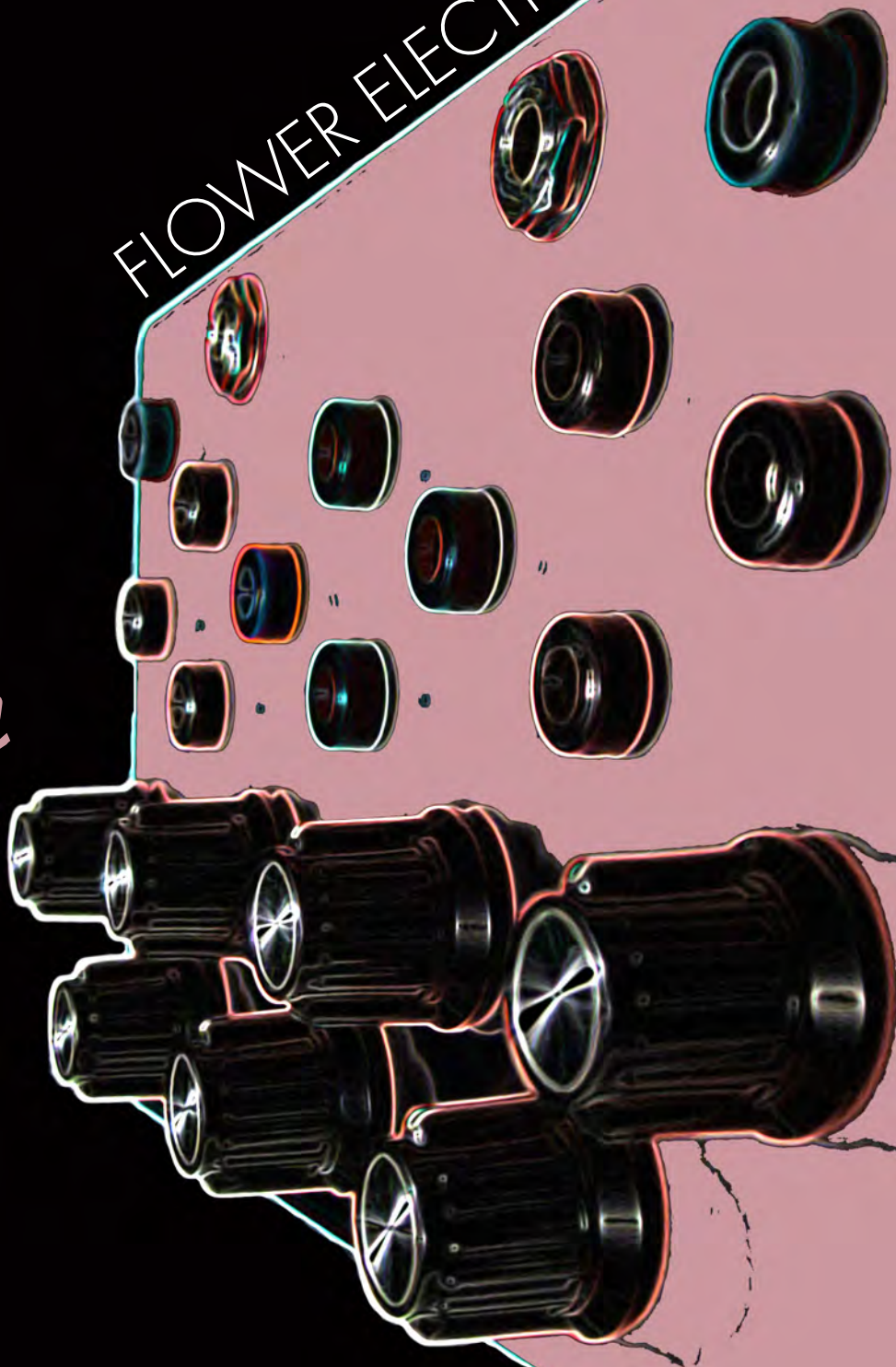
