prophet®-5

POLYPHONIC ANALOG SYNTHESIZER



SEQUENTIAL®

prophet®~5

User's Guide

Version 1.0
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USA

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Tested to Comply
With FCC Standards
FOR HOME OR OFFICE USE



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la classe B respecte toutes les exigences du Reglement sur le materiel brouilleur du Canada.

For pluggable equipment, the socket-outlet must be installed near the equipment and must be easily accessible.

For Technical Support, email: support@sequential.com

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Special thanks to Robert Rich for the alternative tunings content.

Welcome Back, Old Friend

It's not often you get to revisit your past with the accumulated knowledge and experience of the intervening years. Even rarer is the opportunity to retrieve some of the magic of those days and give it new life.

I was 28 when I created the original Prophet-5. Silicon Valley was just taking shape and I had the notion that these new-ish things called microprocessors might be useful in designing an electronic instrument — a fully programmable polyphonic synthesizer — the first of its kind.

It turned out I was right. The Prophet-5 changed many things: the basic concept of the polyphonic synth, how musicians used them, and even the sound of music back then.

Fast forward to 2020. I've just turned 70, and after contemplating the how and why, decided the time was right to welcome an old friend back to the musical stage. So let me present, once again, the Prophet-5. Or as we call it around here, the Prophet-5 *Rev4*.

Without going into a lot of technical details, I'll tell you that we designed the new Prophet-5 with the original, genuine Curtis VCOs and filters used in the Prophet-5 Rev3, and the new, Dave Rossum- designed SSI 2140 filter, which is the modern counterpart of the original SSM 2040 Dave designed in the Prophet-5 Rev1 and Rev2.

This is why you'll find a "Rev" switch to choose your preferred filter and a "Vintage" knob that will loosen up the oscillators and envelopes just like they were in the good old days. It lets you dial in progressively more vintage character as you go from a stable 4 (as in *Prophet-5 Rev4*) all the way to 1 (as in *Prophet-5 Rev1*, the rarest and most temperamental of all Prophet-5s).

We've even included the original factory sounds. (Listen to programs 511-558.)

It's been a labor of love. So grab those knobs and make some analog magic.

Cheers,



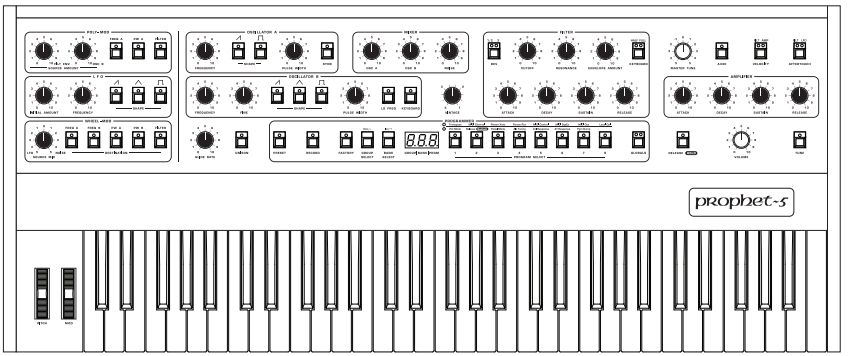
Chapter 1: Getting Started

The Prophet-5 is a five-voice, polyphonic analog synthesizer with analog voltage-controlled oscillators, filters, and amplifiers. It faithfully reproduces the vintage sound and features of all three revisions of the original Sequential Circuits Prophet-5. It does this through the use of genuine Curtis VCOs and filters as well as Dave Rossum's newly designed SSI 2140 filter — the modern counterpart of his original SSM 2040, which was used in vintage Prophet-5-Rev1 and Rev2 synths. The Prophet Rev3 featured CEM 3320 Curtis filters. By featuring both types of filters, the new Prophet-5 provides the best of all worlds — and all Prophet-5s.

The Prophet-5 is first and foremost a performance instrument. All of its sound-shaping controls are immediately accessible on its front panel, packing a tremendous amount of power and versatility into a compact, easy-to-use format.

This chapter of your user's guide provides an overview of essential tasks such as how to make basic audio connections and how to edit and save sounds. Later chapters explain each of the parameters of the Prophet-5 as well as how to program sounds and how to use the GLOBAL menu to manage its overall behavior.

All of the Prophet-5's essential controls are within easy reach on its front panel, so go ahead and dive in and start turning knobs and pressing buttons to explore its sound and capabilities. Then, when you're ready, dig into this user's guide to explore the deeper parts of the synth.



Prophet-5 front panel



Rear Panel Connections

The rear panel of the Prophet-5 has connectors for power, USB, MIDI, audio, and pedals.

1. Power On/Off—This rocker switch controls power on and off to the Prophet-5.

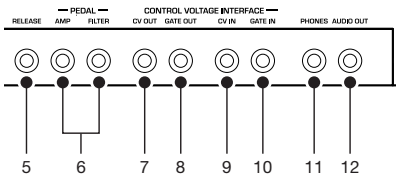
2. AC Power Connector—Accepts a standard, grounded IEC power cord. Operates over a range of 100 to 240 volts and 50 to 60 Hz.

3. USB—For bidirectional MIDI communication with a computer. The Prophet-5 is a Class Compliant USB device and does not require additional drivers when used with Mac OS or Windows. See “Using USB” on page 4 for more information.

4. MIDI In, Out, Thru—Standard 5-pin MIDI DIN connectors for communicating with MIDI-equipped devices.

5. Release—Accepts a momentary, normally open or normally closed footswitch to control sustain.

6. Pedal —These two connectors accept a standard expression pedal that has a variable resistor on a TRS (tip-ring-sleeve) ¼ inch phone plug. Connecting a pedal to the AMP connector controls volume. Connecting a pedal to the FILTER connector controls filter cutoff.



7. Control Voltage Out—Standard ¼ inch connector. This jack outputs a 0- +5V signal for interfacing with modular synthesizers and other devices that support this type of connectivity. It is configured for 1-volt-per-octave operation for gear that recognizes that standard. The CV output tracks the last note played on the Prophet-5 keyboard.

8. Gate Out—Standard ¼ inch connector. This jack outputs a 15-volt on/off signal typically used to gate the envelopes of an external synth that supports this type of connectivity. The Gate Out signal is triggered whenever a key is pressed on the Prophet-5.

9. Control Voltage In—Standard ¼ inch connector. This jack accepts a 0 to +5V signal for interfacing with modular synthesizers and other devices that support this type of connectivity. They are configured for 1-volt-per-octave operation for gear that recognizes that standard. A CV In signal affects only a single voice of the Prophet-5.

10. Gate In—Standard ¼ inch connector. This jack accepts a 1.5 to 15-volt on/off signal to gate the envelopes of a single voice on the Prophet-5. Whenever a ¼ inch connector is inserted into the rear-panel GATE IN jack on the Prophet-5, its keyboard polyphony is reduced to 4 voices. The envelopes of the fifth voice are triggered by the gate in signal.

11. Phones — ¼ inch stereo headphone jack. Headphone volume is controlled by the VOLUME knob on the front panel.

12. Audio Out—Unbalanced, ¼ inch audio output.

Using USB

The Prophet-5's USB 2.0 port enables bidirectional MIDI communication with a computer. A MIDI interface and MIDI cables are not necessary, just a USB cable. The Prophet-5 is a Class Compliant USB device. That means it does not require any additional drivers to be installed to communicate with a Mac or Windows computer. The Prophet-5 transmits and receives MIDI data via USB, but does not transmit audio.



MIDI In and USB should not be used at the same time, as overlapping messages from different sources may cause the Prophet-5 to respond unpredictably. MIDI Out and USB can be used at the same time and transmit the same data.

Under Mac OS, "Prophet-5/10" will appear as a MIDI port when connected via USB and can be configured using the Mac's Audio MIDI Setup utility (typically found in Applications/Utilities).

Under Windows, the first time the Prophet-5 is connected via USB, the "Found new hardware" alert appears and it is automatically installed as "Prophet-5."

In Windows, if you unplug the USB cable and plug it back in while a program has the Prophet-5 port open, you may have to resync. That usually means going to the Prophet-5 Keyboard Properties — in the Windows Device Manager under "Sound, video, and game controllers" — and clicking OK. If *Prophet-5* is no longer listed in the Device Manager, turn off the Prophet-5 then turn it back on again while it is connected via USB. It should be detected on power up.

Setting Up the Prophet-5

Here's how to get your Prophet-5 up and running:

1. Plug the power cable into the AC power connector on the back panel of the Prophet-5.
2. If you have an expression pedal, connect it to AMP (for volume) or FILTER (for filter cutoff) on the back of the Prophet-5. If you have a sustain pedal, connect it to the RELEASE jack.
3. Turn on the Prophet-5.
4. Connect the AUDIO OUT connector on the back of the Prophet-5 to your amp/mixer/powered speakers using an unbalanced, ¼ inch audio cable. This is the main stereo output for the synth.
5. Turn up the volume on your amp/mixer/powered speakers.
6. Turn up the volume on the Prophet-5.
7. Use the GROUP, BANK, and PROGRAM switches to explore factory sounds.

Calibrating the Oscillators and Filters

The first time you use the Prophet-5, please run its built-in calibration procedure. Repeat the calibration procedure as needed over the next few days of use. The Prophet-5 learns the range of temperatures at your location and will keep itself in tune over this range.

Later, if you use the Prophet-5 in a different environment that is measurably warmer or cooler (on stage, in an air-conditioned studio, and so on) run the calibration procedure again.

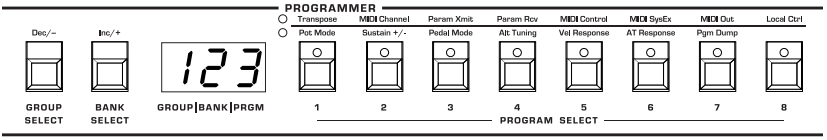
To calibrate the oscillators and filters:

1. Press the TUNE button. The program SELECT BUTTON LEDs begin flashing in sequence and the numeric display indicates the tuning sequence while the Prophet-5 performs its auto-calibration procedure. Don't turn off the power while it's doing this.
2. When finished, the front panel controls return to normal and you can play the Prophet-5.

Sound Banks

The Prophet-5 contains a total of 400 programs. 200 are permanent "Factory" programs and 200 are "User" programs that can be over-written. You can edit the programs of either set, but you can only save sounds to the User set.

When the FACTORY switch is enabled, the permanent Factory sound set is active. When the FACTORY switch is disabled, the User sound set is active. As shipped from the factory, both sound sets are identical.



Group, Bank, and Program Number selectors

Selecting Programs

Use the GROUP, BANK, and PROGRAM SELECTOR buttons to select and recall programs.

To choose a program:

1. Press the GROUP SELECT button to specify the "hundreds" bank of the program. Each time you press the button, the number increments and cycles through Groups 1-5.
2. Press the BANK SELECT button to specify the "tens" bank of the program. Each time you press the button, the number increments and cycles through Banks 1-5.
3. Press the a PROGRAM SELECTOR button (1-8) to specify the "ones" digit of the program.

To choose program 123, for example:

1. Press the GROUP SELECT button as many times as needed to cycle around to 1.
2. Press the BANK SELECT button as many times as need to cycle around to 2.
3. Press PROGRAM SELECTOR button 3.

It's not always necessary to enter all 3 digits of a program number to recall it.

For example:

- If the current program is 111 and you want to recall program 118, simply press "8."
- If the current program is 111 and you want to recall program 121, simply press the BANK SELECT button as many times as necessary to cycle around to "2."
- If the current program is 111 and you want to recall program 211, simply press the GROUP SELECT button as many times as necessary to cycle around to "2."



Pressing the GLOBALS button three times in a row saves the current program as the default program that appears when you turn on the Prophet-5.

Editing Programs

Because all of the sound-shaping controls of the Prophet-5 appear on its front panel, editing an existing program is simple: just turn a knob and listen to its effect. Keep turning knobs and pressing buttons and if you like what you've created, save the program. (See "Saving a Program" on page 9.)

How to Check a Parameter Setting in a Preset

When you're editing a preset, the Prophet-5 has a convenient way of indicating the programmed (saved) value for any knob parameter: Whenever you turn a knob and reach the saved value of a given parameter, an LED dot in the main Prophet-5 display will illuminate.



