_FARFISA V

ARTURIA
_The sound explorers

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Thank you for purchasing Arturia Farfisa V!

This manual covers the features and operation of the Farfisa V.

Be sure to register your software as soon as possible! When you purchased Farfisa V you were sent a serial number and an unlock code by e-mail and/or the Arturia Software Center app. These are required during the online registration process.

Special Messages

Specifications Subject to Change:

The information contained in this manual is believed to be correct at the time of printing. However, Arturia reserves the right to change or modify any of the specifications or features without notice or obligation.

IMPORTANT:

The software, when used in combination with an amplifier, headphones, or speakers, may be able to produce sound levels that could cause permanent hearing loss. DO NOT operate for long periods of time at a high level or at a level that is uncomfortable.

If you encounter any hearing loss or ringing in the ears, you should consult an audiologist.

Introduction

Congratulations on Your Purchase of Arturia Farfisa V

We'd like to thank you for purchasing Farfisa V, a virtual instrument that faithfully recreates the sound of the Farfisa Combo Compact Deluxe, a solid-state combo organ that was created by the Italian company Farfisa and used by many keyboardists in the 1960s and beyond. We are confident that it will give you many hours of playing and producing pleasure.

We've painstakingly studied and modeled every nuance of the original hardware to provide you with the classic sound and experience of a legendary keyboard and the effects and amplifier that often went with it. But we didn't stop there – we've expanded on the original design with new features that make this classic organ a powerhouse instrument adapted to a modern workflow.

As with all of our products, we believe in offering the best of both worlds in a single package and letting you choose how you want to use it - either use the original features on the main panel for a classic experience, or dive deep into the advanced features to create sounds not possible with the original hardware.

We hope using it will bring excitement and joy to your music making!

The Arturia Team

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1. WELCOME TO FARFISA V

1.1. What is Farfisa V?

Farfisa V is part of Arturia's extensive family of software instruments that recreate hard-to-find classic keyboards and synths. In addition to bringing the authentic and instantly-recognizable sound of the Farfisa to your studio, we have added some 21st century features that were never available in the original!

The Farfisa V is a software version of the classic Farfisa Combo Compact Deluxe organ. The instrument upon which this virtual model is based was a staple of popular music from its creation in the mid-1960s. It remains popular today for its unique character. Since finding and maintaining a real Farfisa is both difficult and costly, we're confident Farfisa V will bring you all of the benefits with none of the hassle.

Developed using an original hardware organ for reference, Farfisa V accurately simulates the original circuits and sound of the famous Compact series. It runs both as a standalone instrument on Windows and macOS and as a plug-in in all major formats inside your DAW. It has easy MIDI learn functionality for hands-on control of many of its parameters and in plug-in mode supports automation for greater creative control.

1.2. History of the original instrument

Farfisa is an Italian electronics manufacturer and in fact makes all kinds of products, even if it's best known for the electronic organs it created in the 1960s and 1970s. They predated commercially affordable synthesizers but offered a different sound in a far more portable form factor than Hammonds and other tonewheel organs which were fairly impractical for many bands to transport. The Mini-Compact, Combo Compact, and Combo Compact Deluxe had built-in legs and pedals that could be folded up and a top cover making it into a self-contained suitcase for transport. The Farfisa sound was wider-ranging than the main competitor of its time, the Vox Continental, thanks to having more bass waveforms playable with a split keyboard on the left side and an expanded percussion and vibrato section. It also cost less and was a little more reliable, according to some.

As a result, combo organs like the Farfisa series came to shape much of the popular music of the period. Here was an instrument that had a distinctive and powerful sound and was also very flexible in terms of the way you could alter its settings to get different tones. Best of all, you could actually take it to gigs in the back seat of a car, which wasn't true of many keyboard instruments at the time.

The Farfisa Compact series had four models that appeared between 1964 and 1969. The Mini Compact was the smallest, and the Combo Compact came in two different versions. The Compact Deluxe – the model recreated by the Farfisa V – added significant features and the Compact Duo had dual keyboards.

Among the notable features of the Compact Deluxe were:

- A splittable keyboard allowing the organist to play one or two octaves of left-hand bass, denoted by the lowest octave of keys having black naturals and white sharps (like the Vox Continental) and the next octave with grey naturals and white sharps
- Independent percussion controls for both bass and treble manuals
- 16' Bass, Strings
- 8' Flute, Oboe, Trumpet, String
- 4' Flute, Piccolo, Strings
- 2-2/3' with independent brilliant tab
- 4 vibrato settings
- Real spring reverb
- 2 reverb settings
- Multi-Tone Booster
- Swell pedal and knee control for Multi-Tone Booster

There were a number of things that made the Farfisa popular and gave it a unique sound:

- A rudimentary envelope ("percussion") that allowed for an attack and decay that went beyond the typical organ sound.
- The addition of a note repeat percussion function which gave it almost a square wave tremolo type of effect similar to the sound of the Who's "Teenage Wasteland" keyboard part.
- The tone boosters gave it a grungy sound that made it great for the 80's New Wave bands.
- The softer attack made it popular with the indie electro bands and indie rock bands in recent years.
- The knee lever was a type of global filter that added a manual wah type of effect.
- The overall sound is almost more top octave synth-like than organ-like.

1.3. Appearances in popular music

The Farfisa sound was well suited to the harder-edged garage bands and psychedelic acts that first adopted it. Again, its portability was a big factor in the kinds of bands that first started to use it. It was the kind of organ that studios and rehearsal rooms would have on hand and as a result, came to be used on more and more productions.

Before too long the Farfisa had grown rapidly in popularity and quite quickly outgrew its niche in 6Os garage bands. In fact it spread into rock and pop and then electronic music, partly because of the unavailability or unaffordability of polysynths at the time, and the fact that the Farfisa could be made to sound more like a synth than an organ. It remains popular today, though the age and scarcity of real hardware models plus the cost of maintaining them means that it's rare to see one in the flesh.

Famous Farfisa users and songs:

196Os

- Sam the Sham "Wooly Bully"
- Grateful Dead "Morning Dew"
- The Swingin' Medallions "Double Shot (Of My Baby's Love)"
- Percy Sledge "When a Man Loves a Woman"
- Strawberry Alarm Clock "Incense And Peppermints"

197Os

- Jean Michel Jarre
- Sun Ra
- Pink Floyd (many albums up to Dark Side of the Moon)
- Kraftwerk
- Tangerine Dream
- Sly and the Family Stone
- Van Der Graaf Generator
- Led Zepplin "Dancing Days"
- Herbie Hancock
- Elton John "Crocodile Rock"
- Steve Reich "Four Organs"

198Os

- Blondie
- B-52's
- Squeeze
- Talking Heads
- Simple Minds
- REM
- Fleshtones

199Os

- Green Day
- Inspiral Carpets

2000s

- The Moons
- Stereolab
- Tara Busch
- Paul Weller
- Lords of Altamont
- The Cesars

1.4. What does Farfisa V add to the original?

Recreating an instrument in software allows us to add more advanced features, while of course remaining true to the original hardware! But there are a number of features in Farfisa V that you wouldn't find on a hardware Farfisa.

- A special USER position that allows the user to create an additive waveform or use the sliders to create a new waveshape based on the graphic look of the sliders.
- We have modeled the built-in spring reverb and added more advanced reverb models as well.
- We have added effect pedal units:
  - Analog Delay
  - Chorus
  - Phaser
  - Flanger
  - Overdrive (modeling a 12AX7 tube pair)
- Easily accessible individual voice tuning.
- Paraphonic/Polyphonic alternatives for triggering attack envelopes.
- Attack/release envelopes for upper and lower keyboards to expand the sound palette.
- Bass section waveform selector with eight choices.
- Bass section tone control.
- Tremolo sync to the computer sequencer's clock.
- Repeat sync.

1.5. TAE-powered sounds

1.5.1. Arturia's Secret Ingredient: TAE®

TAE® (True Analog Emulation) is Arturia's technology for emulating the analog circuits used in vintage instruments. TAE®'s software algorithms result in spot-on emulation of analog hardware. This is why Farfisa V offers an unparalleled quality of sound, as do all of Arturia's virtual synthesizers and keyboards.

TAE® combines major advances in the several domains of synthesis:

1.5.2. Aliasing-Free Oscillators

Standard digital synthesizers produce aliasing in high frequencies, especially when using Pulse Width Modulation (PWM) or Frequency Modulation (FM).

TAE® enables the creation of oscillators that are completely free of aliasing in all contexts and behaviors (PWM, FM, and more) and does so without any CPU cost.
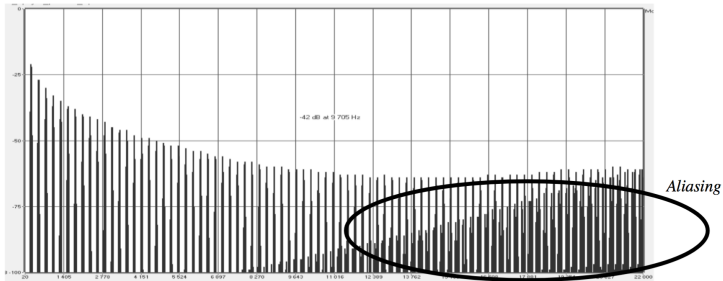
Linear frequency spectrum of a current well-known software synthesizer
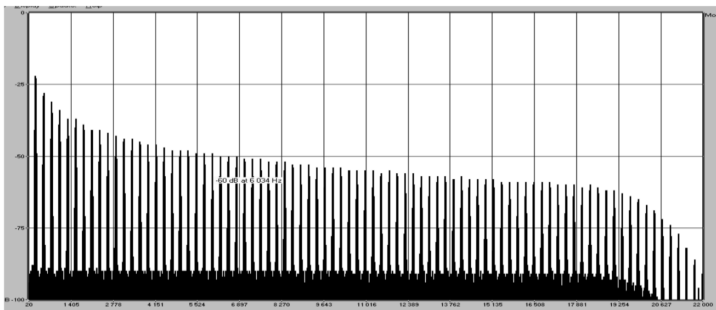
Linear frequency spectrum of an oscillator modeled with TAE®

1.5.3. A Better Reproduction of Analog Oscillator Waveforms

The waveforms produced by the oscillators in analog keyboards are affected by the presence of capacitors in the circuits. The discharge of such capacitors results in a slight 'bend' in the original waveform (most notably for sawtooth, triangular and square waveforms). TAE® reproduces the result of this capacitor discharge in software.

Directly below is a plot of a waveform from one of the hardware instruments that Arturia has emulated, followed by one generated by Arturia's TAE®. As you can see, the waveforms are quite similar and both are equally deformed by the low-pass and high-pass filtering.
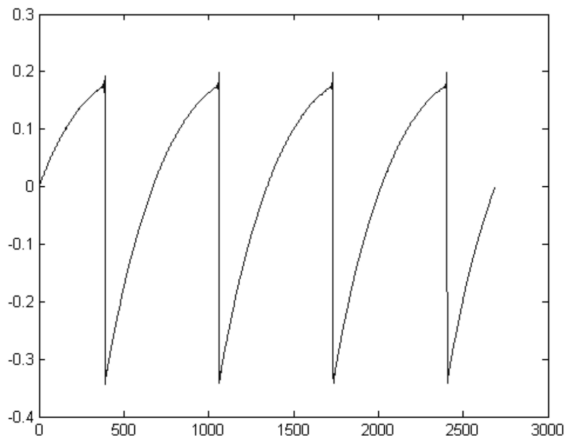
Temporal representation of the sawtooth waveform of a hardware synthesizer
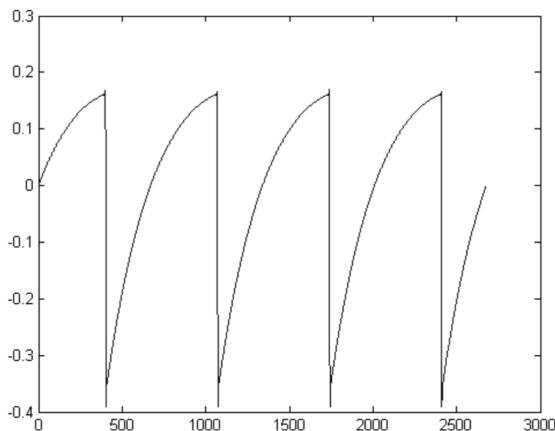
Temporal representation of a sawtooth waveform reproduced by TAE®

1.5.4. Additional factors

Analog oscillators in vintage hardware were often unstable in their operation. Their waveforms differed slightly from one period to another and the starting point for each period (in Trigger mode) could vary due to changes in temperature and other environmental conditions. These stability "problems" were, in fact, largely responsible for the beloved "warm" sound of many instruments! TAE® accurately reproduces the inherent instability of vintage oscillators, resulting in a fatter and "bigger" sound that captures the magic of vintage synths.

