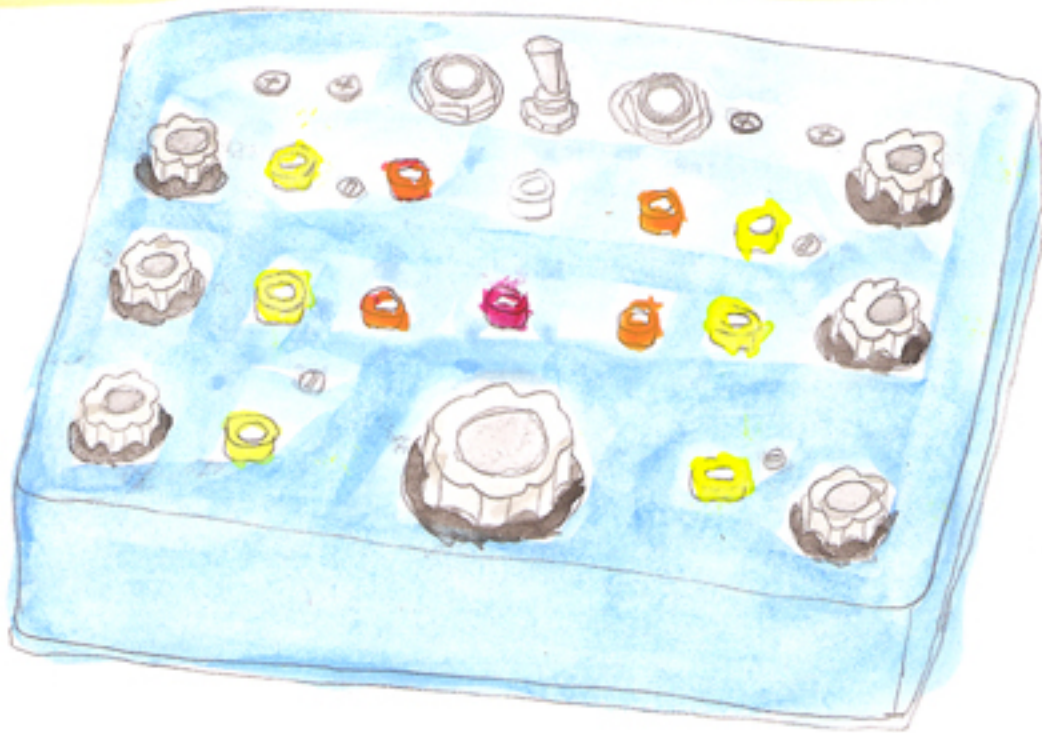


# Little Boy Blue



battery-powered synthesizer

jr 11/2006

Little Boy Blue, come blow your horn!  
The sheep's in the meadow, the cow's in the corn.

— from a nursery rhyme by Mother Goose

I made this instrument in the summer and fall of 2006. It's good for playing "power electronics" music but it can also do some really interesting chaotic things. It's a tiny modular synthesizer that runs on batteries. It uses only transistors, no "chips"! In case you care about that. The way it's designed, it could have been made in 1966, except new sounds made people a little nervous then. Not now!

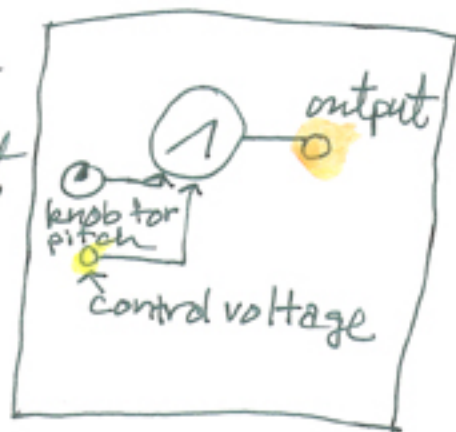
## Overview

The synthesizer runs on 2 9-volt batteries. You can tell when the batteries are weak, because the high frequencies won't be as high. You can change the batteries by removing the six screws on the bottom, & taking off the bottom plate.

