emagic

evd6

Software Instruments

>> Version 1, August 2002

>> English Edition

User Manual

License Agreement

Important! Please read this licence agreement carefully before opening the disk seal! Opening of the disk seal and use of this package indicates your agreement to the following terms and conditions. Emagic grants you a non-exclusive, non-transferable license to use the software in this package.

You may:

1. use the software on a single machine.
2. make one copy of the software solely for back-up purposes.

You may not:

1. make copies of the user manual or the software except as expressly provided for in this agreement.
2. make alterations or modifications to the software or any copy, or otherwise attempt to discover the source code of the software.
3. sub-license, lease, lend, rent or grant other rights in all or any copy to others.

Except to the extent prohibited by applicable law, all implied warranties made by Emagic in connection with this manual and software are limited in duration to the minimum statutory guarantee period in your state or country from the date of original purchase, and no warranties, whether express or implied, shall apply to this product after said period. This warranty is not transferable-it applies only to the original purchaser of the software. Emagic makes no warranty, either express or implied, with respect to this software, its quality, performance, merchantability or fitness for a particular purpose. As a result, this software is sold "as is", and you, the purchaser, are assuming the entire risk as to quality and performance. In no event will Emagic be liable for any direct or indirect damages resulting from any defect in the software or documentation.

This agreement will terminate if you fail to comply with any term or condition in this agreement.

This agreement shall be governed by the laws of the Federal Republic of Germany.

This manual, copy-protection and software described herein are copyrighted © 2002 by Emagic Soft- und Hardware GmbH, Halstenbeker Weg 96, 25462 Rellingen, Germany

1 Welcome …

… and thank you for your purchase of the Emagic Vintage D6—EVD6.

This manual will introduce you to the concept, and functionality, of the EVD6. Please read it thoroughly to make the most of your new software instrument.

The sound of the Hohner Clavinet D6 is synonymous with funk, but was also popularized in the rock, pop and electric jazz of the 1970's, by artists and groups such as: Stevie Wonder, Herbie Hancock, Keith Emerson, Foreigner and the Commodores. If you've heard "Superstition" or "Higher Ground" by Stevie Wonder, then you'll know that the D6 is the funkiest instrument alive!

Product and manufacturer's names used in this manual are licensed and protected by law.

The EVD6's synthesis engine emulates the sound of the Hohner D6 Clavinet, and does not make use of any sampling technology. It improves on the original in that it can be used in stereo, and on a noise level, there's no comparison.

The dynamics and scaling of the sounds, over the entire 60-key range (F to E) of the original instrument, has been extended across the full MIDI range (127 notes).

The EVD6's engine also simulates the various string buzzes, key clicks, and the tone of the pickups found in the original instrument. It synthesizes the "pluck" and "bite" of the attack phase, as well as the "sticking" of the hammer pads. The sound generator reacts smoothly, musically and precisely to the 127 steps of velocity sensitivity, as defined in the MIDI specification. You can almost feel the strings beneath your keyboard!

The extensive set of **String** parameters allow you to radically alter the tone of the EVD6, allowing you simulate an ageing Clavinet, or to create new "instruments". The EVD6 is capable of some truly unique sounds, which you'll discover when exploring it, and auditioning some of the included settings.

You'll appreciate the perfect integration of the EVD6 into Logic. In use, it's much easier to handle than a real world Clavinet. There's no need to transport a bulky and heavy instrument, or to attach any cables to it. In addition, the EVD6 eliminates the problems of reliability, getting new parts, and tuning—all of which are becoming increasingly difficult with the original instruments.

You will also discover an integrated effects processor incorporated into the EVD6's luxurious front panel, which provides a number of classic effects popularly-used with the original Clavinet. The algorithms featured in the effects processor have been adapted, and optimized, for the EVD6. Included are: a great sounding Wah, Modulation and Distortion circuit. A separate plug-in version of the Wah effect with distortion is also included, for use on any audio channel in Logic's mixer. Logic's extensive selection of native plug-ins are, of course, available for use with the EVD6, via the **Sends** and plug-in **Insert** slots of the Instrument channel strip.

Whatever you play on the EVD6 can be recorded, by simply pressing Logic's record button. Your performances can be freely edited in any of Logic's MIDI editing windows. All EVD6 parameters and mix automation data, such as volume, panorama and effects changes over time, can be recorded and edited with Logic's Track Automation system.

We wish you many years of inspired playing, successful arranging, work, fun(k) and productivity with the EVD6!

Your EMAGIC team

2 What the Package Includes

Your EVD6 package contains the following components:

- the Emagic Software CD
- this manual
- a registration card
- a card containing two stickers

Please complete the registration card as soon as possible and send it to the Emagic distributor in your country or territory. Upon registration you will receive the permanent license code for your EVD6.

Once registered, you will have access to …

- a regular update and support service via the Internet:
  http://www.emagic.de
- support via our Hotline:
  in the USA phone 1-530-477 1050, fax 1-530-477 1052
  in Germany phone +49-4101-495-110
  in other countries: please consult the Emagic distributor in your country or territory.

3 Quick Start

Installation

Although the EVD6 is integrated into Logic's program code (version 5.2 or higher), we recommend that you run the Setup/ Installation procedure by:

- Inserting the EVD6 CD-ROM into your computer's CD-ROM/DVD drive.
- This should automatically launch a window on your desktop.
- Double-click on the Installation icon, and follow the onscreen instructions.
- If no window is launched, use your operating system's file management utilities, and browse to the root folder of the CD-ROM drive.

The installer will check your Logic version, and will update or replace any files needed for the operation of the EVD6.

It is important that you always run the latest version of your Emagic software, as it may contain new features or fixes that affect your system's performance.

EVD6 Authorization

Your new plug-in is integrated into the Logic software. To make use of it, an installed copy of Logic Platinum, Gold, Audio (formerly Silver) or MicroLogic AV 5 (or higher) is required.

Rather than installing your new plug-in, you simply need to input an alphanumerical code into Logic. This code authorizes the EVD6, and writes this information to the XSKey. You will find this code on the barcode sticker in the sealed envelope.

The envelope is sealed. The act of opening the envelope indicates your agreement with, and acceptance of, Emagic's licensing conditions and terms of trade.

How authorization works:

- Boot Logic
- Open the *XSKey Authorization window* by selecting > **XSKey Authorization**.
- Click once on the "*Enter Access Code Here!*" field, and type in the supplied code.

After entry, your EVD6 will be *temporarily* authorized: You may use it for a period of 12 weeks, with no functional restrictions.

Please see the *Authorization & Registration* section, on page 14, for information on "unlimited" registration.

