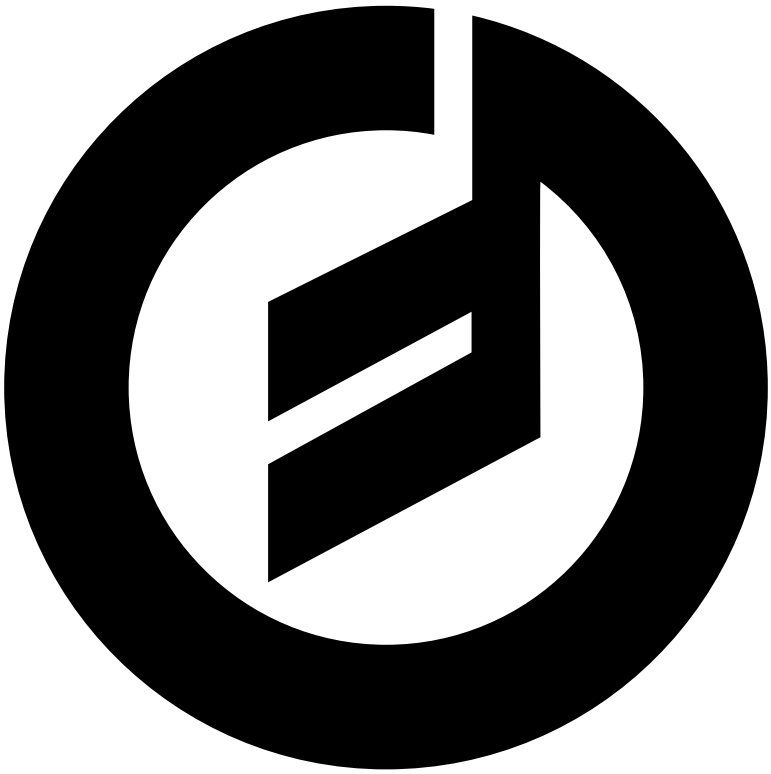

MINIMOOG MODEL D

USER'S MANUAL


TUNE
OSCILLATOR MODULATION
GLIDE
MODULATION MIX
OSC. 3 FILTER EG
NOISE / S+H
CONTROLLERS
RANGE
OSCILLATOR–1 FREQUENCY
WAVEFORM
OSCILLATOR–2
OSCILLATOR–3
OSC. 3 CONTROL
OSCILLATOR BANK
VOLUME
EXTERNAL INPUT VOLUME
OVERLOAD
NOISE VOLUME
WHITE
PINK
MIXER
CUTOFF FREQUENCY
FILTER EMPHASIS
AMOUNT OF CONTOUR
FILTER MODULATION
KEYBOARD CONTROL
ATTACK TIME
DECAY TIME
SUSTAIN LEVEL
LOUDNESS CONTOUR
MODIFIERS
VOLUME
MAIN OUTPUT
A–440
PHONES
OUTPUT
POWER

“All the sounds you’ve ever heard are like a second. The Moog is an eternity. Seclude yourself now and let the music sweep you away and into the dawn. Seek to become newly aware of yourself, the world of nature around you, the people near you. And if you feel it, express yourself.”

- David Van Koevering, 1971 -

Important Safety Instructions

WARNING: WHEN USING ELECTRIC PRODUCTS, THESE BASIC PRECAUTIONS SHOULD ALWAYS BE FOLLOWED.

1. Read and follow all the instructions before using the product. Heed all warnings and keep these instructions for later reference.
2. Do not use apparatus near water—for example, but not limited to, near a bathtub, washbowl, or kitchen sink; in a wet basement; or near a swimming pool.
3. Clean only with a dry cloth.
4. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
5. Do not install near any heat sources, such as radiators, stoves, or other apparatus (including amplifiers) that produce heat. Do not operate this instrument with the case in direct sunlight.
6. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
7. Use accessories specified by the manufacturer. Ensure that any external equipment used in conjunction with this product is installed according to the safety specifications supplied with that equipment.
8. Unplug this apparatus during lightning storms or when unused for a long period of time.
9. This product, in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable.
10. The product should only be connected to the AC adapter supplied with the product. Do not connect the AC adapter to an AC outlet that is outside the adapter's input specifications.
11. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings. Do not expose this product to rain or moisture.
12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as if the power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, or the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

NOTE: *This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

CAUTION: *Please note that any changes or modifications made to this product not expressly approved by Moog Music Inc. could void the user's authority granted by the FCC to operate the equipment.*

OPERATING CONDITIONS AND STORAGE

For optimal performance, use your Minimoog Model D between 50–95 degrees Fahrenheit (10–35 degrees Celsius). Safe operating conditions are within the range of 50–110 degrees Fahrenheit (10–43 degrees Celsius).

Minimoog Model D should be stored in temperatures above 32 degrees Fahrenheit (0 degrees Celsius) but never greater than 135 degrees Fahrenheit (57 degrees Celsius). Do not leave Minimoog Model D in a vehicle on a hot day with the windows closed. Temperatures in a vehicle can exceed 175 degrees Fahrenheit (80 degrees Celsius).

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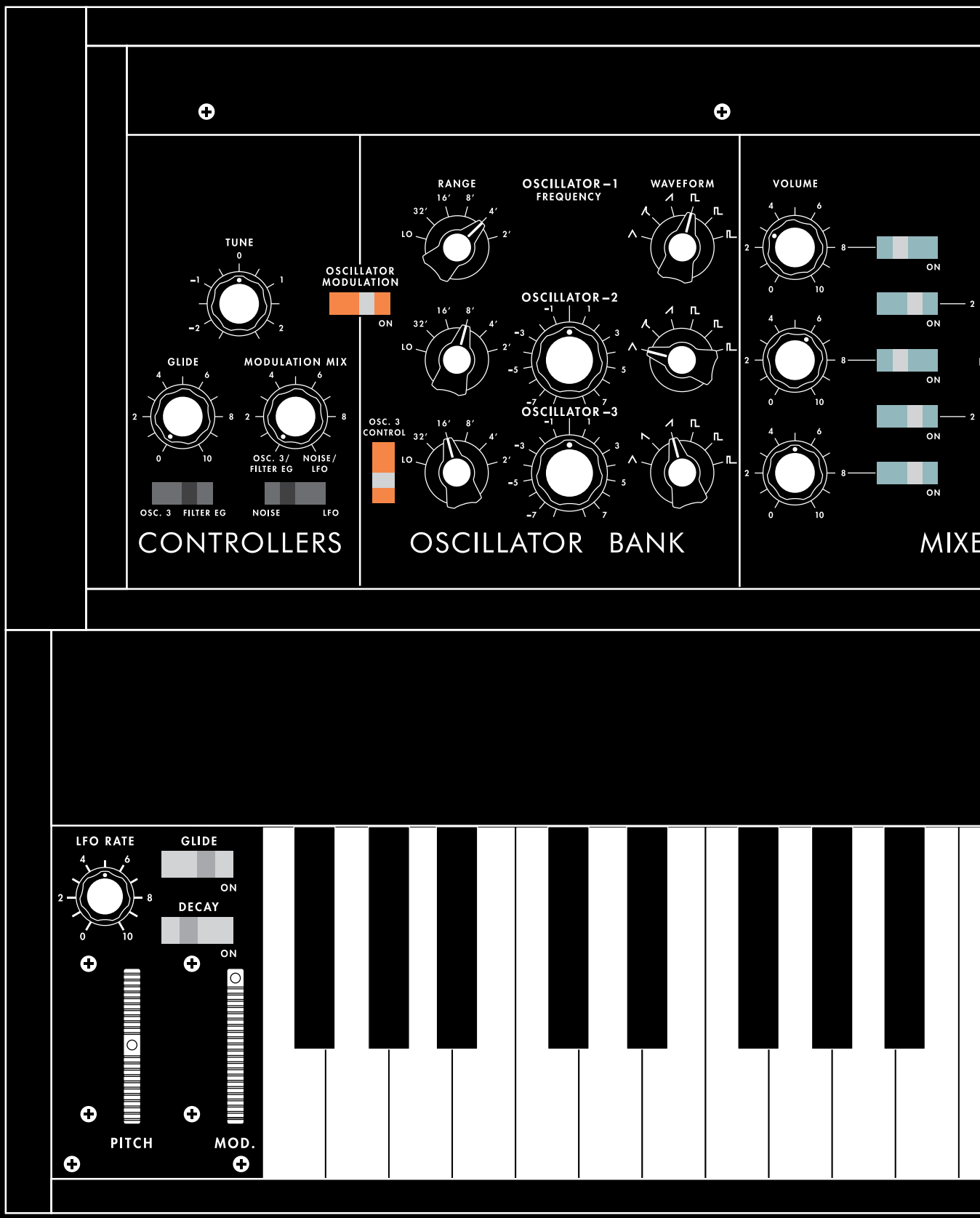
Minimoog Model D

Originally released in 1970, Minimoog Model D was the world's first portable synthesizer and served as the archetype for all electronic keyboards that followed. The all-analog instrument gained acclaim for combining the colossal sound of Moog large-format modular synthesizers with the accessibility of pre-wired modules; this meant that it could be played instantly and intuitively with no patch cables required.

Minimoog Model D was quickly embraced by a diverse roster of performers spanning nearly every genre of music. Influential artists like Bernie Worrell, Trent Reznor, Gary Numan, Dr. Dre, and Kraftwerk shaped their unique sounds and forged new musical genres using the instrument. Now, more than a half-century since its invention, Minimoog Model D remains one of the most coveted of all synthesizers, as it makes its return to the hands of veteran synthesists and serves as inspiration for the next generation of electronic musicians.


TUNE
OSCILLATOR MODULATION
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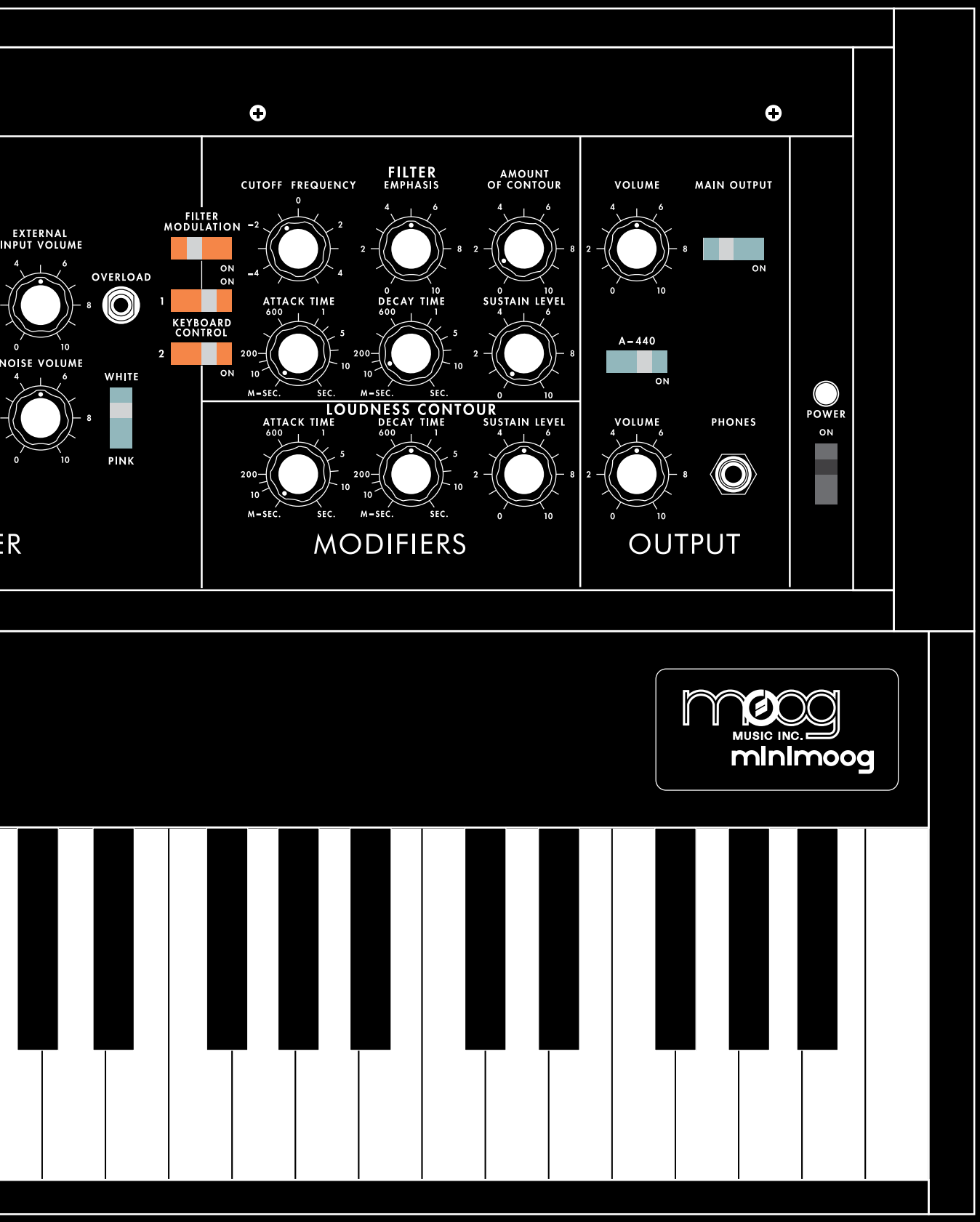
MOD.


EXTERNAL INPUT VOLUME
OVERLOAD
NOISE VOLUME
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MODIFIERS
VOLUME
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ON
A-440
ON
VOLUME
PHONES
OUTPUT
POWER
ON
moog
MUSIC INC.
minimoog

New Features

Though no changes have been made to the original sound engine, your Minimoog Model D includes a series of modifications that expand the instrument's sonic capabilities and performance features.

KEYBOARD

A Fatar TP-9 keyboard has been implemented with the ability to transmit both After Pressure and Velocity control voltages. While these signals are not hardwired to any specific parameter, the expanded Top Patch Panel allows Velocity and After Pressure signals to modify the Filter Cutoff Frequency, Loudness, and Oscillator Pitch.

DEDICATED LFO (LOW FREQUENCY OSCILLATOR)

Traditionally, **OSCILLATOR-3** could operate independently of the keyboard and be used as an LFO. Now, a dedicated LFO has been added to the Left-Hand Keyboard panel, featuring a push/pull **LFO RATE** knob to switch the LFO waveshape between triangle and square. In addition, Filter Contour **(FILTER EG)** is now also available as a modulation source.

EXPANDED PATCH BAY

CONTROL OUTPUTS:

- V-TRIGGER/GATE
- PITCH
- VELOCITY
- AFTER PRESSURE

POWER-ON COMMANDS

By holding down specific keys as Minimoog Model D is powered on, you can select a MIDI Channel, transpose the instrument, choose the note priority, and set other global functions.

MIDI

Five-pin DIN MIDI In, MIDI Out, and MIDI Thru jacks have been added to provide basic MIDI connectivity.

EXTERNAL POWER SUPPLY

Minimoog Model D now features a universal (100~240 VAC, 50/60Hz) external power supply, reducing the weight and heat created by the internal power supply, and improving stability of the instrument. This also makes it easier to travel with your Minimoog Model D.

LEFT-HAND CONTROLLER

Mod Wheel now receives and transmits MIDI data. Pitch Wheel is now spring-loaded and returns to center.

Getting Started

Begin by carefully removing your new Minimoog Model D from its packaging. It's recommended that you save all original packing material, should you ever need to safely move or ship the instrument. In addition to the instrument itself, Minimoog Model D also includes this owner's manual, a power adapter, and the connecting power cord.

SETUP & CONNECTIONS

The front panel of Minimoog Model D is hinged, so use caution and avoid grasping the top of the panel when lifting or moving the instrument.

Place Minimoog Model D on a stable surface, such as a table or keyboard stand. Be sure the instrument is placed at a comfortable playing height. The front panel can remain flat, or it can be tilted to a convenient angle for accessing the controls.

To get started, you will need to supply Minimoog Model D with power and connect it to an audio monitoring system, or listen using a set of headphones.

AC POWER

Minimoog Model D uses a universal power supply that can operate using AC power sources ranging from 100 to 240 volts at either 50 or 60 cycles (Hz). The included power supply features a detachable IEC-style power cable.

1. Connect the included IEC power cable to the Minimoog Model D power supply.
2. Connect the power supply cable to the Minimoog Model D locking XLR-4 connector.
3. Connect the other end of the power cable to a suitable AC wall outlet.
4. Finally, use the **POWER** switch to turn on your new Minimoog Model D.

NOTE: *The power supply connects to the Minimoog Model D using a locking connector. To release this connector from the instrument, simply press the locking tab at the base of the connector and gently pull up on the connector plug. Do not pull on the cable itself.*

RAISING THE PANEL

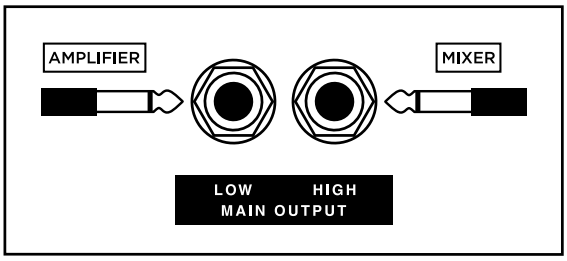
1. Grab the front panel by the top wood edge and tilt it forward toward the keyboard.
2. Flip up the hinged metal kickstand located in the area under the rear panel.
3. Position the top edge of this kickstand against one of the four screw heads protruding slightly from the rear of the panel. (Each screw head will support the panel at a different angle.)
4. To lower the panel, again tilt the panel forward until the hinged kickstand returns to its original position, then gently lower it.

Creating Sound

In analog synthesizers, each set of circuits performs a particular job; each oscillator, filter, and contour generator is a self-contained module. Minimoog Model D connects these modules together internally using both audio signals and control signals. Audio signals are the sounds you hear emanating from the sound creation circuits of the instrument. Control signals modify the settings of these circuits by providing a continuously variable control voltage—the foundation of the voltage-controlled synthesizer. An additional type of control signal is known as a Gate or V-Trigger, which is simply used to initiate an event. For example, playing a note on the keyboard sends a control voltage to the Oscillators to change the pitch, and also sends a gate signal to trigger the Loudness Contour and Filter Contour generators. Additional patch points are provided on the Top Patch Panel to expand the functionality of Minimoog Model D and to allow it to interface with other voltage-controlled equipment.

AUDIO MONITORING

Connect Minimoog Model D to an instrument amplifier, powered speaker, or other monitoring system. On the top panel, two 1/4" TS outputs are provided. The **HIGH** output is a high-level output suitable for connection to the line input of a mixer, recording setup, or other audio system. The **LOW** output is a high-impedance, low-level output that can connect to an instrument amplifier or other high-gain, high-impedance input.

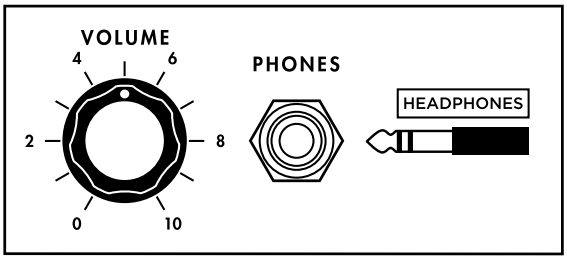


1. Begin with the monitoring system off and the Minimoog Model D **VOLUME** knob fully counterclockwise.
2. Use the appropriate output to connect Minimoog Model D to an audio monitoring system.
3. Turn Minimoog Model D on.

TIP: *To test the audio system and set your levels without taking the time to program a sound, at this stage simply flip on the* ***A-440*** *switch in the output section. This will provide a reference tone controlled by the* ***VOLUME*** *knob.*

4. Turn the **MAIN OUTPUT** switch on and raise the **VOLUME** knob halfway.
5. Now turn on the monitoring system, and raise the levels to your desired audio level.

NOTE: *Because Minimoog Model D is an analog instrument, please allow it to warm up for 10-20 minutes before use. This will best ensure the most stable performance.*

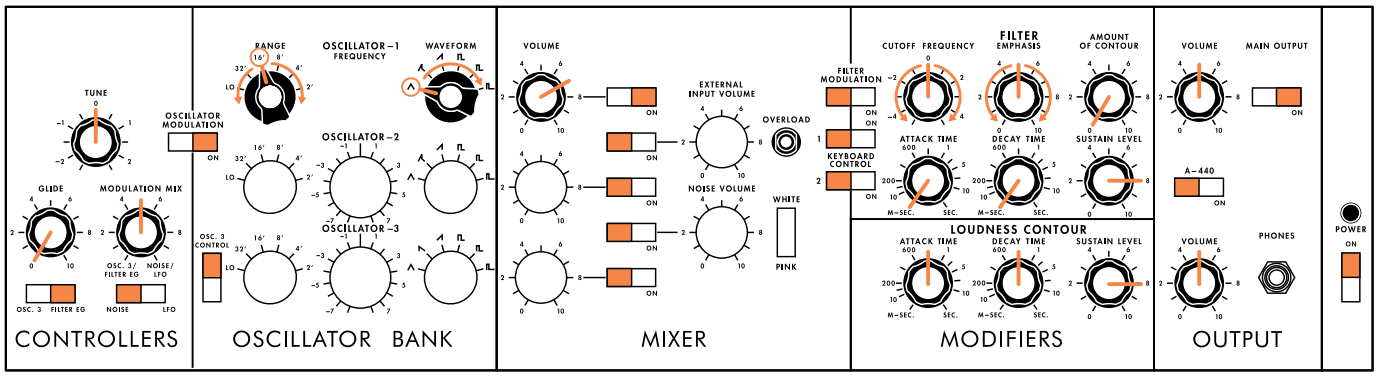


HEADPHONE MONITORING

Minimoog Model D features a headphone output jack with independent volume control. Plug your headphones into the **PHONES** jack and adjust the level using the phones **VOLUME** knob.

Sound Experiments

If you are not familiar with analog subtractive synthesis or with Minimoog Model D, here is a quick experiment to introduce you to the main sound-creation components and their functions. Begin by setting the Minimoog Model D front panel controls as shown below. Ignore any knobs or switches that have no value indicated.



1. These settings isolate **OSCILLATOR–1** and route it through the **FILTER**. You can use the **OSCILLATOR–1/RANGE** knob to select different octave settings and the **WAVEFORM** knob to listen to the distinct harmonic content of each waveform.

2. In the **FILTER** section, experiment with the **CUTOFF FREQUENCY** and **EMPHASIS** knob settings to see how the **FILTER** affects each of the different Oscillator Waveforms.

3. To make the sound less organ-like, first turn on the **DECAY** switch located above the **PITCH** and **MOD** wheels at the left end of the keyboard. Then play with the position of the **ATTACK TIME** and **DECAY TIME** knobs in the **LOUDNESS CONTOUR**.

4. The **FILTER** has its own **ATTACK TIME** and **DECAY TIME** knobs. As you adjust these values, you will also need to raise the **AMOUNT OF CONTOUR** value to hear the effect. Continue to explore the **FILTER CUTOFF** and **EMPHASIS** knobs as you change these settings.

NOTE: *Each of the knobs, switches, and other controls are explained in more detail in the following sections of the manual.*

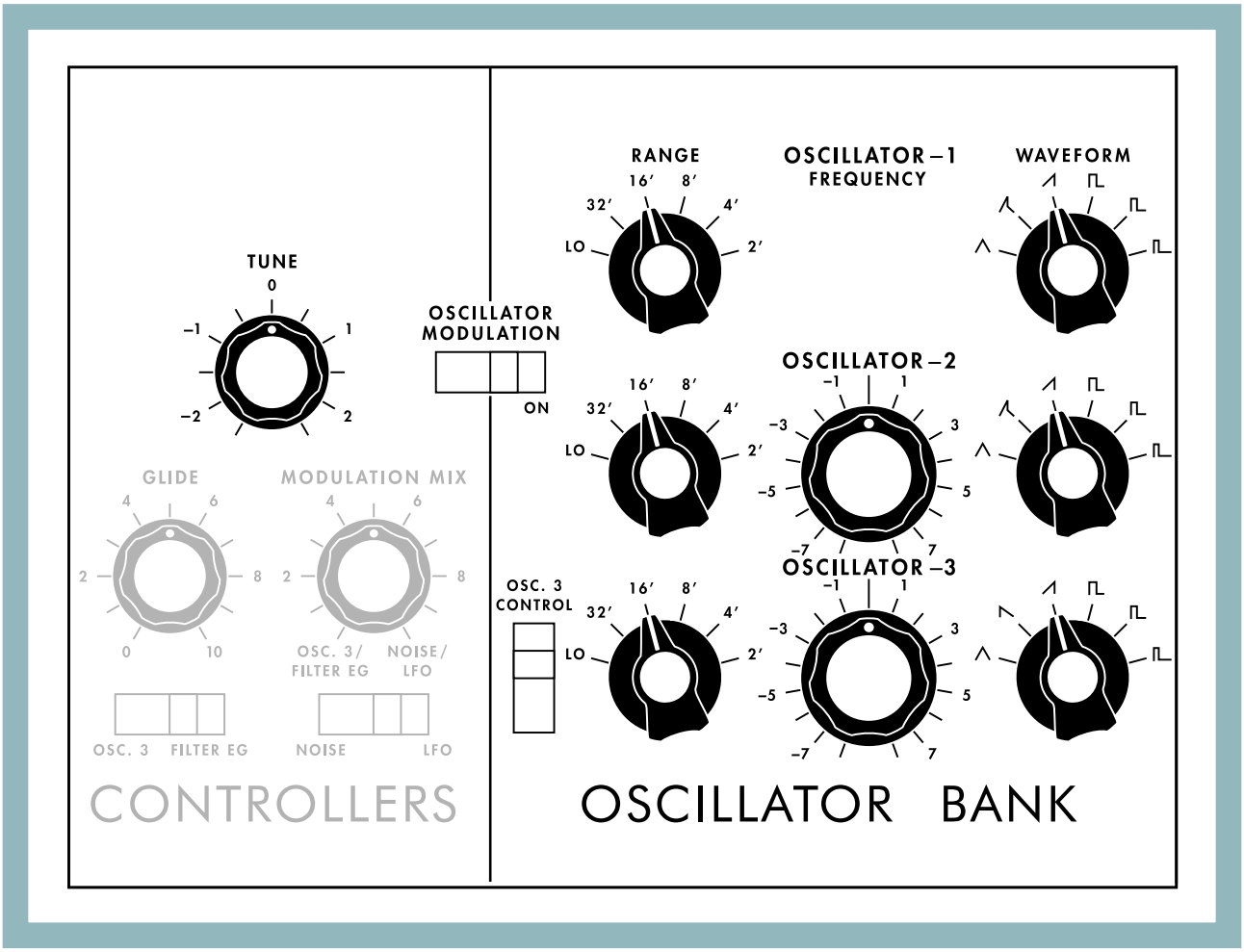
Features & Controls

Minimoog Model D is a self-contained monophonic analog synthesizer and a direct descendant of the Moog modular synthesizers that preceded it. The main synthesizer components include:

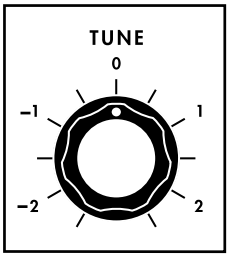
- Oscillator-1
- Oscillator-2
- Oscillator-3
- Noise Generator
- LFO Modulation Oscillator
- Audio Mixer
- Filter
- Filter Contour (Envelope Generator)
- Loudness Contour (Envelope Generator)
- 44 full-size keys with Velocity and After Pressure
- Pitch Bend and Modulation Wheels and Glide

The front panel groups these elements and controls together by type—**CONTROLLERS**, **OSCILLATOR BANK**, **MIXER**, **MODIFIERS**, **OUTPUT**—in an intuitive and efficient design. All of these elements are controlled via single-function knobs and switches. And like its modular ancestors, Model D is constructed of independent synthesizer circuits connected by audio pathways and control lines. In place of patch cables, Model D uses color-coded rocker switches to establish connections between these circuit elements, or modules. Orange switches connect modulation sources to their destinations. Blue switches turn audio sources on and off. White switches turn performance features on and off. Black switches select between modulation sources.

