

# B-2003

## Controls

Global controls

Drawbars

The Main page

Vibrato

Rotor

Percussion

Key Click

Drive

Add page

Rotor

Microphone

Ext IN

Tone Wheels

Drawbars

Envelope



creamw@re<sup>®</sup>

fidelity at work.

NOAH

- Tactive Instrument Modeller

# B-2003

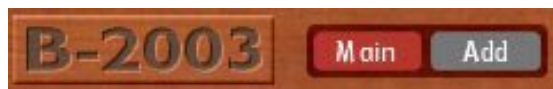
The B-2003 is a drawbar organ in the tradition of the unique Hammond B3™. All the features of the original have been precisely modeled: 92 tone wheels with full polyphonic performance, key clicks and percussion, scanner vibrato, overdrive, and a rotary speaker (Leslie™) effect.



# Controls

Most of the controls are arranged in groups according to functionality, and visually resemble the controls on a Hammond™ organ. If you are familiar with the operation of a drawbar-style organ (and even if you're not) you will find the B-2003 easy to use.

## Global controls



**Main / Add:** While the controls located in the upper half of the control surface remain visible at all times, the controls in the lower half change depending on which view is selected, *Main* or *Add* (for Additional).



**Preset:** Click the Preset icon to open the Preset dialog. The currently selected preset is shown in the Preset field.

**Swell:** Controls the overall volume of the B-2003. Swell comes before the tube distortion circuit. Therefore, when Drive is activated, the Swell setting also affects the degree of distortion produced by that circuit.

### Tone

There are two controls to adjust the overall tone quality of the instrument.

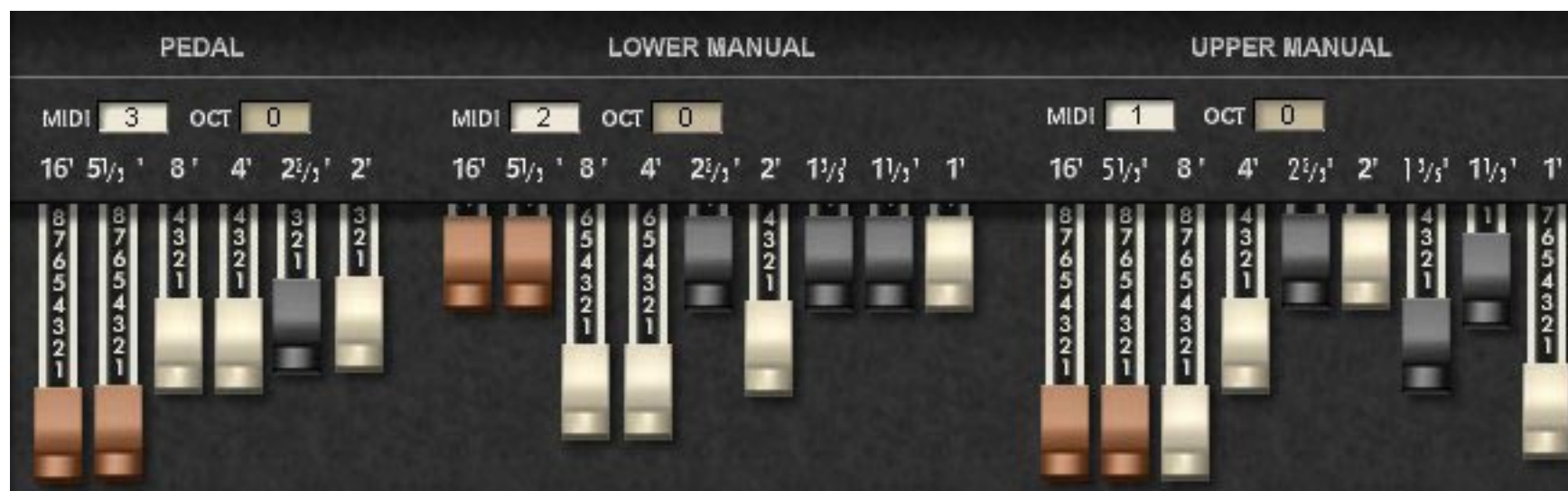
**Treble:** Controls the level of high frequencies in the output.

**Bass:** Controls the level of low and mid frequencies in the output.



## Drawbars

The Hammond B3™ has two keyboards (upper and lower manuals) and foot pedals for bass. The B-2003 lets you reserve sections of a keyboard, or different keyboards, by MIDI channel or address, so you can use several keyboards or keyboard zones to implement the same functionality.



**MIDI Channel:** Sets the MIDI channel for each respective section (Pedal, Lower Manual, Upper Manual).

The Lower manual functions only when it has its own MIDI channel assigned to it, or when a split between Upper and Lower has been set up. The same applies to the Pedal section (with respect to the Lower Manual).

The MIDI channel of the upper manual is the master MIDI channel for the B-2003 – this is also the channel on which it responds to controller messages.

