



# Hypatia

## User's Manual

### INTRO

You are now the lucky owner of a Hypatia pedal from Dusky Electronics. That's awesome! We're happy to have our original design and unique sound on your pedal board.

The Hypatia is a distortion pedal in the broadest sense of the term: It *distorts* the signal of your musical instrument, making it sound more aggressive, while adding compression, sustain, and harmonics. Depending on your settings, the Hypatia is capable of the ragged crunch of a pushed amplifier or the violin-like sustain of a high gain fuzz. The starting point for the Hypatia is a DIY bass fuzz designed called the Bazz Fuss. The Hypatia doesn't just sound great on bass, though. With a few deft twists of the knobs, the Hypatia can be adapted to work well with guitar, including extended range instruments, synthesizer, or anything with an electronic output.

### CONTROLS

*The **Meat**, **Heat**, and **Light** knobs are all very **interactive**, with the range and response of one being dramatically altered by the settings of the other two. We recommend starting with everything all the way up, then slowly bringing things back down to find the sound you're going for.*

#### MEAT

The **Meat** knob controls the amount of bass content in your signal. Clockwise is more bass. Lowering this control will bring out the mid-range and treble frequencies of your instrument. High settings of Meat and Heat can make the Hypatia a fantastic bass fuzz or make a guitar sound super blown out. Lower Meat settings yield a more-focused distorted or overdriven guitar sound.

#### HEAT

The **Heat** knob controls the amount of gain in the distortion circuit. Higher settings will produce more compression, a thicker distortion sound, and greatly increase the potential for feedback. At lower gain settings, a more crunchy, overdriven sound can be achieved.

## LIGHT

The **Light** knob controls the amount of higher frequencies present in the output. Clockwise gives more high frequencies and a brighter sound. If the sound is too bright, turn this knob counter-clockwise to taste.

## MORE

The **More** knob controls the output volume. Clockwise is louder. There is a lot of volume on tap here, and your amp can easily be overdriven. We recommend starting between 10 o'clock and 12 o'clock, and then adjusting from there. Higher settings are more likely to engage your amplifier's overdrive and will also give a larger volume jump when engaged.

## POWER

The Hypatia may be powered from an internal 9V battery or from an external power supply. The 9V battery is accessed by removing the four screws that hold on the bottom plate of the pedal.

The Hypatia can be powered from any power supply intended for use with pedals, which has a negative tip (the standard) and provides DC voltage anywhere from 9–18 volts. The Hypatia does sound different depending on the input voltage. If your power supply gives you options, you might try powering it at different voltages and see if you have a preference. *To our ears, there's a bit more clarity at 18V than at 9V.* As with anything used to make music, though, different people will develop their own preferences.



## DESIGNER'S STATEMENT

This design started out fairly differently from many of my others. One day, my friend, Nick Pedersen, of Track and Field Recording, brought me a little green pedal he'd been making and calling the "Green Bastard." He was getting tired of making it and wanted to know if I'd be interested in making it instead. It was a one knob (output volume) bass fuzz pedal that was pretty deliciously gnarly. After some probing, it turns out it was a DIY project I'd never heard of before called the "Bazz Fuss." Since I wasn't super-interested in just cranking out someone else's design verbatim, I said I'd take some time to play with it, see what I could do with it, and get back to him.

The first thing I did was add gain and bass controls (Heat and Meat), which greatly expanded the versatility of the circuit. Embarrassingly, at this point, I did some more Googling and found the "Deluxe Bazz Fuss" circuit which does pretty much the same thing. (A *minor* difference is my gain control doesn't crackle.) I also did something that is fairly standard for me: I added an input buffer so that a guitar would see a nice, high input impedance no matter what and the fuzz would sound the same wherever you put it in your signal chain.

The first naive attempts at this, however, lost the vocal characteristic of a magnetic pickup plugged straight into the fuzz circuit, which led me on a long journey of trying to replicate that interaction, that led to experiments with inductors and finally landed on a second order active low-pass filter that preserved the presence bump that occurs with the passive filter formed by magnetic guitar pickups straight into the complex low-input impedance of the fuzz.

During all of this, I also noticed when rolling off the bass and the gain, that the circuit could get scratchy and abrasive in an unpleasant way, which led me to experiment with a FET-based output buffer. The tube-like qualities of what was essentially just the Mandorla circuit, helped tame the harshness, give more output volume, and provided a means of adding an active treble control (Light).

All told, I spent the better part of a year nailing down this design. It was important to me that it be versatile, sound great, and be musically useful, just like my other designs. Despite my embellishments, however, the heart of the design is still the venerable Bazz Fuss circuit. I encourage anyone interested in DIY pedals to check this out, as the basic circuit is very simple and easy to build, and, as you can see, lends itself to a whole world of modifications.

The Bazz Fuss: <http://home-wrecker.com/bazz.html>

The schematic for the Hypatia is available on the Dusky Electronics website: <https://duskyamp.com/models/1706A-hypatia>

—Chris Rossi (cr@duskyamp.com)