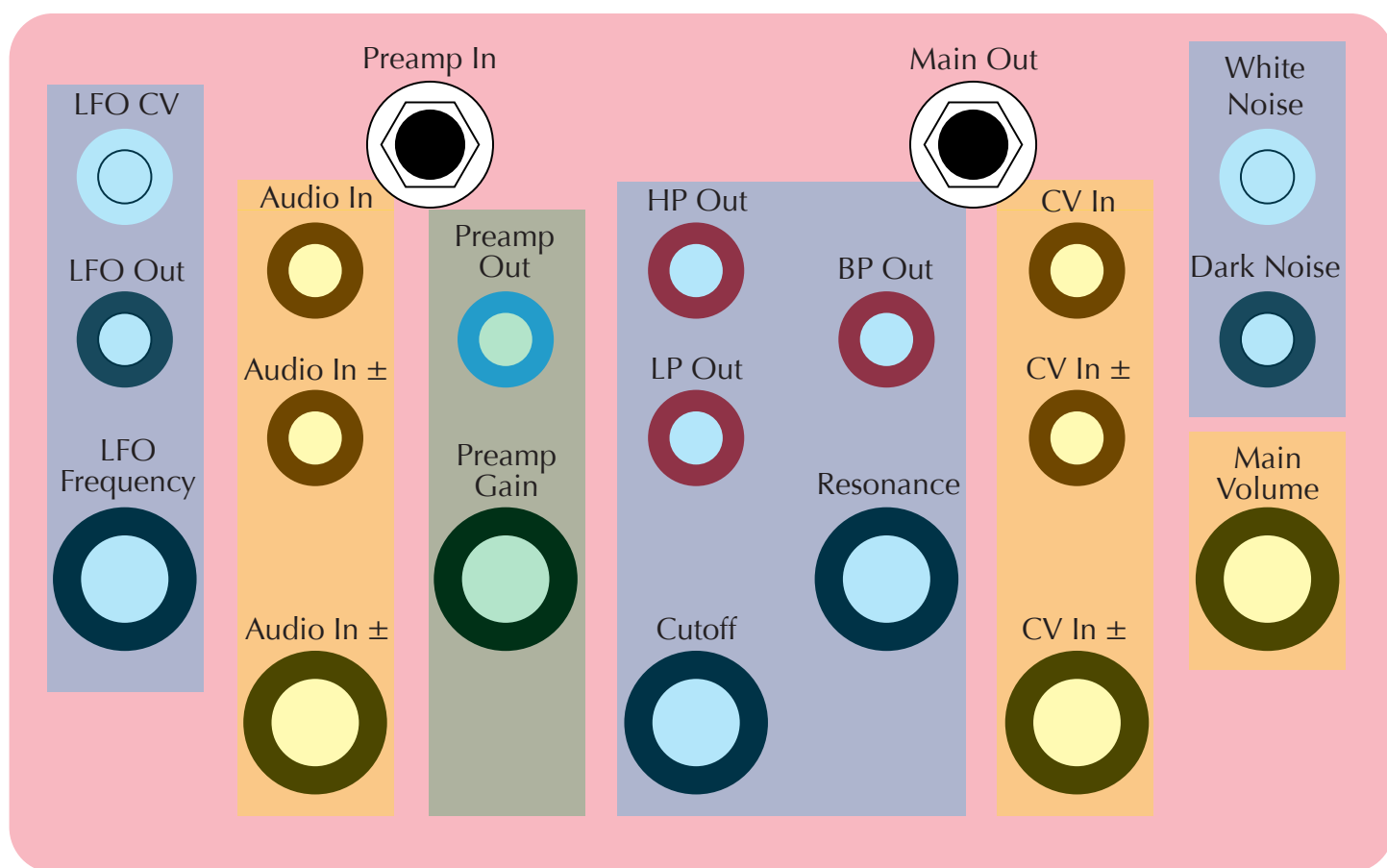