In the case of the Farfisa, each note of the scale could be tuned via an analog potentiometer which led to slightly unequal temperaments as the twelve pots aged. Our implementation of the Farfisa V in software gives you access to these "tweakers" so you can have the twelve notes of the scale be in equal temperament (in tune) or slightly out of tune for an authentic sound.

2. ACTIVATION AND FIRST START

Farfisa V works on computers equipped with Windows 8 or later and macOS 10.13 or later. You can use the stand-alone version or use Farfisa V as an Audio Units, AAX, VST2 or VST3 instrument inside your Digital Audio Workstation (DAW) software.

2.1. Activate the Farfisa V License

Once Farfisa V has been installed, the next step is to activate your license for the instrument. This is a simple process that is done through a separate program called the Arturia Software Center.

The registration process will require you to enter the serial number and the unlock code you received with the product.

In order to proceed, go to this web page and follow the instructions:

www.arturia.com/register

> ℹ Note: If you don't have an Arturia account yet, you will need to create one. The process is quick, but it does require that you can access your email address during the registration process.

Once you have acquired an Arturia account you will be able to register the product.

2.2. Initial Setup

2.2.1. Audio and MIDI settings : Windows

At the top left of the Farfisa V application is a pull-down menu. It contains various setup options. Initially you will need to go to the menu and choose the Audio Settings option to get sound and MIDI flowing in and out.
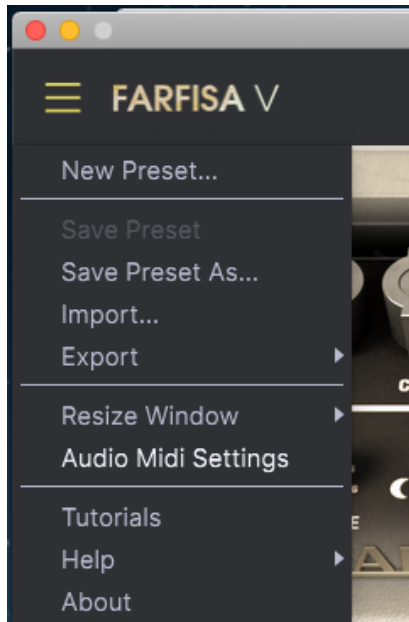
Farfisa V main menu

You will then see the Audio MIDI settings window. This works in the same way on both Windows and macOS, although the names of the devices available to you will depend on the hardware that you are using.

Audio and MIDI settings (Windows)

Starting from the top you have the following options

- **Device** lets you choose which audio driver you want to use to route sound out of the instrument. This might be your computer's own driver like Windows Audio, or an ASIO driver. The name of your hardware interface may appear in this field.

- **Output channels** lets you select which of the available outputs will be used to route audio out. If you only have two outputs, only two will appear as options. If you have more than two you can select a specific pair of outputs.

- The **Buffer size** menu lets you select the size of the audio buffer your computer uses to calculate sound. A smaller buffer means lower latency between pressing a key and hearing the note. A larger buffer means a lower CPU load as the computer has more time to think, but can result in an audible latency. Find the optimum buffer size for your system. A fast, modern computer should easily be able to operate at 256 or 128 sample buffer size without creating pops or clicks in the sound. If you are getting clicks, try raising the buffer size a little. The latency is displayed on the right-hand side of this menu.

- The **Sample Rate** menu lets you set the sample rate at which audio is sent out of the instrument. The options here will depend on the capability of your audio interface hardware though even most computers' own hardware can operate at up to 48kHz which is perfectly fine. Higher sample rates use more CPU power so unless you have a good reason to go up to 96kHz, then 44.1 or 48 are usually fine. The **Show Control Panel** button here will jump to the system control panel for whatever audio device is selected.

- **Play Test Tone** helps you to troubleshoot audio issues by checking that sound can be heard through the correct device.

- Your connected MIDI devices will appear in the **MIDI Devices** area. Click the check box to accept MIDI from the device you want to use to trigger the instrument. In standalone mode, Farfisa V listens for all MIDI channels so there's no need to specify a channel. You can specify more than one MIDI device at once.

2.2.2. Audio and MIDI settings: macOS

The process is very similar to setting up for Windows and the menu is accessed in the same way. The difference here is that macOS uses CoreAudio to handle audio routing and within that, your audio device will be available in the second dropdown menu. Apart from that, the options work the same way as described above in the Windows section.
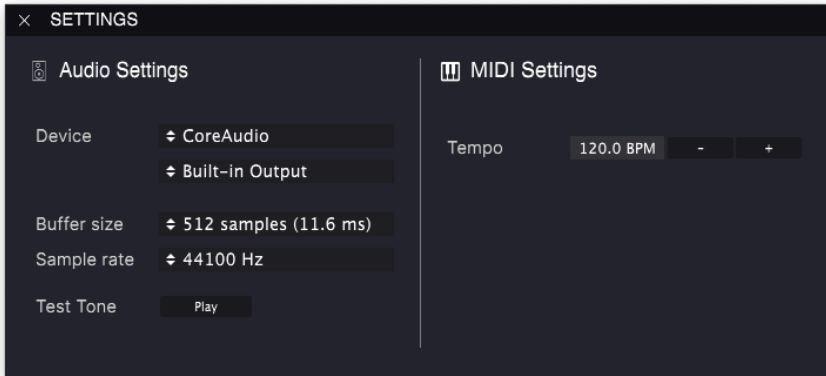
Audio and MIDI settings (macOS)

2.2.3. Using Farfisa V in plug-in mode

Farfisa V as a plug-in

Farfisa V comes in VST, AU and AAX plug-in formats for use in all major DAW software like Cubase, Logic, Pro Tools and so on. You can load it as a plug-in instrument and its interface and settings work in the same way as in standalone mode, with a couple of differences:

- The instrument will now sync to your DAW's host tempo, so the organ's tremolo and repeat controls will quantize to the beat of the DAW when you turn on the SYNC buttons over those controls.
- You can automate numerous parameters using your DAW's automation system.
- You can use more than one instance of Farfisa V in a DAW project. In standalone mode you can only use one at once.
- You can route Farfisa V's audio outputs more creatively inside your DAW using the DAW's own audio routing system.

3. USER INTERFACE

Farfisa V has many great features, and in this chapter we'll make sure you know what each one does. We think you'll be amazed at how quickly Farfisa V provides you with sounds that are inspiring and perfect for all sorts of projects.

It's also really easy to work with: just a few tweaks here and there and suddenly you're in a new world of sound. That will always be the main focus of every Arturia product: unleashing your creativity while remaining easy to use.

3.1. The Virtual Keyboard

The virtual keyboard allows you to play a sound without the need for an external MIDI device. Simply click on a virtual key to hear the currently selected sound. You can also drag the cursor across the keys to hear a glissando.

The Farfisa is actually velocity sensitive, but in a very particular way. It uses the velocity to vary the speed at which the different key contacts make. There are 5 key contacts for each key (16', 8', 4', 2⅔', percussion). When you press a key very slowly you should be able to (almost) hear the individual key contacts make.

The keyboard is divided into sections. The white treble keys always play the upper register. The Black keys on the left hand side can play the bass and the grey keys can be set to either extend the treble or bass ranges.

With the Bass section switched off, the upper register plays across all available keys. You can see this mode is active when none of the small red lights on the keyboard are lit.

If you switch the bass section on using the **Bass On / Off** switch, the black keys now play the bass tones. The lights show that the bass section is active.

If you switch the **Grey Keys Sel** switch from **Treble** to **Bass**, the grey keys are assigned to extend the range of the bass keys to a second octave. You can tell this is active because the first and third red lights now show the range of the bass part. This gives you more freedom to play bass notes, at the cost of removing the lower part of the treble range.

3.1.1. Playing notes from an alphanumeric keyboard

When the Farfisa V is in standalone mode, you can also play notes by clicking on the Farfisa V window and typing on your computer's alphanumeric keyboard. The letters on the center "home" row of the alphanumeric keyboard correspond to the C Major scale, sharps and flats are on the row above it, as in this table:

Letter	A	W	S	E	D	F	T	G	Y	H	U	J	K	O	L
Note	C	C#	D	Eb	E	F	F#	G	Ab	A	Bb	B	C	C#	D

To shift the QWERTY playing range up an octave: Press the letter "X"

To shift the QWERTY playing range down an octave: Press the letter "Z."

If you have an AZERTY keyboard, the layout goes like this:

Letter	Q	Z	S	E	D	F	T	G	Y	H	U	J	K	O	L
Note	C	C#	D	Eb	E	F	F#	G	Ab	A	Bb	B	C	C#	D

To shift the AZERTY playing range up an octave: Press the letter "X"

To shift the AZERTY playing range down an octave: Press the letter "W."

3.2. The Upper Toolbar
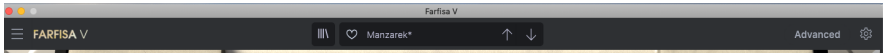
The toolbar that runs along the top edge of the instrument both in standalone and plug-in mode provides access to many useful features including the Farfisa V menu, preset browsing features, access to Advanced mode, and various MIDI mapping features.

3.2.1. The Farfisa V Menu

Clicking on the Farfisa V box at the very top left hand corner of the instrument window opens a pull-down menu with nine important features.

- **New Preset...**

The first option lets you "start from scratch" to program a new preset, starting with a default patch (all effects off, no split keyboard, only STRINGS 8' and FLUTE 4' on). Make as many changes as you'd like', then use the **Save As...** menu command to save it under a new name.

- **Save Preset**

The second option lets you save a preset into the User Bank.

> If the current preset is a Factory Preset, you must first **Save As...** to put it into the User Bank, otherwise the **Save Preset** option will be greyed out and unavailable.

If you select this you are presented with a window where you can enter information about the preset.

> ♪ Arturia's powerful browsing system lets you save much more than just a preset name. For example, you can enter the Author's name, select a Bank and Type, select tags that describe the sound, and even create your own Bank, Type, and Characteristics. As well as naming it you can enter the author name, select a bank and type and select some tags that describe the sound. This information can be read by the preset browser and is useful for searching presets later. You can also enter freeform text comments in the Comments field which is handy for providing a more detailed description. This can help you remember a sound or to provide context to other Farfisa V users you are collaborating with.
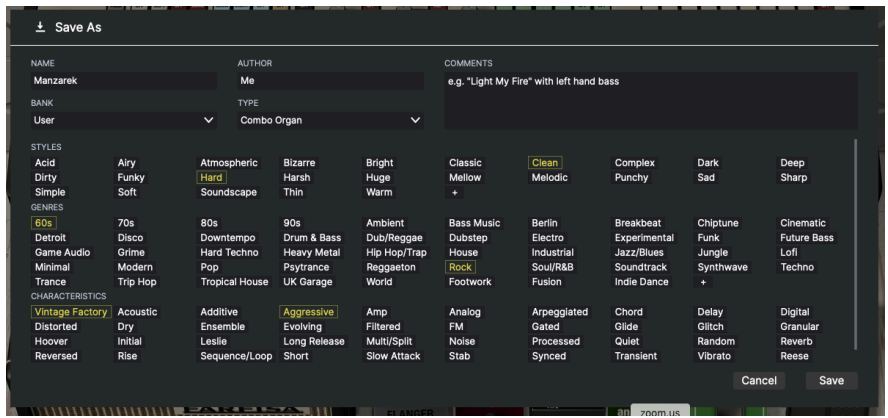
- **Save Preset As...**

This works in the same way as the Save command, but lets you save a copy of the preset instead of saving over the original. It's useful for creating variations on patches but still keeping individual copies of each one.

> When you make any change to a Preset, an asterisk (*) will appear after the name to remind you that the preset has been altered. If you change to a different preset without saving first, your changes will be lost.

- **Import preset**

This command lets you import a preset file, which can be either a single preset or an entire bank of presets. Presets are stored in the **.farx** format.
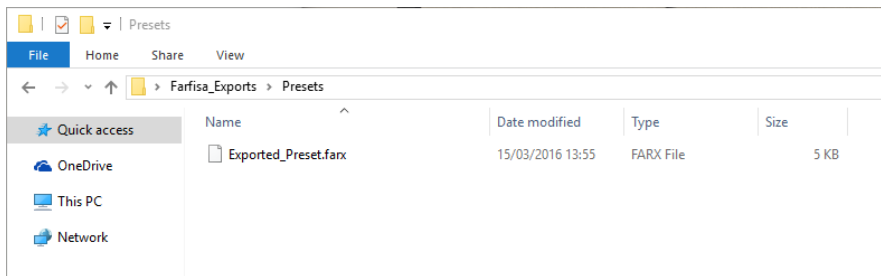
A computer desktop with a single exported Farfisa preset

- **Export**

You can export any individual preset or an entire bank as a file using this command.