The "Instrument" Object Type

In Logic Audio's Track-Mixer (or Audio Environment Layer in Logic Audio, Gold and Platinum), there is an audio object type called an "Instrument". Instrument channels appear as channel strips in the Environment's Audio layer and Track Mixer window. These objects allow software instrument plug-ins to be inserted into their **Instrument**-Insert-slot, as shown in the diagram.

Note that the use of the insert slot is different to the use of the top Insert slot of the Instrument channels in 4.x and earlier 5.x Logic versions. This change in operation was introduced in version 5.2, as one of several audio engine enhancements, which add to Logic's mixing functionality.

The default song—the song that opens automatically if you move your Autoload song out of the Logic folder—features a number of pre-configured Instrument channels.

An Instrument channel is an audio object (or an Audio Track in MicroLogic AV), with the **Cha** parameter switched to one of the **Instruments** (the number of **Instrument channels** varies, dependent on the Logic version in use). Any audio object can be switched to operate as an Instrument, by changing this param-

eter *(Cha)* in the object's parameter box. You can *not* insert the EVD6 plug-in into an audio object—created by selecting **New** > **Audio Object**—until its **Cha** parameter is set to an **Instrument** channel.

To create a new Instrument in MicroLogic AV, simply select **Track** > **Create Instrument**.

Loading and Playing an EVD6 Instrument

The EVD6 comes with a library of ready-to-play preset sounds, known as "Settings". These Settings can be found in the **Logic** > **Plug-in Settings** > **EVD6** sub-folder, following the installation procedure. Please follow these steps in order to audition the EVD6 settings:

- Start Logic (or MicroLogic AV), and open the Track Mixer or Environment Mixer.
- Select or create a new Instrument object (see above).
- Select the EVD6 from the list of plug-ins, which appears after click-holding on the Insert slot of the Instrument channel. Note that the menu hierarchy allows you to select either a mono or stereo version of the EVD6, from the appropriate sub-menu. See the diagram below.

- This will automatically launch the EVD6 plug-in window.

- Launch the Arrange window, if not already open, via the **Windows** menu, an appropriate Screenset number, or Key Command.
- Select the corresponding Instrument channel—i.e. the one with the EVD6 inserted—in the Arrange Window's Track List. This enables the object it receive MIDI data from your keyboard.
- The EVD6 is now ready to play.
- You may select any of the EVD6 "Settings" (preset sounds/patches) by click-holding on the flip menu (the downwards pointing triangle, to the right of the **Bypass** button) in the silver/gray panel area of the plug-in window.

- Should you close the plug-in window, you can relaunch it by opening the Track Mixer or Environment Mixer, and double-clicking on the **Insert** panel of the appropriate Instrument channel.

4 Authorization & Registration

Authorization

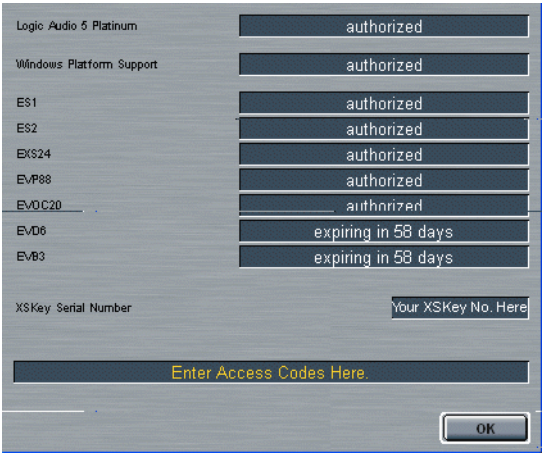
The EVD6 is authorized via a convenient software protection system known as the XSKey.

Rather than installing your new plug-in, you simply need to input an alphanumerical code into Logic. This code authorizes the new plug-in on the XSKey (Expandable System Key). You will find this code on the barcode sticker, in the sealed envelope.

The envelope is sealed. The act of opening the envelope indicates your agreement with, and acceptance of, our licensing conditions and terms of trade.

How authorization works:

- Open the **XSKey Authorization** window by selecting > **XSKey Authorization**. The window indicates the authorization status for all *available* software instruments, and add-on modules. The authorization code for each is stored in the XSKey. Please take good care of your XSKey!



- This window also shows the serial number of your XSKey. All codes, for all products, are typed into the **Enter Access Code Here.** field. Click once on the field to enter a code.
- Please type the appropriate code into this field. You will find this code on the barcode sticker, in the sealed envelope. After entry, your plug-in will be temporarily authorized: You may use it for a period of 12 weeks, with no functional restrictions.
- If you do not register your new plug-in within this 12 week period, it will stop working.
- So please register now!
- You have two ways of registering—either online or by mail. The online registration method is preferable, as it is more convenient and faster. Details on both procedures follow.
- After registration, you will receive a further authorization code, for unlimited use of the plug-in. This "unlimited use" authorization code must also be entered in the **XSKey Authorization window**. Thereafter, you will have unlimited use of your plug-in.

Registering Online

If you have Internet access, please register the plug-in online. This is the simplest and fastest method. Keep the envelope with the barcode sticker (and the serial number of your XSKey) handy. You can find the XSKey serial number on the barcode stickers that came with your Logic 5 version, and under > **XSKey Authorization**.

Start your web browser and navigate to:

www.emagic.de/registration

- Input the requested data.
- A successful online registration will be indicated via e-mail immediately.
- After a short processing period, you will receive your authorization code for unlimited use via e-mail.

Registering by Mail

If you don't have Internet access, you may register by mail. To do so, please fill out the registration card attached to/enclosed in the envelope.

- Please fill out the card completely.
- Attach one of the XSKey serial number stickers (as supplied with your Logic 5 package) onto the appropriate panel.
- Detach the Plug-in Registration Card from the envelope. Send this card back to the Emagic distributor in your country or territory, using the supplied return envelope.
- Please allow a period of 10 to 14 working days for the processing of your card. You will receive the authorization code for unlimited use by mail. The online registration method is preferable, and more convenient.

This "unlimited use" authorization code must also be entered in the **XSKey Authorization** window. Thereafter, you will have unlimited use of your plug-in.

XS Key Status Messages

The following describes the messages you may see in the **XSKey Authorization** window.

authorized:

The module is purchased, it is registered with Emagic, and the code for permanent authorization has been entered. The module is ready for "unlimited" use.

(Demo) expiring in … days:

This module is fully functional for the specified number of days. Purchase, and registration with Emagic, will provide you with a code to permanently authorize the module. If no code is supplied within the time period, the module will stop working after the specified number of days has elapsed.

