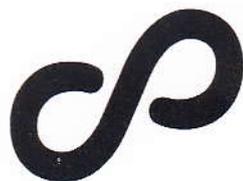
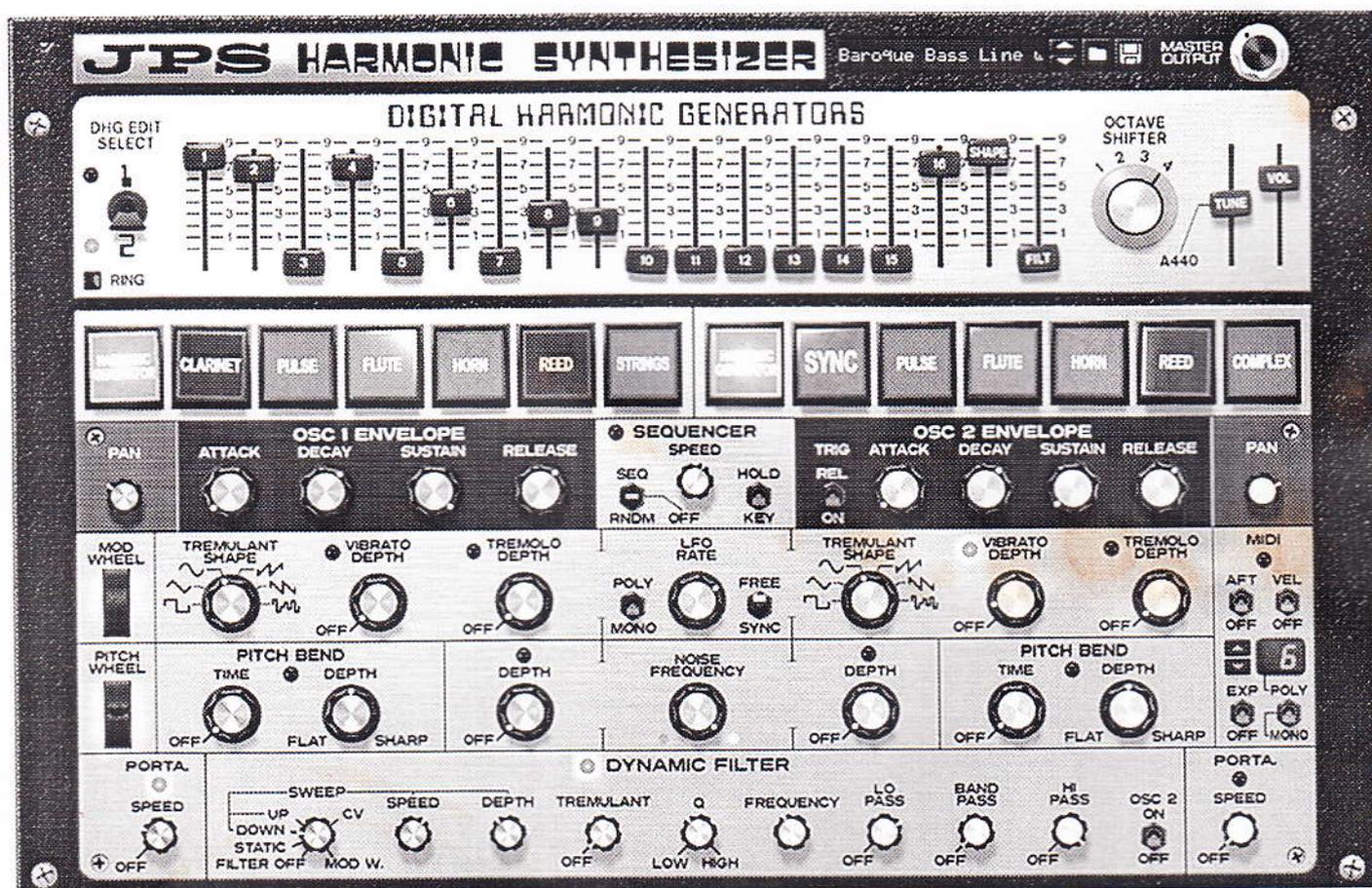


JPS

HARMONIC SYNTHESIZER



JPS HARMONIC SYNTHESIZER

ADDENDUM 1.0.2

- Fix: Osc 1 ring mod signal was incorrectly applied with the Osc 1 amp envelope; it now ignores the envelope
- Fix: Voice release handling in Poly mode is improved

ADDENDUM 1.0.3

- Fix: Smoothing rate of distortion gain

ADDENDUM 1.1.0

- NEW FEATURE! Added a velocity curve option: Low curve/Linear (original default)/High curve
- Fix: notes are now released correctly when using the "Dual Arp" Player in Reason 9+
- Fix: The correct font is now used on the main control panel labels
- 50 new patches, including the new Textures folder, plus a Pulsar-based Combinator for each of these extra patches in the new Combinators/1.1 Patches/ sub-folder.
- Signature patches have been duped into the appropriate type folders for easier "by type" browsing

ADDENDUM 1.1.1

- Fix: New velocity value of CV Gate inputs now results in correct note velocity

ADDENDUM 1.2.0

- NEW FEATURE! Pitch Bend Ranges can now be automated via sequencer automation, Remote, or Combinator Mod Bus targeting. Two example Combinators are available with Thor step sequencing (Combinators/Native Combinators/Sequenced Pitch Bend Range Combi series)

Additional Remote Mapping for Pitch Bend Range:

Map	_control_	Pitch Range OSC 1 Up
Map	_control_	Pitch Range OSC 1 Down
Map	_control_	Pitch Range OSC 2 Up
Map	_control_	Pitch Range OSC 2 Down

JPS HARMONIC SYNTHESIZER

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Map	_control_	Pitch Range OSC 2 Up
Map	_control_	Pitch Range OSC 2 Down

CONGRATULATIONS!

You have acquired the latest advances in synthesizer technology!

The JPS Harmonic Synthesizer features rock-solid stable digital oscillators and a low-noise, all-analog audio path comprising voltage-controlled envelopes, low-frequency modulation, frequency modulation and a triple-output filter.

The two oscillators provide a nearly infinite variety of permutations through manipulation of up to sixteen individual harmonics and shaping controls per oscillator. Each oscillator can also simultaneously produce up to six preset waveforms for a big, rich sound.

JPS HARMONIC SYNTHESIZER

Connections

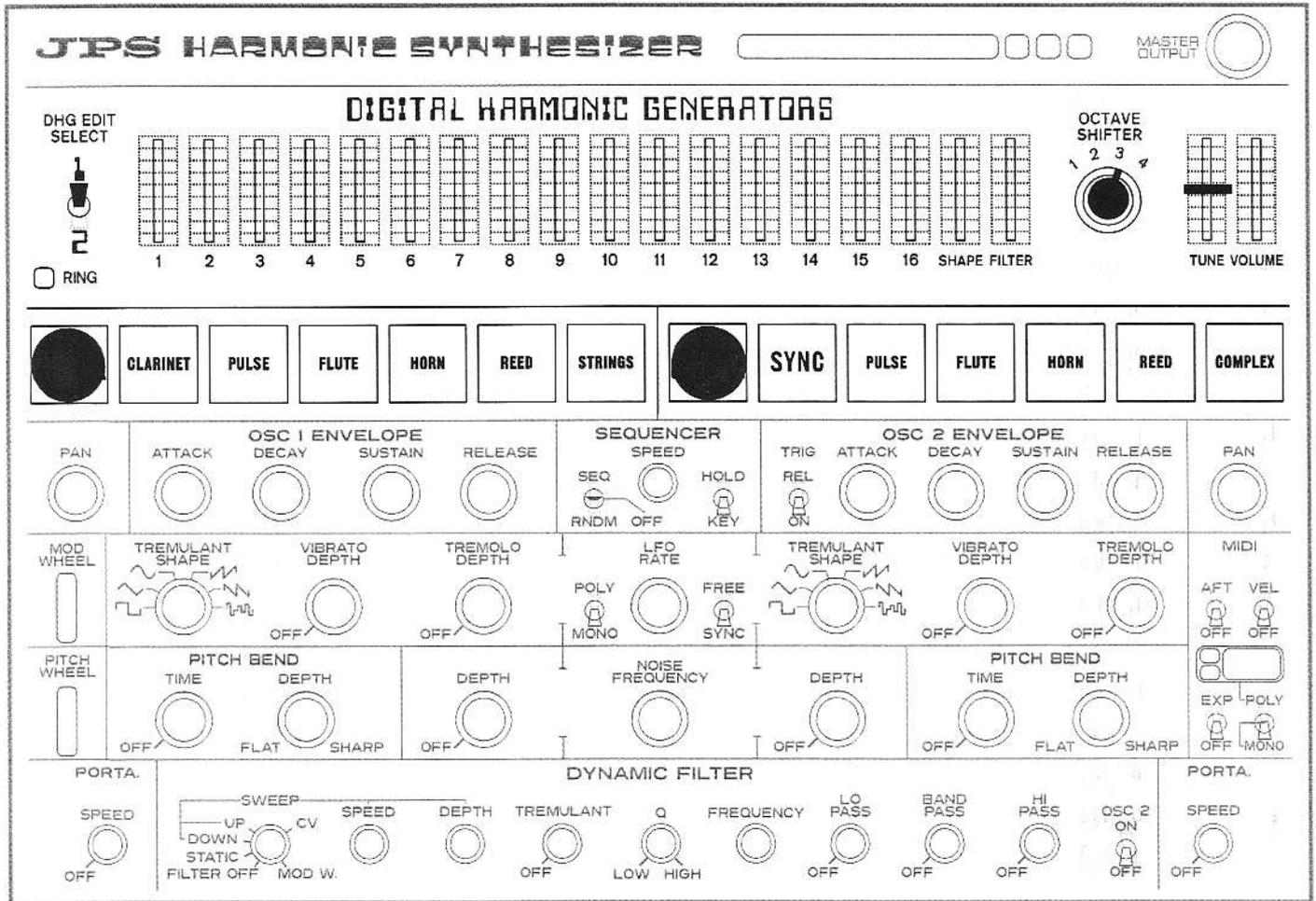
- a. A.C. power cord plugs into any convenience outlet - it draws very little.
- b. Volume and Filter pedals plug into jacks labelled "Pedals" underneath. No mistake can be made between "Volume" and "Filter" jacks because of different sizes. The synthesizer can be operated without the pedals being connected - you merely lose the control over the two functions.
- c. Mono audio outputs for Oscillator 1 and Oscillator 2 Voices are labelled "Osc 1 Out" and "Osc 2 Out". The signals are low-level, high-impedance. Any microphone or guitar-type input will provide sufficient amplification. The audio system should have tweeters to reproduce the high frequencies being generated by the synthesizer.
- d. "VCF Filter In" allows external signals to be processed through the Dynamic Filter. Other audio sources such as organs, guitars, microphones or electric pianos can be passed through the filter for special effects. If some sources are too low in level to produce the desired effects, a small battery-operated preamp module can be inserted just before the VCF Input. Several companies manufacture such modules for use with guitars.

Stereo vs. Mono:

For the best performance, two separate audio systems should be used for Left and Right audio outputs. However, if two are not available, both Left and Right can be "mixed" into one amplifier having a two-channel input. For your convenience, both oscillators can be independently panned left or right from the front of the instrument itself, to a true stereo output.