The dot illuminates when a knob position matches a preset's saved parameter value

Comparing an Edited Program to its Original State

When editing a program, it's often useful to compare its edited state to its original state to evaluate your edits. Alternatively, before saving a program to a new location you may want to check the program in the target location before you overwrite it.

To compare an edited program to a saved version:

1. Edit a program.
2. Press the RECORD button. It starts flashing.
3. Press the GLOBAL button. Both LEDs on the button light up, indicating COMPARE mode.
4. Play the keyboard to hear the saved version of the sound.
5. To disable the compare function and return to the edited sound, turn off the GLOBAL button. Programs can't be written while in compare mode.
6. If you want to save the edited sound, the RECORD button is still flashing and ready to save, so enter a location with the PROGRAM SELECTOR buttons. The sound is saved.
7. Alternatively, if you want to cancel saving and continue editing, press the RECORD button. It stops flashing and saving is canceled.

Creating a Program from Scratch

An existing program can be very useful as a jumping off point for new sounds. But it's also useful (and educational) to create a new sound from scratch. The Prophet-5 makes this easy by providing a "Basic Preset" that you can quickly recall at any time. This preset is very simple, with a single oscillator as its basis.

To recall the Basic Preset:

1. Hold down the RECORD button.
2. Press the PRESET button.

Live Panel Mode

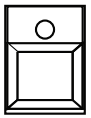
The Prophet-5 also features a "live panel" mode in which its sound switches to the current settings of its knobs and switches. In other words, the current preset is ignored and what you see on the front panel is what you hear. This is a great mode for learning, experimentation, and instant gratification.

To enter live panel mode:

- Press the PRESET button to toggle it off. Changing Groups, Banks or Programs with Preset off won't affect the sound.

To return to preset mode:

- Press the PRESET button again to toggle it on.



PRESET

Toggling off the PRESET button enables "live panel" mode

Saving a Program

If you've created a sound that you like, you'll probably want to save it. Saving a program overwrites a previously saved program. Sound designers often save many incremental versions of a program as they continue to refine it. These intermediate versions often make good jumping off points for new sounds.

To save an edited program to the same preset location:

1. Press the RECORD button. Its LED begins blinking.
2. Press a PROGRAM SELECTOR button (1-8) to specify the "ones" digit of the program.
3. The RECORD button LED stops blinking and the program is saved into the User sound set.

 Be careful when RECORD is enabled. You can change GROUPS and BANKS without executing WRITE, but once you press a PROGRAM SELECTOR button (1-8) for the "ones" digit, the RECORD command is executed and the program at that location is overwritten.

To save a program to a different Group and/or Bank location:

1. Press the RECORD button. Its LED begins blinking.
2. Press the GROUP button repeatedly to toggle through banks 1-5 to find the desired GROUP location.
3. Press the BANK button repeatedly to toggle through banks 1-5 to find the desired BANK location.
4. Press a PROGRAM SELECTOR button (1-8) to specify the "ones" digit of the program. The RECORD button LED stops blinking and the program is saved into the User sound set.

Canceling Save

Sometimes you may want to cancel saving a program before you commit.

To cancel the Save process before you commit:

- If the RECORD button LED is flashing, press it again. The LED stops flashing and saving is canceled. You can return to editing if you want.

Comparing Before You Save

Before saving a program to a new location, it's a good idea to listen to the program in the target location to make sure you really want to overwrite it.

To evaluate a program before you overwrite it:

1. Get ready to save by pressing the RECORD button. It starts flashing.
2. Press the GLOBAL button. Both LEDs on the button light up, indicating COMPARE mode.
3. Use the program buttons to navigate to the sound you want to compare and play the keyboard to hear the sound.
4. To disable the compare function and go back to the edited sound, turn off the GLOBAL button. Programs can't be written while in compare mode.
5. If you want to save the edited sound, the RECORD button is still flashing and ready to save, so enter a location with the program buttons. The sound is saved.
6. Alternatively, if you want to cancel saving and continue editing, press the RECORD button. It stops flashing and saving is canceled.

Exploring the Prophet-5

Before you explore the sound creation possibilities of the Prophet-5, we'd like to point you toward a few things that will help you tailor it to your needs. The better you know it, the more you'll get out of it.

First, read "Global Settings" on page 12. There are useful settings and functions found in the Globals that will affect the overall behavior of your Prophet-5, including tuning, MIDI connections, calibration, and more. In particular, read about Pot Modes and determine which works best for you when you're editing sounds.

Also, if you haven't already done so, read "Rear Panel Connections" on page 2 to learn about the various connectors on the back of your Prophet-5 and how you can use its various pedal, audio, MIDI, and USB inputs and outputs.

Finally, be on the lookout for tips and notes scattered throughout this manual to gain a better working knowledge of the Prophet-5. We wish you many hours of musical exploration!

Chapter 2: Prophet-5 Controls

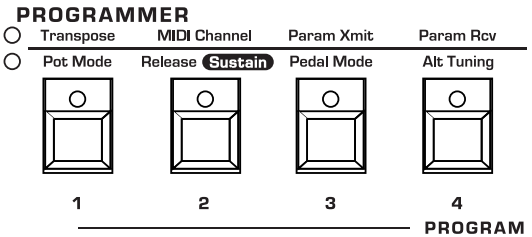
This chapter explains all of the front-panel controls of the Prophet-5, section by section and the role each plays in synthesizing sounds. If you're just getting started with synthesis, take a look at *Chapter 4, Creating Sounds*, for step-by-step tutorials on how to program some classic sounds such as synth bass, brass, strings, and more.

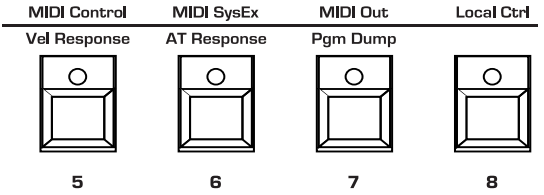
Global Settings

Global settings are parameters that affect all programs. These include settings such as MIDI Channel, Velocity and Aftertouch Response, and others. Global parameters are printed above the numeric program selector switches (1 - 8). Use the Globals switch to choose between the two sets. The red LED indicates that the upper row is active. The yellow LED indicates that the lower row is active

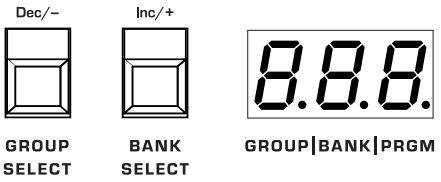


The Globals button





Globals 1-8



Use the Group and Bank buttons to increment and decrement through the Global settings

To set a Global parameter:

1. Press the GLOBALS button. Pressing it once activates the upper set of parameters. Pressing it a second time enables the lower set of parameters.
2. Press the program selector button (1 - 8) that corresponds to the desired parameter. The parameters are printed above each switch.
3. Use the GROUP and BANK buttons as decrement and increment buttons to step through available settings.
4. Once you've chosen the desired setting, press the GLOBALS button again to exit.

Globals - Top Row

1. Transpose: - 12… 12—Master Transpose control, 0 is centered. Steps in semitones up to one octave up (+12) or down (-12).

2. MIDI Channel: ALL, 1… 16—Selects which MIDI channel to send and receive data, 1 to 16. ALL receives on all 16 channels.

3. **Param Xmit:** OFF_ CC_ nrn—Changes to the values of front panel controls are transmitted via MIDI as Continuous Controllers (CC) or Non-registered Parameter Number (NRn). Transmission of parameters can also be turned off. You could, for example, turn the filter CUTOFF frequency knob on the Prophet-5 and have it affect the cutoff frequency of another synthesizer. For a list of Prophet-5 CCs and NRPNs, see the Support page for the Prophet-5 on the Sequential website.


NRPNs are the preferred method of parameter transmission, since they cover the complete range of all parameters, while CCs are limited to a range of 128. For a list of Prophet-5 CCs and NRPNs, see the Prophet-5 Support page at Sequential.com.

4. Param Rcv: OFF, CC, nrn—Sets the method by which parameter changes are received via MIDI. As with transmission, NRPNs are the preferred method.

5. MIDI Control: OFF, On—When On, the synth will respond to MIDI controllers, including Pitch Wheel, Mod Wheel, Pedal, Volume.

6. MIDI Sysex: mid i, USb— When set to MIDI (mid i) it will receive and transmit them using the MIDI ports/cables When set to USB it will receive and transmit them using the USB port/cable. MIDI SysEx messages are used when sending and receiving a variety of data including, programs, alternative tunings, system updates, and more.

7. MIDI Out: OFF, mid i, USb, ALL—Sets the port by which MIDI data will be transmitted (MIDI and/or USB).

8. Local Control: OFF, SOn, ALL—When on (the default), the keyboard and front panel controls directly affect the Prophet-5. When off, the front panel controls are transmitted via MIDI but do not directly affect the "local" synth (that is, the Prophet-5). This is primarily useful for avoiding MIDI data loops that can occur with some external sequencers. When set to "SOn " the front panel controls of the Prophet-5 remain active, but the pitch and mod wheels do not directly affect the "local" synth (that is, the Prophet-5).

Globals - Bottom Row

1. Pot Mode: rEL, PAS, JUP (Relative, Passthru, Jump)—There are three pot (potentiometer) modes to determine how the synth reacts when the programmable parameters are edited. (Master volume is not programmable, so these modes don't apply.)

In *Relative* mode, changes are relative to the stored setting. In Relative mode, the full value range is not available until either the minimum or maximum value and the respective lower or upper limit of the pot's travel is reached. For example, the RESONANCE parameter has an internal value range of 0 to 127. Let's say the physical position of the RESONANCE pot is the equivalent to an internal value of 100. If you switch to a program that has a stored Resonance value of 63 and turn the pot all the way up, it will only go to 90. To get to the maximum value of 127, you first have to turn down until the value is at the other extreme and the pot is at the limit of its travel (in this case, 0 and fully counter-clockwise, respectively).

In *Passthru* mode, turning the pot has no effect until after the edited value equals the preset value (that is, until the edited value "passes through" the stored value).

Jump mode uses an absolute value based upon the position of the pot when edited: turn a pot and the value jumps immediately from the stored value to the edited value.

2. Release/Sustain : rEL, HLd (Release, Hold)—This determines how the front panel RELEASE switch affects the RELEASE parameter of both the Filter Envelope and Amplifier Envelope.

The RELEASE switch affects the behavior of the Filter and Amplifier Envelopes. The original Prophet-5 had a different way of handling Release from the more common method used today. If the RELEASE switch is on, the RELEASE knob setting on the Filter and Amplifier envelopes is used. If the RELEASE switch is off, the Release on both envelopes is fast.

If you then connect a footswitch, it acts somewhat like a piano: it's a quick release when the footswitch is not pressed, and it's a longer (programmed by the knob) release when the footswitch is held. Note that the RELEASE switch needs to be off for the footswitch to operate this way.

Since this is, after all, a Prophet-5, we wanted it to match the original synth. These days, however, many musicians expect the footswitch to be a "hold" function, which is of course different than the Prophet-5 release switch. So, we added a Global parameter that allows you to select the original Prophet-5 method, or a more common hold function with the footswitch.

Use the RELEASE/SUSTAIN parameter to choose between classic Prophet-5 Release handling (rEL) or the more contemporary Hold method (HLd).

3. Pedal Mode: nOL, rEU (Normal, Reversed) —Sets the polarity of a pedal/footswitch connected to the RELEASE jack on the rear of the Prophet-5. There are two types of footswitches, normally open and normally closed. Either type can be used with the Prophet-5. If the behavior of the your footswitch is the opposite of what is expected — that is, down is off and up is on — changing this setting will correct that.

4. Alt Tuning: nOL, 1… 16 (Normal, 1…16)—Selects one of the Prophet-5's built-in tunings. Set to NORMAL (nOL) the tuning is standard, chromatic tuning. Choosing 1 through 16 selects an alternative, non-chromatic, non-Western scale that can be used to emulate ethnic instruments or in other creative ways. See "Appendix D: Alternative Tunings" on page 64 for a description of each tuning. Additional tunings can be imported into the Prophet-5 as a SysEx message.