It is recommended that you do *not* attempt to change the date of the system clock during a limited authorization period, as this may reduce the time before the module stops working.

activate Demo …:

The module is not active, but it is possible to enable its demo mode. To do so, click once in the desired "Activate Demo..." field. Please note that following its initial launch, the demo mode for the module can not be stopped, and will continue to count down! If a permanent license/authorization code is not purchased within the demo period, use of the module will expire.

(Demo) expired:

The limited authorization period is over. It is not possible to use the module until a valid license code is entered.

empty field:

The module is not active, and no demo mode is available. The only way to activate such modules is by entering a license code.

Optimization Programs

The EVD6's copy protection (the XSKey) is not affected by disk optimization and defragmenting programs. You may use programs such as Norton Speed Disk, MS Defragmenter or DiskExpressII as often as you like.

Formatting the Hard Disk

Hard disk formatting or partitioning does not affect the EVD6/XSKey.

5 The EVD6—Concept and Functions

Overview and Integration

Dependent on the version of Logic installed on your system, up to 64 instances of the EVD6 (and other software instruments) can be inserted into the various Instrument channels. Each instance of the EVD6 offers up to 24 voices. It should be noted, however, that the total polyphony of the EVD6 is always CPU-dependent.

The output signal of the EVD6 is fed into the input of the Instrument channel strip, where it can be processed via inserted plug-ins and/or sent to busses. Given a fast enough computer, you could conceivably arrange and mix an entire song using several software-based Instruments, such as: Emagic's ES1, ES2, EXS24, EVP88, EVB3 and the EVD6, of course. This has the added benefit of superior sound quality and timing, as the signal never leaves the digital domain. And each single mixer, effect plug-in and software instrument setting is saved and later recalled with the song.

The **Bnce** (Bounce) button found to the bottom right of **Master** audio object(s) allows you to write submixes of EVD6 tracks—as one or more audio files—to disk at any time. Such bounced Instrument track audio files can then be used and handled like any other audio region in the Arrange window. You can make use of this facility to free up CPU resources when a song requires more processing power than your CPU is capable of delivering, i.e. the CPU does not allow all desired EVD6, and/or other Instrument tracks to be played in realtime.

All parameters of the EVD6 and all associated Instrument channel parameters—**Volume, Pan** etc.—can be fully automated. Automation data can be easily recorded, created and edited with Logic's Track Automation system.

The Plug-in Window

Hands-on operation of the EVD6 is performed in the plug-in window. The plug-in window can be accessed by simply inserting the EVD6 into the **Instrument Insert** slot of an Instrument channel.

This is a preference and can be deactivated: **Audio** > **Audio Preferences...** > **(Display) Open plug-in window on insertion**.

If closed, double-clicking on the blue EVD6 label (on the **Insert** slot of an Instrument channel) will open the plug-in window. When launched, the plug-in window allows access to all EVD6 parameters. Every instance of the EVD6 has its own plug-in window, allowing discrete settings for each.

The plug-in window of the EVD6.

Automation

As with every Logic plug-in, the EVD6 can be fully automated.

- Simply select the desired EVD6 track, in the Arrange window.
- Select **View** > **Track Automation**, if not already active.
- Set the Instrument channel to **Write**, **Touch** or **Latch** mode—either in one of the Mixer windows, or directly on the Arrange window track.

- Press the **Play** button, or start playback by Key Command.
- Move the faders, knobs and switches in the EVD6's plug-in window.
- Press the **Stop** button, or use the Key Command, when done.

The generated data will be recorded as track Automation and displayed as curves in the Instrument track in the Arrange window. This way the EVD6's faders, knobs and switches will be automated on playback. You can record automation data, in one or more takes, for each parameter, as described.

It is also possible to record, or create, region- or sequence-based parameter automation using HyperDraw, as with earlier versions of Logic.

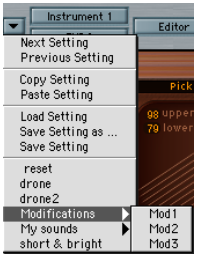
All types of automation data can be freely edited or created in the Arrange window, or other suitable Logic editor. A description of all automation editing facilities can be found in the Logic 5.x Addendum/Reference manual, and Online Help system.

6 Selecting and Saving Sounds

Parameter adjustments using the controls in the EVD6 plug-in window can be saved as a **Setting**. The **Setting** flip menu is reached by clicking the downwards pointing arrow allowing the selection and loading of an EVD6 Sound—i.e. a **Setting**.

A Setting can be saved with **Save Setting** or **Save Setting as...** and re-called with **Load Setting.**

A setting must reside in the appropriate sub-folder—**Logic** > **Plug-in Settings** > **EVD6**—for it to appear in the Setting menu. It is also possible to further categorize your EVD6 settings by creating additional sub-folders within this directory. The folder structure is reflected by the hierarchical menu structure in Logic.



The Setting flip menu options

You can step through existing settings in the menu with **Previous** and **Next Setting**.

It is also possible to copy and paste parameter settings from one EVD6 instance to another using the **Copy** and **Past Settings** commands. Open the EVD6 instance of which you like to copy the sound setting and select **Copy Setting**. Now open the EVD6 instance into which you like to paste the setting and select **Paste Setting**.

To save your personalized sound settings, select **Save Setting** or **Save Setting as...**, and give the sound an appropriate name in the ensuing **Save** dialog box.

7 The Parameters of the EVD6

The parameters described in this section are easier to manipulate from within the *Editor* view of the plug-in window. If you can see multiple horizontal sliders on a blue background, please switch from the *Controls* view to the *Editor* view, using the flip menu found to the right of the silver/gray portion of the plug-in window.

You can reset many of the EVD6's parameters to zero, or a "default" value, by clicking once on the parameter control, while holding ⌥.

Most of the "slider" parameters on the EVD6 interface are mapped to zero-centered ranges—i.e. if a slider is in its middle "neutral" position, it doesn't affect the base sound of the selected EVD6-model. If the slider is moved to the left or right, it will scale the original parameter value positively or negatively by that amount.

The EVD6 front panel can be broken down into five main sections, namely: the **Global** silver panel section at the bottom, the **Excite/Click** and **String** parameters, to the top left, the **Pickup** window in the top center, and the **Effects** section, found at the top right.

Global Parameters

The Global Parameters are found in the lower-left portion of the EVD6 Graphical User Interface (GUI).