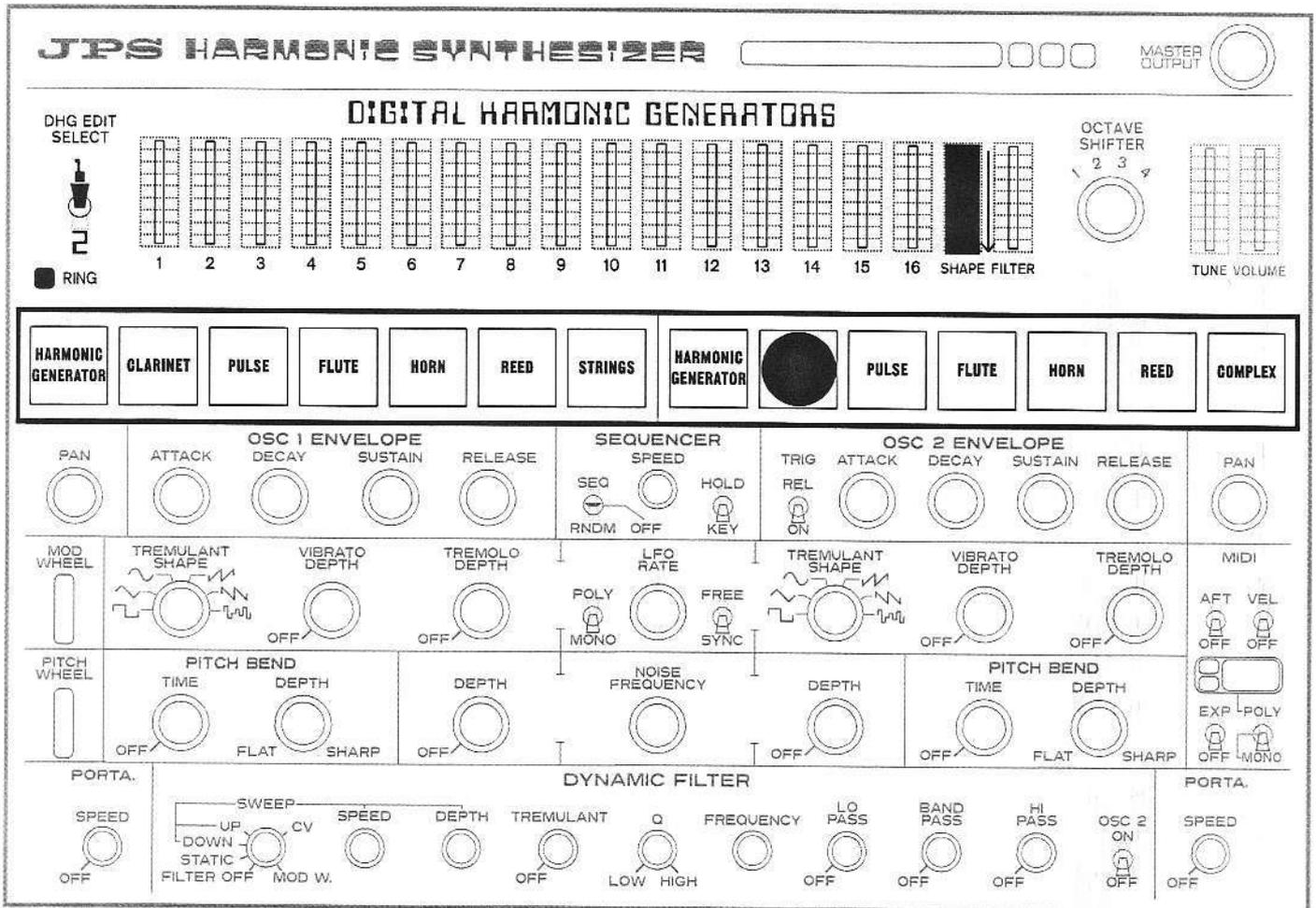
IMPORTANT NOTE: DSP Usage

- a. The Harmonic Synthesizer can scale to use a great deal of resources in terms of sample rate and polyphony. For best results we recommend setting the minimum values during song construction, until you need to render your track, when you can turn the values up.
- b. Polyphony can be extended from 1 up to 64 voices. The more voices you add the more DSP will be required for live playback. Set this figure to the lowest value you need. Remember that polyphony allocation includes voices in release as well as key on.
- c. When using a system sample rate of 44.1 or 48kHz, adjust the "Oversample" to 2x for normal use, or turn it to the "Off" position if needing to save more system resources. You will notice some aliasing when turned off, but much less at 2x ; this will be further reduced if selecting 4x oversampling, and will not be noticeable when selecting 8x oversampling. Using 8x oversampling will dramatically increase DSP use, but is the best quality, so select 8x prior to exporting your finished song to give you the best quality on your rendered output. Consider "2x" as the live/draft setting, "8x" as "export" setting.
- d. If using high system sample rates, 88.2 or 96kHz, oversampling can still be of benefit. However, we recommend exporting at 96kHz rate even when using a system sample rate of 44.1 or 48kHz to get the highest sound quality, and downsample that exported *.wav later.
- e. The "Oversample" control state is not saved with patches, but is saved within song-files.



Your JPS Harmonic Synthesizer features two digital oscillators. To select which oscillator to edit, adjust the "DHG Edit Select" switch on the left-hand side of the panel. An LED will light next to the 1 or 2 label to indicate which oscillator is being edited. All controls in the Digital Harmonic Generators section are available to adjust uniquely for each oscillator, except for the ring modulation control "Ring", which is only available for Oscillator 2.

NOTE: Markings on the panel beside the tuning slider are a good approximate indication of A440 tuning. Set the Tune for the two Digital Harmonic Generators, then proceed to tune by ear as indicated above. Interesting "beating" effects can be achieved by tuning the Oscillator 2 Voice slightly sharp. The range of the tuning sliders are +/- 12 semitones. Fine tuning control can be achieved by holding the shift key of an attached keyboard, or precise values can be achieved by directly inputting the value into an appropriate MIDI sequencer lane of your usual recording software.

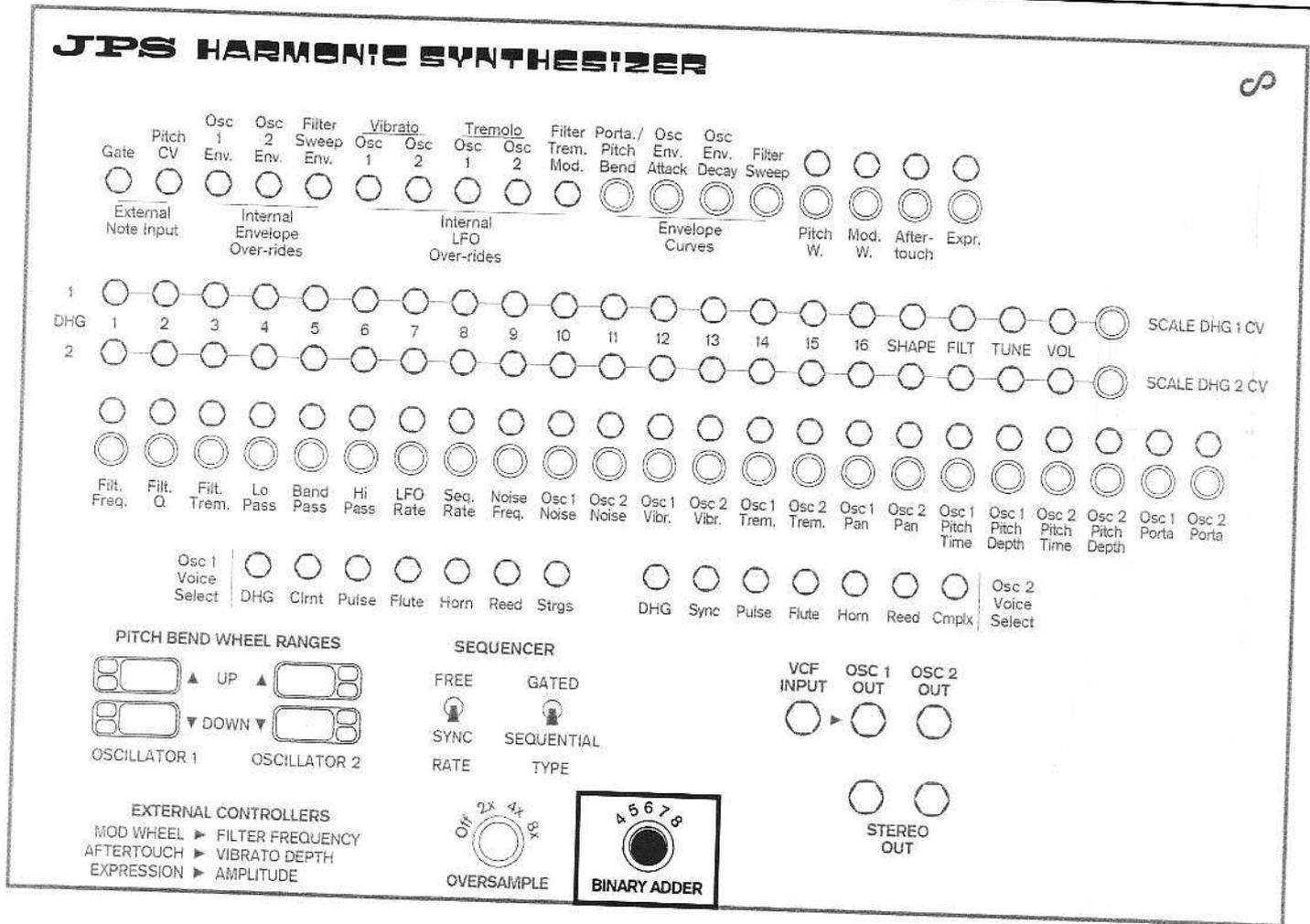


You can use the "Shape" slider to adjust the voltage shaping and manipulate the oscillator waveform from a tone rich in harmonics into a basic sine. The default position is "6".

In addition to the Harmonic Generator, Oscillator 1 can produce six further voices, using preset buttons "Clarinet", "Pulse", "Flute", "Horn", "Reed" and "Strings". These can all be used on their own or in combination.

Oscillator 2 can produce five additional voices: "Pulse", "Flute", "Horn", "Reed" and "Complex". Oscillator 2 can also be synced to Oscillator 1 by pressing the "Sync" preset button, and Oscillator 1 can ring modulate Oscillator 2 by pressing the "Ring" button below the "DHG Edit Select" switch. At least one Oscillator 1 voice must be engaged for the ring modulation to have any effect, although Oscillator 1 can be set to a zero volume if its audio output is not required. Ring modulation and oscillator sync can be used together. Experiment using different oscillator tunings when using these two features!

The high frequencies of all voices can be attenuated with the manual filter, and all voices except for "Pulse" can be adjusted with the "Shape" controller.



The JPS Harmonic Synthesizer utilises the original 5-bit circuitry of the original RMI when using a shaped sine value of "6", and the Binary Adder is set to its default "5" position.

The naturally low resolution of the tone generators does create some quantisation noise which may be noticeable when using pitch bend or vibrato functionality. This is expected behaviour and perfectly normal.

Should you wish to reduce the level of quantisation noise, your synthesizer may be legitimately modified, with no risk to your warranty, by increasing the voltage of the Binary Adder, up to 8 bits (fully shaped), which will produce a more detailed tone which is less prone to quantisation noise. You can even lower it to use just 4 bits for an even noisier and more "lo-fi" tone if you really like that sort of thing.

Unlike the Oversample range, the Binary Adder setting is saved with patches.

JPS HARMONIC SYNTHESIZER MASTER OUTPUT

DIGITAL HARMONIC GENERATORS

DHG EDIT SELECT: 1 (selected), 2, RING

16 DIGITAL HARMONIC GENERATORS (1-16) | SHAPE FILTER | OCTAVE SHIFTER (1, 2, 3, 4) | TUNE VOLUME

HARMONIC GENERATOR | CLARINET | PULSE | FLUTE | HORN | REED | STRINGS | **HARMONIC GENERATOR** | SYNC | PULSE | FLUTE | HORN | REED | COMPLEX

OSC 1 ENVELOPE: PAN, ATTACK, DECAY, SUSTAIN, RELEASE

SEQUENCER: SPEED, SEQ, RNDM, HOLD, KEY

OSC 2 ENVELOPE: TRIG, REL, ATTACK, DECAY, SUSTAIN, RELEASE, PAN

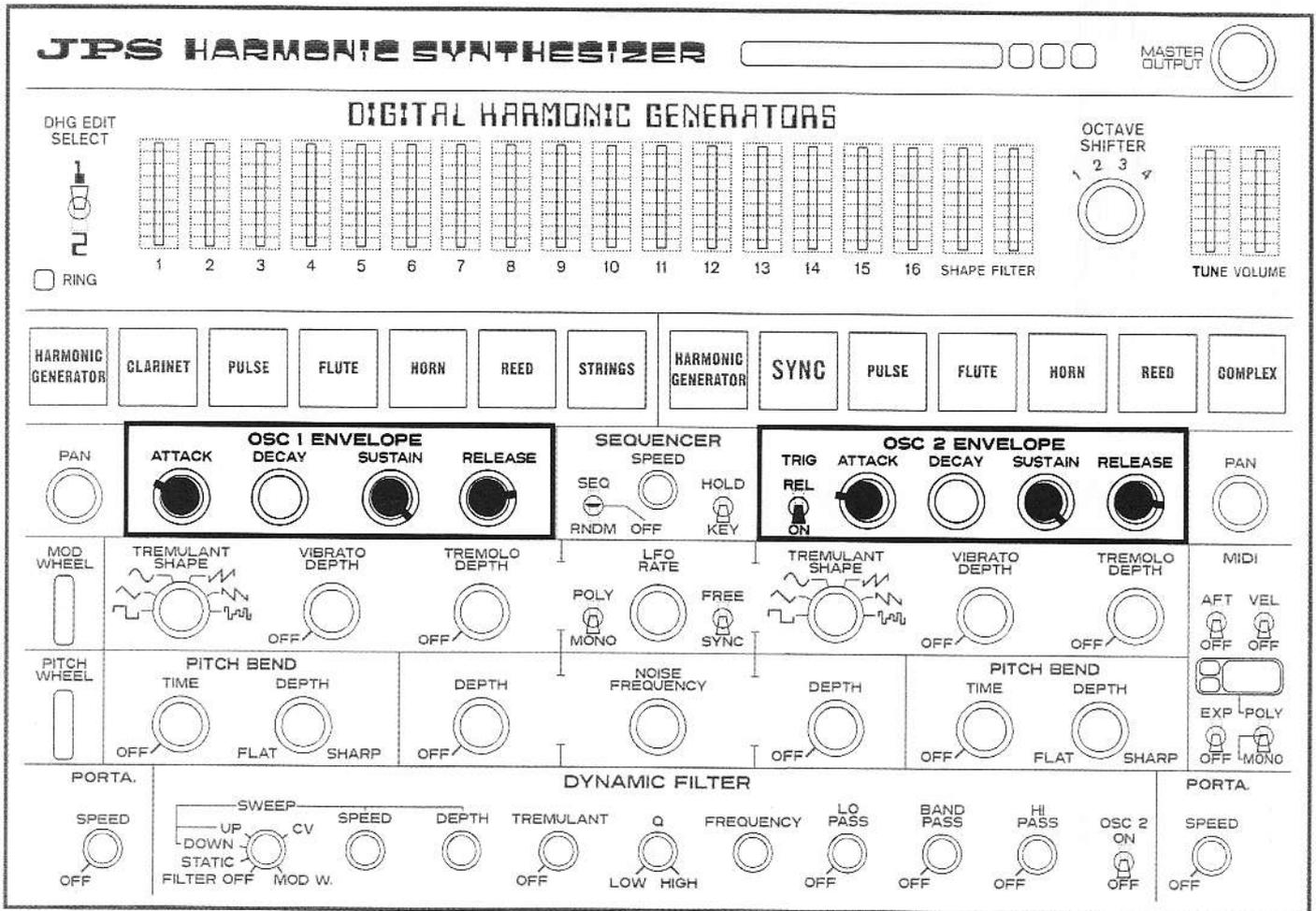
MOD WHEEL: TREMULANT SHAPE, VIBRATO DEPTH, TREMOLO DEPTH

PITCH WHEEL: PITCH BEND TIME, DEPTH, DEPTH, NOISE FREQUENCY, DEPTH

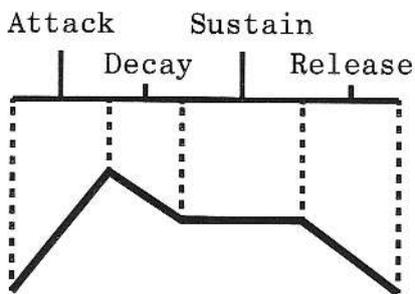
MIDI: AFT, VEL, EXP, POLY, MONO

DYNAMIC FILTER: PORTA., SPEED, SWEEP (UP, DOWN, STATIC, FILTER OFF), CV, MOD W., SPEED, DEPTH, TREMULANT, Q (LOW, HIGH), FREQUENCY, LO PASS, BAND PASS, HI PASS, OSC 2 ON, PORTA., SPEED

