



PISSCUTTER features SynthEdit's chunky Phase Distortion Oscillator, which offers two separate waveforms. It is similar to Casio's **CZ** digital synths of the 1980s and is capable of producing a wide range of usable timbres with relatively few controls. Whilst **CZ** synths relied solely on phase distortion to create sounds, **PISSCUTTER** also has a flexible filter section to enhance it's potential. Low-Pass [12 or 24dB/Octave slope] and Band Reject [Notch] filters can be mixed in mono or, by using the new X-Pan feature, in a full stereo signal path. A new Modulation Envelope features multiple interpolation methods and can be looped for long pads. There are two separate overdrives in the signal path and a single LFO is augmented by a couple of new modulation sources. The Sweeper is a specialised LFO and the Randomator [there are two of these] offers random variation to many settings, for a more human/natural feel [or craziness].

WORKING WITH PISSCUTTER

The goal with all the **killer** synths is ease-of-use, without sacrificing sound quality or flexibility. The Phase Distortion Oscillator used here is simplicity itself to use, even though the internal workings are somewhat complex. If you're interested, there are plenty of explanations of Phase Distortion synthesis on the interweb. What we want to do here is provide a more practical, hands-on explanation of how to use this instrument, so let's get stuck in.

To start off, load **PISSCUTTER** into your sequencer and loop some notes so that you can hear changes as you make them. I like to use something with different length notes and a variety of velocity levels, so I can get a good idea of exactly how things sound. We will take the last patch, **Initializer**, and create a couple of different timbres from it, so select it now.

The first thing to note is that the Filter section is switched off [the controls are all greyed out]. In fact, only about one in four resets in the default bank use the filter. Let's start by turning this into a decent bass patch. Drop the pitch by a couple of octaves by clicking on the OCTave light until just the first light is lit [3 presses]. At the moment the phase is being modulated by velocity only. Turn the inner PMOD knob fully clockwise to dial in some Envelope modulation, then turn the outer knob down to zero, to get rid of the Velocity modulation. Even though we only have one active waveform, you can still hear how the modulation affects the sound, because each wave is in fact a separate oscillator, with its own Phase Distortion.

Now we will use the Modulation Envelope to shape the sound into something we can use as a bassline. Pull all the sliders down to zero, except Decay. Move it down until you can just hear it start to cut the notes early [about 20 for me]. If you start to hear clicking at the start of each note, raise the Release to a value of 2. You can leave the VCA envelope alone for now.

Click on the Interpolation LEDs to step through each mode. With the first or second light on, you should get a nice, percussive envelope. The first one works well for me but you can choose whichever you like. Now you can click through the different waveforms and hear how each sounds. I like Double-Sine for basslines, its chunky and hard. You can dial in the second waveform if you want to make it even chunkier, but I am going to leave it as is.

Go to the DRIVE section, turn on PRE and turn the knob

to about 12 o'clock to add some grunge to the sound. It makes mine a bit wooly, so I have changed to the next interpolation light on the Modulation Envelope, which is a steeper version of the first, to get the punch back into it.

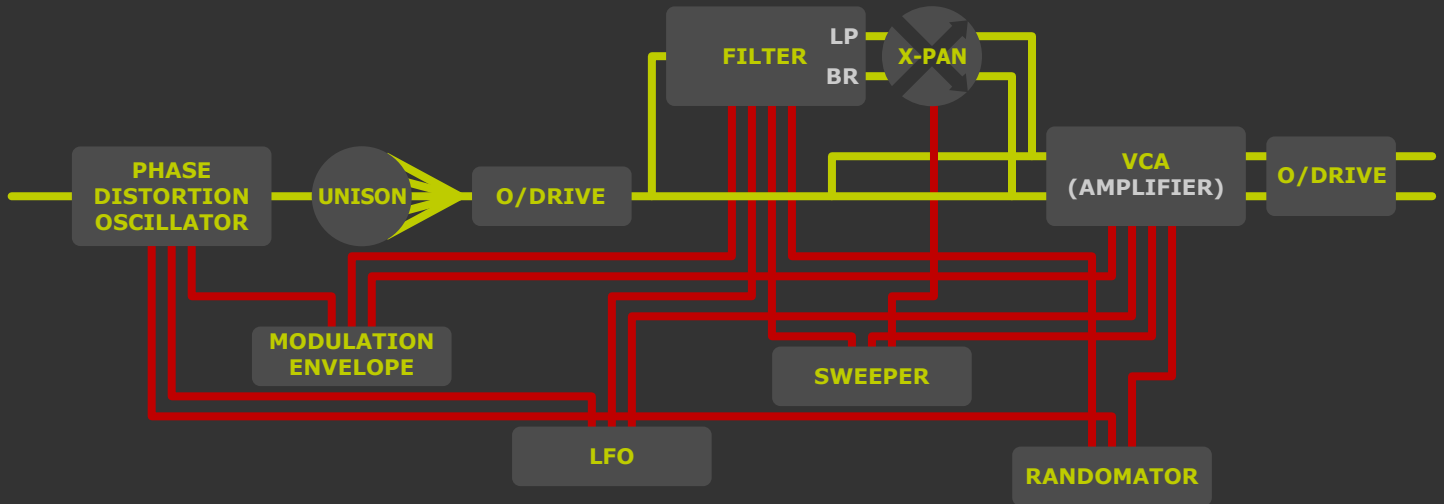
If you turn the Filter on, the sound will suddenly move to one spot in the stereo field and start to pan slowly. That is because the X-Pan function is switched on. Before we start to play around, turn both Outer knobs, Resonance and Velocity modulation, down to zero. Now turn the LP gain knob all the way up. The sound won't change because nothing is getting through the Low-Pass filter at the moment. To fix that, turn the Inner MOD knob all the way to the left, to dial in some envelope modulation of the cutoff frequency. It should make the sound appear to move towards the centre, as it balances the Band Reject sound we could already hear. Turn the BR knob down to zero and switch off X-Pan.

