



ELECTRONIC AUDIO EXPERIMENTS

Technical Manual

Dude Incredible

Version 2

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1 Introduction

Thank you for purchasing the Electronic Audio Experiments Dude Incredible. This manual is an in-depth guide for properly understanding and enjoying your pedal. Below is the story of this design to provide some insight and context. If you would like to skip forward to how the pedal works, begin reading at the Operation section on the next page.

The Dude Incredible is an homage to the guitar tones of Steve Albini, known for his work in the bands Shellac and Big Black as well as his engineering work at Electrical Audio. It consists of two pedals in one. First is a take on the Interfax™ Harmonic Percolator, a hybrid silicon/germanium fuzz known for a pronounced even harmonic response and a thick, heavily compressed character. Second is a stripped-down version of the Intersound™ Instrument Voice Preamp (IVP), which contains a unique transformer-loaded “Tube Voice” overdrive circuit. Together, the IVP and Percolator have produced some of the most iconic guitar sounds in noise rock: jangly rhythm tones, ear-piercing treble chords, and endless walls of howling feedback.

The Dude Incredible actually began as a one-off Percolator variant with a James type EQ (kudos to whoever ended up with that wacky prototype), but when I began laying out the circuit board to make more I thought, “F*** it, let’s cram a mini IVP in here.” As it happens the first batch, released in 2017¹, was the first time the IVP was adapted into a pedal format in any fashion. We did a couple more batches after that, but the Germanium transistors were always difficult to source and test. Our relatively limited supply of good parts was then largely consumed by the Halberd V1, which also used a Ge transistor, so we decided to focus on the IVP side and release the Surveyor. That worked out great for a while, but as EAE grew, I realized we could take another stab at sourcing and testing percolator-friendly Ge transistors. This year we updated the Dude Incredible design to match our updated lineup of pedals and give it the wider release it deserves.

While updating the design I rolled in all the improvements from the Surveyor V2, including soft switching, heavy-duty power supply protection, and a Hi/Lo toggle for expanded gain range. For the percolator side, we added a diode toggle and made some tweaks based on a particularly good-sounding (read: extra nasty) original unit that our technician Miranda brought in. The twist: hers actually had a diode installed backwards, giving it an extra loud, extra asymmetrical clipping waveform². We used that as inspiration for one of the clipping modes in the V2.

We are extremely proud of the Dude Incredible and hope it serves you well for many years. Thanks for reading!

- John Snyder, EAE

¹In fact, the first batch was released as a 30-unit exclusive for the ‘Aluminum Axes’ Facebook group. Truly, it was a simpler time!

²This origin story is remarkably similar to the cult classic Kowloon Walled Bunny/KWB+, where a similar diode error on a Distortion Plus circuit dramatically changed the sound for the better.

2 Product Changelog

Version 2

- New mechanical form factor
- Added soft-touch relay bypass
- Component tweaks to the Percolate side for an overall “nastier” sound
- Added diode toggle and new clipping modes to the Percolate side
- Updated Tube Voice side to match Surveyor V2 spec (added Hi/Lo toggle)
- Added over-voltage and ESD protection for the power supply

Version 1

Original release in 2017.

3 I/O and Power

Bypass: Independent fuzz (Percolate) and preamp (Tube Voice) circuits with relay-based true bypass switching which defaults to bypass in the event of power loss.

Input impedance @ 1kHz: 100k Ω (perc) / 500k Ω (tube voice)

Output impedance @ 1kHz: <25k Ω (perc), <5k Ω (tube voice)

Power: 9VDC, 2.1mm center negative barrel. The current draw is 90mA with both channels engaged.

To power your Dude Incredible, use a standard regulated 9VDC center-negative supply with a 2.1mm barrel tip. We recommend a supply rated for 100mA minimum. The current draw is 90mA with both channels engaged. We suggest the use of an isolated power supply when using the Dude Incredible in a signal chain with several pedals. Recommended brands include Truetone™, Voodoo Lab™, Cioks™, etc.

