bC16 – quick explanation of the waveform control (12 May 2008)

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Waveform knob controls the waveform generated by the VCO.
VCO consists of two oscillators VCOA and VCOB, these are mixed together internally.
VCOB can be offset by up to +2 octaves by the use of the DIFFernece knob and the DIFF CV input.
When DIFFerence knob is zero (fully CCW) and DIFF CV input is 0v; VCOB quickly slides into phase with VCOA and stays there.
Dutycycle limited to approx. 2.5% to 97.5%
PWM CV input works in addition to waveform control (additive)
Random stepped voltage is clocked at oscillator frequency (i.e. middle-C produces ~262 random voltages per second).

Waveform knob fully CCW = "0%"
Waveform knob fully CW = "100%"

Waveform *% are approx.*	VCO 'A'	VCO 'B'
0% to 3%	White noise	White noise
3% to 6%	Random stepped voltage	Random stepped voltage
6% to 14%	Sine	Sine
14% to 16%	Sine	Triangle
16% to 17%	Sine	Sawtooth (positive)
17% to 19%	Sine	Sawtooth (negative)
19% to 20%	Triangle	Sine
20% to 22%	Triangle	Triangle
22% to 23%	Triangle	Sawtooth (positive)
23% to 25%	Triangle	Sawtooth (negative)
25% to 26%	Sawtooth (positive)	Sine
26% to 28%	Sawtooth (positive)	Triangle
28% to 30%	Sawtooth (positive)	Sawtooth (positive)
30% to 31%	Sawtooth (positive)	Sawtooth (negative) ***– silence if DIFF=0***
31% to 33%	Sawtooth (negative)	Sine
33% to 34%	Sawtooth (negative)	Triangle
34% to 36%	Sawtooth (negative)	Sawtooth (positive) ***– silence if DIFF=0***
36% to 37%	Sawtooth (negative)	Sawtooth (negative)
37%	Sine	Square (min PWM dutycyle)
37% to 50%	*Sine*	*Square (variable PWM dutycycle)*
50%	Sine	Square (max PWM dutycyle)
50%	Triangle	Square (min PWM dutycyle)
50% to 62%	*Triangle*	*Square (variable PWM dutycycle)*
62%	Triangle	Square (max PWM dutycyle)
62%	Sawtooth (negative)	Square (min PWM dutycyle)
62% to 75%	*Sawtooth (negative)*	*Square (variable PWM dutycycle)*
75%	Sawtooth (negative)	Square (max PWM dutycyle)
75%	Sawtooth (positive)	Square (min PWM dutycyle)
75% to 87%	*Sawtooth (positive)*	*Square (variable PWM dutycycle)*
87%	Sawtooth (positive)	Square (max PWM dutycyle)
87%	Square (min PWM dutycyle)	Square (min PWM dutycyle)
87% to 100%	*Square (variable PWM dutycyle)*	*Square (variable PWM dutycyle)*
100%	Square (max PWM dutycyle)	Square (max PWM dutycyle)

LFO has the 'dual oscillator' design and waveform functions as the VCO.

END of DOCUMENT