ELECTRONIC AUDIO EXPERIMENTS

OBSTRUCTURES

Technical Manual

0xEAE Boost

Revision B

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John W Snyder

1 Introduction

Thank you for purchasing the 0xEAE Boost, the first collaboration pedal from Electronic Experiments and Obstructures. This manual is an in-depth guide for properly understanding and enjoying your pedal. Below is a bit of context. If you would like to skip ahead to how the pedal works, begin reading at the Operation section on the next page.

The 0xEAE collaboration began in late 2017, seemingly an eternity ago, with the goal of creating an effects pedal housed in an indestructible aluminum block. Most of our work, and that of our industry peers, is housed in die-cast project boxes of standardized sizes, made unique through paint and printing. For this project we sought to create an enclosure that is purpose-built as an indestructible object of musical performance, blending Obstructures' distinct neo-Brutalist visual aesthetic with an homage to the iconic sloped enclosures of Sola Sound, WEM, Interfax, and more.

The stark, imposing character of the enclosure inspired the direction of the electrical design. In keeping with the spirit of maximum reliability, we developed a modular platform based on an over-built power supply and a robust buffered relay bypass scheme. Within this modular platform is a drive/boost circuit consisting of a discrete op amp fed by a high-gain treble booster. The primitive op amp circuit has an asymmetrical clipping waveform and produces many higher-order intermodulation products when driven hard. The result is a densely textured sound in the upper register, with a sharp attack and a massive volume boost on tap. A combination of active and passive tone controls allows for a wide variety of tonal configurations. For all the harsh tones this pedal can dish out, it can take just as much abuse from the road, stage, and studio.

We are extremely proud of this pedal and hope you enjoy it. Thanks for reading!

John Snyder (EAE)
Matt Hall, Brian Johnson, Nathan Matteson (Obstructures)

2   Power and I/O

To power your Boost, use a standard, reliable 9VDC center-negative supply with a 2.1mm barrel tip. The pedal has a current draw of approximately 200mA when active. An isolated power supply is preferred when using the Boost in a signal chain with several pedals. Recommended brands include Truetone™, Voodoo Lab™, Cioks™, etc.

The power input is protected against over-voltage, under-voltage, and reverse polarity conditions up to ±20V. The unit will not turn on if an incorrect power supply is used. Please note that all Electronic Audio Experiments products do not use batteries.

Use standard 1/4" patch cables to patch the 0xEAE Boost into a pedal chain, as normal. The input jack is on the top right and the output jack is on the top left.

3   Controls

The controls are as follows:

Master Sets the output volume level, from $-\infty$ dBu to an excess of +20dBu when the Gain control is turned up. Use judiciously.

Filter Controls a passive, variable frequency low pass filter. Slide right to cut high frequencies for a darker sound. The cutoff frequency ranges from outside the audio range at minimum to 480Hz at maximum.

Gain Sets the main gain stage from approximately +26dB to +46dB. Slide right to increase gain and saturation.

Focus Input treble boost, from +0dB to +26dB for high midrange frequencies, with a peak in the 1-2KHz range depending on the specific setting. Slide right to add saturation and harshness.

Footswitch Activates the effect.

The 0xEAE Boost has soft-touch electronic switching with buffered bypass. When the Boost is disengaged, your signal passes through a high-headroom op amp buffer to preserve its integrity over long cable runs and ensure a consistent high-impedance load to your instrument.

NOTE: the first production run of 0xEAE Boosts uses a bi-color LED for bypass indication. For these units, the LED is red when in bypass and green when the effect is active. This was discontinued due to accessibility concerns for colorblind players. If your unit needs to be modified, please contact EAE via our website.

4 Detailed Operating Instructions

When applying power to the Boost, allow the power supply about half a second to stabilize. The bypass LED will light up briefly and then turn off.

Start with all of the sliders centered. Press the footswitch to engage the boost circuit. The LED will light up to indicate the effect is active. The tone should be relatively balanced with a light saturation. You may need to adjust the Master slider to an optimal volume level. Use the Filter slider to set the desired level of treble content. Slide right to cut treble and make the tone darker, or slide left to increase high frequency content. At darker settings, some perceived volume loss may occur. Use the Master slider to compensate.

The Gain and Focus sliders each contribute their own type of signal overload. The Gain slider has a wide frequency response, producing a fuzzy driven sound at maximum. It also increases the signal level substantially, so the Master level may need to be reduced to compensate. The Focus slider adds a narrower gain boost in the high midrange to tighten up the attack and add extra high frequency content. Using these controls in tandem, you can achieve bright and cutting tones or a dark, crackling overdrive. As before, the Filter slider can be used to tame harshness or even concentrate the output into the low midrange.

The Boost responds differently when used with an already overdriven amp (or when placed in front of a drive pedal in a signal chain). The Focus control is highly effective for tightening up a muddy amp. The high output level of the Master control is excellent for pushing amps and pedals further into distortion territory as well. Finally, the Filter control can be used to keep the highs in check.

Ultimately, the best use case for a specific rig is best found through experimentation. Despite there being only four sliders, different combinations of settings can yield vast possibilities. Or, when in doubt... just turn it all up!

Revision History

Revision	Changes
B	Minor fixes, updates to accommodate changes to bypass firmware
A	Original Release / Draft Copy