Exporting a User Bank
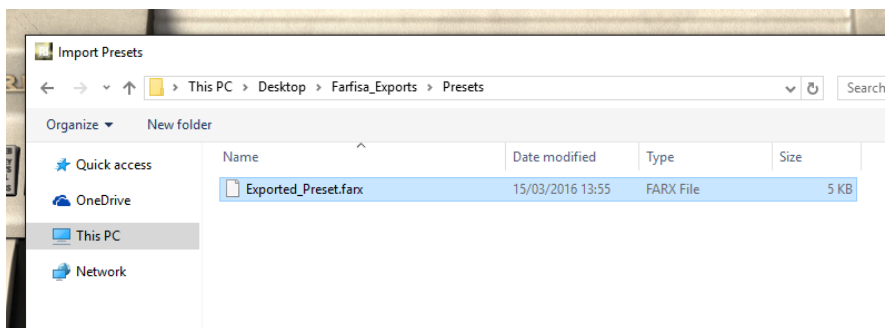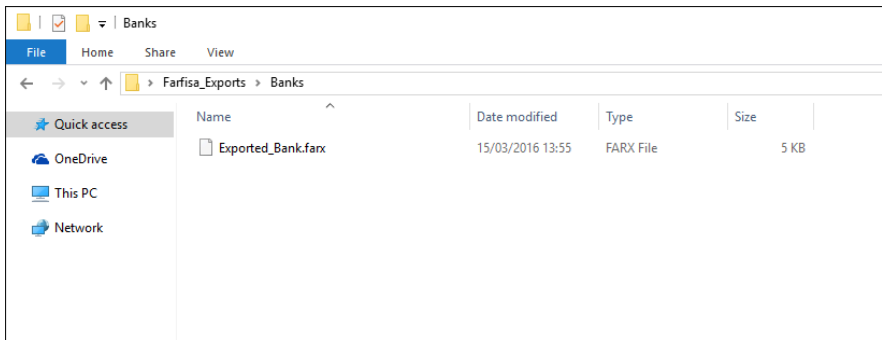
A computer desktop with an exported Farfisa bank

• **Resize window options**
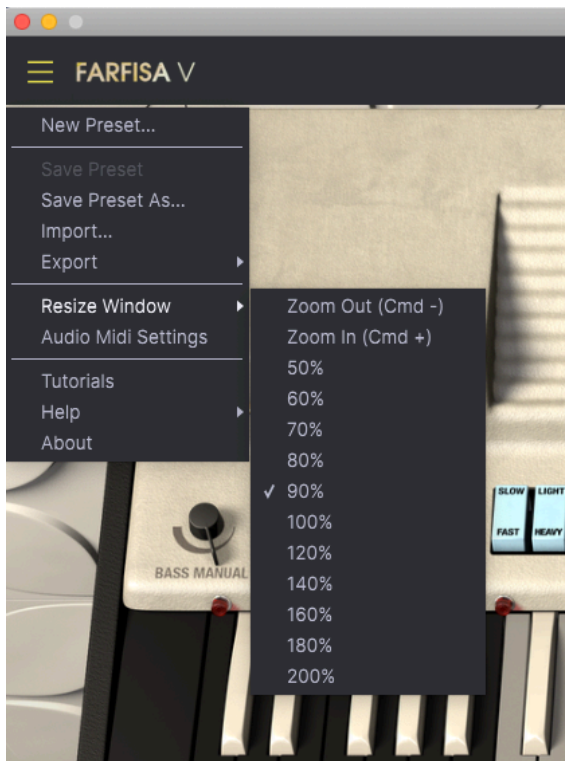
Farfisa V's window can be resized from 60% to 200% of its original size without any visual artifacts. On a smaller screen such as a laptop you might want to reduce the interface size so it doesn't dominate the display. On a larger screen or a second monitor you can increase its size to get a better view of the controls. The controls all work the same at any zoom level, but smaller controls are easier to see at higher magnification levels.

♪ While working with Farfisa V, you can also use the keyboard shortcuts Ctrl & +/- (Windows) (or Cmd & +/- on Mac) to quickly adjust the window size. Note that in some DAWs, the same key commands may be used for zoom. In this case, the DAW takes priority.

- **Audio MIDI settings (only available in stand-alone mode)**

Here you manage the way the instrument transmits sound and receives MIDI. See the section Audio and MIDI settings [p.11] of the manual for full details on this.

! The Audio Settings menu is only available in when using Farfisa V in Standalone mode. When using Farfisa V as a plugin, the host software handles all of the parameters in this menu including audio and MIDI routing, buffer size settings, and more.

- **Tutorials**: Farfisa V comes with tutorials that walk you through different features of the instrument. Select one of the tutorials to get step-by-step descriptions of how to make the most of the Farfisa V's features.
- **Help**: This section provides handy links to the Farfisa User Guide and the Farfisa V Frequently Asked Questions page on Arturia's website. Note that accessing these pages will require an Internet connection.
- **About**: Here you can view the Farfisa software version and developer credits. Click the About window again to close it.

3.2.2. Browsing Presets

Farfisa V comes packed with lots of great-sounding factory presets and we hope you'll create many more of your own custom presets. To help you search through large numbers of presets, we have a powerful preset browser with a number of features to help you find sounds quickly.

On the left-center of the Farfisa V upper toolbar is an icon that looks like books on a shelf (\||\\). This is the icon for the Preset library and browser. Clicking on this brings up a SEARCH screen that occupies the whole window (except the upper and lower toolbars). This is a great place to search for exactly the right preset. Its features are explained in detail in the next chapter Chapter 4 [p.33].

To return to the main screen, press the orange "X" at the same location where the Preset library icon was (upper toolbar to the left of the current preset name).
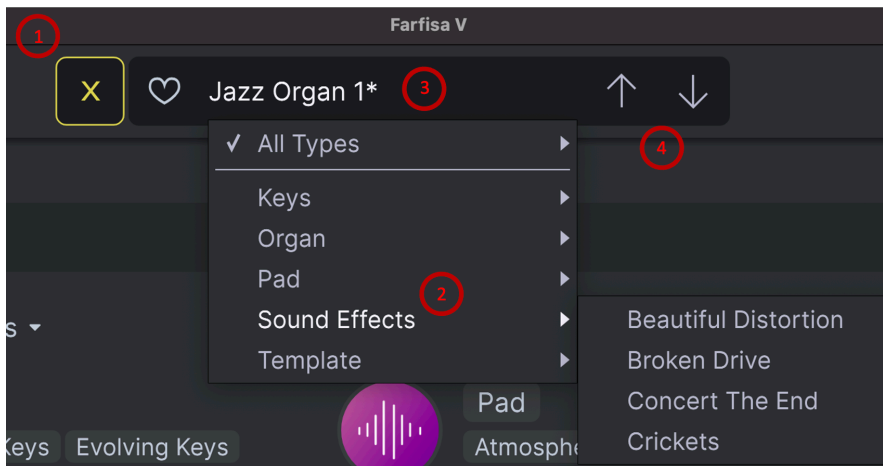
The browsing features of the Toolbar (shown above) include the following:

1. The **Preset Browser Button** (shown above as an X) closes the preset browser. This is covered in detail in the next chapter, The Preset Browser [p.33].

2. The **Preset Filter** (set to "Sound Effects" in the image above) helps you narrow down your selection. For example, you can narrow your search to only include presets tagged with Keys, Organ, or Pad so that you can find those sounds more quickly. To use this feature, click this section to open a pull-down menu and select any preset from the various categories ("Keys" "Sound Effects" "Pad" etc.). This will load that preset and set the filter to only show you other sound tagged. You can now use the Preset Name or Arrow Icons to step through the filtered options. To reset the filter and show you all options, open the menu and select any preset from the "ALL TYPES" menu.

3. The **Preset Name** is shown in the center of the toolbar. Clicking on the name reveals a pull- down menu with other available presets. Click on any name to load that preset or click away from the menu to close it.

4. The **Arrow icons** select the previous or next preset in the filtered list. This is the same as clicking on the preset name and selecting the next option in the list, but does it with only one click.

3.2.3. Advanced Features

While the Farfisa V is a very accurate emulation of the classic Combo organ hardware, we have given you the option to use additional modern and powerful features that today's musicians will find useful. These extra features are normally hidden "under the hood" of the top panel but are revealed when you open the Advanced panel. This way, if you want the authentic sound and feeling of using a vintage Farfisa, you can have it using just the traditional front panel controls. If you need some powerful modern functions (like tuning of individual notes, user waves and envelopes, and different kinds of reverb), no problem — you can have that with just one click!

This is "under the hood" if you want it

The **Advanced** button on the right side of the Upper Toolbar opens Farfisa V's Advanced Features section. This section is covered in detail in the Advanced panel [p.61] section of this manual. Click this button once to reveal the inside of the organ and again to hide it. You can also click on the closed lid of the organ to open it, and then on the button or upper lid to close it.

3.2.4. Side Panel Settings

At the far right of the Toolbar next to the Advanced button is a gear-shaped icon that opens up a panel on the right side, containing four tabs:

- Settings: Global settings (MIDI receive channel).
- MIDI: MIDI Learn functions for use with external controllers.
- Macro: Assignments for four Macros that control multiple parameters with a single knob twist.
- Tutorials: In-app interactive tutorials, also accessed from the main menu.

These topics are covered in The Side Panel [p.25] section later in this chapter.

3.3. The Lower Toolbar

The Lower Toolbar runs along the bottom of the Farfisa V user interface and provides quick access to several important parameters and useful bits of information.
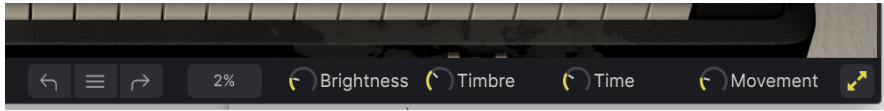
- At the far left corner of the lower toolbar (not shown above) you will see a readout that displays the name of the parameter as you adjust or hover over a control. The current value of the control is listed in a tool tip that appears next to the control.

- Undo/Redo: Keeps track of your edits and changes.
    - **Undo (left arrow)**: Undoes the last change in Farfisa V.
    - **Redo (right arrow)**: Redoes the last change in Farfisa V.
    - **Undo History (center menu icon)**: Displays a list of recent changes. Click on a change to restore the patch to that state. This can be useful in the event you happened to go too far in your sound design and want to revert to an earlier version.

- **CPU Meter and Panic Button**: Displays the current CPU usage of the instrument. Clicking on the CPU (percentage between the Redo arrow and the macro knobs) will change the display to "PANIC" and send a MIDI All Notes Off message, silencing all notes and resetting MIDI signals in the event of stuck notes or other issues.

> If you're running many different instrument plug-ins at the same time, or doing complicated tasks with other programs, the central processing unit (CPU) of your computer may reach the limits of its power. However, the Farfisa V by itself doesn't use much processing power.

- **Macro Knobs**: These four knobs control multiple parameters with a single turn. Assigning parameters to them is covered in the Macros [p.31] section of the Side Panel section below.

- **Maximize View**: If you use the Resize Window control to magnify the Farfisa V's display and some of its parameters are pushed outside the viewable range of your display, you might see a couple of orange arrows show up on the far right corner of the lower toolbar. This is the Maximize View button. Click this button to make the most of the available screen space by re-centering the Farfisa V window and expanding it downward toward the bottom of your display.

3.4. The Side Panel

The gear-shaped icon at the top right of the upper toolbar opens the Side Panel, which in turn contains four useful tabs. Let's take them from left to right.

3.4.1. Settings

This tab covers Global settings, which in Farfisa V selects the MIDI channel(s) on which it will receive MIDI input. You can select ALL (omni) or channels 1-16.
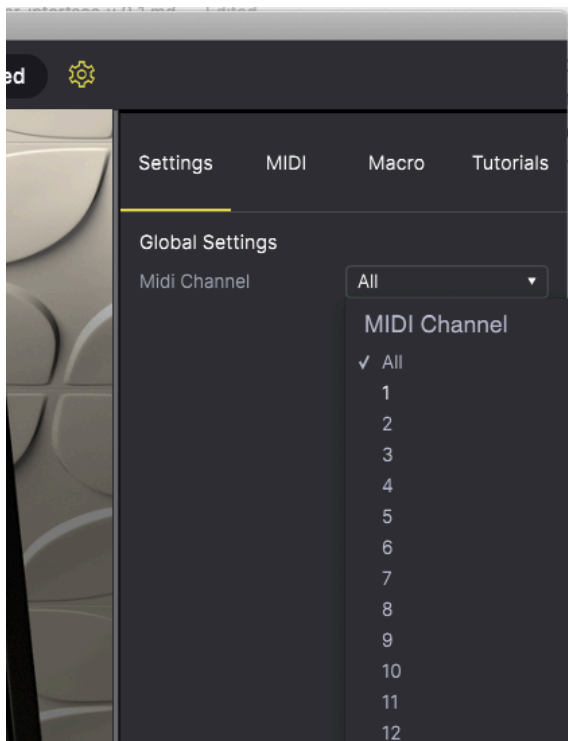
Setting the MIDI channel in the side panel

3.4.2. MIDI Tab

This is where you can map physical controls on your MIDI Controller to the virtual onscreen controls of the Farfisa V using *MIDI Learn mode.* In this mode, all MIDI-assignable parameters on the main panel are highlighted and you simply click the image of the virtual control and move the physical control you want to assign to it. A typical example might be to map a real expression pedal to the Master Volume control, or a physical fader on the MIDI controller (or a virtual control in your Digital Workstation) to the Knee Lever.

