

# WREN AND CUFF

## Understanding Your Custom Fuzz Options

(or What The Hell Does All This Stuff Mean?)

### **Your Face options:**

All info regarding these options is written in as "real world" language as possible. It gets a little technical sometimes, but this is kept to a minimum. Hopefully you can gain an understanding of what your choice of components will do and the effect they'll have on your pedal.

I've always hated when you read a description of a product and there are many confusing terms that very few people can understand. IMO, this is often done to make the buyer say "oh wow, this person must really know waaayyy more than me about all this." I don't want to do that to you so here's some help with that:

### **Electronics terms/Layman's translation Key:**

*\*Note: There are so many variations in electronic components that I have limited these descriptions to the way these components look and are used in Wren and Cuff pedals. Applications outside of audio and effects are not mentioned. SMD components etc are also not mentioned.*

**Pot:** Knob that you turn

**Germanium:** A chemical element that was commonly used to make transistors up to the late 60's. Sound great, but can be very inconsistent, require hand sorting to make sure you get reliable transistors. Also have some susceptibility to temperature fluctuations. Still made today in limited quantities.

**Silicone:** Another chemical element later used to make transistors. People making electronics back in the day were very happy about the introduction of silicone transistors. Very stable, very consistent, cheap to make, almost no susceptibility to temperature fluctuation. Sometimes thought to be more harsh than germanium transistors.

**Cap:** Short for capacitor. Components that are in the guts of pretty much anything that uses electricity. Often look like a tan

disk, a tiny barrel, a kidney bean, or a million other shapes and colors. In audio-related circuits caps interact with trannies and resistors to shape the audio produced by your pedal.

**Resistors:** Resistors usually look a bit like a small striped worm or larvae. Most often are tan, brown, or blue, but can be many different colors. These also interact with trannies and caps to sculpt your tone.

### Your Choices...

**Pricing begins at \$179.99 (base price)**

#### ***Transistors:***

If 9 volts of power is the gas for your pedal than transistors are the engine. Basically transistors "make it all happen". So how will your choices affect the sound of your Fuzzer? Read on...

#### **Choice #1:**

##### **Germanium Transistors (Base price + \$20):**

Old school germanium transistors were used in the first years that Fuzz Face's were made. They break up in a very pleasant, buttery, and spongy way.

This is the fuzz sound heard on a bazillion albums from the 60's. It is highly compressed and gushy-fuzzy without being harsh. This is the sound Jimi and Eric put on the map.

A germanium tranny Fuzz Face can be a beautiful thing when properly biased and made with a bit of TLC. There is one big negative about germanium's though. They are a pain in the a#\$ to deal with. In order to use the true "new old stock" transistors to make Fuzz Faces in any significant quantity one must hunt down bulk batches, hand sort each batch, and usually plan on about 60-70% being "bad" or unusable.

Hence the higher price. Not only do they cost more to buy, but the sorting process takes time.

The transistors I use are not any of the famous buzz-word germanium transistors that are often touted as being the only one's worthy of going into a fuzz pedal. Truth is, the numbers don't mean much these days with all the remake germanium trannies

going around\*.

The trannies we use are genuine vintage transistors produced during the 60's and 70's. I don't like to give out the numbers simply because they are getting harder and harder to find. There is nothing magic about them, they are simply great transistors that make incredible sounding fuzz... period.

If you're looking for that purist Fuzz Face tone, then our germanium transistors are the choice for you\*\*.

*\*There are some modern-day remake germanium trannies that "big box" pedal manufacturers use. They have obtained a license to print some of the most desirable vintage trannie numbers on them, but the trannies are NOT truly vintage).*

*\*\*This option uses positive ground transistors (like the originals). This means it must be operated with a battery or with our optional pos-tip adapter. It cannot be "daisy-chained" with regular neg-tip pedals*

### **BC108 Silicone transistors (Base price + \$0 No Charge):**

There is no need to knock a good silicone FF. The 70's FF's have a bad rep because they sound quite a bit different than a germ FF. But here's the thing IMO: A silicone FF doesn't sound bad, it simply sounds different.

People love to blindly put down the 70's FF's but I'd wager many of the people knocking the Si FF's have never actually heard one. A good silicone FF can be a true workhorse in any musician's rig. Think more "distortion" than buttery fuzz. Apparently, Eric Johnson has several vintage silicone FF's in his rigs that he loves.

We also offer a couple of small mods that smooth things out even more and are free with the silicone option. With the **smooth-silly** mod, you'll have an amazing sounding fuzz, period.

The silicon Your Face uses two BC108 "tin can" transistors.

### **The 60/70 (Base Price + \$11):**

A combo of one silicone BC108 transistor and one NPN germanium transistor. This option will be available while my supply of NPN germanium trannies lasts. The NPN transistor allows this hybrid pedal to be negative ground and use a regular pedal adapter. May also be "daisy chained".

This option is fantastic and will give a great in-between tone

giving you heavy fuzz, with the smoother clipping of the germanium transistor. NPN germanium trannies are hard to come by so this option will be available as long as my supply lasts.

## **Resistors:**

You have two choices for the resistors in your pedal.

### **Old-school Carbon Composition (Base price + \$6):**

These are the original "big-brown" resistors. Some say they're smoother, some say they've got the mojo, true or not, a very cool option for you purists.