5. Vel Response: 0-6 (Curve 0, Curve 1, Curve 2, Curve 3, Curve 4, Curve 5, Curve 6)—Sets one of seven velocity curves to adjust the keyboard's velocity response to your playing style.

6. AT Response: 0-7 (Curve 0, Curve 1, ... Curve 7)—Sets one of eight pressure curves to adjust the keyboard's aftertouch response to your playing style.

7. Pgm Dump: Pr0, bAn, 9rP, U5r, ALL (Program, Bank, Group, User Banks, All)—Transmits the current program, the current bank, the current group, all user banks, or all banks (both user and factory) in SysEx format via the selected MIDI port. (See "Appendix C: Exporting and Importing Programs/Banks" on page 62. Dumped programs will load back into the same bank and program location in memory when received by the Prophet-5 via MIDI.

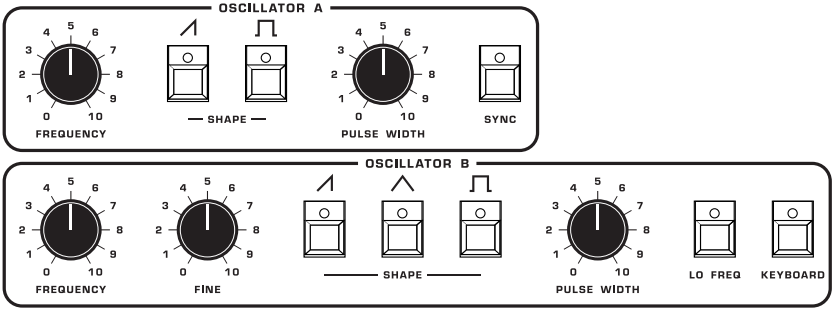
Oscillators

Oscillators provide the raw building blocks of the Prophet-5's sound by producing *waveforms*, each of which has its own inherent sound character based on its harmonic content. The Prophet-5 has two oscillators per voice. Level controls for each of these are located in the Mixer section.

Oscillator A is capable of simultaneously generating sawtooth and variable-width pulse waves. Oscillator B is capable of simultaneously generating sawtooth, triangle, and variable-width pulse waves.



The oscillators on the Prophet-5 are very stable. To emulate the random pitch drift and oscillator instability of vintage instruments, use the VINTAGE knob to add randomness to the behavior of the VCOs, envelopes, LFOs, and filters.



The Oscillators section

Oscillator A can be hard-synced to Oscillator B for complex, harmonically-rich sounds when modulated.

Oscillator B features a FINE knob for detuning and thickening sounds, a LO FREQ switch that allows it to function as an LFO for modulation purposes, and a KEYBOARD switch that disables keyboard control over its pitch (useful when used as an LFO, or for drones and other effects).

Oscillator Controls

Frequency: Sets the base oscillator frequency over a 4-octave range. Adjustment is in semitones.

The Master Tune knob affects the pitch of all oscillators, as does the Transpose parameter in the Globals section.

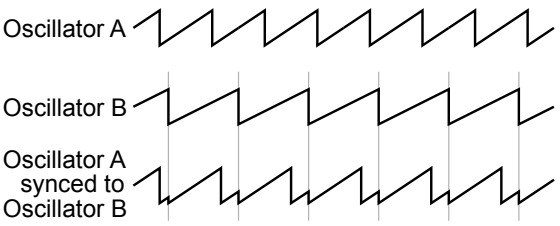
Fine: This adjusts the tuning of Oscillator B upward (sharp) and has a range of nearly a semitone.

Shape: Sawtooth, Triangle, Square/Pulse—Selects the waveshape generated by the oscillator. You can turn on multiple waveshapes simultaneously.

Pulse Width: Changes the width of the square/pulse wave from a square wave when the PULSE WIDTH knob is at its center position, to a very narrow pulse wave when the PULSE WIDTH knob is fully left or right.

Applying pulse width modulation using POLY MOD or the LOW FREQUENCY OSCILLATOR is a great way to add movement and thickness to a sound, especially when creating pad or string-like sounds.

Sync: Off, On—Turns on Oscillator A hard sync. Sync forces Oscillator A to restart its cycle every time Oscillator B starts a cycle. This provides a way to create more complex, harmonically rich shapes from simple waveforms—especially when the frequency of Oscillator A is set to a different interval than Oscillator B.



Oscillator hard sync

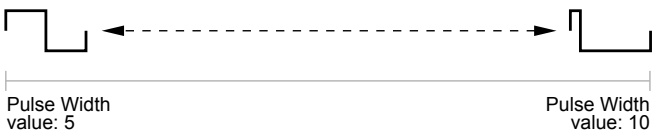
Use Poly Mod to sweep the pitch of Oscillator A when it is synced to generate the classic, hard-edged sync sound. See “Creating a Hard-Sync Lead” on page 51 for more details.

Lo freq: Off, On—Turns Oscillator B into a low-frequency oscillator, essentially providing another LFO source for modulation using Poly Mod. The FREQUENCY, FINE, SHAPE, and PULSE WIDTH controls still apply and will affect the character of any low-frequency modulation applied using Oscillator B.

Keyboard: Off, On—When off, the Oscillator B ignores the keyboard and note data received via MIDI and plays at its base frequency setting. Oscillator B pitch can still be affected by modulation from other sources when in this mode. When KEYBOARD is off, the FREQUENCY knob has a 9 octave range.

To listen to the oscillators:

1. Recall the basic preset by holding down RECORD and pressing PRESET.
2. In the basic program, only Oscillator A is turned up in the Mixer. Oscillator A waveshape is set to sawtooth. The level of Oscillator B is set to zero.
3. Hold down a note on the keyboard and in the OSCILLATORS section, toggle the sawtooth and square wave selectors on and off to hear the difference between the two separately, and in combination.
4. Turn off the sawtooth wave and turn on the square wave.
5. Turn the PULSE WIDTH knob right and left to hear how the timbre of the waveform changes as you narrow its pulse width. At the 12 o’clock position the wave is perfectly square. At either extreme, the pulse width is so narrow that the sound becomes virtually inaudible.



Changing pulse width

To listen to Oscillator B:

1. Turn down the level of Oscillator A in the Mixer and turn up the level of Oscillator B.
2. Turn on the triangle wave and listen to its sound. It has a very mellow sound because it has very few harmonics, unlike the sawtooth and square waves.
3. Turn on the sawtooth wave and the square wave and notice how the sound changes.
4. Turn up Oscillator A again in the mixer. Notice how the sound becomes fuller now that you can hear both oscillators.
5. Experiment with using the FINE knob on the Oscillator B to detune the oscillators in relation to each other. This creates movement and thickness in their combined sound.
6. Try using the FREQUENCY knob of Oscillator B to tune Oscillator B to a interval such as a third, a fifth, or a sixth.

To sync Oscillator A to Oscillator B:

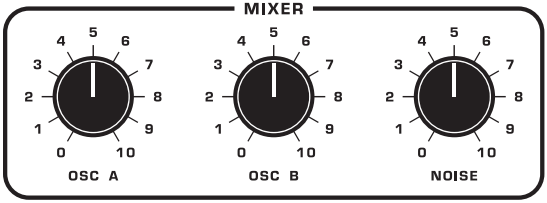
- With Oscillator A and B on, press the SYNC button on Oscillator A, and rotate its FREQUENCY knob while you hold a note.

This is the classic *hard sync* sound that you've probably heard before. Instead of rotating the PITCH knob by hand, you can use Poly Mod to route the filter envelope to Oscillator A to sweep its pitch and create this effect each time you play a note. You'll learn more about Poly Mod on page 34.

Mixer

The Mixer section is where you set the levels of the various sound generators on the Prophet-5. These include Oscillator A, Oscillator B, and the white noise generator. You must turn up at least one of these in order to make sound with the Prophet-5. (Alternatively, you can use the filter to generate its own sine wave in self-oscillating mode by turning Resonance to its maximum.)

Rather than limit the Prophet-5's outputs to keep the instrument from clipping, we allow you to adjust levels at various points in its signal path. This gives you the option to "overload" things in interesting ways, if you wish to do so. If not, try reducing the levels of the oscillators in the MIXER section, the SUSTAIN parameter in the Amplifier Envelope, or the RESONANCE parameter in the filter.



The Mixer

Osc A: Sets the output level of Oscillator A.

Osc B: Sets the output level of Oscillator B.

Noise: Sets the output level of the white noise generator.

Filter

The function of the filter is to subtract frequencies from the sound produced by the oscillators and noise generator, thereby changing the overall harmonic content of the synth's sound. This change is varied over time using the Filter Envelope to produce more dynamic timbres.

The original Prophet-5 had three incarnations: the Rev1, Rev2, and Rev3, each with their own unique characteristics. Probably the most significant difference between the Rev 1/2 and the Rev3 was that they had different filters, which gave the instruments a different sound character. The Rev 1/2 had a Dave Rossum-designed 2040 low-pass filter, while the Rev3 had a Doug Curtis-designed CEM 3320 low-pass filter.

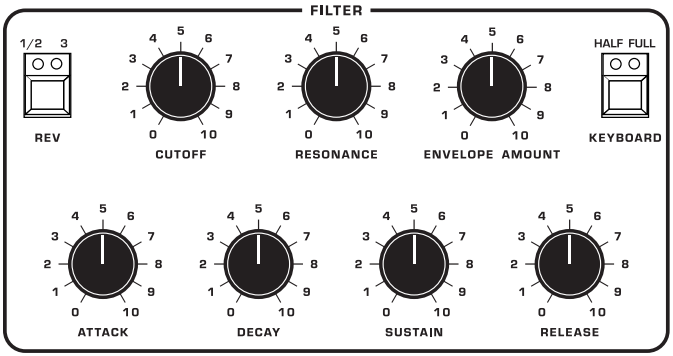
The new Prophet-5 provides the best of all worlds by providing both types of filters. You can select between these with the REV switch. Each has its own unique character:

- REV 1/2 is a Dave Rossum-designed SSI 2140 filter. Its 4-pole, 24 dB-per-octave resonant design is functionally identical the 2040 filter found on the original Sequential Circuits Prophet-5 Rev1 and Rev2. It can self-oscillate when RESONANCE is set to its maximum.
- REV 3 is a genuine Doug Curtis-designed CEM 3320 filter. Its 4-pole, 24 dB-per-octave resonant design is functionally identical the filter found on the Sequential Circuits Prophet-5 Rev3. It can self-oscillate when RESONANCE is set to its maximum.

The differences between these filters can be subtle or pronounced, depending on their individual settings, the amount of filter resonance applied, and other factors.



The REV switch not only changes filter type, but also the Filter Envelope's shape/response to match the original Prophet Rev 1/2 and Rev 3 respectively. After setting the Filter Envelope as desired, try changing filter type to hear the difference.



The Filter

To hear the effect of the REV 1/2 filter:

1. Recall the basic preset by holding down RECORD and pressing PRESET. The REV3 filter is selected by default. Switch to the Rev 1/2 filter by pressing the REV switch.

2. In the basic program, only Oscillator A is turned up in the Mixer. For a fuller sound, turn up Oscillator B in the Mixer, set its waveshape to sawtooth and detune it slightly by turning its FINE knob to 2.

3. Hold down a note and rotate the filter's CUTOFF knob. Notice how it cuts the high frequencies as you rotate counter-clockwise, making the sound of the oscillator less bright. If you turn the CUTOFF knob fully counter-clockwise you'll filter out all frequencies and hear nothing.

4. Return the CUTOFF knob to its halfway position, hold down a note again then turn the RESONANCE knob about halfway up.

5. Rotate the filter's CUTOFF knob again and listen to the sound change as a band of frequencies near the cutoff is amplified. This how to create a classic resonant filter sweep.

To hear the effect of the REV 3 filter:

1. Press the REV switch to select REV 3 filter.

2. Hold down a note and rotate the filter's CUTOFF knob. Again it cuts the high frequencies as you rotate counter-clockwise, but the character of the filter is subtly different.

3. Return the CUTOFF knob to its halfway position, hold down a note again then turn the RESONANCE knob about halfway up.

4. Rotate the filter's CUTOFF knob again and listen to the sound change as a band of frequencies near the cutoff is amplified.

5. Now toggle between the filters by pressing the REV switch and listen to the differences in tone. The differences become more apparent with higher and lower resonance settings.