The list of current MIDI CCs and what they control

Click the **Learn** button in the MIDI tab to put Farfisa V into Learn mode. On the display, controls available for assignment to a MIDI controller turn purple, and controls that have already been assigned turn red.

Farfisa in Learn mode

Click any purple control and its name will appear in the list. Now, move a control or operate a switch on your MIDI controller. The corresponding control onscreen will turn red and the assigned MIDI CC number will appear in the list to the left of the parameter name.

To unassign a control onscreen, control-click or right-click it. Alternative methods of assignment are available in the MIDI Parameter Menu [p.28] described below.

3.4.2.1. Min and Max Values

The Min and Max value columns for each parameter in the list let you scale the amount by which a parameter in Farfisa V changes in response to a physical control movement. For example, you might want the amp's master volume to be controllable via hardware from 30% to 90%. If you make this setting (Min = 0.30, Max = 0.90), your physical control will not alter the volume any lower than 30% or any higher than 90% no matter how far you turned it. This is very useful for making sure you can't accidentally make the sound too quiet or too loud when performing.

Drag up or down on a value to change it. Values are expressed as decimal fractions from zero to 1. It is possible to set the maximum lower than the minimum. This reverses the polarity of the physical controller; i.e. turning it up will turn the assigned parameter down.

In the case of switches which only have two positions (On or Off, etc.), those would normally be assigned to buttons on your controller. But it is possible to toggle those with a fader or another control if you like. In this case, with Min set to 0.00 and Max to 1.00, the switch state will always change when the middle of the fader or knob travel (0.5) is crossed, up and down. The same goes for the three-stage switches, where instead of 0.5 being the state change value, it is divided into three thirds.

3.4.2.2. Reserved MIDI CC numbers

Certain MIDI Continuous Controller (MIDI CC) numbers are reserved and cannot be reassigned to other controls. These are:

- Ctrl All Notes Off (CC #123)
- PitchBend
- AfterTouch

All other MIDI CC numbers may be used to control any assignable parameter in Farfisa V.

The **Knee Lever** is a special case: a switch in the Advanced panel lets it be controlled by a MIDI CC, PitchBend, or AfterTouch.

3.4.2.3. MIDI Parameter Menu
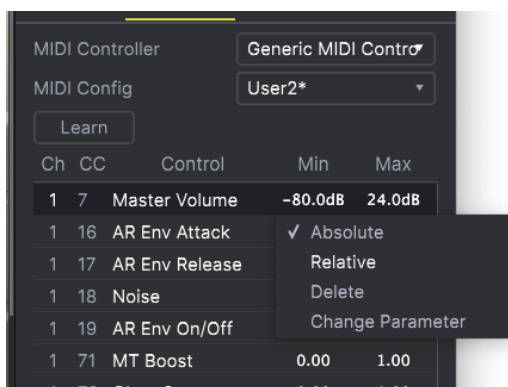
Control-clicking or right-clicking on any item in the list of assigned parameters brings up a pop-up menu with the following options, which can be different for each parameter.

- **Absolute**: The assigned parameter in Farfisa V tracks the literal value your physical controller is sending out.
- **Relative**: The assigned parameter in Farfisa V will go up or down starting from its current value in response to physical controller movements. This is often useful when using endless 360-degree encoders that don't have physical motion limits.
- **Delete**: Removes the assignment and turns the corresponding onscreen control purple again (when the display is in Learn mode).
- **Change Parameter**: Brings up a large sub-menu of every assignable parameter in Farfisa V. This lets you change the assignment of the current CC/physical control manually and is useful when you know exactly the destination you're looking for.

> ℹ This same sub-menu will appear when you click **+ Add Control** at the bottom of the window.

3.4.2.4. MIDI Controller menu

At the top right of the MIDI tab is a drop-down menu where you can select templates for many Arturia MIDI controllers. These map physical controls to many "most wanted" parameters in Farfisa V for a plug-and-play experience. A Generic template is also provided for third-party MIDI controllers.

3.4.2.5. MIDI Config Menu

Another drop-down menu lets you manage different sets of MIDI maps for controlling Farfisa V from MIDI hardware. You can save or save as the current MIDI assignment setup, delete it, import a configuration file, or export the currently active one.
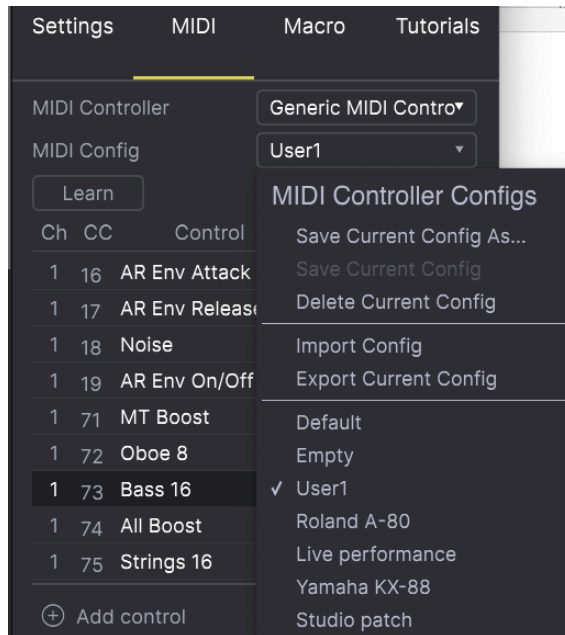
This is a quick way to set up different hardware MIDI keyboards or controllers with Farfisa V without having to build all the assignments from scratch each time you swap hardware.

For example, if you have multiple hardware controllers (small live keyboard, large studio keyboard, pad controller, etc.), you can create a profile for each of them one time and then quickly load it here. This saves you from having to redo the MIDI mapping assignments from scratch each time you swap hardware.

Two options in this menu are especially powerful:

- **Default**: Gives you a starting point with predetermined controller assignments.
- **Empty**: Removes the assignments of all controls.

3.4.3. Macro Tab

This tab handles assignments for the four Macro knobs at the right side of the lower toolbar. Macros allow you to control several parameters at once by turning a single knob. You can assign multiple parameters to each one, then MIDI Learn [p.26] the Macro itself to a physical control if you want.

> ♪ Macros are saved at the Preset level and can be different for each one.
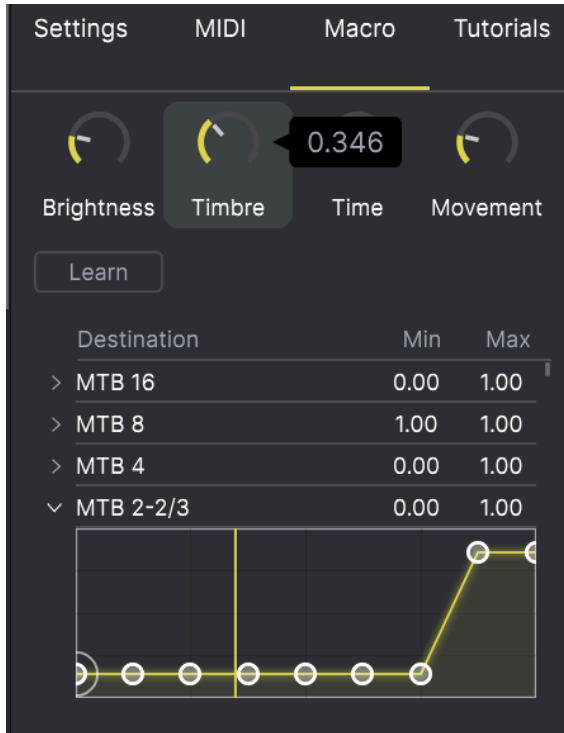
3.4.3.1. Macro Slots

Click one of the Macro knobs to select which Macro you want to work with. The default names are Brightness, Timbre, Time, and Movement, but you can rename them by clicking in the name field at top center. New macro names will also display in the Lower Toolbar.

> In the illustration above, the *Timbre* macro is selected. Its current value is 0.346 and it has 4 destinations: the four MultiTone Booster switches. The curve for MTB 2-2/3 is showing; this voice won't turn on until the *Timbre* macro is near maximum. Notice that the Max/Min values for MTB 8 are both 1.00; this means that MTB 8 will always be on at any setting of the macro. But you can't know exactly what this macro does without looking at the curve of each parameter, see below.

3.4.3.2. Making Macros

Click the **Learn** button in the Macro tab and you will see that the process works much like MIDI Controller assignments – available destinations turn purple and ones already assigned turn red. Click on a purple control onscreen and its name will appear on the list.

To remove a parameter from the Macro, right-click (or on a Mac, CTL-click) its name in the list, then click **Delete** in the window that pops up. Parameters under Macro control have Min and Max values and may be scaled by dragging up or down directly on the number, similarly to MIDI assignments. To reverse the polarity of a parameter (i.e. have it go down when you turn the Macro knob up and vice- versa), set the minimum value higher than the maximum.

> ♪ There are no rules for which parameter(s) to put in a given Macro. In theory you could name a Macro after a favorite pet and group a handful of unrelated parameters there. In practice it's probably better to keep things more descriptive.

3.4.3.3. Macro Curves

Beyond simple scaling, you can customize a curve that determines how each parameter under the Macro's control proceeds from its minimum to maximum value and back when you turn the Macro knob. Click the > icon next to the parameter name to open the curve window.

Click on the curve to add a breakpoint, represented by a small circle. You can then drag the point and the curve segments between it and its nearest neighbors will change accordingly. Right-click (or control-click on a Mac) on a point to remove it. The first and last breakpoints cannot be removed.

> ♪ A simple diagonal line would produce a linear curve, but the potential fun here is to make things non-linear.

3.4.4. Tutorials

In this tab (which can also be opened by selecting Tutorials from the Farfisa Main Menu [p.17]), you can click on titles for the individual chapters, which in turn will take you through different areas of Farfisa V in steps. The parts of the panel to focus on are highlighted as you go.

> ! If you're editing a Preset, make sure to save it before opening the Tutorials because doing so will load a new Preset and overwrite your changes. The Tutorials also take over the Side Panel space when in use.

4. THE PRESET BROWSER

The Preset Browser is how you search, load and manage sounds in Farfisa V. It has a couple of different views but they all access the same banks of Presets.

To access the search view, click the browser button (the icon that looks like books on a library shelf: ‖‖\). To close the browser, click the **X** that appears in its place.

The browser has four main areas:
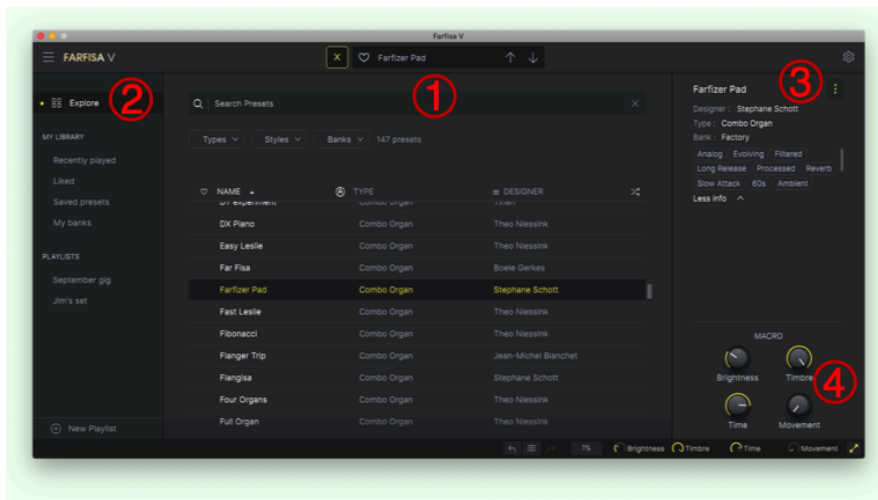
The full Preset Browser window

Number	Area	Description
1	Search and Results [p.33]	Search presets with text strings, and by tags for Type and Style.
2	Sidebar [p.39]	Manage banks and Playlists.
3	Preset Info [p.35]	Summary of Bank and Tags, Designer name, and description info for current Preset.
4	Macro Knobs [p.43]	Large size duplicates of Macro knobs in lower toolbar.

4.1. Search and Results

Click on the Search field at the top and enter any search term. The browser will filter your search in two ways: First, by matching letters in the Preset name. Then, if your search term is close to that of a Type or Style [p.35] it will include results fitting those tags as well.