Oscillator Bank

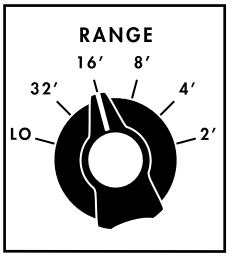


Oscillators are the primary source of sound in an analog synthesizer. The Minimoog Model D **OSCILLATOR BANK** contains three nearly identical Oscillators. This arrangement means each key can sound up to three oscillators—each with its own Waveform, Octave, and Pitch setting—creating a deep or complex sound. The Mixer then controls the balance between the Oscillators.



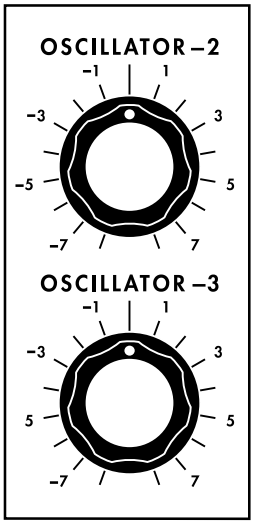
TUNE

The tuning of Oscillator–1 is determined by the master **TUNE** knob, located at the top of the **CONTROLLERS** panel.



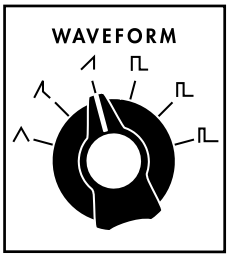
RANGE

The **RANGE** knob selects the fundamental octave for each oscillator over a five-octave range. A sixth **LO** setting brings the pitch down even further, allowing the Oscillator to be used for other purposes, such as a modulation source.



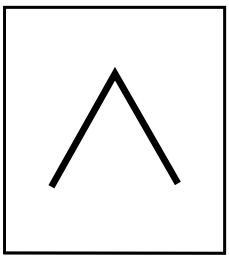
FREQUENCY

Oscillator–2 and Oscillator–3 are each equipped with a **FREQUENCY** knob that can be used to detune the Oscillator from the pitch of Oscillator–1. Slight amounts of detuning can create a rich, chorusing effect. Tuning the Oscillators to an interval (Perfect Fifth above, Perfect Fourth below, etc.) provides a powerful voice for playing lead passages or creating chords.



WAVEFORM

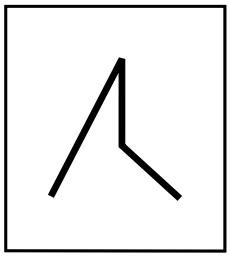
Each of the three Oscillators provides six distinct Waveform shapes. Each waveform has a unique harmonic content that is based on the number and strength of harmonic overtones that it contains. These overtones are what impart a particular timbre to the Oscillator.



TRIANGLE

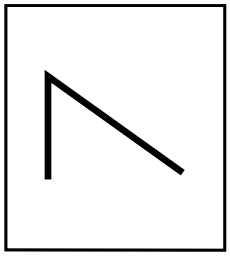
The Triangle wave has an extremely strong fundamental, yet contains only odd-numbered harmonics at very low levels. This makes the Triangle wave an ideal choice for creating soft, flute-like sounds that have a pure tone with little overtone activity.

Oscillator Bank



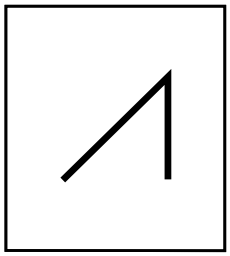
TRIANGLE/SAWTOOTH (OSCILLATOR–1 AND OSCILLATOR–2 ONLY)

This waveform is a hybrid of the Triangle and the Sawtooth waveforms. It contains more harmonic energy than the Triangle wave and adds in some of the even-numbered harmonics, but it is not nearly as brash as the Sawtooth wave. This hybrid waveform can add a little more edge than the Triangle wave alone, allowing it to cut through the mix with a bit more clarity.



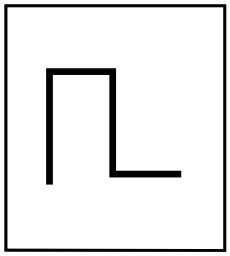
REVERSE SAWTOOTH (OSCILLATOR–3 ONLY)

The Reverse Sawtooth has a sound similar to the regular Sawtooth wave; it is included here primarily as a waveform choice when using Oscillator–3 as a modulation source.



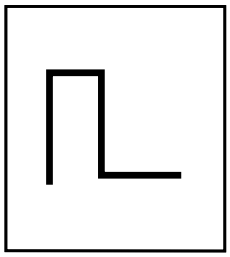
SAWTOOTH

The Sawtooth waveform is the most harmonically dense of the waveforms, containing all of the natural harmonics in relatively strong levels. In addition to creating thick, brassy sounds, the Sawtooth waveform lends itself to powerful lead and bass sounds as well.



PULSE 1/SQUARE

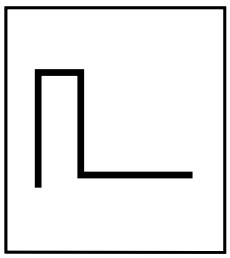
The harmonic content of a Pulse wave is based on the width of the top half of the wave in relation to the bottom half of the wave, also known as the duty-cycle. In the Square wave, the width of these two portions of the wave is equal. As with the Triangle wave, the Pulse 1/Square waveform contains only odd-numbered harmonics, but with greater energy. A Square wave provides a rich starting point for string-like sounds.



PULSE 2/WIDE RECTANGLE

As the Pulse wave changes from Square to Rectangular, even-numbered harmonics are introduced, but the overall harmonic mix is changed. The wide rectangle forms the basis for hollow, reedy sounds.

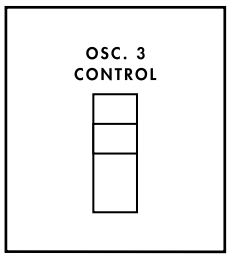
Oscillator Bank



PULSE 3 / NARROW RECTANGLE

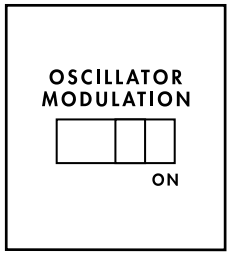
As the Pulse wave continues to get narrower, lower numbered harmonics—both odd and even—are emphasized. The resulting timbre takes on a more nasal tone.

TIP: *Mixing a Triangle wave from one Oscillator with the more complex wave of another Oscillator allows you to emphasize one particular harmonic without adding unwanted overtones. Changing the relative tuning of the Triangle wave Oscillator can enhance this effect.*



OSC. 3 CONTROL

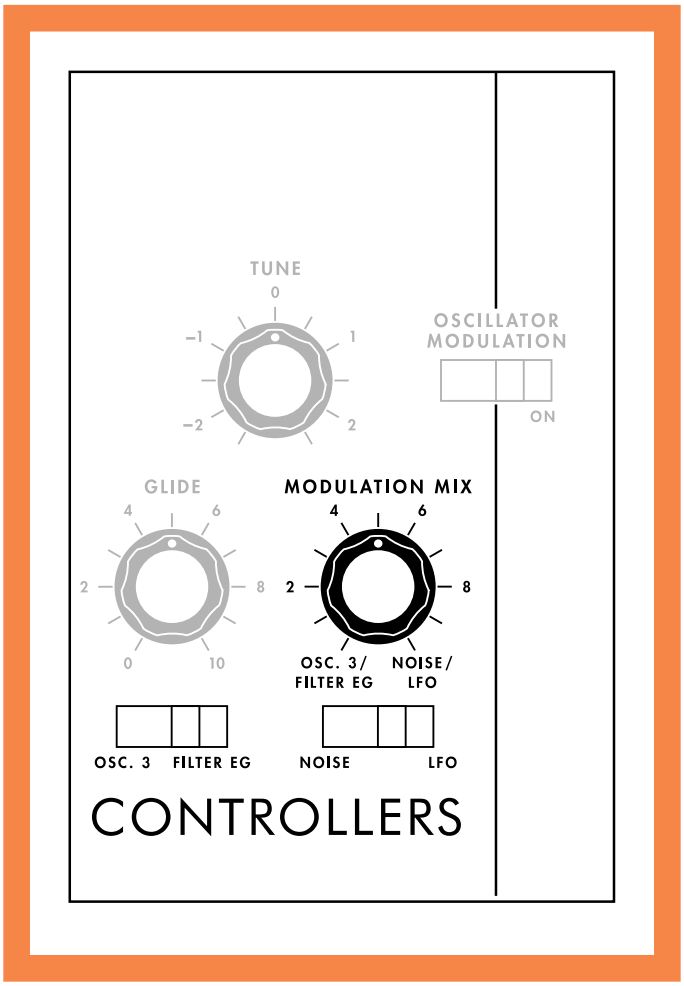
Oscillator–3 is unique. Normally, all Oscillators are controlled directly from the keyboard and Pitch wheel. Turning the orange rocker switch to **OFF** releases **OSCILLATOR–3** from keyboard control, providing a greater range of frequency control and allowing it to run free as a modulation source.



OSCILLATOR MODULATION

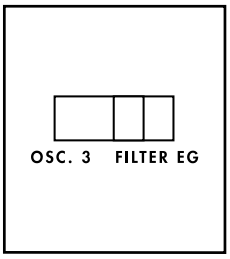
When this switch is set to **ON**, the Oscillators can be modulated by Oscillator 3, Noise, Filter Contour, an External Mod Source, and the LFO (Low Frequency Oscillator) as defined by the **CONTROLLERS** settings and the Modulation Wheel position.

Controllers



Minimoog Model D contains a number of modulation sources that can affect the pitch of the Oscillators or the Cutoff Frequency of the Filter. In this regard, Minimoog Model D has been modified from its original design, and two rocker switches have been added to the **CONTROLLERS** section.

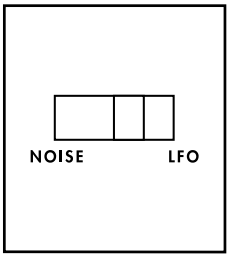
Each switch selects between two modulation sources, while the Modulation Mix knob controls the balance between them. The Modulation Wheel (located on the Left-Hand Keyboard panel) controls the amount of modulation applied to the Oscillators and/or Filter.



OSC. 3/FILTER EG SWITCH

This switch to the bottom left side of the **CONTROLLERS** panel is used to choose the modulation source that will be assigned to the counterclockwise position of the **MODULATION MIX** knob. Originally, this modulation source was fixed to **OSC. 3**, but this updated reissue allows **FILTER EG** to be selected as well.

In the **FILTER EG** position, the shape defined by the **ATTACK TIME, DECAY TIME,** and **SUSTAIN LEVEL** knobs of the Filter Contour are used as a modulation source. Filter EG is an ideal modulation source for creating analog brass and percussion sounds.

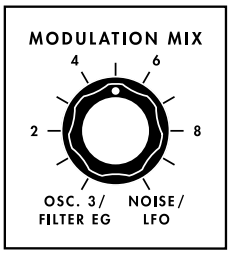


NOISE/LFO SWITCH

This switch to the bottom right side of the **CONTROLLERS** panel is used to choose the modulation source that will be assigned to the clockwise position of the **MODULATION MIX** knob. Originally, this modulation source was fixed to **NOISE**, but this updated reissue allows **LFO** to be selected as well.

The **NOISE** switch located in the mixer selection determines what type of noise is used for modulation. When **WHITE NOISE** is selected, Pink Noise is actually the modulation source. When **PINK NOISE** is selected, Red Noise is actually the modulation source. In the LFO position, the additional LFO located on the Left-Hand Keyboard panel is used as a modulation source. This is ideal for pitch vibrato and trills when all three oscillators are in use.

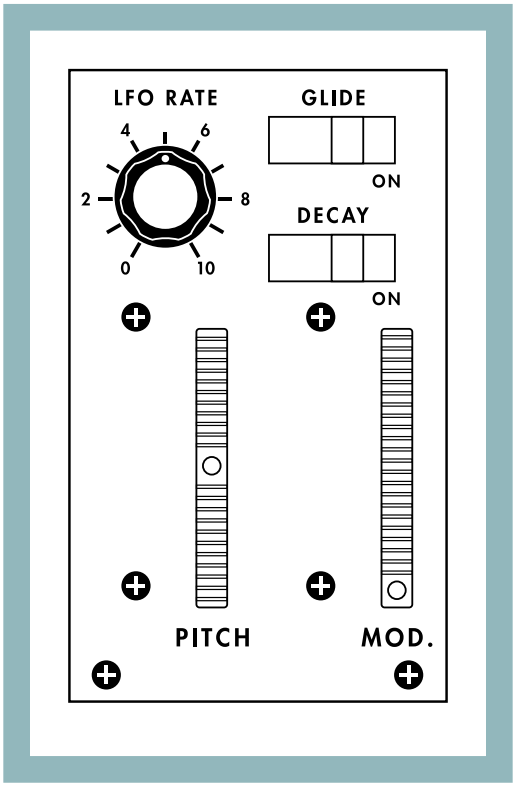
TIP: *The Noise position can also be used to introduce an external modulation source via the* ***MOD. SRC.*** *(Modulation Source) jack on the Top Patch Panel. Inserting a standard 1/4" TS cable into this jack breaks the normalled connection, and any external control voltage can be used as a modulation source. Additionally, if a TRS to TS insert cable is used, the Modulation Noise signal output is made available on the ring/send portion of the cable.*

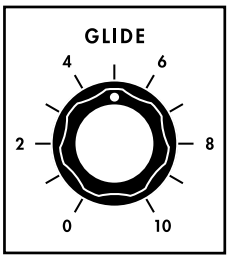


MODULATION MIX

This knob sets the balance between the modulation sources selected using the **OSC. 3/FILTER EG** and **NOISE/LFO** switches. With the **MODULATION MIX** knob rotated fully counterclockwise, only the modulation source selected by the **OSC. 3/FILTER EG** switch is applied. With the **MODULATION MIX** knob rotated fully clockwise, only the modulation source selected by the **NOISE/LFO** switch is applied. In the center position, both selected modulation sources are applied equally.

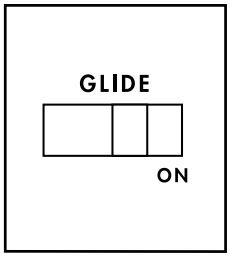
Left-Hand Keyboard Panel





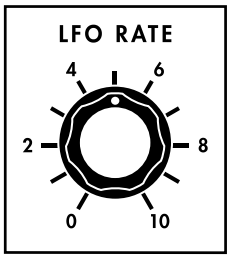
GLIDE KNOB

Located on the **CONTROLLERS** panel, the **GLIDE** knob determines the amount of time needed to transition from one note to the next.



GLIDE SWITCH

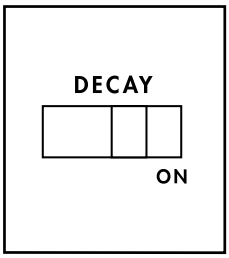
Glide allows the pitch to change in a smooth, continuous manner as you transition from note to note, rather than instantly stepping to the new pitch. This switch turns the Glide effect on and off.



LFO RATE

Located on the Left-Hand Keyboard panel, the **LFO RATE** knob sets the speed for the dedicated LFO (Low Frequency Oscillator) modulation source that has been added to Minimoog Model D. Normally, the LFO uses a Triangle wave.

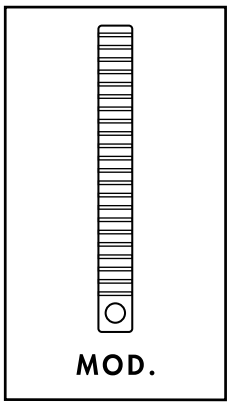
The **LFO RATE** knob is a push/pull knob allowing you to switch the LFO waveshape between triangle and square. Pull up slightly on the **LFO RATE** knob (until you hear a click) to switch the LFO shape to square and push down on the knob to return to triangle.



DECAY SWITCH

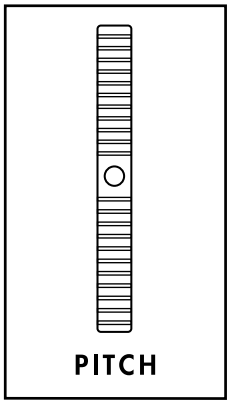
When the **DECAY** switch is **ON**, the last note played will continue to sound as it fades and the Filter Cutoff Frequency will lower at the rate set using the **DECAY TIME** knobs in the **MODIFIERS** section (Page 28).

Left-Hand Keyboard Panel



MOD WHEEL

The **MODULATION** Wheel provides a real-time performance controller that can apply the modulation sources selected using the **OSC. 3/FILTER EG** and **NOISE/LFO** switches, using the mix determined by the **MODULATION MIX** knob. The Oscillator Modulation switch between the **CONTROLLERS** panel and the **OSCILLATOR BANK** must be in the **ON** position to apply modulation to the Oscillator pitch. The **FILTER MODULATION** switch connecting the **CONTROLLER** panel and the Filter must be in the **ON** position to apply modulation to the Filter Cutoff Frequency. The zero position for the Mod Wheel is all the way down, as illustrated.

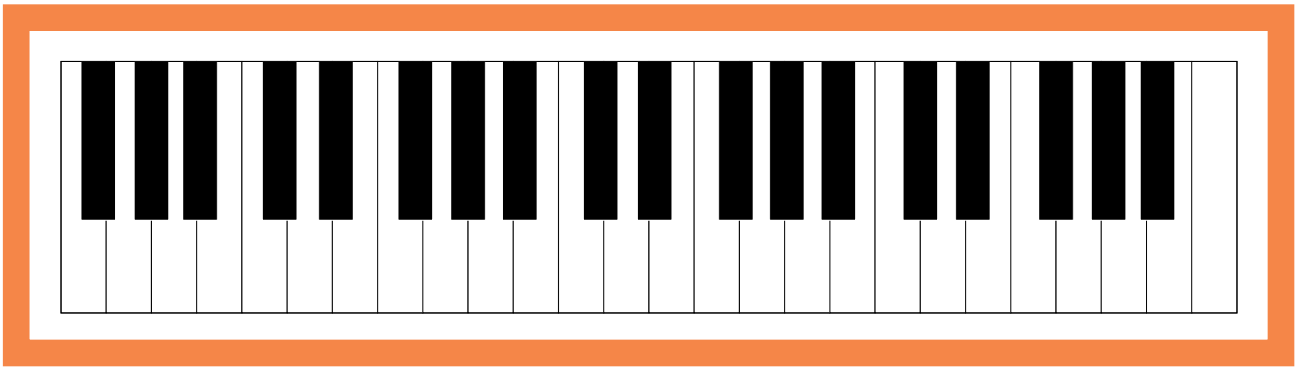


PITCH WHEEL

Located next to the **MODULATION** Wheel, the **PITCH** Wheel provides a real-time performance controller for bending the pitch of the Oscillators—in the way that a guitarist may bend a string or a sax player may bend the reed to alter the pitch of a note. The zero position for the **PITCH** Wheel is in the center, allowing the pitch to be bent either sharp or flat. The **PITCH** Wheel will go up a fifth in its maximum position and down a fifth in its minimum position.

NOTE: *The **PITCH** Wheel on Minimoog Model D is now spring-loaded and will return to center on release.*

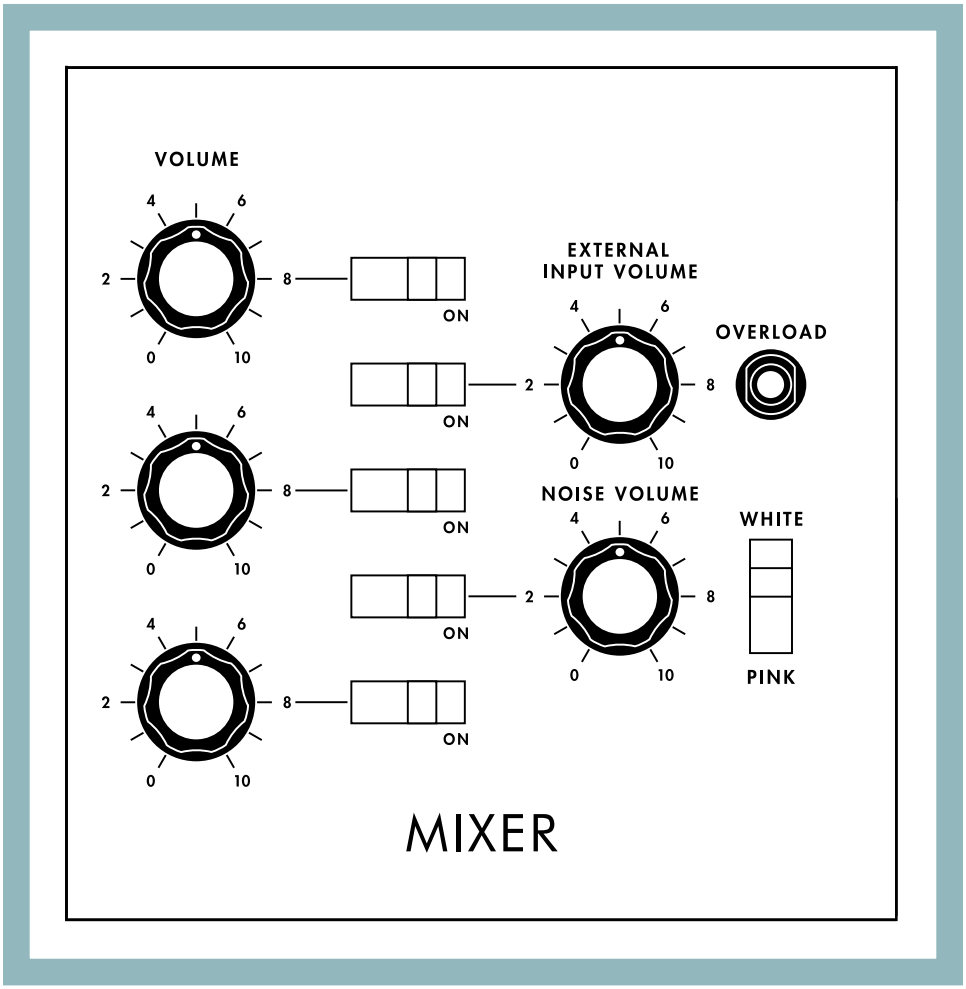
Keyboard



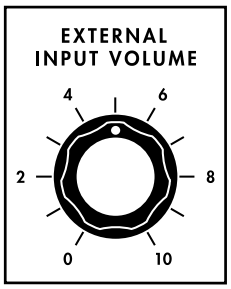
The keyboard of Minimoog Model D features 44 keys, or three and a half octaves, from F to C. Playing a note will transmit control voltage information to the Oscillators, Keyboard Tracking information to the Filter, and will trigger both of the Contour Generators. The original keyboards used on Minimoog Model D in the 1970s have long since vanished, so a new Fatar TP-9 keyboard is used. This new keybed introduces features that have long been desired by Minimoog Model D owners, without compromising the integrity of the instrument. The keyboard can now transmit MIDI information, generate a Velocity control voltage signal and also an After Pressure control voltage signal. These additional control signals are available as CV outputs on the Top Patch Panel in addition to analog Pitch CV and Gate outputs.

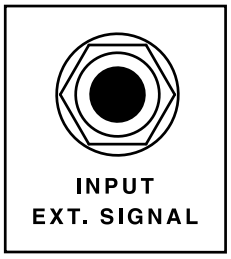
TIP: *Using Power-On Commands, the performance of the keyboard can be customized. For example, traditionally Minimoog Model D used Low-Note Priority; this can now be set to Last-Note priority. To learn more about Power-On commands, go to page 46 of this manual (Global Settings).*

Mixer & Noise



The Mixer sets the levels of all five of the Minimoog Model D audio sources—3 Oscillators, Noise Generator, and External Audio Input. The combined output of the Mixer next passes through the Filter and finally arrives at the audio output. In addition to a dedicated Volume knob, each audio source also includes an On/Off switch. These switches allow any source to be quickly removed from the mix while preserving their Volume knob position, and can also be useful when setting the tuning of each Oscillator. The Oscillators are somewhat self-explanatory in regard to the Mixer. The External Input Volume and the Noise Generator require some extra explanation.



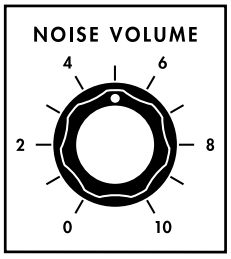


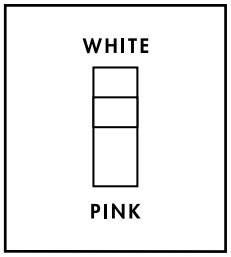
EXTERNAL INPUT VOLUME

An external audio source can be introduced to Minimoog Model D using the **EXT. INPUT SIGNAL** jack located on the Top Patch Panel. The Volume of the external signal is controlled using this knob.

If no cable is connected to the **EXT. INPUT SIGNAL** jack, the main audio output of Minimoog Model D is attenuated slightly and then normalled to the External Input signal path. In this case, the Main Output signal is sent back to the input of the mixer. By increasing the External Input volume far enough, the Mixer can overload, introducing varying levels of overdrive or distortion. When this occurs, the Overload indicator lamp will light. In this case, the External Input Volume control is post Main Output volume. This means that the **MAIN OUTPUT VOLUME** knob will affect the amount of overload in addition to the **EXTERNAL INPUT VOLUME** knob.

CRITICAL NOTE: *With no cable connected to the* ***EXT. INPUT SIGNAL*** *jack, and the* ***EXTERNAL INPUT VOLUME*** *and* ***MAIN OUTPUT VOLUME*** *controls turned all the way up, it is possible to overload the mixer to the point that only one sound is heard and different pitches do not sound. This will not damage the instrument.*



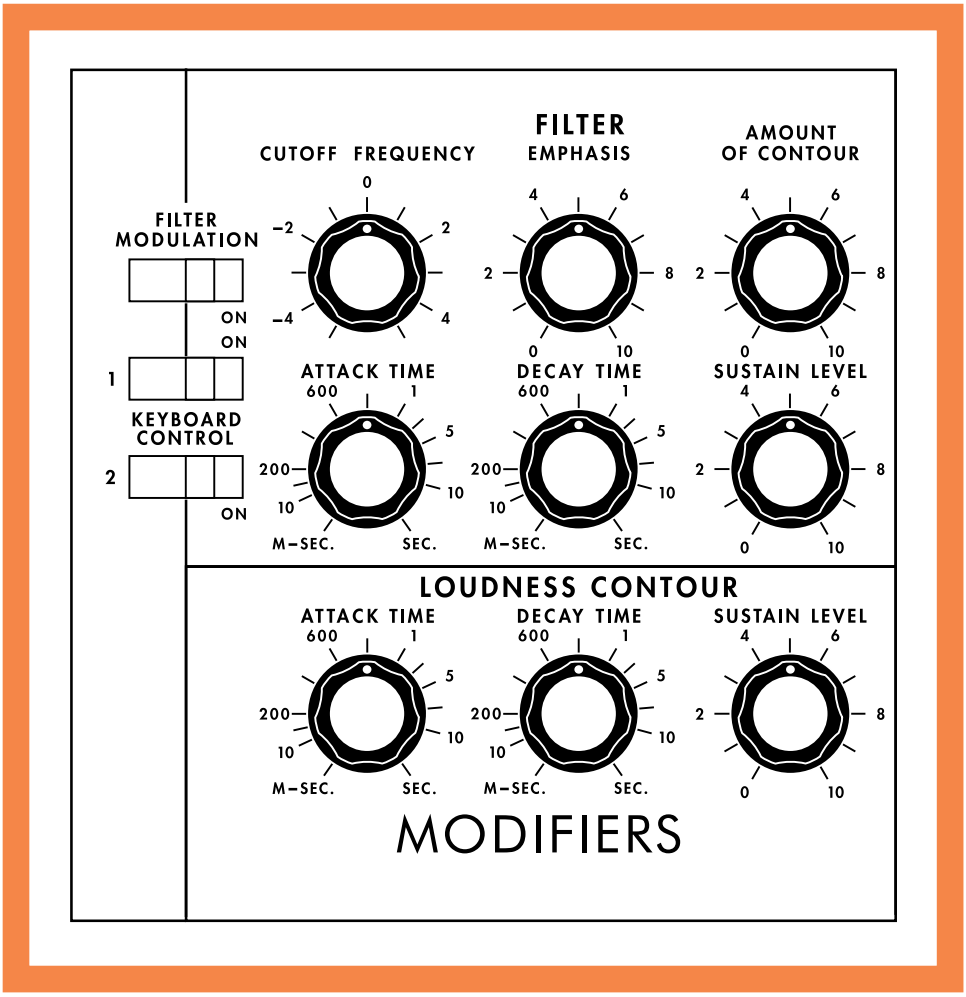


NOISE

Noise can be a very desirable sound source—either alone or mixed in with other sources. It can be used to create anything from a rocket launch to the subtle breath of a flute sound.

