

# HAMMOND



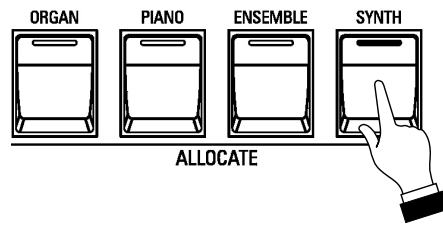
*Sk* **PRO**

**MONO SYNTH  
VOICE  
SECTION**

## MONO SYNTH Voice Section

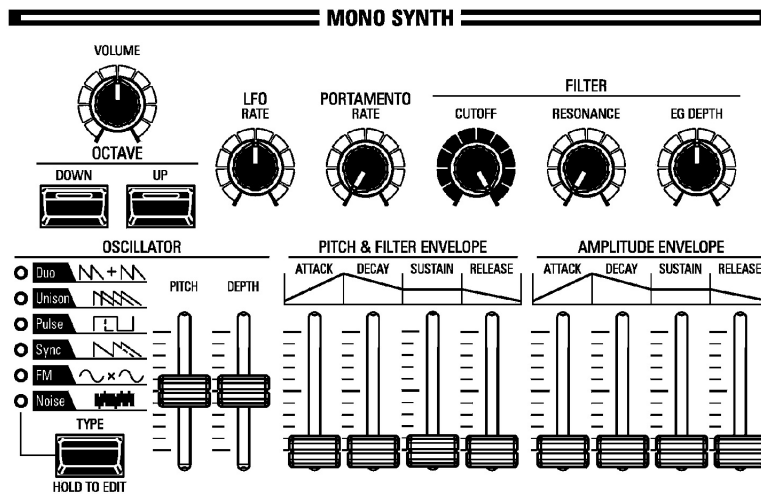
The MONO SYNTH Voice Section, as the name implies, is a monophonic synthesizer utilizing physical modeling to create the sounds and effects of classic analog synthesizers. There are several individual "Oscillator Types" which can be modified by the Filter (timbre), Amplitude (volume), Section Effects (Multi Effects and Overdrive) and the Equalizer. Timed characteristics such as LFO and Envelope Generators for Pitch/Filter and Amplitude are also provided.

To hear the MONO SYNTH Voice Section, Press the SYNTH button in the ALLOCATE button section. The LED will light.



### ◆ MONO SYNTH Controls

The controls for the MONO SYNTH are located to the right side of the Information Center Display.



These controls are explained starting below.

### ◆ VOLUME Rotary Control

This control allows you to adjust the volume of the MONO SYNTH Section.

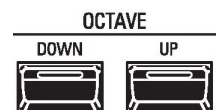
Turn this Rotary Control to the right to increase the Volume.

Turn this Rotary Control to the left to decrease the Volume.



### ◆ OCTAVE buttons

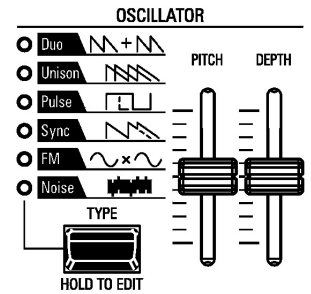
These controls allow you to select the Octave range in which the MONO SYNTH will play. You can select from -2 (up to two octaves down) to +2 (up to two octaves up).



## ◆ OSCILLATOR controls

An Oscillator is the basic sound-producing unit of an analog synthesizer. There are several different types which produce different waveforms having different harmonic structures. These in turn can be manipulated in various ways to produce a wide variety of different musical effects.

The MONO SYNTH on the SK PRO follows the pattern of classic analog synthesizers. “Mono” is an abbreviation for “monophonic,” meaning if multiple notes are played on the keyboard, only one note will sound.



### OSCILLATOR TYPE

The SK PRO has 6 audio oscillator settings which can be manipulated to produce a wide variety of tones. These are explained starting below.

#### DUO

This setting utilizes two different pitched Oscillators. The first Oscillator (OSC1) sounds at “true pitch,” while the second Oscillator (OSC2) can be transposed up or down by one (1) octave in half-step increments. If the OSC2 LEVEL is set to 0, only OSC1 will sound. This Oscillator type is useful for Bass, Lead and “chord” effects.

#### UNISON

This setting utilizes from one to seven Oscillators, one of which can be detuned against the other. It can be used for celeste, chorus, or other purposely “out-of-tune” effects.

#### PULSE

A Pulse (or rectangular) waveform has a variable width known as the “duty cycle.” The sound can be modified by changing the pulse width or duty cycle. For example, a duty cycle of 50% will produce a clarinet-like sound while a duty cycle of 6% will yield a bright, brass-like tone quality.

#### SYNC

This setting utilizes two Oscillators which synchronize against each other to produce overtone effects.

#### FM

This setting utilizes two Oscillators or “operators. OSC1 is the “carrier tone” and OSC2 is the “modulating tone.” You can create both “harmonic” and “inharmonic” tonal effects.

Adjusting the OSC2 pitch down creates wind-instrument sounds such as flute, brass, etc., while adjusting the OSC2 pitch up is suitable for bell-like or “metallic” tones.

Setting the FB (feedback) at Half allows you to create string-type tones while Full is useful for unpitched or “noise”-type tones.

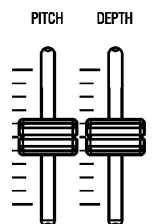
#### NOISE

This setting creates unpitched sounds or “noise.” The sound changes from “noise” to “random pitched tones” by controlling the sampling rate. A high sampling rate creates “seashore” type effects, a slightly lower rate yields a “noisy percussion,” and a still lower rate creates effects suggestive of a “retro science-fiction movie.” This setting utilizes two different pitched Oscillators similar to Duo.

### OSCILLATOR PITCH & DEPTH sliders

These two sliders modify the selected Oscillator waveform.

**NOTE:** The DEPTH slider may have different functions depending on which Oscillator is selected.



### ◆ LFO RATE Rotary Control

This control allows you to adjust the rate of the Low Frequency Oscillator (LFO).

Turn this Rotary Control to the right to increase the Rate.

Turn this Rotary Control to the left to decrease the Rate.



### ◆ PORTAMENTO RATE Rotary Control

This control allows you to adjust the rate of the Portamento feature.

Turn this Rotary Control to the right to increase the Rate.

Turn this Rotary Control to the left to decrease the Rate.



**NOTE:** Portamento refers to a smooth transition or “sliding” from one note to another.

**NOTE:** The PORTAMENTO button must be “ON” (orange LED lit) to hear the Portamento effect.

### ◆ FILTER CUTOFF Rotary Control

This control allows you to select the frequency at which the filter begins to have an effect on the waveform’s frequency components.



### ◆ FILTER RESONANCE Rotary Control

This control allows you to Emphasizes the portion of the sound in the region of the cutoff frequency.



### ◆ FILTER EG DEPTH Rotary Control

This control allows you to adjust the depth of the filter envelope.



## ◆ WHAT IS “ADSR?”

“ADSR” is an acronym for Attack, Decay, Sustain and Release. These four Parameters allow you to change different characteristics of the sound.

Attack refers to the amount of time for the sound to “build” to its peak level from its initial setting when a key is first pressed.

Decay refers to the change from the peak level to a “sustain” level which will be maintained as long as a key is held.

Sustain refers to the level at which the sound “arrives” and which will continue as long as a key is held.

Release refers to the amount of time for the sound level to fade away to zero after a key is released.

## ◆ WHAT IS AN “ENVELOPE?”

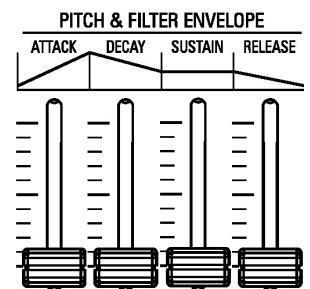
Envelope refers to the behavior of the ADSR Parameters over time as a key is pressed and held.

The eight sliders on the SK PRO allow you to adjust Pitch, Filter and Amplitude Envelopes. The Pitch Envelope allows you to control the pitch of the sound, the Filter Envelope will control the quality or timbre of the sound and the Amplitude Envelope allows you to control the volume of the sound.

**NOTE:** If you access the Parameters in the SYNTH FUNCTION Mode, you will notice violet-colored shapes either on the right side or at the bottom of the screen. These are visual representations of the Envelope shapes of the selected Parameter. You will see their shapes change in response to the edits you make.

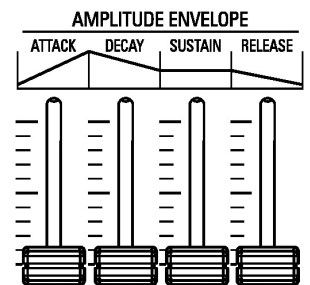
### ◆ PITCH & FILTER ENVELOPE sliders

These allow you to adjust the changing over time of the pitch and filter.



### ◆ AMPLITUDE ENVELOPE sliders

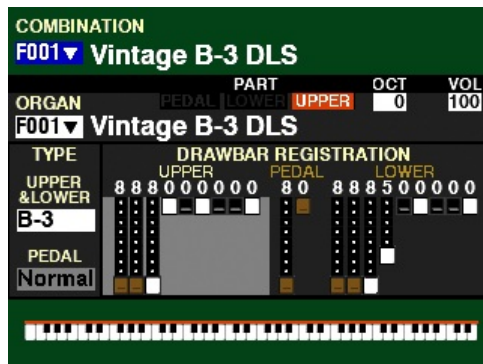
These allow you to adjust the changing over time of the amplitude or volume.