In the previous examples, you controlled the filter cutoff by hand. In most cases, you will use the Filter Envelope to do this. To learn more about the Filter Envelope see page 25.

Filter Controls

Rev Switch: 1/2, 3—This selects the filter type. The Rev 1/2 filter is a SSI 2140 low-pass, 4-pole, 24 dB per-octave resonant filter. The Rev 3 filter is a Curtis CEM 3320 low-pass, 4-pole, 24 dB per-octave resonant filter. Both filters can self-oscillate when RESONANCE is set to its maximum.

Cutoff: 0...10—Sets the filter's cutoff frequency.

Resonance: 0...10—Emphasizes a narrow band of frequencies around the cutoff frequency. High levels of resonance can cause either filter to self-oscillate and generate its own pitch.

Envelope Amount: 0...10—Sets the amount of modulation from the filter envelope to the filter's cutoff frequency. Any setting above zero means that each time you strike a key, the filter envelope controls how the filter opens and closes. Higher amounts more dramatically affect the cutoff frequency.

Keyboard: off, half, full—Sets the amount of modulation from the keyboard to the filter's cutoff frequency. Selecting HALF or FULL means that the higher the note played on the keyboard, the more the filter opens. This is useful for adding brightness to a sound as higher notes are played, which is typically how acoustic instruments behave. If both HALF and FULL are off, keyboard filter tracking is off, meaning that filter frequency is unaffected by playing higher or lower notes on the keyboard.

Filter Envelope

The Prophet-5 filter has a dedicated, 4-stage envelope generator (attack, decay, sustain, release). The Filter Envelope is used to shape the harmonic characteristics of a synthesized sound by giving you filtering control with these stages.

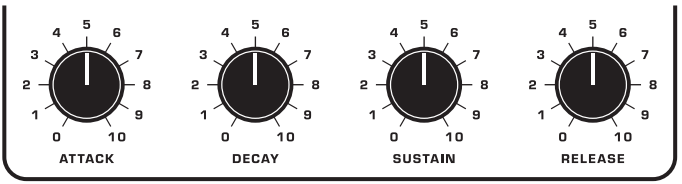
This is one of the most important aspects of a synthesized sound. Without an envelope, the filter would be static and unchanging. It would stay open or closed by a fixed amount that wouldn't change over the duration of a sound. That's not very expressive or interesting to listen to and it's not how most real-world instruments behave.

In general, sounds produced by an acoustic instrument are brighter at their beginning (the attack stage) and grow mellower as they die out (the decay and release stages). In other words, their harmonic content changes over time. This is exactly what the filter envelope is designed to emulate.

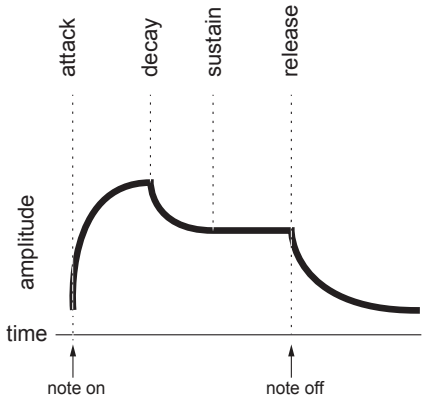
The REV Switch Changes Filter Envelope Shape

The REV switch not only changes filter type, but also the Filter Envelope's shape/response to match the original Prophet Rev 1/2 or Rev 3 respectively.

The Rev 1/Rev 2 Prophet 5 used SSM envelope generators, and the basic shape was very flat, almost linear. The Rev 3 Prophet-5 used a Curtis envelope generator, and it had more of a curve than the SSM parts, so it had a slightly different sound. When you change the filter type with the REV switch, it also changes the Filter Envelope shape to match the SSM or Curtis parts, making the Prophet-5 sound authentic in both cases.



Filter Envelope controls



A typical 4-stage ADSR envelope

Filter Envelope Controls

Attack: 0...10—Sets the attack time of the envelope. The higher the setting, the slower the attack time and the longer it takes for the filter to open from the level set with the filter CUTOFF knob to the level set by the filter envelope amount. Percussive sounds typically have sharp (short) attacks.

Decay: 0...10—Sets the decay time of the envelope. After a sound reaches the filter frequency set at its attack stage, DECAY controls how quickly the filter then transitions to the cutoff frequency set with the SUSTAIN knob. The higher the setting, the longer the decay. Percussive sounds, such as synth bass, typically have shorter decays (and a generous amount of filter resonance).

Sustain: 0...10—Sets the filter cutoff frequency for the sustained portion of the sound. The sound will stay at this filter frequency for as long as a note is held on the keyboard.

Release: 0...10—Sets the release time of the envelope. This controls how quickly the filter closes after a note is released.

Velocity Switch: Filt, Amp—Allows key velocity to influence filter cutoff frequency and amplifier level (volume). When on, the harder you play, the more the filter will open and the brighter the sound will be. If off, key velocity will not affect the filter. This control allows for more touch-sensitive sounds.

To hear the effect of the Filter Envelope:

1. Recall the basic preset by holding down RECORD and pressing PRESET. The REV3 filter is selected by default.
2. Hold down a note and rotate the filter's CUTOFF knob to set it to 3.
3. Play a note. At this point you may not hear anything because you've closed the filter significantly.
4. Turn the ENVELOPE AMOUNT knob to 2. Play a note. Notice how the sound has changed. The Filter Envelope is controlling filter cutoff by the amount you set with the AMOUNT knob.
5. Set the Filter Envelope's SUSTAIN to 0.
6. Repeatedly strike a note on the keyboard as you turn the Filter Envelope's DECAY knob clockwise and counterclockwise. Notice how it changes the sound as the note decays faster or slower after its initial attack stage.
7. Now experiment with the Filter Envelope's ATTACK knob. Notice how the attack becomes faster or slower.
8. Now hold down a note and experiment with the Filter Envelope's SUSTAIN knob. This controls how wide the filter stays open while you hold down a key on the keyboard.
9. The Filter Envelope's RELEASE parameter acts in conjunction with the Amplifier Envelope, so to hear its effect, first set the Amp Envelope's RELEASE value to 6.
10. Now repeatedly strike a note on the keyboard as you turn the Filter Envelope's RELEASE knob clockwise and counterclockwise. Notice how the note fades out faster or slower as you change the RELEASE value.
11. Continue experimenting with various Filter Envelope settings while you adjust the Filter Envelope's ENV AMOUNT knob. Notice how greater AMOUNT settings amplify the effect of the envelope on the filter.

As noted above, the Filter Envelope and Amplifier Envelope often work in conjunction, with the Filter Envelope controlling how the filter opens and closes and the Amplifier Envelope controlling how the Amplifier controls the overall volume shape of the sounds you create. To learn more about the Amplifier Envelope see page 28.



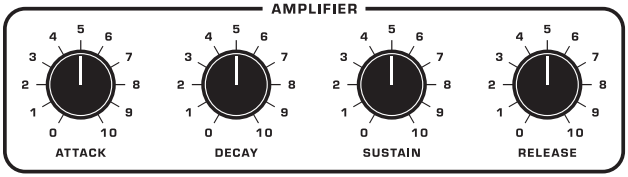
The RELEASE switch affects the behavior of the Release stage of the Filter and Amplifier Envelopes. See "The Release Switch" on page 43.

Amplifier Envelope

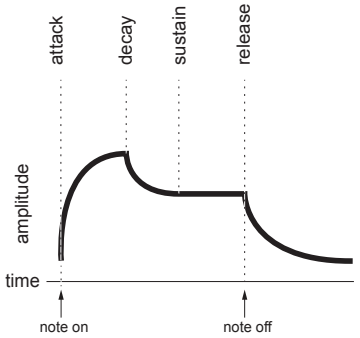
After passing through the filter, a synthesized sound goes into the Amplifier, which controls its overall volume. The Amplifier has a dedicated, 4-stage envelope generator (attack, decay, sustain, release) which is used to shape the volume characteristics of a sound over time by giving you control over these stages. Along with the filter envelope, this is one of the most important aspects of a synthesized sound.

Without a volume envelope, the volume of a sound wouldn't change over the duration of a note. It would begin immediately, remain at its full volume for its duration of the note, then end immediately when the note was released. Again, that's not very interesting sonically and it's not typically how instruments behave in the real world.

To give you a real-world example, the main difference between the sound of the wind and the sound of a snare drum is that they have very different volume envelopes. Otherwise, they are essentially both white noise. Wind has a relatively slow attack, a long sustain, and a long decay and release. A snare drum has a sharp attack, no sustain, and very little decay or release. But again, they are both fundamentally white noise.



Amplifier Envelope controls



A typical 4-stage ADSR envelope

As noted previously, the Amplifier Envelope often works in conjunction with the Filter Envelope, with the Filter Envelope controlling how the filter opens and closes and the Amplifier Envelope controlling how the Amplifier controls the overall volume shape of the sounds you create.

Amplifier Envelope Controls

Attack: 0...10—Sets the attack time of the envelope. The higher the setting, the slower the attack time and the longer it takes for a sound to reach its full volume. Pads typically have softer (longer) attacks. Percussive sounds have sharper (shorter) attacks.

Decay: 0...10—Sets the decay time of the envelope. After a sound reaches its full volume at its attack stage, DECAY controls how quickly the sound transitions to the level set with the SUSTAIN control. The higher the setting, the longer the decay. Percussive sounds, such as synth bass, typically have shorter decays.

Sustain: 0...10—Sets the sustain level of the envelope. The higher the setting, the louder the sustained portion of the sound will be. The sound will stay at this level for as long as a note is held on the keyboard.

Release: 0...10—Sets the release time of the envelope. This controls how quickly a sound dies out after a note is released.


The RELEASE switch affects the behavior of the Release stage of the Filter and Amplifier Envelopes. See “The Release Switch” on page 43.

Velocity: Filt, Amp—Allows key velocity to influence volume. If on, the harder you play, the louder sound will be. If off, key velocity will not affect the volume. This control allows for more touch-sensitive sounds.

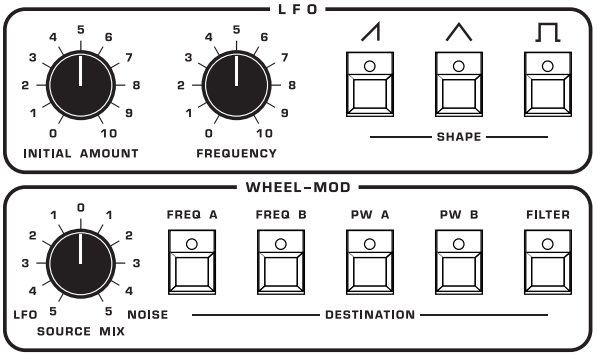
To hear the effect of the Amplifier Envelope:

1. Recall the basic preset by holding down RECORD and pressing PRESET.
2. Repeatedly strike a note on the keyboard as you turn the Amplifier Envelope's ATTACK knob clockwise. Notice how the attack becomes slower and more gradual the further you turn the knob.
3. Reset the ATTACK knob to zero.
4. Next, repeatedly strike a note on the keyboard as you turn the Amplifier Envelope's SUSTAIN to zero. Notice how it changes the sound so that the sound no longer sustains even if you hold down the key. The only sound you hear is the decay portion of the sound.
5. Now, with SUSTAIN still set to zero, repeatedly strike a note on the keyboard as you turn the Amplifier Envelope's DECAY knob clockwise and counterclockwise. Notice how it changes the sound as the note decays faster or slower after its initial attack stage.
6. Reset the DECAY parameter to 10
7. Finally, with DECAY set to 10 and SUSTAIN still set to zero, repeatedly strike a note on the keyboard as you turn the Amplifier Envelope's RELEASE knob clockwise. Notice how the release becomes longer the further you turn the knob.
8. Continue experimenting with various Amplifier Envelope settings while you also adjust the Filter Envelope to hear how these two controls interact. You will understand how powerful the envelopes are and how essential they are to designing sounds.