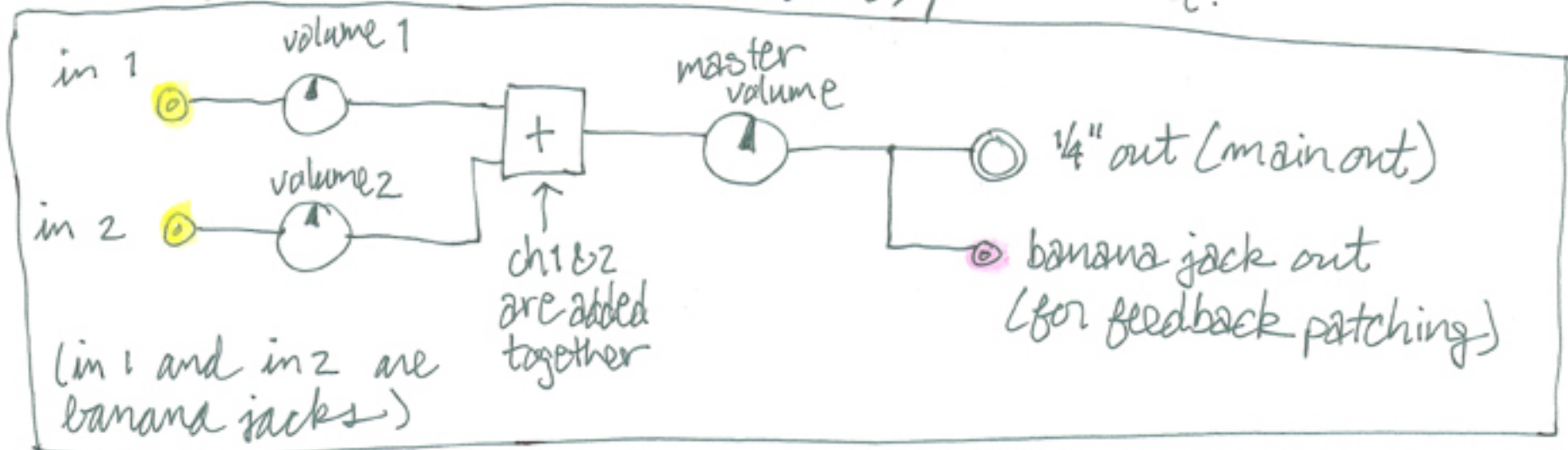
When you're not using the synthesizer, make sure the power switch is off (switched towards the big knob).

Speaking of the big knob, it's the master volume control, except it works in an unconventional way. If you play LBB into a high-impedance amplifier (like Trace Elliot) you'll hear a lot of bleedthrough and noise. It's better to play LBB through a mixer with the trim set low.

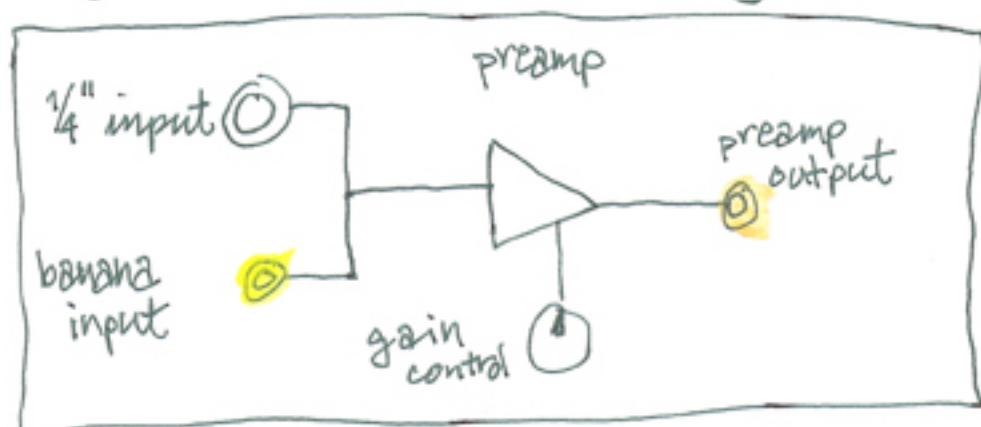
There are two sawtooth oscillators. They can be adjusted from less than 1Hz to about 10kHz. In other words, from a metronome to a very high pitch!