FLOWER ELECTRONICS

*Jealous  
Heart*

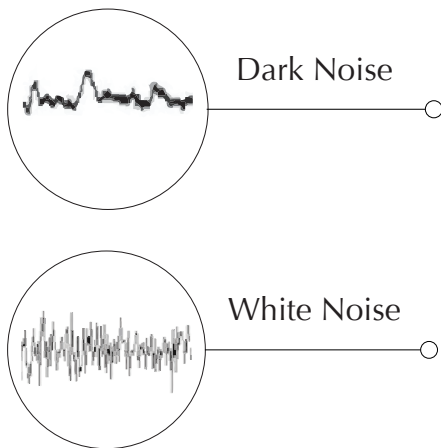
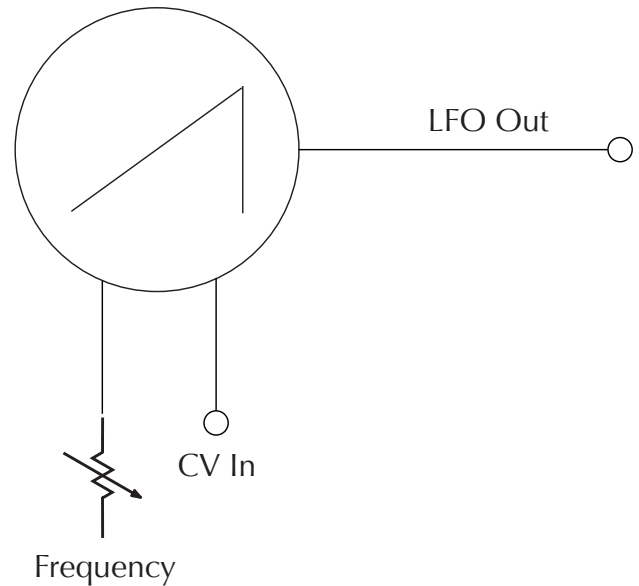


**Jealous Heart** is a small, battery-powered, fully modular synthesizer. It has one low frequency oscillator (LFO), white and dark noise, a variable-gain preamp, and a multimode (LP/HP/BP) filter. What makes JH special is the  $\pm$  attenuators on the filter audio and control voltage (CV) inputs, and its asymmetrical response. The filter in JH is designed specifically for feedback patches. Let's see—driven, second-order, non-linear system? Sounds like chaos!



# Low Frequency Oscillator (LFO)

The LFO uses a unijunction ramp oscillator, just like the Little Boy Blue, but slowed down. You can set the frequency of the oscillator either with a knob, or a control voltage.



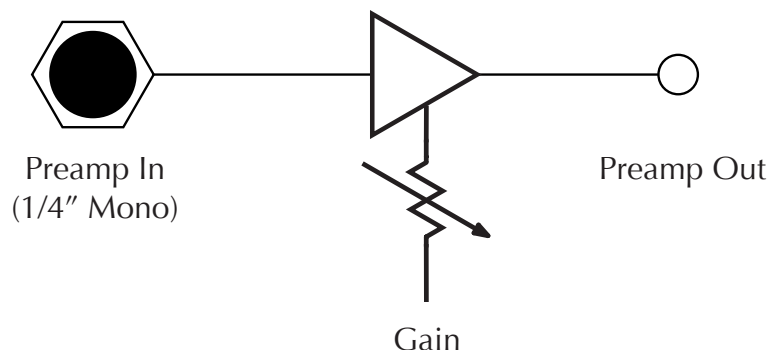
*NB: You may hear a small amount of bleed from the oscillator into the white noise, especially when the battery is low. If it's a problem, turn the oscillator frequency all the way counter-clockwise until it shuts off.*

## Noise source

The white noise is nice and abrasive—use at your own risk! The dark noise is a lower rumble—it's good for the sound of doom, as well as making fluttery effects by patching it as a CV to the filter. We selected each noise transistor by hand, just for you!

