



Bass Machine

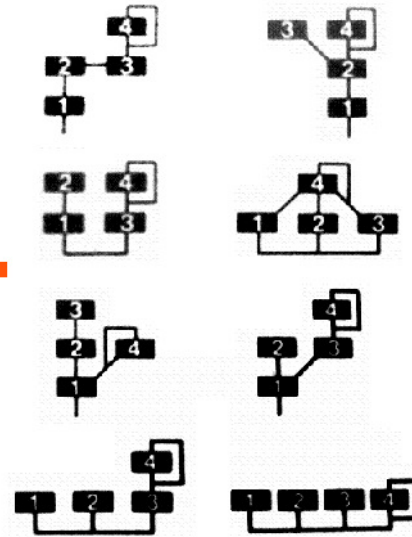
Installation Guide & User Manual

D.A.Wilson, Hideaway Studio, Sept 2013

HS-K4L-A009

Hideaway Studio Presents... Bass Machine

Model D and 4-OP FM In Perfect Harmony....



Bass Machine was in essence an attempt to revisit a commonly used trick of the trade whereby the warm roundness, power and motion of the Minimoog's bottom end was blended with the bite and clinical accuracy of FM bass. The result is a nice example of where the whole is greater than sum of its parts.

In order to capture as much of the Model D's character as possible, four patches were dialled into the instrument complete with filter envelope. Since such a process would probably have rendered rather inflexible results another four patches were captured with the filter wide open. Every white key was captured as four random round robins resulting in over 800 samples from Hideaway Studio's beloved 1976 Minimoog No.7751.

Eight patches were then dialled up on a classic 4-OP FM synth. Four sounds were lightly tweaked and four were programmed to offer a wide range of sonic palette that suitably complemented the patches from the Model D. Over 280 samples were captured from the instrument on every white key.

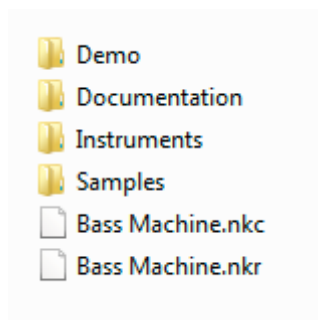
At the heart of the Bass Machine is a superb dual voice synth engine which was implemented by Stephen Howell (Hollow Sun) and scripting guru Mario Krušelj thus permitting samples from each instrument to be layered complete with independent filters, envelopes and LFO's for each channel.

Over 50 example patches were programmed during the course of the project.

Installation

Installation is straightforward. **Bass Machine** requires Kontakt version 4.2.4 or higher. Once the .zip file has been downloaded unzip the archive making sure the original directory structure is retained.

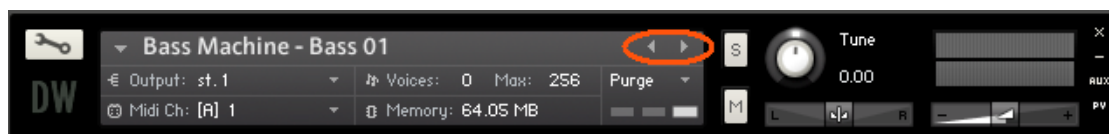
This should result in a folder called Bass Machine containing the following folders:



To run **Bass Machine** simply load up one of the example .nki files in the Instruments folder. You will also find a basic template in this directory to use as a starting point for new instruments.

Instant Gratification

You can easily run through each of the 50 or so example instrument patches (.nki) in the instruments folder by clicking on the small arrows to the right of the instrument name.



Hopefully by loading up the example patches you will be able to see how they have been constructed in the synth engine and can be used as starting points for new sounds which can be saved under new file names.

Programming the Bass Machine...



Naturally the example instruments packed with the library can be used as is but where the fun starts is having a go dialling in your own sounds into the synthesizer.

Oscillator Selection



Bass Machine is in essence two independent subtractive synthesizers layered together but featuring complex oscillator waveforms. The synth engine is split into two main sections. The top section represents the sound sources captured from the Model D and the bottom section from the FM synth. The eight blue rocker switches offer two groups of waveforms. Switches 1 thru 4 enable free running cross-modulated multi-oscillator waveforms complete with preserved classic filter envelopes from the instrument. Switches 5 thru 8 enable cross-modulated waveforms captured with the filter wide open. It is possible to enable more than one waveform at a time by holding the CTRL (CMD) key down whilst clicking on the switches.

The FM oscillator waveforms are selected in a similar manner. Please note that several of the FM waveforms also preserve their envelopes in order to capture as much of the character of the original instrument as possible.

Please note that a significant amount of oscillator beating is present in the Model D waveforms – this is typical of a free-running multi-oscillator VCO synth and hugely contributes to the movement of sound so typical of the Model D.



