

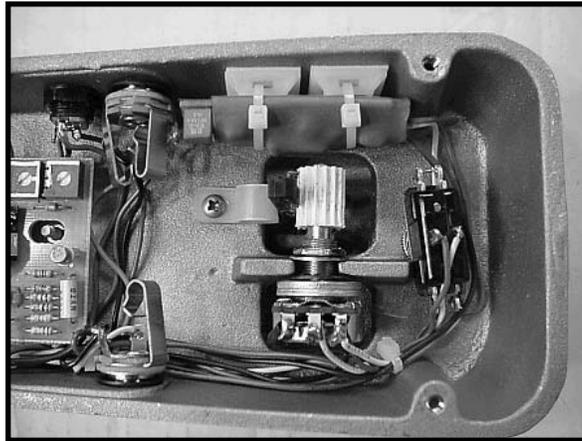
## Foxrox Wah Retrofit

New - Check out the Youtube.com videos that demonstrate the FWR being installed into a Teese Wizard Wah. Either follow the link from the FWR page or go to the "FoxroxElectronics" channel on Youtube.

Did you ever notice that your Wah Wah pedal doesn't cut it when plugged into other effects, such as the Dallas Arbiter Fuzz Face, or Fuzz Face clone? This is something that has annoyed guitarists since the late 60's. But now there's a remedy - You can get FULL RANGE out of your Wah Wah pedal with the Foxrox Wah Retrofit. If this sounds interesting to you - READ ON!

Foxrox Electronics is proud to offer the ideal remedy to this problem. The Foxrox Wah Retrofit is a self-contained JFET buffer/amp circuit that gets installed into your Wah Wah pedal, giving it the ability to cut through any Fuzz Face or Fuzz Face clone. By essentially installing a "real" output section, the Wah Wah pedal becomes immune to the effects of loading, restoring range and depth to older, vintage Wah wah pedals without affecting their vintage value. Newer, high-end "boutique" wah pedals, such as Teese RMC pedals also benefit from this mod because they are based on the same, classic inductor-based circuit. Since it is a basic JFET audio buffer/amplifier, this circuit can also be added to effects pedals that need more output, as well as effects that need more drive at the input. NOTE: A Teese RMC wah with the Foxrox Wah Retrofit, going into a Captain Coconut (1 or 2) is guaranteed to deliver the best wah/fuzz/vibe/octave sounds you've ever heard!

Go to [www.foxroxelectronics.com](http://www.foxroxelectronics.com) for close-up photographs of FWR being installed in some of the most popular wah wah pedals.



### Foxrox Wah Retrofit installation

**Red** - V+ Note: If you use a 9V battery in your wah, make sure it's a fresh one. FWR will distort with a half dead battery.

**Black** - Ground

**White** - Input to FWR circuit

**Blue** - Output from FWR circuit

### Instructions

Start by locating the wire that goes from the Potentiometer to the foot switch. Cut this wire at both ends, and remove it. It's usually blue, you may have to cut a tie wrap to get at the right wire. This is where the Input and Output of the FWR get connected.

### Making the connections

**BLUE** - This wire gets connected to the Foot switch, to the point where the wire was removed. This is the output of the FWR.

**WHITE** - This wire gets connected to the Potentiometer, to the point where the wire was removed. This is the input of the FWR.

**BLACK** - This is Ground. The Ground lug on the output jack is usually the best place for this connection. However, any ground connection in the pedal will do. Don't connect it to the black wire from the battery clip.

**RED** - This carries positive voltage to the FWR. This is a tricky connection because there is usually no obvious place to hook it up. You need to trace the connection from the 9V battery clip to the circuit board. If there is a DC connector, this connection will pass through it. It's good to use a Volt meter to trace the voltage on the board, and tap off of one of the components that has a direct connection to the + supply rail. Check the Foxrox Wah Retrofit page at [www.foxroxelectronics.com](http://www.foxroxelectronics.com) for more info and examples, including photographs.

Adjust the volume to your liking. The trimmer offers continuous output volume control, with some boost when you turn it up above 70%. It's pre-set for unity gain.

Tie wraps and holders are included for securing the FWR. When positioning it, make sure you situate it so that it doesn't interfere with the pot, the jacks, or the opening where the gear is. It fits nicely right above the input jack. Good luck, and enjoy!