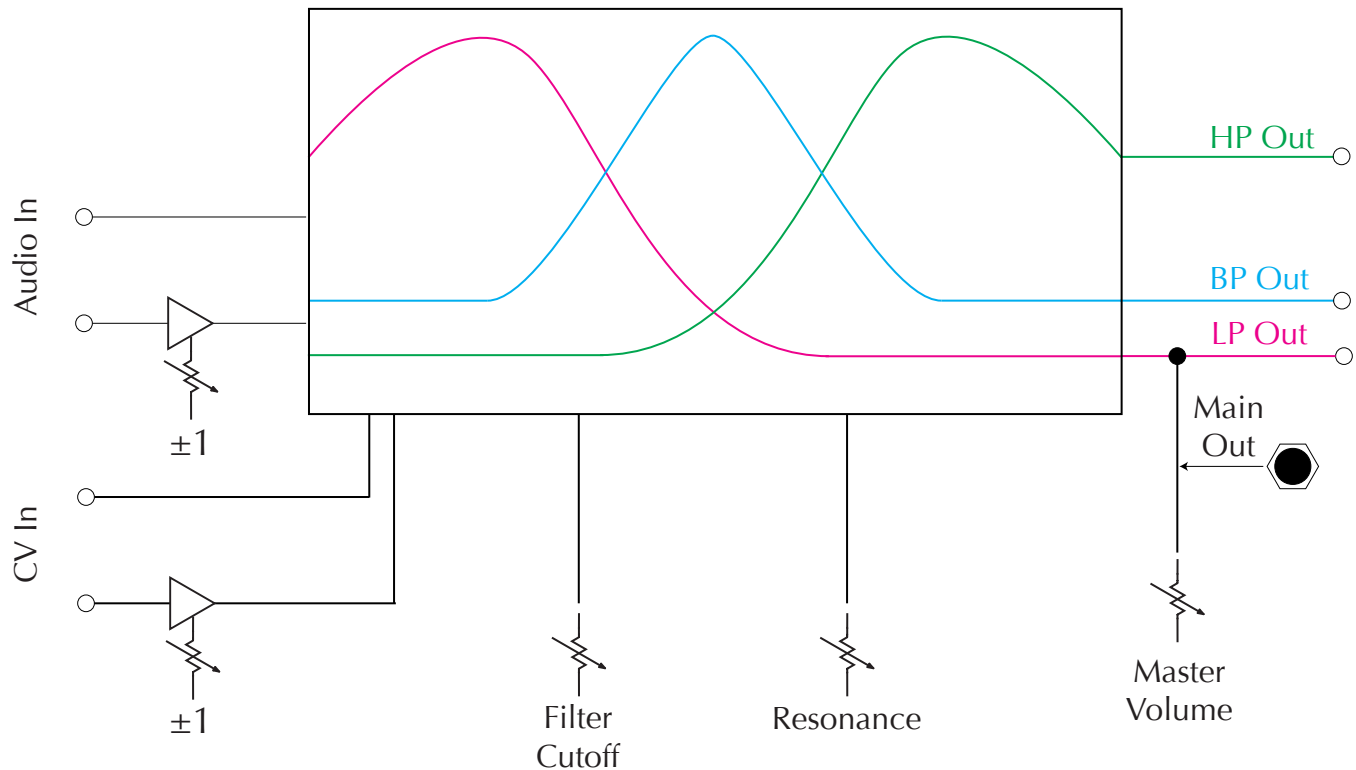
## Preamp

The preamp is an inverting, transistor-based, variable-gain design, just like the LBB. Highly nonlinear = good distortion!