Each of the two synth sections feature independent fine tuning, volume level and stereo pan position controls.



The synth engine features multiple **LFO** destinations. A separate **LFO** depth amount is available for each of pitch, filter cutoff control, amplitude and pan position. The amount control for each destination is selected by clicking and moving the destination switch and then the LFO amount adjusted accordingly. Please note that the overall depth of the LFO destinations is determined by the modulation wheel on the player's keyboard. Everything from a subtle vibrato (amount set a notch or so away from the centre position) to deep plunging effects.

Filters and Envelopes



Bass Machine features emulated 2-pole low pass filters which are in place to effectively embellish any preserved dynamics captured from the original instruments and to aid expression. The filter cutoff and resonance levels are set by the **CUTOFF**, **RESONANCE** and **ENV1** controls. The filter cutoff is modulated both by the LFO and Envelope 1 (**ENV1**).

The degree to which Envelope 1 modulates the filter and its polarity is set by the **ENV1** control. Similarly the **LFO** amount control when in **CUT** destination mode determines the amount the filter is modulated by the LFO.

The **ATTACK**, **DECAY**, **SUSTAIN** and **RELEASE** controls offer basic envelope control for modulation of both the Filter and VCA independently.

In order to select the **VCA** envelope the switch in each synth section should be set to the **ENV2** position. The further the attack control is moved clockwise the more gradually the sound builds up. The more the release control is moved clockwise the longer it takes for the sound to decay after the note is released. The decay control determines how quickly a sustained sound diminishes with time. The higher the setting, the longer it takes to decay. Very rapid settings (anticlockwise-position) will produce plucked or staccato effects and slow settings will produce a swelling effect. The sustain control determines the volume at which the sound will rest during sustain once the decay portion of the envelope has completed.

The Effects Section

Bass Machine offers a powerful array of signal processing and performance modification features.

The **FX** (effects) and **PERFORMANCE** page is selected by clicking on the tab to the right of the **LAYER CONTROLS** (main synth page) tab:



The effects section comprises of four basic types of effects. Each of the effects are chained in series and can be disabled by turning their respective **AMOUNT** control fully anti-clockwise.

Saturation Emulation

Bass Machine features a useful saturation effect (tube overdrive emulation) which is particularly effective on percussive bass timbres. The more clockwise the **SATURATION** control is set the more the resulting sound is distorted and harmonically rich. This results in anything from a certain degree of extra punch and warmth to screaming distortion effects. Please note that when significant levels of saturation are used the **LEVEL** control may need to be reduced to prevent clipping.

Modulation Effects

The Bass Machine synth engine offers three basic forms of modulation FX:

The required mode is selected using the **SELECT** control:

The **Chorus (CH)** mode is a digital simulation of a classic stereo analog chorus (minus the noise!). The **RATE** control determines how rapidly the phaser is modulated. The **DEPTH** control determines how much the effect is modulated and the **AMOUNT** control sets the amount of the effect to be mixed with the dry signal.

The **Flanger (FL)** mode is a digital simulation of a classic analog flanger. The **RATE** control determines how rapidly the flanger is modulated. The **DEPTH** control determines how much the effect is modulated and the **AMOUNT** control sets the amount of the effect to be mixed with the dry signal. The **FEEDBACK** control determines the amount of signal fed back to the input to create a resonant effect.

The **Phaser (PH)** mode is a digital simulation of a classic analog phaser. The **RATE** control determines how rapidly the phaser is modulated. The **DEPTH** control determines how much the effect is modulated and the **AMOUNT** control sets the amount of the effect to be mixed with the dry signal. The **FEEDBACK** control determines the amount of signal fed back to the input. At high levels it creates a sweeping resonant effect.

Echo

The **ECHO** section comprises of digital delay with feedback and damping. The **TIME** control sets the delay whereby turning the control clockwise increases the delay time. The **FEEDBACK** control sets the amount of the signal from the delay that is fed back to the input. The further this control is turned clockwise the more the input signal is recycled thus creating dramatic repeating and sustain effects. The **DAMPING** control determines how the high frequency content of the delayed signal decays with time. The **AMOUNT** control determines how much of the effect is mixed in with the dry signal.

Reverb

The **REVERB** section is a classic algorithmic digital simulation of the reverberation of an acoustic space.

Use the **SIZE** control to set the size of the reverberation space and the **AMOUNT** control to set the amount of the effect to be mixed with the dry signal. The **STEREO** control sets the spacial separation and the **COLOUR** control the tonal quality and warmth of the reverb.

The Performance Section

The performance section goes a long way to emulate the glide, unison and trigger modes found on so many analog classics of yesteryear. In addition to this, a very powerful velocity curve function has been provided to permit a significant amount of real time expression.

