



WARNING:
TO PREVENT ELECTRICAL SHOCK OR FIRE
HAZARD, DO NOT EXPOSE THIS APPLIANCE
TO RAIN OR MOISTURE.

BACKSTAGE™ Operating Guide

GENERAL DESCRIPTION

Over the past few years, our tremendously popular Backstage™ has become **the standard** for small practice amplifiers. For the 1980's, Peavey has totally redesigned and greatly improved this already outstanding little amp. The new Backstage™ satisfies the need for a small practice amplifier for those applications where sound quality and electronic sophistication are more important than large size and brute force.

Our intensive Research and Development program has provided another breakthrough in amplification of the electric guitar. For many years, both guitarists and instrument amp manufacturers have diligently sought to reproduce the warm, "saturating" characteristic of vacuum tubes with solid-state equipment. Our innovative new Backstage™ features a new effect that we call "SATURATION,"™ which produces a kind of gain compression/expansion that has previously been obtainable only with a select few extremely high gain, relatively powerful tube-type amps. In the past, many companies have attempted to reproduce the much sought after characteristics of vacuum tubes by using field effect transistors, transformers, series gain stages, etc. The results were usually loud, but **did not** accomplish the goal. We feel our new SATURATION™ circuit gives the necessary dynamic characteristics and compression/expansion so eagerly sought after by contemporary musicians. This effect is remotely controllable through the use of an optional footswitch.

The new Backstage™ boasts increased dynamic range, more power output (20 watts RMS), further improved equalization, and a totally redesigned, and even more rugged, power amplifier. This new electronic chassis is contained in our field-proven and market accepted ruggedly constructed ¾" Backstage™ cabinet. A heavy-duty 10" speaker with specially tailored tonal characteristics is solidly mounted to reproduce and enhance the exceptional sound produced by this new amp.

Overall, the new Backstage™ is a marked improvement over previous models and, while it is not an unduly large and powerful amplifier, its tonal and equalization capabilities, SATURATION™ dynamics, sophisticated circuitry, and its compact and portable size make it a "must" for today's musician. As a practice amplifier, the Backstage™ is exceptional.....with enough sophistication and features to satisfy the working professional while being affordable even to the amateur.

FRONT PANEL

INPUTS (A) (B)

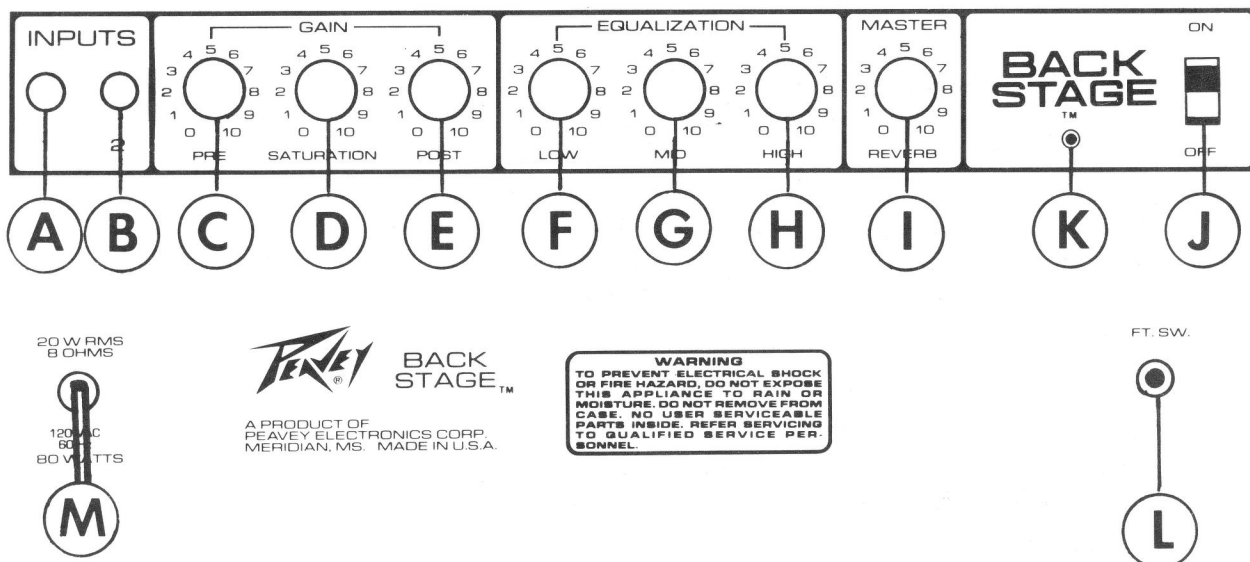
The new Backstage™ has been provided with two input jacks, each having different sensitivities and a unique arrangement allowing the gain of **both** jacks to be **equalized** when instruments are plugged into **both** jacks. The high gain jack (A) is the input normally used and has considerably more sensitivity and input impedance than the low gain jack (B). This low gain jack has been included to allow extension of the input dynamic range. If the output signal from your instrument is overloading (distorting) the high gain input, then the low gain input (-6 dB) should be used.