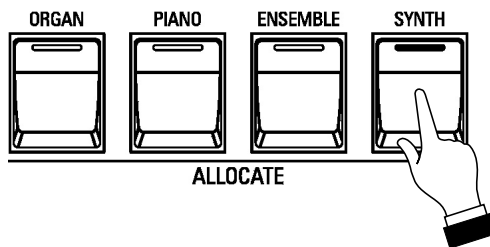
## ◆ Selecting a MONO SYNTH Patch

### TRY THIS:

1. Make sure COMBINATION **F001** is selected (see the line at the top of the screen).



2. Press the **SYNTH** button in the **ALLOCATE** Section. The red LED will light.



The Information Center Display should now look similar to this:



3. Play some notes. You will now hear the current registration for the **MONO SYNTH**.

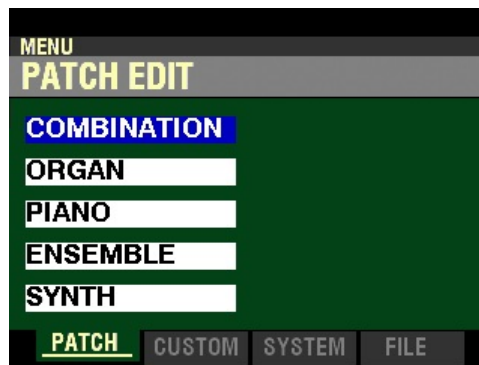
Notice the Patch number underneath "SYNTH" is highlighted.

## ◆ PATCH EDIT - SYNTH

This FUNCTION Mode allows you to modify the characteristics of the MONO SYNTH Voices according to your preference.

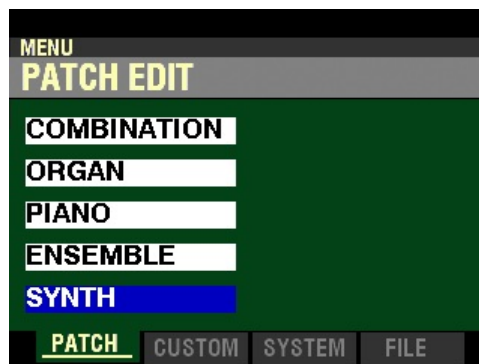
### ◆ Accessing the PATCH EDIT - SYNTH FUNCTION Mode using the MENU/EXIT button:

1. From any of the PLAY Mode screens, press the MENU/EXIT button once. The Information Center Display should now look like this:

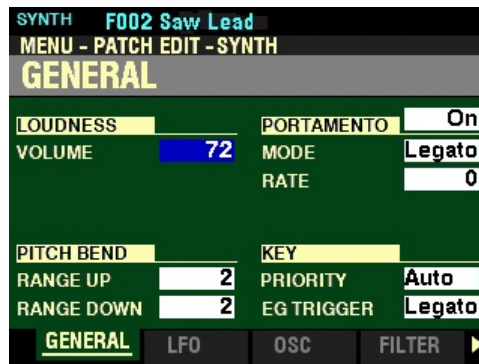


The word “COMBINATION” should be highlighted.

2. Press the DIRECTION “▼” button four times. The word “SYNTH” should be highlighted.

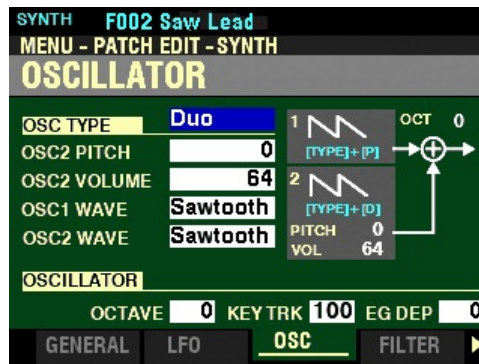


3. Press the ENTER button. The Information Center Display should now look like this:



◆ Accessing the PATCH EDIT - SYNTH FUNCTION Mode using the Shortcut:


Press and Hold the HOLD TO EDIT button in the MONO SYNTH Voice Section, depending on which Voice you want to edit. You will see the OSCILLATOR screen:

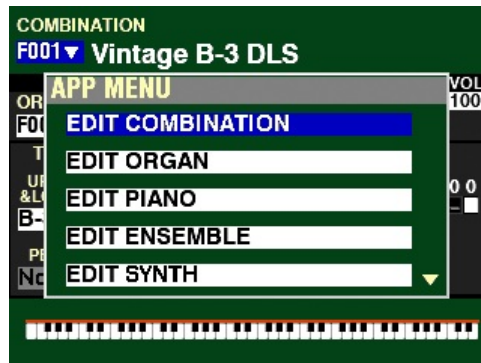


**NOTE:** The OSCILLATOR screen is actually the third screen of the PATCH EDIT - SYNTH FUNCTION Mode.




◆ Accessing the PATCH EDIT - SYNTH FUNCTION Mode via the APP MENU:

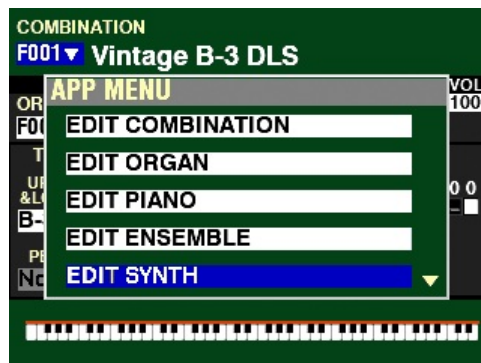
1. From any of the PLAY Mode screens, Press and Hold the MANUAL “” button. The Information Center Display should now look like this:



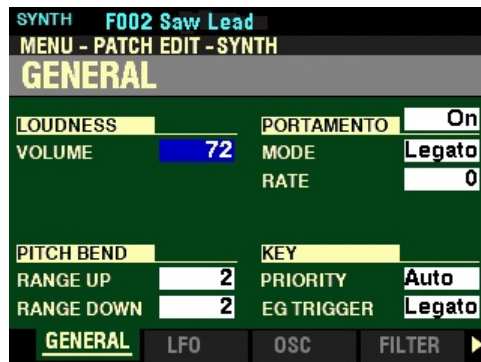
The box “EDIT COMBINATION” should be highlighted.

**NOTE:** The APP MENU may not display all Voice Sections, depending on which Voice Sections are active for the selected Combination.

2. Press the DIRECTION “” button four times. The box “EDIT SYNTH” should be highlighted.

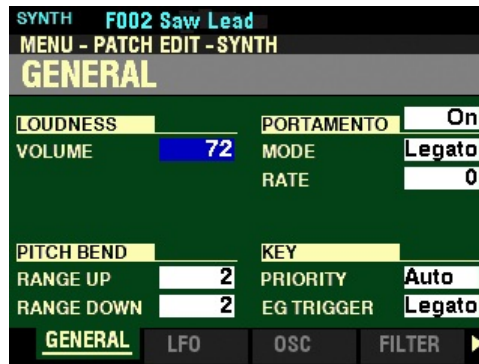


3. Press the ENTER button. The Information Center Display should now look like this:



You are now in the PATCH EDIT - SYNTH FUNCTION Mode. You may now use the DIRECTION and PAGE buttons in conjunction with the VALUE knob to make various changes to the Patches. These changes are explained starting on the next page.

## ◆ GENERAL Parameters



**NOTE:** To see the MENU shown above after using the Shortcut, press the PAGE LEFT button two times.

## LOUDNESS

## VOLUME

This Parameter allows you to adjust the overall volume of the selected MONO SYNTH Patch. You can select from 0 - (no Volume) to 127 (maximum Volume).

Turn the VALUE knob to the right to increase the Volume.

Turn the VALUE knob to the left to decrease the Volume.

**NOTE:** The **Loudness** Parameter serves to set the maximum volume of the selected MONO SYNTH Patch and works independently of the SYNTH VOLUME knob. The overall volume of the MONO SYNTH Voice Section is controlled by the SYNTH VOLUME knob. The MASTER VOLUME knob and/or a connected Expression Pedal will control the volume of the entire instrument.

*From the above screen, press the DIRECTION “▼” button once.*



*The box to the right of “RANGE UP” should be highlighted.*

## PITCH BEND

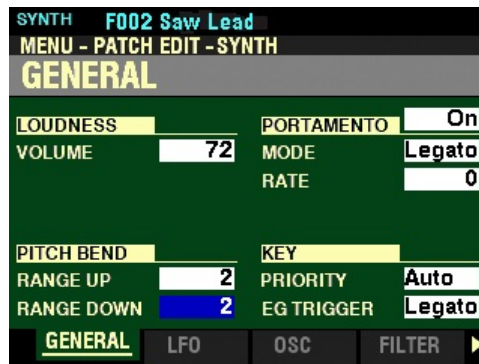
## RANGE UP

This Parameter allows you to adjust the number of semitones the Pitch Bend Wheel will bend the pitch of the selected Patch up. You can select from 1 to 12 semitones, 12 semitones being a full octave.

Turn the VALUE knob to the right to increase the Range.

Turn the VALUE knob to the left to decrease the Range.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “RANGE DOWN” should be highlighted.

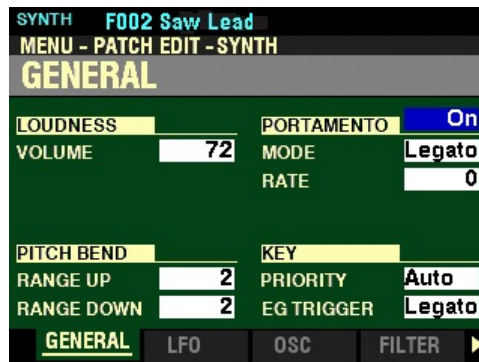
#### RANGE DOWN

This Parameter allows you to adjust the number of semitones the Pitch Bend Wheel will bend the pitch of the selected Patch down. You can select from 1 to 24 semitones,, 24 semitones being two full octaves.

Turn the VALUE knob to the right to increase the Range.

Turn the VALUE knob to the left to decrease the Range.

From the above screen, use the DIRECTION buttons to move the cursor to the right side of the display so the Information Center Display looks like this:



The box to the right of “PORTAMENTO” should be highlighted.

#### PORTAMENTO

#### ON / OFF

This Parameter allows you to turn the Portamento effect “ON” or “OFF” for the selected Patch.

Turn the VALUE knob to turn Portamento “ON” or “OFF.”

**NOTE:** As explained on page 276, Portamento refers to a smooth transition or “sliding” from one note to another.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “MODE” should be highlighted.

**MODE**

This Parameter allows you to adjust how to control the Portamento effect from the keyboard.

The data chart below shows the options you may select.

PORTAMENTO MODE	
Parameter	Description
Every	The Portamento will be heard with every keypress.
Legato	The Portamento will be heard only when keys are played “legato” (a key is depressed while another key is held).

Turn the VALUE knob to make your selection.

From the screen shown on the previous page, press the DIRECTION “▼” button once.