Voices

The **voices** parameter allows you to set the maximum number of voices that can sound simultaneously. Lowering the value of this parameter limits the polyphony and also the processing requirements of the EVD6. When the parameter is set to **1**, the

instrument is monophonic, and uses minimal CPU power. The maximum setting is **24**, allowing for sustained glissandi. A setting of **24** will, of course, be more processor-intensive. **10** is the default. Click-hold, and use your mouse as a slider to adjust.

Tune

The global **Tune setting** works in Cent steps. A value of **0** equals concert-pitch A440 Hz. The range is **±50** Cents or, in more "musical" terms, plus/minus half a semitone. For transpositions in semitone or octave steps, please use the instrument parameter box in the arrange window, as per any standard MIDI instrument. Click-hold, and use your mouse as a slider to adjust.

Bender

This parameter determines the bend range, in semitone steps. Click-hold, and use your mouse as a slider to adjust.

Warmth

Amount of random deviation from an equal-tempered scale. High values add "life" to sounds. It can be useful for simulating an instrument which has not been tuned for a while, or for slightly "thickening" a sound. When playing chords, the **Warmth** parameter is especially noticeable creating the warm detuning or beating effect among the chord notes. Click-hold, and use your mouse as a slider to adjust.

Stretch

The EVD6 is tuned to an equal-tempered scale. As a deviation from this standard tuning, you can stretch the tuning in the bass and treble ends of the sound. This simulates the way stringed keyboard instruments such as pianos are tuned, attempting to find a more consonant tuning balance between high and low notes. The **stretch** feature was included for situations where

you may wish to use the EVD6 alongside acoustic pianos. When arranged in conjunction with an orchestra or synthesizers, the stretch tuning facility should *not* be used. Click-hold, and use your mouse as a slider to adjust.

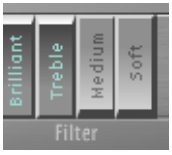
ℹ The tones of clavinets, harpsichords and pianos have "inharmonicities" in their harmonic structure. The frequencies of these "overtones" (harmonics) are not exactly "whole-number" multiples of the base frequency, as pythagorean theory dictates. They are only approximate and are, in fact, a little higher. The overtones of lower (tuned) notes, therefore, are more closely related to the main frequencies of the upper notes. Also see the *Stiffness / Inharmonicity* section, on page 33.

ℹ When applying **Warmth** and **Stretch**, you should consider that these parameters may result in a detuned sound, which is similar to the overuse of a chorus effect.

Pressure

On the original D6, applying pressure (aftertouch) to a depressed key raises the pitch slightly. The **Pressure** parameter allows you to do this, or alternately lower the pitch by pressure. Click-hold, and use your mouse as a slider to adjust. Range **–1.00** to **+1.00**

Filter Switches



The four filter switches (also known as "color" or "tone" switches) emulate the original switches on the D6, with one exception. When all switches are set to "off", you'll hear the unfiltered sound, rather than the original D6's "humming silence". Simply click anywhere on each switch to toggle between its on/off position. Active switches are indicated by pale green lettering, and by being depressed towards the bottom of the plug-in window. You may use the filter switches in any combination of on/off positions.

- **Brilliant**—makes the sound "nasal/cuts bass".
- **Treble**—makes the sound "sharper/cuts bass more gently".

- **Medium**—makes the sound “thinner/slight bass reduction”.
- **Soft**—makes the sound “softer/more muted”.

Pickup Switches

As with the original D6, the two pickups can be used in different modes. The switches “**AB**” and “**CD**” are used to change modes. According to the different switch positions the internal wiring of the two pickups is changed and with it the sound at the combined pickup output. The EVD6 features an additional menu displaying the current pickup mode above the pickup switches. More information on the use of these parameters/the pickups is found in the *Pickup Parameters* section, on page 33.

C/D Switch	A/B Switch	What It Does
down	down	“neck” pickup—warm sound
down	up	“bridge” pickup—bright sound
up	up	both pickups—full sound
up	down	both pickups out of phase—thin sound

Stereo Spread

Pickup—While the original D6 only has a mono output, the EVD6 has stereo capabilities. When both pickups are active (**upper+lower** and **upper-lower** modes), the two pickup signals can be spread across the stereo spectrum. To adjust the position of the **stereo spread**, click-hold on the up/down arrows in the lower half of the circular button—i.e. in the **Pickup** section.

Turning the Pickup **Spread** control up will move the signals of both pickups away from the center position—one to the right, and the other to the left. Extreme left/right positions are reached when **Spread** is set to its maximum value. Range: **0.00** (center, no effect) to **1.00** (full left/right stereo).

More information on the use of the pickups is found in the *Pickup Parameters* section, on page 33.

Key—This parameter allows a keyscale modulation of the panning position—i.e. panning is determined by keyboard position. The center position is MIDI note 60 (Yamaha C3). To adjust the **Key**(board) position, click-hold on the up/down arrows in the top half of the circular button—i.e. in the **Key** section.

When fully turned up, the extreme left/right position will be reached at MIDI note 60 +/- 30 semitones. Range: (center, no effect) to **1.00** (full left/right stereo).

You can use both spread types at the same time. They will automatically be mixed.

The effect of both stereo spread parameters is reflected graphically in the area around the circular stereo spread button.

Model

The **Model** parameter allows you to select a basic type of tone, or "model". Each model has its own unique tonal characteristic, and each is suitable for the creation of very different sounds. Each model is an instrument in its own right, and can immediately be played, without any further editing. We will discuss each model below, and encourage you to experiment with each.

To select a model, simply click-hold in the area between the **Stereo Spread** and **Level** controls, and make your choice from the pop-up list. Release the mouse button once your selection is made. All EVD6 parameters are then available to further shape the tonal character of the model.

In some respects, the **Model** parameter can be viewed much like making an oscillator waveform selection in a synthesizer. As with raw synthesizer waveforms, the editing parameters can affect the model quite differently. As an example, particular **Excite** settings may make one model more "nasal' sounding, and another model more "noisy". These behavioral differences are a result of the unique harmonic structures used by each model.

The Models

Class(ic) D6

An almost 1:1 emulation of the original D6. It includes string noises on long decays, and realistic release behavior, following the release of the key(s). Each D6 was unique in its way, so feel free to adjust the many sound shaping controls, in order to match the sound of D6 units that you have used, or heard.

Old D6

This model emulates a well-worn D6. Hammers and strings are a bit aged, and worn. The sound of the sticky hammer heads is emulated, as well as the typically "richer" sound in the bass range.

Sharp D6

Very sharp with a lot of bite—nice with wah wah and phaser.

Mello(w) D6

As the name suggests, a mellow fellow.

Basic

Basic, simple clavinet

Domin(ation)

A powerful model with a strong and punchy attack—reacts more aggressively to velocity than other models.