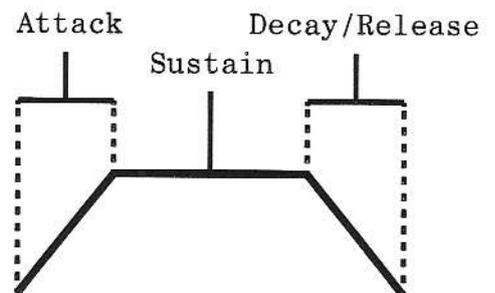
After you have arrived at a setting on the Harmonic Generator, should you desire a slight attenuation of highs for a more mellow tone, it is easily accomplished with the manual filter without resetting the harmonics. Raising the slider attenuates the highs.



JPS envelope



RMI envelope



The JPS synthesizer features a full analogue "ADSR" envelope control.

To mimic the original RMI "Normal" envelope mode, you should only adjust the "Attack" and "Release" stages, while leaving the "Sustain" stage set to its maximum level. Set Attack and Decay curves to linear (see page 22).

JPS HARMONIC SYNTHESIZER MASTER OUTPUT

DIGITAL HARMONIC GENERATORS

DHG EDIT SELECT OCTAVE SHIFTER 1 2 3 4

RING TUNE VOLUME

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 SHAPE FILTER

HARMONIC GENERATOR: GLARINET PULSE FLUTE HORN REED STRINGS

HARMONIC GENERATOR: SYNC PULSE FLUTE HORN REED COMPLEX

OSC 1 ENVELOPE: ATTACK DECAY SUSTAIN RELEASE

OSC 2 ENVELOPE: TRIG REL ATTACK DECAY SUSTAIN RELEASE

SEQUENCER: SPEED HOLD KEY

MOD WHEEL: TREMULANT SHAPE VIBRATO DEPTH TREMOLO DEPTH

PITCH WHEEL: PITCH BEND TIME DEPTH DEPTH

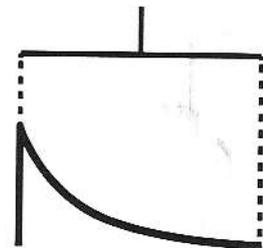
PORTA. SPEED

DYNAMIC FILTER: SWEEP UP DOWN STATIC FILTER OFF MOD W. SPEED DEPTH TREMULANT Q LOW HIGH FREQUENCY LO PASS BAND PASS HI PASS OSC 2 ON OFF

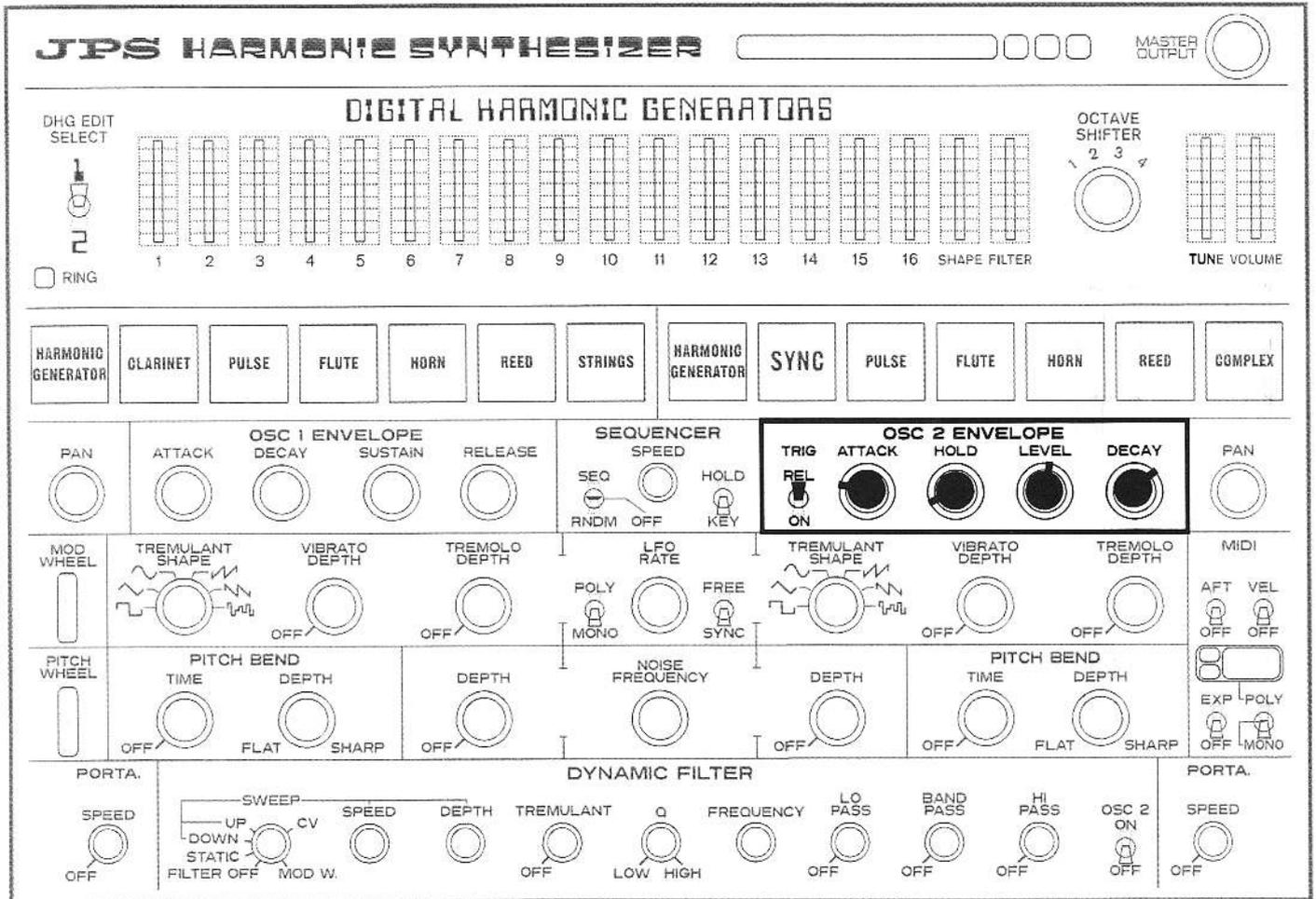
MIDI: AFT VEL OFF OFF EXP POLY OFF MONO

RMI percussion

Decay/Release

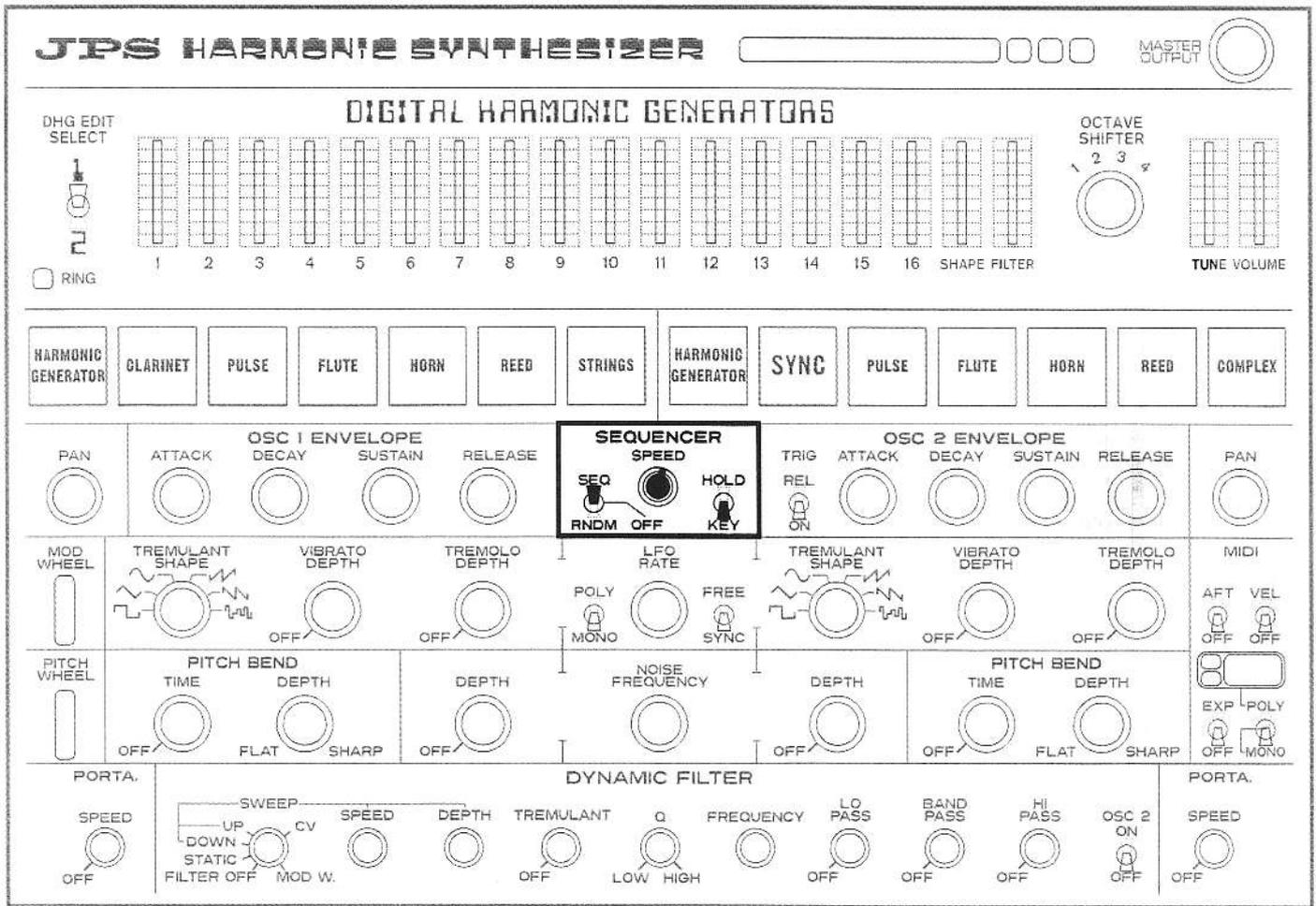


To mimic the original RMI "Percussion" envelope mode, you should just use the "Decay" stages, and leave "Attack" and "Sustain" stages set to their minimum level. Set the "Release" stage to the same position as the "Decay" stage to allow the sound to decay at the same rate even after the note is released early. Set Decay curve to a non-linear value (see page 22).



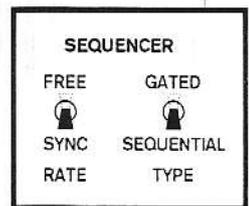
The JPS synthesizer features a three-stage release triggering capability on Oscillator 2. This provides some amazing possibilities when used together with Oscillator 1.

Switch the "Trig" button from "On" to "Rel" and Oscillator 2 will be triggered not when the note is pressed, but when that note is released. Note that the functions of the Osc 2 envelope controls change. "Attack" is the time from when the note is released to a set level, determined by the "Level" control. "Hold" will sustain the released note for a specified period of time at that level. "Decay" is the time the note takes to return to silence after the hold. For a percussive note-off sound, set "Hold" to zero and use only "Attack" and "Decay", setting the volume with "Level".

