

Hughes & Kettner Fortress Manual

Congratulations and thank you for choosing the Hughes & Kettner Fortress bass preamp. The Fortress has been developed by a design team consisting both of bass players and amp gurus. The Fortress was designed from the ground up to meet the demands of today's bass players both on stage and in the studio, and to free them from the constraints of outdated technology. The Fortress offers the following features:

Neutral Input Stage

Unlike the input on other bass preamps, the bass input signal on the Fortress is not pre-filtered. As a result, the nuances that shape the instrument's individual personality are reproduced in full detail.

Six-Band Equalization

The six tone controls, plus two additional boost switches, were finely tuned especially for the Fortress. Each band of equalization was chosen for its practical impact on the sound.

Separate Valve Stage

Unlike transistor circuits, valves imbue the sound with an added dimension of warmth and presence. Their complex harmonic response provides a punchier, more expressive sound.

Compressor/ Limiter

The integral compressor/ limiter offers control over attack and release dynamics, cuts out unwanted peaks, and lends the sound more body. The Fortress uses the best chip possible, an original DBX[®], and surrounds it with circuitry which has been optimized for bass.

Stage Ease-of-Use

The tone controls respond musically at the turn of the knob. Additional sound-shaping facilities like boosts, mid-shaping, and compression are available at the touch of a button. All these functions can be pre-set and called up with the optional stageboard.

Comprehensive Connections

The Fortress offers three effects loops: one serial, one parallel and one switchable. The built-in active crossover can be adjusted between 90 and 1100 Hz to get the best performance from any conceivable combination of speaker cabinets. In the signal path, the balanced Line Out comes before the master volume, making it ideal for direct input into PA systems.

Enjoy using your Fortress bass preamp!

The refined EQ section of the Fortress is the result of extensive research. It has been custom-tailored for the electric bassist. Each control has a unique character; the bandwidth and degree of cut or boost for each control is different, depending on what makes the most sense at each given center frequency for bass.

Unlike conventional equalizers, with the Fortress the input signal remains absolutely unchanged by the EQ control when that control is set to zero (12 o'clock); the original sound of the instrument is retained.

The filter parameters of the six controls ranges are individually tuned, and take full account of the whole spectrum of bass playing from punchy rock, through rounded, double bass fretless sounds to ultra-bright slapping. The frequency ranges are as follows:

CONTRA: controls the lowest bass frequencies. Center frequency is 50 Hz. Increasing the Contra setting adds bottom without boominess. Bandwidth is narrow (24dB/ octave slope).

BASS: controls the main bass region. The full, punchy bass fundamentals around 120 Hz are precisely regulated using this control.

VOICE: the low mid-range around 220 Hz is the growling, round part of the bass spectrum, which provides fullness and penetrating power. It is especially good for giving soft fretless sounds that distinctive velvety quality.

BASS BOOST: offers an additional narrow-band boost of 7dB at 100 Hz. Since this control duplicates neither the CONTRA nor BASS control, it allows you to call up additional new sound combinations.

MID: controls the mid-range centered around 550 Hz, and is switchable using the MID ON/OFF button. The broad-band cut and boost is, in effect, a "Shape" control enabling you to call up typical funk, slap, or fretless sounds at the touch of a button.

BITE: controls the rich, brilliant high frequencies around 2 KHz and up which determine how much "attack" the sound has. BITE also allows you to compensate for different cabinets.

EDGE: controls the crisp, intricate, more detailed highs from 6 KHz and up which are responsible for the character of the harmonics, and which come to the fore when you use a slapping or tapping technique.

TREBLE BOOST: adds brilliance at 9 KHz. Special filter characteristics make the sound clearer and richer in overtones - the sort of effect which ordinarily only comes from putting on new strings.

The Fortress contains a complete valve channel with four valve stages and two valves. Unlike transistor circuits, valves generate rich, complex sound structures, comparable to the body of an acoustic instrument.

Compressor/Limiters have been widely used for many years wherever electric bass has to be played live, on stage or in the studio. The original DBX* Compressor/limiter chip in the Fortress puts you in complete control of your sound.

TUBE ON: The TUBE ON Switch activates the valve section of the FORTRESS.

TUBE DIRECT: This switching facility, which caters to the tastes of the tube purist, bypasses all the transistor circuitry, rotary tone controls, and effect loops, thereby delivering nothing but the tube-amplified sound of the instrument itself.

(TUBE) GAIN: Controls the input level of the signal reaching the valve stage. Depending on the setting chosen, it can add warm harmonic distortion and singing sustain to the bass sound. Use this control to adjust from a small measure of warmth to a strong, growling overdrive.