The Results list beneath shows all Presets that fit your search. Click the **X** icon at the right side of the Search field to clear your search terms.
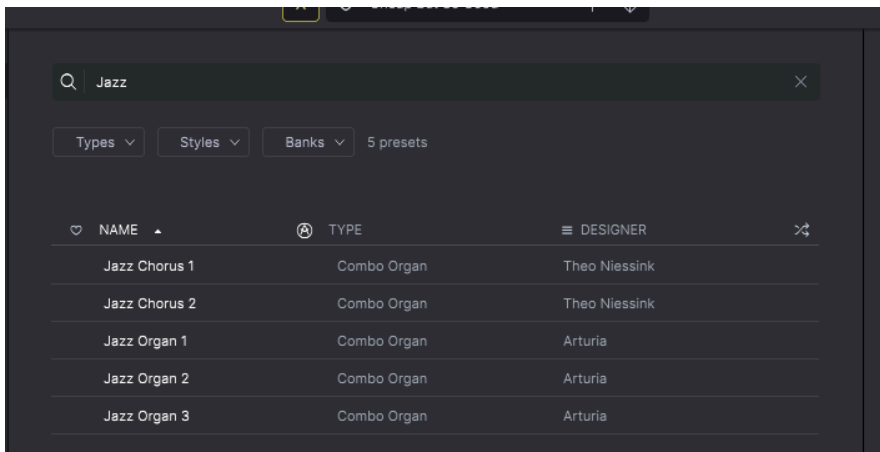
Searching for Jazz

♪ To search all presets, make sure that **Explore** is selected in the left sidebar.

4.2. Using Tags as a Filter

You can narrow (and sometimes expand) your search using different tags. There are two kinds of tags: Types and Styles. You can filter by one, the other, or both.

4.2.1. Types

Types are categories of instruments and musical roles: bass, leads, strings, pads, organs, and more. With a clear search bar, click the Types button to bring up a list of types. Notice that each type also has several sub-types:
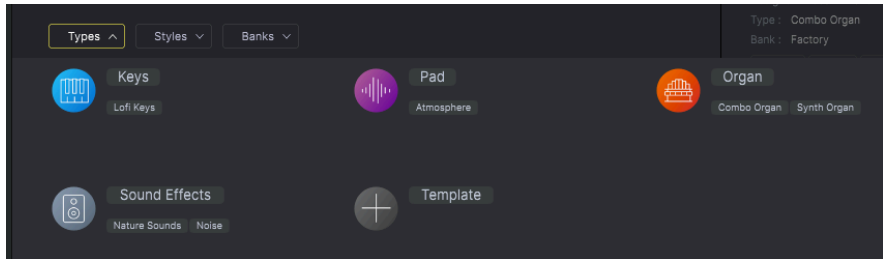
Click any one of them, and the results will show only Presets that match that tag. You can also select multiple Types using Cmd-click (macOS) or Ctrl-click (Windows). For example, if you aren't sure whether the preset you're looking for was tagged with Keys or Pad, select both to broaden the search.

4.2.2. Styles

Styles refine your search according to further musical attributes. Accessed by the **Styles** button, this area has three further subdivisions:

- **Styles**: General "vibe" such as Atmospheric, Dirty, Clean, Complex, Mellow, etc.
- **Genres**: Identifiable musical genres such as decades, Jazz/Blues, Pop, Soul/R&B, UK Garage, etc.
- **Characteristics**: Sonic attributes such as Analog, Evolving, Distorted, Dry, Rise, etc.
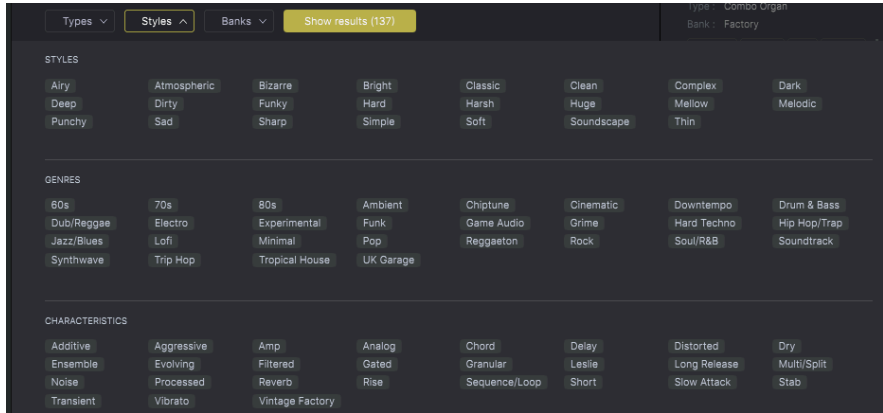
Click on any tag to select it. Click again (or right-click) on any selected tag to de-select it. Notice that when you select a tag, several other tags usually disappear. This is because the browser is narrowing your search by a process of elimination. De-select any tag to remove that criterion and widen the search without having to start all over again.

4.2.3. Banks

Next to the **Types** and **Styles** buttons is the **Banks** button, which lets you limit your search (using all the methods above) within the factory, owned, or user banks.

Click on a bank to select it. To select more than one bank, hold Cmd & click (macOS) or Ctrl & click (Windows) on the additional bank(s) you want to search. Click again to deselect a bank.

4.3. Search Results window

Click the yellow **Show Results** button if you cannot already see your list of results. Click the sort arrow to reverse the alphabetical order of any column.

4.3.1. Sorting the Preset Order

Click the **NAME** header in first column of the Results list to sort Presets in ascending or descending alphabetical order.

Click the **TYPE** header in the second column to do the same thing by Type.

Click the **Arturia logo** to the left of **TYPE** to bring factory-featured Presets to the top of the list. These will appear just under any Presets you have liked [p.38]. if the "heart" ♥ column is selected.

The third column has two header options: **DESIGNER** and **BANK**. Click the icon with three lines to bring up the popup menu, then click either header name to select your choice.
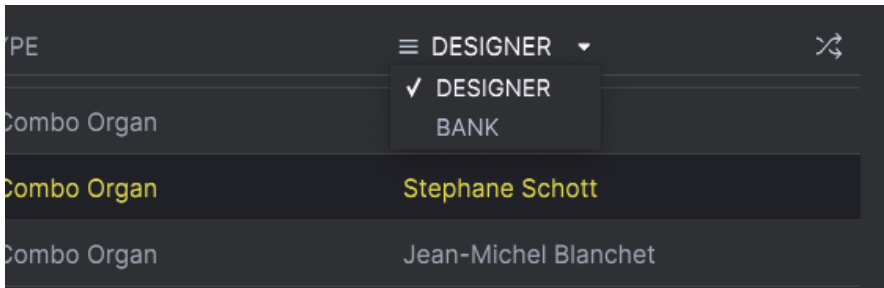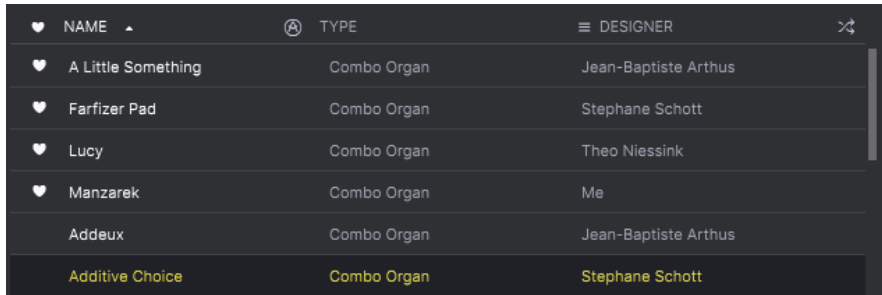
4.3.2. Clearing Tags

Just below the Types, Styles, and Banks buttons, you will see labels for all the active tags in a search. Click the X next to any one to remove it (and thus broaden the results). Click **Clear All** to remove all tags.
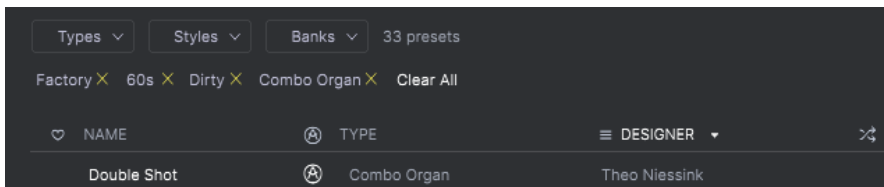
4.3.3. Liking Presets

As you explore and create Presets you can mark them as Liked by clicking the **heart** next to their names. This will add them to the **Liked** group selectable in the left sidepanel of the Preset Browser (under MY LIBRARY) and in search results you can click on the heart icon column heading to put all of your favorites at the top of the Results list.

A browser window with your favorites at the top of the list

Use as many of the sorting and filtering features as you need and you will find the exact sound you want every time.

4.4. Left Sidebar

The leftmost section of the Preset Browser determines what is displayed in the central Search and Results [p.33] section. The topmost option is:
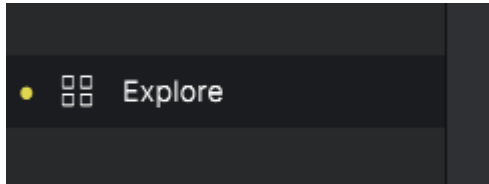
The **Explore** section is the default. It lets you search <u>all</u> the Presets loaded into Farfisa V as we did in the previous section.

4.4.1. My Library

This chooses from among every Preset and bank you currently have access to in Farfisa V, with some convenient options.

- **Recently played:** The Presets you have most recently played, displayed most recent first. This is great for when you can't remember the name of a Preset you were really enjoying a day or more ago.
- **Liked:** Presets you have liked using the heart icon. When you mouse over any item in a results list, an "empty heart" appears; click on it to add it to the Liked list.
- **Saved presets:** Presets you have created using a Save or Save As operation from the Main Menu [p.13].
- **My banks:** Shows icons of the Factory bank and any banks you have imported or created, unless the **Show User banks only** indicator is checked. Click on the icon of a bank to see its contents.

4.4.2. Playlists Area
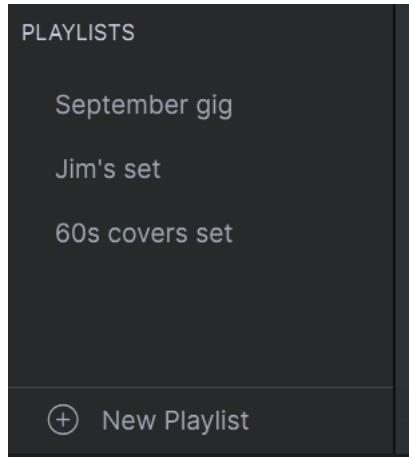
The bottom part of the sidebar displays any Playlists you have created or imported. Playlists are a very powerful management tool for set lists for gigs. Learn more about them in the Playlists [p.44] section below.

4.5. Preset Info (Right Sidebar)

When you click **More info** on the right side of the browser window it shows specific information about each Preset. The information for User Presets (but not Factory ones) may be changed here: Name, Designer, Type, Bank, etc.

> ♪If you want to make changes to a factory preset such as changing its name, adding comments or tags, you must first re-save it as a user preset using the **Save As** command under the 3 vertical dots in the upper right corner. When you have done this, you can change the information stored inside the preset. Factory presets can't be overwritten.
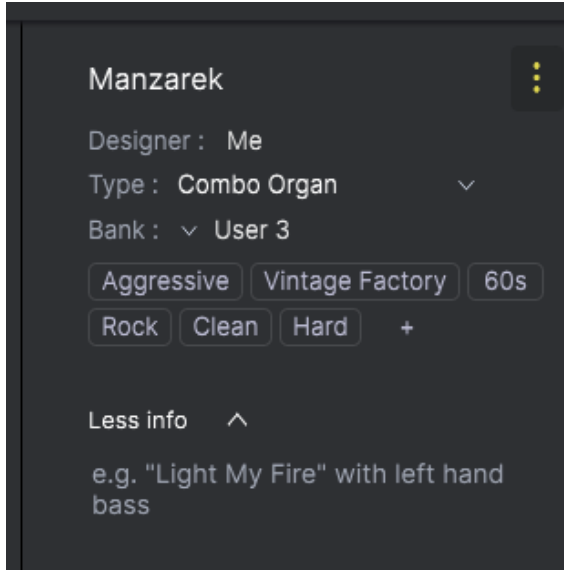
To make the desired changes, you can type in the text fields, use one of the pull-down menus to change the Bank or Type. To add or delete Styles for this Preset, click the + sign to open the **Edit Styles** window in the center section. Click any additional styles/genres/characteristics for the Preset; they will be highlighted. To remove a style from the Preset, click on it to remove the highlight.

Types and Styles changes you make here are reflected in searches. For example, if you remove the "Vintage Factory" Style tag and then save that Preset, it will not show up in future searches for Vintage Factory sounds.

Close the **Edit Style** menu by clicking the **X** in its upper right corner to show the **Search** window again.