### **Metal-film (Base price + \$0):**

Modern "hi-fi" MF resistors. Very accurate, a bit quieter, the modern choice for most high-end electronics.

## **Capacitors:**

### ***A very untechnical layman's explanation of these cap choices and their affect on the sound:***

How do these cap's affect the outcome of a FF's sound and character? What's happening here is sort of like a "water weenie". One of those surgical tube things you filled up with water as a kid and squirted your friends with.

The input cap of a traditional FF is  $2.2\mu\text{F}$ , which is a large value cap (relatively speaking). It lets in a lot of signal, and a lot of lows.

As your signal heads out of your pedal via the **out-cap**, which is a much smaller value cap (again relatively speaking) you get a fat signal trying to squeeze out of a small "hole". To use the water weenie example, you have a big tube of water trying to squirt out of a little hole the size of a ball-point pen tip.

That's one of the things that give's a Fuzz Face it's "squishy" sound. It can be one of the love it or hate it things about a FF. You get this girthy sound, that can sound sort of sound thin at the same time. But thats a Fuzz Face!

If you choose the OG caps, you'll get the traditional cap values, but it is recommended that you choose the **free**  $.047\mu\text{F}$  out-cap option. This simply lets a bit more of the girth come out of the

pedal, but still retains the FF squish. It's a subtle change, but one I've found very useful.

That's about as deep as I'll get into caps, but hopefully it gives you a bit of an understanding about what's going on here.

### **The OG Caps (Base price + \$0 n/c):**

This is the traditional Fuzz Face arrangement. The input capacitor on the original FF was a 2.2 $\mu$ F axial electrolytic "barrel type". An axial .01 $\mu$ F metallized polyester was used for the out cap.

### **The Mullard Fish Face (Base price + \$9):**

This is the "Matt's choice" version of the FF (incase you don't know, I'm Matt and I own Wren and Cuff Creations. Nice to meet you...). I don't like to advertise my choices for the values of these caps, but its not real hard to figure out and I'm sure someone will post the values online eventually. It's all part of the deal but I don't want to make it too easy...

This cap choice uses NOS Mullard "tropical fish" polyester film capacitors. I like these caps because they give things a more refined sound, while still keeping things warm and smooth. The values used are still big "entrance", little "exit", but not as big and not as small as the original FF. The Fish Face has a more even sound that tightens things up nicely but still retains the squish, I love it.

### **Optional Add-Ons:**

Optional #1) Add a side bias adjustment knob. **(Base price + \$15)**

This option allows you to add a fourth knob on the side which allows bias adjustment to be done on-the-fly. Let's you get weird over-compressed sputtery sounds, less fuzzy more drivey sounds and everything in-between. Also good if you're exposed to extreme temperatures, outdoor shows-etc. Let's you compensate for the germanium's temperature sensitivity.

Optional #2) Add a de-bufferizer to the front end of your pedal.

**(Base price + \$15)** A trait of the vintage Fuzz Face circuit is that it relies on a passive pick-up "loading" it down to get the warm, buttery tone we love. Put active pickups, or a non-true bypass "Boss type" pedal in front of your YF and it turns into a buzzy, harsh, mess. Not a problem for most people. Just put it

first in your chain, the best place for it anyways, but if you need to have it elsewhere in the chain, after a non-true bypass pedal, or use active pickups, this mod adds a mini transformer at the input which simulates the pickup loading and keeps things warm no matter where you put it. This mod is a good one, but I encourage you to simply put the pedal first in your chain thus not needing this mod. That is the truest, most true tone. So if possible, don't get this mod!

Optional #3) Add smoothing caps to the silicon version. These caps simply roll-off some of the highs and smooth out some of the spikiness that can come through with certain guitars and set-ups. A subtle but great mod, and its free!

Optional #4) **Keep it vintage!** There is a 470Ω resistor that regulates the volume output on a FF. When built stock, the unity gain (same volume as bypassed) is around max volume. *Our standard-default version is modded with a higher value resistor* which increases output to a more modern level without affecting tone. If you're a true vintage freak, choose this option and we'll use the lower output original resistor.

*Just to clarify: This option will give you the lower vintage output. NOT choosing this option will keep our preferred higher output! If you want the increased output, DO NOT DO ANYTHING.*

Optional #5) **Keep it vintage!** As previously mentioned, each pedal comes with a slightly larger value Mullard "tropical fish" (.047μF) cap. This simply lets a bit more of the girth come out of the pedal and gives a bit more even, fuller sound, but still retains the FF squish. It's a subtle change, but one I've found very useful. If your're staying true to vintage specs, then choose this option and we'll keep the original .01μF cap.

*Just to clarify: This option will give you the lower value vintage spec smaller out-cap. NOT choosing this option will keep our preferred higher value! If you want the increased value, slightly thicker output, DO NOT DO ANYTHING.*

**You Knob:** (Base price + \$0 n/c) *Your choice of either option for the YOU knob is included in the base price).*

1) Make it a pre-gain knob. This choice let's you simulate a roll-off on the guitar's volume knob, or it can be seen as an additional gain control.

2) Make it a low-cut knob. Let's you control the amount of low-end that gets into the pedal. Sweep through the super bassy stock FF tone, to a tight more modern sounding fuzz. An incredibly useful mod that makes your pedal even more versatile.

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Hope this helps you understand how your choices will affect the tone of your pedal. Enjoy your new custom fuzz!!!