There is a two-channel mixer in front of the master volume. There's also a "direct in." Sometimes the direct in will blast you, but sometimes it cuts things out. You have to experiment.



There is also a preamp. It's good for microphones & guitars, or anything else really! Notice that there's

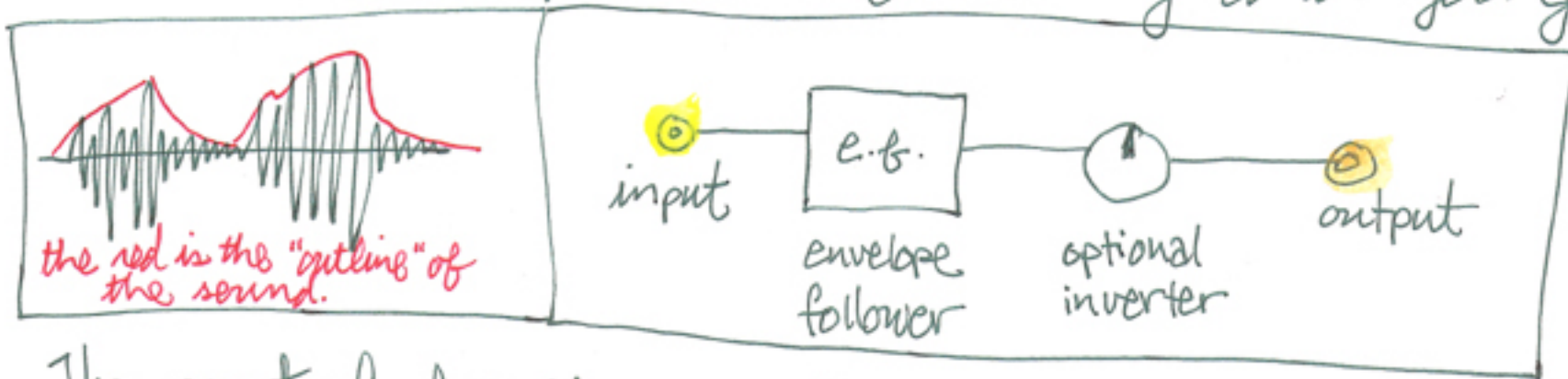


a banana jack that can also be used as an input to the preamp. It's for doing feedback patches. However, it can also become

an output. For example, if you connect an oscillator output to the preamp's banana input, but you have a microphone in the  $\frac{1}{4}$ " input, you might hear the oscillator coming out of the microphone! So you should either avoid doing that, or use a cheap microphone.

Except for that one connection, every other connection is safe and won't harm anything. Once in a while the synthesizer *make\** get stuck, but just cycle the power or change the patch. *\*i meant, "might"*