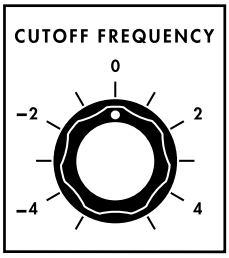
In addition to the **NOISE VOLUME** knob, there is a switch for selecting either **WHITE** or **PINK** noise. White Noise contains equal energy per frequency. Pink Noise contains equal energy per octave of the audio spectrum, and is perceived as having more low-frequency components. If you think of White Noise as TV static, consider Pink Noise more as a waterfall pounding the rocks below.

Modifiers



The **MODIFIERS** Panel contains three separate sections: **FILTER, FILTER CONTOUR,** and **LOUDNESS CONTOUR**. The Filter selectively modifies the harmonic content of the sound. The Contour controls, also known as Envelope Generators, provide a control signal that changes over time. The **FILTER CONTOUR** controls the Filter's Cutoff Frequency over time. The **LOUDNESS CONTOUR** controls the output volume level over time.

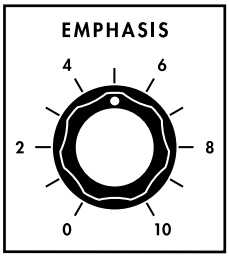
FILTER CONTROLS



CUTOFF FREQUENCY KNOB

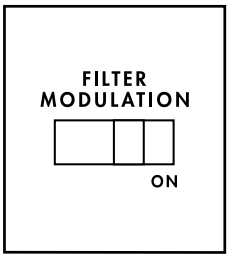
Minimoog Model D is equipped with a traditional Moog Ladder Filter with 10Hz-32kHz frequency response. This is a critical component to the thick, punchy, and powerful Minimoog Model D sound. When a note is played, harmonic content occurring above the filter Cutoff Frequency is reduced by the filter at a rate of 24dB/Octave. Harmonic content, or sound, below the filter Cutoff Frequency will freely pass unaffected.

This is the foundation of subtractive analog synthesis. While the Cutoff Frequency can be set manually using the Cutoff Frequency knob, the value is also affected by the Keyboard Control switches, Filter Modulation switch, Filter Contour controls, and the Amount of Contour knob, which are discussed below. When closing the filter by lowering the Cutoff Frequency, the sound will be perceived as growing darker, while increasing the Filter's Cutoff Frequency will create a progressively brighter sound.



EMPHASIS KNOB

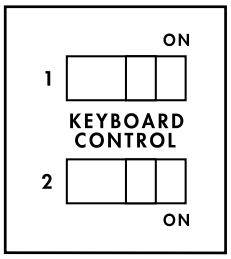
Often referred to as resonance, the Emphasis knob takes a portion of the output of the Filter and sends it back to the input of the Filter, creating a resonance peak that occurs at the Filter's Cutoff Frequency. By turning the Emphasis control up and lowering the Filter Cutoff Frequency, the Filter can be coaxed into a self-oscillating state, acting as a sine-wave oscillator whose pitch can be controlled or played via the keyboard by using the Keyboard Control switches defined below.



FILTER MODULATION SWITCH

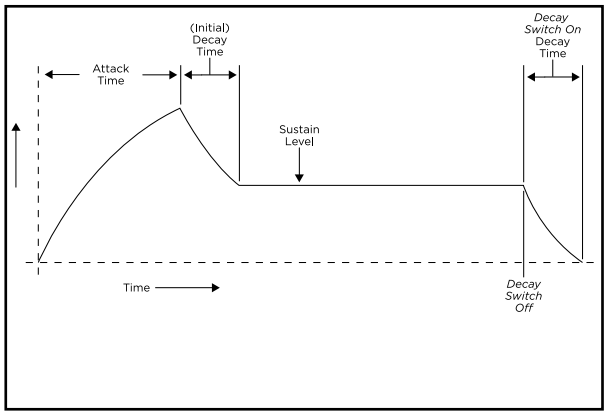
When this switch is on, the Filter Cutoff Frequency can be modulated by the Noise Generator, Filter Contour, Oscillator 3, and LFO (Low Frequency Oscillator). The modulation source and amount are defined by the **CONTROLLERS** settings and the Modulation Wheel position.

Modifiers



KEYBOARD CONTROL (1&2) SWITCHES

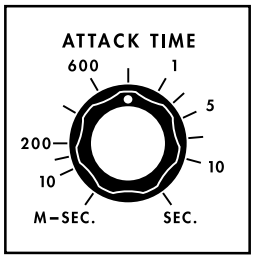
The Keyboard Control switches allow the note played on the keyboard of Minimoog Model D to affect the Filter Cutoff Frequency, a process also known as key tracking. This allows notes played higher on the keyboard to have brighter sound. Keyboard Control 1 provides 1/3 of the total amount of available key tracking. Keyboard Control 2 provides 2/3 of the total amount of available key tracking. By using both switches together, the full amount of available key tracking (1/3 + 2/3 = 1) is applied, resulting in an octave change in filter cutoff per octave change played on the keyboard.



CONTOUR CONTROLS

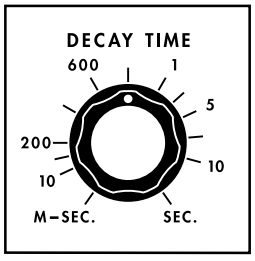
Contour controls provide a way to add articulation to the sound of the synthesizer. Minimoog Model D features two Contour controls, or Envelope Generators. One provides a signal to change the Filter Cutoff Frequency over time. The other provides a signal to change the Loudness over time. In both cases, the Contour contains three main controls: **ATTACK TIME**, **DECAY TIME**, and **SUSTAIN LEVEL**.

FILTER CONTOUR



ATTACK TIME KNOB

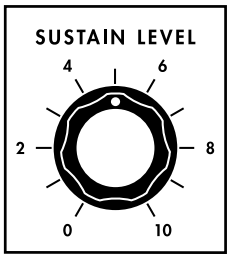
The Attack Time knob sets the time required for the Filter Contour Generator to raise the Filter's Cutoff Frequency from its manual setting to its maximum level (determined by the Amount of Contour knob) once a key is pressed or after a gate is received.



DECAY TIME KNOB

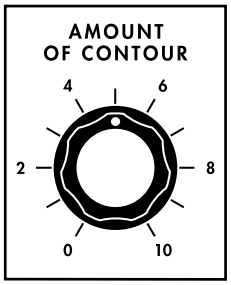
The Decay Time knob sets the time required for the Filter Contour Generator to lower the Filter's Cutoff Frequency from the level achieved by the Attack stage to the Sustain Level. The Decay Time knob can also control the amount of time required for the Filter to return to its manual setting after the key is released (or after an external gate signal ends). This second function of the Decay Time knob is activated by the **DECAY** switch on the Left-Hand Keyboard.

Modifiers



SUSTAIN LEVEL KNOB

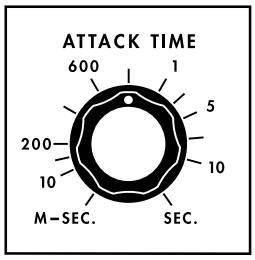
After the Attack and Decay stages have been completed, the Filter Contour Generator will hold the Filter's Cutoff Frequency at the level determined by the Sustain Level knob for as long as a note is held.



AMOUNT OF CONTOUR KNOB

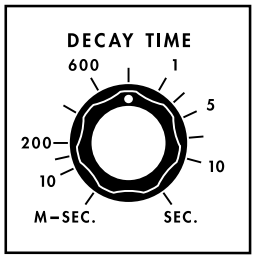
The Amount of Contour knob determines how much of the control signal created by the Filter Contour will be applied to change the Filter Cutoff Frequency over time.

LOUDNESS CONTOUR



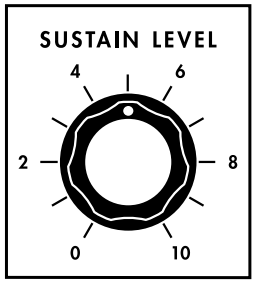
ATTACK TIME KNOB

The Attack Time knob sets the time required for the Loudness Contour Generator to raise the Volume from zero to its maximum level once a key is pressed or after a gate is received.



DECAY TIME KNOB

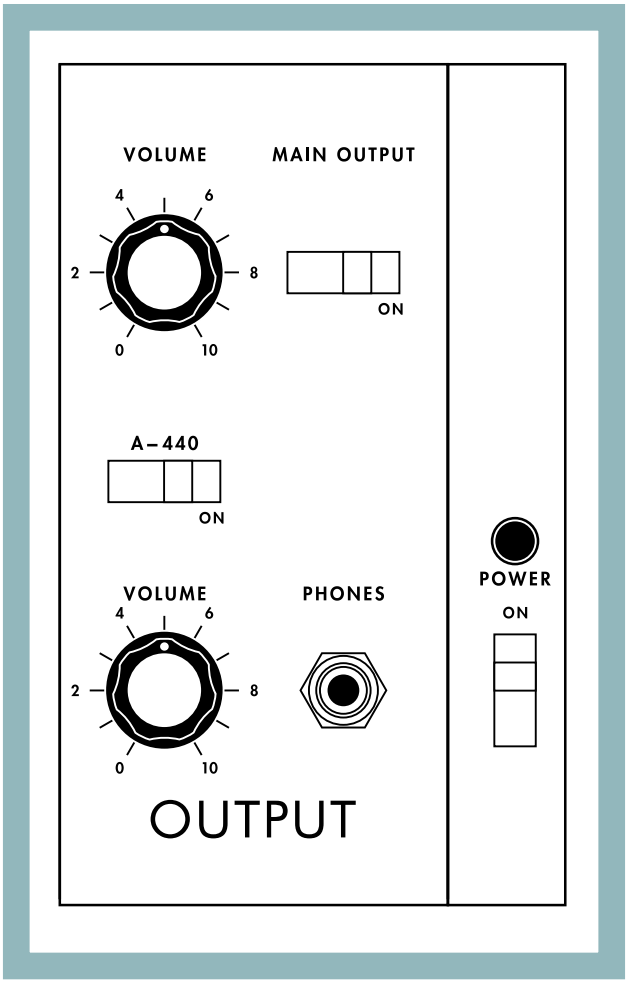
The Decay Time knob sets the time required for the Loudness Contour Generator to lower the Volume from its maximum level achieved by the Attack stage to the Sustain Level. The Decay Time knob can also control the amount of time required for the note to completely fade out after a key is released (or after an external gate signal ends). This second function of the Decay Time knob is activated by the **DECAY** switch, located on the Left-Hand Keyboard Panel.



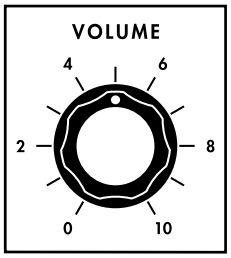
SUSTAIN LEVEL KNOB

After the Attack and Decay stages have been completed, the Loudness Contour Generator will maintain the Volume level determined by the Sustain Level knob for as long as a note is held.

Output



The **OUTPUT** section is divided into three functions: **MAIN OUTPUT**, **PHONES OUTPUT**, and the **A-440** Reference Tuner. The **MAIN OUTPUT** and the **PHONES OUTPUT** feature independent Volume controls. The Main Output also offers an On/Off switch.

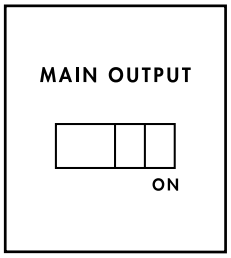


MAIN OUTPUT VOLUME KNOB

The Main Output Volume knob determines the signal level being sent to the High and Low audio outputs on the Top Patch Panel.

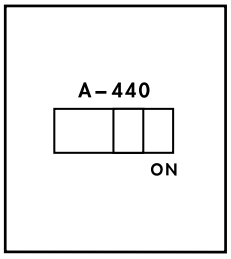
NOTE: *The Low output signal is 30dB lower than the High level output.*

NOTE: *The scaling of overdrive is directly related to the* ***Main Output Volume*** *knob. Because of this, it is ideal to keep the* ***Main Output Volume*** *knob at or below 6 for the most musical range of overdrive control via the* ***External Input Volume*** *knob.*



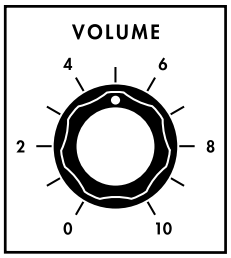
MAIN OUTPUT SWITCH

This switch can quickly mute the Main Output of the instrument without having to dial the Volume down to zero and then reset it to a nominal level. Muting the Main Output allows a performer to use the Phones Output as a cue/monitor for privately tweaking settings during a live performance.



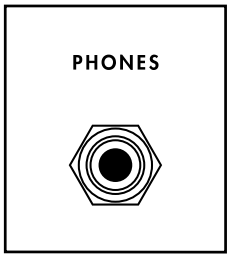
A-440 TUNER SWITCH

A reference tuner pitched at A-440Hz is built into Minimoog Model D. The reference tone is sent to both the Main Output and the Phones Output. The Tuner provides a convenient way to keep all of the oscillators in tune, at all times.



PHONES VOLUME KNOB

The Phones Volume knob determines the signal level being sent to the Phones jack. This knob operates independent of the Main Output Volume knob.



PHONES JACK

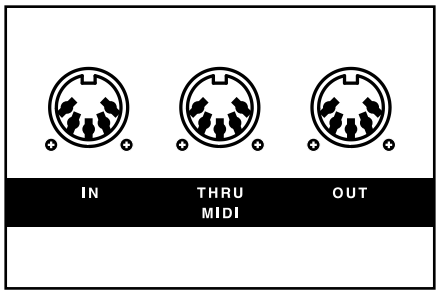
Even though Minimoog Model D is monophonic, the Phones jack is a 1/4” TRS Stereo jack, delivering the same signal to both ears.

TIP: *Mute the Main Output and use a pair of headphones to monitor Minimoog Model D in order to prepare the next sound or to check the tuning.*

Top Patch Panel

While not a modular synthesizer, Minimoog Model D features an enhanced Patch Panel to interface with other analog synthesizers and musical equipment via Control Voltage, Trigger signals, and MIDI. This Patch Panel also expands the expressive performance capabilities of Minimoog Model D itself. The Patch Panel is located along the top edge of the synthesizer.

MIDI PORTS



MIDI IN

Minimoog Model D can receive MIDI Note, Velocity, and Pitch Bend information. It now includes mod-wheel MIDI support: CC #1 (MSB or Most Significant Byte) and CC #33 (LSB or Least Significant Byte).

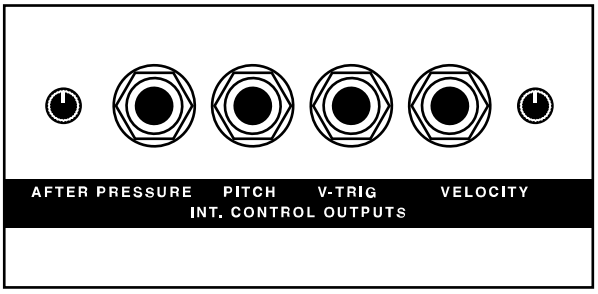
MIDI THRU

This jack rebroadcasts the signal arriving at the **MIDI IN** jack and passes it along to other MIDI equipment.

MIDI OUT

Minimoog Model D can send MIDI Note, Velocity, and Pitch Bend information Mod Wheel information, as well as Aftertouch.

CONTROL OUTPUTS



AFTER PRESSURE OUT (AFTERTOUCH)

This jack sends a 0 to +5V control voltage signal based on the After Pressure that is generated by pressing down further on a key that is already being held down on the keyboard. There is a small trimpot located adjacent to this jack that is used for attenuating the level of the After Pressure control voltage signal.

PITCH OUT

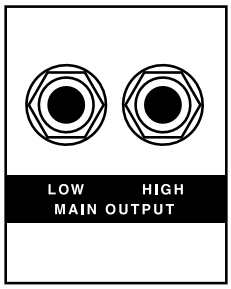
This jack sends a 1V/Octave control voltage signal based on the Pitch of the note being played on the keyboard summed with the output of the **PITCH** Wheel. The default setting is for the key C0 to generate zero volts; however, this note is not accessible from the keyboard itself. Using the Pitch CV Zero Volt Power On Command (Global Settings), you can specify a particular key to have a control voltage value of zero volts.

Top Patch Panel

V-TRIG OUT
This 1/4” jack sends a +5V Trigger signal each time a note is played. It uses a standard V-Trigger connector in place of the S-Trigger and Cinch-Jones hardware used on the original Minimoog Model D.

VELOCITY OUT
This jack sends a 0 to +5V (by default) control voltage signal based on the Velocity used to play a note on the keyboard. There is a small trimpot located adjacent to this jack that is used for attenuating the level of the Velocity control voltage signal.

AUDIO OUTPUTS

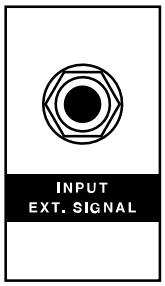


There are two main audio outputs: **LOW** level and **HIGH** level.

MAIN OUTPUT LOW JACK
This is the most commonly used output for connecting to guitar amplifiers, DI inputs on a preamplifier, etc.

MAIN OUTPUT HIGH JACK
This is the most commonly used output for connecting to the line input of a mixer, audio interface, keyboard amplifier etc.

AUDIO INPUT
An external audio source can be introduced into Minimoog Model D via this input jack. The signal appears at the **EXTERNAL INPUT** switch and **VOLUME** knob in the **MIXER** panel. This allows an external audio signal to be processed, gated, and filtered by Minimoog Model D.

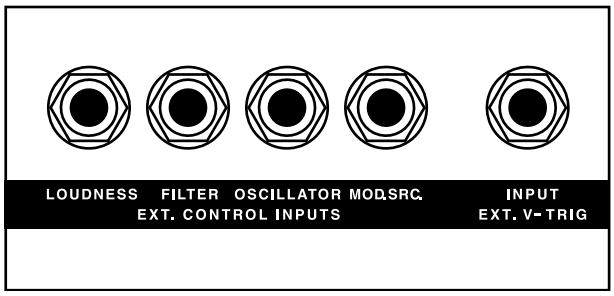


EXT. SIGNAL INPUT JACK
Connect the audio output cable from your external sound source to this input jack. If no cable is connected here, the output of Minimoog Model D is attenuated and then normalled to the External Input signal path. In this case, increasing the level of the **EXTERNAL INPUT VOLUME** knob on the **MIXER** panel will reintroduce the output signal of the instrument back to the input of the mixer. By increasing the External Input volume far enough, the Mixer can overload, introducing varying levels of overdrive or distortion. When this occurs, the **OVERLOAD** indicator lamp will light, regardless of whether or not the **EXTERNAL INPUT** switch is set to **ON** or **OFF**.

NOTE: *The scaling of overdrive is directly related to the* ***Main Output Volume*** *knob. Because of this, it is ideal to keep the* ***Main Output Volume*** *knob at or below 6 for the most musical range of overdrive control via the* ***External Input Volume*** *knob.*

Top Patch Panel

CONTROL INPUTS



LOUDNESS INPUT

A 0 to +5 volt control voltage signal connected to this input jack will affect the overall level of the Loudness Contour.

FILTER INPUT

A 0 to +5 volt control voltage signal connected to this input jack will affect the Cutoff Frequency of the Filter.

OSCILLATOR INPUT

A 1 V/Octave additive control voltage signal connected to this input jack will affect the pitch of the Oscillators.

NOTE: *The* ***Oscillator***, ***Loudness***, *and* ***Filter*** *input jacks are equipped with TRS (Tip/Ring/Sleeve) connectors with a current-limited +5V on the ring. This allows each parameter to be controlled via control voltage signal or from a Moog EP-3 expression pedal.*

MOD. SRC. INPUT

A varying control voltage signal connected to this input jack can be used as a modulation source. Inserting a standard 1/4" cable into this jack breaks the normalled connection of the Noise modulation source, and any external control voltage applied will take its place. With no cable connected, this jack remains normalled, connecting the Noise send to the **MOD. SRC.** input, and **NOISE** can be selected as a modulation source.

TIP: *This jack is equipped with a TRS (Tip/Ring/Sleeve) connector, which allows it to also function as a send for the Noise Generator. With* ***WHITE NOISE*** *selected, the modulation source becomes Pink Noise. With* ***PINK NOISE*** *selected, the modulation source becomes Red Noise.*

EXT. V-TRIG INPUT

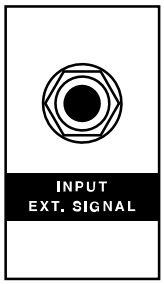
This 1/4" jack can receive a standard V-Trigger from other electronic instruments. It uses a standard V-Trigger connector in place of the S-Trigger and Cinch-Jones connector used on the original Minimoog Model D. A trigger signal received here will cause the Contour Generators to fire and will act as a keyboard gate.

Performance Tips & Techniques

Even with its streamlined control panel, Minimoog Model D remains a deep and versatile instrument for audio synthesis. Here are just a few examples of how Minimoog Model D may be used in interesting and perhaps unexpected ways.

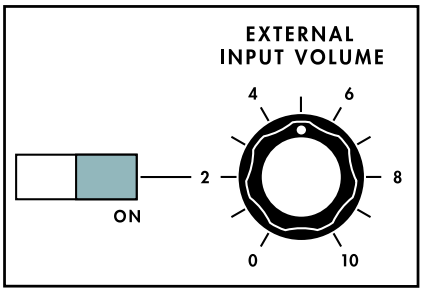
PROCESSING EXTERNAL AUDIO

Using a Moog Ladder Filter to process external sounds can lead to extremely creative explorations. Try filtering another keyboard, a guitar, found sounds, etc.



STEP 1

Connect the external audio source to Minimoog Model D via the **EXT. SIGNAL INPUT** jack on the Top Patch Panel. (The level is set using the **EXTERNAL INPUT VOLUME** knob on the **MIXER** panel.)

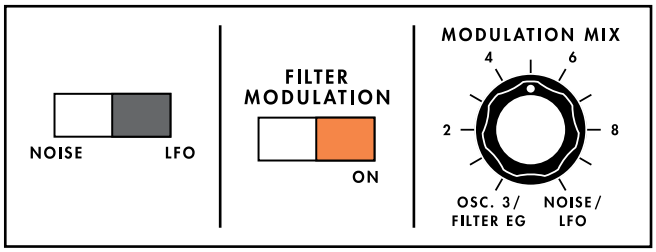


STEP 2

Be sure the blue rocker switch for the **EXTERNAL INPUT VOLUME** is **ON**. For now, set the other blue rocker switches to **OFF** so that you can isolate the external signal.

STEP 3

In order to hear the signal being filtered, the Contour Generators need to be triggered. This can be done by touching the keyboard, or by using an external trigger from a drum machine, additional synthesizer, etc.



STEP 4

Using the Modulation Wheel can introduce more complex filtering effects. For example, set the black **NOISE/LFO** rocker switch to **LFO**, set the orange **FILTER MODULATION** switch to **ON**, and rotate the **MODULATION MIX** knob fully clockwise.

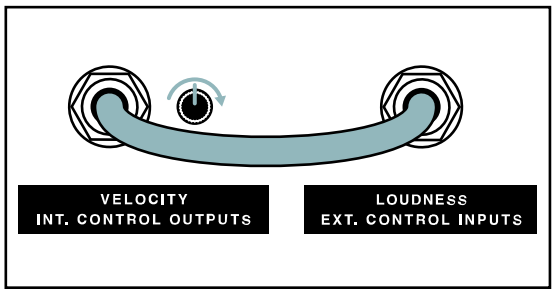
Performance Tips & Techniques

STEP 5
Next, pull up slightly on the **LFO RATE** knob to select a square wave. The **LFO RATE** knob is a push/pull knob allowing you to switch the LFO waveshape between triangle and square. Pulling up on the **LFO RATE** knob switches the LFO shape to square and pushing down on the knob returns it to triangle.

STEP 6
Finally, as the external source is playing, hold down any note on the keyboard and push the **MODULATION** Wheel forward to create a pulsed filter effect. Adjust the **LFO RATE**, **FILTER CUTOFF FREQUENCY**, and **EMPHASIS** knobs accordingly.

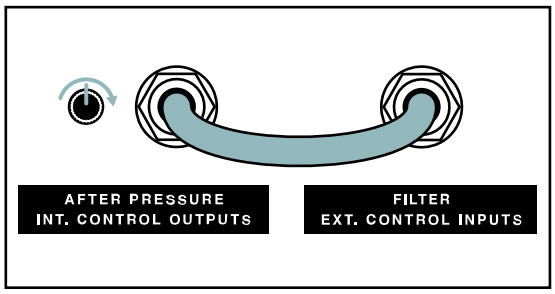
ENHANCING A KEYBOARD PERFORMANCE

In this example, the expressive capabilities of the Minimoog Model D keyboard are enhanced by adding Velocity control to the volume and After Pressure control to the filter brightness.



STEP 1
Connect a 1/4” TS to 1/4” TS instrument cable from the **VELOCITY** Control Output to the **LOUDNESS** Ext. Control Input.

Now, the velocity with which a note is played will affect the Loudness, or output volume, of the Model D. Use the adjustable trimpot adjacent to the **VELOCITY INT.** Control Output to determine the amount of velocity control.



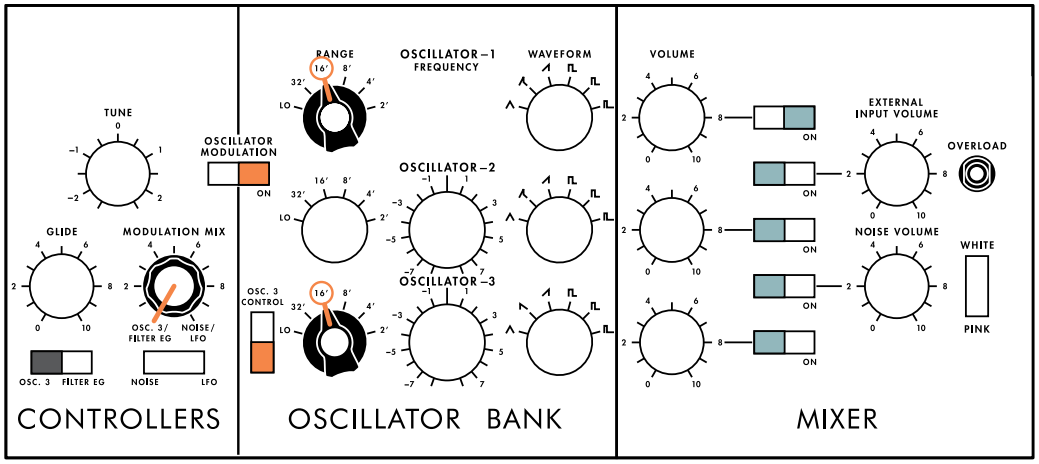
STEP 2
Next, connect a 1/4” TS to 1/4” TS instrument cable from the **AFTER PRESSURE** Control Output to the **FILTER EXT** Control Input.