GuruFnk (Funk)

In the lower bass-octave ranges, the string oscillations become increasingly resonant over time, until they finally collapse (after 20 to 30 seconds). Higher notes have a much shorter decay, which also applies to their resonating behavior. This model

invites heavy, funk-style bass playing in the lower octaves. It's nice with a little phaser, and sustained chords, when playing low bass notes. Adding a Logic Delay plug-in is also a great option!

Harpsi(chord)

Harpsichord-like model.

Pluck

Plucked string—changing the pick-up positions allows further modifications, making the sound more guitar-like. "Harp" style sounds are also possible, by positioning the lower pick-up around the mid position. To get a harp sound increase **String Decay, Release** and **Excite Shape** and decrease **Excite Brilliance**.

(Tuned) Wood

Somewhat wooden, thin and with some inharmonic overtones. Can sound slightly detuned in some contexts.

Ltl (Little) India

Sitar-like sound, rich in resonance.

S(tring) Bells

A bell model with strong inharmonic overtones (inharmonicities).

Special Notes about the Models

You may note some "zones" on the keyboard where the sound changes significantly between adjacent keys. This is intentional, and reflects the behavior of some of the real clavinet models emulated by the EVD6. The original D6 has some strong key-to-key timbral differences, with the most obvious one being between the highest, wound string, and the lowest, non-wound string.

If you're a player who likes the original's sound, but not the original's mechanical timbre jumps, the EVD6 offers a smoothed model—**MelloD6**.

When using a setting with both pickups quite close to the upper end of the strings and **Brilliant + Treble** filter switches active, the fundamental tone is quite weak in the output signal. As such, you will mostly hear the overtones that are *not* exactly in tune for inharmonic models (e.g. "Wood"). Try moving the pickups to the center, and deactivate all filter switches to circumvent this "detuned" effect.

Level

Sets the (post -Effects) level, in dB (decibels). Click-hold, and drag, to adjust. If the MIDI controller used for "Expression" is not assigned to Wah or Damper, it is used to scale the output level.

Damper Wheel and Damper Ctrl

The original D6 features a damper slider on the right-hand side of the keyboard that allows the player to create muted string sounds. Click-hold, and drag, or make use of a MIDI controller, such as your keyboard's mod wheel, to adjust the **Damper Wheel**. The **Damper Wheel** position is saved with the sound.

The **Damper Ctrl** (number) parameter allows you to select the MIDI controller that moves the **Damper Wheel**. Click-hold, and make a controller number/name selection from the flip menu. Release the mouse button, once your selection is made.

The software-wheel is moved on-screen, when controlled via MIDI. MIDI control can be disabled by selecting the **off** option, found in the flip menu.

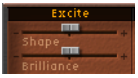
The parameter **Wah Ctrl** is discussed on page 37.

Velocity Curve

There are nine preset velocity curves available for the EVD6. These allow you to set up a curve which is suitable for your playing style, or the sound.

The nine curves available are: **fix25%**, **fix50%**, **fix75%**, **fix100%**, **convex1**, **convex2**, **linear** (the default), **concave1** and **concave2**.

Excite Parameters



Excite describes the string excitation, the physical power which stimulates the string to oscillate.

Shape

Shape adjusts the attack shape, allowing you to simulate the "hardness" of the rubber hammers in the original D6. As the instrument aged, the hammers would become worn, split etc., which had an impact on the overall brightness/tone of the D6. Negative values (to the left) provide a softer attack, while positive values result in a harder attack. Range: **–1.00** to **+1.00**

Brilliance

Controls the harmonic content of string excitation. Positive values (to the right) result in a sharper sound. Negative values result in a more muted sound. Range: **–1.00** to **+1.00**

Click Parameters

The rubber hammers of the original D6 age and decay, just like piano hammer felts. Well-loved (i.e. worn out) D6's produce a distinctive "click" when a key is released. This is due to the string sticking to the rubber hammer, before being released. The characteristics of this release click are part of each model, and can be finely adjusted with the following parameters.

Intensity

Positive values increase the level of the release click above the original model setting. Negative values reduce the level—e.g. a value of **–1.00** equals no release click. If you'd like to simulate an old D6, increase the value, by moving the slider to the right. Range: **–1.00** to **+1.00**

Random

Controls the amount of random click level variations across the keyboard. This slider simulates the wearing of some hammers, but not all of them, emulating the real-world wear and tear of the original. The further to the right the slider is moved, the greater the variation between key clicks on some keys. If all the way to the left, all keys have the same level of key click. Range: **0.00** to **+1.00**

Velocity

The **Velocity** parameter controls the level of release click modulation by velocity—i.e.: Note On velocity or Note Off/release velocity. Range: **0.00** to **1.00**. The selection of note on/off information as the modulation source is determined by the …

KeyOff / KeyOn Buttons

Press the appropriate button to select the type of velocity information that should be used for release click level modulation, i.e. press the **KeyOn** button, if you wish to use your attack velocity (how hard you hit the keyboard) as the value for the key click. If you wish to use your release velocity (how quickly you release the keys on your keyboard) to determine the value of the key click, press the **KeyOff** button. This requires a keyboard with release velocity facilities.

Needless to say, the **Velocity** parameter must be set to a reasonable level in order for the **KeyOn/KeyOff** modulation to be effective.

String Parameters

The behavior of the strings is basically determined by the **Model**, but the following parameters allow you to modify several string characteristics, relative to the model setting. See the *Model* section, on page 26, for further information on model selection.

Decay

Positive values provide a longer **Decay** time after attacking a note. Negative values reduce the decay time. Range: –1.00 to +1.00

Release

As per the **Decay** parameter, but for the **Release** time (following the physical release of a key). Range: –1.00 to +1.00

Damping

The **Damping** parameter allows you to modify the "damping" of strings. Damping is essentially a faster decay for the higher partials/harmonics in a sound, and is a property of the string material used (high damping for catgut strings, medium damping for nylon strings, low damping for steel strings). Sonically, damping results in a more mellow and rounded, or "woody" sound, dependent on the **Model** in use. A positive value will make the sound more mellow, and a negative value will allow more of the higher partials through, making the sound brighter. Range: –1.00 to +1.00

Tension Mod

Tension modulation is a non-linear effect on strings, which usually results in the pitch being slightly higher, immediately after being plucked/struck/strummed. It is common to all stringed instruments, like the D6, guitars etc. This string characteristic is built into each model, but can be further modified with the **Tension Mod** parameter. The range of this parameter is

quite large, and can be used to get weird sound effects out of the EVD6. It can also be used to simulate an out-of-tune Clavinet, or as a quick and dirty sitar sound, for those "Norwegian Wood" covers. Range: –1.00 to +1.00

Stiffness / Inharmonicity

These two parameters allow you to intensify/reduce the strength of inharmonicity in the sound. When combined at different levels, these parameters can create "metallic", bell-like sounds, or DX-like electric piano style sounds. They can also be useful for wood bass sounds. Experiment with both parameters, on each **Model**.