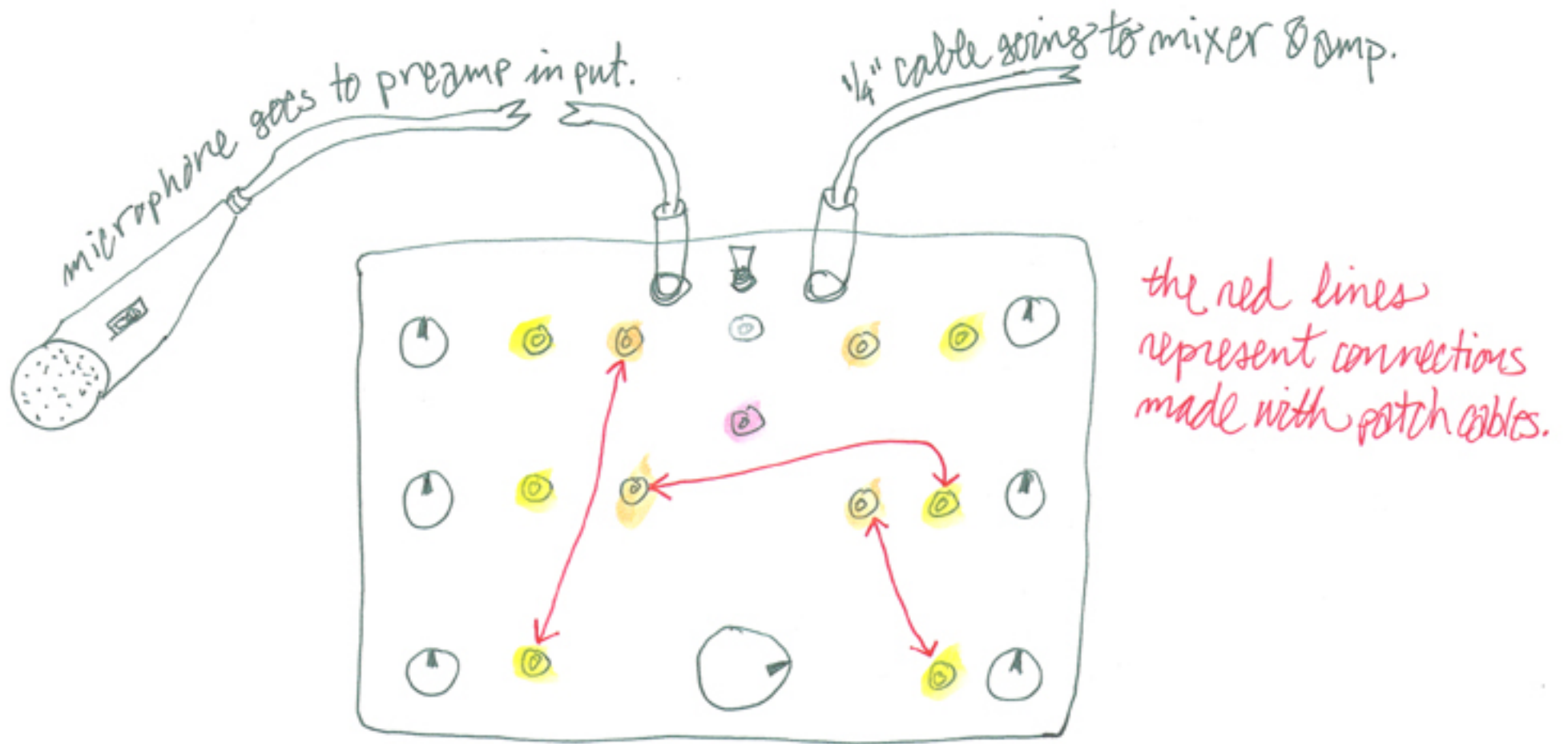
The final section of Little Boy Blue is the "envelope follower." In synthesizer terms, the envelope of a sound is its pattern of coming and going.



The control for the envelope follower is an "optional inverter." When it's in the middle (centered) it won't have much effect. When it's towards the right, a louder input produces a positive control voltage. When the knob is to the left, a louder input produces a negative control voltage. So you could have the volume of your voice speed up or slow down an oscillator, for example.