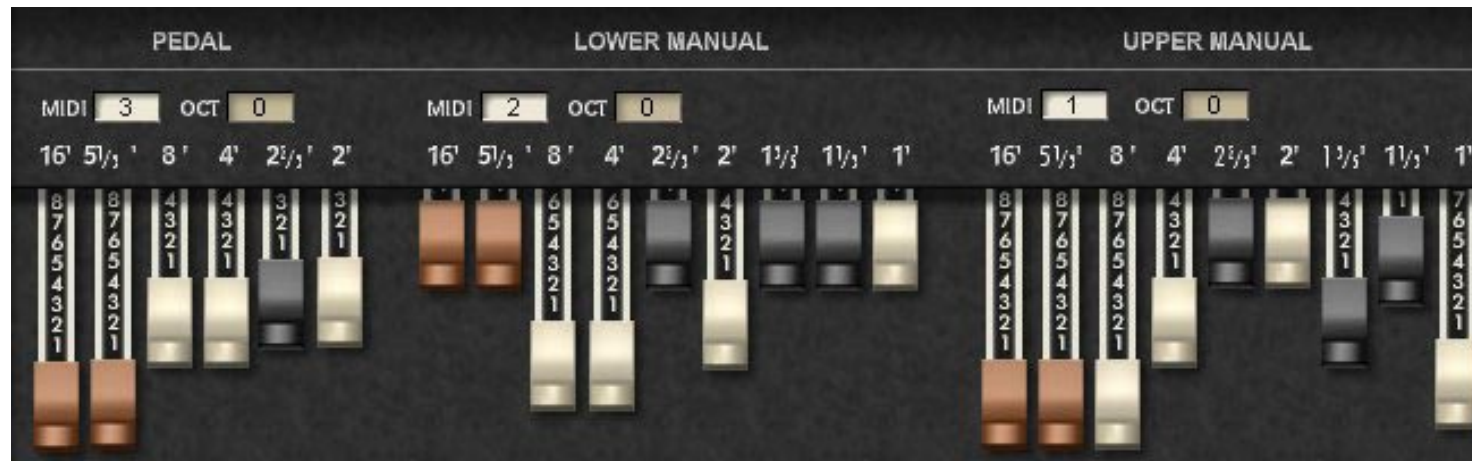
**Split Key:** Applying the same MIDI channel setting to neighboring sections activates a split between those sections. This permits any two neighboring sections, or all three sections, to be

played from different zones of a single keyboard. Split Key sets the boundary between the keyboard zones applying to the two manuals on either side of it.

**Octave Transpose:** Permits transposition of the associated section by one octave up or down.







**Drawbars:** The sound produced by each section (pedal, lower manual, upper manual) is controlled by individual *drawbars*. Each drawbar corresponds to a specific frequency range. The label on a drawbar (a number followed by an apostrophe) comes from pipe organ technology and simply refers to the length of the pipes that produce the sound. Longer pipes (higher numbers) produce deeper octaves.

The designations 8', 4', 2' and 1' (white) correspond to the fundamental pitch, and the 2<sup>nd</sup>, 4<sup>th</sup> and 8<sup>th</sup> harmonics respectively. The designations 2 1/2', 1 3/5' and 1 1/3' (black) correspond to the 3<sup>rd</sup>, 5<sup>th</sup>, and 6<sup>th</sup> harmonics. The designations 16' and 5 1/3' (brown) correspond to half of the fundamental and half the third harmonic respectively.

For the pedal range, the upper three drawbars are eliminated.

Each drawbar can be pulled out in nine steps (0-8) to regulate the relative volume of the respective frequency range. The harmonics resulting from the drawbar positions are summed to produce the complete sound.

## The *Main* page



### Vibrato

**Vibrato Lower / Vibrato Upper:** Vibrato (periodic pitch variation) can be switched on or off for each manual separately.

**Rotary switch:** The rotary switch selects the type and strength of the effect. The V-1, V-2, and V-3 positions produce only vibrato in increasing degrees. The positions C-1, C-2 and C-3 add a chorus effect to the vibrato. C-3 is the position most favored in jazz or rock.

### Rotor

**Slow / Fast:** This rocker switch selects the speed of the rotor (Leslie™), slow or fast.

**MW/AT:** Alternatively to the lever switch on the surface, you can use one of two controllers. Both ModWheel (MW) and Channel Aftertouch (AT) are available. The setting of the MW/AT parameter determines which of the two is used. The threshold adjustment sets the controller value at which the rotor speed switches. The graphical lever switch has priority over MIDI controllers – when this switch is set to fast, MIDI controllers have no effect upon rotor speed.

**Rotor:** This switch turns the rotor effect (Leslie™) on or off. The original Leslie produces sound modulation via the Doppler effect through the use of rotating loudspeakers which make the sound seem to "sing".



## Percussion

The Hammond™ Percussion effect is a patented circuit that changes the attack of a played note by adding an additional tone.

**The percussion effect applies only to the upper manual.**

**The percussion effect occurs only if no other key is in play. When playing legato style, only the first note will exhibit the percussion component.**

**Level:** Controls the strength of the percussion effect by controlling the level of the added tone.

**Decay:** Controls the length of the percussion effect, or the duration of the added tone.

**Harmonic:** Controls the frequency of the percussion effect, or the pitch of the added tone. The possible pitches available correspond to the drawbars.