GAIN BLOCK™

The Backstage™ has been designed utilizing our new "GAIN BLOCK"™ signal processing front end. The provision of three interacting controls allows total control of the amp's gain structure (dynamics), harmonic content, overload texture, and output level. Each of the three control functions must be understood, and adequate experimentation time must be spent in order to fully utilize the potential of this unique and innovative new amp.

PRE GAIN (C)

Our pre gain control is similar to a conventional volume control in that it is the first level setting device in the system. Our input preamp circuitry utilizes variable negative feedback with the pre gain control as part of the active circuit. Utilization of this type circuitry enables an optimum combination of input dynamic range, input impedance, and low noise operation for any particular gain setting. Operation should present no problem since its action is conventional even though the associated circuitry is quite different from older, totally passive circuits. Please be aware that this control exhibits the professional logarithmic (audio) taper having approximately one fourth of the gain achieved at the 12:00 o'clock position, with the balance being obtained as the control is rotated clockwise. Many manufacturers utilize "linear" action controls that concentrate almost all of the gain in the first one-third of the control rotation. While this "linear operation" is "initially impressive," it should be noted that having **all** the gain "up front" in the first one-third turn is **misleading** and significantly reduces the amount of control latitude available.



"SATURATION"™ (D)

The SATURATION™ control is the element for setting the operating point for our new and unique "SATURATION"™ circuitry." Because the guitar amp is a very vital part of the sound of the electric guitar, we have devoted many years toward achieving the proper "sound" and gain/overload dynamics sought by guitarists. Until now, amps utilizing vacuum tubes (valves) have been considered by many players to be superior to most solid-state units. Today, Peavey is the only **major** manufacturer of **both** tube-type **and** solid-state amps, giving us a unique opportunity to study and analyze the various characteristics of each type.

Our extensive research revealed that tubes have the unique ability to "gain compress" at high levels producing a pleasing and "harmonically rich" smooth overload capability. Once having identified the various characteristics of tube amps, we set out to develop solid-state circuitry that would match the dynamics and harmonic textures of tube-type equipment.

Our "SATURATION"™ effect closely duplicates the gain/compression effect of vacuum tubes. The total tube sound is a result of the "interplay" between the voltage application (preamp) and the power amp/speaker interface. The "SATURATION"™ circuit operates in the preamp circuitry and exhibits successively more gain/compression effect as the control is rotated clockwise. It should be noted that the SATURATION™ effect must be balanced with proper settings of all three controls in the GAIN BLOCK™ for maximum effect. The pre gain must be set high enough for adequate drive voltage to the SATURATION™ circuit, while the SATURATION™ control should be varied to achieve the desired sustain/overload characteristics. The post gain (master volume) sets the sensitivity of the power amp and must be used in conjunction with the above controls for proper results.

It should be remembered that the SATURATION™ effect takes place in the **preamp** and that when the pre and post gain controls are set to drive the power amp to maximum output, the SATURATION™ circuit will have correspondingly little effect on the total sound of the unit as the normal overload characteristics of the **power amp** come into effect.

NOTE

TO ACHIEVE PROPER SATURATION™ CHARACTERISTICS FROM YOUR AMPLIFIER, YOU MUST UNDERSTAND THAT THE MAJOR PORTION OF THE SIGNAL PROCESSING CIRCUIT IS LOCATED IN THE PREAMP AND THAT WHEN THE POST GAIN IS SET HIGH ENOUGH (GENERALLY "5" OR HIGHER), THE POWER AMP THEN BEGINS ADDING ITS OWN HARMONICS TO THOSE ALREADY BEING GENERATED BY THE SATURATION™ CIRCUITRY. EXPERIENCE HAS PROVEN THAT THE BEST OVERALL RESULTS ARE OBTAINED WHEN ALL THE OVERLOAD IS TAKING PLACE WITHIN THE SATURATION™ CIRCUITRY, WHILE THE INTERNAL POWER AMP/SPEAKER REMAINS BELOW THE CLIPPING POINT.