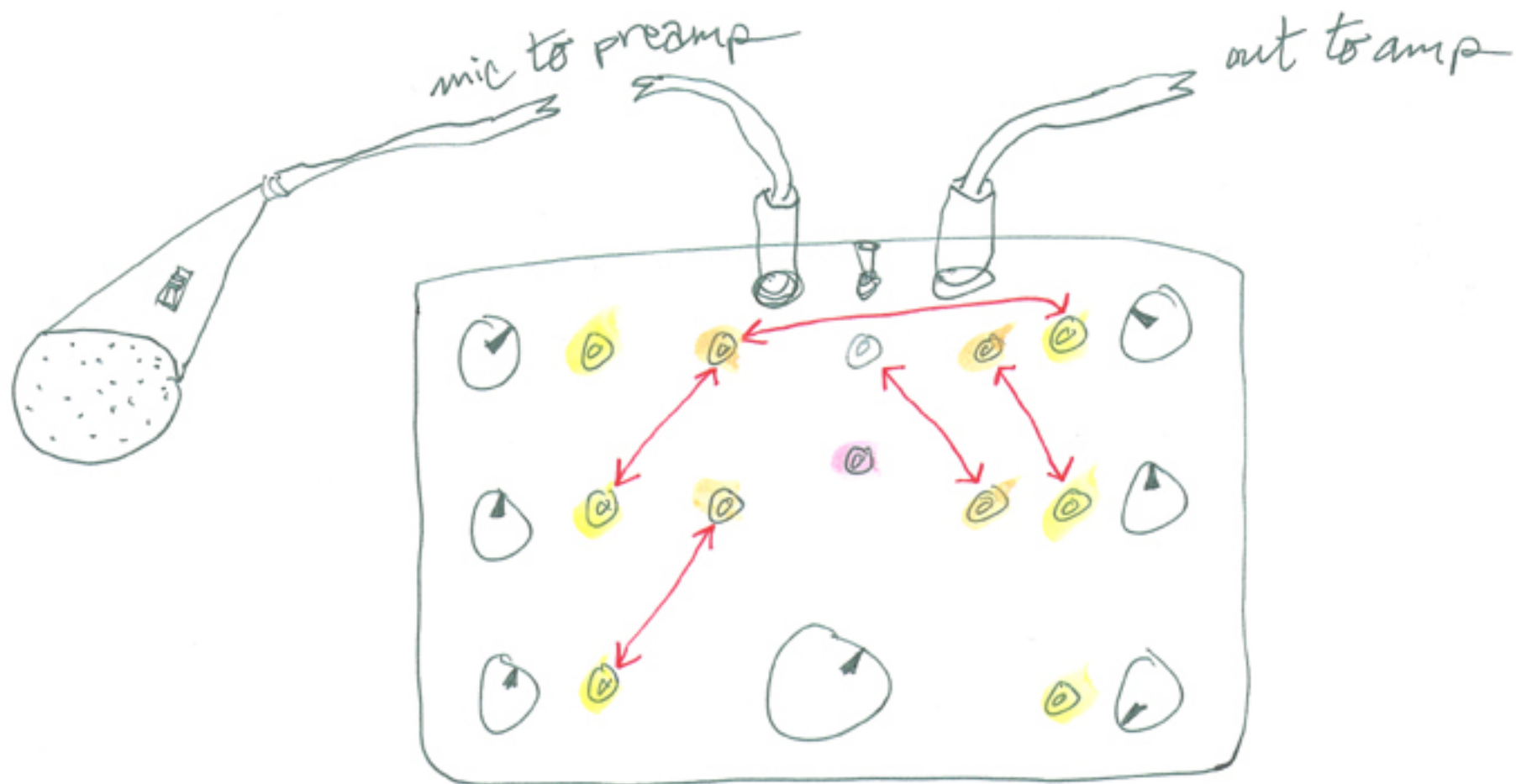
What's a "patch"? → Little Boy Blue uses 1/4" (jack) connectors to communicate with the world, and banana connectors to communicate with itself. When you connect different parts of the synthesizer together with banana cables, it's called "patching." When you find a combination of connections you like, it's called a "patch." This term comes from the telephone systems of the 1930's.

When you find a patch you really like, it's a good idea to write it down, so you can play the same song again later. I put down a few examples on the next pages.