The box to the right of “RATE” should be highlighted.

## RATE

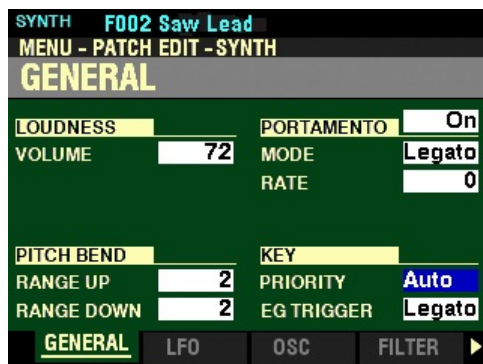
This Parameter allows you to adjust the rate at which the pitch rises or falls when Portamento is “ON.” You can select from 0 (the pitch will rise or fall instantaneously) to 127 (the pitch rises and falls at the slowest rate). Intermediate rates will cause the pitch to rise or fall at rates between 0 and 127.

Turn the VALUE knob to the right to increase the Portamento Rate.

Turn the VALUE knob to the left to decrease the Portamento Rate.

**NOTE:** The PORTAMENTO button must be “ON” (orange LED lit) to hear the Portamento effect.

From the screen shown on the previous page, press the DIRECTION “▼” button once.



The box to the right of “PRIORITY” should be highlighted.

## KEY

## PRIORITY

This Parameter allows you to adjust which note will sound if more than one note is played. The data chart below shows the options you may select.

KEY PRIORITY Settings	
Parameter	Description
Auto	Sounds highest note played when used with other Sections. Sounds last played note when used alone.
Last	The last played note will sound
Lowest	The lowest note played will sound.
Highest	The highest note played will sound.

Turn the VALUE knob to make your selection.

From the screen shown on the previous page, press the DIRECTION “▼” button once.



The box to the right of “EG TRIGGER” should be highlighted.

#### EG TRIGGER

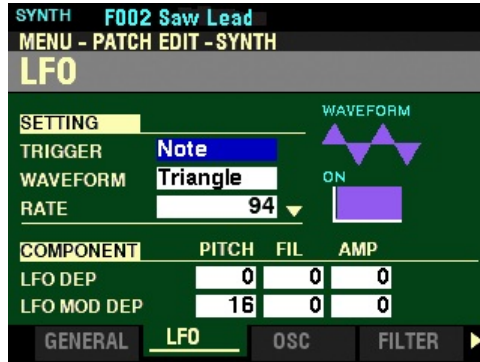
This Parameter allows you to adjust whether the Envelope will reset each time a key is depressed.

The data chart below shows the options you may select.

LFO TRIGGER MODE	
Parameter	Description
Note	The LFO of each note oscillates individually. Each LFO will start its cycle when a key is depressed.
Free	Pressing a key will intercept the LFO at whatever point it happens to be in its cycle.

Turn the VALUE knob to make your selection.

From the screen shown on the previous page, press the PAGE “▶” button once. The LFO Page should now display.



The box to the right of “TRIGGER” should be highlighted.

◆ LFO

This Page allows you to adjust the “Low Frequency Oscillator” (LFO, which creates Vibrato or Tremolo effects) and its depth.

SETTING

These Parameters allow you to control the overall settings for the LFO.

TRIGGER MODE

This Parameter allows you to adjust whether the phase of the LFO will reset each time a key is depressed.

The data chart below shows the options you may select.

LFO TRIGGER MODE	
Parameter	Description
Note	The LFO of each note oscillates individually. Each LFO will start its cycle when a key is depressed.
Free	Pressing a key will intercept the LFO at whatever point it happens to be in its cycle.

Turn the VALUE knob to make your selection.



From the screen shown on the previous page, press the DIRECTION “▼” button once.



The box to the right of “WAVEFORM” should be highlighted.

**WAVEFORM**

This Parameter allows you to select the waveform of the LFO.

The data chart below shows the options you may select.

LFO WAVEFORM	
Waveform	Description
Triangle	A waveform which smoothly rises to a peak point and smoothly drops to a zero voltage.
Square	A waveform which sharply rises to a peak point and sharply drops to a zero voltage.
Rectangular Square	A waveform which smoothly rises to a peak point and smoothly drops to a zero voltage.
Saw Up	A sawtooth wave which ramps upward and drops sharply to a zero voltage.
Saw Down	A sawtooth wave which ramps downward to a zero voltage and rises sharply.
S/H (Sample/Hold)	Samples the input analog signal and holds the sampled signal for a specified time.
Fluctuation	Random waveform with no periodicity.

Turn the VALUE knob to make your selection.

From the screen shown on the previous page, press the DIRECTION “▼” button once.



The box to the right of “RATE” should be highlighted.

#### RATE

This Parameter allows you to adjust the Oscillation Rate of the LFO. You can select from 0 (the slowest rate) to 127 (the fastest rate).

Turn the VALUE knob to the right to increase the Rate.

Turn the VALUE knob to the left to decrease the Rate.

From the above screen, press the DIRECTION “▼” button once.



The box to the right of “DELAY TIME” should be highlighted.

#### DELAY TIME

This Parameter allows you to adjust the amount of time after the initial keypress before the LFO begins oscillating. You can select from 0 (the LFO begins immediately) to 127 (maximum time).

Turn the VALUE knob to the right to increase the Delay Time.

Turn the VALUE knob to the left to decrease the Delay Time.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “ATTACK RATE” should be highlighted.

#### ATTACK RATE

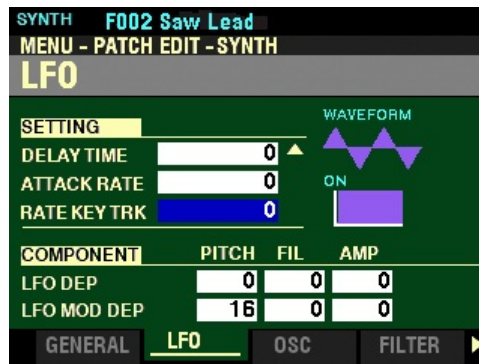
This Parameter allows you to adjust the amount of time for the LFO to build to its full amount when using Delay Time. You can select from 0 (the LFO begins immediately when a key is depressed) to 127 (maximum time).

Turn the VALUE knob to the right to increase the Attack Time.

Turn the VALUE knob to the left to decrease the Attack Time.

**NOTE:** Delay Time must be set to some value other than 0 to hear the effect of this Parameter.

From the above screen, press the DIRECTION “▼” button once.



The box to the right of “RATE KEY TRK” should be highlighted.

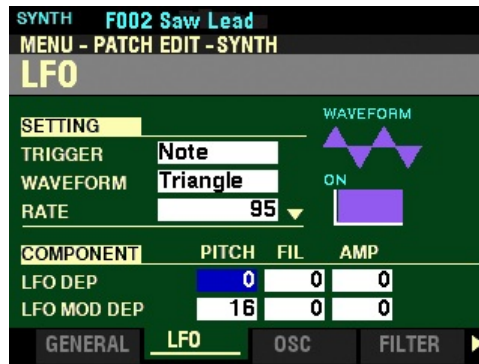
#### ATTACK RATE KEY TRACK

This Parameter allows you to adjust how the Attack Rate is modulated by the note or pitch. You can select from 0 (no Key Tracking) to 127 (maximum Key Tracking - the Attack Rate increases as higher notes are played).

Turn the VALUE knob to the right to increase the amount of Attack Key Tracking.

Turn the VALUE knob to the left to decrease the amount of Attack Key Tracking.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “LFO DEP” should be highlighted.

## LFO DEPTH

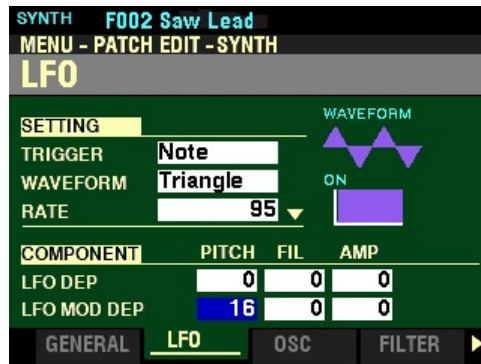
These three Parameters allow you to adjust the depth of the LFO for individual characteristics of the sound. You can select from 0 to 127.

The data chart below shows the options you may select.

LFO DEPTH Options	
Parameter	Description
PITCH	Allows you to adjust the depth of the LFO for controlling Pitch.
FIL	Allows you to adjust the depth of the LFO for controlling the Filter
AMP	Allows you to adjust the depth of the LFO for controlling Amplitude or Level.

Turn the VALUE knob to make your selection.

From the screen shown on the previous page, press the DIRECTION “▼” button once.



The box to the right of “LFO MOD DEP” should be highlighted.

### LFO MOD DEPTH

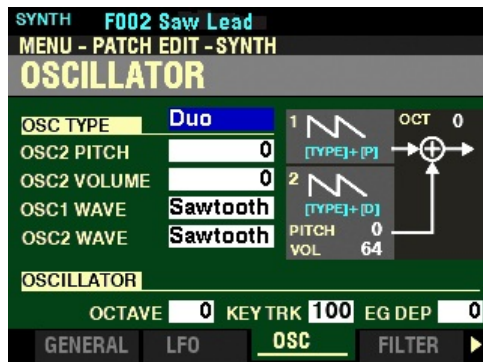
These three Parameters allow you to adjust the maximum depth of the LFO added by the Modulation Wheel. You can select from 0 to 127.

The data chart below shows the options you may select.

LFO MOD DEPTH Options	
Parameter	Description
PITCH	Allows you to adjust the maximum depth of the LFO for controlling Pitch.
FIL	Allows you to adjust the maximum depth of the LFO for controlling the Filter
AMP	Allows you to adjust the maximum depth of the LFO for controlling Amplitude or Level.

Turn the VALUE knob to make your selection.

From the screen shown on the previous page, press the PAGE “▶” button once. The OSCILLATOR Page should now display.



The box to the right of “OSC TYPE” should be highlighted.

## ◆ OSCILLATOR

**NOTE:** You can also SHORTCUT into this Page by pressing and holding the SHIFT button and moving the OSCILLATOR PITCH or DEPTH sliders.

This Page allows you to adjust the oscillating method or pitch.