Next turn the Resonance [left-hand Outer knob] to about 1 o'clock, then slowly reduce the Envelope modulation until you get a sound you like [about 3 o'clock for me].

Once you're happy, find the two RANDomators. Set one for CUTOFF and the other for RESONance and set each depth knob to about 1 o'clock. Because each Randomator creates its own random values, you will get a lot of variation over time, so be careful with the Resonance Depth or you might damage your speakers a couple of minutes after you change the setting. It is kinda cool though, huh?

While we are at it, we should take a quick look at the SWEEPER, too. Change the time to 2 BARS, click on the Mode light twice, so that it is affecting the Cutoff, and turn the knob to between 10 & 11 o'clock. Negative modulation just changes the phase, as the values go from -50% to +50% anyway. Now we have a filter sweep as well.

From here you should be able to play around and work out the rest of it. The labeling is deliberately a little bit sparse, to encourage you to experiment and explore yourself. If you have a MIDI controller, don't forget to see how **PISSCUTTER** responds to the Mod Wheel.



UI CONTROLS



SELECTOR - Click on the arrow to increment through choices or click on the display to select from a drop-down menu.



KNOBS - Change the value of any knob by clicking on it and dragging up/down. In the case of concentric knobs, click on the one you wish to change. i.e. The whole inner circle or the outer ring.



BUTTON [LED] - In the labelled state when lit.



SLIDER - Only used on Envelopes. Drag up/down to change values.



SELECTOR - Click to advance to next option.

CONTROLS

OSCILLATOR

OCT -2 [no lights] to +1 octaves [3 lights]

WAVE A/B Click to select a preset waveform



SAW
SQUARE
PULSE
DOUBLE-SINE
SAW-PULSE
RESONANT 1
RESONANT 2
RESONANT 3

PMOD Controls Phase Modulation depth. Inner knob controls Envelope Modulation - negative and positive values from zero. Outer knob controls Velocity Modulation.

UNISON

Inner knob sets the no. of Unison Voices. Outer knob controls Unison Detune.

ENVELOPE

A Attack Time
D Decay Time
B Break Point Level
S Slope Time
S Sustain Level
R Release Time



Select from 4 Interpolation modes:
No Lights **LINEAR**
Light 1 **CONCAVE 1**
Light 2 **CONCAVE 2**
Light 3 **"S" CURVE**



Select from 4 Loop Modes:
No Lights **OFF**
Light 1 from **START**
Light 2 from **DECAY**
Light 3 from **BREAK POINT**

NOTES: Envelope times for this envelope are longer than for the **VCA** Envelope.

For smooth looping, either loop the whole envelope [Light 1] and set Sustain at zero or start the loop from the Decay Segment [Light 2] and set the Sustain value at maximum. Other settings may cause audible clicks.

CONTROLS - Continued

FILTER	On/Off switch shows/hides the controls
LP24	Switch the Low-Pass Filter from 12 to 24dB/octave mode
	CUTOFF [Inner] and RESONANCE [Outer] Knobs are unlabelled.
MOD	Inner knob controls Envelope Modulation Outer knob controls Velocity Modulation
LP	Controls Low-Pass Filter Level [volume].
BR	Controls Band-Reject [notch] Filter Level.
X	Controls the X-Pan function. X-Pan uses the SWEEPER [see below] to modulate the stereo position of each Filter output [Low-Pass and Band Reject] in opposite directions. i.e. One pans from left to right, the other right to left. X-Pan has an ON switch and a Depth knob.