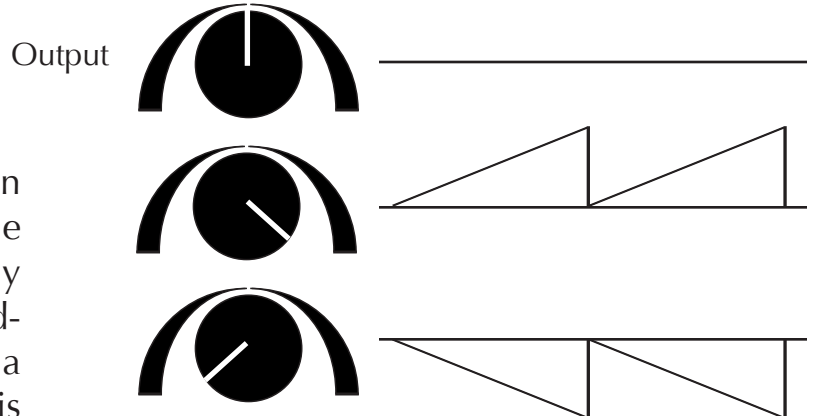
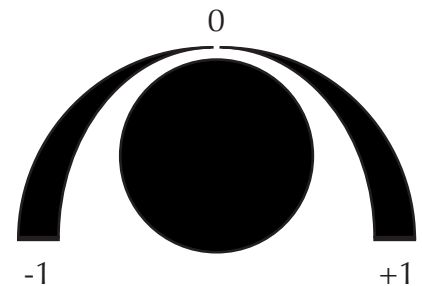


# Filter

The core of the JH is the filter. It's a two-pole, state-variable design.



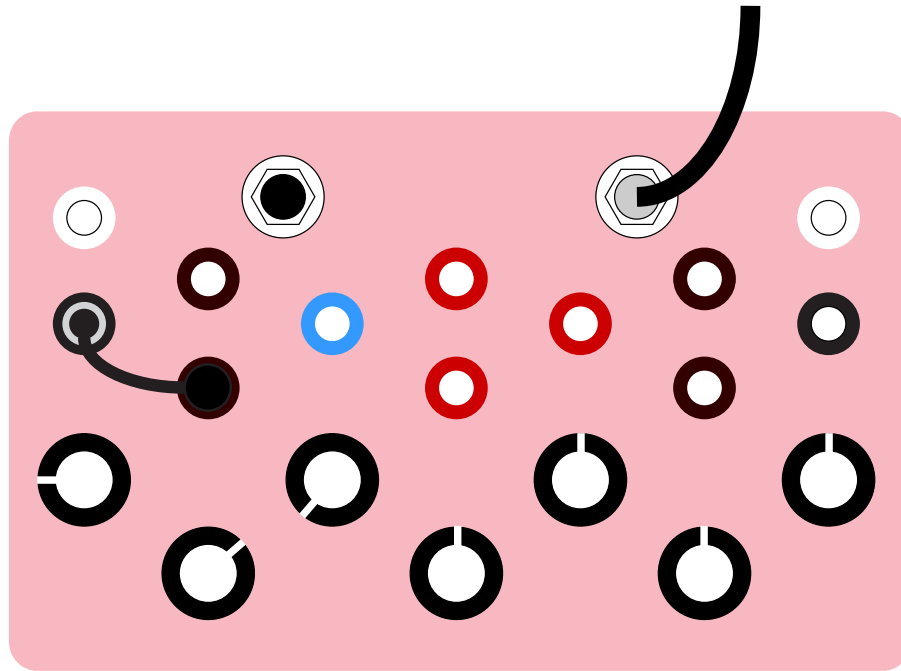
The filter has  $\pm 1$  attenuators on one audio input and one CV input. A  $\pm 1$  attenuator is like a bidirectional volume control—no signal goes through in the middle position; at fully clockwise, what came in goes out; at fully counter-clockwise, -1 what came in goes out.



By using the  $\pm 1$  attenuators, you can change the amplitude and phase of the inputs to the filter. This can be really useful, especially when using feedback, e.g. one of the filter outputs as a CV to the filter! (My personal favorite is the bandpass output.)

# Getting Started

JH has too many options to list all of them—you'll probably figure out some we never even thought of! But here are a few to get you started.