The higher the level of the **Inharmonicity** parameter, the lower its threshold to incoming frequencies. In other words, the **Inharmonicity** parameter determines the lowest harmonic, above which inharmonic spectral spreading becomes relevant. Range: –1.00 to +1.00

Stiffness controls the intensity of this stretching/spectral spreading. Range: –1.00 to +1.00

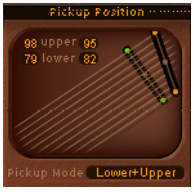
The keynote is not affected by these parameters.

Pitch Fall

Due to the physical construction of the original D6, the pitch of each note falls immediately after releasing the key. The intensity of this effect, which varies with each model, can be modified with this parameter. To completely deactivate the pitch fall, regardless of the selected model, set this parameter to the leftmost position (value –1.00). Range: –1.00 to +1.00

Pickup Parameters

The original D6 is equipped with two electromagnetic pickups, much like those found in electric guitars: one below the strings ("lower") and one above ("upper").



Pickup Position

In contrast to the fixed pickups of the original instrument, the EVD6 pickups can be set to arbitrary positions *and* angles. To do so, simply click-hold on one end of the desired pickup (**Upper** or **Lower**) and drag the end to another position. Release the mouse button when done. Both values can be moved simultaneously. To do so click and drag the point in the middle of the pickup to a new position.

The numerical **upper** and **lower** panels, to the top-left of the window, indicate the current position of each pickup—with respect to the string. A value of 50 (percent) means that the specific pickup end is positioned above/below the centre of the string, resulting in a full-bodied tone. When the pickup approaches either end of the string (values near 0 or 99), the tone becomes thinner.

- In the graphical pickup window the strings are aligned from left to right in respect to pitch—low strings to the left, high strings to the right.

- It is recommended that you repeatedly strike a note when moving pickup positions, in order to hear the effect that the pickup position has on the overall tone of your sound.

- Interesting, phaser-like effects can be achieved by automating the pickup positions.

- *Important*!
  It is possible to cross-over the pickups in the Pickup Position window. This may lead to a "hole" (non- or very soft sounding notes) within your keyboard range. This is due to a phase-cancellation between the pickups. If you encounter such "cancellations", adjust one (or both) of the pickups until the required notes are playable.

Pickup Mode

Pressing the **AB** and **CD** switches will change the virtual wiring of the two pickups. The current wiring, the EVD6 calls it Pickup Mode, is displayed in the **Pickup Mode** panel. You can also click directly on the **Pickup Mode** panel, and select the desired mode from a flip menu.

- **C** + **A** = Lower
- **C** + **B** = Upper
- **D** + **A** = Lower—Upper
- **D** + **B** = Lower + Upper

Also see the *Stereo Spread* section, on page 25, and the *Pickup Switches* section, on page 25.

Effects Parameters

No Clavinet simulation would be complete if it didn't include a selection of effects processors. The EVD6 doesn't disappoint in this regard, incorporating three "footpedal" effects that have formed an integral part of "classic" Clavinet sounds over the decades. Each effect was painstakingly modelled on effects pedals that were available in the heyday of the Clavinet—the 1970's—ensuring that "vintage" sound in your performances.

Needless to say, you can also take advantage of Logic's extensive range of effect plug-ins, to further tailor your sound.

Distortion

The integrated distortion effect can be adjusted in terms of intensity and tone. Range: **Tone** –2000Hz to 20000Hz, **Gain** –0dB to 20dB. Using low **Tone** and **Gain** settings the distortion unit allows the creation of warm overdrive effects. Bright and screaming distortion effects are produced with high **Tone** and **Gain** settings.

Compressor

Please note that the **Distortion** effect is always preceded by a compression circuit (shown in the panel above the **Tone** knob—with a ratio of **1:19.5**) This allows you to increase/decrease the perceived gain, to provide the desired input level to the **Distortion** circuit.

The compressor allows for really "crunchy" distortions, coupled with wah, or phaser. It can also be useful for enhancing the keyclick sound, and emphasizing harmonics in the various models.

Compression Ratio

The **Compression Ratio** panel allows you to adjust the slope of the compression applied. To adjust, simply click-hold on the panel, and use the mouse as a slider.

The Compressor is "tied" to the Distortion effect, and always precedes it. As such, the **Effects Order** parameter is very important for placement of this compressor in the effects chain. Please see the *FX Order* section, on page 39, for further information.

If the Compressor/**Distortion** is used as the last effect in the chain, and its gain is turned down, but the **Compression Ratio** is high, you will effectively compress the output signal of the EVD6.

Wah

The typical Wah effect is generated by a dynamically moving filter. The EVD6 offers simulations of several classic wah effects, as well as some basic filter types. Possible values are: **off**, **ResoLP**, **ResoHP**, **Peak**, **CryB**, **Morl1**, **Morl2**. The abbreviations are for Resonant Low and High Pass filters, Peaking filter, CryBaby, Morley 1 and Morley 2. The latter three are famous effects pedal models that continue to be manufactured.

The combination of wah, followed by distortion, delivers those sought-after funky fuzz-wah results.

Wah Mode

Simply click-hold on the (Wah) **Mode** panel, and select the desired (pedal effect) model from the pop-up menu.

Range

How far up or down in frequency the cutoff of the filter (set with **Wah Mode**) is able to move depends on the **Range** setting. With **Range** set to the left the cutoff will move in a narrow range only. To provide a wider control range, turn the **Range** parameter to the right.

Envelope (Depth)

An auto wah effect is produced by using an envelope follower to control the filter cutoff automatically. The envelope shape follows the dynamics of your performance. The sensitivity of the envelope in respect to your performance and thus the resulting filter modulation depth is set with the **Envelope** parameter. Turn **Envelope** to the right to increase the modulation depth.

Wah Ctrl

The **Wah Ctrl** parameter allows you to define the MIDI Controller (number/name) that is to be used as the manual wah effect control—a MIDI foot controller for example. MIDI-control/coupling can be disabled by selecting **off**.

Both, envelope and manual controller can control the wah simultaneously. In this case the effect of envelope and manual controls are mixed.

Wah Pedal Position (Controls View only)

Activate the “001011” switch (to the left of Bypass) to slide out the blue control view panel.