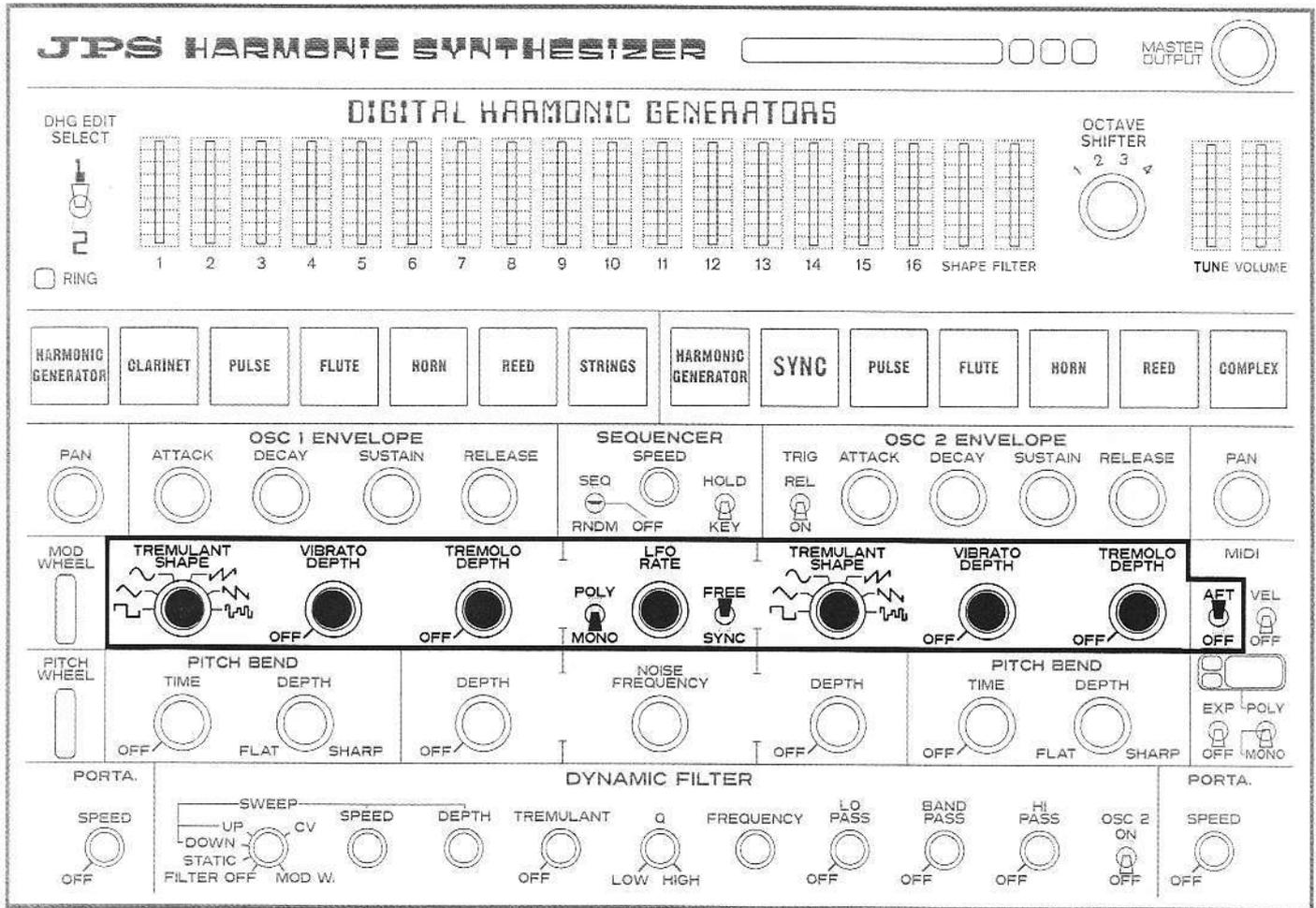


Sequencer is activated by flicking the "Mode" switch up or down from its central "Off" position. Modes of operation are "sequential", or "random". Speed is set by turning knob. A pilot light indicates when the sequencer is in operation. If no keys are held, the light will remain "on". If keys are being held, the light will pulse when the sequence "resets". In the "sequential" mode, this pulse of light will serve as a "downbeat" indicator for most rhythmic patterns or bass lines. In the "random" mode, it will pulse with each note.

The speed can be switched via "Sequencer Rate" to Sync to host or be free running. In addition the sequencer can play polyphonically by gating the chords at the set rate. To do this change "Sequencer Type" from "Sequential" to "Gated". Random gated sequencer will add random "rests". The pilot light will not light for rests.



If your hands are busy with controls or another instrument, the sequencer can be "programmed" by selecting "Hold" while the notes are played. You can now release the notes and the sequencer will continue to play that sequence until you play a new set of notes, switch the sequencer back to "Key" mode, or stop playback entirely.



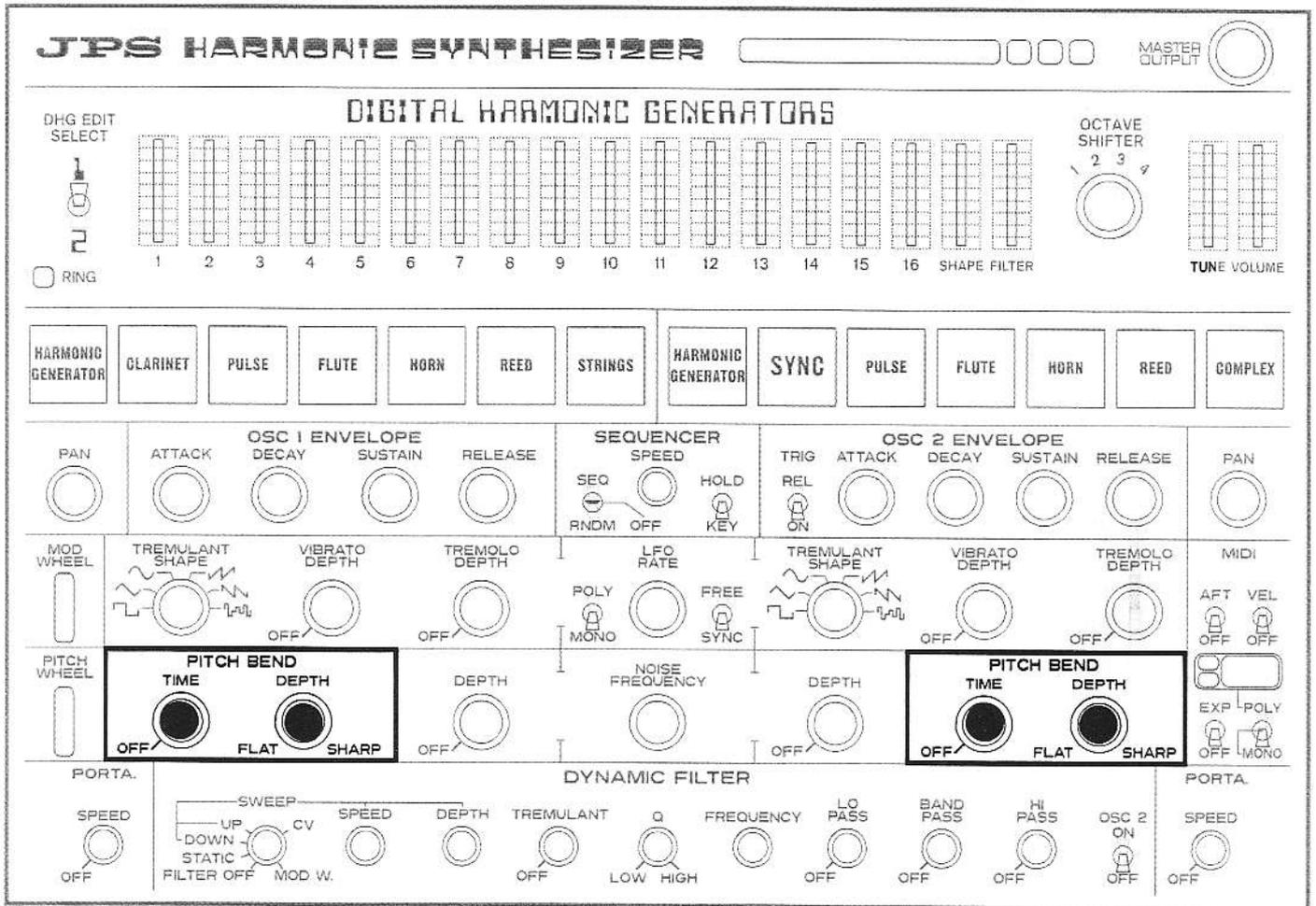
The Harmonic Synthesizer features a common "LFO Rate" used for modulating the frequency and amplitude of Oscillator 1 and Oscillator 2, and the frequency of the Dynamic Filter. However, you can use external inputs to over-ride the fixed internal LFO for any or all of these in order to run the modulations at different rates or for additional tremulant shapes, thus vastly expanding the sonic possibilities of the instrument.



The internal LFO can be set to "Mono", so that it starts from zero when the instrument is first turned on and does not reset. This is preferable for vibrato effects. When moved to "Poly" the LFO waveform is restarted uniquely for each note played, which can be particularly interesting when used in conjunction with the tremolo effect. The rate can be synced to a host tempo or be free-running.

Set the Modulation Shape for each Oscillator, then the Frequency Modulation amount ("Vibrato Depth") and Amplitude Modulation amount ("Tremolo Depth").

If you enable Aftertouch via the MIDI section, set the "Vibrato Depth" to the value you wish to apply to the maximum aftertouch level you send, thus vibrato will be zero until aftertouch is applied, up to that maximum Vibrato Depth level set.



Pitch Deviation Upon Attack: "Depth" control determines the point at which the "slide" begins. Setting "Depth" control to "flat" will cause the pitch to start "flat" and slide up to the correct pitch. "Sharp" works in reverse, as you would expect. Setting the "Depth" control at 12:00 in the center of its travel will cause no deviation. "Time" control determines the time it will take to travel from the deviated pitch to the correct pitch.

JPS HARMONIC SYNTHESIZER MASTER OUTPUT

DIGITAL HARMONIC GENERATORS

DHG EDIT SELECT OCTAVE SHIFTER

RING 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 SHAPE FILTER TUNE VOLUME

HARMONIC GENERATOR	CLARINET	PULSE	FLUTE	HORN	REED	STRINGS	HARMONIC GENERATOR	SYNC	PULSE	FLUTE	HORN	REED	COMPLEX
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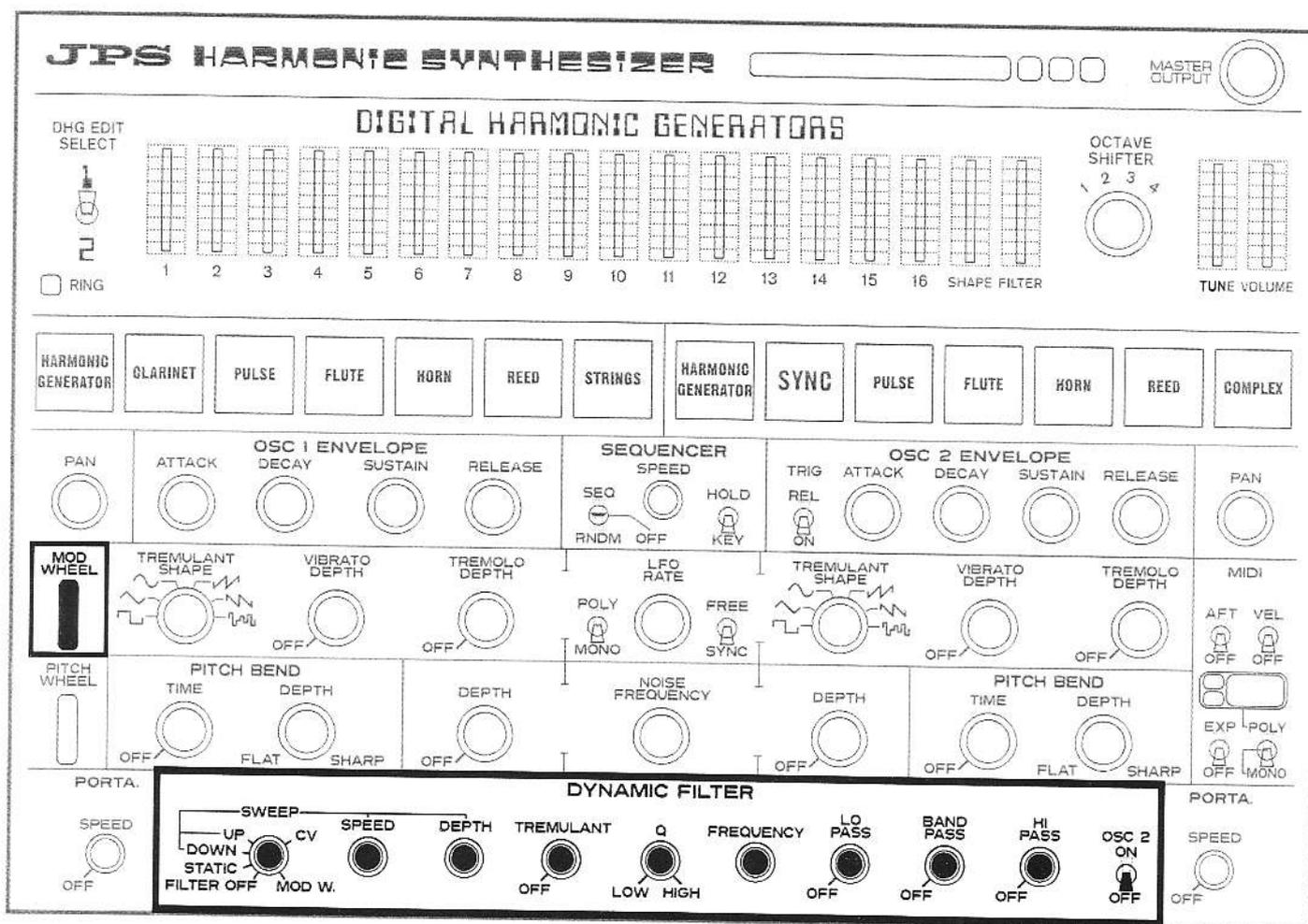
PAN	ATTACK	OSC 1 ENVELOPE DECAY SUSTAIN RELEASE			SEQUENCER SPEED			OSC 2 ENVELOPE ATTACK DECAY SUSTAIN RELEASE			PAN	
					SEQ	HOLD	TRIG					
					RNDM	OFF	ON					