### TYPE

This Parameter allows you to select the Oscillator to be modified.

**NOTE:** The data chart shown below gives a short description of the options you may select. For a complete description of Oscillator Types and Characteristics, please consult page 275. To see the Parameters for each Oscillator Type explained individually please consult page 297.

The data chart below shows the options you may select.

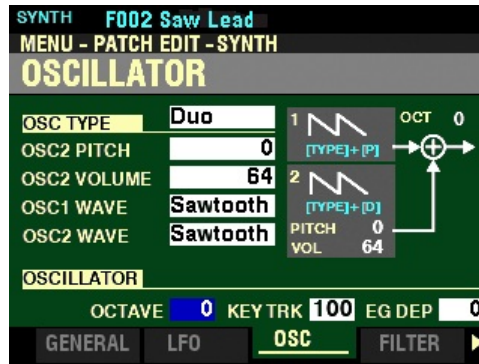
OSCILLATOR TYPES	
Type	Description
Duo	Two oscillators at different frequencies.
Unison	Several oscillators sounding in unison which can be detuned.
Sync	A single oscillator sounds synchronized with “out-of-tune” frequency.
Pulse	A single oscillator sounds as a pulse wave
FM	Using one waveform to change or modulate another waveform, resulting in different sounds.
Noise	A single oscillator sounds various types of noise.

Turn the VALUE knob or press the TYPE button to make your selection.

**NOTE:** If you press the TYPE button, you will see the box to the right of “OSC TYPE” change each time the TYPE button is pressed. You will also see the orange LEDs in the OSCILLATOR group change to indicate the selected Oscillator. Each time a different Oscillator is selected you will see different Parameters displayed according to which Parameters apply to that particular Oscillator

Because each Oscillator has different Parameters, each Oscillator will be detailed and its Parameters explained starting on the next page.

From the screen shown on the previous page, press the DIRECTION “▼” button repeatedly until the box to the right of “OCTAVE” is highlighted.



**NOTE:** The three Parameters described on the next two pages affect whatever Oscillator Type is selected.

## OCTAVE

This Parameter allows you to select the Octave or pitch at which the selected Oscillator will sound. The data chart below shows the options you may select.

OCTAVE Options	
Parameter	Description
-2	The sound is two octaves below the regular pitch.
-1	The sound is one octave below the regular pitch.
0	The sound is at normal pitch.
+1	The sound is one octave above the regular pitch.
+2	The sound is two octaves above the regular pitch.

Turn the VALUE knob or press the OCTAVE buttons on the Control Panel to make your selection.

From the above screen, press the DIRECTION “▶” button once.

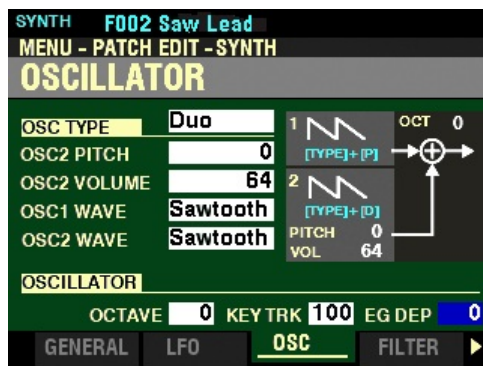


The box to the right of “KEY TRK” should be highlighted.

## KEY TRACK

This Parameter allows you to adjust the amount of pitch change between keys on the keyboard. You can select from 0 to +100. At +100 the musical distance between any two adjacent notes will be 100 cents or one half-step. This is the normal setting. At +50 the notes will be one quarter-step apart. At 0, every note on the keyboard will sound the same pitch.

From the screen shown at the bottom of the previous page, press the DIRECTION “▶” button once.



The box to the right of “EG DEP” should be highlighted.

## EG DEPTH

This allows you to adjust the depth of the pitch change by the Pitch Envelope. You can select from -64 to +63. At 0 there is no pitch change. At -64 the pitch will change down one octave. At +63 the pitch will change up one octave.

Turn the VALUE knob to the right to raise the Pitch by the Pitch Envelope.

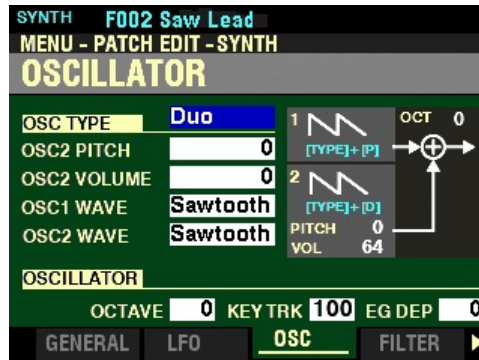
Turn the VALUE knob to the left to lower the Pch by the Pitch Envelope.



## ◆ OSCILLATOR TYPES

For the explanation of each Oscillator Type, make sure the OSCILLATOR FUNCTION Mode Page is displaying.

**NOTE:** As you go through each of the Oscillator Types, you will notice graphics on the right side of the screen. These are visual representations of the characteristics of the selected Oscillator Type. You will see these graphics change as each Oscillator Type is selected.



The box to the right of “OSC TYPE” should be highlighted.

### DUO

This setting utilizes two different pitched Oscillators. The first Oscillator (OSC1) sounds at “true pitch,” while the second Oscillator (OSC2) can be transposed up or down by one (1) octave in half-step increments. If the OSC2 LEVEL is set to 0, only OSC1 will sound. This Oscillator type is useful for Bass, Lead and “chord” effects.

From the above screen, press the DIRECTION “▼” button once.



The box to the right of “OSC2 PITCH” should be highlighted.

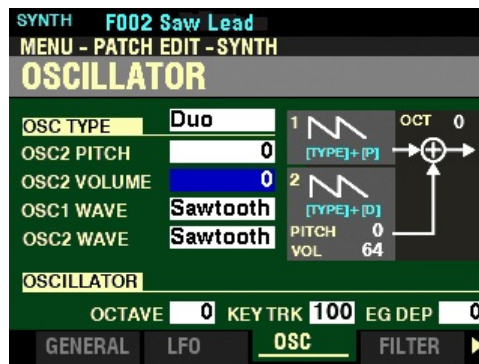
### OSC2 PITCH

This Parameter allows you to transpose the second Oscillator (OSC2) either up or down six (6) semitones or half-steps from the center position.

Move the OSCILLATOR PITCH slider up or turn the VALUE knob to the right to transpose the instrument up.

Move the OSCILLATOR PITCH slider down or turn the VALUE knob to the left to transpose the instrument down.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “OSC2 VOLUME” should be highlighted.

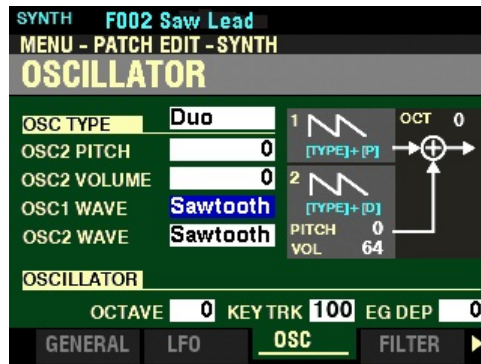
#### OSC2 VOLUME

This Parameter allows you to adjust the Volume of the second Oscillator (OSC2). You can select from 0 (no Volume) to 127 (maximum Volume).

Move the OSCILLATOR DEPTH slider up or turn the VALUE knob to the right to increase the Volume.

Move the OSCILLATOR DEPTH slider down or turn the VALUE knob to the left to decrease the Volume.

From the screen shown on the previous page, press the DIRECTION “▼” button once.



The box to the right of “OSC1 WAVE” should be highlighted.

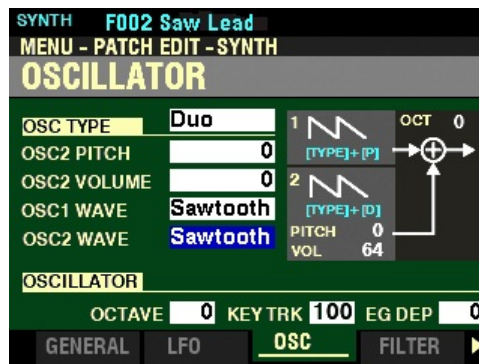
#### OSC1 WAVE

This Parameter allows you to select the Waveform of the first Oscillator (OSC1). The data chart below shows the options you may select.

OSCILLATOR 1 WAVEFORM Options	
Waveform	Description
Sawtooth	A waveform very rich in harmonics, so named because it resembles the teeth of a saw blade. It produces string- or brass-type tones.
Square	A waveform containing only odd-numbered harmonics, so named because of its shape. Its sound closely resembles that of a clarinet.
Saw+Sqr	A sawtooth and square wave mixed together, creating a sound midway in between a sawtooth and square wave.

Turn the VALUE knob to make your selection.

From the screen shown on the previous page, press the DIRECTION “▼” button once.



The box to the right of “OSC2 WAVE” should be highlighted.

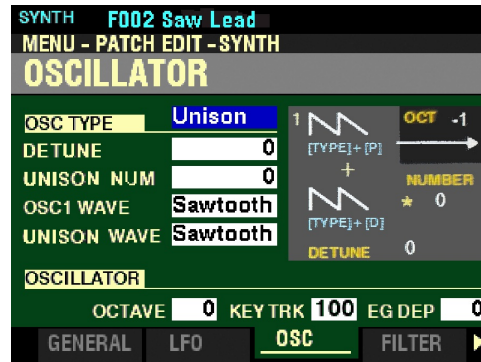
#### OSC2 WAVE

This Parameter allows you to select the Waveform of the second Oscillator (OSC2). The data chart below shows the options you may select.

OSCILLATOR 2 WAVEFORM Options	
Waveform	Description
Sawtooth	A waveform very rich in harmonics, so named because it resembles the teeth of a saw blade. It produces string- or brass-type tones.
Square	A waveform containing only odd-numbered harmonics, so named because of its shape. Its sound closely resembles that of a clarinet.
Saw+Sqr	A sawtooth and square wave mixed together, creating a sound midway in between a sawtooth and square wave.

Turn the VALUE knob to make your selection.