The procedure for arriving at optimum control settings with any particular guitar and equalization characteristics are as follows:

1. Plug into the high or low gain input jack.
2. Set the **post gain** control somewhere in the **middle** of its range.
3. Set the **pre gain** control somewhere in the **middle** of its range.
4. Adjust the SATURATION™ control for the desired amount of gain/compressed clipping.
5. Readjust the **pre gain** control to assure adequate drive.
6. Readjust the **post gain** control just below the point at which the power amp/speaker reaches the clipping point and adds its own harmonics to the predistorted signal. This setting is readily noticeable since the additional harmonics are audible when the **power amp** reaches its maximum output level.

NOTE

PROPERLY SET UP, THE SATURATION™ CONTROL OPERATES THE POWER AMP JUST BELOW ITS CLIPPING POINT, GIVING TOTALLY SMOOTH OVERLOAD CHARACTERISTICS. BY DRIVING THE POWER AMP TO ITS OUTPUT CLIPPING LEVEL, THE OUTPUT DOES NOT BECOME LOUDER.....JUST MORE DISTORTED AND SOMEWHAT LESS PLEASING.

Experimentation and operating experience will be necessary to fully realize the unique benefits of this SATURATION™ effect. The SATURATION™ effect may be remotely switched out of the circuit through use of an optional remote switch plugged into the footswitch jack (L) on the rear panel. With remote switching capability, it is possible to obtain smooth harmonic overload or a clean undistorted sound simply by depressing the footswitch.

CAUTION

THE POST GAIN CONTROL MUST BE ADJUSTED TO PREVENT THE POWER AMP FROM CLIPPING IN ORDER TO HAVE A CLEAN SOUND WHEN SATURATION™ IS SWITCHED OUT.

POST GAIN (E)

The post gain control determines the input sensitivity of the power amp. The action of this control is similar to that of a "master volume" control and can be used to control the overload dynamics of the preamp by **decreasing** the sensitivity of the power amp. The post gain control allows maximum gain and SATURATION™ effects to be achieved in the preamp circuitry while maintaining the relatively low power output levels necessary in studio or practice applications. The operation of this control is conventional and no difficulty should be encountered. To achieve a "warm" SATURATION™ type sound, it is recommended that the post gain control be set at "5" or less. Please refer to the detailed instructions for the SATURATION™ control in order to achieve optimum results when using the post gain control in conjunction with the pre gain and SATURATION™ controls.

EQUALIZATION

To provide a degree of tonal range, most amps today are equipped with some kind of equalization controls. Many guitar amps have been designed by engineering teams having little or no understanding of the needs of guitarists and the usual result is generally a "hi-fi" amp in a "guitar amp configuration." As you know, a guitar amp is a vital link in the electric guitar system, and proper attention must be paid to achieving the kind of response necessary for proper tonal texture.

The Backstage™ includes controls for low, mid, and high frequency ranges. While many amps have similar equalization control functions, many of these offer poor operation especially in the mid and low frequency EQ ranges. Our unique EQ circuitry has been designed so that the low and mid control actions "overlap" slightly as do the mid and high control actions. This intentional "interaction" of the vital middle control enables the equalization circuitry to produce a virtual "rainbow" of tonal coloration and timbre combinations. These EQ controls are not "hi-fi" type controls where the vertical (12:00 o'clock) setting is flat. This EQ circuitry is capable of simulating most types of guitar response, especially when used in conjunction with the amp's gain/overload dynamics. Again, experimentation and understanding are necessary for achieving maximum performance from this versatile new unit.

LOW FREQUENCY EQ CONTROL (F)

The low frequency EQ control is the control element for determining the low frequency response of the amplifier. Our unique low frequency EQ circuitry permits smooth and precise action of this control. Experimentation will illustrate that this type of EQ is ideal for musical instrument applications and its effect on the overall tonal color is profound. Increasing low frequency response is obtained as the control is rotated clockwise. Care should be taken to not overboost the low end to avoid prematurely overdriving the power amp. Most amps that are well-respected for "hard rock" have somewhat limited low end capabilities; therefore, it is not a good idea to use a lot of low end boost. With guitar signals, extreme bass boosts do not add significantly to the "projection" capabilities but do consume a "disproportionate" amount of power, generally at the expense of high and middle frequencies which have an extremely pronounced effect on the "apparent" loudness and/or projection.....i.e., do not use too much bass boost when you need all the projection you can get. Because bass frequencies generally require more output power than middle or high frequencies, it is important to keep this fact in mind when using this medium powered (20 watts RMS) amp.