By applying small amounts of pressure to a key while holding a note, the Filter Cutoff Frequency will change, allowing the note to appear brighter in tone or timbre. Use the adjustable trimpot adjacent to the **AFTER PRESSURE** Control Output to determine the amount of After Pressure control.

Performance Tips & Techniques

CREATING FM EFFECTS

Often when we think of Modulation, we are thinking of adding a slow, cyclic change in pitch, filter brightness, etc. Minimoog Model D also allows one audio oscillator to modulate another, creating interesting Frequency Modulation effects.



STEP 1

Set the **OSCILLATOR MODULATION** rocker switch to **ON** to enable frequency modulation of the Oscillators via the modulation bus.

STEP 2

Set **OSCILLATOR–1** to the **16'** or **8'** Range.

STEP 3

Set **OSCILLATOR–3** to the **16'** or **8'** Range.

STEP 4

Isolate **OSCILLATOR–3** from keyboard control by setting the orange **OSC. 3 CONTROL** rocker switch to **OFF.**

STEP 5

In the **CONTROLLERS** section, set the black **OSC. 3/FILTER EG** rocker switch to **OSC. 3** and rotate the **MODULATION MIX** knob fully counterclockwise.

STEP 6

Turn off all audio sources to the **MIXER** panel—except **OSCILLATOR–1**—using the blue rocker switches.

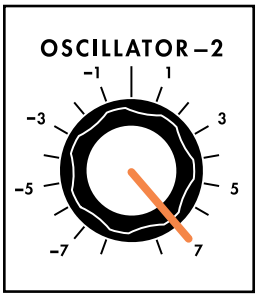
STEP 7

Hold any note on the keyboard, and use the **MODULATION** Wheel to apply Frequency Modulation to Oscillator–1 using Oscillator–3. The FM effect can be controlled by the position of the Modulation Wheel, as well as the Range, Frequency, and Waveform settings of Oscillator–3.

Performance Tips & Techniques

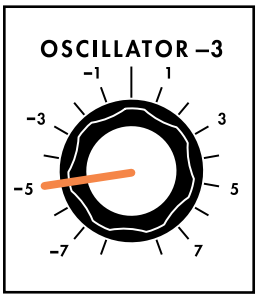
CREATIVE SWITCHING

With a little forethought, the blue and orange rocker switches on Minimoog Model D can be used to quickly introduce new elements to your performance. For example, by tuning **OSCILLATOR–2** and **OSCILLATOR–3** to specific intervals in regard to **OSCILLATOR–1**, extra harmonies or chords can be added to your performance as you play.



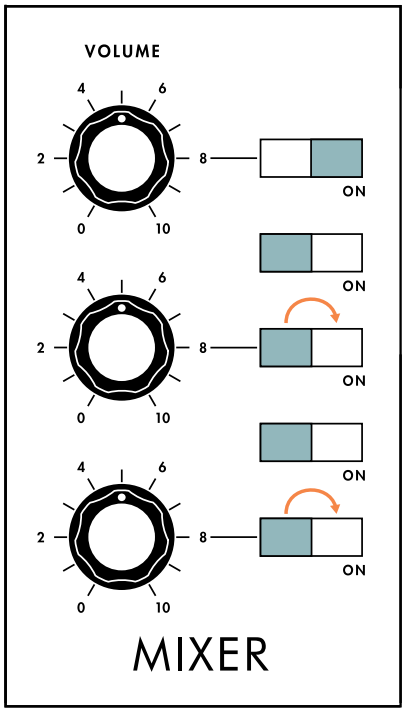
STEP 1

Tune **OSCILLATOR-2** to a Perfect Fifth (7 semitones) above **OSCILLATOR-1**.



STEP 2

Tune **OSCILLATOR–3** to a Perfect Fourth (-5 semitones) below **OSCILLATOR–1**.



STEP 3

In the **MIXER** panel, use the blue rocker switches to turn **OSCILLATOR–1 ON**, and **OSCILLATOR–2** and **OSCILLATOR–3 OFF.**

STEP 4

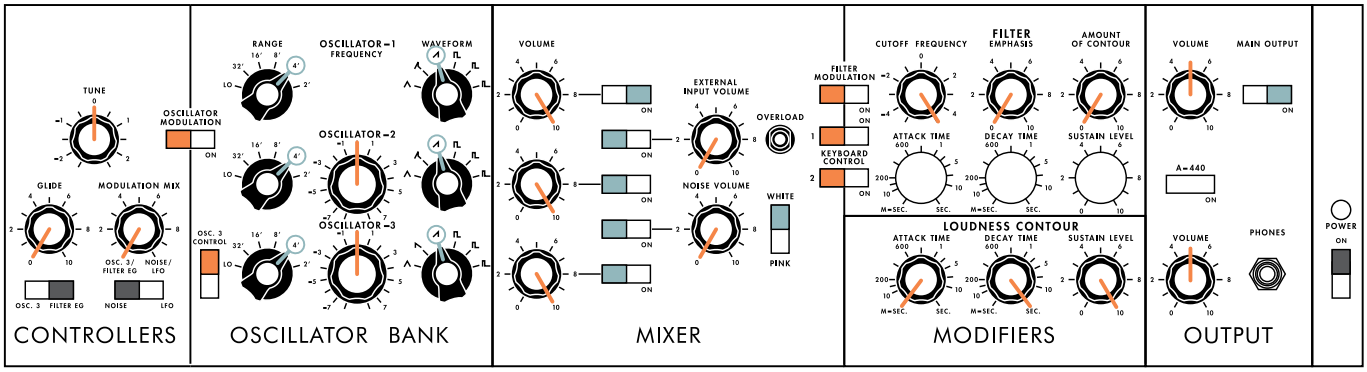
Now, as you play a lead, you can switch the blue **OSCILLATOR–2** and **OSCILLATOR–3** rocker switches **ON** to instantly add a parallel harmony voice.

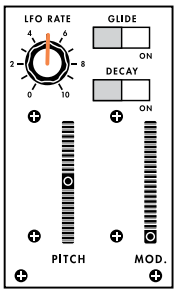
Oscillator Tuning Procedure

From time to time the analog circuitry in your Minimoog Model D may require tuning to ensure peak performance. This tuning procedure should only be performed by a qualified technician. Please follow the procedure carefully and complete each step before advancing to the next step.

***WARNING:** Before tuning your Minimoog Model D, you **MUST** first perform the Global Reset procedure. To perform the Global Reset, which returns Minimoog Model D back to the factory settings, hold the lowest four white keys—**F0**, **G0**, **A0**, **B0**—while turning on power.*

To begin the tuning procedure, match your instrument setting to those shown in the illustration.





Notes:

Match these front panel settings before attempting the tuning procedure.

Place the front panel controls in the following positions:

TUNE: Centered
GLIDE: Fully CCW
MODULATION MIX: Fully CCW
OSC 1 OCTAVE: 4’
OSC 1 WAVEFORM: Sawtooth
OSC 2 OCTAVE: 4’
OSC 2 TUNE: Centered
OSC 2 WAVEFORM: Sawtooth
OSC 3 OCTAVE: 4’
OSC 3 TUNE: Centered
OSC 3 WAVEFORM: Sawtooth
OSC 1 VOLUME: 10
EXTERNAL SIGNAL VOLUME: 0
OSC 2 VOLUME: 10
NOISE VOLUME: 0
OSC 3 VOLUME: 10

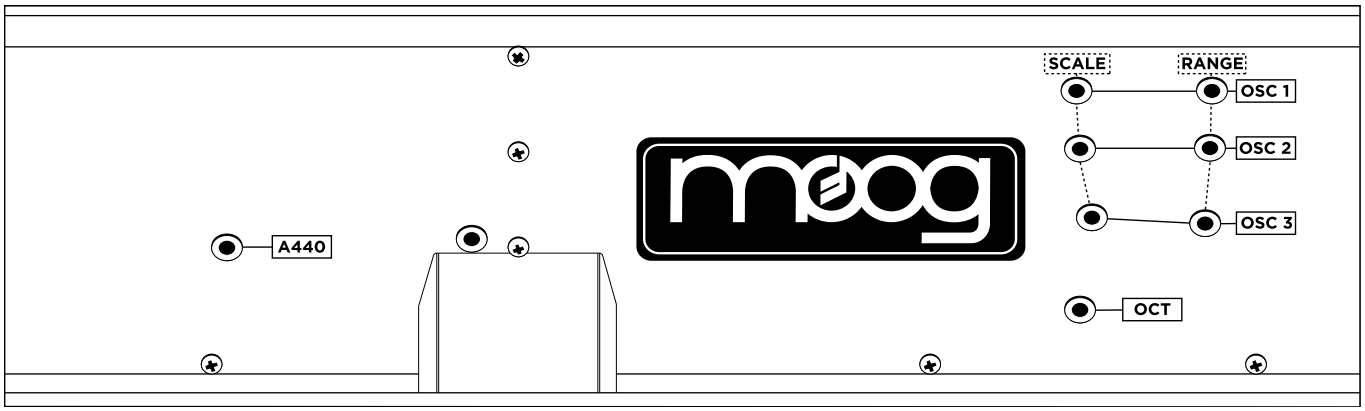
Place the front panel switches in the following positions:

OSC 3 CTRL: ON (Up position)
OSC 1 VOLUME: ON
EXTERNAL INPUT: OFF
OSC 2 VOLUME: OFF
NOISE VOLUME: OFF
OSC 3 VOLUME: OFF

Place the LHC controls in the following positions:

PITCH WHEEL: Centered
MODULATION WHEEL: Down
GLIDE: OFF
DECAY: OFF

Oscillator Tuning Procedure



OSC 1 RANGE AND SCALE BOARD 1

The following procedure uses headphones for the oscillator tuning. An audio amplification system can be used for this instead of the headphones.

NOTE: *Periodically check the tuning of the A-440 tuner. If it is out of tune, simply use the A-440 trimpot to adjust its tuning.*

1. Set the **A-440** switch to the **ON** position.
2. Set the Filter **CUTOFF FREQUENCY** control to the maximum position.
3. Set the Filter **EMPHASIS** control to the minimum position.
4. Set the **LOUDNESS CONTOUR SUSTAIN LEVEL** and **DECAY TIME** controls to their maximum positions.
5. Depress the **HIGHEST "A" KEY** on the keyboard, and adjust the **OSC 1 RANGE** trimpot for zero beats.
6. Depress the **LOWEST "A" KEY** on the keyboard, and adjust the **OSC 1 SCALE** trimpot for zero beats.
7. Repeat steps 5 and 6 above until there are zero beats against the A-440 tone. Note that this process may take several iterations.
8. Set the **A-440** switch to the **OFF** position, but keep **OSC 1** on.

OCT TRIM BOARD 1

1. Set the **OSCILLATOR-1 RANGE** rotary control to the **4'** position.
2. Set the **OSCILLATOR-2 RANGE** rotary control to the **4'** position.
3. Set the **OSCILLATOR-2 VOLUME** switch to the **ON** position.
4. Depress the **HIGHEST "A" KEY** on the keyboard and hold.
5. Tune **OSCILLATOR-2** to **OSCILLATOR-1** with zero beats.
6. Set the **OSCILLATOR-1 RANGE** rotary switch to the **16'** position.
7. Adjust the **OCT** Trim trimpot for zero beats.
8. Repeat as needed until both oscillators are in tune with each other at any setting of the **RANGE** controls.
9. Return panel settings to the initial settings specifed on page 43.
10. Verify **OSCILLATOR-1 RANGE** and **SCALE** by verifying the **HIGHEST "A" KEY** and **LOWEST "A" KEY** are still in tune. If not, repeat **OSC 1 RANGE AND SCALE BOARD 1** tuning procedure from above then repeat Steps 1-4 of **OCT TRIM BOARD 1** procedure. Repeat both procedures until no more trimpot adjustments are needed. Do this before moving onto **OSC 2**.

Oscillator Tuning Procedure

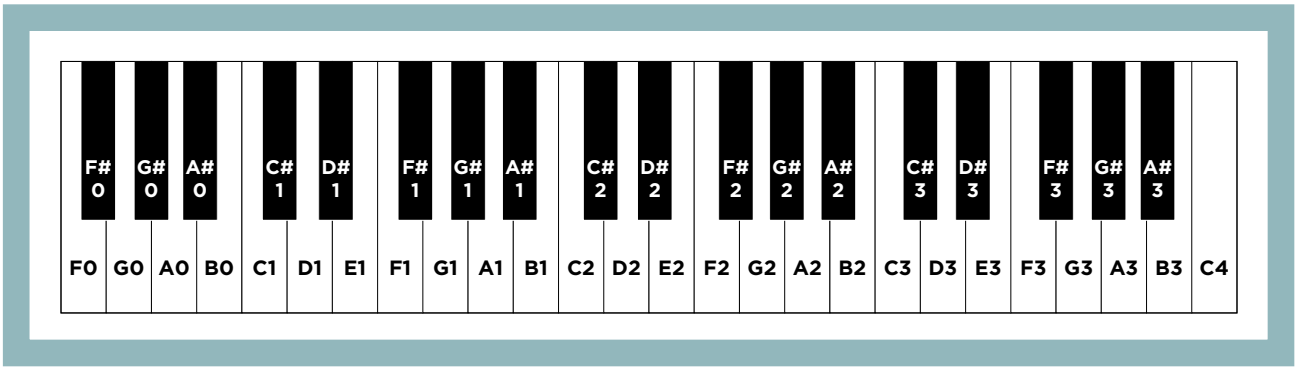
OSC 2 RANGE AND SCALE BOARD 1

1. Set the **OSC 2 VOLUME** switch to the **ON** position.
2. Depress the **HIGHEST "A" KEY** on the keyboard, and adjust the **OSC 2 RANGE** trimpot for zero beats to **OSC 1**.
3. Depress the **LOWEST "A" KEY** on the keyboard, and adjust the **OSC 2 SCALE** trimpot for zero beats to **OSC 1**.
4. Repeat steps 2 and 3 above until there are zero beats from **OSC 2** to **OSC 1**.
5. Set the **OSC 2** audio switch to the **OFF** position.

OSC 3 RANGE AND SCALE BOARD 1

1. Set the **OSC 3 VOLUME** switch to the **ON** position.
2. Depress and hold the **HIGHEST "A" KEY** on the keyboard, and adjust the **OSC 3 RANGE** trimpot for zero beats to **OSC 1**.
3. Depress and hold the **LOWEST "A" KEY** on the keyboard, and adjust the **OSC 3 SCALE** trimpot for zero beats to **OSC 1**.
4. Repeat steps 2 and 3 above until there are zero beats from **OSC 3** to **OSC 1**.
5. Set the **OSC 3 VOLUME** switch to the **OFF** position.

Global Settings



Under the hood, the Minimoog Model D is equipped with a number of global functions that expand the versatility of the instrument. Some of these functions are accessed via Power-On commands, while others are accessed via MIDI SysEx (System Exclusive) messages—or both. SysEx documentation can be downloaded at moogmusic.com.

By holding down specific keys on the keyboard during Power-On, you can access certain Global settings, referred to in this manual as Power-On Commands. These Commands can only be activated one at a time, but their effect is cumulative. Power-On Commands are retained by the Minimoog Model D, even when the power has been turned off.

GLOBAL PARAMETER	KEY SELECTION
Global Reset	Hold the **lowest four white keys—F0, G0, A0, B0—**while turning on power.
This returns the instrument to its original factory settings.	
Note Priority Power-On Commands	
The Priority function specifies which note will take priority when more than one note is played at a time on the keyboard: the last note played, the highest note, or the lowest note.	
Last Note Priority	Hold this **C Major chord; C3, E3, G3.**
Prioritizes the last note played	
Low Note Priority	Hold this **C Minor chord; C3, Eb3, G3.**
Prioritizes the lowest note played. This is the default setting and how a classic Model D behaves.	
High Note Priority	Hold this **C Augmented chord; C3, E3, G#3.**
Prioritizes the highest note played	
Legato Triggering Power-On Commands	
With Multi-Trigger On, each new note played on the keyboard will send a new pitch to the Oscillators, and will trigger the Filter and Loudness Contour Generators. With Multi-Trigger Off (Legato Mode), the Contour Generators will only trigger if all notes have been released on the keyboard before a new note is played.	
Multi-Trigger On	Hold this **D Major chord—D3, F#3, A3**—while turning on the power.
Sets Multi-Triggering to On	
Multi-Trigger Off (Legato Mode)	Hold this **D Minor chord—D3, F3, A3**—while turning on the power.
Sets Multi-Triggering to Off	

Global Settings

Gate Source Power-On Commands	
Determines which sources will trigger the Keyboard Gate and Contour Generators	
External Gate	Hold **F2 + A2** while turning on the power.
Sets gate source as EXT. V-TRIG input only	
External and Local Keys (No MIDI)	Hold **F2 + Bb2** while turning on the power.
Sets gate source as both the local keyboard and the EXT. V-TRIG input—notes received via MIDI will not trigger the contour generators	
External and MIDI (No Local Keys)	Hold **F2 + B2** while turning on the power.
Sets gate source as both MIDI and the EXT. V-TRIG input—keys pressed on the keyboard will not trigger the contour generators	
External, MIDI, and Local Keys (All)	Hold **F2 + C3** while turning on the power.
Sets gate source as the local keyboard, MIDI input, and the EXT. V-TRIG input—this is the default behavior	
Velocity Control Voltage Range Power-On Commands	
The voltage range of the Velocity control output can be doubled from five volts to ten volts in order to accommodate different types of analog equipment.	
Velocity CV Range = 5 Volts	Hold **G0 + C#1** while turning on the power.
Limits the Velocity CV range to 5 Volts	
Velocity CV Range = 10 Volts	Hold **G0 + D1** while turning on the power.
Expands the Velocity CV range to 10 Volts	

Global Settings

Keyboard Tuning Error Power-On Command	
The Pratt-Read keyboard on the original Minimoog Model D used a fixed resistor network on each key to set the pitch. This feature can recreate the tuning errors caused by variations in the resistor values to add a more vintage sound and feel to the instrument. When On, a random error value (within 10 cents) to replicate the tolerance values of the original resistors will be applied to each key; the error value remains constant each time the key is played.	
Keyboard Tuning Error On	Hold **F1 + C2** while turning on the power.
Turns Keyboard Tuning Error On	
Keyboard Tuning Error Off	Hold **F1 + B1** while turning on the power.
Turns Keyboard Tuning Error Off	
MIDI Power-On Commands	
Setting the MIDI IN/ OUT Channel	Hold **Bb3** and **press any of the lowest 16 lowest keys** while turning on the power.
Sets MIDI IN/OUT to channel 1-16	
Setting the MIDI IN Channel	Hold **Bb3 + B3** and **press any of the lowest 16 lowest keys** while turning on the power. Hold the **17th key (A1)** to select **OMNI**.
Sets MIDI IN to MIDI channel 1-16 or OMNI	
Setting the MIDI OUT Channel	Hold **Bb3 + C4** and **press any of the lowest 16 lowest keys** while turning on the power.
Sets MIDI OUT to channel 1-16	
MIDI IN/OUT Reset	Hold **Bb3** while turning on the power.
Resets MIDI IN/OUT back to Channel 1	
MIDI In Transpose	Hold **C4 and press any key in the octave above or below C2** while turning on the power.
Transposes the MIDI IN note data by +/- 12 semitones	
MIDI Out Transpose	Hold **B3 and press any key in the octave above or below C2** while turning on the power.
Transposes the **MIDI OUT** note data by +/- 12 semitones	

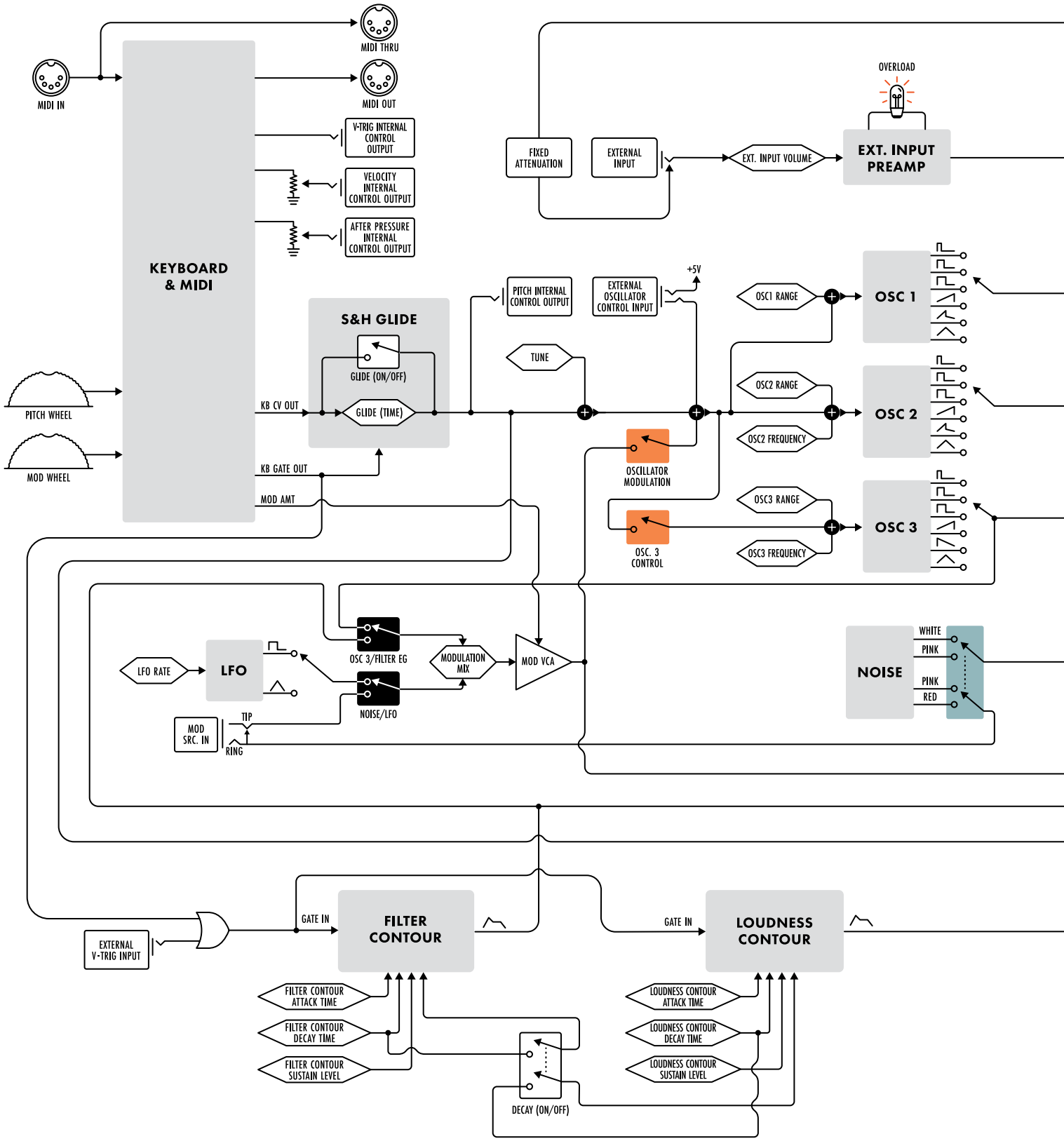
Global Settings

MIDI Pitch Wheel Output On	Hold **F0 + C1** while turning on the power.
Transmits Pitch Bend data via MIDI	
MIDI Pitch Wheel Output Off	Hold **F0 + B0** while turning on the power.
Disables the transmission of Pitch Bend data via MIDI	
MIDI Mod Wheel Output On	Hold **A1 + C1** while turning on the power.
Transmits Mod Wheel data via MIDI	
MIDI Mod Wheel Output Off	Hold **A1 + B0** while turning on the power.
Disables the transmission of Mod Wheel data via MIDI	
MIDI Aftertouch Output On	Hold **G0 + C1** while turning on the power.
Transmits Aftertouch (After Pressure) data via MIDI	
MIDI Aftertouch Output Off	Hold **G0 + B0** while turning on the power.
Disables the transmission of Aftertouch (After Pressure) data via MIDI	
MIDI Local On	Hold the highest three white keys **(A3, B3, C4)** while turning on power.
Turns Local On	
MIDI Local Off	Hold **the highest three black keys (F#3, G#3, A#3)** while turning on the power.
Turns MIDI Local Off ***TIP:*** *By transposing the MIDI note output, you can command another MIDI synthesizer to play in parallel harmony with the Minimoog Model D. Additionally, by setting MIDI Local to Off and transposing the MIDI note output, you can play in any key while using normal fingering.*	
MIDI Velocity Curves	
MIDI Velocity Curve Soft	Hold this **C Minor chord (C2, Eb2, G2)** while turning on power.
Sets MIDI Velocity Curve to soft, so that louder notes are produced with less physical effort	
MIDI Velocity Curve Medium	Hold this **C Major chord (C2, E2, G2)** while turning on power.
Sets MIDI Velocity Curve to medium—the default velocity curve which is appropriate for most players	
MIDI Velocity Curve Hard	Hold this **C Augmented chord (C2, E2, G#2)** while turning on power.
Sets MIDI Velocity Curve to hard, so that players with a heavier touch can more easily produce softer (lower-velocity) notes	

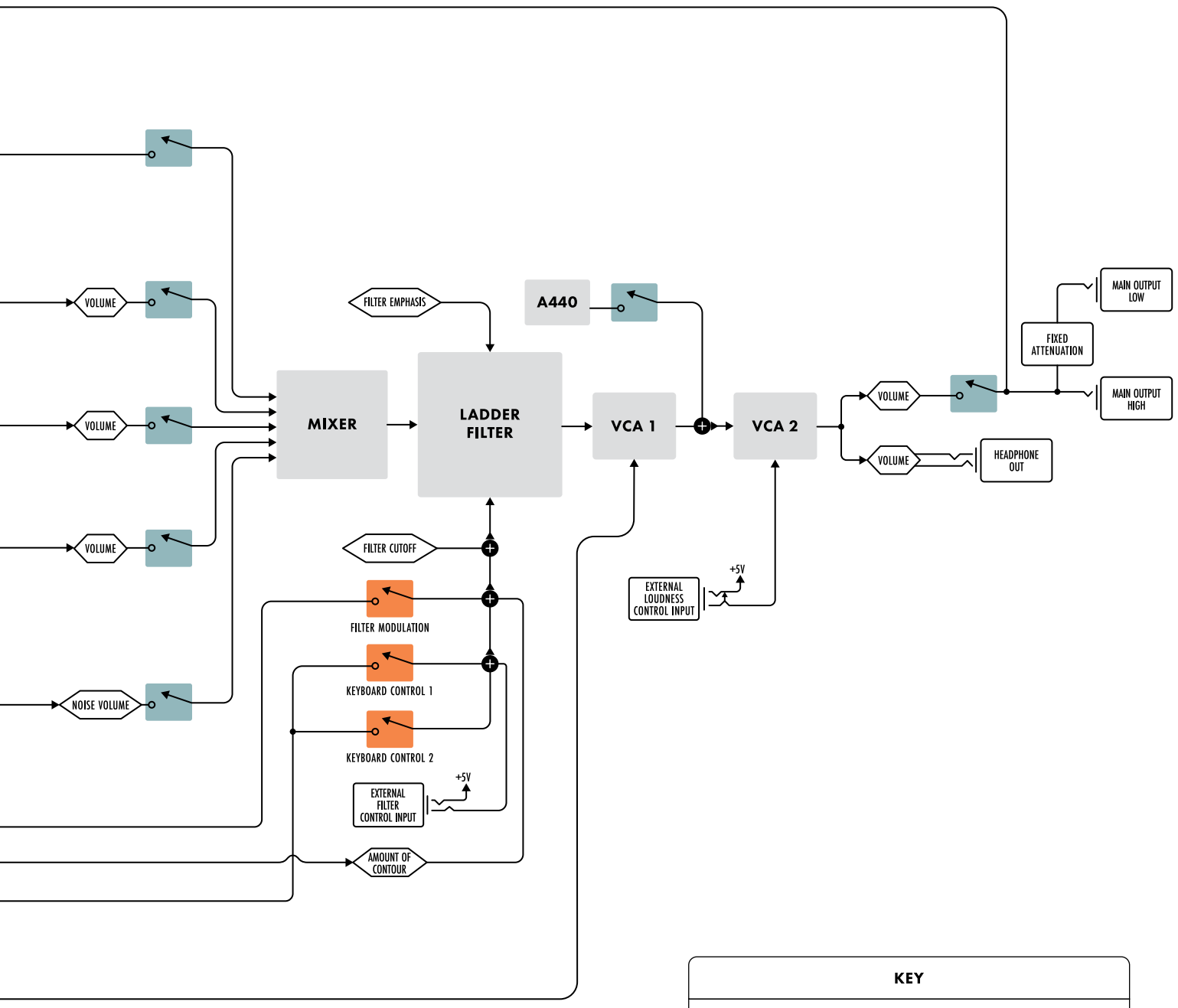
Global Settings

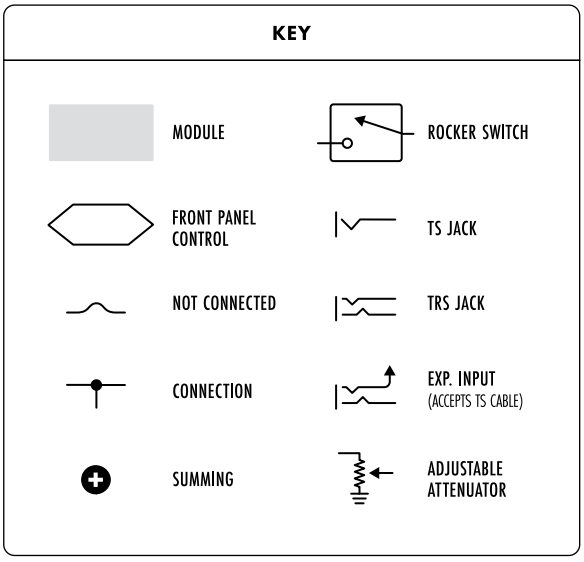
MIDI Tuning Table Power-On Commands	
Standard Tuning (Alternate Tuning Table Off)	Hold **G1 + B1** while turning on the power.
Uses the Default tuning	
Custom Tuning Table 1: Pythagorean C Scale	Hold **G1 + C2** while turning on the power.
Sets tuning to Pythagorean C scale—Tuning Table 1 in memory	
Custom Tuning Table 2: Wendy Carlos Harmonic 12-Tone Scale	Hold **G1 + D2** while turning on the power.
Sets tuning to Wendy Carlos's harmonic scale—Tuning Table 2 in memory	
Custom Tuning Table 3: Harry Partch 43-Tone Scale	Hold **G1 + E2** while turning on the power.
Sets tuning to Harry Partch's 43 tone scale—Tuning Table 3 in memory	