Glide



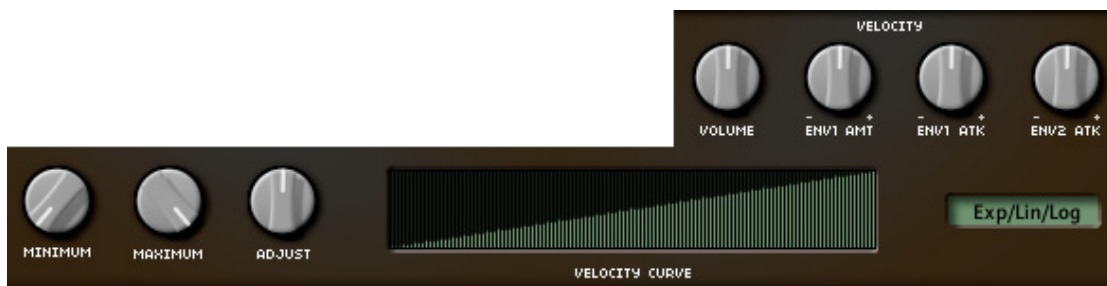
A **GLIDE** (aka portamento or slide) function is provided. The slew rate is adjusted with the **TIME** control. When **LEGATO** is switched **ON** the VCA envelope (ENV2) is only triggered once if the first note is held down and then the destination note is played. When the **RETRIGGER** switch is set to **OFF** the envelope is not retriggered on playing the destination note and runs throughout the course of the glide event. This is ideal for recreating slides on plucked double bass for example. When Legato is switched **OFF** the glide initiates as soon as the second note is played regardless of whether the first note is held down. With **RETRIGGER** set to **ON** the VCA envelope will retrigger as soon as the second key is played.

Unison



A powerful stacked oscillator effect can be achieved by playing two or more voices in unison. The **VOICES** control selects between 1 and 9 voices to be played together in unison. The **DETUNE** control determines how much the pitch of each voice is detuned from one another. This can create anything from a mild phasing effect to full on honky-tonk. The **SPREAD** control determines how the voices are set across the stereo field. Fully clockwise the voices are all aligned centre stage, the more clockwise the control is set the more the voices are spread across it. Some settings can result in excessive phasing when the **SPREAD** control is set to minimum. Turning the control clockwise can be used to alleviate this. Please note that unison consumes voices and CPU bandwidth so it is best to avoid high voice number settings.

Velocity Curves



The Bass Machine synth engine features an extremely flexible velocity curve definition and velocity modulation mapping control panel.

The steepness, maximum level and shape of the velocity curve can be adjusted by the **MINIMUM**, **MAXIMUM** and **ADJUST** controls. The resulting shape of the **VELOCITY CURVE** can be viewed on the green display. The curve law can be set by clicking on the window to the right of the display. The user can select between Exp/Lin/Log, S-Curve, Fixed and User Defined curves.

The four controls in **VELOCITY** control panel route the velocity level transformed by the velocity curve in varying amounts to the overall **VOLUME**, **ENV1 AMOUNT**, **ENV1 (VCF) ATTACK** and **ENV2 (VCA) ATTACK**. When the attack controls are turned clockwise the attack phase is increasingly shortened the harder the note is played.

Saving Your Own Patches

All of your creations can be saved as .nki instruments simply by using the **save as** function by clicking on the **files** icon in the main Kontakt control pane.

Remember that if you edit an existing sound you must save it under a new name otherwise you will overwrite it!

Example Arpeggiated Patches:

Please note that some of the example patches bundled with this product feature an arpeggiator effect which is not editable from the front panel controls but can be adjusted within Kontakt. The overall rate at which the arpeggio runs is set by the BPM rate set from the front panel. If the BPM is changed then any delays setup in Bass Machine may need to be tweaked accordingly.

Credits

Dani Wilson (Hideaway Studio)

Conceptualisation, Minimooog Programming, Sample Capture & Example Patches

Stephen Howell (Hollow Sun)

UI Concept & Layout, GUI Design & Graphics

Mario Krušelj

Bass Engine Script

A very big thank you to Stephen and Mario for making this project possible.

For more information and many more releases for Kontakt by Hideaway Studio please visit:
www.hideawaystudio.net

Usage Restrictions & Copyright Notice

Purchasing this library grants a single user license. Further users are required to purchase their own copy of this product.

This library may be used in its distributed form as an instrument in any music composition, both commercial or otherwise.

Under no circumstances may the raw sample data, voice groups, example instrument patches or indeed any new instruments created in this product be used as the basis for another sample library or musical instrument.

The sample data in this product is protected under copyright. No third party sample data has been used to create the oscillators or raw samples in this library.

HS-K4L-A009 V1.01 01/09/13

© D.A.Wilson, Hideaway Studio 2013