NOTE: Using X-Pan will automatically switch the **SWEEPER** LFO on and will set-up a stereo signal path inside the instrument. This can lead to higher CPU use than normal, so switch the X-Pan off if you do not intend to use it.

DRIVE

PRE	On/Off Switch Overdrive Amount applied before the filter.
NOTE:	PRE Overdrive is applied per note and can be more CPU intensive.
POST	Overdrive Amount applied after VCA.

VCA

VOL	Master Volume control Outer knob controls Velocity Modulation.
WIDE	Inverts one channel to create space in the centre of the mix
PORTAMENTO	Portamento time [Legato only]
A D S R	ADSR envelope with linear interpolation.

GLOBAL

MONO	Monophonic operation [no Unison]
RETRIGGER	Retriggers all envelopes for each new note - Mono mode only

LFO

WAVE	Select the LFO waveform: SINE TRIANGLE SAW RAMP SQUARE RANDOM
TIME	[Unlabelled] Inner knob selects Time from 1/16 note to 2 bars. Outer knob sets the delay time.
DESTINATION x 2	- Knob controls modulation depth Modulation range +/- 50% Negative values invert LFO phase.

RANDOMATOR

Adds a random factor to the selected parameter for each new note played. When used on **P MOD** it can cause clicks. Each of the two RANDOMATORS generates its own random value, for maximum chaos. Use the Selector to set a destination and the knob to control the amount of randomness.

NOTE: When using automation from a sequencer such as Cubase, the parameters labelled "RAND - 1" refer to the RANDOMATOR positioned below and slightly left of the centre of the interface.

SWEEPER

The SWEEPER is a specialised LFO, designed for longer, sweep-style modulation. As well as having its own controls, it is used by the **X-Pan** function in the Filter.

TIME	[Unlabelled] Set the LFO period from 1 bar to 16 bars.
DESTINATION [Unlabelled]	No Light SWEEPER is off [no CPU use] Light 1 to Oscillator FM Light 2 to Filter Cutoff Light 3 to both FM and Cutoff
DEPTH	Controls modulation depth [+/-]

MOD WHEEL

Select multiple destinations and use the **SENSitivity** knob to control the modulation depth. **PMOD**, **CUT** and **BR** add extra modulation. When the LFO light is lit, LFO modulation is fully controlled by the Mod Wheel and the Destination knobs set the maximum depth.

MIDI CC TABLE

PD OSCILLATOR

PARAMETER	CC	PARAMETER	CC
WAVE A	21	WAVE B	22
OCTave	23		
Env Mod	24	Velocity Mod	25

UNISON

Voices	31	Detune	32
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FILTER

PARAMETER	CC	PARAMETER	CC
On/Off	12		
Cutoff	13	Resonance	14
LP Gain	15	BR Gain	16
Envelope Mod	17	Velocity Mod	18
LP24 On/Off	19	Env -> BR	20
X-Pan ON	10	X-Pan Depth	11

VCA

PARAMETER	CC	PARAMETER	CC
VOLUME	07	PORTamento	05
Velocity to VOL	45	WIDE On/Off	46
Attack	41		
Decay	42		
Sustain Level	43		
Release	44		

RANDOMATORS

PARAMETER	CC		
R1 Destination	105	R1 Depth	106
R2 Destination	107	R2 Depth	108

MODULATION ENVELOPE

PARAMETER	CC	PARAMETER	CC
Attack	61	Interpolation	67
Decay	62	Looping	68
Break-Point	63		
Slope	64		
Sustain Level	65		
Release	66		

LFO

PARAMETER	CC	PARAMETER	CC
WAVEform	51	x 2	50
Time	52	Delay	53
Destination 1	54	Depth 1	55
Destination 2	56	Depth 2	57
Destination 3	58	Depth 3	59

SWEEPER

PARAMETER	CC	PARAMETER	CC
Time	71	Mode	72
Depth	73		

OVERDRIVE

PARAMETER	CC		
PRE On/Off	111	PRE Depth	112
POST Depth	110		

MOD WHEEL

PARAMETER	CC		
PMOD On/Off	81	CUToff On/Off	82
BR On/Off	83	LFO On/Off	84
Overdrive - Pre	85	Overdrive - Post	86
SENSitivity	87		
MONO On/Off	08	RETRIGGER On/Off	09

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