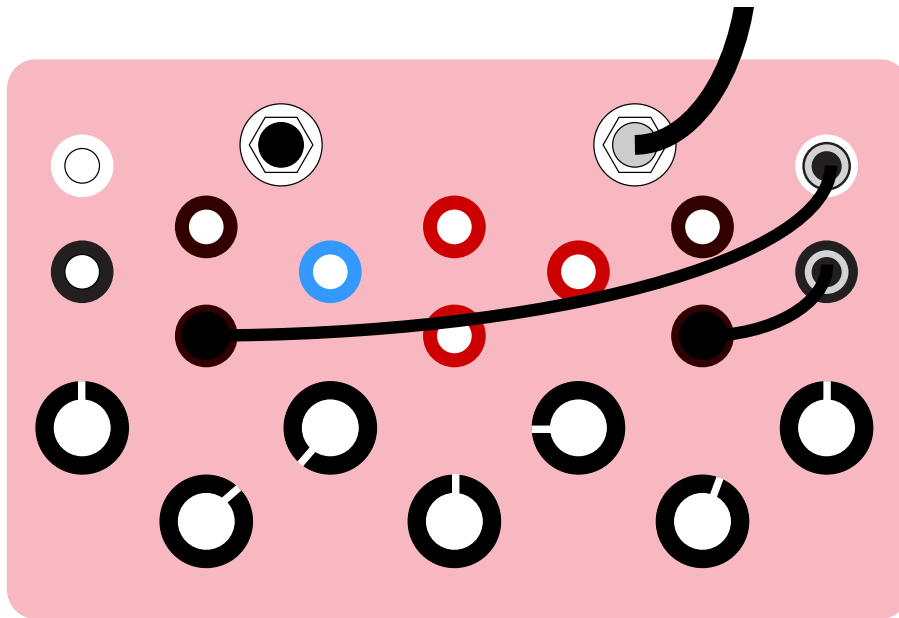
## 1. Ringing the filter

When the resonance at the filter is half way up, it's kind of like a bell. Turn the LFO up until it gives a few pulses per second. Then use the audio  $\pm 1$  input to adjust how "hard" the LFO is striking the "bell" (filter). If you tickle the filter lightly (around the 1:00 to 2:00 position), it resonates a lot. But when the  $\pm 1$  is near the 5:00 position, you lose the resonance—it's like if you jammed the striker against the bell, rather than giving it a quick tap. Also experiment with turning the  $\pm 1$  knob counterclockwise. You get some resonance up to around 10:30 (though a bit less), and the volume is slightly lower and the sound is different. That's part of the asymmetry that helps keep the filter bounded. Experiment with different frequency cut-off and resonance settings—you can probably do your own Pan Sonic show just like that!

## 2. Ringing the filter with feedback

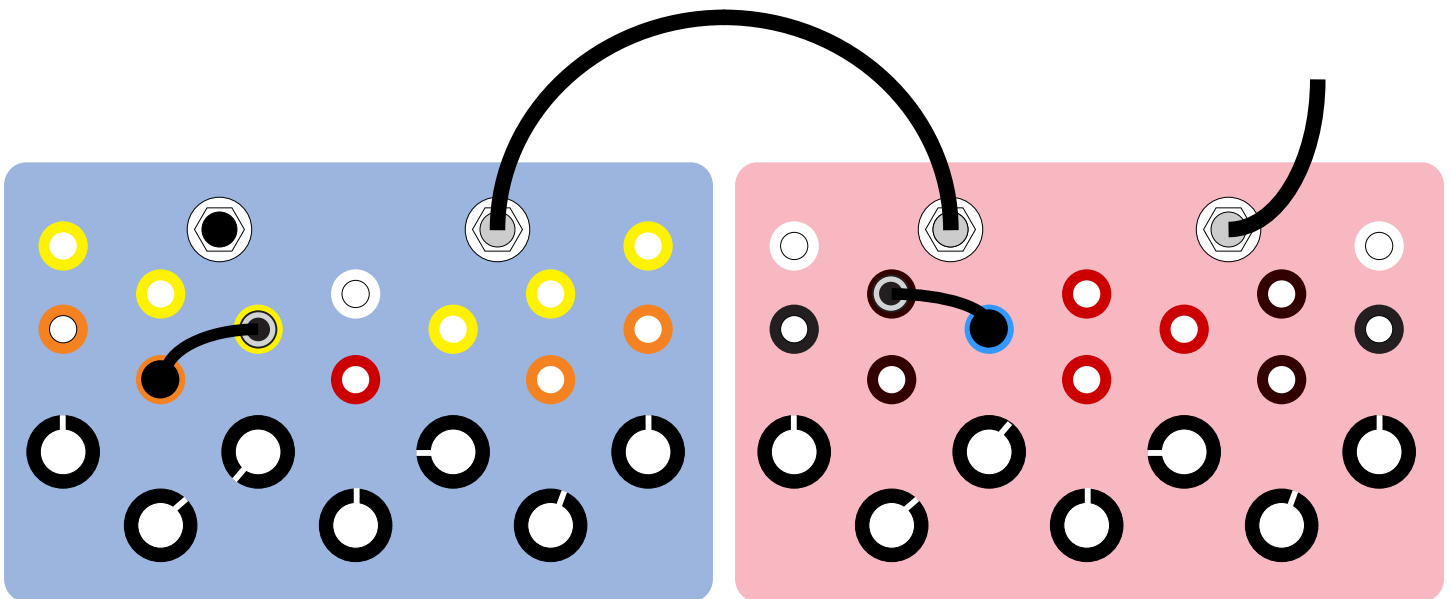
Get patch #1 sounding good. Then connect the BP out to the  $\pm 1$  CV in, with the  $\pm 1$  initially set at 12:00. Now slowly adjust the  $\pm 1$  knob in either direction. There's a lot going on there! If you go too far in either direction, the filter might lock. That's okay, just go back to the 12:00 position.