Pitch CV Zero Volt Power-On Command
Primarily of value when interfacing Minimoog Model D with other analog synthesizers, this command allows you to specify which note will cause the PITCH OUT control voltage (Pitch CV) to have a value of zero volts. The default setting causes the Pitch CV to be 1.00 volt when the C above low F on the keyboard is played. This key corresponds to MIDI note 48, meaning that MIDI note 36 will produce a Pitch CV value of zero volts. To specify a different note, hold A3 and press any one key in the octave above or below Middle C on the keyboard. ***NOTE:*** *This setting will affect both the Pitch CV output and the tuning of the synth itself, since the same voltage driving the oscillators appears at the Pitch CV output jack. Note that if you move "the key that has been specified to output zero volts" to a higher note on the keyboard, then the pitch that you hear when you play the same key will be transposed down by the same number of notes.*


MIDI IN
MIDI THRU
MIDI OUT
V-TRIG INTERNAL CONTROL OUTPUT
VELOCITY INTERNAL CONTROL OUTPUT
AFTER PRESSURE INTERNAL CONTROL OUTPUT
KEYBOARD & MIDI
PITCH WHEEL
MOD WHEEL
KB CV OUT
KB GATE OUT
MOD AMT
S&H GLIDE
GLIDE (ON/OFF)
GLIDE (TIME)
PITCH INTERNAL CONTROL OUTPUT
EXTERNAL OSCILLATOR CONTROL INPUT
+5V
TUNE
FIXED ATTENUATION
EXTERNAL INPUT
EXT. INPUT VOLUME
OVERLOAD
EXT. INPUT PREAMP
OSC1 RANGE
OSC 1
OSC2 RANGE
OSC 2
OSC2 FREQUENCY
OSCILLATOR MODULATION
OSC3 RANGE
OSC 3
OSC. 3 CONTROL
OSC3 FREQUENCY
LFO RATE
LFO
OSC 3/FILTER EG
NOISE/LFO
MODULATION MIX
MOD VCA
MOD SRC. IN
TIP
RING
NOISE
WHITE
PINK
PINK
RED
EXTERNAL V-TRIG INPUT
GATE IN
FILTER CONTOUR
GATE IN
LOUDNESS CONTOUR
FILTER CONTOUR ATTACK TIME
FILTER CONTOUR DECAY TIME
FILTER CONTOUR SUSTAIN LEVEL
DECAY (ON/OFF)
LOUDNESS CONTOUR ATTACK TIME
LOUDNESS CONTOUR DECAY TIME
LOUDNESS CONTOUR SUSTAIN LEVEL

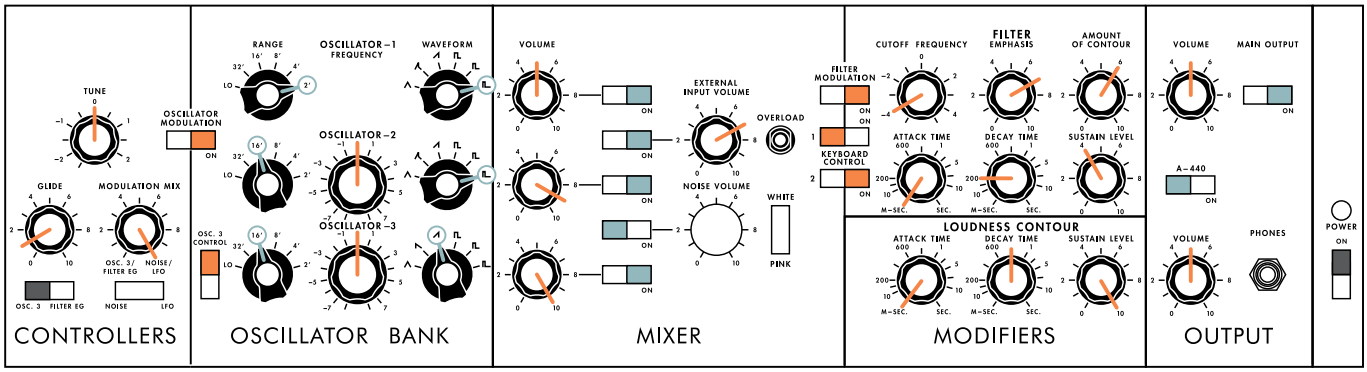
Signal Flow

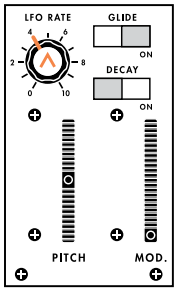

VOLUME
VOLUME
VOLUME
NOISE VOLUME
MIXER
FILTER EMPHASIS
LADDER FILTER
FILTER CUTOFF
FILTER MODULATION
KEYBOARD CONTROL 1
KEYBOARD CONTROL 2
EXTERNAL FILTER CONTROL INPUT
+5V
AMOUNT OF CONTOUR
A440
VCA 1
VCA 2
EXTERNAL LOUDNESS CONTROL INPUT
+5V
VOLUME
VOLUME
HEADPHONE OUT
FIXED ATTENUATION
MAIN OUTPUT LOW
MAIN OUTPUT HIGH


KEY
MODULE
ROCKER SWITCH
FRONT PANEL CONTROL
TS JACK
NOT CONNECTED
TRS JACK
CONNECTION
EXP. INPUT
(ACCEPTS TS CABLE)
SUMMING
ADJUSTABLE ATTENUATOR

Patch Sheets

Sound: Midnight Funk



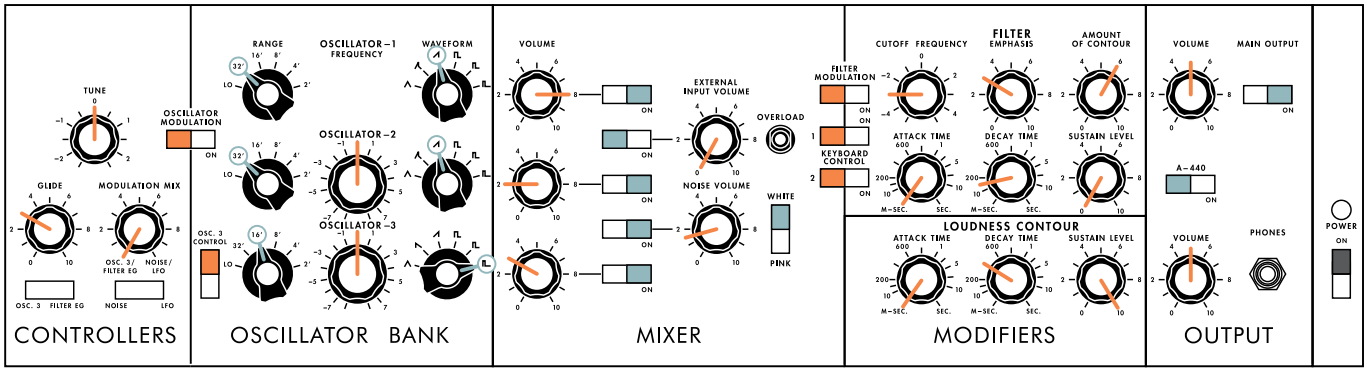


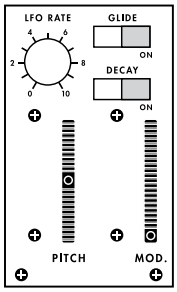
Notes:

Set the LFO Rate knob to triangle wave (down position).

Adjust Filter Cutoff Frequency to taste.

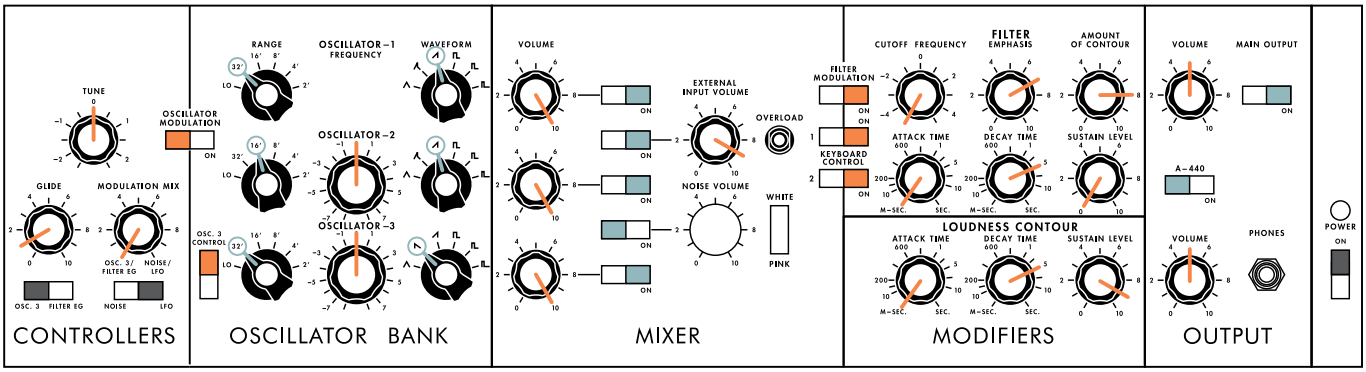
Sound: Air Bass

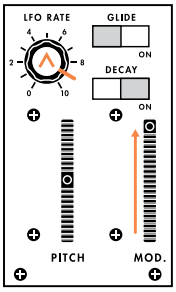




Notes:

Sound: Sawyer = Bass

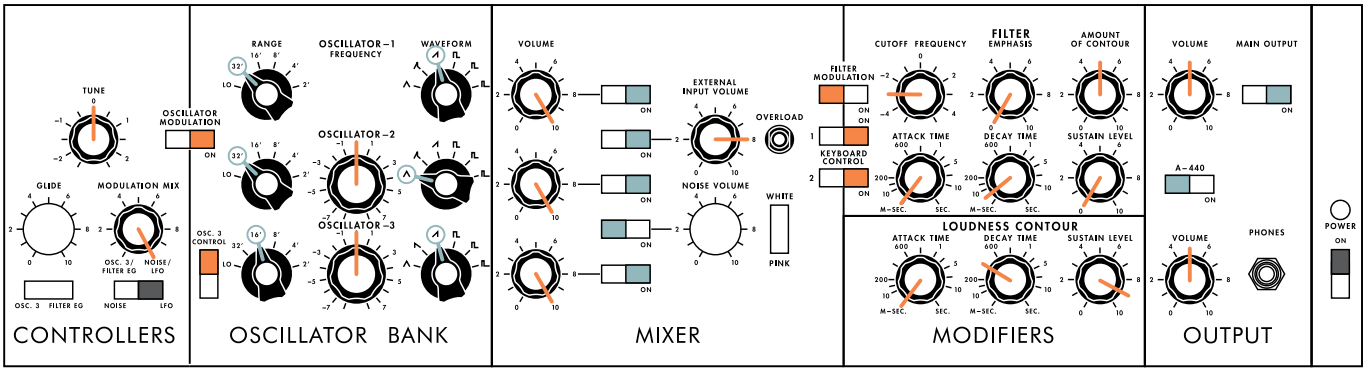


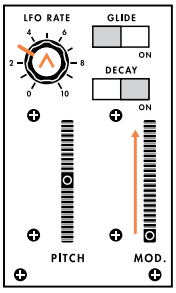


Notes:

Adjust External Input Volume to taste.

Sound: Kraft Bass





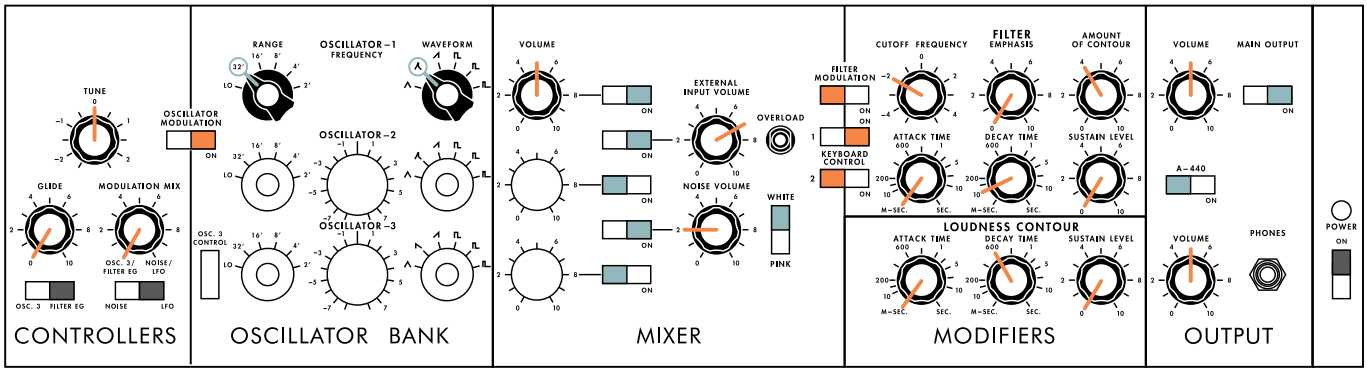
Notes:

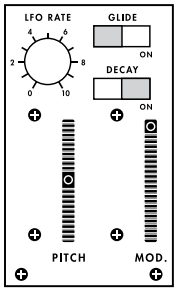
Set the LFO Rate knob to triangle wave (down position).

Adjust External Input Volume to taste.

Use Mod Wheel to introduce vibrato.

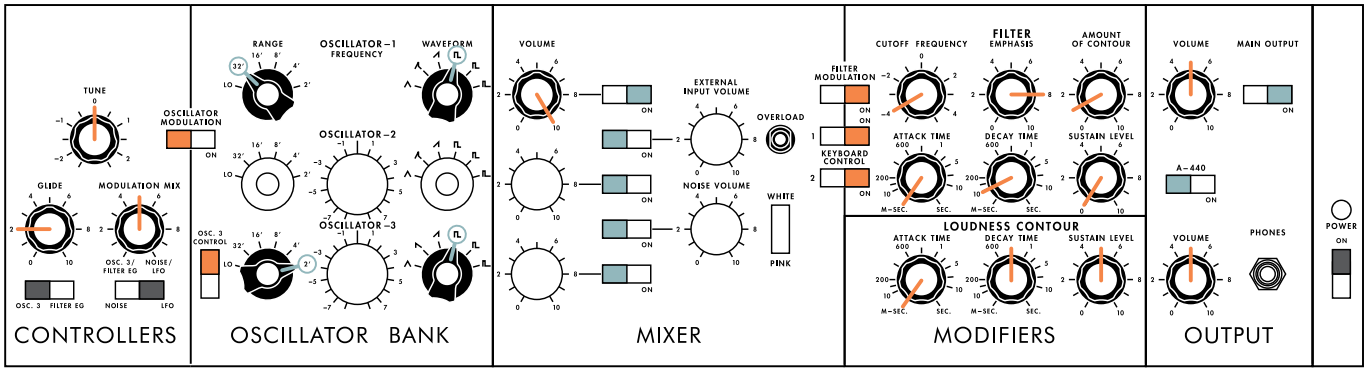
Sound: Dark Toms

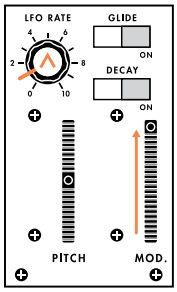




Notes:

Sound: Vocal-Bot

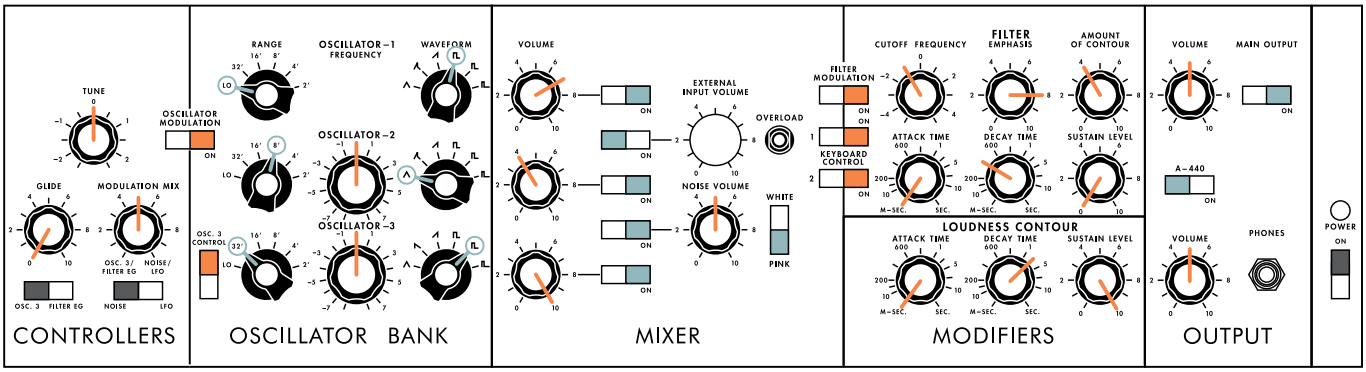




Notes:

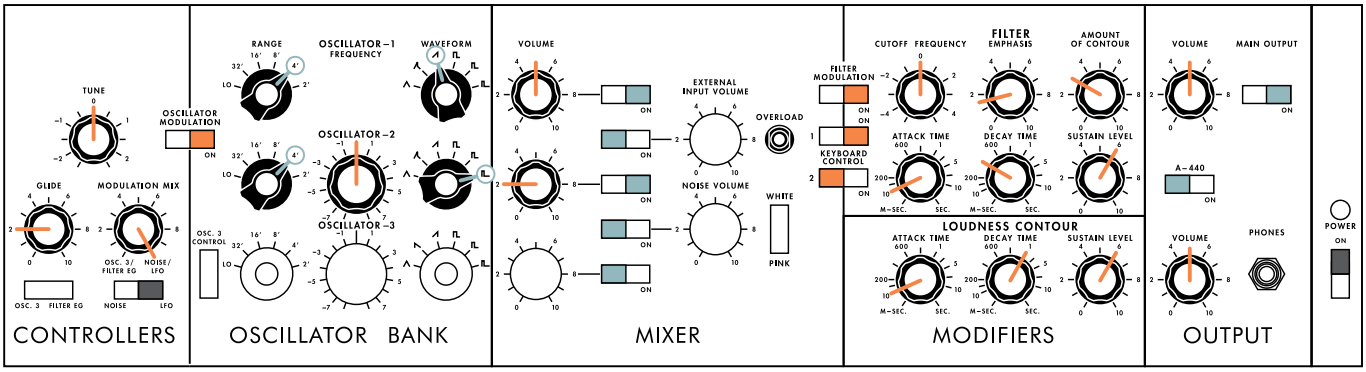
Set the LFO Rate knob to triangle wave (down position).

Sound: Very Bad Place



Notes:

Sound: ‘70s Violin Lead

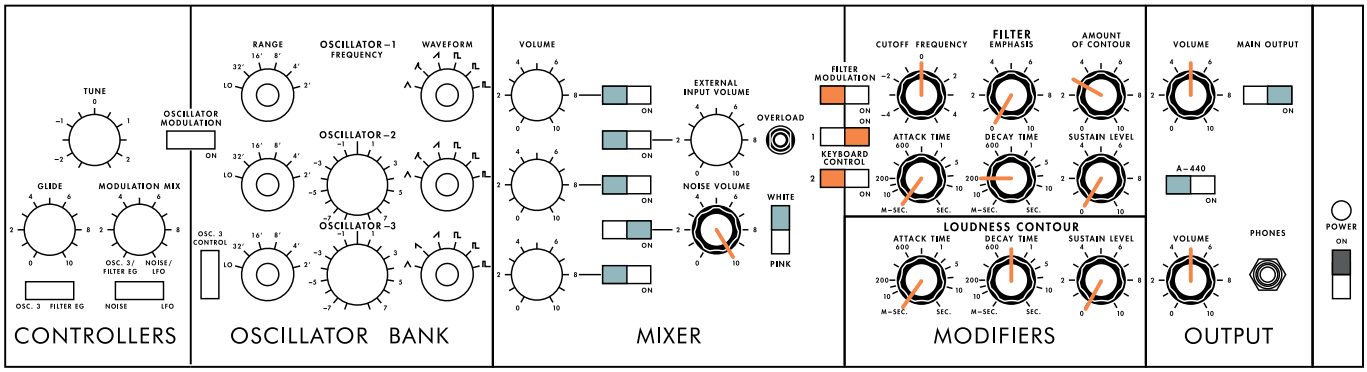


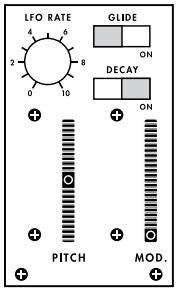
Notes:

Set the LFO Rate knob to triangle wave (down position).

Use Mod Wheel to introduce vibrato.

Sound: Room Snare



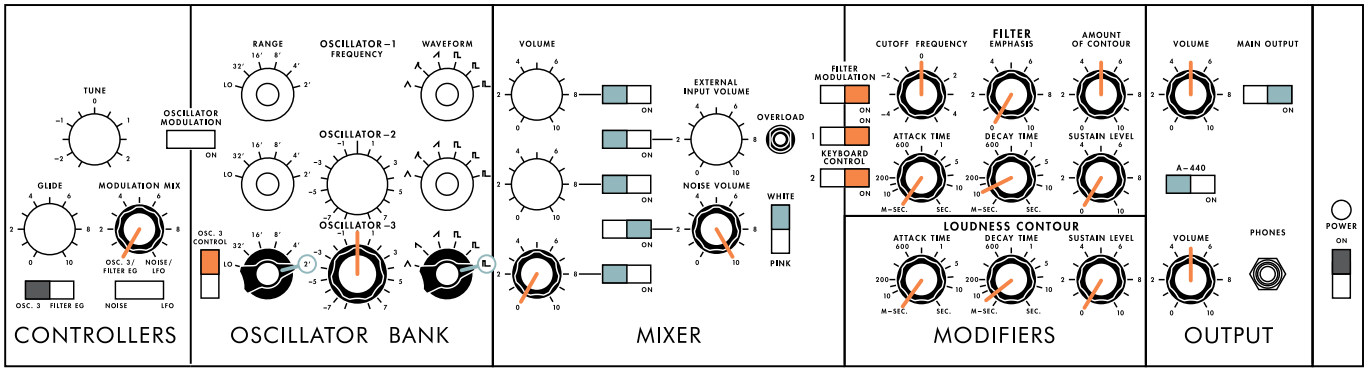


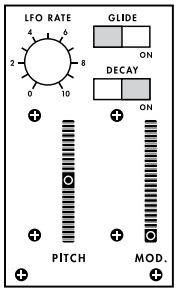
Notes:

Play up and down the keyboard.

Adjust Filter Decay and Cutoff Frequency.

Sound: Hi-Hat

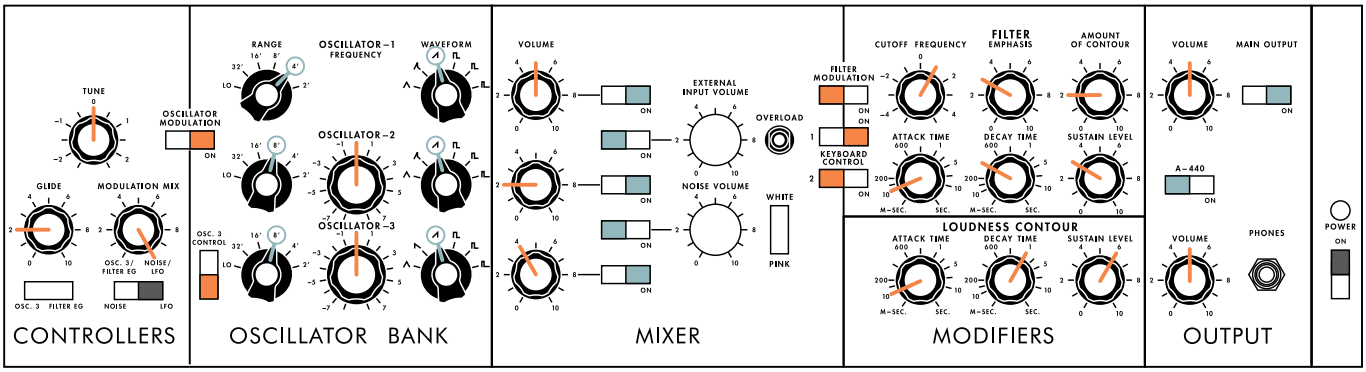


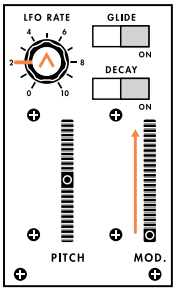


Notes:

Adjust Loudness Decay Time to change behavior/hat tension.