4.5.1. Preset Info Mini-menu
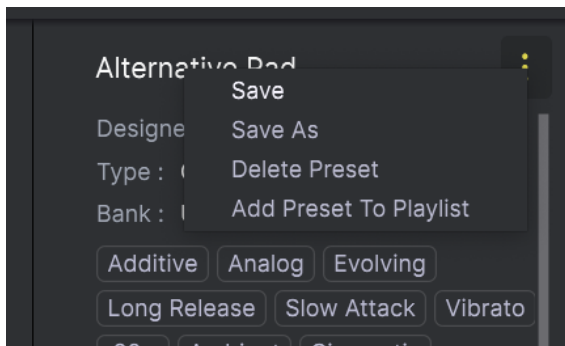
In the upper right corner of the Preset Info menu is an icon with 3 vertical dots. Click on this icon to select **Save, Save As, Delete Preset,** or **Add Preset To Playlist**. (The last choice will add this preset to the bottom of the last playlist you have selected.)

4.6. Preset Selection: Other Methods

Click on the Preset name in the center of the upper tool bar to bring up a drop-down menu. The first option in this menu is **All Types**, and it brings up a submenu of literally every Preset in the current bank.

Below this are options that correspond to the **Type** tags. Each of these brings up a submenu of all Presets of its Type.

If you have an active search by Type and/or Style, the up/down arrows to the right of the Preset name will step through only the results that conform to your search.

However, "All Types" in the drop-down menu always ignores those criteria. Likewise for the Type choices below the line – they always include all Presets within that Type.

4.7. Macro Knobs

These are simply larger duplicates of the Macro knobs in the bottom toolbar. Move one and its partner moves with it.

Assigning parameters to Macros is covered in the Macro Tab [p.31] section of Chapter 3.

4.8. Playlists

In the lower left corner of the Preset Browser window is a feature titled Playlists. This collects Presets into different groups for different purposes, such as a set list for a particular performance or a batch of presets related to a particular studio project.

4.8.1. Add a Playlist

To create a playlist, click the **New Playlist** button at the bottom of the sidebar.
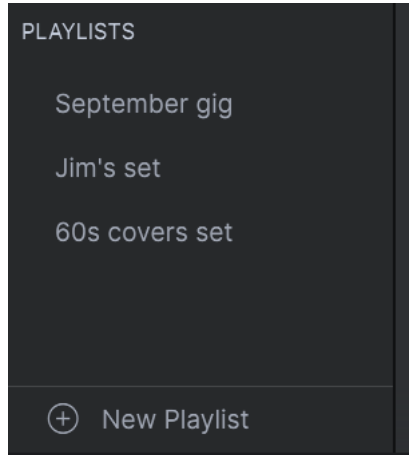
Give the Playlist a name and it will appear in the Playlists menu in the Sidebar.

4.8.2. Add a Preset

You can use all of the options in the Explore window to locate Presets for your Playlist. When you find a desired Preset, click-drag it onto the Playlist name.
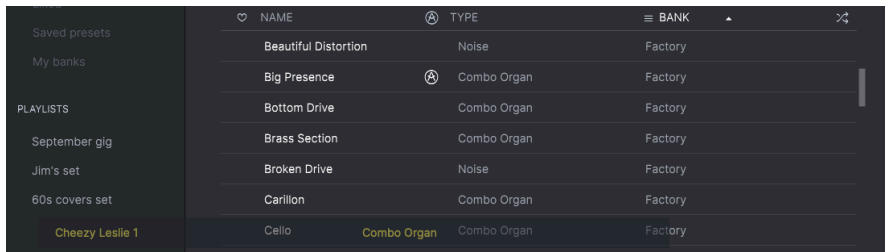
Click and drag from the Search Results list onto one of the playlists

To view the contents of a playlist, click on the playlist name.

Click the **Save** button at the top to save the additions to your playlist.

4.8.3. Re-order the Presets

Presets may be reorganized within a playlist. For example, to move a preset from slot 2 to slot 4, drag and drop the preset to the desired location.
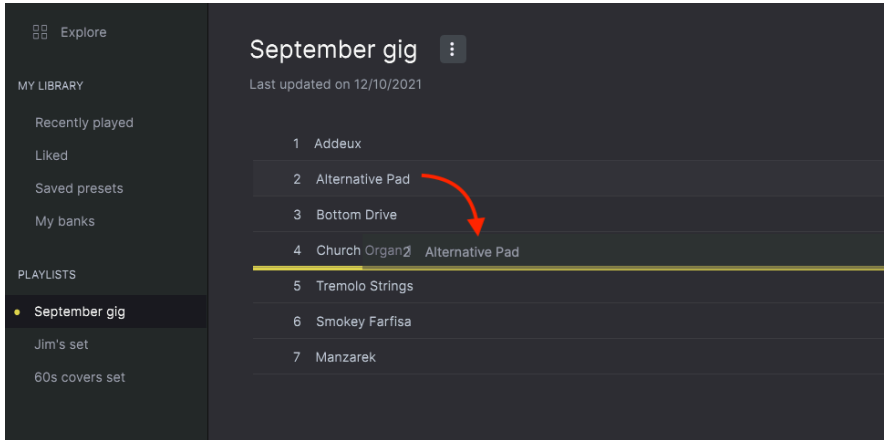
The yellow line indicates you're dragging one Preset between two others

This will move other Presets up in the list to accommodate the new location of the Preset you just moved. A yellow line will briefly appear at the "insert point."

4.8.4. Remove a Preset

To delete a Preset from a playlist, right-click on its name to bring up a pop-up menu.

This menu also includes Copy, Paste, Duplicate, and Save As options. More management options are described below.

4.8.5. Playlist Management

Select a Playlist, then click on the three dots icon next to its name in the main Search Results area. This brings up a number of pull-down options for managing your Playlist.
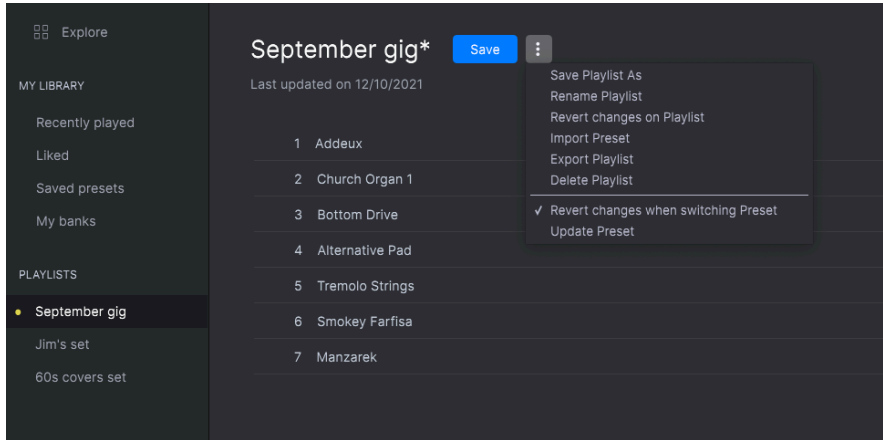
The asterisk next to the playlist name shows that it hasn't been saved.

- **Save Playlist As:** Creates a duplicate of the playlist with "Copy" appended to the name. You can change the name before saving.

- **Rename Playlist:** Renames the current Playlist without making a copy.

- **Revert changes on Playlist:** Cancels all live edits you may have done to Presets within that Playlist. See Editing a Preset Within a Playlist [p.46] in the next section.

- **Import Preset:** Opens a dialogue to import a Preset stored on your computer directly to the Playlist.

- **Export Playlist:** Exports your Playlist to a location on your computer, with the filename extension ".aplst".

- **Delete Playlist:** Deletes the current Playlist but does not delete any of the Presets in it.

- **Revert changes when switching Preset:** If this is checked when you save a Playlist, Farfisa V will save only the edits you have made to the current preset. If unchecked, all edits you've made to Presets in that Playlist are saved.

- **Update Preset**: Performs a one-time save of the current Preset. The reason is that if you then "Revert changes on Playlist" you won't lose the edits on the current Preset.

4.8.6. Editing a Preset Within a Playlist

There may be times when a Preset needs to be customized for a particular set; for example, a preset that's fine in rehearsal needs to have more edge when played through a live PA system. When you are in Playlist mode and make a change to an individual Preset, those changes <u>don't</u> affect the original preset in the main library, but they are saved in the Playlist. The preset name remains the same, however. To avoid confusion, use **Save Preset As** to save it under a different name.

5. MAIN PANEL AND FEATURES

5.1. Front panel

The front panel of Farfisa V is where you control how the keyboard generates sound and how its effects operate. The virtual instrument is modeled on a mix of the original Combo Compact Deluxe and Compact Duo models in terms of its front panel, and has some additional features that we've added "under the hood" that can be found by opening the Advanced section.

Using the original schematics we first created a mathematical model of the raw tone generators (oscillators, dividers), the voice filters (Multi-Tone Booster, treble, bass), the built-in effects (vibrato, repeat/percussion, tremolo), and the preamps (including noise/mains hum). We then compared this with the real deal (our own Farfisa Compact Duo, as well as audio recordings from several other models), and adjusted the model somewhat to make it "more vintage". We also recorded an IR (impulse response) of the spring reverb of our Compact Duo so the end result is incredibly authentic.

5.1.1. The Treble Voices
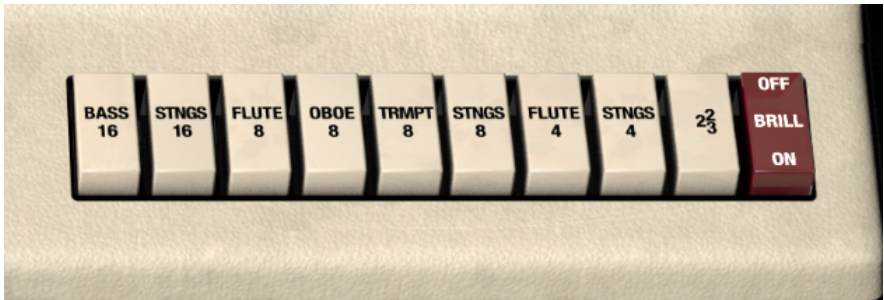
The white voice tabs on the right side are like the stops on a pipe organ and have two functions:

1. Select one or more pitches (16', 8', 4', 2⅔) for each key.
2. Select the filters (Flute, Strings, etc.) to send the pitches through.

> ♪ What do the numbers mean? On a pipe organ, a middle C pipe is 8 feet long, a 16-foot pipe is an octave below, and a 4-foot pipe is an octave above. A 2 2/3' pipe is the G above high C, the third harmonic of middle C. If you have all the tabs ON, when you play a single key on the Farfisa, you're actually playing 3 octaves and a fifth (four oscillators) at once. Electronic organs like the Hammond and Vox Continental arrange their drawbars in a similar way: the first white drawbar is an 8', the second a 4' and so on, and the first black drawbar is a 2-2/3'.

The more switches you activate, the more harmonically rich and full the generated sound will be. Conversely, using fewer pitches results in a sound that's more stripped-back. You can also turn these switches on or off during a performance (either physically or using MIDI controllers) to change the sound of the organ on the fly. This is a common technique used by organists who know which voices to bring in and out to make different sounds, for the verse and chorus of a song for example. With a bit of practice, you will figure this out too!

If you select **BASS 16** and **STRINGS 4**, then both 16' *and* 4' pitches are sent through the Bass *and* the Strings voice filters. Note that the filters are not isolated so they interact a lot, hence each combination will sound slightly different (e.g. **FLUTE 8** + **STRINGS 8** will not sound exactly like **Flute 4** + **STRINGS 4**).

The **BASS 16** and **FLUTE 8/4** voices (the "round tones") are based on the **MT Boost** voices (the green tabs to the left), while the other white tab voices (the "sharp tones") have their own, global voice filter circuitry.

The **BRILLIANT** tab makes the white **2-2/3'** tab brighter. When the white 2-2/3' tab is off the Brilliant tab has no effect.

5.1.2. Multi-tone Booster (MTB) Voices
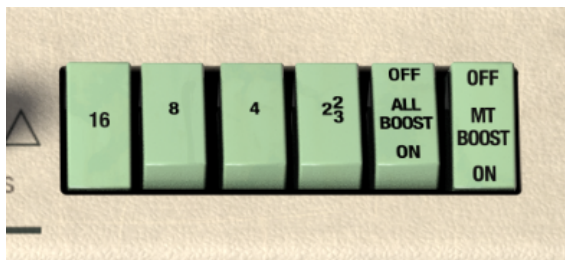
The Multi-Tone Booster (MTB) voices offer an alternative to the treble voices and make it easy to go from mellow tones to bright tones while you're playing. **MT BOOST ON** makes the Multi-Tone Booster (green tabs) active and turns the treble voices (white tabs) off, so you can easily switch to a different set of voices for a solo or chorus.