You can also try this with the LP and HP outputs. They each bring their own type of chaos.



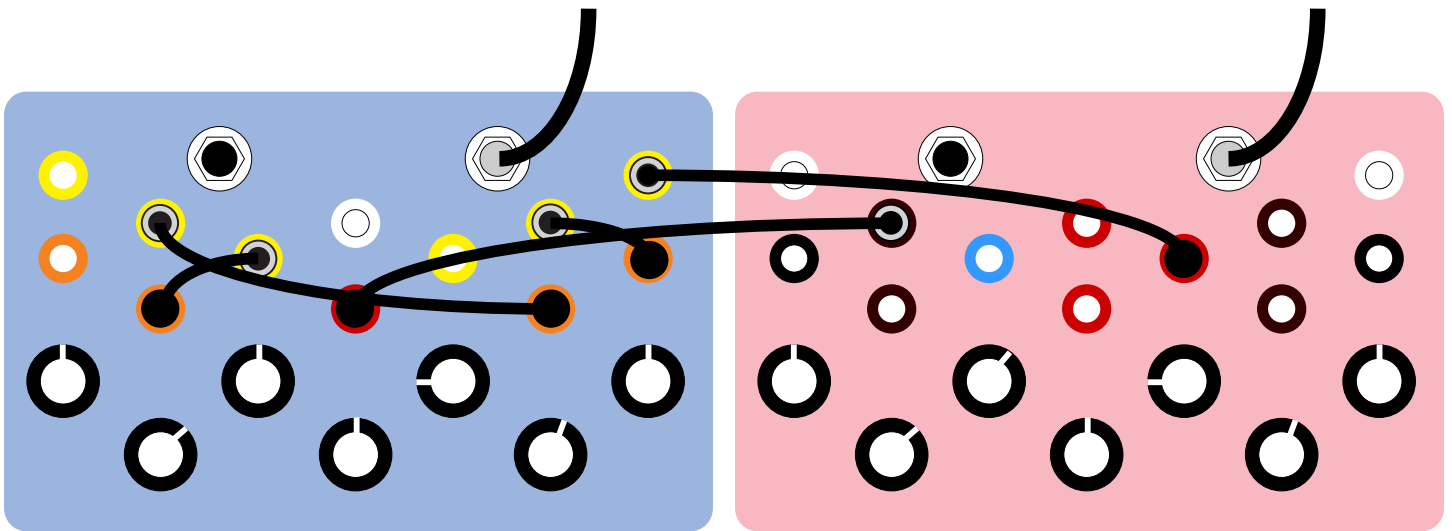
### 3. Noisy

Use white noise into the  $\pm 1$  audio in. Adjust the frequency cutoff and resonance—you'll get some nice whistling and howling sounds. Then connect the dark noise to the  $\pm 1$  CV input, and turn the knob up or down. Now you'll get some swishy, popping sounds, especially with resonance set at high values.