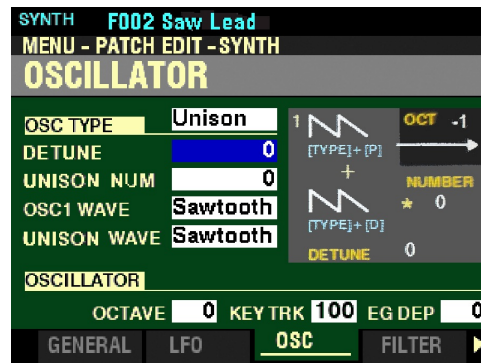
From the screen shown on the previous page, press the DIRECTION “▲” button repeatedly until the box to the right of “OSC TYPE is highlighted. Turn the VALUE Rotary Knob so that “Unison” displays in the highlighted box.



## UNISON

This setting utilizes from one to seven Oscillators, one of which can be detuned against the other. It can be used for celeste, chorus, or other purposely “out-of-tune” effects.

From the above screen, press the DIRECTION “▼” button once.



The box to the right of “DETUNE” should be highlighted.

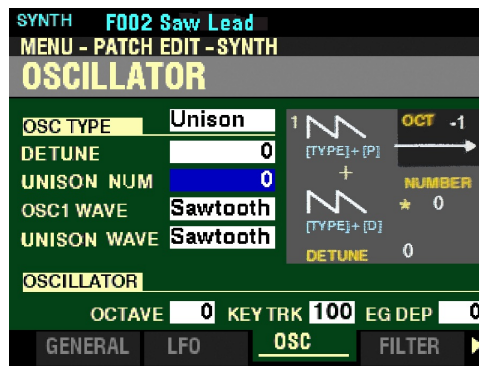
## DETUNE

This Parameter allows you to adjust the depth of the Detune effect. You can select from 0 to 127. At 0, there is no Detuning. 127 produces the maximum amount of Detuning.

Move the OSCILLATOR PITCH slider up or turn the VALUE knob to the right to increase the amount of Detune.

Move the OSCILLATOR PITCH slider down or turn the VALUE knob to the left to decrease the amount of Detune.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “UNISON NUM” should be highlighted.

#### UNISON NUM

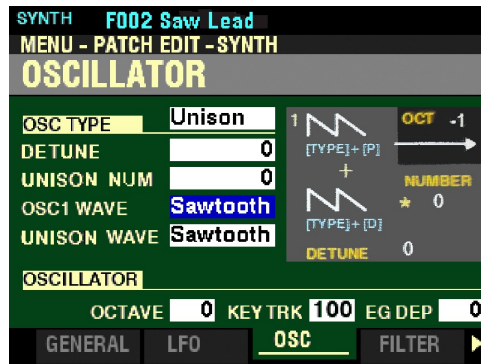
This Parameter allows you to select the number of Oscillators. You can select from 0 to 6.

**NOTE:** A setting of 6 will result in seven (7) Oscillators sounding. 1 will be the first Oscillator (OSC1) while 1 through 6 will be the secondary or other Oscillators.

Move the OSCILLATOR DEPTH slider up or turn the VALUE knob to the right to increase the number of Oscillators.

Move the OSCILLATOR DEPTH slider down or turn the VALUE knob to the left to decrease the number of Oscillators.

From the screen shown on the previous page, press the DIRECTION “▼” button once.



The box to the right of “OSC1 WAVE” should be highlighted.

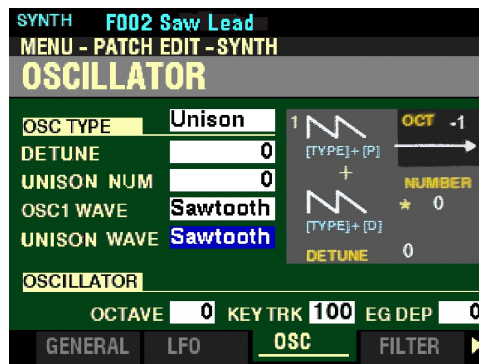
OSC1 WAVE

This Parameter allows you to Waveform of the first Oscillator (OSC1). The data chart below shows the options you may select.

OSCILLATOR 1 WAVEFORM Options	
Waveform	Description
Sawtooth	A waveform very rich in harmonics, so named because it resembles the teeth of a saw blade. It produces string- or brass-type tones.
Square	A waveform containing only odd-numbered harmonics, so named because of its shape. Its sound closely resembles that of a clarinet.
Saw+Sqr	A sawtooth and square wave mixed together, creating a sound midway in between a sawtooth and square wave.

Turn the VALUE knob to make your selection.

From the screen shown on the previous page, press the DIRECTION “▼” button once.



The box to the right of “UNISON WAVE” should be highlighted.

#### UNISON WAVE

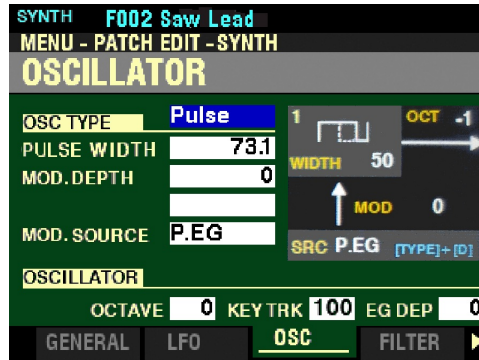
This Parameter allows you to Waveform of the Unison waveform. The data chart below shows the options you may select.

UNISON WAVEFORM Options	
Waveform	Description
Sawtooth	A waveform very rich in harmonics, so named because it resembles the teeth of a saw blade. It produces string- or brass-type tones.
Square	A waveform containing only odd-numbered harmonics, so named because of its shape. Its sound closely resembles that of a clarinet.
Saw+Sqr	A sawtooth and square wave mixed together, creating a sound midway in between a sawtooth and square wave.

Turn the VALUE knob to make your selection.



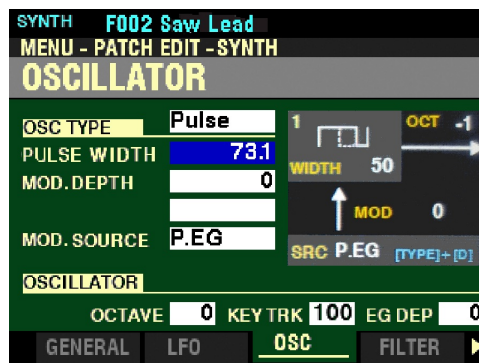
From the screen shown on the previous page, press the DIRECTION “▲” button repeatedly until the box to the right of “OSC TYPE” is highlighted. Turn the VALUE Rotary Knob so that “Pulse” displays in the highlighted box.



## PULSE

A Pulse (or rectangular) waveform has a variable width known as the “duty cycle.” The sound can be modified by changing the pulse width or duty cycle. For example, a duty cycle of 50% will produce a clarinet-like sound while a duty cycle of 90% will yield a bright, brass-like tone quality.

From the above screen, press the DIRECTION “▼” button once.



The box to the right of “PULSE WIDTH” should be highlighted.

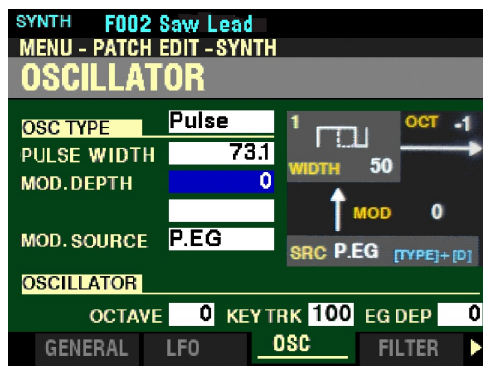
## PULSE WIDTH

This Parameter allows you to adjust the Pulse Width. You can select from 50 to 98. These numbers represent the duty cycle of the wave. A setting of 50 results in a Pulse Wave with a 50% duty cycle, resulting in a clarinet-like sound, while a setting of 98 will result in a duty cycle of 98%, resulting in a thin “stringy” tone quality.

Move the OSCILLATOR PITCH slider up or turn the VALUE knob to the right to increase the Pulse Width.

Move the OSCILLATOR PITCH slider down or turn the VALUE knob to the left to decrease the Pulse Width.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “MOD.DEPTH” should be highlighted.

#### MOD.DEPTH

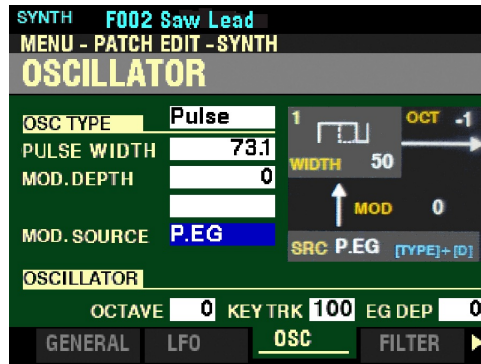
This Parameter allows you to Depth of the Pulse Width Modulation. You can select from 0 to 127. At 0 there is no Modulation. 127 results in maximum Modulation.

Move the OSCILLATOR DEPTH slider up or turn the VALUE knob to the right to increase the Modulation Depth.

Move the OSCILLATOR DEPTH slider down or turn the VALUE knob to the left to decrease the Modulation Depth.

**NOTE:** This Parameter will affect the Pulse Wave in different ways depending on the MOD.SOURCE setting.

From the screen shown on the previous page, press the DIRECTION “▼” button two times (skip the blank box).



The box to the right of “MOD SOURCE” should be highlighted.

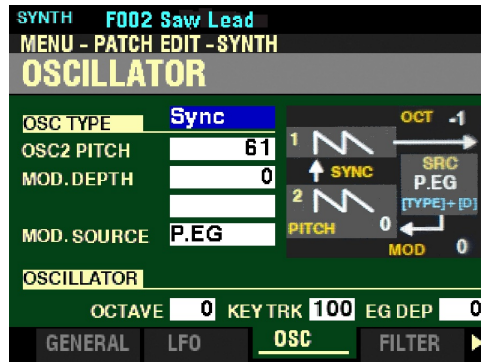
**MOD.SOURCE**

This Parameter allows you to select the source of the Modulation. The data chart below shows the options you may select.