Sound: Droning Brass Intro



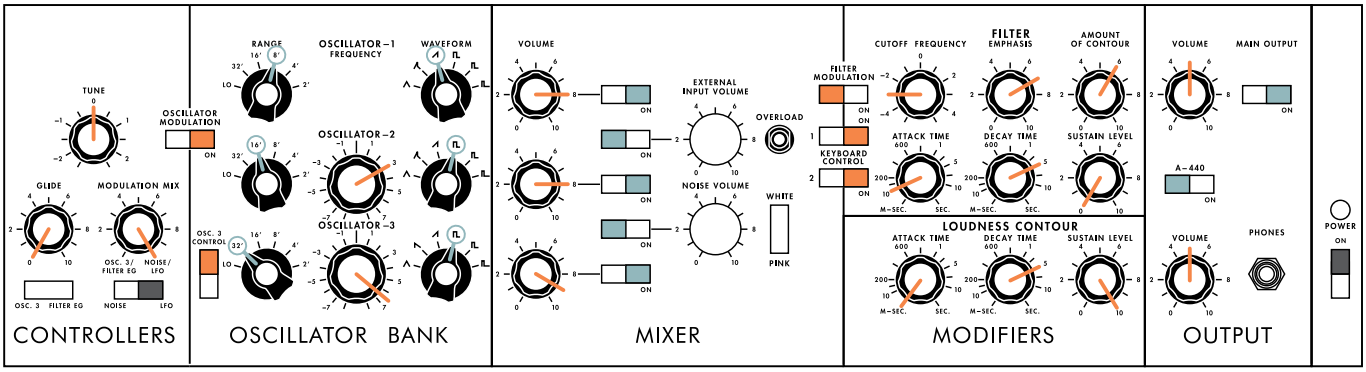


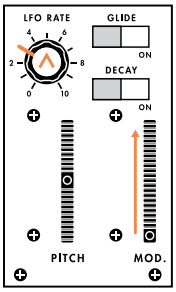
Notes:

Set the LFO Rate knob to triangle wave (down position).

Turn Oscillator-2 range to 32' for added depth.

Sound: Bright & Rude



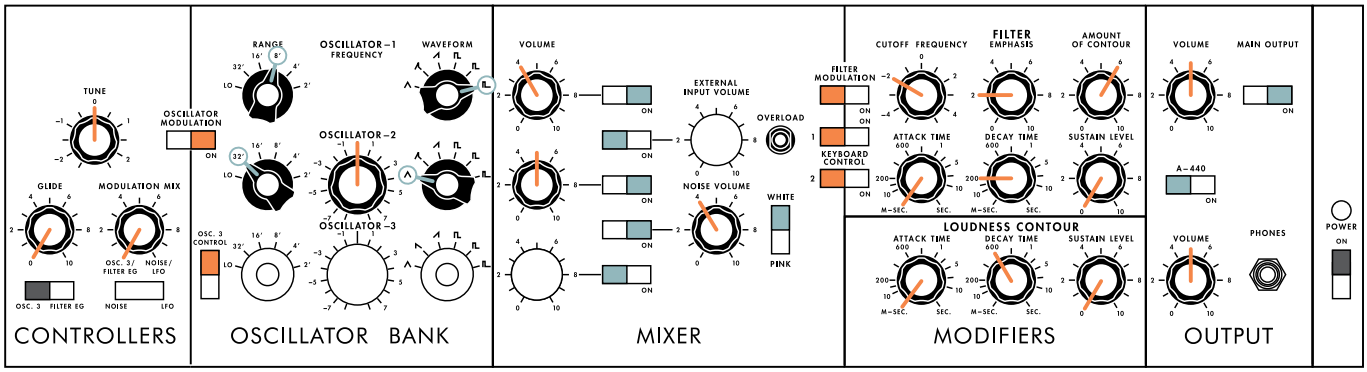


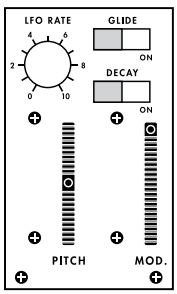
Notes:

Set the LFO Rate knob to triangle wave (down position).

Reduce Filter Emphasis for less rudeness.

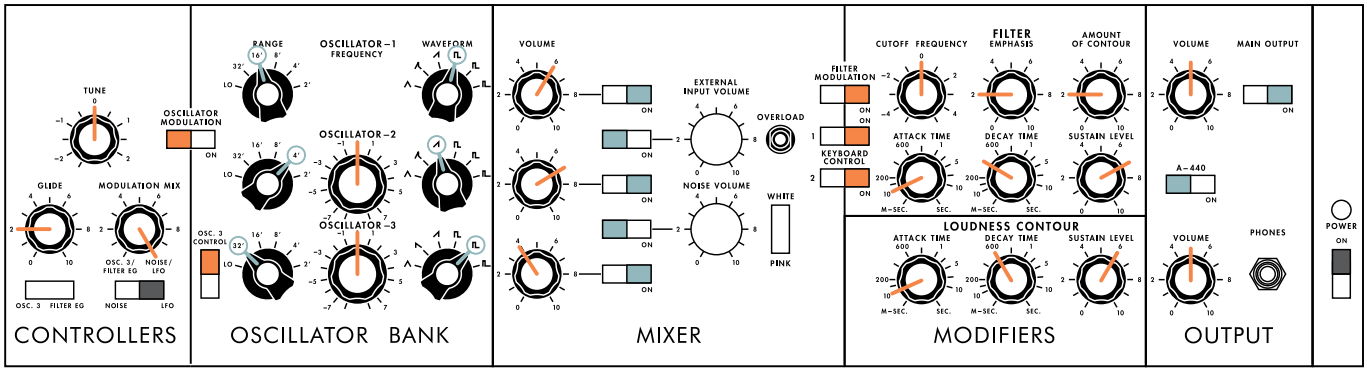
Sound: Steel Wound

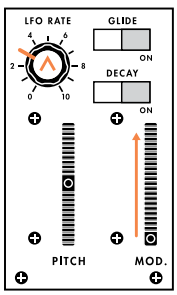




Notes:

Sound: Fuzz Lead



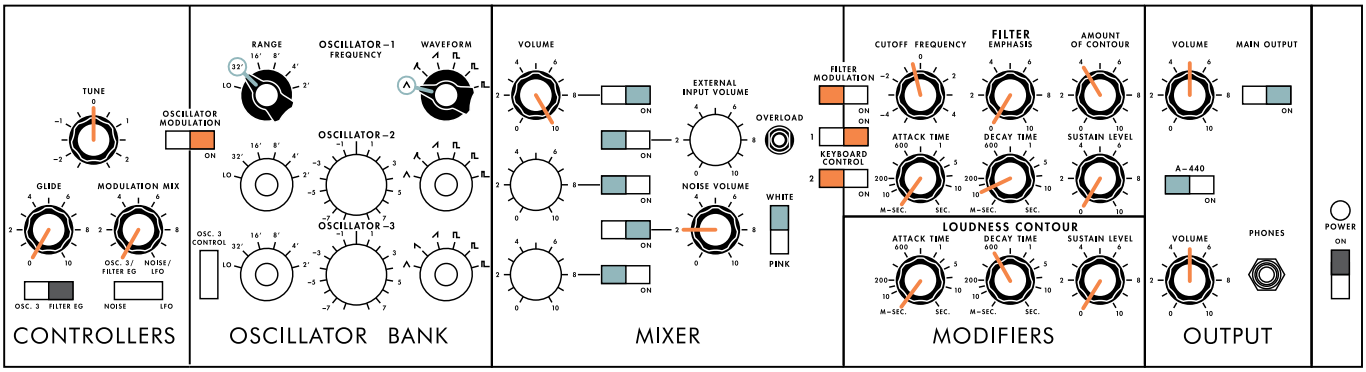


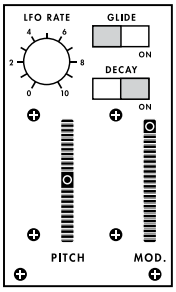
Notes:

Set the LFO Rate knob to triangle wave (down position).

Use Mod Wheel to add Filter Modulation.

Sound: Tri Kick

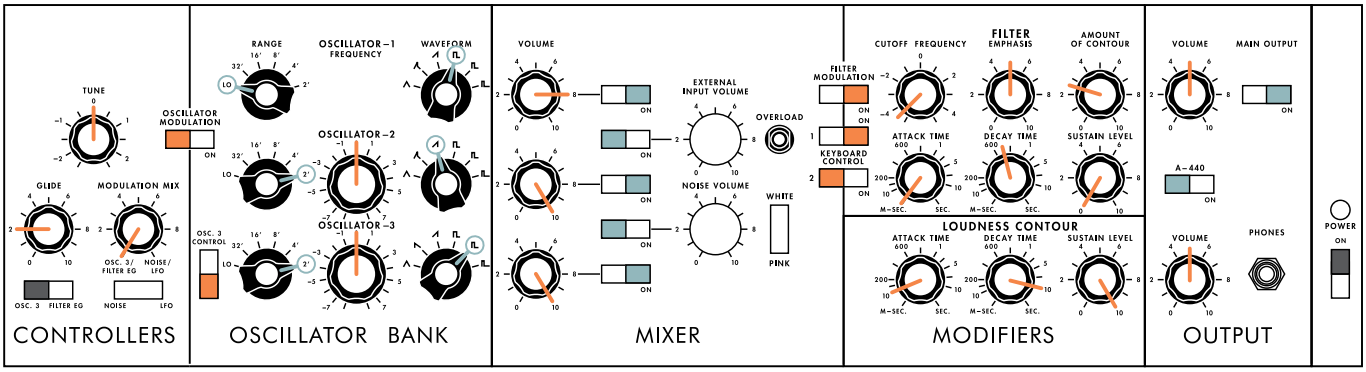


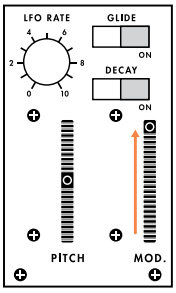


Notes:

Increase Amount of Contour to add punch.

Sound: Abandoned Planet

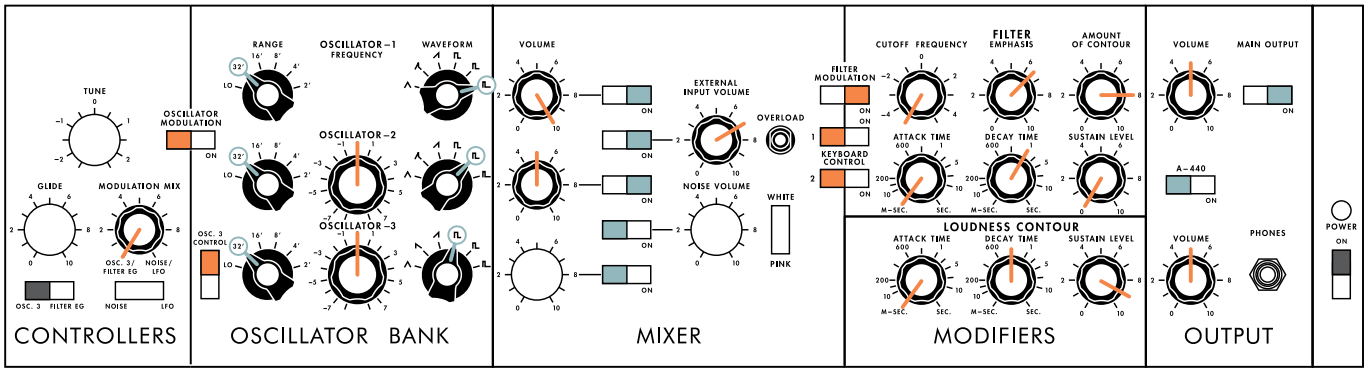


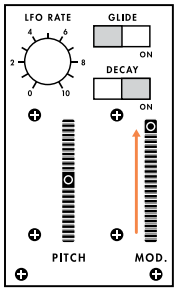


Notes:

Use Mod Wheel to introduce modulation.

Sound: Bubble Bass



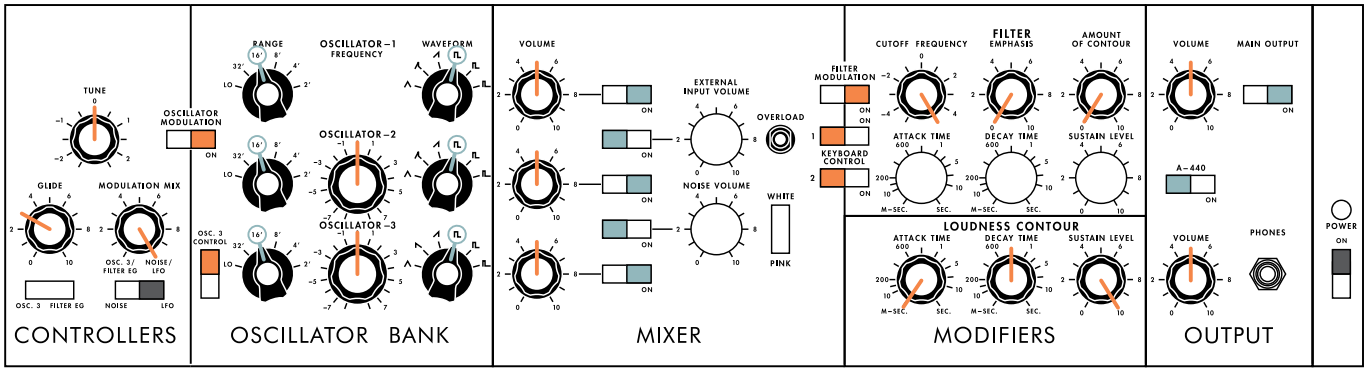


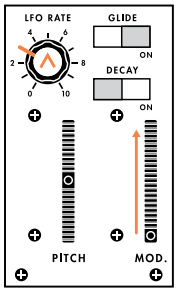
Notes:

Hold Notes.

Pull down Mod Wheel for variation.

Sound: 3-Square Lead



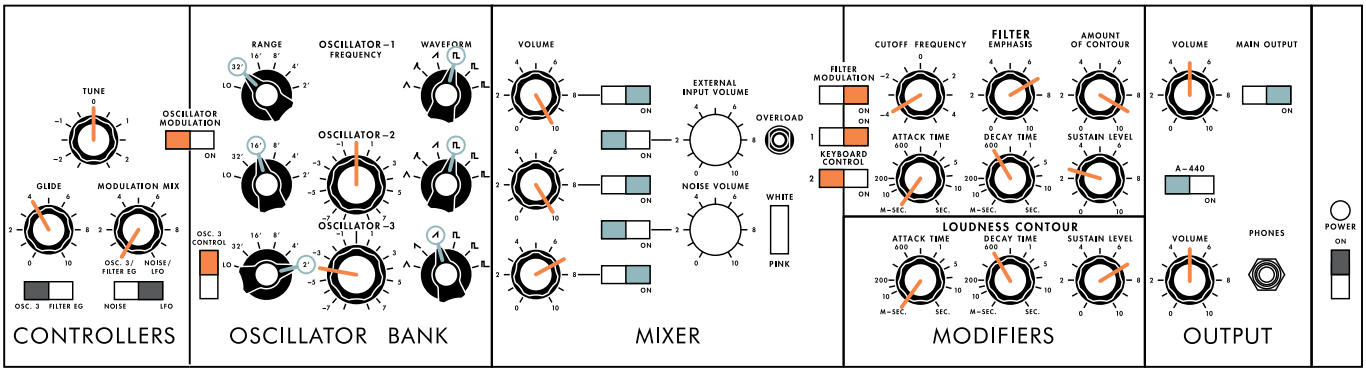


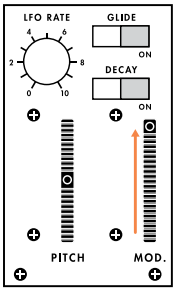
Notes:

Slightly detune Oscillator-2 and Oscillator-3.

Add vibrato with Mod Wheel.

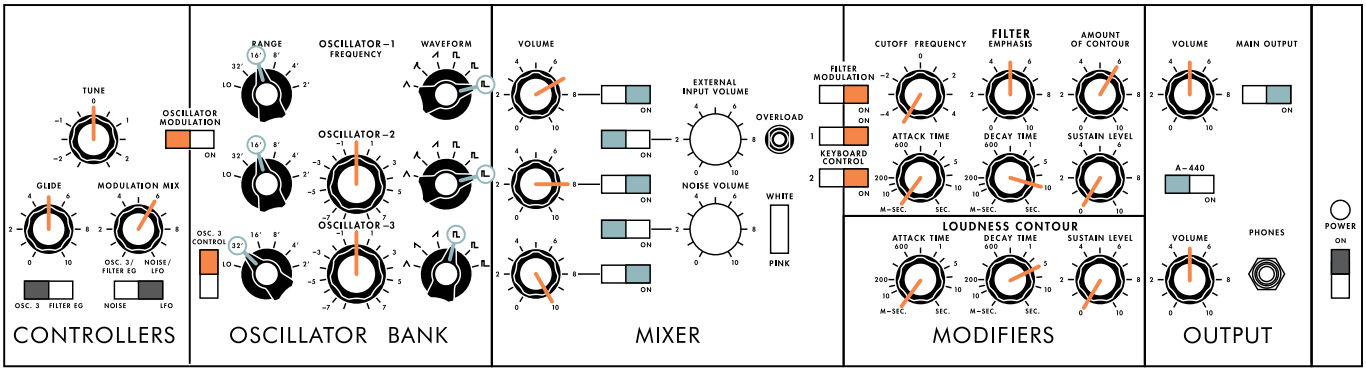
Sound: Freqy

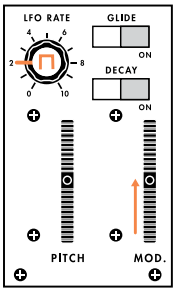




Notes:

Sound: Jurassic Love

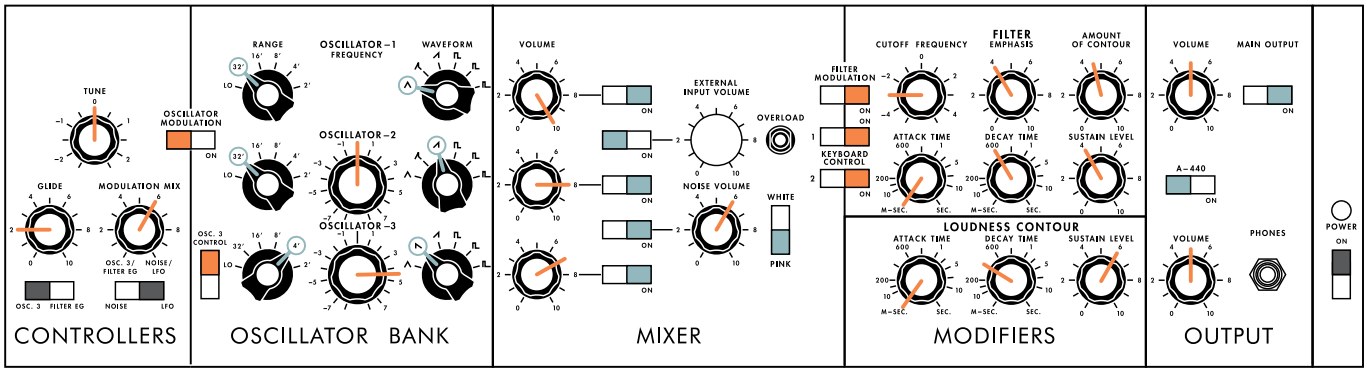


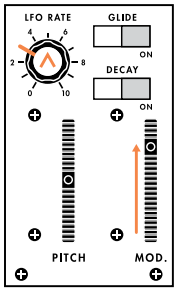


Notes:

Set the LFO Rate knob is set to square wave (up position).

Sound: Tornadus

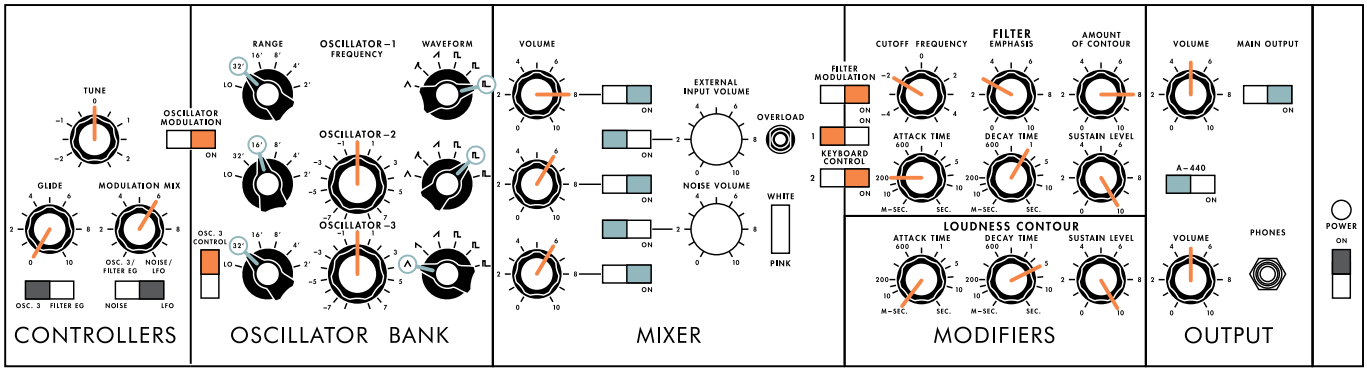


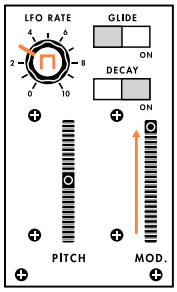


Notes:

Set the LFO Rate knob to triangle wave (down position).

Sound: Octave Ouroborus

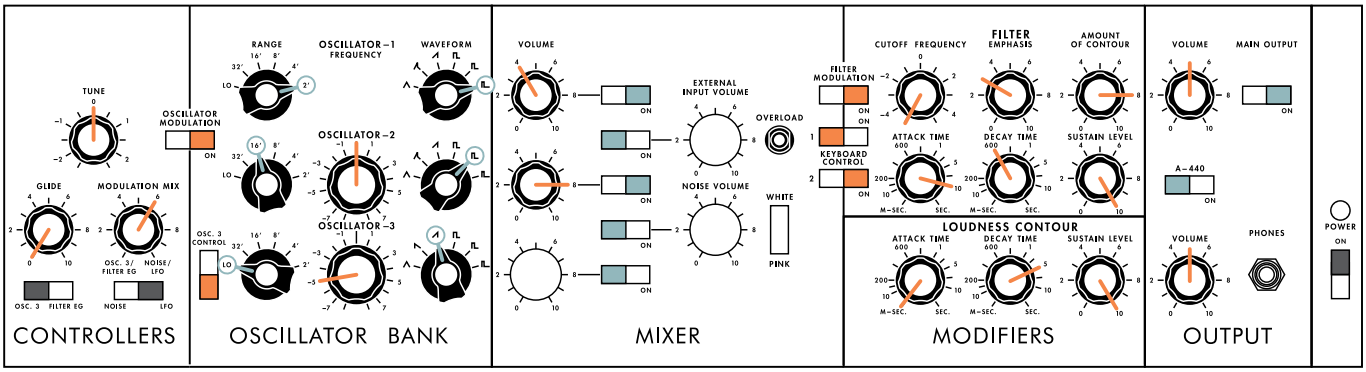


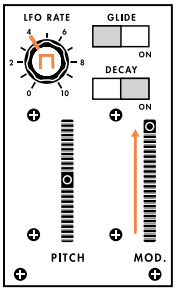


Notes:

Set the LFO Rate knob to square wave (up position).

Sound: Light Cycle



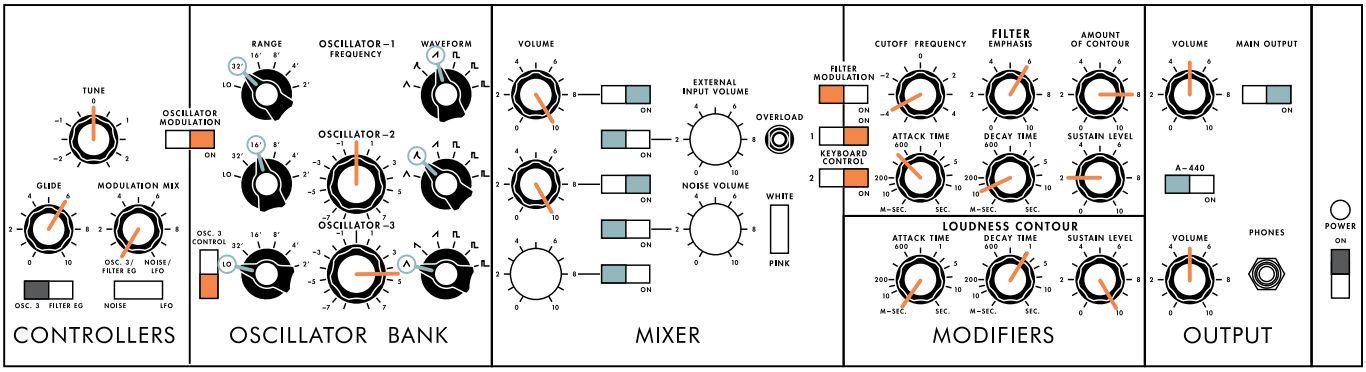


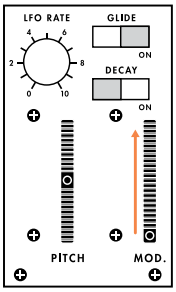
Notes:

Set the LFO Rate knob to square wave (up position).

Experiment with the position of the modulation selection switches in the CONTROLLERS section.

Sound: More Bounce Bass

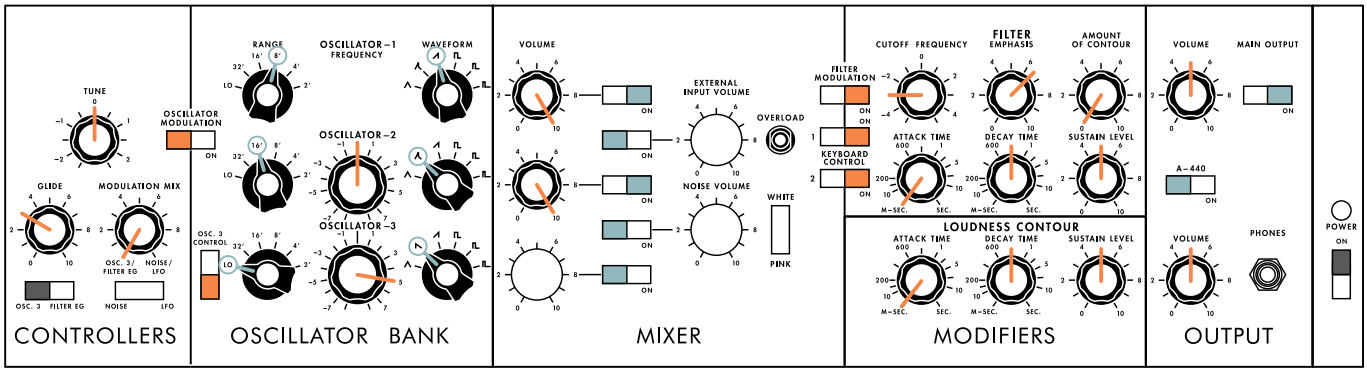


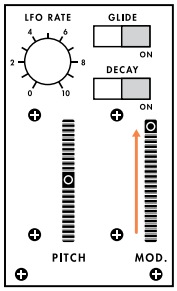


Notes:

Mod Wheel controls vibrato amount.

Sound: ‘70s French Sci-Fi Movie

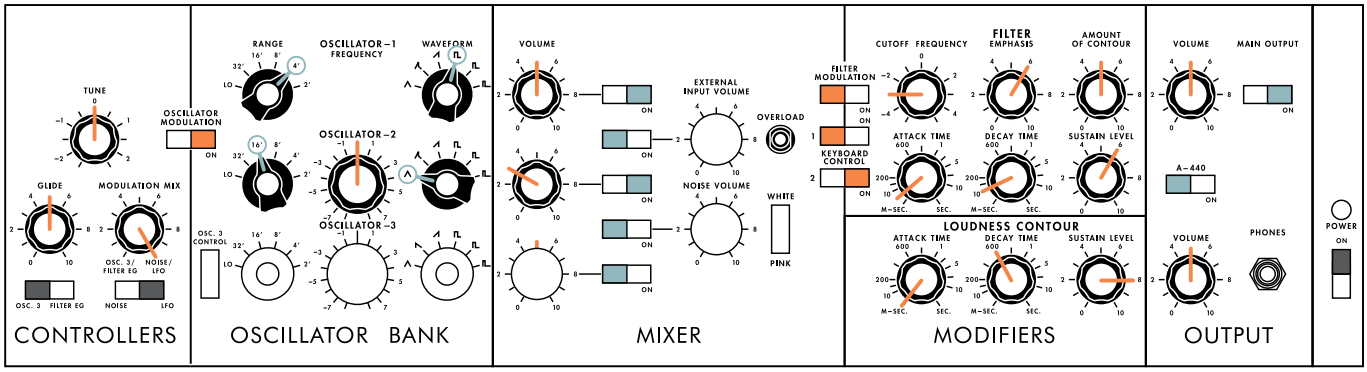


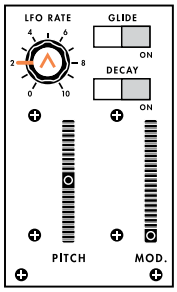


Notes:

With Mod Wheel up, Oscillator-3 Frequency controls the rate of “wobbly” modulated Filter.