MOD WHEEL	TREMULANT SHAPE	VIBRATO DEPTH	TREMLO DEPTH	LFO RATE	TREMULANT SHAPE	VIBRATO DEPTH	TREMLO DEPTH	MIDI
				POLY				AFT
				MONO	FREE			VEL
					SYNC			OFF

PITCH WHEEL	PITCH BEND TIME DEPTH		NOISE MODULATION DEPTH NOISE FREQUENCY DEPTH			PITCH BEND TIME DEPTH		MIDI
								EXP
								POLY
								OFF
								MONO

PORTA.	DYNAMIC FILTER										PORTA.	
SPEED	SWEEP		SPEED	DEPTH	TREMULANT	Q	FREQUENCY	LO PASS	BAND PASS	HI PASS	OSC 2 ON	SPEED
OFF	UP	DOWN	CV		OFF	LOW		OFF	OFF	OFF	OFF	OFF
	STATIC	MOD W.				HIGH						

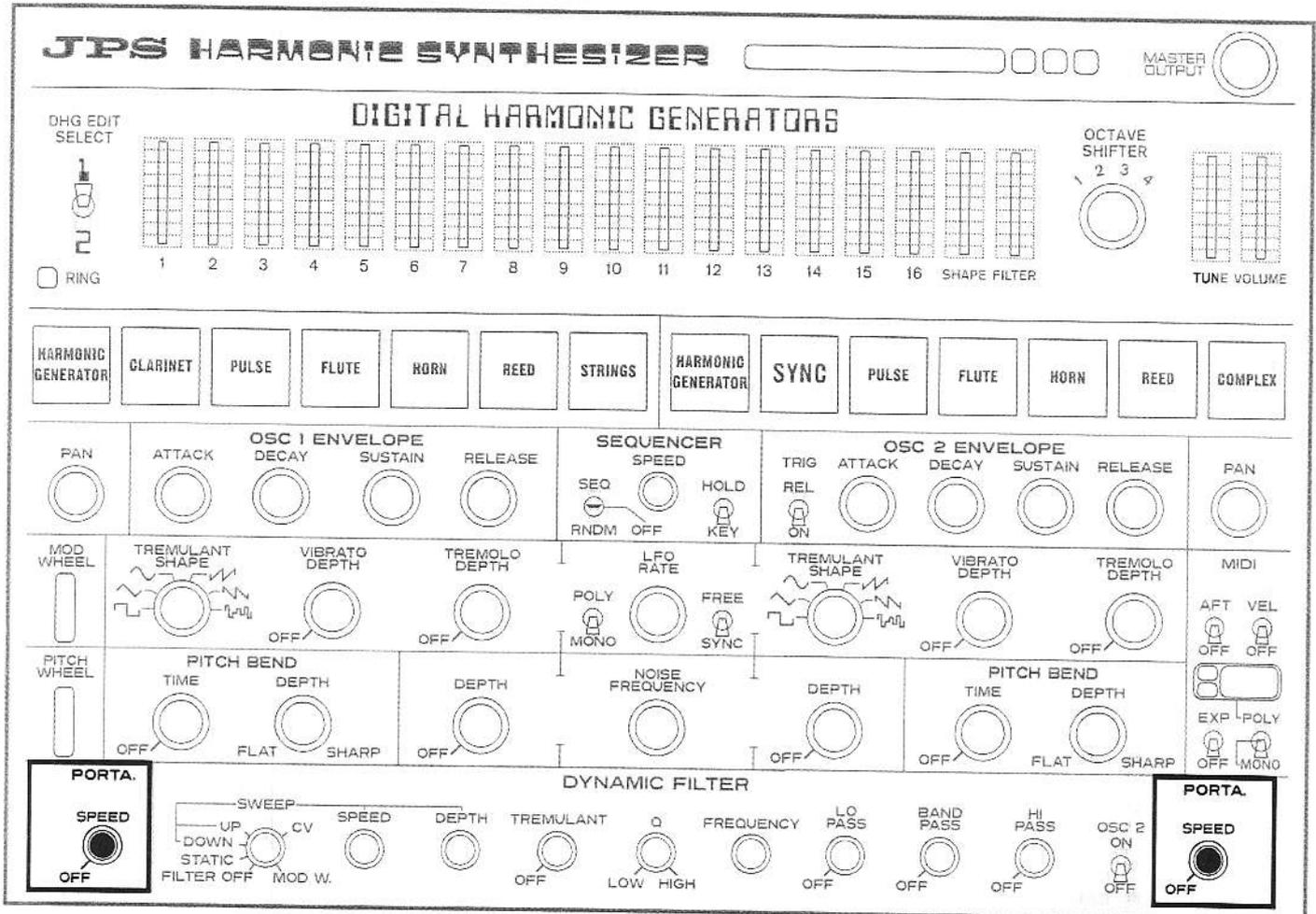
Noise Modulation: Either oscillator can be frequency-modulated by noise in infinitely variable degrees. Noise "frequency" or "color" can be controlled from "pink" to "white". "Pink" noise can be interesting for creating "sample & hold" type effects. Most useful, however, is the "white" - turned fully clockwise. To maintain a sense of pitch, do not adjust the depth beyond the 12:00 position. Noise modulation is most commonly used in creating drums, traps, and other percussion instruments. It is also effective in producing wind, thunder, and whistles. It is up to you to experiment.



Voltage-Controlled Filter: Mode Switch - "Filter Off" position passes Oscillator 1 voice unaffected by the filter. "Static" position turns on the filter allowing either a fixed frequency and/or modulated with a sine tremulant. The rate of the tremulant is set by the master "LFO Rate". "Up" or "Down" positions cause rising or falling ramp envelope modulations from the starting Frequency. Envelope "Speed" and "Depth" are controllable. You can connect a monophonic external envelope to the "Filter Sweep Env.", and setting the sweep control to "CV" mode. The sine tremulance can be overridden using the "Filter Trem. Mod" input for using different modulation shapes or rates from the internal options. "Mod W." position activates modulation wheel control of the filter frequency, from the set frequency value (wheel down) to fully closed filter (wheel up). For full range modulation wheel control, set the Frequency to maximum. Tremulance can also be applied in "Mod W." mode.

Low, band, and high pass outputs are mixable. Typical "wow" effects are created by modulating the full "Low Pass" with some "Q" (resonance). "Notch" filter effects are created by mixing low and high pass outputs in varying proportions.

Oscillator 2 can also be routed through the filter when selecting "Osc 2 On". Any stereo separation applied using the oscillator pan-pots is maintained.



Portamento: This very popular synthesizer effect refers to the sliding from one pitch played to the next pitch played. The JPS Harmonic Synthesizer is unique because of two features of the portamento - independent controls for each oscillator, and "follow-through" effect, causing the final desired pitch to be achieved without having to hold the key down. In most cases, you will find the 9 o'clock setting the most musically useful. To activate the portamento affect, play the first note required, then play the note to which you want to slide. If you set a fairly long "Release" time, you can let go of the second note before it has reached that pitch, and the portamento will continue to slide up until it reaches the desired pitch, or the release has finished its decay, whichever is reached first.

JPS HARMONIC SYNTHESIZER MASTER OUTPUT 

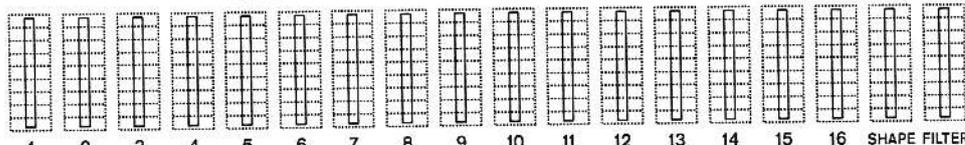
DIGITAL HARMONIC GENERATORS

DHG EDIT SELECT

1

2

RING



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 SHAPE FILTER

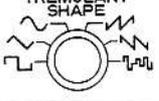
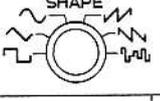
OCTAVE SHIFTER

1 2 3 4



TUNE VOLUME 

HARMONIC GENERATOR	CLARINET	PULSE	FLUTE	HORN	REED	STRINGS	HARMONIC GENERATOR	SYNC	PULSE	FLUTE	HORN	REED	COMPLEX
--------------------	----------	-------	-------	------	------	---------	--------------------	------	-------	-------	------	------	---------

PAN	OSC 1 ENVELOPE				SEQUENCER				OSC 2 ENVELOPE				PAN
	ATTACK	DECAY	SUSTAIN	RELEASE	SEQ	SPEED	HOLD	TRIG	ATTACK	DECAY	SUSTAIN	RELEASE	
					<input type="radio"/> RNDM		<input type="radio"/> KEY	<input type="radio"/> ON					
MOD WHEEL	TREMULANT SHAPE	VIBRATO DEPTH	TREMOLO DEPTH		LFO RATE			TREMULANT SHAPE	VIBRATO DEPTH	TREMOLO DEPTH			MIDI
					<input type="radio"/> POLY		<input type="radio"/> FREE					<input type="radio"/> OFF	<input type="radio"/> OFF
		OFF	OFF		<input type="radio"/> MONO		<input type="radio"/> SYNC		OFF	OFF			<input type="radio"/> OFF
PITCH WHEEL	PITCH BEND		DEPTH		NOISE FREQUENCY		DEPTH		PITCH BEND		DEPTH		
	TIME	DEPTH							TIME	DEPTH			
	OFF	FLAT SHARP	OFF		OFF		OFF		OFF	FLAT SHARP	OFF		
PORTA.	DYNAMIC FILTER												PORTA.
SPEED	SWEEP		SPEED	DEPTH	TREMULANT	FREQUENCY	LO PASS	BAND PASS	HI PASS	OSC 2	SPEED		
	UP	DOWN			<input type="radio"/> OFF		<input type="radio"/> OFF	<input type="radio"/> OFF	<input type="radio"/> OFF	<input type="radio"/> ON			
	CV	MOD W.				LOW HIGH				OFF			

REMEMBER - EXACT ANALOG SETTINGS may vary from instrument to instrument, not to mention the varying taste of the individual owners. Therefore, you should set your panel controls to look as closely as possible to the presets, then EXPERIMENT with each variable control by adjusting it to either side of the initial setting. You will note that noise modulation, VCF outputs and sine modulation are not included as critical because they are usually full "on" or full "off".

JPS HARMONIC SYNTHESIZER MASTER OUTPUT

DIGITAL HARMONIC GENERATORS

DHG EDIT SELECT: 1, 2, RING

OCTAVE SHIFTER: 2, 3, 4

TUNE VOLUME

HARMONIC GENERATOR: CLARINET, PULSE, FLUTE, HORN, REED, STRINGS, SYNC, PULSE, FLUTE, HORN, REED, COMPLEX

OSC 1 ENVELOPE: PAN, ATTACK, DECADE, SUSTAIN, RELEASE

SEQUENCER: SPEED, HOLD, TRIG, REL, ON

OSC 2 ENVELOPE: PAN, ATTACK, DECADE, SUSTAIN, RELEASE

MOD WHEEL: TREMULANT SHAPE, VIBRATO DEPTH, TREMOLO DEPTH

PITCH WHEEL: PITCH BEND TIME, DEPTH, DEPTH, NOISE FREQUENCY, DEPTH, PITCH BEND TIME, DEPTH

PORTA.: SPEED, SWEEP, UP, DOWN, STATIC, FILTER OFF, MOD W., CV, SPEED, DEPTH, TREMULANT, OFF, FREQUENCY, LO PASS, BAND PASS, HI PASS, OSC 2 ON, OFF, PORTA., SPEED