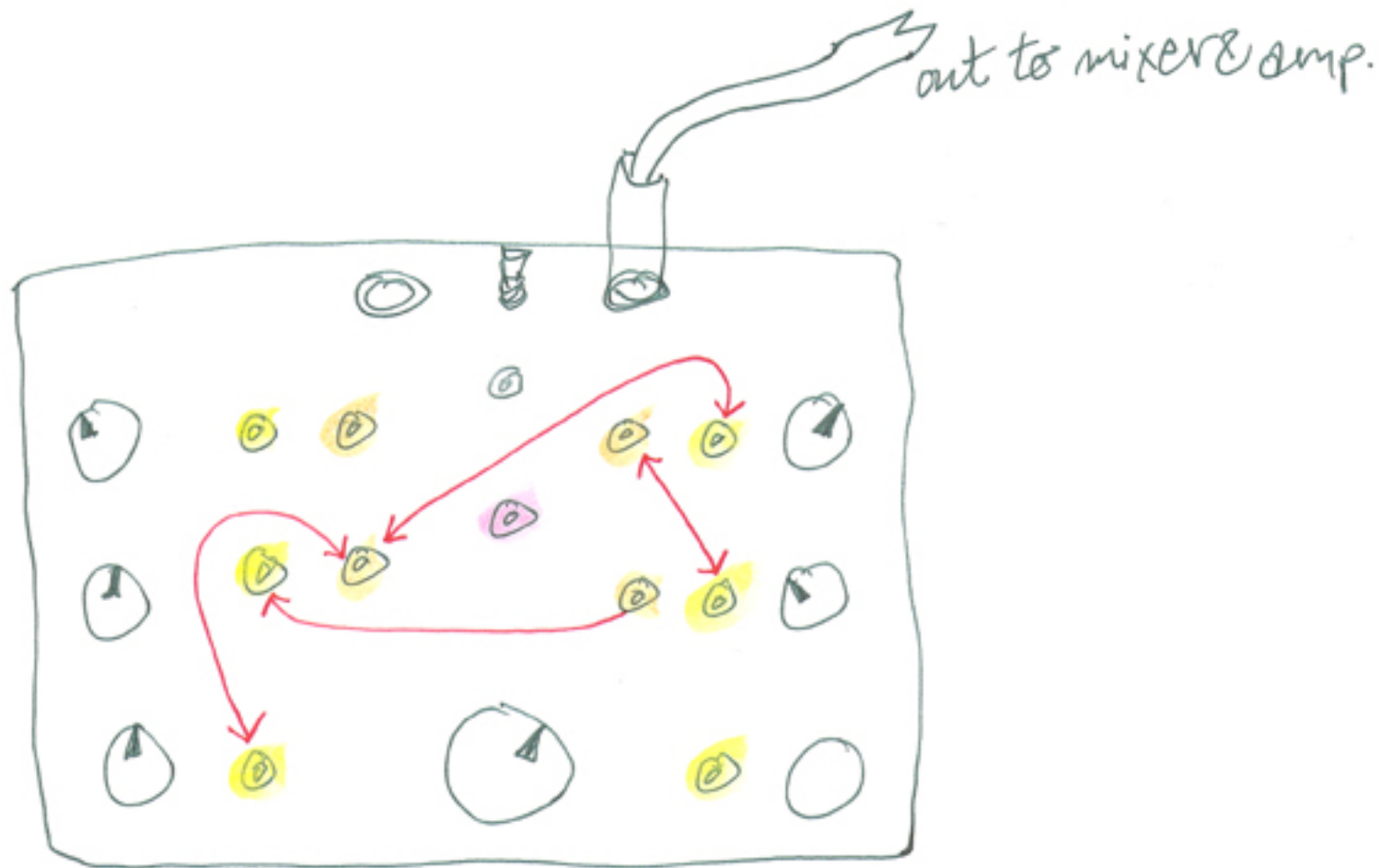


Here the microphone goes to the preamp. The preamp goes to mix 1. Oscillator one is controlling oscillator two. And oscillator two is going to mix 2. So you can sing along with some noise. If you turn the preamp gain up high, the mic will be distorted. Yeah!