### 4. Using LBB and JH together

You can plug the LBB main out into the JH preamp in, and the JH preamp out into the filter's audio in. I typically use the non- $\pm 1$  audio in, because I can already use the preamp gain on JH to control how hard the LBB's hitting the filter. You can also patch between the LBB and JH this way.



You can also plug the LBB and JH into the same mixer. Then you can cross-patch them however you please! (NB: You can order longer patch cables from Flower or Mouser).

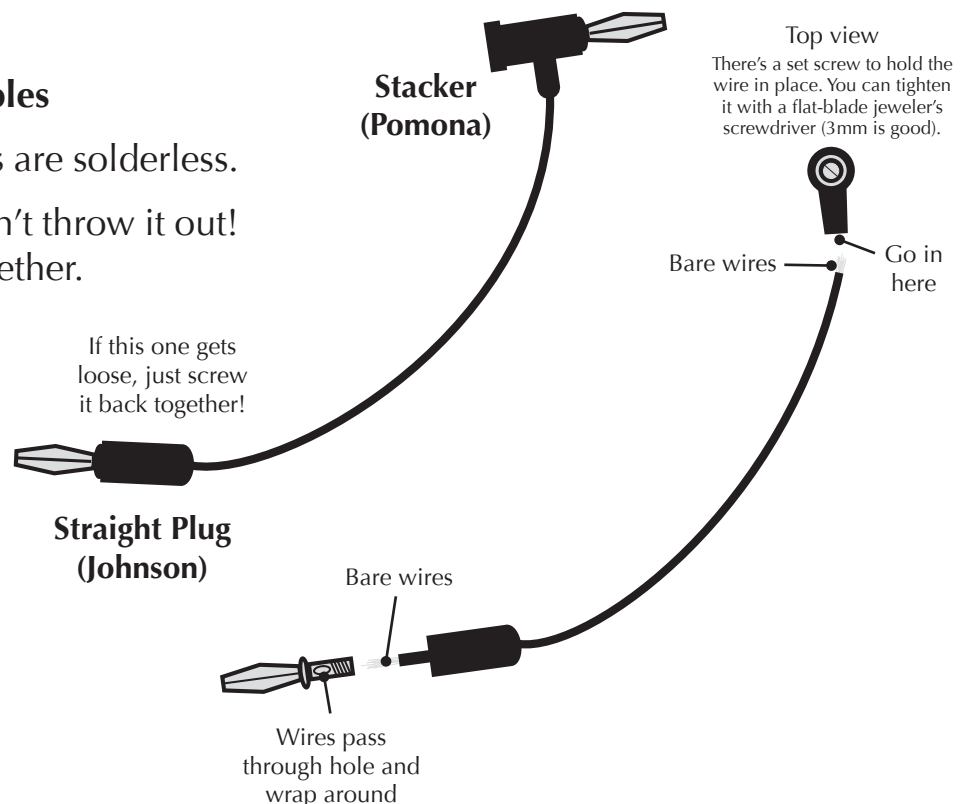
## Care and Feeding of Jealous Heart

Jealous Heart was designed with reliability in mind. The only regular maintenance it should need is to change the battery. The JH will let you know when it's getting weak as the sound becomes dull and listless. Remove the six screws on the bottom of the case, exchange the dead battery for a new one, wrap the foam around the battery, and put it back in place. Now you're good to go!

### Repairing the banana cables

Both kinds of banana plug are solderless.

If the cable falls apart, don't throw it out!  
It's easy to put it back together.



If you would like more cables, you should be able to use any standard banana plug. Or you can make your own!



# flower electronics

autumn 2010