As with the **Damper,** there is a slider named **Wah Pedal Position** that always represents the current pedal position. This ensures that the most recent (i.e. last) pedal position is saved with the sound. It also ensures that it can be automated by either recording the MIDI controller messages, or by using the new Track Automation system.

Modulation

The EVD6 features a Modulation unit with three switchable modulation effect types.

Mode

The Mode panel allows you to select either a **Phaser**, **Flanger** or **Chorus** as the modulation effect. Click-hold, and make your choice from the pop-up menu.

Phaser

The **Rate** parameter adjusts the speed of phasing, and the **Intensity** parameter adjusts the depth of phasing. Ranges: **Rate** –0.10Hz to 10Hz, **Intensity** –0 to 100

High values lead to very deep, self-oscillating phase shifts, for those "cutting" (and ear and speaker damaging, so take care!) sounds.

Chorus

The **Rate** parameter adjusts the speed of the Chorus effect, and the **Intensity** parameter adjusts its depth. High **Intensity** values lead to ensemble-type effects. Ranges: **Rate** –0.10Hz to 10Hz, **Intensity** –0 to 100

The EVD6 chorus provides a warm and gentle chorus effect.

Flanger

The **Rate** parameter adjusts the speed of flanging, and the **Intensity** parameter adjusts the depth of flanging. Ranges: **Rate** –0.10Hz to 10Hz, **Intensity** –0 to 100.

FX Order

The order of the serial effects combination can be selected here. The four choices are:

- **WDM**—Wah > Distortion > Modulation
- **DWM**—Distortion > Wah > Modulation
- **MDW**—Modulation > Distortion > Wah
- **WMD**—Wah > Modulation > Distortion

Just like the foot pedals which could be freely connected to each other in series, the EVD6 effect section invites you to experiment.

The freely assignable effect routing is especially useful for selecting whether a distorted signal shall be wah-filtered, or if the wah-filtered sound shall be distorted (for screaming sounds), as one example.

External Wah Plug-in

As a special bonus for all EVD6 owners, we have included a standalone plug-in version of the Wah effect, which can be used as an Insert or Bus effect, anywhere in Logic's Mixer.

To launch it, open Logic's mixer, click on the desired insert slot of the channel, and select **(Mono/Mono->Stereo) > Logic > Filter > Fuzz-Wah**.

This external Wah plug-in incorporates an additional compressor and fuzz/distortion facilities, and features some additional parameters over the integrated EVD6 Wah. These are outlined below.

FX Order

This parameter allows to you select the order in which the Fuzz/Wah effects are placed. Choices are: **Fuzz- >Wah** or **Wah->Fuzz.**

Wah Mode (same as EVD6)

There are simulations of several classic wah effects, as well as some basic filter types available. Available models: **off**, **ResoLP**, **ResoHP**, **Peak**, **CryB**, **Morl1**, **Morl2**.

Wah Level

Can be used to adjust the level of the wah-filtered signal, relative to the original level. Also see the *AutoGain* section below.

AutoGain

While sweeping through the main formants of the input signal, the output level of the wah may vary wildly, which is not always desirable. Activating the **AutoGain** parameter will automatically compensate for this side-effect. Range: **on/off**

To hear the difference **AutoGain** can make:

- Switch it to **on**.
- Raise the effect level to a value just below the mixer's clipping limit.
- Make a sweep with a high **relative Q** setting.
- Now switch AutoGain to **off**, and repeat the sweep.

Please take care while doing this, or your ears and speaker system may be damaged (or the dog will bite you!).

relative Q

The quality of the main filter peak can be increased/decreased, relative to the model setting, thereby obtaining a sharper/softer wah sweep. When set to a value of **0**, the original setting of the model is active. Range: **–1.00** to **+1.00** (**0.00** is the default)

Pedal Range

Common MIDI foot pedals have a much larger mechanical range than most classic wah pedals.

The exact sweep range of the wah filter effected by the MIDI foot pedal is set with the Pedal-Range parameters. The highest and lowest possible value reached by the pedal is graphically represented by a gray bracket around the **Pedal Position** fader (see below). The left and right limit is set by clicking and moving it with the mouse. Additionally both values can be moved simultaneously by clicking in the center of the bracket and moving it to the left or right.

Pedal Position

This parameter represents the current position of the wah pedal.

To control and automate the Pedal Position via an external MIDI controller e.g. a MIDI pedal, your Logic environment has to be prepared accordingly. For more information please read the *Controlling the EVD6 via MIDI* section, on page 43.

AutoWah Depth (same as EVD6)

In addition to using MIDI foot pedals (see above), the wah effect can be controlled using the auto wah facility. The sensitivity of the auto wah can be set with the **Depth** parameter. Range: **0.00** to **100**. (See also the *Envelope (Depth)* section, on page 37.)

AutoWah Attack / Release

These parameters allow you to define how much time it takes for the wah filter to open and close. Range (in milliseconds): **10** to **10,000**

(Fuzz) Comp Ratio

See also the paragraph Distortion on page 35

The ratio of the integrated compressor can be adjusted between **1:1** (no compression) and **30:1**. The Compressor is "tied" to the Fuzz/Distortion effect, and always precedes it. As such, the **FX Order** parameter is very important for placement of the compressor in the effects chain.

Fuzz Gain

Controls the level of Fuzz (distortion). Range: **0dB** to **20dB**.

Fuzz Tone

The integrated fuzz/distortion effect can be adjusted, tonally, with this parameter. The combination of wah, followed by fuzz/distortion, produces those funky fuzz-wah results. Range: **2,000Hz** to **20,000Hz**

8 Tips, Tricks and Info

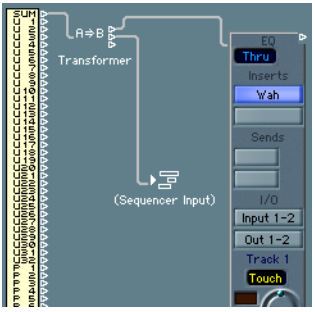
Controlling the EVD6 via MIDI

It is possible to control and automate the parameters of the EVD6 and other plug-ins using the MIDI controls provided by many master keyboards or MIDI fader boxes.

As discussed in this manual, MIDI control for the EVD6 Damper and Wah Filter Cutoff is easily set up using the pop-up menus next to the damper wheel on the EVD6 surface. See also page 29 and page 37.