Sound: Classic Stanley



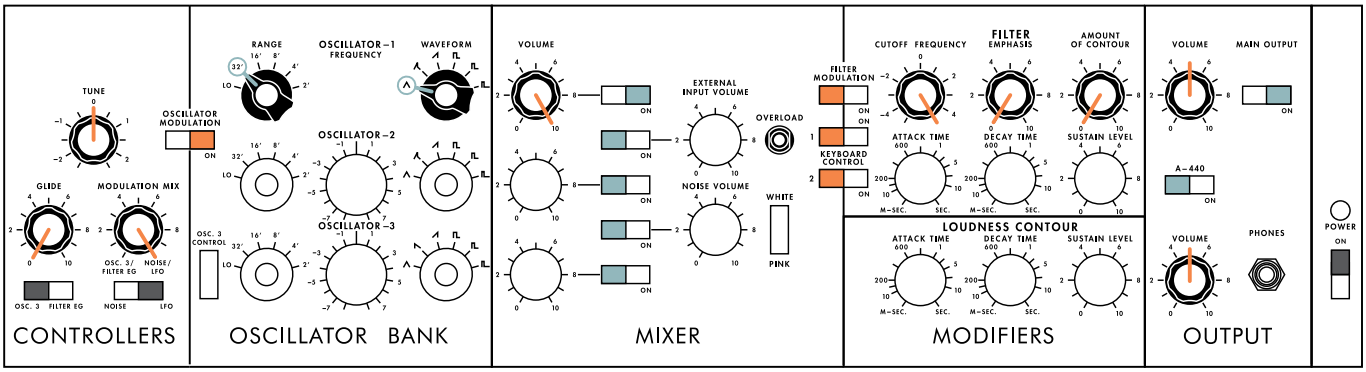


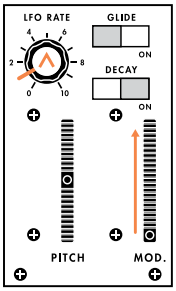
Notes:

Set the LFO Rate knob to triangle wave (down position).

Use Mod Wheel for seasick vibrato.

Sound: Sub Bass

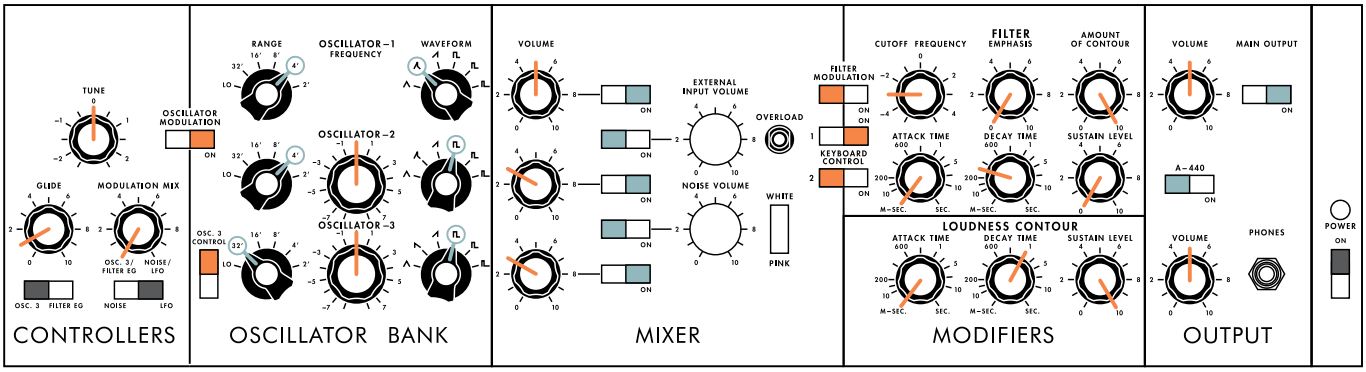


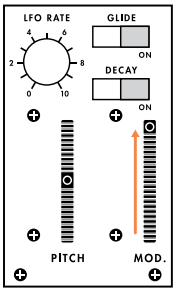


Notes:

Set the LFO Rate knob to triangle wave (down position).

Sound: Sync-Strike

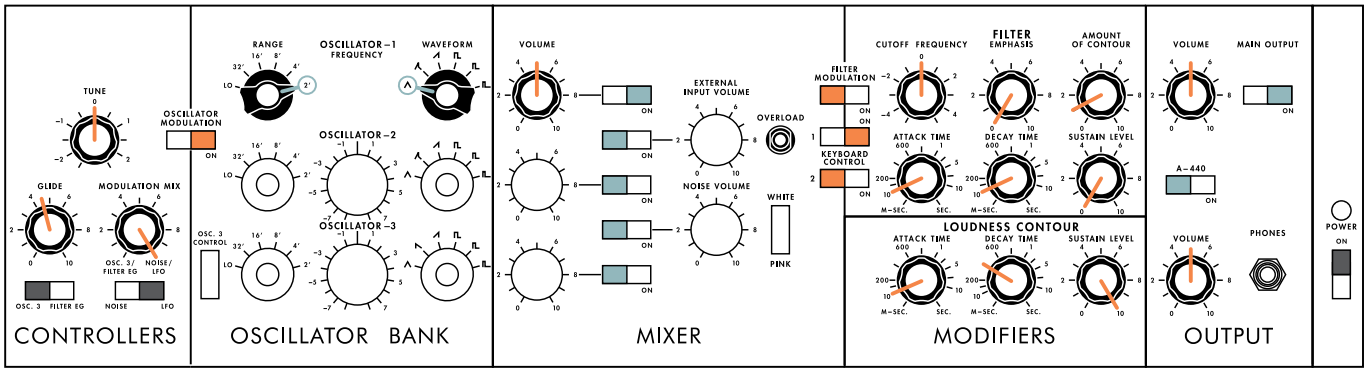


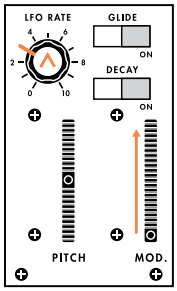


Notes:

Ensure Oscillator-3 tuning is exact for proper performance.

Sound: Nothin' Lead

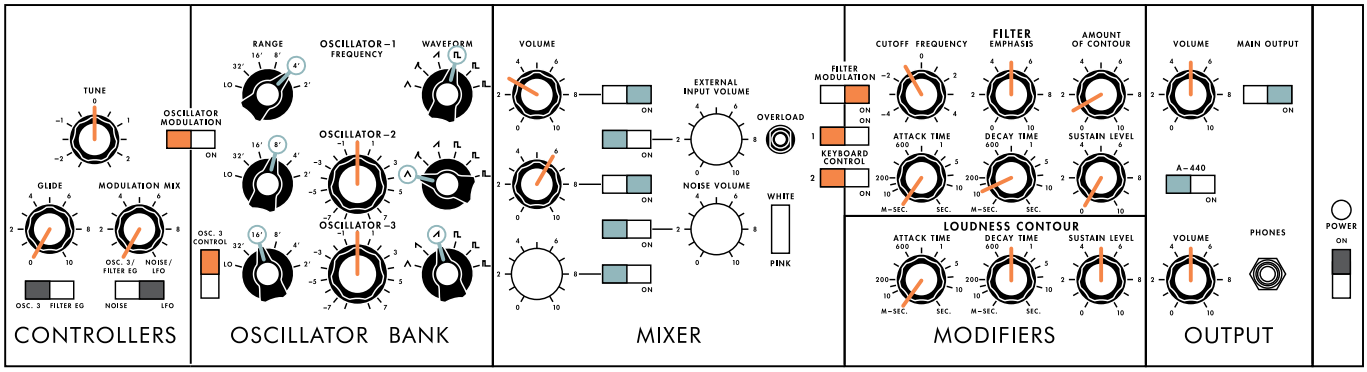


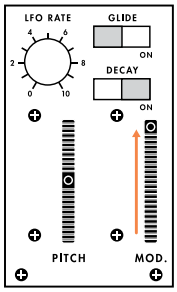


Notes:

Mod Wheel adds vibrato.

Sound: Smooth-E-P

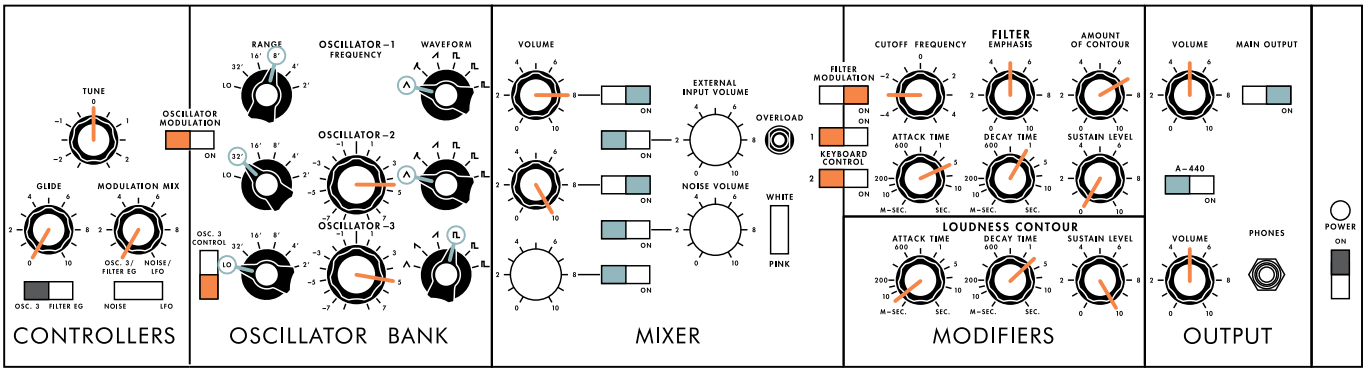


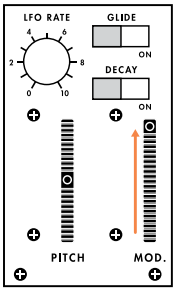


Notes:

Use Mod Wheel to introduce modulation.

Sound: ‘60s Space

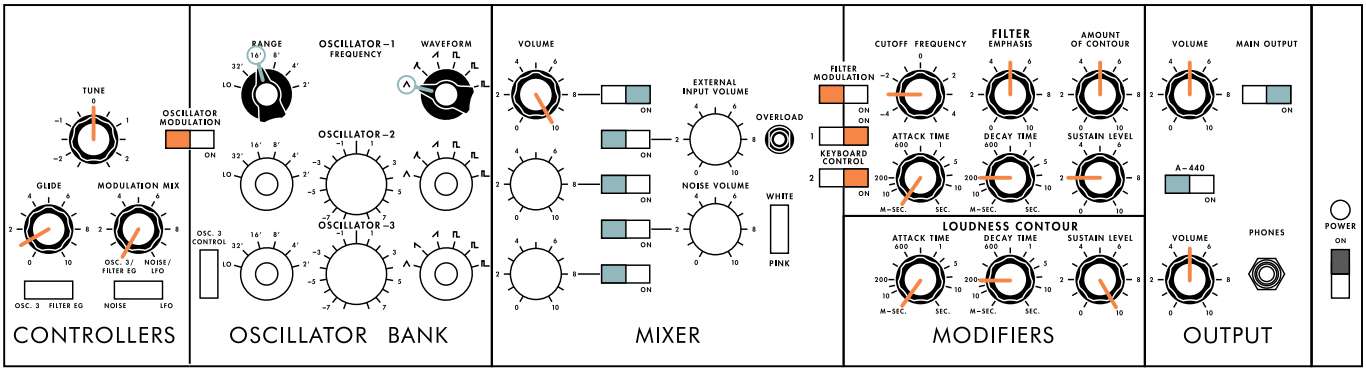


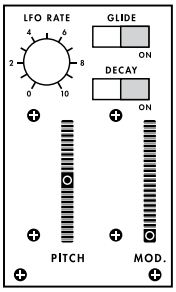


Notes:

Use Oscillator-3 Frequency knob to adjust modulation rate.

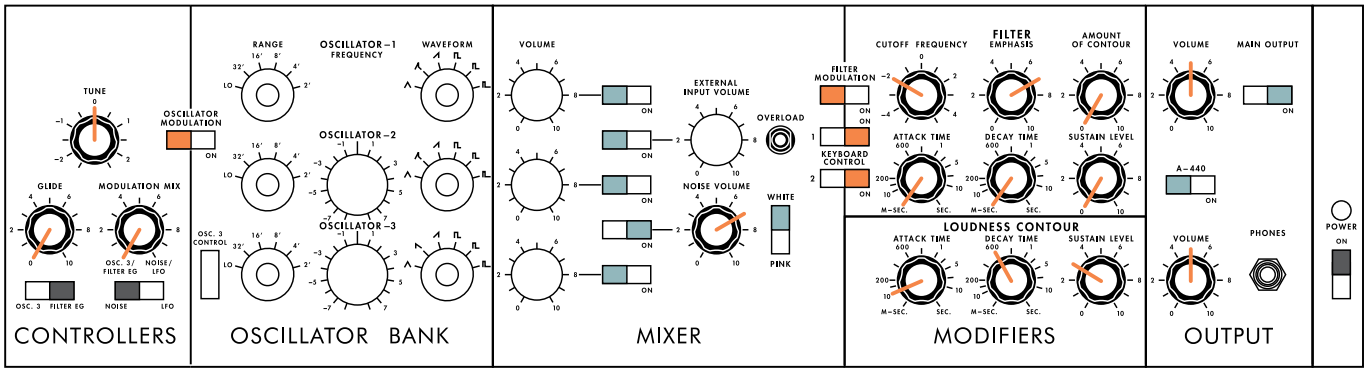
Sound: Soft Rez Bass

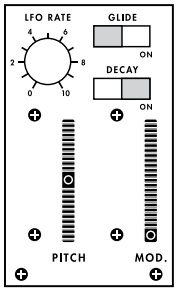




Notes:

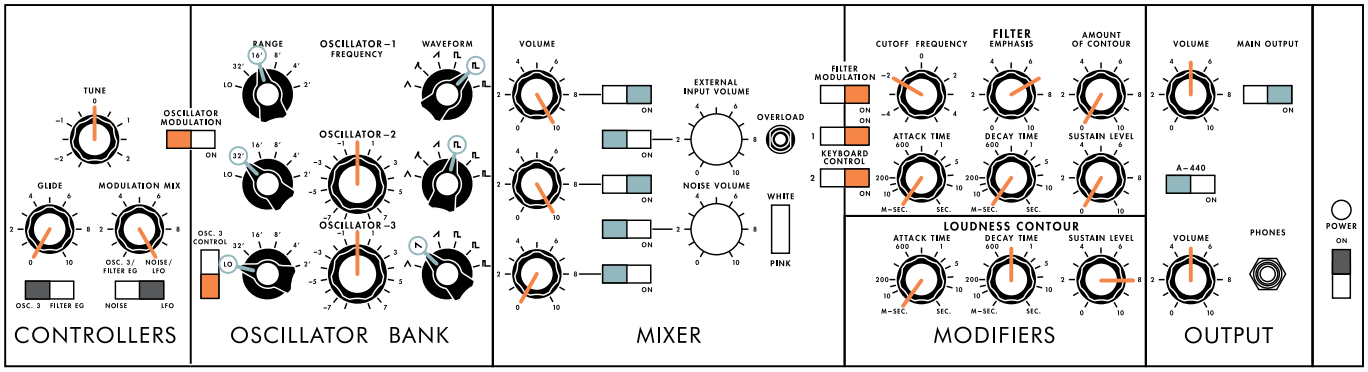
Sound: Singing Wind

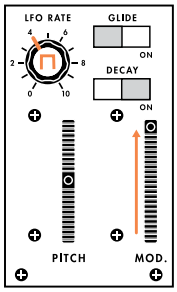




Notes:

Sound: Sonic 7





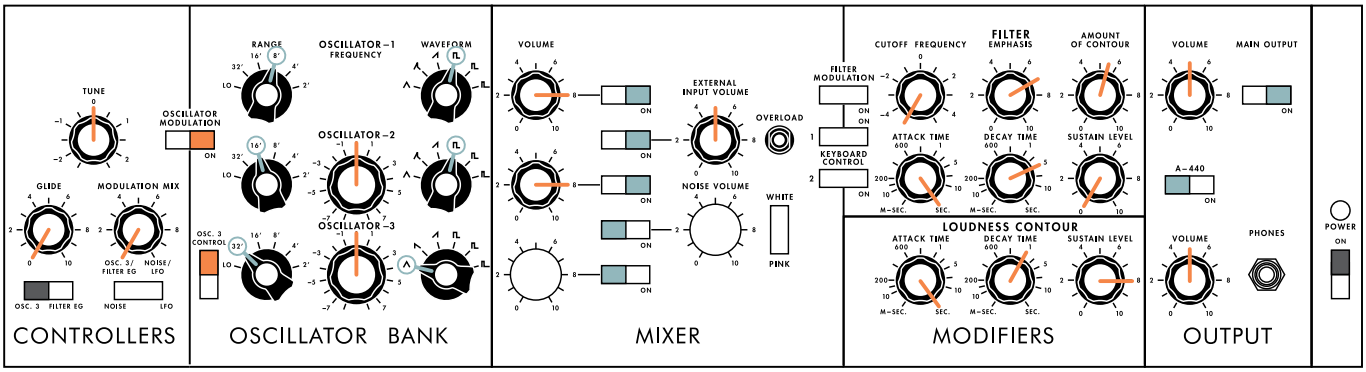
Notes:

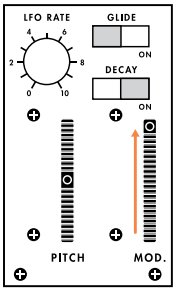
Set the LFO Rate knob to square wave (up position).

Add Beefy square wave bass with Mod Wheel down.

Add Crazy FX "ala Sonic 6" with Mod Wheel up.

Sound: Destitution

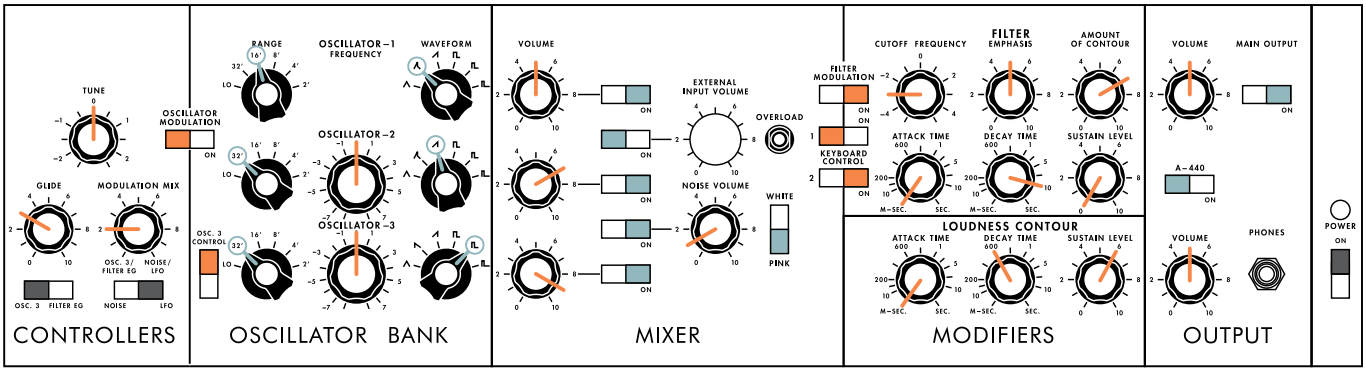


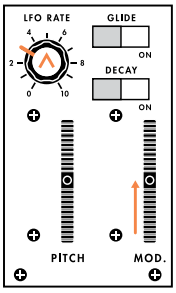


Notes:

Use Mod Wheel to introduce modulation.

Sound: Looking Glass Rock



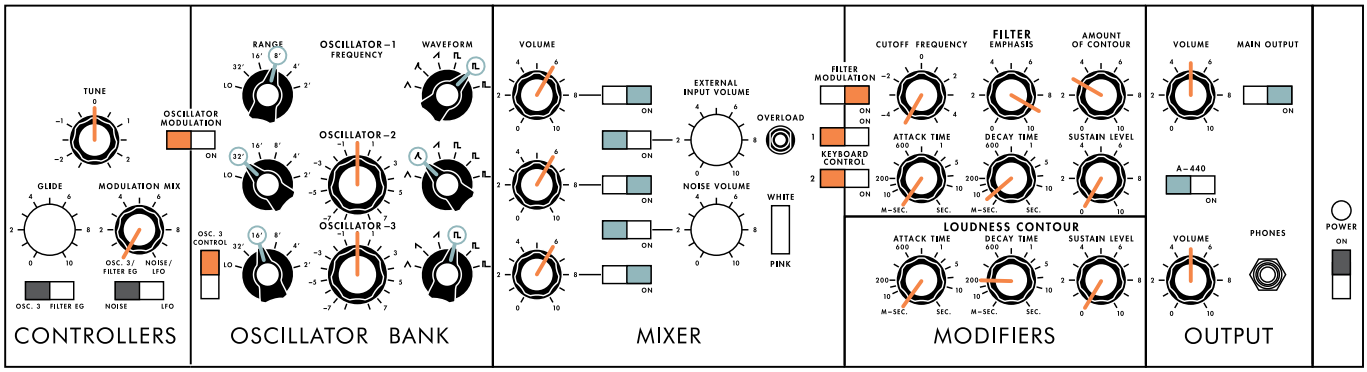


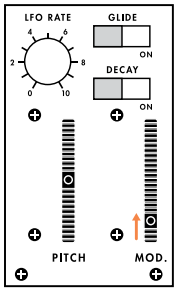
Notes:

Set the LFO Rate knob to triangle wave (down position).

Try manipulating the Modulation Mix Control position.

Sound: Rez Hit

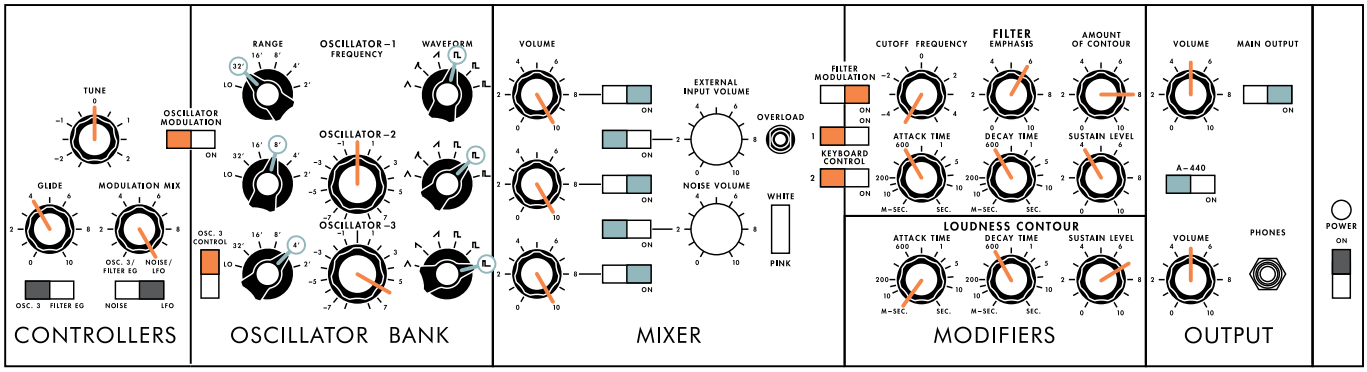


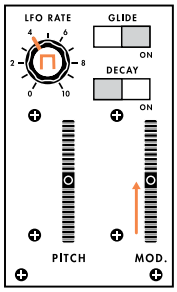


Notes:

Play with the Mod Wheel for varied effect.

Sound: Square Meow

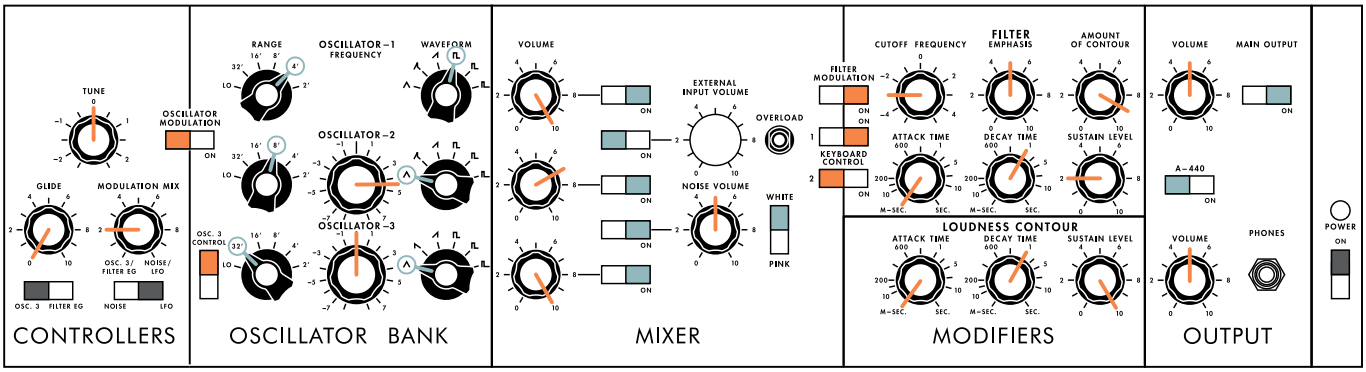


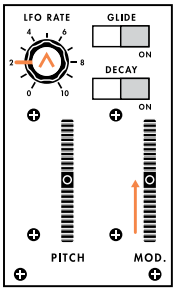


Notes:

Set the LFO Rate knob to square wave (up position).