MID FREQUENCY EQ CONTROL (G)

The mid EQ control determines the level of the vital midrange frequencies. Our research has indicated that the midrange is often the most important (and overlooked) range of frequencies. This midband is what actually makes many guitars and amps sound the way they do. The extremes of highs and lows sometimes have minimal effect on the overall tonal color, while those frequencies we generally call the "midrange" really make the vital difference between merely a "good sound" and a "great sound." The middle frequency EQ control will enable tremendous tonal variation and is designed to interact slightly with both the low EQ and the high EQ controls. This interaction or overlapping action enables endless subtle tonal "shadings" to be achieved.

The action of this middle control is conventional, with increasing midrange response as the control is rotated clockwise. This control is very effective in determining the overall "color" of the sound when using the SATURATION™/overload features of this amp. Generally, a much "thicker" and "fatter" sound is obtainable when more mid **boost** is used for hard rock. For clean country/jazz playing, more mid **cut** is generally better.....In any case, this mid EQ "works" and should be used to "fine tune" the overall low and high EQ to provide the tonal color needed.

HIGH FREQUENCY EQ CONTROL (H)

The high frequency EQ control is the control element determining the amount of high frequency boost in the output signal. The action of this control is conventional. An increasing amount of high boost is obtained as this control is rotated clockwise. This high EQ circuit is extremely effective and should provide more than enough tonal variation for achieving almost any amount of "top end" required.

When playing hard rock, it is usually not a good idea to use maximum high end boost since excessive highs tend to make the smooth overload characteristics of this amp somewhat more "strident" and "hard" than is generally desirable.

MASTER REVERB CONTROL (I)

This control determines how much delayed (reverb) signal is blended back into the main output signal. This control is conventional in operation and should present no difficulty. Please remember that the reverb function may be remotely controlled by use of the optional footswitch plugged into the footswitch jack on the rear of the chassis.

ON/OFF SWITCH (J)

The on/off switch is a simple, two-position switch which should present no operational problems.

PILOT LED (K)

The pilot LED (light emitting diode) indicates when the electrical supply (mains) is supplying power to the amplifier. This LED has a virtually infinite life span and should never need replacing throughout the life of the unit.

REAR PANEL

FOOTSWITCH JACK (L)

The footswitch jack allows remote switching of both SATURATION™ and reverb effects. This jack is of the stereo (ring-tip-sleeve) type and will not function properly with standard mono (tip-sleeve) jacks.

NOTE

WHEN PLUGGING IN THE FOOTSWITCH, PLEASE BE SURE TO INSERT THE PLUG ALL THE WAY (TO THE SECOND CLICK) INTO THE JACK. FAILURE TO INSERT THE PLUG ALL THE WAY WILL NOT ALLOW FULL FUNCTION OF THE FOOTSWITCH.

Note: The footswitch is optional with this model and may be purchased through your Peavey dealer.

LINE (MAINS) CORD (M)

For your safety, we have incorporated a three-wire line (mains) cable on the bottom 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 exist when the unit is operated with properly grounded receptacles.

SPECIAL NOTE

YOUR AMPLIFIER INCORPORATES INTERNAL FUSING. SHOULD YOUR AMPLIFIER DEVELOP A FAILURE, THIS INTERNAL FUSE SHOULD BE REPLACED BY COMPETENT SERVICE PERSONNEL SINCE HIGH VOLTAGES ARE PRESENT INSIDE THE CHASSIS.

CAUTION

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND RATING FUSE.

SPECIFICATIONS

POWER AMPLIFIER SECTION:

FREQUENCY RESPONSE:

+0, -3 dB, 60 Hz to 30 KHz @ 1W RMS into 8 ohms

RATED POWER AND LOAD:

20W RMS into 8 ohms

POWER @ CLIPPING:

(8 ohms, 1 KHz, 120 VAC line)

Typically:

18W RMS @ 1% THD

21W RMS @ 5% THD

23W RMS @ 10% THD

TOTAL HARMONIC DISTORTION:

Less than 0.5%, 100 mW to 15W RMS, 50 Hz to 10 KHz, 8 ohms,

Typically below 0.25%

PREAMP SECTION:

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

SATURATION™ @ FULL COUNTERCLOCKWISE

LOW & HIGH EQ @ FULL CLOCKWISE

REVERB @ FULL COUNTERCLOCKWISE

POST GAIN @ FULL CLOCKWISE

MID EQ @ FULL COUNTERCLOCKWISE

NOMINAL LEVELS ARE WITH PRE GAIN @ 12:00;

MINIMUM LEVELS ARE WITH PRE GAIN @ FULL CLOCKWISE

PREAMP INPUT CHARACTERISTICS:

JACK A INPUT:

Impedance: High Z, 220K ohms

Nominal Input Level: -28 dBV, 40 mV RMS

Minimum Input Level: -46 dBV, 5 mV RMS

Maximum Input Level: +4 dBV, 1.5V RMS

JACK B INPUT:

Impedance: High Z, 44K ohms

Nominal Input Level: -22 dBV, 80 mV RMS

Minimum Input Level: -40 dBV, 10 mV RMS

Maximum Input Level: +10 dBV, 3V RMS

SYSTEM HUM & NOISE:

@ Nominal Input Level, 20 Hz to 20 KHz, unweighted
68 dB below rated power

EQUALIZATION:

Special low, mid, and high passive type EQ circuitry

DIMENSIONS:

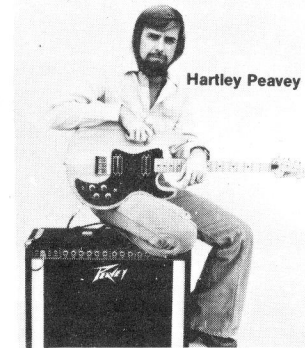
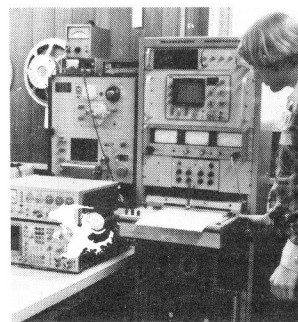
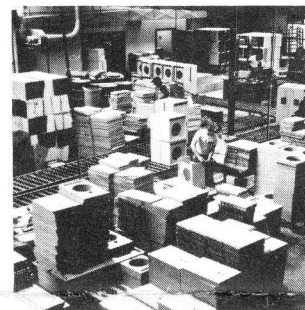
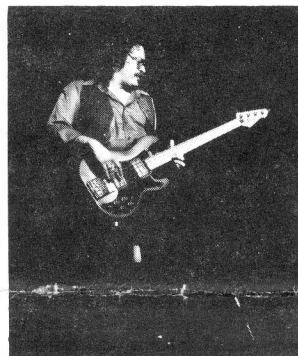
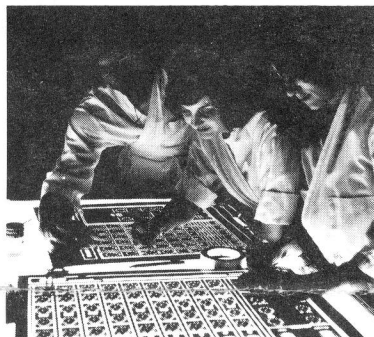
15" H x 17" W x 9 1/4" D

WEIGHT:

23 lbs.

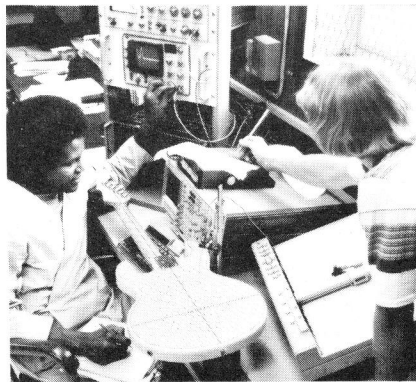
Due to our efforts for constant improvements, specifications are subject to change without notice.

THE WORLD OF PEAVEY



From its earliest idea stages, the concept of Peavey Electronics, and its equipment has evolved based on the principle of constant refinement. Musicians, like yourself, engineers, and craftsmen work with some of the best technology in the business to create the very finest product possible.

That ideal has transformed Peavey Electronics from a small one man basement workshop into four large factory buildings with an adjoining office and engineering complex covering a total of more than 400,000 square feet, employing approximately 900 people.



Despite our growth and expansion, we're still a young company with fresh ideas dedicated to the same concept of offering the musician new and better products.

When you buy a product bearing the Peavey name, you can be assured that it is of the highest quality that craftsmanship and technology can produce...whether it be a sophisticated mixer or a set of guitar strings.