DYNAMIC FILTER: DEPTH, TREMULANT, OFF, FREQUENCY, LO PASS, BAND PASS, HI PASS, OSC 2 ON, OFF, PORTA., SPEED

MIDI: AFT, VEL, OFF, OFF, EXP, POLY, OFF, MONO

PITCH BEND WHEEL RANGES

OSCILLATOR 1: UP, DOWN

OSCILLATOR 2: UP, DOWN

EXTERNAL CONTROLLERS:
 MOD WHEEL ▶ FILTER FREQUENCY
 AFTERTOUCH ▶ VIBRATO DEPTH
 EXPRESSION ▶ AMPLITUDE

SEQUENCER:
 FREE, GATED, SYNC, SEQUENTIAL, RATE, TYPE

OVERSAMPLE: OFF, 2x, 4x, 8x

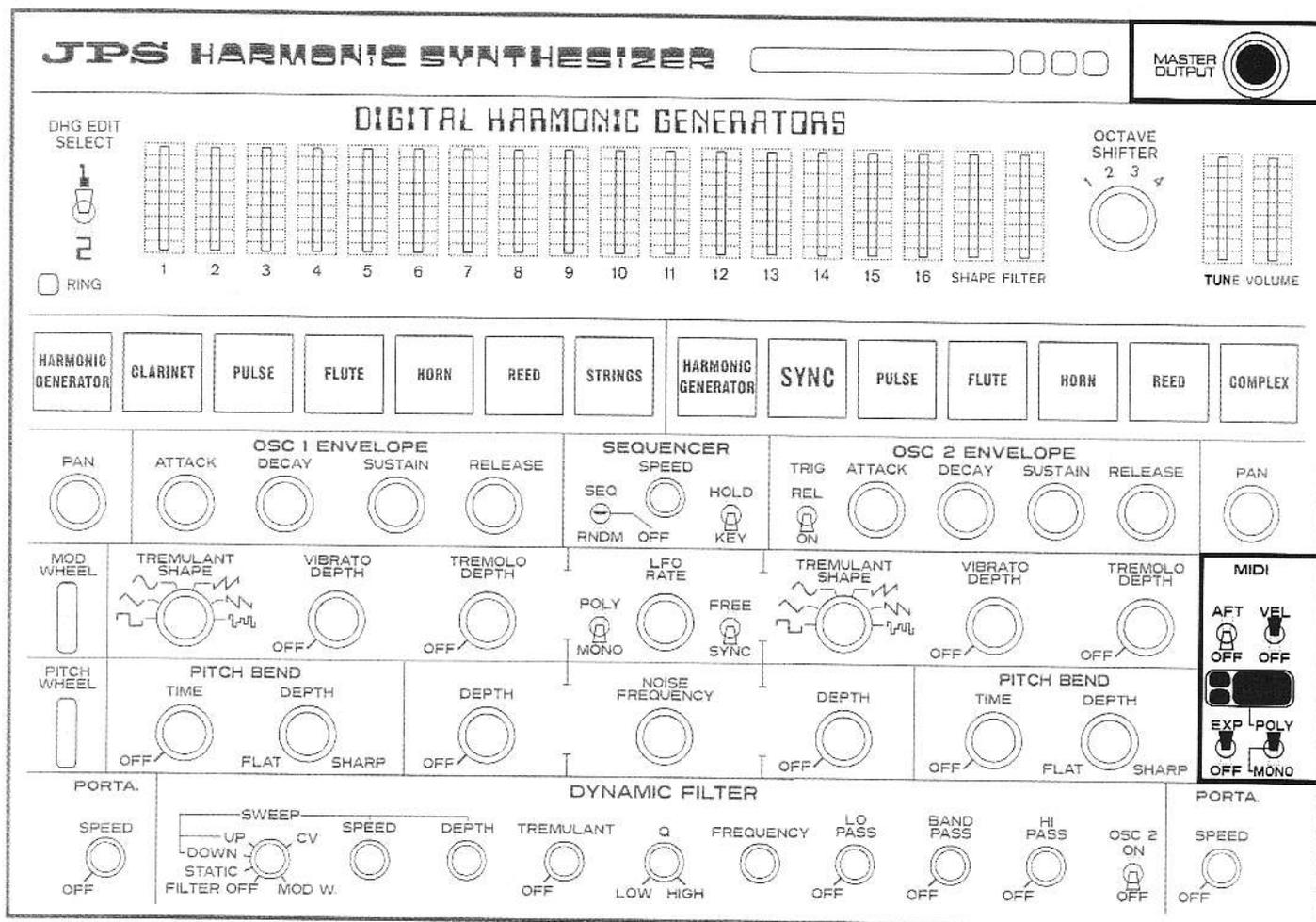
BINARY ADDER: 4, 5, 6, 7, 8

VCF INPUT, OSC 1 OUT, OSC 2 OUT

STEREO OUT

In addition to the key triggered Pitch Bend envelope, you can also use the integrated Pitch Wheel. Unlike other synthesizers, each oscillator can be both independently set to different ranges (up to 24 semitones), and in either direction for both the up and the down pitch wheel positions, developing some unique opportunities for creative effects using pitch bend!

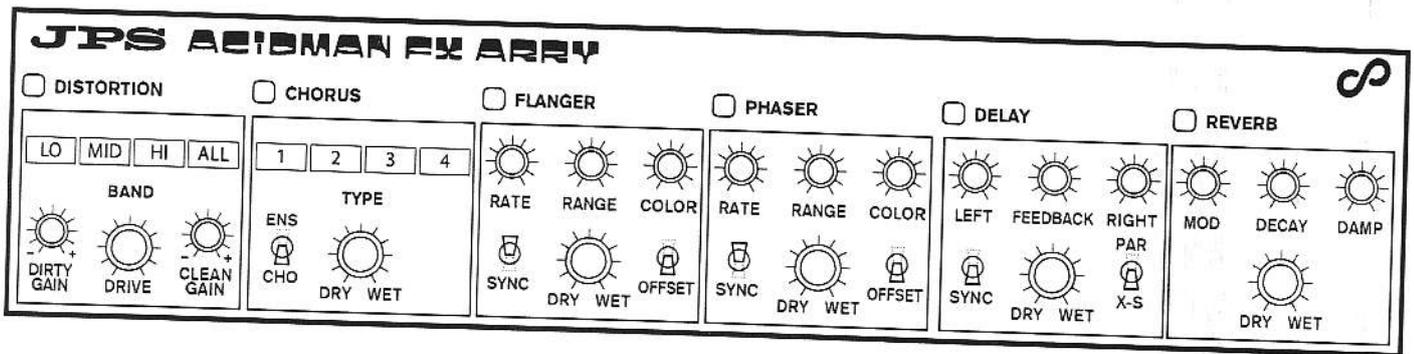
Try setting "Osc 1 Up" to (+)12 and "Osc 1 Down" to (+)7, and "Osc 2 Up" to -3 and "Osc 2 Down" to -7.



The instrument is velocity sensitive. To enable velocity control of notes through performance turn on the "Vel" function. You can also control the overall amplitude of the output using an expression pedal connected to the volume pedal jack on the underside of the device, and enable it by turning "Exp" to the on position. Remember to record and store the expression value, or you may find the output level is lower than expected next time you turn the device on. You can control the final output level using the "Master Output" control.

Three voice modes are available to the Harmonic Synthesizer using a three-position switch. In the down position the instrument is monophonic (one voice per oscillator) with automatic re-triggering. In the middle position you will find a monophonic legato option. In the up position the instrument is fully polyphonic, allowing you to play chords, or bass and lead lines together. Do be aware that the device can get very hot when using too many voices and could start to melt. We strongly recommend setting the polyphony to the lowest value appropriate for the particular performance, using the polyphony "Voice Select" display.

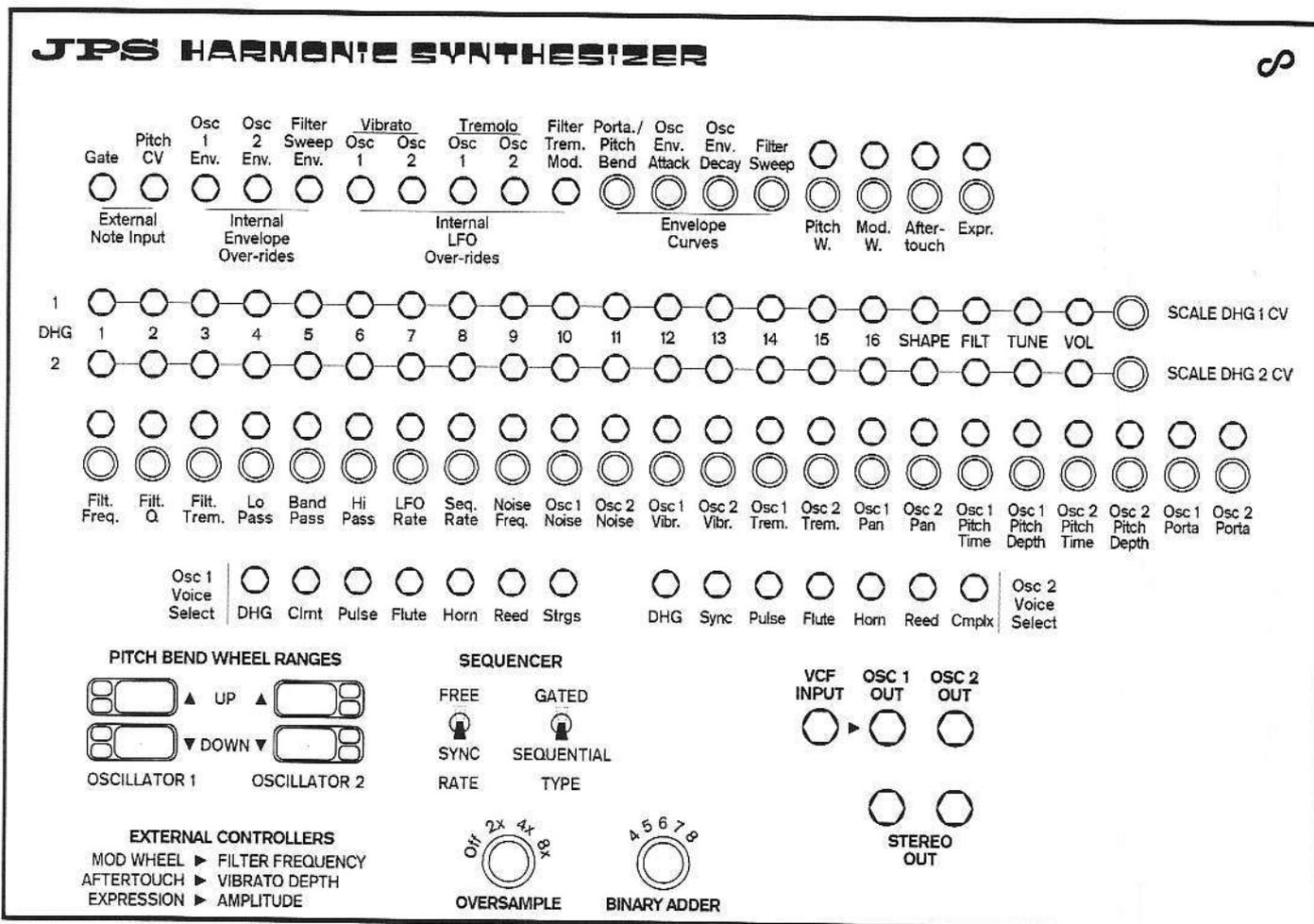
JPS ACIDMAN FX ARRAY



The ACIDMAN FX ARRAY is a handy all-in-one-box for all your standard pedal effects needs in a tidy and easy-to-use package. It makes the perfect companion for any guitar or electronic keyboard.

The system comprises six effects in series.

1. **DISTORTION:** Apply the distortion to just the Lo, Mid or High bands, or All frequencies, and adjust the Drive amount.
 1. Use the Dirty Gain knob to boost or reduce the input level into the selected band.
 2. The Clean knob boosts or reduces the input level into the non-selected bands.
 3. Where "All" is selected, Clean Gain will adjust the distortion threshold.
2. **CHORUS:** A high quality chorus using the latest technology. Select from one of eight different types, four chorus (select "CHO"), four ensemble (select "ENS"). Adjust the dry to wet signal levels with dry and wet control: we recommend no more than the 12 o'clock position when requiring Chorus, and set fully to the right when using Ensemble.
3. **FLANGER:** A flanger pedal effect. Set the Rate (Hz or Sync), the Range, and the Color to taste. Leave the Color control to 12 o'clock position for no color, to the left for negative, or right for positive coloration (feedback). The Offset switch applies an offset to the right channel for a stereo flanging effect.
4. **PHASER:** A big 5-stage phaser effect. Controls are the same as the Flanger.
5. **DELAY:** A simple and highly efficient stereo delay. The delay can operate with delays parallel to the input (i.e., left input to left delay, "PAR") or cross-stereo (left input to right delay and vice versa, "X-S"). Channel delay time can be set to "Off" by turning fully to the left, and no feedback will be applied to that channel; set Dry/Wet to fully wet and you'll effectively have a dry signal on the "off" channel, and a delayed signal on the other. For a pseudo mono delay, set both Left and Right delay times the same.
6. **REVERB:** A vintage delay. Add a gentle modulation with the Mod control, and adjust the length of the Reverb using Decay and Damp. For Hall/Plate style reverb leave damp at minimum. For a shorter, room-style reverb increase the Damp and lower the Decay.