Here, the mic goes to the preamp. The output of osc. 1 goes to mix 1. But osc. 1 is also being controlled by the mic. The preamp out also goes to the input of the envelope follower. The e.f. is controlling osc. 2. Osc. 2 goes to the direct in. Total p.e. style!



Here, OSC. 1 goes to mix 1. But it's also an input to the envelope follower. The e.f. is controlling osc. 2. But osc. 2 is controlling osc. 1! Uh oh, a non-linear feedback loop! You'll definitely find some chaos there.

chaos is defined as:  
extreme sensitivity to initial conditions.  
So just like your "best friend" who's  
~~apt~~ to throw a fit at the least provocation,  
so too the system prone to chaotic  
dynamics remains perfectly well-behaved  
until it becomes hyper-sensitive.

How does this relate to music? Nobody's sure  
yet, but a few people are experimenting. David Juder  
pioneered it. Now a lot of people do it with no-input  
mixers. You can do it with the Little Boy Blue.  
Please let me know how it turns out!

If you would like to contact me, here is where i live:

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reading ma 01867

i also have email:

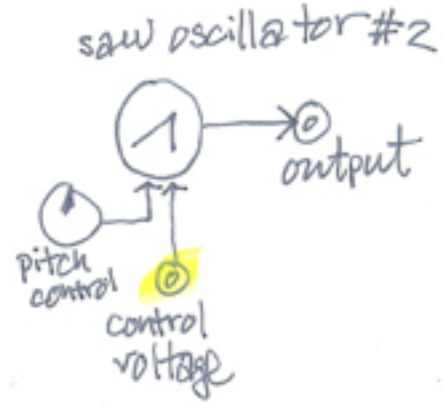
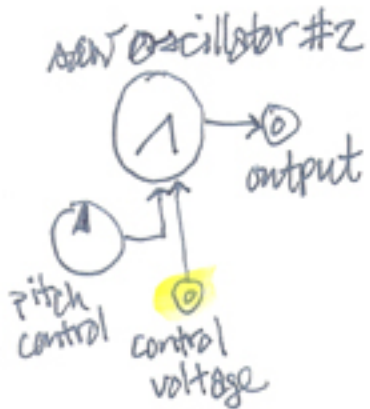
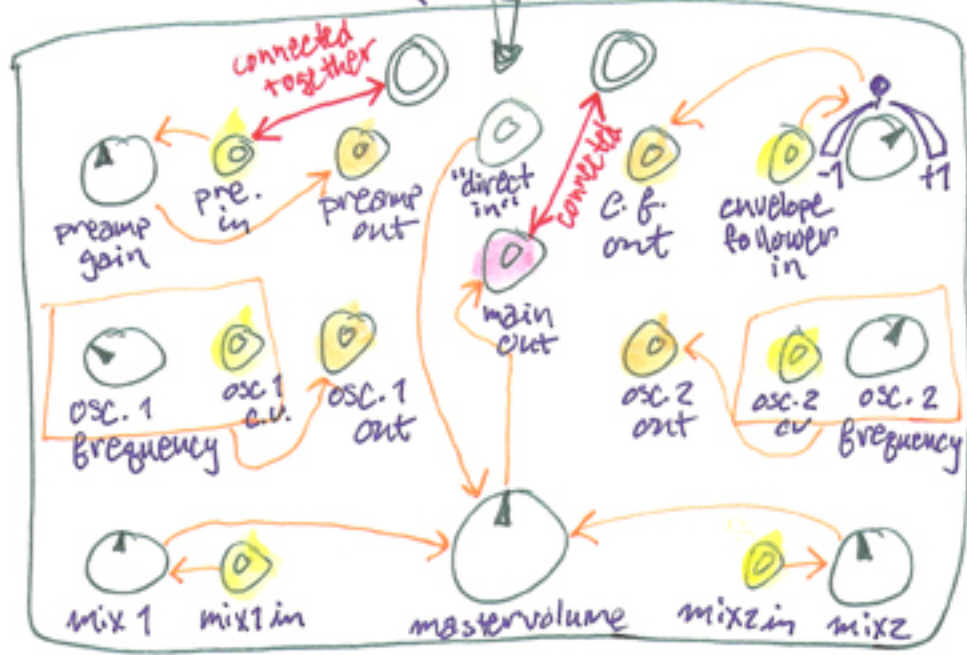
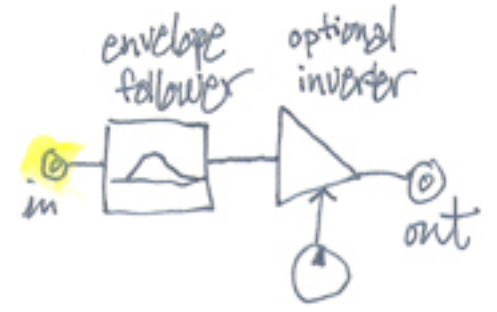
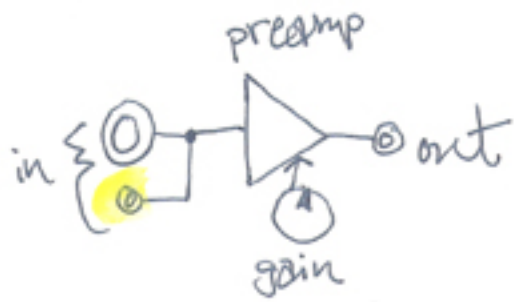
jessicarylan@gmail.com