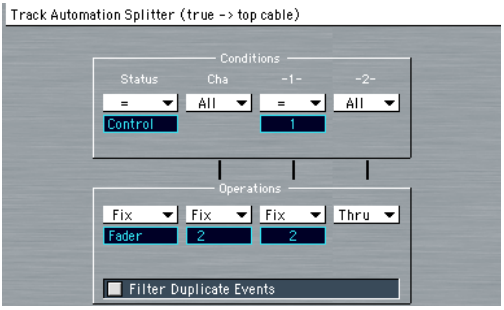
To control other parameters of the EVD6 or the Wah plug-in via MIDI the Logic environment needs to be modified accordingly.

Below you will find an example on how to control the **Pedal Position** of the Wah plug-in using the modulation wheel (CC#1) of your MIDI keyboard. The example requires some environment programming skills. Additional information on environment programming can be found in your Logic reference manual.



This is a basic environment patching example to control and automate the parameters of the Wah plug-in via MIDI.

A transformer object has been inserted into the MIDI data path. In this case the transformer object is set up to transform incoming MIDI events into the proprietary "fader" event type used by the automation system. The top output cable of the transformer object is connected to the audio object providing parameter and automation control. The lower output cable of the transformer object is connected to the sequencer input maintaining the regular MIDI data path in Logic.



Double click the transformer object to open the transformer parameter box. With the flip menu select **Track Automation Splitter** as your transformer mode. In this example the transformer is set up to except MIDI modulation data (**CC#1**) on any MIDI channel and to transform this data into **fader** (**#2**) events controlling **Pedal Position**. The first field after "fader" represents the slot number of the plug-in. In our example this is slot number **#2** (number **#1** is the channel itself). The second field represents the "fader" parameter number. The parameter **Pedal Position** has the number **#2**.

The quickest way to determine the "fader" number of a parameter is to connect a monitor object to the environment output of the corresponding audio object and then move the control of the parameter in question. The monitor will display the requested data type information.

Using the setup discussed above it is possible to control the **Pedal Position** of the Wah plug-in via a MIDI modulation wheel. Any movements can be automated by way of Logic's automation modes: read, write, touch and latch.

There is still the possibility of controlling the EVD6 parameters via MIDI as it was done in Logic prior to version 5. Prior to Logic 5 Continuous Controller #65 and up are used to control plug-in parameters. The following preference has to be set: **Options** > **Song Settings** > **MIDI Options...** > **Software instruments use MIDI Controller 65–127**.

Double-Triggered Notes

When experimenting with the EVD6, or auditioning some of the included Settings, you may encounter sounds which seem to be triggered on both the note on *and* the note off.

This is actually a feature, which emulates the original D6. The real D6 has the "problem" of the strings sticking to the hammers if they are worn out, producing a second trigger when the key is released. You can adjust the intensity of this "key-off click", with the **Intensity** slider in the "**Click**" section (see the *Click Parameters* section, on page 30). Move the slider to the left, and the second key off trigger will no longer be audible!

9 A Brief History of the Clavinet

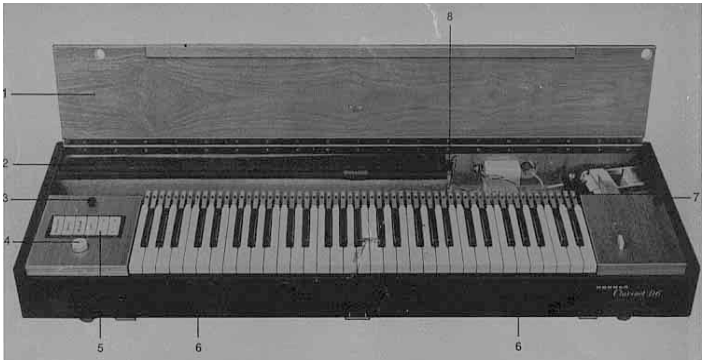
German Company, Hohner, was the manufacturer of the Clavinet. Hohner were known mainly for their reed instruments (harmonicas, accordeons, melodicas etc.), but had made several "classic" keyboards, prior to the first incarnation of the Clavinet, known as the "Cembalet".

Musician and inventor, Ernst Zacharias, designed the Cembalet in the 1950's. This was intended to be a portable, amplifiable version of the Cembalo, or Harpsichord. It's mechanism worked by plucking the end of a flat reed with the key, which was then picked up and amplified in much the same way as an electric guitar.

A year or two after the Cembalet's release, two "Pianet" models appeared. Both the "CH" and "N" models used flat reeds for tone generation, but employed a very different plucking/striking action. When a key was depressed, it engaged a "sticky pad" with a foam backing, which actually stuck to the reed. When the key was released, the weight of the key caused the pad adhesive to free itself from the reed. This made the reed vibrate, and this vibration was then amplified.

The model "T" Pianet was released several years later, and utilized a soft rubber "suction pad" on the reeds, rather than the adhesive of the "CH" and "N" models. This method still had several drawbacks, however, as the dynamics available from the keyboard were limited. As a further shortcoming, all reeds were damped on release, thus negating the possibility of obtaining sustain via a foot pedal. Despite these glaring problems, the sound of the model "T" Pianet was popularized by bands such as the Zombies and Small Faces, in the 1960's.

In the years between the releases of the Pianet "N" and "T" models, Zachariah invented what was to become Hohner's most successful, and certainly funkiest keyboard—the Clavinet. The Clavinet was designed to replicate the sound of a Clavichord, but with an altogether "fuller" sound. (The Clavichord was notoriously 'thin' sounding)



Original image from the D6 Users Manual.

The early models—Clavinet I with built-in amp, Clavinet II with tonal filters, Clavinet "L" with its bizarre triangular shape, all led to the Clavinet model "C". This, in turn, was refined into the D6—a portable, amplifiable keyboard. The D6 used a hammer striking a string against a metal surface to produce its tone. It had a fully dynamic keyboard—as the striker is directly underneath the key, meaning the harder you hit, the louder and more vibrant the tone.

Mention the Clavinet today and most people will automatically think of Stevie Wonder's "Superstition"—a recording that owes as much to the D6, as it does to the artist that wrote and performed it. The D6 was later superseded by the "E7" and the "Clavinet/Pianet Duo". These were basically the same as the D6, but more roadworthy, quieter and better protected against proximity hums than previous models.

How the D6 Clavinet Works

Each D6 keyboard key forms a single arm lever. When a key is depressed, a plunger underneath touches the string and presses it onto an anvil. The string impinges on the anvil with a strength according to key velocity. This affects the dynamics of the sounding string.

These mechanical vibrations are converted into electrical frequencies through magnetic pick-ups which are amplified and reproduced through the loudspeaker.

As the key is released, contact between plunger and anvil is immediately broken, leaving the wool-wound part of the string free, so that the string vibration is immediately muted.