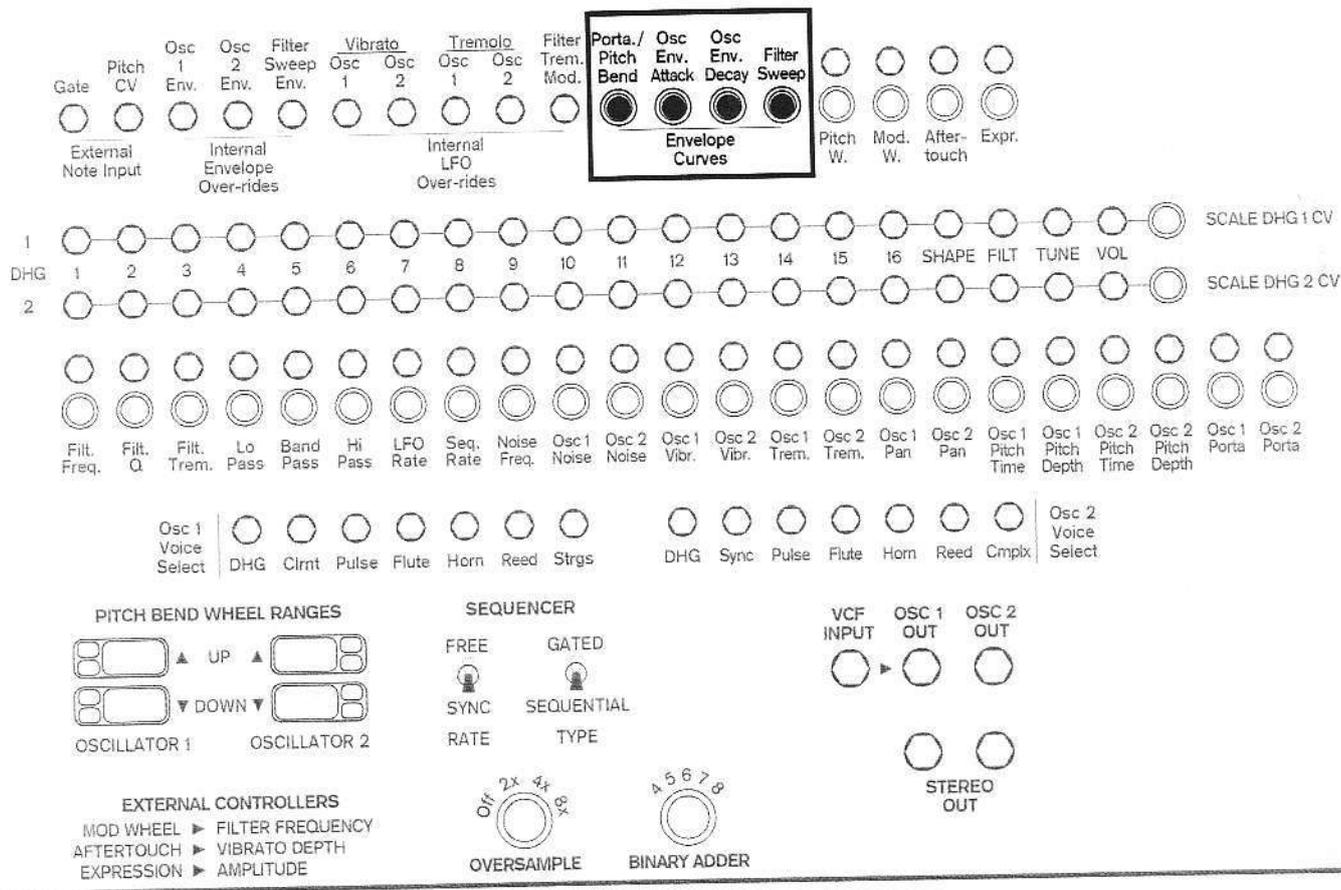
Nearly all the functions of the JPS Harmonic Synthesizer can be controlled via external "control voltage" ("CV") inputs, such as those output via sequencers or alternative modulation sources. Envelope or LFO connections to "Internal Over-rides" will automatically disconnect the internal source, except for the "Filter Sweep", which requires setting the Dynamic Filter's "Sweep" control to the "CV" setting. Voltage scaling into the synthesizer should be carried out at the modulation source.

The DHG1 and DHG2 harmonic "CV" inputs do include a global voltage scaler per oscillator, but individual inputs should be scaled from the source.

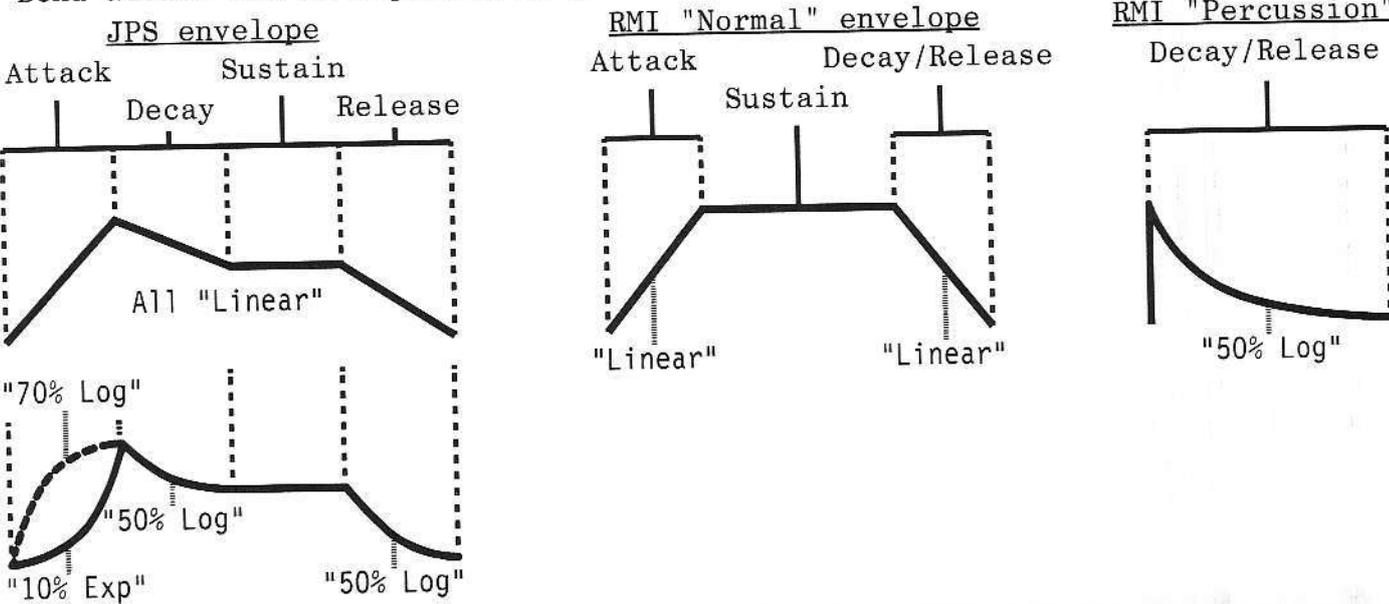
Other "CV" inputs, including those for controlling pitch and mod wheels, and the Filter pass mixers, do provide local scaling knobs for the input values. "Filt. Freq." CV sets the physical knob value, so can be used to adjust the start or centre positions of the modulated frequency types (filter envelope or filter tremulant, respectively).

If connecting an external audio source to the "VCF Input", that audio will be routed through the filter and output through "Osc 1 Out" in mono, and through the Stereo Out in a position determined by the Oscillator 1 pan-pot.

JPS HARMONIC SYNTHESIZER



If a slower or faster rise or fall time is desired on the envelopes, the voltage adjustment of the attack and decay can be easily performed without voiding the warranty. Set the "Attack" to 12:00 for a linear rise, or turn to the left for a slower rise (Exp), or to the right for a faster rise (Log). For "Decay", turn completely to the left for a linear fall, and turn to the right for a steeper fall. Note this adjusts both decay and release voltage curves. Likewise the decay curve of the Filter Sweep and Portamento/Pitch Bend attack can be adjusted in the same manner.



By now, you should have a rough idea of where the controls are and what effects they should have on the sound.

You are about ready to put all this raw knowledge to practical use, but before you do, GO BACK AND ONCE AGAIN READ THE PAGE ON CRITICAL ANALOG CONTROLS. It will only take a minute. Those controls are what it's all about - interfacing the human being with the electronic machine. You have an idea of what you would like to hear, but the machine doesn't. You must tell it through the controls. Now, read that page, and let's get on with the best part - making the sounds.....

Now go through the folder "Set-Up Sheets" (pages 24-55).

NOTE: When referring to the Set-Up Sheets,
ANY CONTROLS NOT APPLIED SHOULD BE IN THE "OFF" OR "MINIMUM" POSITION.

DOING YOUR OWN THING:

The most exciting thing about synthesis is creating your own voices. Having tried several Set-Ups created by someone else, you probably have some ideas of your own. Of course, you can still create further variations on the Set-Ups by re-combining them!

But if you just want to enjoy our lovely presets, then feel free to do that!

JPS HARMONIC SYNTHESIZER

A GENERAL APPROACH TO THE USE OF THE INSTRUMENT:

Your JPS Harmonic Synthesizer is actually two synthesizers in one unit. We feel that more musical excitement is created when two things are happening at once. This is what you paid for when you bought the instrument, and now, you should take full advantage of its potential.

Here's how:

Whenever possible, use both Oscillators at the same time. When you reach for Osc 1 or Osc 2 to set up a sound, think to yourself: "What differences are there between the two voices, and how can I use these differences to my advantage?" Remember, Osc 1 can use the Voltage-Controlled Dynamic Filter with mod wheel pedal control while Osc 2 remains static, thus sounds that require filter can go to the Osc 1 voice. Osc 2 can be tuned differently.

When you have set sounds in both Oscillators, their relationships will fall into two categories: "Doubling" or "Contrasting".

Doubling - Creating the same sound or instrument in both Oscillators. Richness of sound is enhanced by subtleties in differences of "attack" and "release" parameters, "beats" or "phasing" caused by slight differences in tuning between oscillators.

Contrasting - Creating different instruments in two Oscillators. Interesting music is full of contrasts in many forms. The successful synthesist will be fully aware of all areas in which he or she can create contrasts. Of course, the trick is to apply these contrasts to the music being performed.

There are two types of contrasts: Horizontal and Vertical

Horizontal - Contrasts appearing in sequence of time.
example: flute/viola/flute/viola, etc.

Vertical - Contrasts appearing between each other at the same time.
example: flute
viola

A sequence of time occurs as music is performed. On paper, as music is performed, it moves from left to right - horizontal. When two or more musical lines are played at the same time, their arrangement on paper is vertical. Therefore, two musical lines (one above the other) can progress from left to right, creating both horizontal and vertical relations.

example: flute/horn/flute/horn/flute/horn, etc.
viola/bass/viola/bass/viola/bass, etc.

HOW TO GENERATE CONTRASTS:

The contrasts shown above were between different instruments. On your synthesizer, you are given four areas in which to create contrasts:

WAVEFORM - AMPLITUDE - FREQUENCY - ENVELOPE

1. Waveform - mellow vs. rich / odd harmonics vs. even harmonics, etc.

Horizontal - rapid changes can be made with the Preset Voices or gradual changes can be made with the Harmonic Generator sliders.

Vertical - create contrasting instruments on Oscillator 1 and Oscillator 2 and set to an opposable pan position

2. Amplitude - loud vs. soft.

Horizontal - use volume pedal for dynamic changes

Vertical - use contrasting intensities on Osc 1 and Osc 2 Voices.

3. Frequency - high vs. low / pitched vs. non-pitched (noise-modulated).

Horizontal - change octaves with Octave Shifters, or add noise modulation.

Vertical - use contrasting octaves between Oscillator 1 and Oscillator 2, tune Oscillator 2 to a different interval, such as a third, fifth or sixth, or add noise modulation to one voice.

4. Envelope - slow and long vs. fast and short.

Horizontal - change envelope generator settings while playing.

Vertical - use contrasting envelope generator settings for Oscillator 1 and Oscillator 2 voices

JPS HARMONIC SYNTHESIZER

A NOTE OF IMPORTANCE:

Most synthesizer performers make few changes while playing, therefore their music becomes uninteresting. To make your music interesting, you should constantly be thinking about your next change while you are playing. Get in the habit of practicing your changes as an integral part of your music. Adding vibrato, tremolo, or dynamic changes are as critical as playing the correct note!!!

SOME HELPFUL HINTS:

(which may be obvious to you already)

Always have as many controls as possible set up in advance.

- example: if you are using one of the Preset Waveforms, have the Harmonic Generator sliders set-up in advance of their next usage.
- example: if you are not using the Sequencer, have its speed set in advance for the next usage.
- example: if you are not using Vibrato or Tremolo, have the LFO Rate set in advance at the proper speed and pre-select the sine wave on the Tremulant Shape controls. Since Vibrato is often used, it is helpful to leave the Vibrato Depth controls in the "minimum" position, but not "off". The pilot light will remain "on" but the function not in effect.
- example: if noise modulation is not being used, the most common use will be "white" noise, therefore have the Noise Frequency control set fully clockwise in advance.
- example: if the Dynamic Filter is not being used, it should be set up for all the parameters of its next usage. Common usage would call for Speed and Depth to be set at 12:00, Q at 10:00, and Low Pass full. Filter modulation wheel should be closed.
- example: if only one voice is being used, all of the controls for the other voice should be set in advance of their next usage.

When using the JPS Harmonic Synthesizer for elaborate sequences with other instruments, keep in mind that the Volume Pedal completely stops the sound when in the fully-closed position. Therefore, complete set-ups can be arranged in advance without being heard, then, merely open the Volume Pedal to start the sequence. In the "sequential" mode, the Sequencer Pilot Lamp serves as a "down-beat" indicator, assuming the lowest note is on the down-beat, giving you a chance to synchronize yourself with the beat before listening to it. Remember, you can add accents on various beats with the Expression or Mod Wheel.