MODULATION SOURCE Options	
Parameter	Description
P.EG (Pitch Envelope)	The Modulation is regulated by the Pitch Envelope. Using the PITCH & FILTER ENVELOPE sliders will allow you to change the duty cycle or tonality of the sound while a key is pressed and held.
LFO	A periodic pitch-shift (vibrato-like effect) is added by the Low-Frequency Oscillator (LFO). Use the OSCILLATOR DEPTH slider to control the amount of modulation. Use the LFO RATE Rotary Control to control the rate of modulation.
Note	The Modulation changes by note. The duty cycle or tonality of the waveform will change as keys are played higher or lower on the keyboard. Use the OSCILLATOR DEPTH slider to adjust the amount of change from note to note.

Turn the VALUE knob to make your selection.

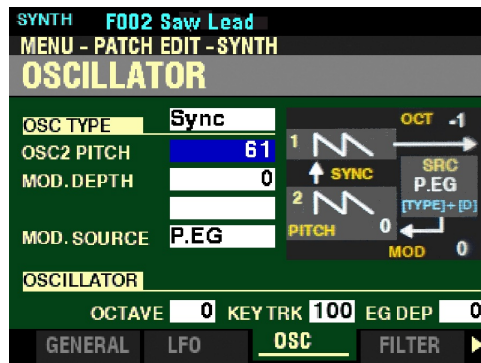
From the screen shown on the previous page, press the DIRECTION “▲” button repeatedly until the box to the right of “OSC TYPE is highlighted. Turn the VALUE Rotary Knob so that “Sync” displays in the highlighted box.



## SYNC

This setting utilizes two Oscillators which synchronize against each other to produce overtone effects.

From the above screen, press the DIRECTION “▼” button once.



The box to the right of “OSC2 PITCH” should be highlighted.

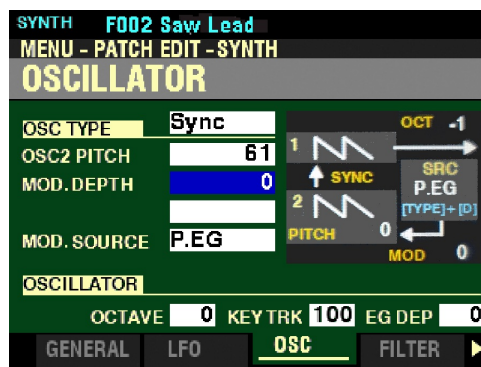
## OSC2 PITCH

This Parameter allows you to adjust the Pitch of the second Oscillator (OSC2). You can select from 0 to 127. At 0 there is no effect. 127 is the maximum setting which will result in an extreme “out-phasing” type of sound.

Move the OSCILLATOR PITCH slider up or turn the VALUE knob to the right to increase the Pitch.

Move the OSCILLATOR PITCH slider down or turn the VALUE knob to the left to decrease the Pitch.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “MOD.DEPTH” should be highlighted.

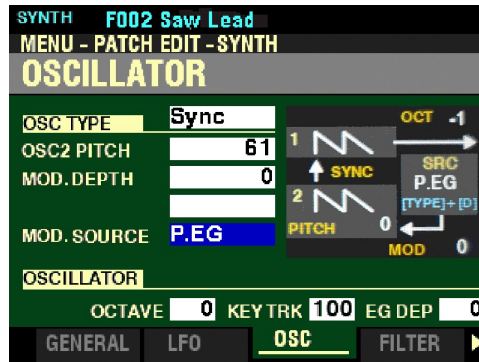
## MOD.DEPTH

This Parameter allows you to adjust the amount of Modulation applied to the second Oscillator (OSC2). You can select from 0 to 127. At 0 there is no Modulation. A setting of between 1 and 8 will produce a vibrato-like effect, and higher numbers will result in more extreme Modulation effects.

Move the OSCILLATOR DEPTH slider up or turn the VALUE knob to the right to increase the Modulation Depth.

Move the OSCILLATOR DEPTH slider down or turn the VALUE knob to the left to decrease the Modulation Depth.

From the screen shown on the previous page, press the DIRECTION “▼” button two times (skip the blank box).



The box to the right of “MOD.SOURCE” should be highlighted.

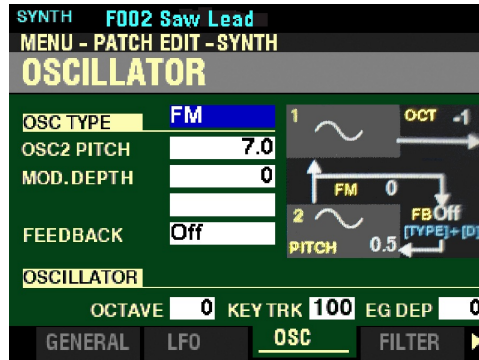
#### MOD.SOURCE

This Parameter allows you to select the source of the Modulation. The data chart below shows the options you may select.

MODULATION SOURCE Options	
Parameter	Description
P.EG (Pitch Envelope)	The Modulation is regulated by the Pitch Envelope. Using the PITCH & FILTER ENVELOPE sliders will allow you to change the tonality of the sound while a key is pressed and held.
LFO	The Sync effect is controlled by the Low-Frequency Oscillator (LFO). Use the OSCILLATOR DEPTH slider to control the amount of modulation. Use the LFO RATE Rotary Control to control the rate of modulation.
Note	The Modulation changes by note. Lower notes will receive slower or less Modulation while higher notes receive faster or more Modulation. Use the OSCILLATOR DEPTH slider to adjust the amount of change from note to note.

Turn the VALUE knob to make your selection.

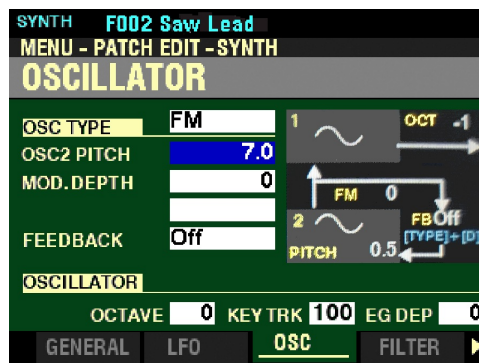
From the screen shown on the previous page, press the DIRECTION “▲” button repeatedly until the box to the right of “OSC TYPE” is highlighted. Turn the VALUE Rotary Knob so that “FM” displays in the highlighted box.



## FM

“FM” is an abbreviation for Frequency Modulation. This setting utilizes two Oscillators or “operators.” OSC1 is the “carrier tone” and OSC2 is the “modulating tone.” You can create both “harmonic” and “inharmonic” tonal effects.

From the above screen, press the DIRECTION “▼” button once.



The box to the right of “OSC2 PITCH” should be highlighted.

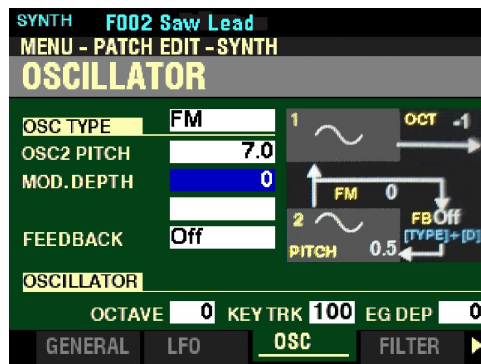
## OSC2 PITCH

This Parameter allows you to adjust the Pitch of the second Oscillator (OSC2). You can select from 0.5 to 16. Adjusting the OSC2 pitch lower creates wind-instrument sounds such as flute, brass, etc., while adjusting the OSC2 pitch higher is suitable for bell-like or “metallic” tones.

Move the OSCILLATOR PITCH slider up or turn the VALUE knob to the right to adjust the Pitch higher.

Move the OSCILLATOR PITCH slider down or turn the VALUE knob to the left to adjust the Pitch lower.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “MOD.DEPTH” should be highlighted.

#### MOD.DEPTH

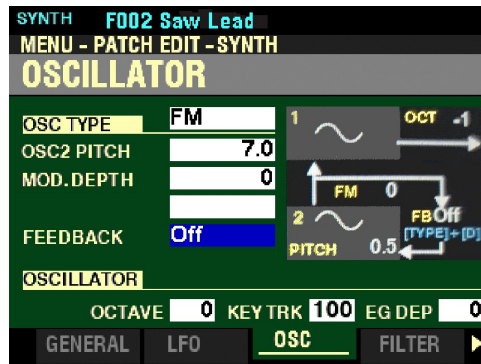
This Parameter allows you to adjust the Modulation depth of the “modulating tone” (OSC2) against the “carrier tone” (OSC1). You can select from 0 to 127. At 0 there is no Modulation - only the carrier tone will sound, resulting in a pure sine wave. Higher settings will increase the depth of the modulating tone , resulting in sounds with more harmonic development.

Move the OSCILLATOR DEPTH slider up or turn the VALUE knob to the right to increase the Modulation Depth.

Move the OSCILLATOR DEPTH slider down or turn the VALUE knob to the left to decrease the Modulation Depth.



From the screen shown on the previous page, press the DIRECTION “▼” button two times (skip the blank box).



The box to the right of “FEEDBACK” should be highlighted.

### FEEDBACK

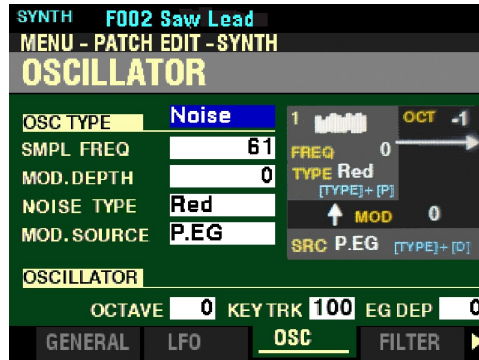
In FM synthesis, “Feedback” is a term used when a carrier tone is fed back onto itself, making the carrier tone its own modulator. This Parameter allows you to adjust the level of Feedback. Setting the FB (feedback) at Half allows you to create string-type tones while Full is useful for unpitched or “noise”-type tones.

The data chart below shows the options you may select.

FEEDBACK Settings	
Parameter	Description
Off	No feedback.
Half	Increases the harmonic content of the tone, depending on the MOD.DEPTH setting.
Full	Creates sounds with more “noise” content, particularly at higher settings of the MOD.DEPTH Parameter.

Turn the VALUE knob to make your selection.