> ♪ If you are not getting any sound from the organ and your audio I/O is correctly set up, check that it's not the case that all of your tone switches are off! At least one tab has to be on in the section you're currently playing, either MTB or Treble.

In MTB mode you can select the pitches for each key (16', 8', 4', 2⅔ in any combination). In Multi-Tone Booster mode, each tab stop has its own series of low-pass filters that can be opened up to add brightness to the sound. When no boost is being applied, the tones are similar to the **FLUTE** stops in the treble section; but only in MTB mode can you use the **Knee Lever** to turn up the high frequencies, or turn **ALL BOOST ON** to maximize the high-frequency content (i.e. as if the Knee Lever is at 100%).

5.1.3. REPEAT - PERCUSS controls
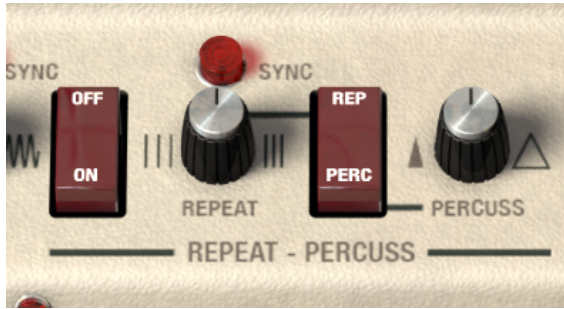
Just as on the original Compact Deluxe you are able to control the percussion and repeat characteristics of the way the organ generates sound. The controls work like this:

- **ON/OFF** (the left hand switch): enables or disables the repeat-percussion function.
- **Repeat SYNC** – sets the Repeat Percussion rate to a multiple of your host computer's sequencer tempo. Click on the red light to activate or deactivate this.
- **REPEAT** rate knob: When **Repeat SYNC** is lit, the repeat rate knob can be set between 2 whole notes, 1 whole note, half note, ¼ triplet, ¼ note, 1/8 triplet, 1/8th, 1/16 triplet, or 1/16 values.
- When **SYNC** is off, the repeat rate ranges from a minimum of 0.150 Hz (very slow, one pulse every 6.7 seconds) to a very fast 20 Hz.
- **REP/PERC** switch chooses either the REPEAT or the PERCUSSION mode for the upper keyboard. In PERC mode the percussion is triggered at the beginning of each key you play, and doesn't repeat.
- **PERCUSS** knob: sets the decay time of the percussion section to FAST, MEDIUM, or SLOW.

5.1.4. TREMOLO control

The tremolo control can be used to add some amplitude modulation into the signal, just like on a real Farfisa. Tremolo is to volume what vibrato is to pitch: a variable-speed low-frequency oscillator controls the amplitude, making the sound louder and softer several times a second (typically).

- **TREM ON/OFF**: enables or disables the tremolo.

- **TREMOLO Rate knob** controls the speed of the tremolo from very slow (counter-clockwise) to very fast (clockwise).

- **Tremolo SYNC**: sets the Tremolo speed rate to a multiple of your host computer's sequencer tempo. Press the red light to activate or deactivate this. When SYNC is on, the rate knob can be set from 2 whole notes, 1 whole note, half note, ¼ triplet, ¼ note, 1/8 triplet, 1/8 th, 1/16 triplet, or 1/16th note.

  - In non-sync mode the tremolo rate knob operates in Hz, not note values, and ranges from a minimum of 0.150 Hz (very slow, one cycle every 6.7 seconds) to a very fast 20 Hz.

5.1.5. Reverb and Vibrato controls

The reverb section is linked to the reverb type controls that you can read about in detail in the Advanced Panel's reverb section. [p.68] The controls work in the following way:
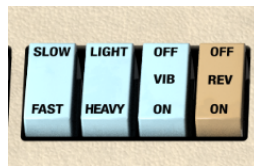
- **SLOW/FAST**: toggles between the two vibrato speeds.
- **LIGHT/HEAVY**: lets you set a lesser or greater amount of vibrato.
- **VIB ON/OFF**: switches the vibrato effect on or off.
- **REV ON/OFF**: enables or disables the reverb effect. The reverb type and level are set in the Advanced section, something that wasn't possible on the original instruments.

5.1.6. The Bass Manual section

One of the great things about the Compact Deluxe is that it contains bass and treble sections on the same keyboard, meaning you can play two different parts from a single keyboard if you like. Or, you can disable the bass section and play the upper register across the whole keyboard. The bass manual can be used instead of having a bass guitar player since the tone can be made to sound big and heavy. Additionally, the Farfisa V's Advanced features let you use the left side of the keyboard as a secondary organ part (a "lower manual") with completely different waveforms to add weight to the overall organ part. See The Bass Tone section [p.63] for more on this.

> ♪ The most famous example of a band where the keyboard player played bass with his left hand was the Doors (although Ray Manzarek used a Fender Rhodes keyboard bass for the left hand, and a Vox Continental or Gibson organ for the right). The Farfisa Combo Compacts featured a multipin connector underneath for connecting an optional 13-note bass pedal assembly so the organist could play bass notes with their feet.

Starting from the left hand side the controls for the Bass Manual are as follows:

- The **BASS MANUAL** volume control lets you set the level of the bass keys. Turned all the way to the right (counter-clockwise,"2:OO" position) the bass keys are almost silent (-21 dB), and to the left (clockwise,"1O:OO"), they are at maximum volume (+12 dB). This is a useful control because the bass part has a different character to the treble and so you may not want them to be at the same volume. This control is a good candidate for mapping to a hardware MIDI controller so you can alter it from your MIDI keyboard during performance.
- The **GRY KEYS SEL** button has two positions.
    - In the upper position (**TREB**) the grey keys on the keyboard will operate the treble notes (the organ voices from either the MTB or Treble stops) and not the bass notes, extending the range of the treble part. The third octave light (the one to the furthest right) will go out and the other two will be lit, showing that only the lowest octave is set to trigger the bass notes.
    - In the **BASS** position, this switch causes the grey notes to play the bass tones. The middle red light will go out and the top red light will go on to show that the black and grey notes are now assigned to the bass part – two octaves. Again you may want to assign a MIDI control to this switch as it can help you to dynamically reassign zones of the keyboard while performing.

- **BASS ON/OFF** simply lets you activate or deactivate the whole bass section. When deactivated, you can play the upper organ sounds across the entire keyboard.
- **BASS SHARP/SOFT** changes the tone of the bass section to either a sharper or softer character.
- **PERC ON/OFF** turns the percussive attack of the bass section on (adding a little punch to the start of each note) or off.
- When **PERC** is ON, the **LONG/SHORT** switch sets the decay speed of the percussive attack.

5.2. The Amp and Pedals

5.2.1. How this section works

The original Farfisa Combo Compact, like many organs, was often played through a guitar amp and/or guitar effects to enhance its sound and provide a harder or more psychedelic edge. The "floor" at the bottom of the Farfisa V window features five faithful re-creations of vintage effect processors, followed by an emulation of an open-back tube amp.

When the effects and amp are all switched off, what you hear is the pure, unprocessed output of the organ.

5.2.2. The Effect Pedals

When you click the "footswitch" of any of the effects they begin to process the sound. Active effects are shown with red LEDs. You can swap the order of any of the effects, in order from left to right, by clicking on their name text and choosing a new model to go into that slot.

When you do this, the pedals will swap positions. So if you swap an Overdrive for a Chorus in slot 2, the Overdrive will take the position the Chorus pedal was just in.

All five pedals are always present in the pedalboard, though none of them has to be active. There is no option to have an empty pedal slot.

All effects, the amp and swell pedal can be MIDI controlled by using MIDI learn mode [p.26].

5.2.3. The Amp

The amp is based around a Fender Twin and can be switched off to leave either the output of the organ or the organ plus effects, or switched on to lend a more vintage, amped sound to the signal.

Starting from right and moving left the controls are as follows:

- The **POWER** switch activates or deactivates the amp.

- The **MASTER VOLUME** knob acts as the final volume control for the output of the whole instrument when the amp is switched on.

- The **TREBLE, MIDDLE** and **BASS** knobs let you sculpt the EQ of the amp's output just like on a real guitar amp.

- The **VOLUME** knob acts as a channel volume control.

    - > To get classic tube preamplifier distortion, turn this to max and turn **MASTER VOLUME** down.

- The **BRIGHT** switch can be used to add more presence and brightness to the sound. It is only active at low volumes.

- The **AXIS** switch lets you alter the virtual microphone between **ON AXIS** which gives a more direct sound with the mic pointing straight at the amp's speaker, and **OFF AXIS** which uses a mic pointed at an angle, which gives a slightly less direct character.

5.2.4. Flanger pedal

Flanging works by mixing two signals together, with one signal delayed across a varying but very short time span. A low-frequency oscillator (LFO) constantly changes the delay time, producing a swept "comb filter" effect as the delayed signal adds and subtracts from the original due to phase cancellation at multiple frequencies simultaneously. At wider settings of DEPTH, the delayed signal will be out of tune relative to the original signal.

Control	Description
DELAY	Sets the initial delay time that will be scanned.
DEPTH	Controls the range of time that will be scanned.
RATE	Controls the sweep speed of the flange effect .
RES	Resonance: the output is increasingly fed back to the input, making the phase cancellations more pronounced, and repeating delays.

5.2.5. Phaser pedal

Phasing is the psychedelic sweeping effect that was popular in the 1960s and 70s and adds a sense of movement and swirling to the sound, somewhat like a rotating speaker. It uses a steep multipole filter whose frequency can be modulated by an LFO, sweeping across the spectrum of the input, causing that familiar "whooshing" sound. It is similar to flanging, but is filter and phase-based instead of time-based. It works particularly well on organ sounds like Farfisa. The controls are:

Control	Description
RATE	Controls the speed of the phaser effect .
DEPTH	Controls the depth of the phaser's filters.
FEEDBACK	Like resonance in the flanger, this increases the peaks and valleys of the phase filters by feeding the phaser's output back into its input.
STEREO	Sets the width of the stereo field from mono to full stereo. **The stereo effect is summed to mono if the Amp is on.**

5.2.6. Chorus pedal

Chorus works by adding additional delayed voices to the signal whose pitches are slightly (or drastically!) changed over time. If you "solo" the chorus voices by turning MIX all the way clockwise, what you will hear is the pitch going sharp and flat according to the rate: essentially, a vibrato with adjustable rate and depth. When these pitch-altered voices are mixed back in with the original signal it creates beat frequencies, making the sound harmonically richer and adding a sense of movement. The chorus voices may also have a perceptible delay, like singers slightly out of sync with each other (e.g., voice doubling). The controls are:

Control	Description
RATE	Controls the basic speed of the chorus effect's LFO (low-frequency oscillator).
DELAY	Controls the starting delay from O to 25 milliseconds. In combination with the AMOUNT control, this determines the out-of-tune range of the chorus voices.
AMOUNT	Controls how much of the RATE is applied to the DELAY time, essentially LFO depth.
MIX	Sets the balance between the "dry" original signal and the chorused voices. At full counter-clockwise, there is no chorus signal at the output; at full clockwise, only the pitch-shifted chorus voices can be heard (and there will be no beat frequencies).
ST.RATE	Controls the speed of the stereo chorus voices relative to the basic speed. At full counter-clockwise, the stereo voices are basically in sync; at higher settings the left and right voices are going at different rates.
ST.WIDTH	Sets the width of the stereo field from mono to full stereo. **The stereo effect is lessened if the Amp is on.**
TYPE	Sets the number of chorus voices and how they interact. Type 1 is a stereo voice that varies in pitch, Type 2 adds another, and Type 3 is the most complex set of voices.

5.2.7. Analog Delay pedal

Delay is a great effect to use on organs as it can really increase the sense of depth and space without becoming "splashy" and adding too much air and high end like reverbs sometimes do. The controls are:

Control	Description
DELAY	Delay time: sets the delay time from 12 milliseconds to one second.
FB TONE	Feedback tone: allows you filter the delayed signal. At -100% (counter-clockwise), each repeated delay becomes duller; at +100% (clockwise), each delay becomes thinner. At "12:00" the filter is basically flat.
FEEDBACK	Controls how much of the delay output is fed back to the input, increasing the number of echoes you hear.
MIX	Sets the balance between the original signal and the delayed signal. At full counter-clockwise, there are no delays; at full clockwise, only the delays can be heard
LFO RATE	Sets the low frequency oscillator speed from 0.05 Hz to 10 Hz.
LFO DEPTH	The LFO section modulates the playback speed of the delay, changing its pitch depending on the DEPTH control. When DEPTH is at 0.0%, the echoes will be at the same pitch as the original, the classic analog delay sound. At higher settings of DEPTH the echoes will have pitch modulation (at slow LFO rates) or will have their own unique vibrato (at high LFO rates).