Low Frequency Oscillator

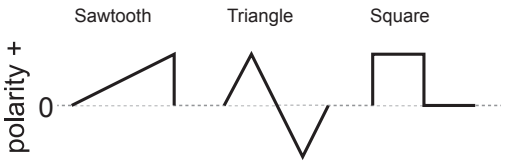
The LFO is a special-purpose oscillator that produces a frequency that is typically below the range of human hearing. The LFO is used for periodic modulation such as vibrato (periodic pitch modulation) filter modulation, and pulse-width modulation. The LFO can be routed to any or all of these destinations using the controls in the WHEEL-MOD section.

The LFO produces three waveshapes: sawtooth, triangle, and square. Noise is also available as a modulation source in the WHEEL-MOD section.



The Low Frequency Oscillator and Wheel-Mod sections

Triangle wave is bipolar. That is, its waveshape is positive for half of its cycle and negative for the other half. This makes it possible to generate a vibrato that goes alternately sharp and flat in equal amounts on either side of a center frequency. The square and sawtooth waves generate only positive values. In the case of the square wave, this makes it possible to generate natural-sounding trills.



LFO waveshapes

LFO Controls

Initial Amount: 0...10—Sets the amount of LFO modulation routed to a destination set in the WHEEL-MOD section. Setting an amount here applies the selected modulation continuously. If you set this parameter to zero but still select a modulation destination in the WHEEL-MOD section, modulation is only applied when you use the Mod wheel.

Frequency: 0...10—Sets the frequency of the selected LFO from a slow .022Hz to a fast 500Hz.

Shape: Sawtooth, Triangle, Square—This button sets the waveshape of the selected LFO. Any of these waveshapes can be enabled simultaneously.

Wheel-Mod Controls

The Wheel-Mod controls assign the LFO and Noise modulation sources to a variety of destinations. Use the INITIAL AMOUNT control in the LFO section to apply the selected modulation continuously, or if INITIAL AMOUNT IS SET TO 0, use the Mod wheel to apply the modulation effect.

Source Mix: LFO, Noise—Sets the ratio between two modulation sources: LFO and Noise. When set fully counter-clockwise, the modulation source is LFO only. When set fully clockwise, the modulation source is Noise only. Settings between these two extremes provide a variable mix of the two sources.

Freq A: Routes the LFO and/or Noise modulation source to Osc A frequency.

Freq B: Routes the LFO and/or Noise modulation source to Osc B frequency.

PW A: Routes the LFO and/or Noise modulation source to Osc A square wave pulse width.

PW B: Routes the LFO and/or Noise modulation source to Osc B square wave pulse width.

Filter: Routes the LFO and/or Noise modulation source to Filter cutoff frequency.

Using LFO and Wheel-Mod

There are many ways to make creative use of the LFO and Wheel-Mod:

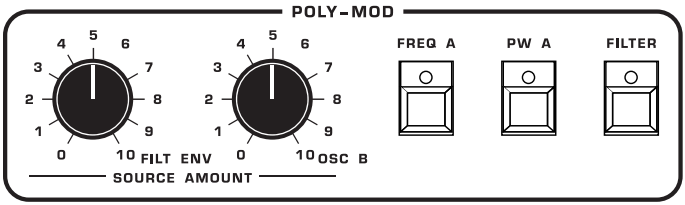
- To create vibrato, route the LFO's triangle wave to FREQ A and FREQ B in the WHEEL-MOD section to create vibrato. Set the LFO FREQUENCY to 7 and the INITIAL AMOUNT to 3. Make sure WHEEL-MOD SOURCE MIX is set to fully counterclockwise to LFO. Using the Mod Wheel intensifies the effect.
- To create a chorusing effect, set OSC A and OSC B to sawtooth and set their levels equally in the MIXER. Then the LFO's triangle wave to just FREQ B with FREQUENCY set to 2 and INITIAL AMOUNT set to 3. Make sure WHEEL-MOD SOURCE MIX is set to fully counterclockwise to LFO. Using the Mod Wheel intensifies the effect.
- To create trills, route the LFO's square wave to FREQ A and FREQ B in the WHEEL-MOD section. Set the FREQUENCY to 6 and the INITIAL AMOUNT to 5. Make sure WHEEL-MOD SOURCE MIX is set to fully counterclockwise to LFO. Using the Mod Wheel intensifies the effect.
- To create an auto-wah effect, route the LFO's triangle wave to FILTER in the WHEEL-MOD section. Set the FREQUENCY to 6 and the INITIAL AMOUNT to 5. Then, in the Filter section, set CUTOFF to 0 and RESONANCE to 5. Make sure WHEEL-MOD SOURCE MIX is set to fully counterclockwise to LFO. Using the Mod Wheel intensifies the effect..
- To create subtle harmonic movement, route the LFO's triangle wave to FILTER in the WHEEL-MOD section. Set the FREQUENCY to 3 and the INITIAL AMOUNT to 3. Then, in the Filter section, set CUTOFF to 4 and RESONANCE to 5. Make sure WHEEL-MOD SOURCE MIX is set to fully counterclockwise to LFO. Using the Mod Wheel intensifies the effect.

Poly Mod

Although the basic sonic character of the Prophet-5 is determined by its oscillators and filters, much of its power to make truly unique sounds comes from creative use of Poly Mod, or *polyphonic modulation*. Modulation is the process of routing one parameter (used as a control voltage) to another parameter in order to change the way the targeted parameter behaves.

In the case of the Prophet-5 you can use Osc B or the Filter Envelope Generator to modulate Oscillator A frequency, Oscillator A pulse width, or Filter cutoff frequency. And because there are five voices, this means that each voice applies modulation to the selected destination.

For example, if you set Oscillator B to LO FREQ mode, this essentially creates five separate modulation LFOs since Osc B on each of the Prophet-5's five voices then functions as a low frequency oscillator while in LO FREQ mode. If keyboard tracking is set to HALF or FULL, each of those oscillators/LFOs tracks the keyboard and has a different frequency. It's a simple but powerful concept.



The Poly Mod section

Poly Mod modulation sources:

- Filter Envelope
- Oscillator B frequency

Poly Mod modulation destinations:

- Oscillator A frequency
- Oscillator A pulse width (square wave)
- Filter cutoff frequency

You can control how much the source affects the destination by dialing in a specific modulation amount with the FILTER ENV or OSC B knobs.

Use Poly Mod to create complex harmonic effects ranging from FM (frequency modulation) to audio-rate filter modulation and beyond. Many classic sounds on the original Prophet-5 were created through clever use of Poly Mod.

Poly Mod Parameters

Filter Env: Selects the amount of modulation from the Filter Envelope that is applied to a selected destination.

Osc B: Selects the amount of modulation from Oscillator B that is applied to a selected destination.



When using OSC B as a modulation source, the modulation character is affected by the waveshape currently chosen for Oscillator B (triangle, sawtooth, or square/pulse). Try setting Oscillator B to low frequency (using the LO FREQ switch) to further increase modulation possibilities.

Freq A: Selects Oscillator A frequency as a modulation destination. Choose OSC B as a modulation source to produce FM (frequency modulation) effects with their characteristic complex harmonics and metallic timbre.

PW A: When Oscillator A is set to square wave, choosing this as a destination modulates its pulse width. This will animate the timbre of Oscillator A in interesting ways.

Filter: Selects the Filter cutoff frequency as a modulation destination.

Using the Vintage Knob

The new Prophet-5 is an authentically vintage-sounding instrument even though it was designed and constructed with state-of-the-art technology and components. Part of the reason for this is that it uses genuine analog voltage-controlled oscillators, filters, and amplifiers that are as exact as possible to the versions used in the original Prophet-5.

Another reason for the vintage sound of the new Prophet-5 is that we did extensive research into exactly what made the original sound the way it did — warm, organic, and alive. Not surprisingly we found that much of this desirable character was due to slight fluctuations and differences in the response times and frequencies of the individual filters, envelopes, and amplifiers from voice to voice.

To impart the same flavor to the new Prophet-5, we created a control, the VINTAGE knob, that lets you dial in progressively more of this character as you go from a very stable 4 (as in *Prophet-5 Rev4*, which is how we refer to the new Prophet-5) all the way to 1 (as in *Prophet-5 Rev1*, which was the rarest and most temperamental of all Prophet-5s).

Thus, turning the VINTAGE knob from 4 to 1 adds progressively more randomness to the behavior of the individual VCOs, filters, envelopes, and amplifiers.

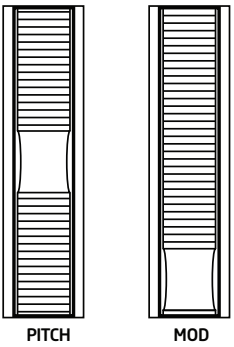
Try it out!



The Vintage knob

Pitch and Mod Wheels

The Prophet-5 has a spring-loaded Pitch wheel and a Mod wheel. You can use these controls to enhance live performance by bending notes and adding modulation in real time as you play.



The Pitch and Modulation wheels

Pitch Wheel

The Pitch wheel allows for a broad range of effects from subtle vibrato, to half or whole-step note bends, to full-on guitar whammy bar-style bends. By default its range is set to a semitone (a half step) but you can change this on a per-program basis to up to an octave.

To use the Pitch wheel:

1. Hold a note and move the Pitch wheel up or down. The farther you move the wheel from center, the wider the pitch variation.
2. For a vibrato effect, try rocking the Pitch wheel back and forth.

To set the Pitch wheel bend range for a specific program:

1. Press and hold the FREQ A button in the WHEEL-MOD section.
2. Use the GROUP SELECT (decrement) and BANK SELECT (increment) switches to choose the desired range from 1- 12. A setting of 1 equals a semitone. A setting of 12 equals an octave.

Mod Wheel

The Mod wheel controls the amount of modulation from the LFO and/or the Noise source as set in the WHEEL-MOD section. This allows you to perform modulation in real time by moving the wheel as you play. It's a great way to add expressiveness to a sound or performance by using it to control vibrato, filter effects, and more.

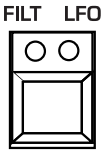
To choose a modulation destination for the Mod wheel:

1. In the WHEEL-MOD section, select the destination(s) for modulation from the LFO/Noise source. The DESTINATION switches allow you to activate multiple destinations simultaneously.
2. Using the SOURCE MIX knob, set the source of modulation applied by the Mod wheel.
3. For LFO modulation, set the SHAPE and FREQUENCY.
4. To apply modulation only when you use the Mod wheel, set the INITIAL AMOUNT to 0.
5. Hold down a note on the keyboard and turn the Mod wheel.

Adding Aftertouch

Aftertouch is a performance feature that allows you to add modulation to a sound by applying additional pressure to a key after the key is already down. The greater the pressure applied, the more modulation is applied. The Prophet-5 provides *monophonic* (or "channel") aftertouch, which means that applying pressure to any key within a chord will apply modulation to *all* notes currently held.

The AFTERTOUCH switch lets you choose to apply aftertouch to the Filter cutoff and/or the LFO amount.



AFTERTOUCH

In the case of Filter aftertouch, pressing a key harder will open the filter wider, increasing the brightness of the sound. In the case of LFO modulation, pressing a key harder will apply modulation to the currently enabled destinations in the WHEEL-MOD section.

To enable aftertouch (pressure) as a source for modulation:

1. Press the AFTERTOUCH switch once to select Filter modulation.
2. Press the AFTERTOUCH switch twice to select LFO modulation.
3. Press the AFTERTOUCH switch three times to select both Filter modulation and LFO modulation.
4. Hold down a note on the keyboard, then press harder. Modulation is applied to the selected destination(s).



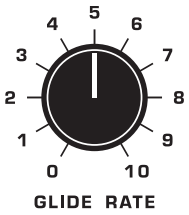
The Prophet-5 provides eight different aftertouch/pressure response settings. To choose a different response curve, use the AT RESPONSE parameter in the GLOBALS parameters. See page 16 for more information.

Glide Rate

Glide causes the pitch of a note to glide up or down from the pitch of the previously played note. On the Prophet-5, glide operates on a given voice whenever that voice changes to a different note. It functions when the Prophet-5 is in either polyphonic or Unison mode.

To use Glide:

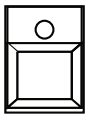
1. Turn the GLIDE RATE knob to approximately 4.
2. Play a series of notes up and down the keyboard while you continue to turn the GLIDE RATE knob to adjust the amount of glide.



Unison

When UNISON is on, the Prophet-5 functions like a monophonic synthesizer in that only 1 note can be played at a time. However, that one note can be powered by as many as five voices, depending on how many you choose to use.