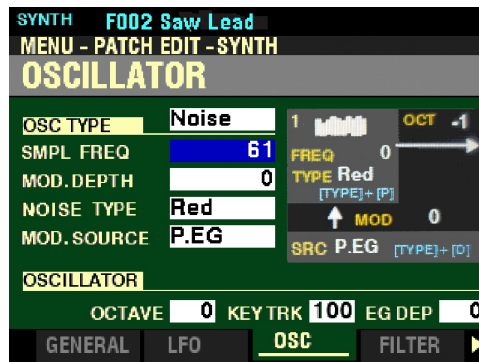
From the screen shown on the previous page, press the DIRECTION “▲” button repeatedly until the box to the right of “OSC TYPE is highlighted. Turn the VALUE Rotary Knob so that “Noise” displays in the highlighted box.



## Noise

This setting creates unpitched sounds or “noise.” The sound changes from “noise” to “random pitched tones” by controlling the sampling rate. A high sampling rate creates “seashore” type effects, a slightly lower rate yields a “noisy percussion,” and a still lower rate creates effects suggestive of a “retro science-fiction movie.” This setting utilizes two different pitched Oscillators similar to [Duo](#).

From the above screen, press the DIRECTION “▼” button once.



The box to the right of “SMPL FREQ” should be highlighted.

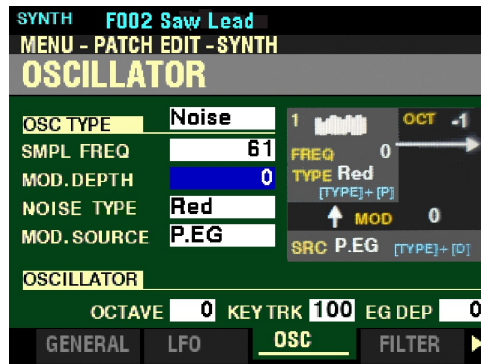
## SMPL FREQ

This Parameter allows you to adjust the Sampling Rate. You can select from 0 to 127. A lower value results in random pitched tones. A higher value increases the rate and imparts more of a “noise” characteristic to the sound.

Move the OSCILLATOR PITCH slider up or turn the VALUE knob to the right to increase the Sampling Rate.

Move the OSCILLATOR PITCH slider down or turn the VALUE knob to the left to decrease the Sampling Rate.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “MOD.DEPTH” should be highlighted.

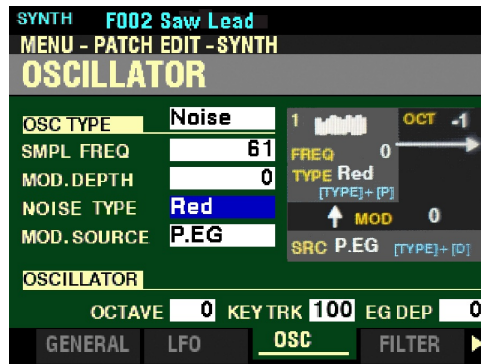
**MOD DEPTH**

This Parameter allows you to adjust the Modulation Depth of the sampling rate. You can select from 0 to 127. A lower number results in random pitched tones. A higher number increases the rate at which the random pitched tones sound.

Move the OSCILLATOR DEPTH slider up or turn the VALUE knob to the right to increase the Modulation Depth.

Move the OSCILLATOR DEPTH slider down or turn the VALUE knob to the left to decrease the Modulation Depth.

From the above screen, press the DIRECTION “▼” button once.



The box to the right of “NOISE TYPE” should be highlighted.

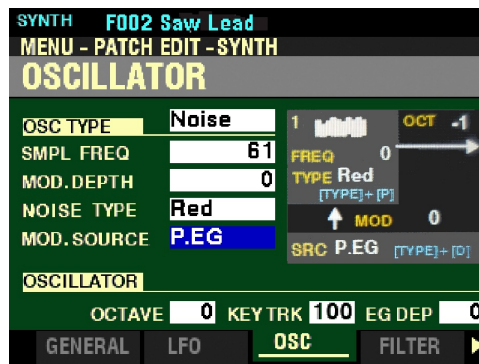
**NOISE TYPE**

This Parameter allows you to select the Noise Type or “color.” The data chart below shows the options you may select.

NOISE Options	
Noise Type	Description
Red	Random noise which contains all audible frequencies but heavily weighted toward lower frequencies.
Pink	Random noise which contains all audible frequencies, with the higher frequencies sounding at a lesser intensity than the lower frequencies, but dropping off more slowly than Red noise.
White	Random noise which contains all audible frequencies at the same amplitude or intensity.

Turn the VALUE knob to make your selection.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “MOD.SOURCE” should be highlighted.

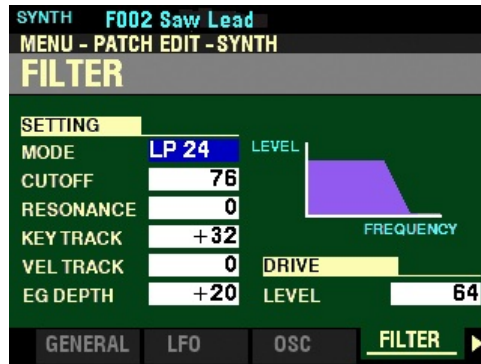
#### MOD SOURCE

This Parameter allows you to select the source of the Modulation. The data chart below shows the options you may select.

MODULATION SOURCE Options	
Parameter	Description
P.EG (Pitch Envelope)	The Modulation is regulated by the Pitch Envelope.
LFO	The Modulation is controlled by the Low-Frequency Oscillator (LFO)
Note	The Modulation changes by note. Lower notes will receive slower or less Modulation while higher notes receive faster or more Modulation.

Turn the VALUE knob to make your selection.

From the screen shown on the previous page, press the PAGE “▶” button once. The FILTER Page should now display.



The box to the right of “MODE” should be highlighted.

◆ FILTER

**NOTE:** You can also Shortcut into this Page by pressing and holding the SHIFT button and moving the FILTER CUT OFF, RESONANCE or EG DEPTH Rotary Controls.

This Page allow you to adjust the harmonic content of the sound.

SETTING

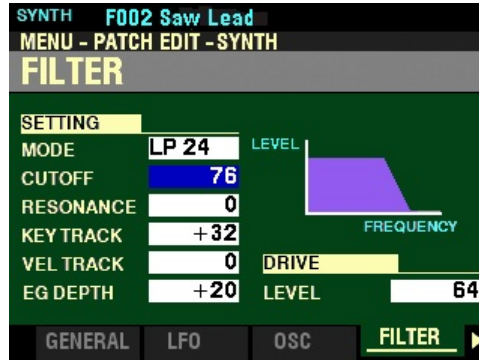
MODE

This Parameter allows you to select the filtering method. The data chart below shows the options you may select.

DAMPER Settings	
Parameter	Description
LP12 / LP24	Low-Pass 12(24)dB; reduces above the Cutoff Frequency at 12(24)dB/octave.
HP12 / HP24	High-Pass 12(24)dB; reduces below the Cutoff Frequency at 12(24)dB/octave.

Turn the VALUE knob to make your selection.

From the screen shown on the previous page, press the DIRECTION “▼” button once.



The box to the right of “CUTOFF” should be highlighted.

#### CUTOFF FREQUENCY

This Parameter allows you to adjust the Cutoff Frequency of the Filter. You can select from 0 to 127.

From the above screen, press the DIRECTION “▼” button once.

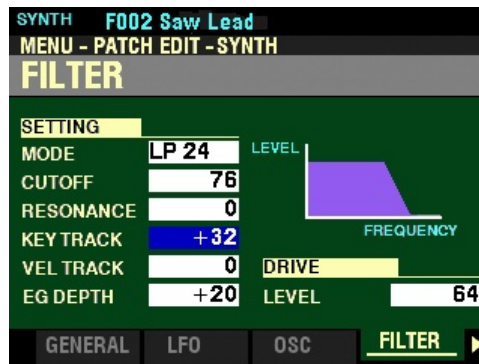


The box to the right of “RESONANCE” should be highlighted.

#### RESONANCE

This Parameter allows you to add a controlled amplification to the Cutoff Frequency, coloring the original pitch. You can select from 0 to 127.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “KEY TRACK” should be highlighted.

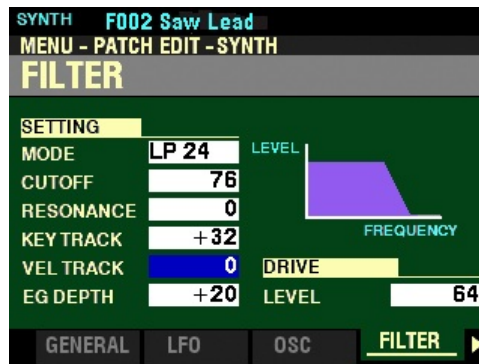
## KEY TRACK

This Parameter allows you to adjust the amount of the Filter by note. You can select from -64 to +63.

Turn the VALUE knob to the right to increase the amount of Key Tracking applied to the Filter.

Turn the VALUE knob to the left to decrease the amount of Key Tracking applied to the Filter.

From the above screen, press the DIRECTION “▼” button once.



The box to the right of “VEL TRACK” should be highlighted.

## VEL TRACK

This Parameter allows you to adjust the amount of the Filter by Note Velocity. You can select from 0 to 127.

Turn the VALUE knob to the right to increase the amount the Filter will change.

Turn the VALUE knob to the left to decrease the amount the Filter will change.

**NOTE:** The Velocity Parameter in the COMBINATION Edit Menu must be “ON” (values 1 ~ 4) in order to hear the effect of Velocity Key Tracking.

From the screen shown at the bottom of the previous page, press the DIRECTION “▼” button once.



The box to the right of “EG DEPTH” should be highlighted.

## EG DEPTH

This Parameter allows you to adjust the amount of the changing Cutoff Frequency by the Filter EG. You can select from -64 to +63. At 0, the Cutoff Frequency does not change. At -64 or +63, the Cutoff Frequency changes by a wide amount.

From the above screen, press the DIRECTION “▶” button once.



The box to the right of “LEVEL” should be highlighted.