# Foxrox Wah Retrofit

**What is it?** The Foxrox Wah Retrofit is a specially tuned buffer-amp that is encased in heat shrink, with a volume control and four wires coming out of it (ground, voltage, input, output). It gets installed into your Wah Wah pedal, giving it the ability to retain its' entire sweep when driving the input of a Fuzz Face, or Fuzz Face clone. The Foxrox Wah Retrofit is basically a FET preamp that is perfectly suited to handle guitar signals. It can also be used to add additional output to effects that are weak, it can be installed into it's own box and used as a clean boost, or in a guitar as an on-board preamp. But it's main application is to allow the Wah pedal to retain it's full sweep when driving a Fuzz Face.

**The Problem** - It's a problem that's been around as long as Wah Wah pedals and Fuzz Faces. Here's the scenario: You take your Wah Wah pedal and you plug it into a Fuzz Face (or Fuzz Face clone). Alone, each one sounds great, but when you try to use both the Wah and the Fuzz at the same time, it just isn't happening. In some cases (like with most germanium fuzz's), you get almost no sweep from the Wah Wah pedal. In other cases (like with most silicon fuzz's), you get a loud oscillation that goes up and down in frequency as you move the pedal.

**Why it happens** - Without getting into a lengthy discussion about electronic circuitry, here's a brief explanation of why this happens:

**Wah pedals** - Most inductor-based Wah Wah pedals use the same basic circuit. This includes VOX, Thomas Organ, Jen, Dunlop, and many of the newer boutique Wah pedals such as Teese, Fulltone, Buddha, etc.. Of course, there are many modifications and different quality parts used in these pedals which makes them all unique, but essentially they all adhere the same basic circuit topology. The classic inductor-based Wah circuit has an output stage that is not particularly well suited to drive a load. If the output is loaded down, the result is a very narrow sweep, the low end of the sweep pretty much disappears. While most effects don't load down the signal enough to cause a problem, there's one big exception - the Fuzz Face.

**FuzzFace** - The FuzzFace is notorious for having a very low input impedance. It's so low that it's actually the first guitar effect (that I know of) to feature true bypass. Yes - back in 1966, the designers of the FuzzFace realized that true bypass was required or else the input of the FuzzFace would severely degrade the guitar signal when the effect was bypassed.

**The Wah + Fuzz Face combination** - So when you take a Wah Wah pedal, and plug it into a Fuzz Face, and kick them in at the same time, you're creating the scenario. You have an effect (the Wah) that can't drive a load very well, and you're connecting it directly to the effect (the Fuzz Face) that has the biggest load of all. The result - with low gain Fuzz's, mostly germanium, you get almost no range from the Wah. With high gain Fuzz's, mostly silicon, you get almost no range, along with a howl that changes in frequency as you rock the pedal up and down.

**Remedies** - In order to avoid this scenario from happening, there are a number of things you can do , but unfortunately they all have drawbacks. Here's a list of things that come to mind:

-Put the Wah after the Fuzz, not before. The problem here is that you end up with a very intense Wah sound, which can be very shrill and deafening to most people. While some people have gotten good results from this, most agree that it's a pretty lousy sound.

-Put a "clean boost" or "buffer" type of pedal between the Wah and the Fuzz. This cures the problem, but it creates a new one. You see, the Fuzz Face works best with no active circuitry between it, and your guitar's pickups. Any type of active buffer will kill much of the FuzzFace tone and make it sound more like a regular distortion pedal. It also affects the ability to "clean up" the fuzz by rolling back the volume knob on your guitar, one of the greatest features of the FuzzFace.

-Put a resistor at the input of the FuzzFace to increase its input impedance. This helps to minimize the problem, returning much of the Wah's range and preventing oscillation. This is probably the best of the three remedies listed. But there's one considerable draw back - it takes away from the intensity and sustain of the Fuzz by cutting the input signal. Note - The Foxrox FuzzFoot (part of Captain Coconut and Captain Coconut 2) includes an on-board trimmer potentiometer for using this approach to getting the Wah Wah pedal to sound good with the Fuzz.

## The ULTIMATE REMEDY

The best way to prevent this problem is to install the Foxrox Wah Retrofit into your Wah Wah pedal, essentially adding a new, better output stage. By installing it in the pedal, it is switched into the signal path only when the Wah is engaged. This prevents it from affecting the Fuzz when the Wah is switched out, while giving the Wah the ability to drive any load - even that of the notorious FuzzFace. The result is a nice, wide sweep, just as wide as when the Fuzz isn't in the signal path...and no oscillation even with the highest gain fuzz pedals.

Finally, a way to get your favorite Wah Wah pedal to sound great with your favorite Fuzz Face, with no side effects at all.