With up to 10 oscillators powering a single note (2 oscillators per voice x 5 voices), you can create some very dense, speaker-rattling sounds. Unison gives you control over how many voices to stack, and also the amount of detuning between the oscillators.



To use Unison:

1. Press and hold the UNISON switch.
2. With the UNISON switch held down, use the GROUP SELECT (decrement) and BANK SELECT (increment) switches to choose the number of voices to stack, then release the Unison switch.

To detune the oscillators in Unison:

1. Press and hold the UNISON switch.
2. With the UNISON switch held down, use the PROGRAM SELECT switches to set the amount of detuning. A setting of 0 is minimum detuning. A setting of 8 is maximum detuning.



If you want to create an ultra heavy synth bass, try using Unison!



By default, the Prophet-5 has last-note priority, meaning that when you play more keys on the keyboard than are available as voices, the last notes played take priority and will "steal" previous notes/voices. When using Unison mode, you can change this to other key priority modes. See "Note Priority Modes" on page 45.

Using Chord Memory

Unison has another useful feature: chord memory. Instead of assigning voices to a single note, hold down a chord on the keyboard and press the UNISON switch. The Prophet-5 memorizes the notes of the chord. Single notes played on the keyboard will then trigger all notes of the stored chord, transposing them as you play up or down the keyboard. Try using this feature to create powerful chord stabs.

If you save a program that uses chord memory, the chord is saved with the program. "CHO" will then appear as a choice if you step through voice stacking options using the GROUP SELECT and BANK SELECT buttons while holding down UNISON.

To use chord memory:

1. Hold down a chord on the keyboard (5 notes maximum).
2. Press the UNISON switch. The chord voicing is memorized. Play a few notes to listen to the result.
3. If you save the program, the unison chord memory is saved with it.

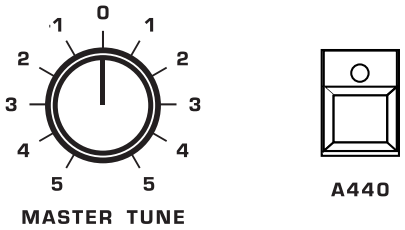
To clear chord memory:

1. Turn off Unison.
2. Hold down a single note.
3. Press the UNISON button.
4. Save the program again.

Alternatively, with the UNISON switch held down, use the GROUP SELECT (decrement) and BANK SELECT (increment) switches to choose a specific number of voices to stack (instead of "CHd").

Master Tune

The MASTER TUNE control allows you to manually tune the Prophet-5 to the A440 reference tone or to an external reference such as another instrument. It has a tuning range of approximately a semitone (half step) sharp or flat. This knob has a center detente, and when in the center position, the Prophet-5 should be at concert pitch.



The Master Tune and A440 reference tone controls

To manually tune the Prophet-5 to A440:

1. Recall the basic preset by holding down RECORD and pressing PRESET.
2. Hold down an "A" in the middle of the keyboard.
3. Press the A440 switch. The Prophet-5 generates an A440 reference tone.
4. Turn the MASTER TUNE knob until you match the pitch of the A440 reference tone.
5. When you're done, press the A440 switch again to turn off the reference tone.

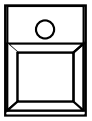
The Release Switch

The RELEASE switch affects the behavior of the Filter and Amplifier Envelopes. The original Prophet-5 had a different way of handling Release from the more common method used today. If the RELEASE switch is on, the RELEASE knob setting on the Filter and Amplifier envelopes is used. If the RELEASE switch is off, the Release on both envelopes is fast.

If you then connect a footswitch, it acts somewhat like a piano: it's a quick release when the footswitch is not pressed, and it's a longer (programmed by the knob) release when the footswitch is held. Note that the RELEASE switch needs to be off for the footswitch to operate this way.

Since this is, after all, a Prophet-5, we wanted it to match the original synth. These days, however, many musicians expect the footswitch to be a "hold" function, which is of course different than the Prophet-5 RELEASE switch behavior. So, we added a Global parameter that allows you to select the original Prophet-5 method, or a more common hold function with the footswitch.

Use the RELEASE/SUSTAIN parameter in GLOBALS row two (PROGRAM SELECT 2) to choose between classic Prophet-5 Release handling (rEL) or the more contemporary Hold method (HLd).



The Release switch

The Tune Button

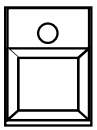
The TUNE button runs an auto-calibration procedure on the Prophet-5, tuning its oscillators, filters, and other components. Use this calibration procedure as needed over the first few days of use. The Prophet-5 learns the range of temperatures at your location and will keep itself in tune over this range.

Later, if you use the Prophet-5 in a different environment that is measurably warmer or cooler (on stage, in an air-conditioned studio, and so on) run the calibration procedure again.

Please be aware that it's possible for the Prophet-5's oscillators and filter to be in tune with themselves but for the synthesizer to not be tuned to concert pitch. Master tuning of the synth is controlled by the MASTER TUNE knob. See page 42 for details.

To calibrate the oscillators and filters:

1. Press the TUNE button.
2. The program SELECT BUTTON LEDs begin flashing in sequence and the numeric display indicates the tuning sequence while the Prophet-5 performs its auto-calibration procedure. Don't turn off the power while it's doing this.
3. When finished, the front panel controls return to normal and you can play the Prophet-5.



TUNE

Key Priority Modes

Key Priority determines what key has priority when Unison mode is on and more than one key is pressed at the same time. When played polyphonically, the Prophet-5 is set to last note priority so that any newly played notes take priority and will "steal" voices when necessary.

Available key priority modes are:

- Low note priority (LO) gives priority to the lowest note played.
- Low note retrigger (LOr) causes the envelopes to be retriggered with each keystroke.
- Last note priority (LAS) gives priority to the last note played.
- Last note priority retrigger (LAr gives priority to the last note played and retriggers the envelopes with each keystroke.

To set the Key Priority Mode:

1. Press and hold the KEYBOARD switch in the OSCILLATOR B section.
2. Use the GROUP SELECT (decrement) and BANK SELECT (increment) switches to choose the desired note priority mode (low, last, low retrigger, last retrigger).

About Voice Assignment

There are a number of different aspects of voice assignment on the Prophet-5. The method on the original was simple, and we implemented it: when you hold more than five notes, it will steal one of the voices to play the next note, and it will retrigger. Another aspect is that if you repeatedly hit the same key, it will not cycle through voices; it will retrigger the same voice.

In Unison mode, the original Prophet-5 would always play all five voices (now you can stack 1-5 voices), it would always be low-note priority, and it would always play legato; that is, it would not retrigger on a new key unless all keys were released first.

The additional Key Priority modes described above allow you to use alternate trigger and voice assignment methods for Unison. These modes do not affect polyphonic playing.

Chapter 3: Creating Sounds

The Prophet-5 can produce a broad spectrum of sounds. Though the factory programs give you some idea of its scope, if you just play its presets, you're not using the Prophet-5 to its full potential. The real fun is in creating sounds of your own.

This chapter provides some short sound programming tutorials. Though there isn't enough space here to cover how to use every Prophet-5 function, the examples will help you get familiar with some basic concepts.

Synth Bass

A synth bass is one of the easiest and most useful sounds you can make on a synth. Many great synth bass sounds consist of a single oscillator, a bit of filter resonance, the proper envelope, and that's it. So start with the Basic Program and go from there.

Short Version

To create a classic synth bass:

1. Recall the basic preset by holding down RECORD and pressing PRESET.
2. Set filter CUTOFF to 3.
3. Set filter RESONANCE to 3.
4. In the ENVELOPES section, set the Filter Envelope's DECAY to 6.
5. In the ENVELOPES section, set the Filter Envelope's SUSTAIN to 2.
6. In the ENVELOPES section, set the Filter Envelope's ENV AMOUNT to 10.
7. Play some low notes on the keyboard. Instant synth bass!
8. Experiment with the Filter Envelope's ENV AMOUNT and DECAY settings.
9. Experiment with the Filter's RESONANCE settings.

Long Version

Here's a more detailed version that provides insight into the process. You'll start with the Basic Program, then learn how to choose an appropriate oscillator waveshape, how to use the filter, how to use the envelopes, and how to use Unison to fatten things up.

In the Basic Program, only Oscillator A is audible. Its waveshape is set to sawtooth and its level is 10 in the MIXER. (Oscillator B is set to 0 in the Mixer and no wave shape is selected.)

To start with the Basic Program:

1. Recall the basic preset by holding down RECORD and pressing PRESET.

Each of the waveforms have their own unique sound:

- The sawtooth waveform is a good starting point for sounds because it has plenty of harmonics. This gives you a lot to work with in terms of a raw sound that you can filter and modulate.
- The pulse (square) wave is a good starting point, too, but sounds different than the sawtooth, because of its different harmonic content. The sawtooth has even-numbered harmonics and the square wave has odd-numbered harmonics. (Perform a web search on this if you want to learn more.)
- The triangle wave (Oscillator B only) has very few harmonics. It's useful used alone for its pure tone, or in combination with another oscillator to reinforce the fundamental pitch of a sound and add weight.

Next, you'll use the filter to shape the raw sound of the sawtooth wave.

To adjust the filter:

1. Press and hold down a key and turn the filter's CUTOFF knob. Notice how it cuts the high frequencies as you rotate counter-clockwise, making the sound of the oscillator less bright. If you turn the CUTOFF knob fully counterclockwise you'll filter out all frequencies and hear nothing.
2. Return the CUTOFF knob to 3 and the turn the Filter Envelope's ENVELOPE AMOUNT knob to a value of 5.

3. In the ENVELOPES section, set the Filter Envelope's DECAY to 6.
4. In the ENVELOPES section, set the Filter Envelope's SUSTAIN to 2.
5. Repeatedly play a note as you turn the RESONANCE knob to 6. Notice how the sound changes as a band of frequencies near the cutoff is amplified.
6. Rotate the filter's CUTOFF knob again and you'll hear a classic resonant filter sweep. You're going to use this to create your synth bass.
7. Set the filter CUTOFF to a value of 3.
8. Set the filter RESONANCE to a value of 3. This is going to give the synth bass its funky "zap."
9. Play a note and listen to the sound. At this point you won't hear much because you've mostly closed the filter. You'll need to open the filter wider using the Filter Envelope (so you don't have to turn the CUTOFF knob by hand).

To adjust the filter envelope:

1. In the Envelopes section, turn the Filter Envelope's ENVELOPE AMOUNT knob to a value of 10.
2. Play a low note on the keyboard. Instant synth bass!
3. If you want, set the frequency of Oscillator A and Oscillator B an octave lower using the FREQUENCY knob.

Notice how the sound has changed. The Filter Envelope is controlling filter cutoff by the amount you set with the AMOUNT knob.

4. Continue experimenting with the Filter Envelope's AMOUNT knob. Notice how greater AMOUNT settings amplify the effect of the envelope on the filter.
5. Repeatedly strike a note on the keyboard as you turn the Filter Envelope's DECAY knob clockwise and counterclockwise. Notice how it changes the sound as the note decays faster or slower.

Be aware that the Filter Envelope and Amplifier Envelope work in conjunction, with the Filter Envelope controlling how the filter opens and closes and the Amplifier Envelope controlling the overall volume shape. To learn more about the Amplifier Envelope, see page 28.

6. The Filter Envelope's RELEASE parameter acts in conjunction with the Amplifier Envelope. In other words, you can't hear a long release on the filter envelope if the amplifier envelope is short! So to hear the filter envelope's RELEASE parameter in action, first set the Amp Envelope's RELEASE value to 7.

7. Now repeatedly strike a note on the keyboard as you turn the Filter Envelope's RELEASE knob clockwise and counterclockwise. Notice how the note fades out faster or slower as you change the RELEASE value.

How to make the synth bass fatter:

- Turn on the square wave in Oscillator A.
- Turn up Oscillator B in the mixer, then turn on the sawtooth wave and use the FINE control to slightly detune oscillator B.
- Turn on UNISON then increase voice stacking by holding down the UNISON button and repeatedly pressing the BANK SELECT button until it says 5.
- Detune the stacked unison voices by holding down the UNISON button and press one of the PROGRAM SELECT buttons (maximum detuning is 8).