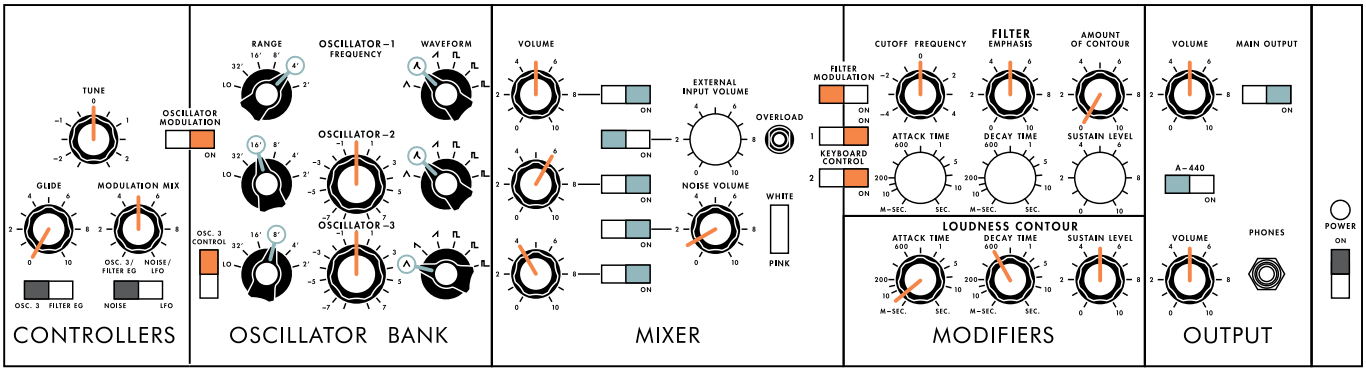
Sound: Level 3

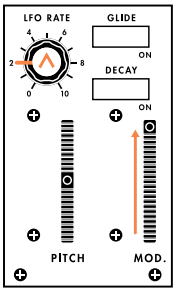




Notes:

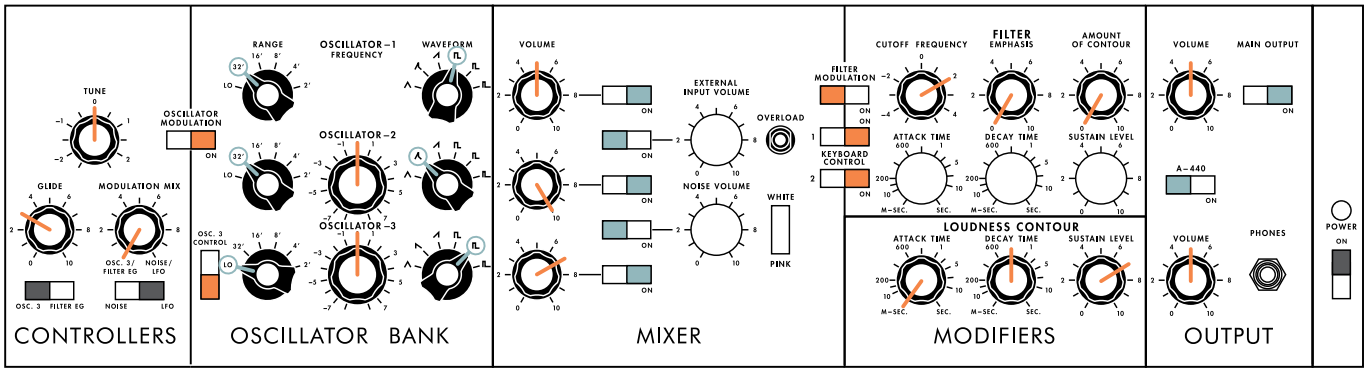
Sound: The Haunting

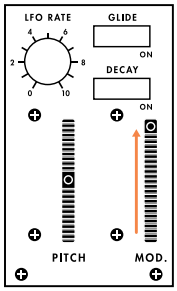




Notes:

Sound: The Jump

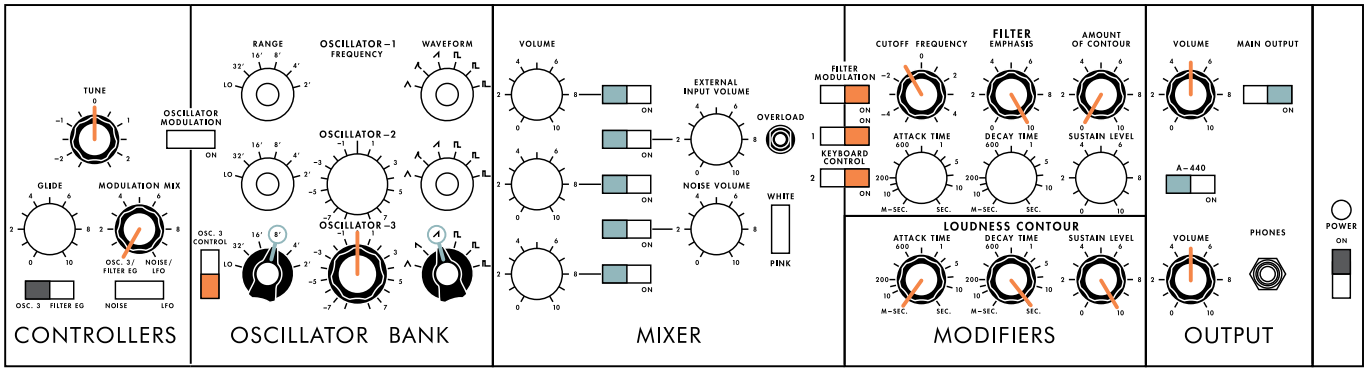


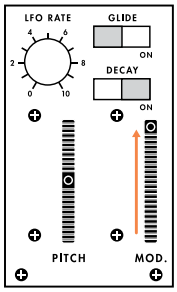


Notes:

Use Mod Wheel to introduce modulation.

Sound: Broken Radio





Notes:

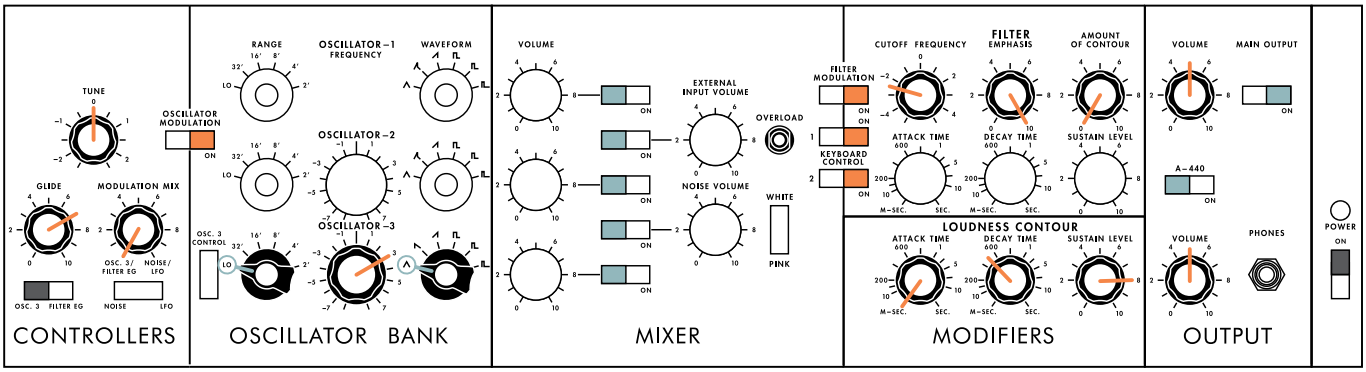
All Oscillator-3 controls, Filter Cutoff, and Mod Wheel values can be changed or varied to create interesting effects.

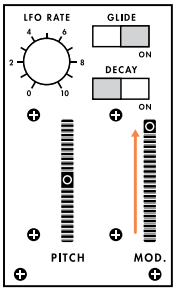
Having a long release time after striking notes allows both hands to change multiple knob values at once.

Try changing Cutoff and Oscillator-3 Frequency simultaneously.

Use Mod Wheel to introduce modulation.

Sound: West Coast Ghost Lead



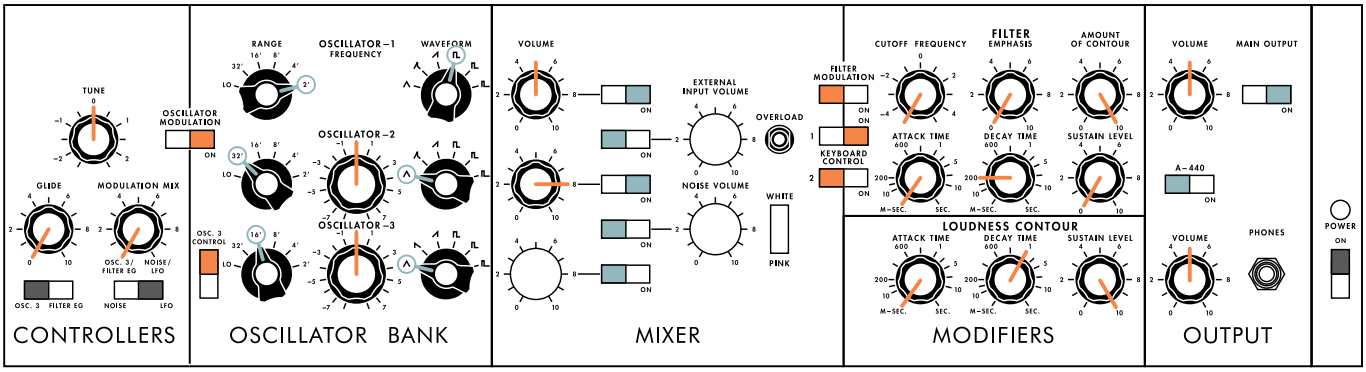


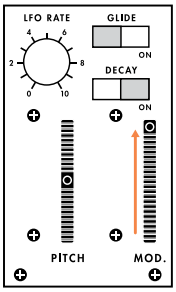
Notes:

Using the A-440 Switch, press A2 on the Keyboard and tune the Cutoff Frequency to A-440 (approx. 9 o'clock).

Use Mod Wheel to introduce modulation.

Sound: Outlaw



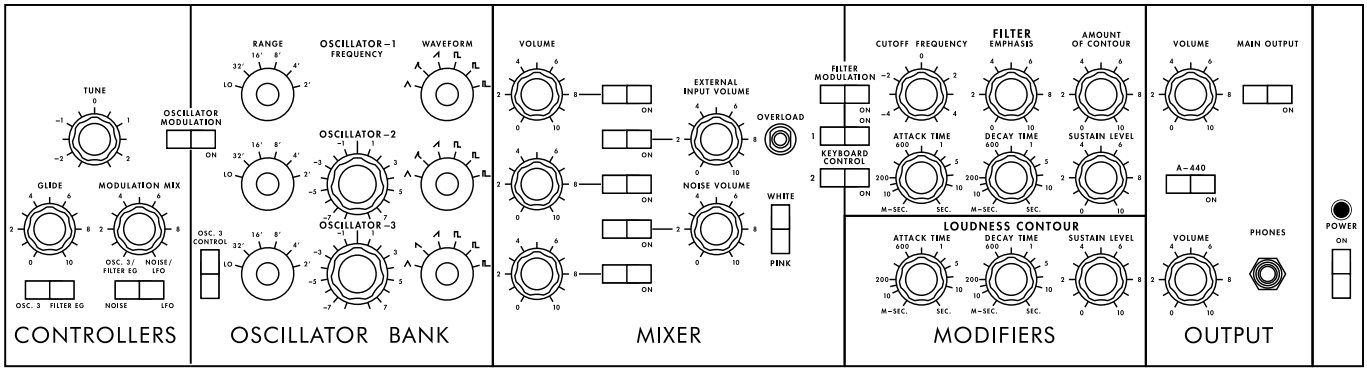


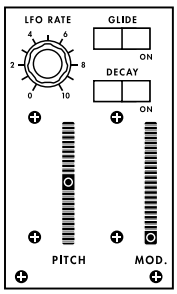
Notes:

Turn Oscillator-2 On/Off to introduce bass.

Use Mod Wheel to introduce modulation.

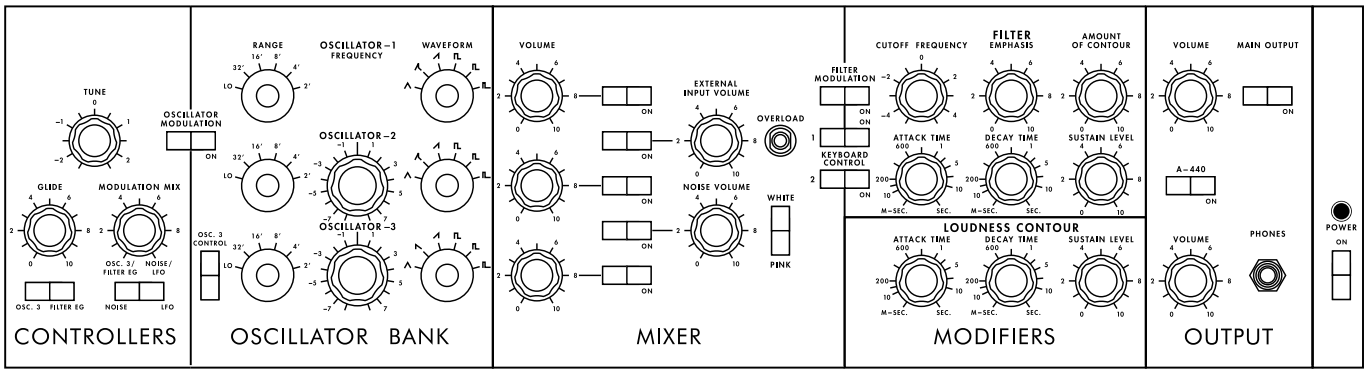
Sound: _____

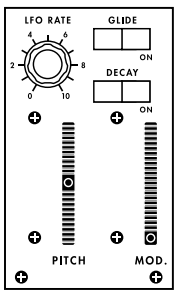




Notes:

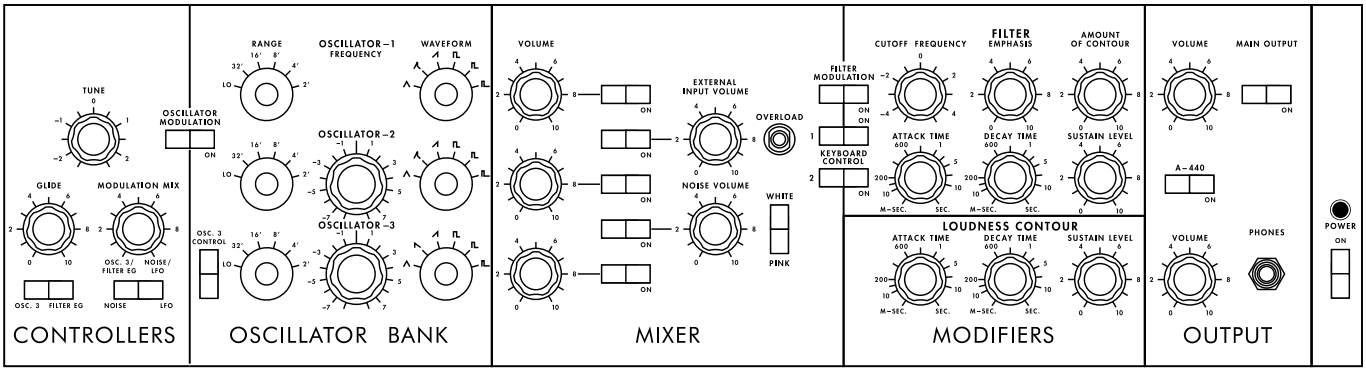
Sound: _____

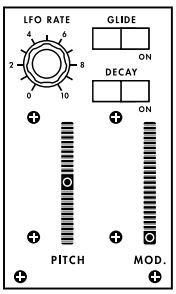




Notes:

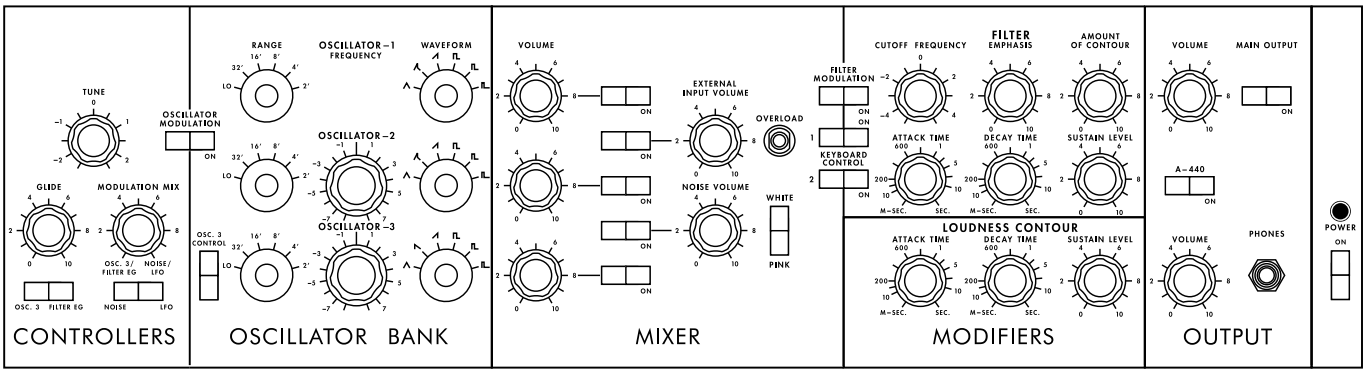
Sound:

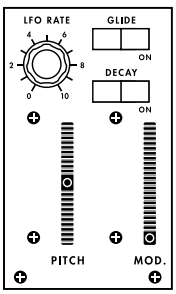




Notes:

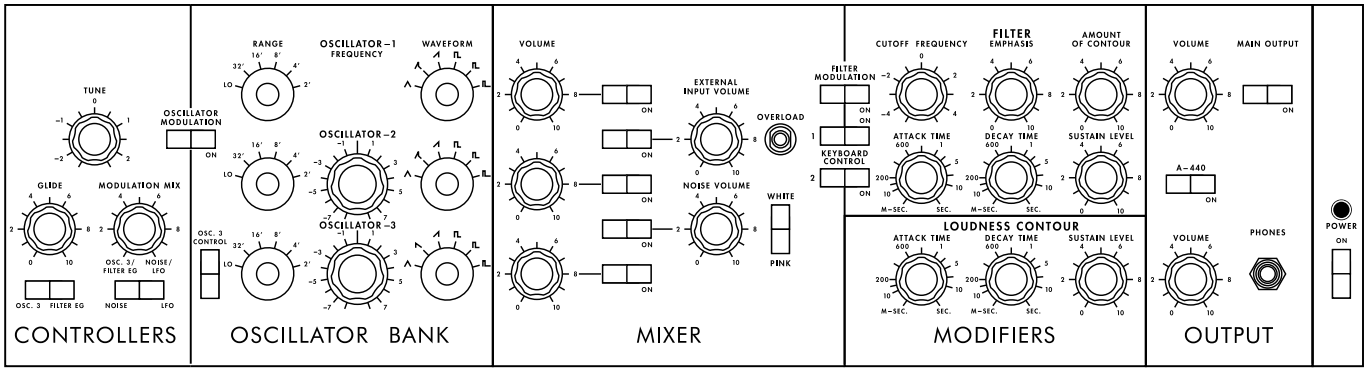
Sound:

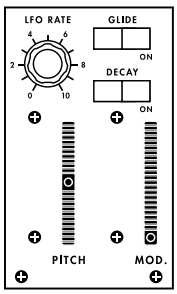




Notes:

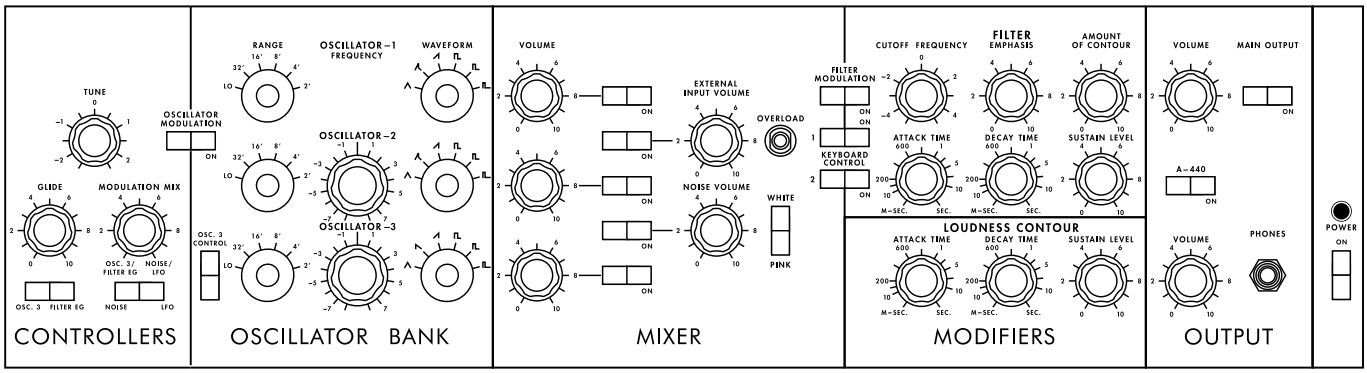
Sound:

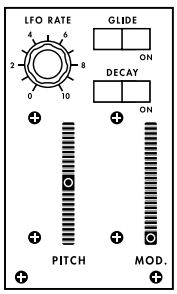




Notes:

Sound:





Notes:

Specifications

DIMENSIONS (WITH PANEL FULLY LOWERED)

Width: 28.625” / 727 mm
Depth: 17.125” / 435 mm
Height: 5.75” / 146 mm
Net Weight: 32 lbs. / 14.5 kg.

TEMPERATURE

Storage Temperature: 5F to 140F (2C to 60C)
Nominal Operating Temperature: 50F to 95F (10C to 35C)
Operational Temperature: 50F to 122F (10C to 50C)

SOUND SOURCES

Oscillators x 3
Noise Generator
External Input

OSCILLATORS

Frequency Range: 0.1 to 20kHz (In Six Overlapping Ranges)
Oscillator Stability (short term) > 0.25 %
Waveforms:
Triangle
Triangle-Sawtooth (Oscillator–1, Oscillator–2)
Reverse Sawtooth (Oscillator–3)
Sawtooth
Rectangle
Wide Pulse
Narrow Pulse

NOISE GENERATOR

White and Pink

LFO

Rate: 0.05Hz to 200Hz
Waveform: Triangle (knob down); Square (knob up)

EXTERNAL INPUT

Input Range: +10 millivolts to +2 volts
Input Impedance: 1MEGOhms

FILTER

Filter Type: Voltage-Controlled Low Pass (Moog Ladder Filter)
Cutoff Frequency Range:
10Hz to 20kHz
Filter Slope: 24dB per Octave
Filter Resonance: At Cutoff Frequency

CONTOUR GENERATORS

Attack Time: 1 millisecond to 10 seconds
Decay Time: 4 milliseconds to > 35 seconds
Sustain Level: 0 to 100% of Contour peak
Filter Contour Width: 0 to 4 Octaves

VOLTAGE-CONTROLLED AMPLIFIERS (VCA)

Loudness Contour Dynamic Range: 80dB

AUDIO INPUT LEVELS

1/4” External Signal Input Voltage: +10 millivolts (min); +10 volt (max.)
Nominal Input Impedance: 100KOhms

AUDIO OUTPUT LEVELS

High Level Output Typical Voltage: 0.5 volts
Maximum Voltage: 4.2 volts (peak-to-peak)
Nominal Output Impedance: 3KOhms
Low Level Output (30dB below High level)
Typical Voltage: 15 millivolts
Nominal Output Impedance: 1KOhms
Headphone Output (stereo)
Maximum Voltage: 0.3 volts
Output Impedance: 8Ohms

KEYBOARD

Key Action: Synthesizer (Spring)
Number of Keys: 44
Key Range: F0 to C4
Priority (Low, High, Last): User Selectable
Hardwired Connections: Oscillator–1 (Pitch)
Oscillator–2 (Pitch)
Filter Contour (Trigger) Loudness Contour (Trigger)
Switchable Connections: Oscillator–3 (Pitch)
Filter (Keyboard Tracking 1/3) Filter (Keyboard Tracking 2/3)
Typical Voltage: 0.5 volts
Maximum Voltage: 4.0 volts (peak-to-peak)
Nominal Output Impedance: 3KOhms
Glide Rate (octave): 1 millisecond to 10 seconds
Pitch Bend Range: (+/-) 7 semitones

Specifications

CONTROL VOLTAGE OUTPUTS

After Pressure (Aftertouch): 1/4" TS
0 to +5 volts with user adjustable trimpot
Pitch: 1/4" TS
-3 volts to +7 volts. C1=1 volt
Gate: 1/4" TS
0 to +5 volts
Velocity: 1/4" TS
Global selection of either 0 to +5Volts or 0-10volts. Manual attenuation with trimpot.

CONTROL VOLTAGE INPUTS

Loudness: 1/4" TRS 0 to +5 volts; +5 volts = Unity Gain Ring connector allows pedal control via Moog EP-3 Expression Pedal
Filter (Cutoff Frequency): 1/4" TRS 1 volt per octave of change Ring connector allows pedal control via Moog EP-3 Expression Pedal
Oscillators (Pitch): 1/4" TRS 1 volt per octave of change Ring connector allows pedal control via Moog EP-3 Expression Pedal
Modulation Source: 1/4" TRS Ring=Noise Send; Tip=Modulation Receive (This jack makes a normalled connection with no cable present.)
Trigger: +5 volt V-Trigger; 1/4" TS Activates both Contour Generators

MIDI JACKS (5-PIN DIN STYLE)

MIDI In: Note On (Trigger), Note #, Velocity, Pitch Bend, and Mod Wheel
MIDI Out: Note On (Trigger), Note #, Velocity, Aftertouch, Pitch Bend, and Mod Wheel
MIDI Thru: Mirror of the MIDI In signal

POWER SUPPLY

Self-switching external supply; 100–240 volts; 50/60Hz; <12 Watt nominal consumption. Locking XLR-4 connector

Moog Music Standard Warranty

Moog warrants its products to be free of defects in materials or workmanship and conforms to specifications at the time of shipment. The Warranty Period is one year from the date of purchase. If, in Moog's determination, it has been more than five years since the product shipped from our factory, it will be at Moog's discretion whether to honor the warranty without regard to the date of the purchase. During the Warranty Period, any defective products will be repaired or replaced, at Moog's option, on a return-to-factory basis. This warranty covers defects that Moog determines are no fault of the user.

The Moog Limited Warranty applies to USA purchasers only. Outside the USA the warranty policy and associated service are determined by the laws of the country of purchase and supported by our local authorized distributor. A listing of our authorized distributors is available at moogmusic.com.

If you purchase outside of your country, you can expect to be charged for warranty as well as non-warranty service by the service center in your country.

RETURNING YOUR PRODUCT TO MOOG MUSIC

You must obtain prior approval in the form of an RMA (Return Material Authorization) number from Moog before returning any product. Email techsupport@moogmusic.com for the RMA number or call us at (828) 251-0090. All products must be packed carefully and shipped with the Moog supplied power adapter. We recommend packing your instrument securely with thick bubble wrap or packing paper. Please avoid packing peanuts, towels, linens, or clothing. These materials do not offer sufficient support and threaten our ESD-safe work environment. The warranty will not be honored if the product is not properly packed.

Once you have received the RMA number and carefully packed your Minimoog Model D, ship the product to Moog Music Inc. with transportation and insurance charges paid, and be sure to include your return shipping address.

MOOG MUSIC, 160 Broadway St, Asheville, NC, 28801, USA

WHAT WE WILL DO

Once received, we will examine the product for any obvious signs of user abuse or damage as a result of transport. If the product is abused, damaged in transit, or out of warranty, we will contact you with an estimate of the repair cost. Repair work will be performed, and Moog will ship and insure your product to your United States address free of charge.

HOW TO INITIATE YOUR WARRANTY

Please initiate your warranty online at www.moogmusic.com/register. If you do not have web access, please call (828) 251-0090 to register your product.

Service & Support Information

STANDARD INTERNATIONAL WARRANTY

Moog warrants its products to be free of defects in materials or workmanship and conforming to specifications at the time of shipment.

Outside the USA the warranty policy and associated service is determined by the laws of the country of purchase and supported by our local authorized distributors. A listing of our authorized distributors is available at moogmusic.com. Please feel free to reach out to them or the retailer from whom you purchased your instrument for support.

If you have questions regarding your international warranty, please contact techsupport@moogmusic.com.

HOW TO INITIATE YOUR WARRANTY

Please initiate your warranty online at www.moogmusic.com/register. If you do not have web access, please call (828) 251-0090 to register your product.

HOW TO RETURN YOUR INSTRUMENT FOR SERVICE

Outside the USA, service is determined by the laws of the country of purchase and supported by our local authorized distributors. Please reach out to them or the retailer from whom you purchased your instrument for service support.

If you have questions regarding your international service, please contact techsupport@moogmusic.com.

CARING FOR MINIMOOG MODEL D

Clean Minimoog Model D with a soft, dry cloth only—do not use solvents or abrasive detergents. Heed the safety warnings at the beginning of the manual.

AN IMPORTANT NOTE ABOUT SAFETY: *There are no user serviceable parts in Minimoog Model D. Refer all servicing to qualified personnel only.*

Minimoog Model D User's Manual Version 2
For the most up-to-date user manual go to www.moogmusic.com/minimoog-model-d

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Email: info@moogmusic.com
Website: www.moogmusic.com