance: High Z, 15K Ohms Designed Input Level: -6 dBV, 0.5 V RMS (Switching Jack providing Low Range Send to Low Range Return connection when not used) HIGH RANGE SEND: Function: Medium Level Bi-Amp High Effects Send Load Impedance: 1K ohms or greater Nominal Output: -6 dBV, 0.5 V RMS Maximum Output: +6 dBV, 2 V RMS

HIGH RANGE RETURN:

Function: Medium Level Bi-Amp High Effects Return Impedance: High Z, 15K ohms Designed Input Level: -6 dBV, 0.5 V RMS

(Switching Jack providing High Range Send to High Range Return connection when not used)

SYSTEM BALANCE CONTROL:

+-10 dB gain difference between each power amp SYSTEM HUM & NOISE @ NOMINAL INPUT LEVEL: (20 Hz to 20 KHz unweighted) Greater than 78 dB below rated power

EQUALIZATION: (Rotary Graphic Type)

GUALIZATION: (Hotary Grap BOTTOM: +-15 dB @ 60 Hz PUNCH: +-15 dB @ 120 Hz BODY: +-15 dB @ 250 Hz TIMBRE: +-15 dB @ 250 Hz CLARITY: +-15 dB @ 1 KHz BRIGHT: +-15 dB @ 2 KHz PRESENCE: +-15 dB @ 2 KHz EDGE: +-15 dB @ 8 KHz PULL BRIGHT: +8 dB @ 2 KHz

PULL PUNCH: Special EQ CROSSOVER: (For Bi-Amp Applications) RANGE: 50 Hz to 500 Hz SLOPE: 12 dB/Octave



DANGER EXPOSURE TO EXTREMELY HIGH NOISE LEVELS MAY CAUSE A PERMANENT HEARING LOSS. INDIVIDUALS VARY CONSIDERABLY IN SUSCEPTIBILITY TO NOISE INDUCED HEARING LOSS, BUT NEARLY EVERYONE WILL LOSE SOME HEARING IF EXPOSED TO SUFFICIENTLY INTENSE NOISE FOR A SUFFICIENT TIME.

THIS AMPLIFICATION STATE IN BE PROTECTED OF THEARING THOSE THE ADDITION CALL THIS IN OFFICIATION. THIS AMPLIFIER HAS BEEN DESIGNED AND CONSTRUCTED TO PROVIDE ADEQUATE POWER RESERVE FOR PLAYING MODERN MUSIC WHICH MAY REQUIRE OCCASIONAL PEAK POWER. TO HANDLE OCCASIONAL PEAK POWER, ADEQUATE POWER "HEADROOM" HAS BEEN DESIGNED INTO THIS SYSTEM. EXTENDED OPERATION AT ABSOLUTE MAXIMUM POWER LEVELS IS NOT RECOMMENDED SINCE THIS COULD DAMAGE THE ASSOCIATED LOUDSPEAKER SYSTEM. PLEASE BE AWARE THAT MAXIMUM POWER CAN BE OBTAINED WITH VERY LOW SETTINGS OF THE GAIN CONTROLS IF THE INPUT SIGNAL IS VERY STRONG.

- 1. Read all safety and operating instructions before using this product.
- 2. All safety and operating instructions should be retained for future reference.
- 3. Obey all cautions in the operating instructions and on the back of the unit.
- All operating instructions should be followed.
- This product should not be used near water, i.e. a bathtub, sink, swimming pool, wet basement, etc.
- This product should be located so that its position does not interfere with its proper ventilation. It should not be placed flat against a wall or placed in a built-in enclosure that will impede the flow of cooling air.
- This product should not be placed near a source of heat such as a stove, heater, radiator or another heat producing amplifier.

- 8. Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.
- Never break off the ground pin on the power supply cord. For more information on grounding write for our free booklet "Shock Hazard and Grounding.
- 10. Power supply cords should always be handled carefully. Never walk or place equipment on power supply cords. Periodically check cords for cuts or signs of stress, especially at the plug and the point where the cord exits the unit.
- 11. The power supply cord should be unplugged when the unit is to be unused for long periods of time.
- Metal parts can be cleaned with a damp rag. The 12. vinyl covering used on some units can be cleaned with a damp rag, or an ammonia based household cleaner if necessary.

- 13. Care should be taken so that objects do not fall and liquids are not spilled into the unit through the ventilation holes or any other openings.
 - This unit should be checked by a qualified service technician if: A. The power supply cord or plug has been
 - damaged
 - В. Anything has fallen or been spilled into the unit.
 - C The unit does not operate correctly.
 - D. The unit has been dropped or the enclosure damaged.
- The user should not attempt to service this 15. equipment. All service work should be done by a qualified service technician.



PATCH DIAGRAM



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Due to our efforts for constant improvement, features and specifications are subject to change without notice.