Now you know how to create a simple synth bass program using the most essential synthesizer components of the Prophet-5: the oscillators, the filters, and the envelopes. Using just these three things you can create an enormous variety of sounds. Keep experimenting with them and if you like what you've created, save the programs in one of the user banks. (See "Saving a Program" on page 9.)

Creating Synth Brass

Here's another easy-to-construct sound: synth brass, with a classic "pitch blip" effect on the attack. In this example you'll learn how to use Poly Mod to modulate the pitch of Oscillator A to simulate an aggressively blown horn effect.

To create synth brass:

1. Recall the basic preset by holding down RECORD and pressing PRESET. Oscillator A is set to sawtooth by default.
2. Turn up Oscillator B in the mixer, then turn on its sawtooth wave and set the FINE control to 2 to detune it slightly.
3. In the FILTER section, set CUTOFF to 1, RESONANCE to 3, and FILTER AMOUNT TO 8.
4. Press the KEYBOARD switch twice to set keyboard filter tracking to FULL.
5. In the FILTER ENVELOPE section, set the ATTACK to 4, DECAY to 6, SUSTAIN to 4, and RELEASE to 0.
6. Enable touch sensitivity by pressing and enabling the VELOCITY button once.
7. Play a few chords. Basic synth brass!
8. If you want, set the frequency of Oscillator A and Oscillator B an octave lower using the FREQUENCY knob.

To create the "pitch blip":

1. In the Poly Mod section, turn on FREQ A. This will route the modulation to the frequency of Oscillator A.
2. As you repeatedly play a chord, gradually turn up the FILT ENV knob. This sets the amount of modulation from the Filter Envelope to the frequency of Oscillator A. The exact shape of the Filter Envelope determines the rise and fall of the frequency. This create the slight pitch variation at the beginning of the sound (the "pitch blip").
3. Set the FILT ENV to somewhere between 0 and 1.
4. In the FILTER ENVELOPE section, experiment with different values for the DECAY parameter. The controls how quickly the pitch falls.
5. Play some notes in the upper range of the keyboard. Classic synth brass!

Turning Synth Brass into a String Pad

It's a simple matter to turn the previous synth brass sound into a string pad by simply adjusting its envelope and filter settings.

To turn the synth brass into a string pad:

1. Remove the "pitch blip" by turning off FREQ A in the Poly Mod section.
2. Use the KEYBOARD switch to set keyboard filter tracking to HALF.
3. In the FILTER section, set the CUTOFF to 7 and RESONANCE to 2.
4. In the FILTER ENVELOPE section, set the ENV AMOUNT to 0.
5. Set Filter Envelope ATTACK to 5, DECAY to 6, SUSTAIN to 7, and RELEASE to 7.
6. Set Amplifier Envelope ATTACK to 5, DECAY to 5, SUSTAIN to 10, and RELEASE to 6.
7. Use the the FINE control in Oscillator B to adjust the amount of detuning/chorusing.
8. Play some chords. You've now got a good basic string pad.

Creating a Hard-Sync Lead

Here's another classic sound: a hard-sync lead. A famous example of this is "Let's Go" by the Cars, performed on a Prophet-5. In this example you'll learn how to hard-sync the oscillators, and pitch-modulate one of them with Poly Mod.

To create a hard-sync lead:

1. Recall the basic preset by holding down RECORD and pressing PRESET. Oscillator A is set to sawtooth by default.
2. On Oscillator A, enable the SYNC button. (See page 20 for an explanation of hard sync.)
3. Set Oscillator A FREQUENCY to 4. This will allow for a wide range of pitch modulation in step.
4. In the POLY MOD section, enable FREQ A. This selects Oscillator A as the destination.

5. In the POLY MOD section, set FILT ENV to 7. This sets the amount of modulation applied to Oscillator A.
6. In the FILTER section, set the CUTOFF to 8 and RESONANCE to 2.
7. Set the ENV AMOUNT to 3.
8. In the FILTER ENVELOPE section, set ATTACK to 4, DECAY to 7, SUSTAIN to 4, and RELEASE to 5. This will set the "shape" of the modulation.
9. Play some notes. Classic hard-sync lead!
10. Experiment with the Filter Envelope's Attack, Decay, Sustain, and Release settings to better understand how these affect the shape of pitch modulation routed to Oscillator 1.
11. Also experiment with Oscillator A's FREQ setting.

A Final Word

The examples provided are pretty basic, but they give you some idea of the power of synthesis. Imagine what you can create by experimenting more with the oscillators, filter, envelopes, LFOs, and Poly Mod.

It's often useful to start with a simple sound and make it progressively more complex, saving edited versions as you go so that you can retrace your steps and branch off at different points in the sound design process if you want. Enjoy exploring the Prophet-5!

Chapter 4: Using CVs and Gates

This chapter explains how to connect the Prophet-5's Control Voltage inputs and outputs and Gate in and out to external devices such as a modular synthesizer.

Using Prophet-5's CV Out

The Prophet-5 can interface with a modular synthesizer and other devices with control voltage ins and outs through its CV input and output. In the example below, the Prophet-5 keyboard is used to play the oscillator of a modular synth. Note that CV output tracks the last note played on the Prophet-5.

To use the Prophet-5's CV Outs to control the oscillator of a modular synth:

1. Using a ¼ inch patch cable, connect the Prophet-5's CV Out to the appropriate CV In on the modular synth's oscillator module. (The modular synth's input should support a 1-volt-per-octave signal.)
2. Play the Prophet-5 keyboard. The modular synth's oscillator should respond to the notes. (You may need to tune the modular synth's oscillators to match the Prophet-5's oscillators.)

Adjusting the Prophet-5's CV Output Scaling:

The Prophet-5 is calibrated at the factory so that low C on the keyboard produces 0v at the CV Out and high C produces 5v. Depending on the device you wish to control using the Prophet-5's CV Out, you may need to make slight adjustments to these voltages in order for the target device to track pitch accurately across the full range of the Prophet-5 keyboard.

Adjusting CV Output scaling:

1. Connect the Prophet-5's CV Out to the CV In of an external oscillator or synthesizer using a standard ¼ inch TS patch cable.
2. Connect the Prophet-5's GATE OUT to the Gate In of the same device using a standard ¼ inch TS patch cable.
3. Enter CV Calibration Mode by holding down the GLOBALS switch and pressing PROGRAM SELECT button 5.

4. PROGRAM SELECT button 1 LED lights up. This indicates that the CV Out Low Point is being adjusted.

5. Press and hold any key on the Prophet-5 to send a gate to the external device, so that the external device can be heard. The Prophet-5's keyboard does not affect the CV Out voltage when in CV Calibration Mode.

6. Use the GROUP SELECT (decrement) and BANK SELECT (increment) switches to make negative or positive adjustments to the CV Out Low Point, bringing the external device's pitch to "C". The range is from -99 to 99, adjusting the CV Out Low Point by roughly +/- 90 mV.

7. Press 2 to begin adjusting the CV Out High Point.

8. Repeat steps 5-6. The target pitch for the CV Out High Point is "C" five octaves above the Low Point pitch.

9. Press PROGRAM SELECT button 8 to exit CV Calibration Mode.

Adjusting the Prophet-5's CV Input Scaling:

The Prophet-5 is calibrated at the factory so that 0v received at the rear-panel CV IN jack will produce the same pitch as the lowest C note on the instrument's keyboard, and 5v will produce the highest C note. Depending on the device you wish to use to control one voice of the Prophet-5 from the CV Input, you may need to make slight adjustments to these voltage points in order for your controlling device to cause the Prophet-5 to produce the correct pitch. Some devices may not produce perfect Volt/Oct voltage scaling, but the Prophet-5 can accommodate.

Adjusting CV Input scaling:

1. Connect the CV Out of the controlling device to the Prophet-5's rear-panel CV IN jack using a standard ¼ inch TS patch cable.

2. Connect the Gate Out of the controlling device to the Prophet-5's GATE IN using a standard ¼ inch TS patch cable.

3. Enter CV Calibration Mode by holding down the GLOBALS switch and pressing PROGRAM SELECT button 5.

4. PROGRAM SELECT button 1 LED lights up. Press PROGRAM SELECT button 3 to navigate to the CV In Low Point adjustment.

5. Send a Gate signal from the controlling device so that the Prophet-5 can be heard.

6. Send a “C” from the controlling device, corresponding in pitch to the low C note on the Prophet-5’s keyboard.
7. Use the GROUP SELECT (decrement) and BANK SELECT (increment) switches to make negative or positive adjustments to the CV In Low Point, bringing the Prophet-5’s pitch to “C”. The Prophet-5’s CV Input is quantized to semitones, so the pitch will jump abruptly as you make the adjustment, rather than change gradually.
8. Press PROGRAM SELECT button 4 to begin adjusting the CV In High Point.
9. Repeat steps 5-7. The target pitch for the CV Out High Point is “C” five octaves above the Low Point pitch.
10. Press PROGRAM SELECT button 8 to exit CV Calibration Mode.

Using Prophet-5’s Gate In and Gate Out

The Prophet-5 can interface with a gear that accepts gate in or gate out signals for envelope triggering.

Note that Prophet-5 Gate Out signals are output from the Prophet-5 keyboard each time a key is pressed. Note also that when a jack is inserted into the Prophet-5’s rear-panel GATE IN jack, voice 5 is no longer available to play from the keyboard and will instead be triggered by the external gate signal.

The Prophet-5’s GATE IN is tolerant of voltages up to 15v, but any positive voltage above 1.7v will gate its envelopes.

To use the Prophet-5’s Gate Out:

1. Using a ¼ inch patch cable, connect the Prophet-5’s Gate Out to the appropriate Gate In on the external device
2. Play the Prophet-5 keyboard. The external device should respond to the Prophet-5 envelope triggers each time you strike a key.

To use the Prophet-5’s Gate In:

1. Using a ¼ inch patch cable, connect the Prophet-5’s Gate In to the appropriate Gate Out on the external device.
2. Play the external device. The Prophet-5 should respond to the Gate signal of the external device. As noted above, voice 5 is no longer available to play from the keyboard and will instead be triggered by the external gate signal.

Appendix A: Troubleshooting and Support

Troubleshooting

If you're experiencing problems or unexpected behavior from your Prophet-5, here are a few typical scenarios and their solutions:

If the Prophet-5 isn't producing sound:.

1. Recall the basic preset by holding down RECORD and pressing PRESET.
2. If the problem is still there, check the following:

- Volume - make sure it is set to an appropriate value
- Rear-panel output jacks - make your audio cables are connected to AUDIO OUT.
- In the GLOBALS section, make sure that LOCAL CTRL is set to ON.

If some of the programs sound different than usual:

- In the GLOBALS section, check SCALE/ALT TUNING and make sure it's set to nOL. Also, check the Mod wheel position. The Mod wheel can do more than just add vibrato and maybe be affecting filter cutoff.

If there is a ground hum in the audio output:

- USB can cause ground loops, so try to resolve any grounding issues between the computer (if connected) and the Prophet-5. Or use MIDI, which is opto-isolated.

If the Prophet-5 is behaving erratically:

- This is almost always caused by a MIDI feedback loop. Make sure that any MIDI Thru functionality is turned off on the MIDI interface/hardware or in the MIDI software application. Disconnect all Prophet-5 MIDI connections (MIDI and USB cables) and see if the problem persists. You can also monitor the MIDI traffic with *MIDI Monitor* (Mac OS) or *MIDI-OX* (Windows) to see if the Prophet-5 is being overrun with duplicate messages.

If the Prophet-5 doesn't seem to respond to its controls:

- Make sure LOCAL CTRL is ON in the GLOBALS section.

If MIDI System Exclusive data is not transmitted/received:

- Make sure that the MIDI SYSEX CABLE setting in the GLOBALS section is set to USB or MIDI depending on which you are using to transmit or receive MIDI messages.

If the Prophet-5 plays out of tune:

- Check the TRANSPOSE parameter in the GLOBALS menu to make sure it is set to 0.
- Check the MASTER TUNE knob to make sure it is set to 0.
- Set the VINTAGE knob to 4.
- Check the ALT TUNING parameter in the GLOBALS menu to make sure it is set to normal (nOL).
- You may need to recalibrate the oscillators. See "Calibrating the VCOs and Filters" on page 5.