5.2.8. Overdrive pedal

Overdrive is great for adding drive, crunch and grit to organ sounds. This is modeled on a pair of 12AX7 vacuum tubes (valves) in a preamplifier circuit being overdriven. The controls are:

Control	Description
DRIVE	How much distortion is applied to the signal.
OUTPUT	Output gain, from 0 dB to 10 dB. Use this to compensate for increased output gain caused by the other settings.
TONE	Controls how much high end is in the tone. At full counter-clockwise, the treble frequencies are muted; turn clockwise for more high end distortion.

5.2.9. The Swell pedal

The swell pedal is pre-amplified and connected directly to the organ. It controls the volume of the organ before sound is passed to the effects pedals or the amplifier. It acts as a volume pedal for changing the volume during performance. As such it's a perfect candidate for MIDI assigning to a real hardware expression or volume pedal so you can get a much more authentic playing experience when triggering Farfisa V from your MIDI keyboard.

6. ADVANCED PANEL

The Advanced features can be accessed by clicking on the **Advanced** button or by clicking on the organ's cream-colored hood area.
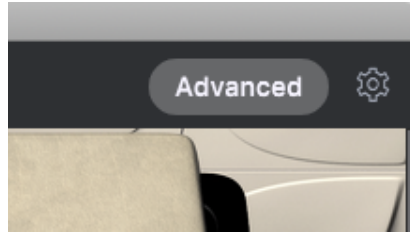
It provides some controls that were extremely hard to access on the original hardware instrument (like tuning controls for individual notes) and adds new features that were not available such as:

- A special USER position that allows the user to create an additive waveform or use the sliders to create a new waveshape based on the graphic look of the sliders.

- Additional reverb type selections and reverb amount control.

- Paraphonic/Polyphonic mode for triggering envelopes in different ways.

- Attack/release envelopes for upper and lower keyboards to expand the sound palette.

- Bass section waveforms selector.

- Bass section tone control and resonance.

- Noise level control if you want to add authentic analog transistor grunge…or not.

- Master volume, bass and treble controls.

- Additional knee lever controls that can change it to wah-wah mode and select which MIDI controllers affect it.

6.1. The Voice Tune section

The Farfisa has 12 independent master oscillators, which each drive 5 dividers, plus there's 1 extra divider for the low "C" note, so there is a total of (1+5)*12+1=73 frequencies being generated all the time (even more in Farfisa V, because of its extended key range). This system of oscillators and dividers also accounts for the fact that the same notes in different octaves (e.g. all "C" notes) are phase-locked.

You can use these controls to individually tune any of the 12 oscillators. You can reset any one to its central position by double-clicking on it. If you reset all 12 tuning pots to 0 cents, then Farfisa V will be tuned to exactly A4=440 Hz equal temperament (although this is not representative of the sound of a real Farfisa). As such, many of the organ templates feature certain notes that are tuned slightly off center, giving it that classic organ sound. These controls can be mapped to a MIDI controller to let you tweak note tuning in realtime.

6.2. The Bass Wave section

The Bass Wave section expands on the original Farfisa by letting you select and modify different bass waves.

The **BASS WAVE** knob allows you to select between seven different bass waveforms:

1. The original Farfisa waveform as generated by the tone generators (i.e. the same waveform as in the treble section when User Wave is off).

2. Saw - Sawtooth wave.

3. Sync - Hard-sync sawtooth wave.

4. Mod - Modified square wave.

5. Square - Square wave.

6. Pulse - Pulse wave (15% duty cycle).

7. Additive - Additive user wave.

8. Shape - Shape user wave (set by the graphic faders on the right side, see The User Wave Section [p.66] below.

> ℹ If the **BASS SOFT/SHARP** control is in the SOFT position, the differences between the Bass Waves will be subtle. Use the SHARP position to hear the difference in waveforms. The same is true if the TONE knob is set to a low value, see below.

The icons next to the Bass **TONE** knob represent the moon (dark, i.e. 20 Hz) and the sun (bright, i.e. 20000 Hz). When the Bass Tone is turned full clockwise to bright/20000 Hz, this bypasses the 24 -dB-per-octave bass tone ladder low-pass filter so all harmonics of the waveform pass through. When the Bass Tone is at any other value (including 20 Hz/dark) this sets the filter to the selected cutoff.

> ℹ The lower the setting of **TONE**, the fewer frequencies get past the low-pass filter. Since the lowest C in the bass section has a fundamental frequency of 63 Hz, guess what happens when **TONE** is set to cut off everything above 20 Hz? Nothing gets through, and the BASS section is effectively silenced.

The **RESO** knob lets you change the resonance of the tone filter.

6.3. Noise Level control

The Noise Level knob lets you add a variable amount of noise to the output, which was part of the character of the original Farfisa organs. At maximum setting this simulates a high degree of electrical buzz and hum.

6.4. Voice Mode switch

When **AR ENV** (attack/release envelope) is ON, the Voice Mode switch lets you toggle between two modes:

- **Polyphonic**: Each key has its own attack and release envelope, just like on a true polyphonic synth.
- **Paraphonic**: Each key still has its own release envelope, but the attack envelope is now global, and it won't retrigger until all (treble) keys have been released. If you play legato, no new attacks will be generated. This is more or less like some string synths (e.g. the ARP Solina / Arturia Solina V), and the percussion tab of the Hammond B3 organ.

Note that this applies only to the treble voices (green/white tabs on the right), not the bass. The bass does have attack, but only up to 3 ms (so you can still use it to prevent pops/clicks). The bass doesn't affect the global paraphonic envelope at all. The idea behind this is to be able to play hard bass notes combined with slow treble chords such as pads/strings for more flexibility.

When the **AR ENV** switch to its right is OFF, the **VOICE MODE** switch is ignored.

6.5. The Envelope section

By switching the **AR ENV** (attack/release envelope) switch on you activate the envelope section. You will then be able to create a slower or faster attack and release setting using the two knobs.

With faster **ATTACK** (knob turned to the left), the sound comes in more quickly and has a sharper feel. With slower attack (knob turned to the right) the sound takes a little time to fade in, which is better for string and pad style sounds.

A lower **RELEASE** value (knob turned to the left) means the sound stops being generated almost as soon as you release a note. Turned to the right, the release is slower and the note will sustain and fade out over time. Again this is better for pad or string style sounds.

6.6. The User Wave section

This is a special addition in the software version of the Farfisa, a way for you to draw your own waveform to generate sound.
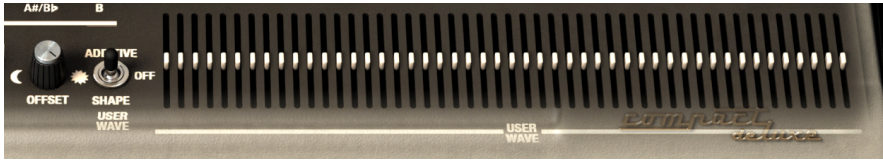
The User Wave switch lets you choose between:

- **OFF** (center position): This position gives you the original Farfisa Compact waveform on the upper keyboard, which is like a blend between a sawtooth and a pulse wave and is slightly different for each note because of the oscillator/divider tone generator technique of the analog hardware. In this mode the sliders do nothing (unless you have selected Additive/Shape for the bass).
- **ADDITIVE**: In Additive mode you can mix harmonics (sine waves) using the 48 sliders. If you use only the first few you will get classic tonewheel organ-like sounds (because its drawbars also mix in harmonics/sine waves). As you mix in more harmonics you will get increasingly harsher sounds. Note that to hear all harmonics you will have to select a voice filter that passes lots of high frequencies, e.g. All Booster or the Strings voices.
- **SHAPE**: In Shape mode you can use the 48 sliders to freely draw a waveform (see for example the Organ > Square Wave preset).

In Additive or Shape mode the waveform is the same for all notes (although output levels still vary per note), so it's much more like a synth. Note that when you switch User Wave modes the sliders are saved, i.e. if you draw a nice shape while in Shape mode, and then temporarily switch to Additive mode, and then switch back to Shape again, your shape will still be there.

Also note that the bass can also use the Additive/Shape waveforms. However, the bass doesn't have its own set of User Wave sliders, so it reuses the treble User Wave sliders.

> ℹ Note that the BASS WAVE can play the User Wave even if the **USER WAVE** switch is OFF. When the **BASS WAVE** rotary knob on the left corner is set to **#6** ADDITIVE or **#7** SHAPE, and you'd like to change the bass tone, turn the **USER WAVE** switch up for additive, or down for shape, move the faders as desired, then set **USER WAVE** to OFF (center position) so the upper keyboard is playing the Farfisa tones again. As long as the BASS WAVE knob is still set to ADDITIVE or SHAPE, it doesn't matter that the USER WAVE switch is set to OFF.

- The **OFFSET** knob is a 12 dB/octave low-pass filter that is applied only when **USER WAVE** is set to either Additive or Shape. When the Offset knob is at 100% you hear all harmonics, at 50% you only hear about half of them, and at 0% you only hear the first harmonic (the fundamental tone).

6.7. Master Volume and EQ

Here you can control the output level of the whole organ before it is passed to the amp (down on the "floor" of the interface), if the amp is active.

> ! Note that if the amp is powered on it also has a Master Volume control. If the organ is switched on but the amp is on with its volume turned down, you will hear quiet sound or no sound. If you have the amp switched off, the **VOLUME** control in the Advanced section controls the instrument's whole output. If you have both volume controls turned up high, you will generate a very hot signal.

- The **BASS** and **TREBLE** knobs work to shape the organ's overall tone. Use them to add or remove bass or treble frequencies from the sound.
- The **REVERB** knob controls the amount of reverb applied to the signal. All the way to the left, the signal has no reverb ("dry"). Turned all the way to the right, 100% of the reverb is being applied. Note that the beige **REV** switch on the front panel between the Advanced Panel and the keyboard must be ON or you won't hear any reverb at all.

6.8. Reverb Type

In the Advanced section you can access different kinds of reverb types. Click on this menu option to select one and then use the reverb level knob as well as the reverb on/off switch on the front panel to manage its behavior. The models of reverb are:

- Farfisa - Farfisa Compact Duo F/AR spring reverb.
- Eminent 310 - Eminent 310 Unique organ spring reverb.
- King Medium/Bright - Danelectro DSR-1 Spring King spring reverb.
- Twin - Fender Twin Reverb guitar amp spring reverb.
- Boutique - Boutique guitar amp spring reverb.
- RV-1 - Furman RV-1 spring reverb with 4 different EQ settings.
- RV-2 - Two Furman RV-1 spring reverbs in a stereo configuration with 4 different EQ settings.
- DEP-5 - Roland DEP-5 digital effects processor with 3 different reverb lengths.
- RSP-550 - Roland RSP-550 stereo signal processor with 3 different types.
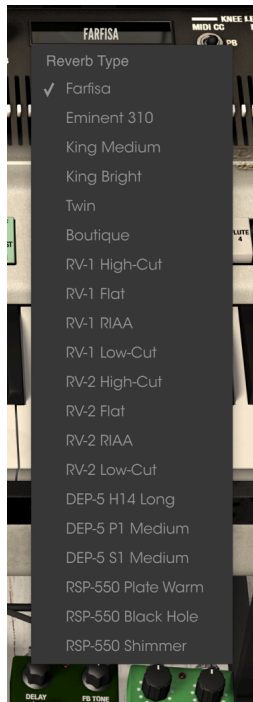
6.9. The Knee Lever section

The Knee Lever is a physical lever on a Farfisa that is controlled with the knee and affects the Multi Tone tone booster feature of the green tabs. Here it can also be used to activate a wah filter if you choose that switch position.

The left **KNEE LEVER** switch lets you choose what its hardware control source will be, with 3 options:

- **MIDI CC**: The Knee Lever is controlled by any MIDI Continuous Controller that you select from the MIDI tab of the right toolbar (opened by the sprocket next to the Advanced button). In this mode the Knee Lever works just like any other knob, and it doesn't automatically return to 0%.
- **PB** (Pitch Bend): The Knee Lever is controlled by Pitch Bend a.k.a. the Pitch Wheel. In this mode the Knee Lever automatically returns to 0%, just like the spring-loaded original.
- **AT** (After Touch): The Knee Lever is controlled by MIDI Channel Aftertouch messages. Again it automatically returns to 0%.

Note that the position of the Knee Lever in MIDI CC mode is saved when switching Knee Lever MIDI modes.

The right **KNEE LEVER** switch lets you toggle between:

- **MT BOOSTER**: When the **MT BOOST** tab is set to ON, and **ALL BOOST** is OFF, the Knee Lever can be used to boost the Farfisa's high frequencies.
- **WAH FILTER**: The Knee Lever no longer controls the MTB frequency mix, but can be used as a wah-wah pedal.

> Note that in **MT BOOSTER** mode the Knee Lever only has effect when the MTB voices are playing. It doesn't affect the treble voices (white tabs), and also not the bass. If the green **ALL BOOST** switch is on, the high frequencies have already been boosted to the maximum, so the Knee Lever has no effect.

In Wah mode the Knee Lever affects <u>all</u> treble voices (green or white tabs), but again not the bass.

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