JPS HARMONIC SYNTHESIZER

Well, that's it....

.....sorry, we've run out of ideas.

You are on your own from now on.

And to prove our faith to you, we have included a blank Set-Up sheet on the next page you can photocopy to jot down your ideas so that they won't be forgotten.

If fact, if you come up with some winners, don't keep them a secret. Instead, send them to JPS and we may add them in a future update, and we'd like to include some new ideas!

Don't forget to fill out your WARRANTY CARD so that we have a record of you. Thanx.

Now go enjoy the world of harmonic synthesis!

Should we have somehow inspired you to such heights of creativity that you can't help but share your success, drop us a line! Here's where we are:

Jiggery-Pokery Sound
<https://www.facebook.com/JiggeryPokerySound>

JPS HARMONIC SYNTHESIZER


```
//Remote Map template for Instruments Jiggery-Pokery Sound JPS Harmonic Synthesizer
Scope Jiggery Pokery com.jiggerypokery.JPSHarmonicSynthesizer
//Control Surface Item Key Remotable Item Scale Mode
```

```
Map _control_ Master Volume
Map _control_ Aftertouch Enable
Map _control_ Velocity Enable
Map _control_ Expression Enable
Map _control_ Voice Select
Map _control_ Polyphonic Voices
Map _control_ DHG Edit Select
```

```
Map _control_ DHG 1 Harmonic 1
Map _control_ DHG 1 Harmonic 2
Map _control_ DHG 1 Harmonic 3
Map _control_ DHG 1 Harmonic 4
Map _control_ DHG 1 Harmonic 5
Map _control_ DHG 1 Harmonic 6
Map _control_ DHG 1 Harmonic 7
Map _control_ DHG 1 Harmonic 8
Map _control_ DHG 1 Harmonic 9
Map _control_ DHG 1 Harmonic 10
Map _control_ DHG 1 Harmonic 11
Map _control_ DHG 1 Harmonic 12
Map _control_ DHG 1 Harmonic 13
Map _control_ DHG 1 Harmonic 14
Map _control_ DHG 1 Harmonic 15
Map _control_ DHG 1 Harmonic 16
```

```
Map _control_ DHG 2 Harmonic 1
Map _control_ DHG 2 Harmonic 2
Map _control_ DHG 2 Harmonic 3
Map _control_ DHG 2 Harmonic 4
Map _control_ DHG 2 Harmonic 5
Map _control_ DHG 2 Harmonic 6
Map _control_ DHG 2 Harmonic 7
Map _control_ DHG 2 Harmonic 8
Map _control_ DHG 2 Harmonic 9
Map _control_ DHG 2 Harmonic 10
Map _control_ DHG 2 Harmonic 11
Map _control_ DHG 2 Harmonic 12
Map _control_ DHG 2 Harmonic 13
Map _control_ DHG 2 Harmonic 14
Map _control_ DHG 2 Harmonic 15
Map _control_ DHG 2 Harmonic 16
```

```
Map _control_ Osc 1 Octave
Map _control_ Osc 1 Shape
Map _control_ Osc 1 Filter
Map _control_ Osc 1 Tune
Map _control_ Osc 1 Volume
Map _control_ Osc 1 Pan
Map _control_ Osc 1 HG
Map _control_ Osc 1 Clarinet
Map _control_ Osc 1 Pulse
Map _control_ Osc 1 Flute
```

Continued overleaf

Map	_control_	Osc 1 Horn
Map	_control_	Osc 1 Reed
Map	_control_	Osc 1 Strings
Map	_control_	Ring Mod
Map	_control_	Osc 2 Octave
Map	_control_	Osc 2 Shape
Map	_control_	Osc 2 Filter
Map	_control_	Osc 2 Tune
Map	_control_	Osc 2 Volume
Map	_control_	Osc 2 Pan
Map	_control_	Osc 2 HG
Map	_control_	Osc 2 Sync
Map	_control_	Osc 2 Pulse
Map	_control_	Osc 2 Flute
Map	_control_	Osc 2 Horn
Map	_control_	Osc 2 Reed
Map	_control_	Osc 2 Complex
Map	_control_	Osc 1 Attack
Map	_control_	Osc 1 Decay
Map	_control_	Osc 1 Sustain
Map	_control_	Osc 1 Release
Map	_control_	Osc 2 Trigger Mode
Map	_control_	Osc 2 Attack
Map	_control_	Osc 2 Decay
Map	_control_	Osc 2 Sustain
Map	_control_	Osc 2 Release
Map	_control_	Osc 2 Note Off Attack
Map	_control_	Osc 2 Note Off Hold
Map	_control_	Osc 2 Note Off Level
Map	_control_	Osc 2 Note Off Decay
Map	_control_	Osc 1 Pitchbend Time
Map	_control_	Osc 1 Pitchbend Depth
Map	_control_	Osc 1 Portamento Speed
Map	_control_	Osc 2 Pitchbend Time
Map	_control_	Osc 2 Pitchbend Depth
Map	_control_	Osc 2 Portamento Speed
Map	_control_	Noise Frequency
Map	_control_	Osc 1 Noise Depth
Map	_control_	Osc 2 Noise Depth
Map	_control_	LFO Mode
Map	_control_	LFO Sync
Map	_control_	LFO Rate Hz
Map	_control_	LFO Rate Sync
Map	_control_	Osc 1 Tremulant Shape
Map	_control_	Osc 1 Vibrato Depth
Map	_control_	Osc 1 Tremolo Depth
Map	_control_	Osc 2 Tremulant Shape
Map	_control_	Osc 2 Vibrato Depth
Map	_control_	Osc 2 Tremolo Depth

Continued overleaf

Map	_control_	Filter Sweep
Map	_control_	Filter Speed
Map	_control_	Filter Depth
Map	_control_	Filter Tremulant
Map	_control_	Filter Q
Map	_control_	Filter Frequency
Map	_control_	Low Pass Mix
Map	_control_	Band Pass Mix
Map	_control_	High Pass Mix
Map	_control_	Osc 2 Filter
Map	_control_	Sequencer Hold
Map	_control_	Sequencer Mode
Map	_control_	Sequencer Speed Hz
Map	_control_	Sequencer Speed Sync
Map	_control_	Distortion Enable
Map	_control_	Distortion Mode
Map	_control_	Clean Gain
Map	_control_	Dirty Gain
Map	_control_	Drive
Map	_control_	Chorus Enable
Map	_control_	Chorus Type
Map	_control_	Chorus Mode
Map	_control_	Chorus Mix
Map	_control_	Flanger Enable
Map	_control_	Flanger Sync
Map	_control_	Flanger Rate Hz
Map	_control_	Flanger Rate Sync
Map	_control_	Flanger Range
Map	_control_	Flanger Color
Map	_control_	Flanger Offset
Map	_control_	Flanger Mix
Map	_control_	Phaser Enable
Map	_control_	Phaser Sync
Map	_control_	Phaser Rate Hz
Map	_control_	Phaser Rate Sync
Map	_control_	Phaser Range
Map	_control_	Phaser Color
Map	_control_	Phaser Offset
Map	_control_	Phaser Mix
Map	_control_	Delay Enable
Map	_control_	Delay Type
Map	_control_	Delay Sync
Map	_control_	Delay Left Time Hz
Map	_control_	Delay Left Time Sync
Map	_control_	Delay Right Time Hz
Map	_control_	Delay Right Time Sync
Map	_control_	Delay Feedback
Map	_control_	Delay Mix
Map	_control_	Reverb Enable
Map	_control_	Reverb Mod
Map	_control_	Reverb Decay
Map	_control_	Reverb Damp
Map	_control_	Reverb Mix



JPS HARMONIC SYNTHESIZER v1.0.0



JPS Harmonic Synthesizer Rack Extension: user guide lovingly recreated and adapted from the original RMI Harmonic Synthesizer manual. They don't write 'em like that anymore.

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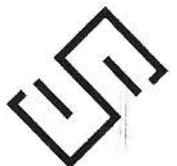
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Produced and Designed by Matt Black. Coded by ScuzzyEye. Special thanks to the JPS Beta and Demo team.

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FROM THE MAKER OF...

Rack Extensions

- **Ammo 100LA Modulation Oscillator** - Portable single-channel oscillator for audio and CV rate synthesis and LFOs, featuring 128 waveforms
- **Ammo 400R Modulation Oscillators** - 4-channel LFO generator with audio output, featuring 136 waveforms and advanced modulation mixing
- **Ammo 1200BR Modulation Synthesizer** - Advanced 4-channel LFO generator and audio synthesizer adds S&H, Comparator and Electro-Switch
- **Anansi Mid/Side Mastering Router** - Mid/side audio router with mono compatibility check, 3-in merger and 3-out splitter
- **Charlotte Envelope Generator** - 9-stage EG with time, level, curve and velocity control per stage, and a priority-selectable MIDI-to-cv-pitch splitter
- **Chenille BBD Chorus Ensemble** - Realistic BBD chorus device, based on the 70s string synth ensembles and the classic Roland Dimension D rack unit
- **Combo 310 Unique Organ** - The legendary Dutch electronic home/church organ, best known as the "Jarre" organ of Oxygene and Equinoxe.
- **Combo B3T Organ** - The famous American tonewheel organ and Leslie combo in highly tweak-able and addictive Rack Extension format
- **Combo Compact Organ** - The classic Italian transistor organ now in a brilliant, easy to use and equally compact Rack Extension format. Bags o' fun!
- **Combo Continental Organ** - The classic British transistor organ in a fantastic Rack Extension for that instant 60s feel!
- **Combo X~705 Space Organ** - An inspirational Frankensynth monster: an all-in-one Hammond clone, synthesizer and Rhapsody 610 string ensemble!
- **Itsy Stereo/Phase Inverter** - L/R channel flip, cv-controllable 180° stereo inverting width adjust, stereo phase inverters and phase correlation metering
- **JPS Harmonic Synthesizer** - Vintage additive synthesizer emulation, based on the ultra-rare RMI keyboard
- **Lolth CV Delay Splitter** - 4x4 channel cv splitter with independently adjustable gain and inversion controls, channel delay, and mirroring
- **Miranda CV Delay Merger** - 4x4 channel cv merger with independently adjustable gain and inversion controls, channel delay, and mirroring
- **Mordred Audio Bypass Merger** - 4 x 5 channel stereo audio merger with independently switch-able outputs and auto-fade control
- **Shelob Audio Bypass Splitter** - 4 x 5 channel stereo audio splitter with independently switch-able outputs, mirroring, and auto-fade control
- **Super-Spider Bundle** - Anansi, Itsy, Lolth, Miranda, Mordred and Shelob: buy all six and get one and a couple of knobs on another absolutely free!
- **Steerpike BBD Delay Ensemble** - Vintage style 6-tap BBD device, with multiple delay modes including parallel, serial, and reverse
- **Titus BBD Delay Line** - A lightweight 1U delay device featuring a single Steerpike delay line, with reverse

ReFills

- **Guitars vol.1+2: Stratocaster & Telecaster** - Multi-sampled guitars with slides, mutes, signature L6 effects and key-switching
- **Elements²: Vector Synthesis Workstation** - Massive patch collection featuring Korg Wavestation/MS2000, Waldorf Blofeld and Roland SC-8850
- **Additions: Vintage Additive Synthesizers** - DK Synergy + Kawai K5m + Thor FM.
- **Blue Meanie: Virtually an ARP2600** - Thor and Kong-based analogue synth machine
- **Kings of Kong Classic Drum Machines*** - the premier ReFill for Reason 5+, with over 50 classic beat-boxes for Kong Drum Designer
- **Retro Organs v1.5** - Hammond B3 + Farfisa Combo Compact + Vox Continental in one brilliant ReFill. Also available for Reason Essentials
- **B3 Tonewheels v1.5** - the original 24-bit non-Leslie samples ReFill with advanced rotary speaker emulation
- **Farfisa Combo Compact Deluxe v1.5** - the complete set of original 24-bit Farfisa samples covering, both standard and Deluxe models
- **Vox Continental v1.5** - a complete set of original samples from the classic C300 organ, featuring original and extended Continental footages
- **Hammond Novachord*** - the near-antique pre-WW2 monster polyphonic valve synthesizer
- **Retrospective: 40 years of Synthesizer History*** - Over 1Gb of vintage samples from synths and electronic keyboards from the Hollow Sun archive

FreeFills

- **Additives** - demo version of Additions: the fantastic Additives tracks from PUF Challenge #2 can be found at <http://soundcloud.com/groups/additives>
- **8-BIT Magic: The ZX Spectrum ReFill**
- **Classic Drum Machine Collection v1.1**
- **Eminent 310 Strings** v3** - a very old set of samples of miscellaneous quality, so you don't need this anymore. You've got this lovely Combo 310 Unique Organ for your Rack now, with every note recorded in 24-bit at 96kHz, so it's much better!
- **Harpe Laser**** - the famous Laser Harp sound, the Elka Synthex preset 46 "Ring Mod"
- **Moog Taurus Bass Synthesizer** v1.1**

For more information on these products and for direct downloads of these latest versions, plus a wide range of great Combinator skins, please visit www.jiggery-pokery.com

* Includes samples licensed from HollowSun.com

** demo ReFills for Retrospective