## DRIVE

### LEVEL

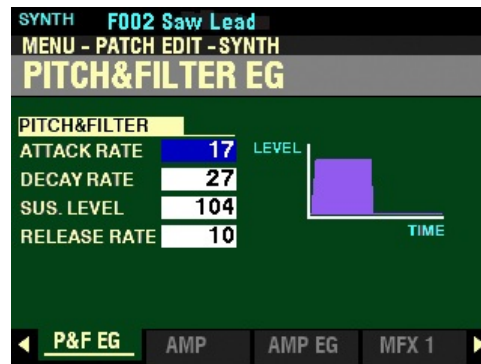
This Parameter allows you to adjust the signal level going into the Filter. You can select from 0 to 127. 64 is a “clean” signal with no distortion. A higher value adds distortion.

Turn the VALUE knob to the right to increase the Drive Level.

Turn the VALUE knob to the left to decrease the Drive Level.



From the screen shown at the bottom of the previous page, press the PAGE “▶” button once. The PITCH&FILTER EG Page should now display.



The box to the right of “ATTACK RATE” should be highlighted.

## PITCH & FILTER EG

**NOTE:** You can also Shortcut into this Page by pressing and holding the SHIFT button and moving any of the four PITCH & FILTER ENVELOPE sliders.

This Page allows you to control how the Pitch and Filter changes over time.

**NOTE:** This EG affects both the Pitch and the Cutoff Frequency of the Filter.

**NOTE:** You can use the DIRECTION “▼” and “▲” buttons to highlight each of these Parameters. When a Parameter is highlighted, you can use the VALUE knob to change the highlighted value. However, the sliders can be used to change the value of each Parameter whether or not the Parameter is highlighted.

### ATTACK RATE

This Parameter allows you to adjust the time for the sound to increase to its peak value beginning when a key is depressed. You can select from 0 to 127. A higher value will result in a slower Attack Rate.

Move the PITCH & FILTER EG ATTACK slider up to increase the Attack Rate.

Move the PITCH & FILTER EG ATTACK slider down to decrease the Attack Rate.

### DECAY RATE

This Parameter allows you to adjust the time from the peak amount to the Sustain Level (explained below). You can select from 0 to 127. A higher value will result in a longer Decay Rate.

Move the PITCH & FILTER EG DECAY slider up to increase the Attack Rate.

Move the PITCH & FILTER EG DECAY slider down to decrease the Attack Rate.

### SUSTAIN LEVEL

This Parameter allows you to adjust the main level which will remain until the key is released. You can select from 0 to 127. A higher value will result in a higher Sustain Level.

Move the PITCH & FILTER EG SUSTAIN slider up to increase the Sustain Level.

Move the PITCH & FILTER EG SUSTAIN slider down to decrease the Sustain Level.

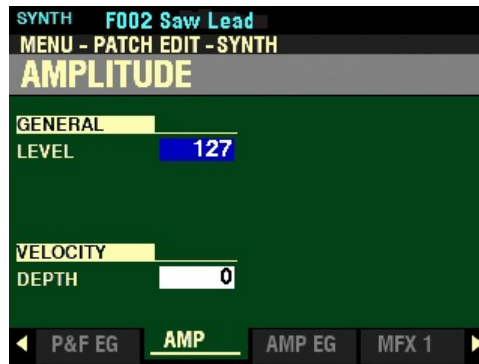
### RELEASE RATE Setting Range: 0 ~ 127

This Parameter allows you to adjust the time for the level to fade from the Sustain Level to zero after the key is released. You can select from 0 to 127. A higher value will result in a longer Release time.

Move the PITCH & FILTER EG RELEASE slider up to increase the Release Rate.

Move the PITCH & FILTER EG RELEASE slider down to decrease the Release Rate.

From the screen shown on the previous page, press the PAGE “▶” button once. The AMPLITUDE Page should now display.



The box to the right of “LEVEL” should be highlighted.

## AMPLITUDE

This Page allows you to adjust the Parameters controlling loudness.

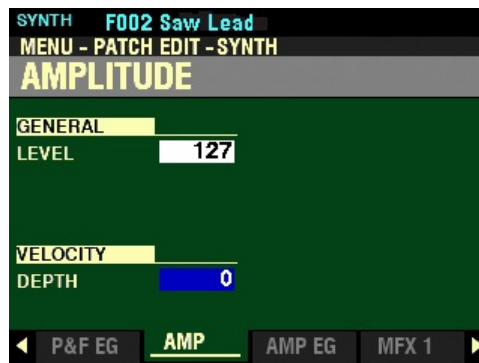
### LEVEL

This Parameter allows you to adjust the overall Amplitude or Level. You can select from 0 (no level) to 127 (maximum level).

Turn the VALUE knob to the right to increase the Level.

Turn the VALUE knob to the left to decrease the Level.

From the above screen, press the DIRECTION “▼” button once.



The box to the right of “DEPTH” should be highlighted.

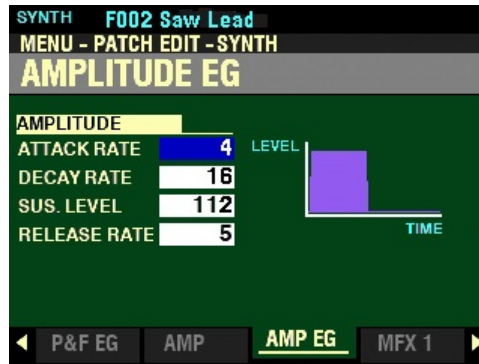
### VELOCITY DEPTH

This Parameter allows you to adjust how the volume changes by keyboard velocity. You can select from 0 (no change in velocity) to 127 (the volume changes the maximum amount in proportion to the velocity).

Turn the VALUE knob to the right to increase the change in Velocity.

Turn the VALUE knob to the left to decrease the change in Velocity.

From the screen shown at the bottom of the previous page, press the PAGE “▶” button once. The AMPLITUDE EG Page should now display.



The box to the right of “ATTACK RATE” should be highlighted.

## AMPLITUDE EG

**NOTE:** You can also Shortcut into this Page by pressing and holding the SHIFT button and moving any of the four AMPLITUDE ENVELOPE sliders.

This Page allows you to control how the Amplitude changes over time.

**NOTE:** You can use the DIRECTION “▼” and “▲” buttons to highlight each of these Parameters. When a Parameter is highlighted, you can use the VALUE knob to change the highlighted value. However, the sliders can be used to change the value of each Parameter whether or not the Parameter is highlighted.

### ATTACK RATE

This Parameter allows you to adjust the time for the sound to increase to its peak value beginning when a key is depressed. You can select from 0 to 127. A higher value will result in a slower Attack Rate.

Move the AMPLITUDE ENVELOPE ATTACK slider up to increase the Attack Rate.

Move the AMPLITUDE ENVELOPE ATTACK slider down to decrease the Attack Rate.

### DECAY RATE

This Parameter allows you to adjust the time from the peak amount to the Sustain Level (explained below). You can select from 0 to 127. A higher value will result in a longer Decay Rate.

Move the AMPLITUDE ENVELOPE DECAY slider up to increase the Attack Rate.

Move the AMPLITUDE ENVELOPE DECAY slider down to decrease the Attack Rate.

### SUSTAIN LEVEL

This Parameter allows you to adjust the main level which will remain until the key is released. You can select from 0 to 127. A higher value will result in a higher Sustain Level.

Move the AMPLITUDE ENVELOPE SUSTAIN slider up to increase the Sustain Level.

Move the AMPLITUDE ENVELOPE SUSTAIN slider down to decrease the Sustain Level.

### RELEASE RATE Setting Range: 0 ~ 127

This Parameter allows you to adjust the time for the level to fade from the Sustain Level to zero after the key is released. You can select from 0 to 127. A higher value will result in a longer Release time.

Move the AMPLITUDE ENVELOPE RELEASE slider up to increase the Release Rate.

Move the AMPLITUDE ENVELOPE RELEASE slider down to decrease the Release Rate.

From the screen shown on the previous page, press the PAGE “▶” button once. The MULTI EFFECT 1 Page should now display.



#### ◆ MULTI EFFECT 1

This Parameter allows you to adjust the Multi Effects 1 (Tremolo, Wah-Wah, Ring Modulator, Compressor) for each PIANO/ENSEMBLE Patch.

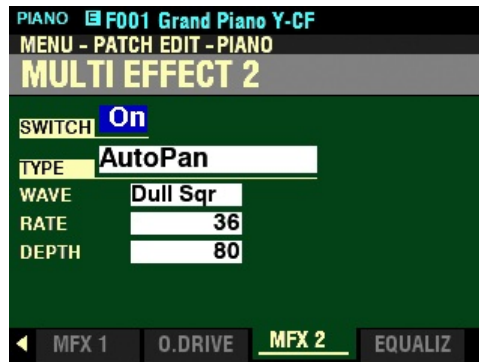
From the above screen, press the PAGE “▶” button once. The OVERDRIVE Page should now display.



#### ◆ OVERDRIVE

This Parameter allows you to adjust the Overdrive effect in this Section.

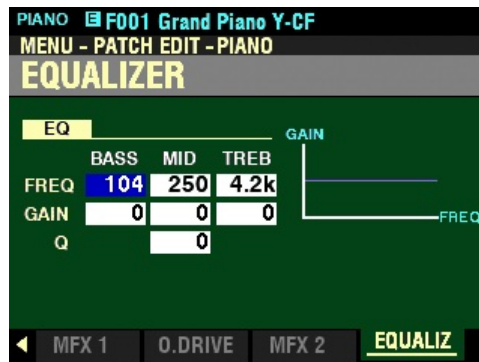
From the screen shown at the bottom of the previous page, press the PAGE “▶” button once. The MULTI EFFECT 2 Page should now display.



#### ◆ MULTI EFFECT 2

This Parameter allows you to adjust the Multi Effects 2 (AutoPan, Phaser, Flanger, Chorus, Delay) for each PIANO/ENSEMBLE Patch.

From the above screen, press the PAGE “▶” button once. The EQUALIZER Page should now display.



#### ◆ EQUALIZER

This Parameter allows you to adjust the Equalizer in this Section.

**NOTE:** The MULTI EFFECT 1&2, OVERDRIVE and EQUALIZER effects work the same way for all Voice Sections of your SK PRO. For information about these effects and the Parameters associated with each of them, please consult the MULTI EFFECTS / OVERDRIVE / EQUALIZER chapter of this Guide.

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