(TUBE) VOLUME: The Volume control is used simply to match the levels between the valve stage and the transistor stage. While the Gain directly affects the tube sound, the Volume only controls the signal level. (First, make sure the TUBE DIRECT button is out. Then, press the TUBE ON/OFF switch in. Adjust Tube GAIN to taste. Then adjust the Tube VOLUME, checking it against the non-tube volume by pressing the TUBE ON/OFF switch in and out to compare levels.)

MASTER: sets the output volume for power amplifier / headphones

The Compressor/Limiter is used to achieve a balanced sound and dynamic tone. Since bass playing can include large jumps in level, the compressor boosts softer passages, and the limiter reduces the volume of greater peaks. The preset compression ratio was chosen for its ability to ensure that the sound always remains clearly defined, dynamic and natural.

To activate the **COMPRESSOR/LIMITER**, press the button labelled ON/LIMIT, which will cause the LED to glow green. When the signal peaks are higher and the limiter kicks in, the LED changes to red.

ATTACK: controls how quickly the compressor kicks in from slow to fast. At a setting of zero, the initial attack is allowed through completely; at a setting of 10 the initial attack is caught immediately and suppressed.

INTENSITY: at high "intensity" control settings, you achieve a very long sustain and extreme "fatness" of the tone. (Often called "Decay" on other compressors.)

For connecting different effect units, drum machines, tuners or an external preamp, the Fortress offers three separate effects loops: The **serial loop** is designed for connecting chorus, flanger, octave doublers and other effects units. Use the Serial Gain control to adjust the level coming back from the effects processor so that it matches the preamp; with a serial loop you will need to use the "balance" control on the effects processor itself to set how "wet" or "dry" the effect will be. The **parallel loop** should be used for effects such as reverb and delay; these effects are added to the original signal. To adjust these effects, set the dry-wet balance on the effect to 100% wet, and use the output level control of the effect to adjust to taste. The **preamp loop** allows you to connect the Fortress to an external preamp.

A headphone socket, ¼" Line Out, balanced XLR out and the high frequency and low frequency outputs of the crossover round out the connection possibilities.

MAINS SOCKET: the fuse holder is built into the mains power cord socket. You can change the voltage from 220 to 110 by turning the fitting.

HEADPHONES: headphone output jack. The volume of any headphones you have connected to this jack is controlled by the Master Volume knob on the front panel.

CROSSOVER: in bi-amped operation, the output signal is divided into High and Low frequencies and each section is amplified separately. The frequency at which this occurs is determined by this potentiometer. Suggested frequencies: between 400 and 600 Hz with 8" high frequency speakers, or between 200 and 300 Hz with 10" speakers.

LINE OUT: provides the output signal for feeding a power amplifier.

BALANCED OUT: provides a balanced signal for PA or D.I. use. This signal is post-EQ and effects.

LOOP: this loop is designed to connect an external preamp or effects units, and has a variety of switching options. The PRE/POST switch selects whether the signal coming from the Send jack is taken from the signal path at a point before the EQ section or after it. If an external preamp is connected, the switch should be set to PRE EQ.

LINE / INSTRUMENT switches the signal to the level indicated.

SERIAL LOOP: chorus, flanger, octave doubler, and other such devices should be connected to the serial loop. Use the serial loop's GAIN pot matches the output level to that of your preamp.

PARALLEL LOOP: only effects such as reverb and delay, which are added to the original signal, should be connected to the parallel loop.

The Fortress stageboard, which was designed especially for live use, allows you to alter sounds instantly, all the switching functions on the unit's front panel can be called up by foot, with LED's indicating their status. A number of alternatives can be created in conjunction with the amp loop.



SECOND PREAMP: activates the external preamp connected to the preamp LOOP. The PRE/POST EQ switch should be on PRE, and the LINE/INSTRUMENT pot should be used to match the level that of the external unit. TIP: If no external device is connected, the amp loop can be used to mute the Fortress. This may be useful for silent tuning and instrument swapping.

BASS BOOST, MID CONTROL, TREBLE BOOST, TUBE, and **COMPRESSOR** can be turned on and off using the appropriate switch. Dozens of different permutations are available at the press of a button. The LEDs provide a clear overview of settings even on the darkest stages.

PRESET SELECT: switches between the sound combination you have set up on the front panel of the Fortress and the sound combination you have prepared on the stageboard. In either case, you can still punch the various functions in or out individually.