(i have a phone too but that's friends & family only!)

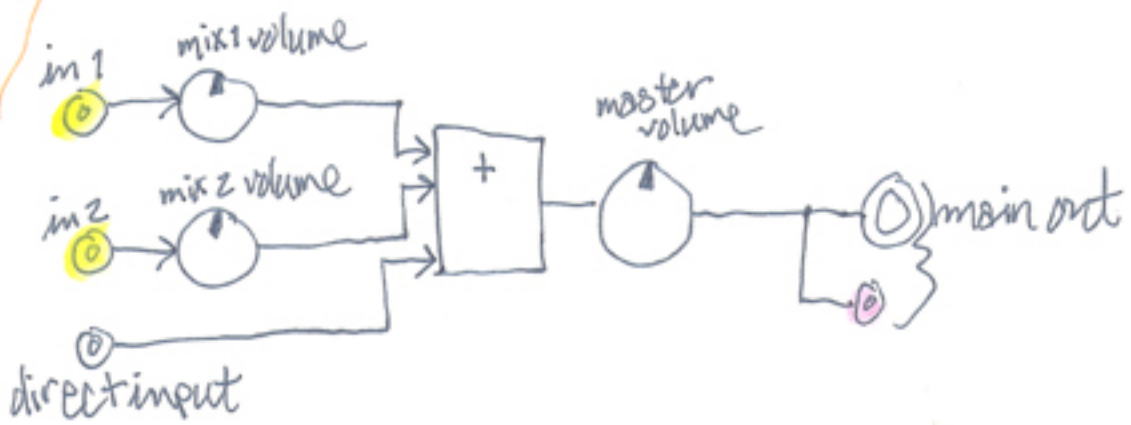
If something happens to go wrong with the instrument, i'll do my best to be considerate, however i can't do repairs for free. With my personal synthesizer, I've done over 200 shows, and i only had to fix it once. And it only broke because i acted abusively to it! So maybe that gives you a sense of how important reliability is to me.

Thanks & enjoy!

# little Boy Blue "cheat sheet"



orange arrows show signal flow



Here is the layout of the instrument, and an outline of the functions. It's a lot of things in a small package! But you can learn it pretty quick.