If the pitch or Mod wheel doesn't go to full range:

- Recalibrate the Pitch and Mod wheels. See "Calibrating the Pitch and Mod Wheels" on page 61.

If the filter sounds strange or out of tune:

- You may need to recalibrate the filters. See "Calibrating the Oscillators and Filters" on page 5.
- Set the VINTAGE knob to 4.

Resetting the Global Parameters

If you're trying to track down a problem, it's often a good idea to reset the Global parameters to their defaults. This is a quick way to make sure that the Prophet-5 returns to its factory settings.

This will not erase any User programs.

To reset all Global parameters to their default settings:

1. Hold down the RECORD button.
2. Press the GLOBALS button. Global parameters are reset.
3. You can now can play the Prophet-5 again.

Contacting Technical Support

If you are still having a problem with the Prophet-5, contact Technical Support at *support@sequential.com*. Please include the purchase date of your Prophet-5, its serial number, and the operating system version.



If you haven't already reset the Global parameters and run the calibration routines (see above), you should do it before contacting Technical Support. This is probably the first thing you will be asked to do.

To check your OS version:

1. Press and hold the GLOBALS button.
2. Press PROGRAM SELECT button 1. The main OS version appears in the display.
3. With the GLOBALS still held down, press PROGRAM SELECT button 2. The panel OS version appears in the display.
4. Release the GLOBALS button to exit.

Warranty Repair

Sequential warrants that the Prophet-5 will be free from defects in materials and/or workmanship for 1 year from the date of purchase. Please register your product online at www.sequential.com to establish the date of purchase. (This is not a requirement for warranty service, but it will help expedite the process.)

Please contact *support@sequential.com* to determine the best course of action for getting your Prophet-5 repaired. For your own protection, as well as ours, please do not return any product to Sequential without a return authorization (RA) number. To issue an RA number, Technical Support needs:

- Your name
- Your return address
- Your email address
- A phone number where you can be reached
- Your Prophet-5 serial number
- The date of purchase and where purchased

If you need to return your instrument for repair, you are responsible for getting it to Sequential. We highly recommend insuring it and packing in the original packaging. Damage resulting from shipping a product with insufficient packaging is not covered by warranty.

Appendix B: Calibrating the Prophet-5

The first time you use the Prophet-5, please run its built-in calibration procedure. The Prophet-5 learns the range of temperatures at your location and will keep itself in tune over this range.

Later, if you use the Prophet-5 in a different environment that is measurably warmer or cooler (on stage, in an air-conditioned studio, and so on) run the calibration procedure again.

Calibrating the VCOs and Filters

To calibrate the oscillators and filters:

1. Press the TUNE button.
2. The program SELECT BUTTON LEDs begin flashing in sequence and the numeric display indicates the tuning sequence while the Prophet-5 performs its auto-calibration procedure. Don't turn off the power while it's doing this.

When finished, the front panel controls return to normal and you can play the Prophet-5.

Calibrating the Pitch and Mod Wheels

To calibrate the Pitch and Mod Wheels:

1. Set Mod wheel to its minimum setting.
2. Hold the Pitch wheel at its minimum setting.
3. While still holding the Pitch wheel down, press and hold the GLOBALS button and press PROGRAM SELECT button 6. The low points of both wheels are calibrated.
4. Release the Pitch wheel so that it returns to its center position. hold the GLOBALS button and press PROGRAM SELECT button 7. The center point of the Pitch Wheel is calibrated.
5. Set the Mod wheel to its maximum setting. Hold the Pitch wheel at its maximum setting. While still holding the Pitch wheel at its maximum position, press and hold the GLOBALS button and press PROGRAM SELECT button 8. The high points of both wheels are calibrated. You can now can play the Prophet-5 again.

Resetting the Global Parameters

If you're trying to track down a problem, it's sometimes a good idea to reset the Global parameters to their defaults. This is a quick way to make sure that the Prophet-5 returns to its factory settings.

This will not erase any User programs.

To reset all Global parameters to their default settings:

1. Hold down the RECORD button.
2. Press the GLOBALS button. Global parameters are reset.
3. You can now can play the Prophet-5 again.

Appendix C: Exporting and Importing Programs/Banks

You can use the PGM DUMP command in the GLOBALS section to transmit the current program, the current bank, the current group, all user banks, or all banks (both user and factory) in SysEx format via the selected MIDI port.

This allows you to save your programs so that you can share them or archive them. Dumped programs will load back into the same bank and program location in memory when received by the Prophet-5 via MIDI.

Make sure that your MIDI Editor or Librarian application of choice is open and ready for data transfer and that you have made the necessary MIDI/USB connections between the Prophet-5 and your computer.

To export a Program, Bank, Group, or all Banks as a SysEx file over MIDI:

1. Press the GLOBALS button once (this enables the upper set of parameters) then press PROGRAM SELECTOR 6 to select the MIDI SYSEX command.
2. Use the GROUP SELECT and BANK SELECT buttons to select the appropriate MIDI port — MIDI (midi) or USB (USb).

3. Press GLOBALS a second time (this enables the lower set of parameters) then press PROGRAM SELECTOR 7 to select the PGM DUMP command. The RECORD button begins flashing.

4. Use the GROUP SELECT and BANK SELECT buttons to select the desired option — program (PrO), bank (bAn), group (GrP), user banks (USr), all (ALL).

5. Press RECORD. The program or bank is exported to your MIDI application.


Programs will load back into the same Group, Bank, and Program locations from which they were originally exported.

Importing Programs and Banks

You can use a MIDI librarian application such as such as SysEx Librarian for Macintosh, or MIDI-OX for Windows to transmit exported program or banks back into your Prophet-5. You will need a computer and an appropriate software application.

To import Programs or Banks as a SysEx file over MIDI:

1. Connect your Prophet-5 to a computer using a USB cable (or MIDI cable, if you are using a dedicated MIDI interface).

2. Press the GLOBALS button on your Prophet-5 and PRESS PROGRAM select button 6 (MIDI SysEx).

3. Use the GROUP SELECT and BANK SELECT buttons to choose either USB or MIDI, depending on which port you are using to connect to your computer.

4. Press the GLOBALS button twice to exit the Global parameters.

5. Open your MIDI librarian software and configure it to send SysEx messages to your Prophet-5.

6. In the MIDI librarian, open the programs and/or banks you want to send.

7. Transmit the programs. The Prophet-5 should load them. They will replace any existing programs in those same memory locations on the synth.


Programs will load back into the same Group, Bank, and Program locations from which they were originally exported.

Appendix D: Alternative Tunings

By default, the Prophet-5 is set to standard, chromatic western tuning. Additionally, it supports up to 16 additional alternative tunings, which you can access using the ALT TUNING parameter in the GLOBALS section.

These 16 alternative tunings range from Equal temperament to Indonesian Gamelan tunings. If you want, you can replace these with other tunings that you can find on the Internet. These must be in SysEx format. You can download them into the Prophet-5 using SysEx Librarian for Mac or MIDI-OX for Windows.

Here are descriptions of the alternative tunings.

1. 12-Tone Equal Temperament (non-erasable)

The default Western tuning, based on the twelfth root of two.

2. Harmonic Series

MIDI notes 36-95 reflect harmonics 2 through 60 based on the fundamental of A = 27.5 Hz. The low C on a standard 5 octave keyboard acts as the root note (55Hz), and the harmonics play upwards from there. The remaining keys above and below the 5 octave range are filled with the same intervals as Carlos' Harmonic 12 Tone that follows.

3. Carlos Harmonic Twelve Tone

Wendy Carlos' twelve note scale based on octave-repeating harmonics. A = 1/1 (440 Hz). 1/1 17/16 9/8 19/16 5/4 21/16 11/8 3/2 13/8 27/16 7/4 15/8

4. Meantone Temperament

An early tempered tuning, with better thirds than 12ET. Sounds best in the key of C. Use this to add an authentic touch to performances of early Baroque music. C=1/1 (260 Hz)

5. 1/4 Tone Equal Temperament

24 notes per octave, equally spaced 24root2 intervals. Mexican composer Julian Carillo used this for custom-built pianos in the early 20th century.

6. 19 Tone Equal Temperament

19 notes per octave (19root2) offering better thirds than 12 ET, a better overall compromise if you can figure out the keyboard patterns.

7. 31 Tone Equal Temperament

Many people consider 31root2 to offer the best compromise towards just intonation in an equal temperament, but it can get very tricky to keep track of the intervals.

8. Pythagorean C

One of the earliest tuning systems known from history, the Pythagorean scale is constructed from an upward series of pure fifths (3/2) transposed down into a single octave. The tuning works well for monophonic melodies against fifth drones, but has a very narrow palate of good chords to choose from. C=1/1 (261.625 Hz) 1/1 256/243 9/8 32/27 81/64 4/3 729/512 3/2 128/81 27/16 16/9 243/128

9. Just Intonation in A with 7-Limit Tritone at D#

A rather vanilla 5-limit small interval JI, except for a single 7/5 tritone at D#, which offers some nice possibilities for rotating around bluesy sevenths. A=1/1 (440 Hz) 1/1 16/15 9/8 6/5 5/4 7/5 3/2 8/5 5/3 9/5 15/8

10. 3-5 Lattice in A

A pure 3 and 5-limit tuning which resolves to very symmetrical derived relationships between notes. A=1/1 (440 Hz) 1/1 16/15 10/9 6/5 5/4 4/3 64/45 3/2 8/5 5/3 16/9 15/8

11. 3-7 Lattice in A

A pure 3 and 7-limit tuning which resolves to very symmetrical derived relationships between notes. Some of the intervals are very close together, offering several choices for the same nominal chords. A=1/1 (440 Hz) 1/1 9/8 8/7 7/6 9/7 21/16 4/3 3/2 32/21 12/7 7/4 63/32

12. Other Music 7-Limit Black Keys in C

Created by the group Other Music for their homemade gamelan, this offers a wide range of interesting chords and modes. C=1/1 (261.625 Hz) 1/1 15/14 9/8 7/6 5/4 4/3 7/5 3/2 14/9 5/3 7/4 15/8

13. Dan Schmidt Pelog/Slendro

Created for the Berkeley Gamelan group, this tuning fits an Indonesian-style heptatonic Pelog on the white keys and pentatonic Slendro on the black keys, with B and Bb acting as 1/1 for their respective modes. Note that some of the notes will have the same frequency. By tuning the 1/1 to 60 Hz, Dan found a creative way to incorporate the inevitable line hum into his scale. Bb, B = 1/1 (60 Hz) 1/1 1/1 9/8 7/6 5/4 4/3 11/8 3/2 3/2 7/4 7/4 15/8

14. Yamaha Just Major C

When Yamaha decided to put preset microtunings into their FM synth product line, they selected this and the following tuning as representative just intonations. As such, they became the de-facto introduction to JI for many people. Just Major gives preferential treatment to major thirds on the sharps, and a good fourth relative to the second. C= 1/1 (261.625) 1/1 16/15 9/8 6/5 5/4 4/3 45/32 3/2 8/5 5/3 16/9 15/8

15. Yamaha Just Minor C

Similar to Yamaha's preset Just Major, the Just Minor gives preferential treatment to minor thirds on the sharps, and has a good fifth relative to the second. C= 1/1 (261.625) 1/1 25/24 10/9 6/5 5/4 4/3 45/32 3/2 8/5 5/3 16/9 15/8

16. Harry Partch 11-Limit 43 Note Just Intonation

One of the pioneers of modern microtonal composition, Partch built a unique orchestra with this tuning during the first half of the 20th century, to perform his own compositions. The large number of intervals in this very dense scale offers a full vocabulary of expressive chords and complex key changes. The narrow spacing also allows fixed-pitched instruments like marimbas and organs to perform glissando-like passages. G = 1/1 (392 Hz, MIDI note 67)

1/1 81/80 33/32 21/20 16/15 12/11 11/10 10/9 9/8 8/7 7/6 32/27 6/5 11/9 5/4 14/11 9/7 21/16 4/3 27/20 11/8 7/5 10/7 16/11 40/27 3/2 32/21 14/9 11/7 8/5 18/11 5/3 27/16 12/7 7/4 16/9 9/5 20/11 11/6 15/8 40/21 64/33 160/81

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