The power input is protected against reverse polarity conditions and over-voltage up to 24V. The unit will not turn on if an incorrect polarity power supply is used. Please note that all Electronic Audio Experiments products do not use batteries.

Use standard shielded 1/4" cables to patch the Dude Incredible into a pedal chain. The input jack is on the top right and the output jack is on the top left. The power jack is at the center.

4 Controls

Harm Input gain for the Percolate channel

Balance Output level for the Percolate channel, turn clockwise for more volume.

Gain Tube Voice gain control; highly interactive with the Bass and Treble settings.

Level Output level control for Tube Voice channel, turn clockwise for more volume.

Treble Tube Voice high shelf boost/cut, +/-12dB @ 3kHz located pre-Gain.

Bass Tube Voice low shelf boost/cut, +/-12dB @ 100Hz located pre-Gain.

Diode (toggle) changes the clipping configuration of the Percolate channel. Up for less compression, down for more.

Hi/Lo (toggle) changes the gain range of the Tube Voice channel. In the Lo setting the gain range is -15dB to +12dB, in the Hi setting the gain range is +9dB to +36dB

Right Footswitch Engages Percolate circuit.

Left Footswitch Engages Tube Voice circuit.

5 Detailed Operating Instructions

The Percolate side (or perc for short) is a unique fuzz circuit, combining a silicon transistor and a germanium transistor to emphasize even-order harmonics. To activate it, use the right footswitch. The **Harm** knob controls the gain at the input. Lower settings produce a fuzzy and dynamic overdrive, higher settings become increasingly overloaded with blocking distortion and a blooming effect at maximum. Strongly interactive with the guitar's volume knob if there are no buffered pedals in between. The **Balance** knob sets the output level of the fuzz. The perc is designed to cascade into the Tube Voice side and is first in the signal chain. It has a very low input impedance and will react differently when used first in your signal chain versus after a tuner or other buffered pedal. Rumor has it that a buffered tuner or noise gate before the percolator will get you closer to "the" sound, but I prefer feeding it straight from guitar pickups. Of course, it's all personal preference.

The original IVP was a full-featured preamp with two input channels, an active Baxandall EQ stack for highs and lows, a four-band parametric EQ for mid frequencies, clean and overdrive channels, and multiple effects loops for patching in external effects. The **Tube Voice** side of the Dude Incredible has been stripped down to just the input stage, Baxandall stack, and overdrive circuit. In the IVP, the EQ is placed before the drive circuit, allowing for unique tone shaping. Rather than shaping the final tone, the user can choose which frequencies become distorted. Boosting highs brings forth not just treble content, but midrange and presence as well. Boosting the lows can add heft at lower settings or overwhelm the drive circuit in a musical fashion. The Tube Voice circuit uses discrete transistors and a small transformer to generate clipping, which responds in a very smooth manner at lower gain settings but becomes fuzzy and aggressive at higher settings. The **Gain** knob sets the signal level going into the drive circuit in tandem with the **Hi/Lo** toggle. The **Treble** knob boosts mid and high frequencies (centered around 3kHz) and is useful for adding crunch and presence. Even at higher settings, the harshness is tamed by the transformer which has a natural high frequency rolloff. The **Bass** knob boosts low frequencies at around 100Hz. Cut to reduce mud, or boost to add some thickness. At max it will produce a pronounced sag when hit hard, especially at high gain. Use judiciously! The **Level** control is self explanatory. Be warned, it has a substantial amount of volume on tap! You'll quickly find that the IVP side does way more than clang and screech! It's a very respectable drive in its own right with a clear sound and lots of dynamics.

With both sides turned on, the Dude Incredible achieves its maximum potential. Here you will find some of the most unruly fuzz sounds possible. You may achieve feedback even at moderate volume levels. The lightest fret noise or pick slides can turn into delicious, screeching noise. Picking hard can cause the sound to duck out entirely for a moment as the Tube Voice circuit struggles to recover. In short, it's a delight!

Document Revision History

Version	Changes
1	Release for Dude Incredible V2