## Key Click

**Level:** The mechanical keyboard of the Hammond B3™ produces a clicking or snapping which was not at first necessarily considered desirable. However, over time this has been accepted as one of the characteristic elements of the classic Hammond™ sound. This control adjusts the level of the clicking noise.

## Drive

**Drive:** This rocker switch enables or disables the emulated tube distortion of the B-2003. This is a reproduction of the amplifier overdrive in the original Leslie™ cabinet.

**Level:** Controls the degree of emulated tube distortion.

**Output:** Because the distortion changes the overall volume level, you can compensate for the change with this control. Use the LED display to set a good level. Avoid lighting the red LED, which signals a digital over condition.

## Add page



### Rotor

Here you can adjust several parameters related to the Leslie™ emulation. Many Leslie™ cabinets had a speaker for the lows (bass) and a horn for the highs (treble). These rotated differently, and this behavior can be controlled in detail in the B-2003.

**Slow:** Set the slow rotation speed for the bass and horn speakers separately. This is the speed when the rotor switch on the *Main* page is set in the Slow position.

**Fast:** Set the fast rotation speed for the bass and horn speakers separately. This is the speed when the rotor switch on the *Main* page is set in the Fast position.

**Accel (Acceleration):** Controls the amount of time it takes the bass and horn speakers to change from one rotor speed to the other when the rotor switch position on the *Main* page is changed (Slow -> Fast ).

**Brake:** Sets the amount of time it takes the bass speaker to slow down when the speed (Rotor switch on the *Main* page) is switched from Fast to Slow.

**Tone:** The Bass Rotor and the Horn each have their own Tone control. This control permits alteration of the tone color in such a way that the resonances produced by the Rotor are shifted – the Rotor "sings" with a brighter or darker tone.



## Microphone

The B-2003 emulates our perception of the bass and treble Leslie™ speakers with separate microphones.



**Balance:** This control establishes the volume relationship between the treble and bass speakers. In the full left position only the treble speaker is heard, and at full right, only the bass. In the center position the two are at equal levels.

**Spread:** This parameter allows you to control the "breadth" of the horn sound, as if you were varying the physical separation of two microphones which are picking up its sound.

## Ext IN

An external signal can be passed through the effects (Vibrato, Drawbar Distortion, Drive, Tone and Rotor) of the B-2003. The Vibrato switch of the Lower manual also switches this effect on and off for the external signal.



### ExtIN On

Switches the external sound source on or off.

### Level

The volume level of the external signal. For this to have an effect, a sound source must be connected to the Audio input of the B-2003.

## Tone Wheels



**Condition:** The tone wheels of a genuine Hammond™ organ are subject to wear, which impairs the sound quality. This control lets you adjust the virtual condition of the tone wheels from 'brand-new' (*NEW*) to 'in need of repair' (*REPAIR*).

**Tuning:** This rotary control adjusts the overall tuning steplessly within a range of +/- 1 tone.

## Drawbars



**Leakage:** With some Hammond™ organs you can still hear overtones in the background even if the drawbars are fully pushed in. This arises from cross modulation in the circuits. This parameter lets you include this phenomenon in the instrument's behavior.

**Distortion:** This control lets you add even more distortion (above and beyond the *Drive* parameter for the tube emulator) to the degree you set here.

## Envelope

The B-2003 can respond to your dynamic playing style differently than the original, and the signal envelope can also be altered.



**Release:** This control specifies the signal's release time. In the maximum position the signal is cut off immediately when the key is released, while in the minimum position it is allowed to ring out gradually.

**Velocity:** With this rocker switch set to *On*, the volume of the signal is controlled by how hard you strike the keys (Velocity control).

**Attack:** Lets you specify an attack time for the signal. In the minimum position, the signal fades in softly, while it plays at full strength immediately in the maximum position.

# Index

## A

Accel 8  
Add 3  
Add page 8  
Attack 11

## B

Balance 9  
Bass 3  
bass 8, 9  
Brake 8

## C

Condition 10  
Controls 3

## D

Decay 7  
Distortion 10  
drawbar-style organ 3  
Drawbars 4, 5, 10  
Drive 7

## E

Envelope 11  
Ext IN 10

## F

Fast 6, 8

## G

Global controls 3

## H

Hammond organ 3  
Harmonic 7

## J

jazz 6

## K

Key Click 7

## L

Leakage 10  
Leslie 2, 6, 8  
Level 7, 10

## M

Main 3  
Main page 6  
Microphone 9  
MIDI Channel 4  
MW/AT 6

## O

Octave Transpose 4  
Output 7  
overtones 10

## P

Percussion 7  
pipes 5  
Preset 3

## R

range 5  
Release 11  
rock 6  
Rotary switch 6  
Rotor 6, 8

## S

Slow 6, 8  
speaker 8  
Split Key 4  
Spread 9  
strength 6  
Swell 3

## T

Tone 3  
Tone Wheels 10  
Treble 3  
treble 8, 9  
Tuning 10  
type 6

## V

Velocity 11  
Vibrato 6