



REPLAY BOX

DUAL TRANSFORMER REAMPLIFICATION BOX

Owner's Manual

THANK YOU!

Thank you for purchasing the United Studio Technologies Replay Box. We realize how many re-amplification choices are out there, and we are honored that you have given us a chance. We have done all that we can to exceed your expectations in a quality reamping device, in terms of craftsmanship, feel, appearance, and most importantly, sound. We make our products not to be good for a price; but to simply be the best we can make them. We have scrutinized and labored over not just the major parts like the custom wound transformers; but every component from end to end, as well as the circuit design and mechanics. We used the highest quality gold-contact switches we could obtain, as well as a custom-made potentiometer that is rated for 100,000 rotations. With proper care, our products should last an entire lifetime of use and beyond.



CHAD KELLY

United Studio Technologies, LLC.

Baton Rouge, Louisiana USA

PRODUCT SERVICE

REGISTER YOUR PRODUCT

Before we begin, please take the time to visit www.unitedstudiotech.com to register your product. To ensure you receive proper and uninterrupted warranty support for your product, please register your unit within 14 days from purchase.

UPDATES TO THIS MANUAL

Occasionally, we may have updates to this manual. All current manuals can be downloaded at www.unitedstudiotech.com. For your convenience, every page of this manual displays the version number at the bottom of the page.

SAFETY

Warning: To reduce the risk of electric shock, do not open the device as there are no user-servicable parts inside. **Refer servicing to qualified personnel!**

1. Read and keep these instructions; heed all warnings, and follow all instructions.
2. Do not expose this device to rain and moisture.
3. Clean only with a dry cloth.
4. Servicing is required when the device has been damaged in any way.
5. Always connect with a standard 3 pin XLR (male XLR to female XLR) cable that is in good working order.
6. Always fully connect microphone cable on both ends before engaging +48v Phantom Power.
7. Always disengage +48v Phantom Power and give the microphone a few moments to fully discharge before disconnecting the microphone cable.
8. DO NOT pass this microphone signal directly through a TT (tiny telephone, tip-ring-sleeve) or TRS (¼ inch, tip-ring-sleeve) patchbay! A preamp, of course, can be followed by a patch bay; just not a microphone signal.
9. This microphone ships with a silica gel packet. Do not discard it; this ensures that moisture/humidity does not accumulate on the mic capsule diaphragm and that no part of the device begins to oxidize. If the silica package becomes lost or discolored, replace it with a new, good quality silica gel packet.

WARRANTY SERVICE

United warranties this product to be free from defect in materials and workmanship for one year from date of purchase, for the original purchaser to whom this equipment is registered. This warranty is non-transferrable.

This warranty is void in the event of damage incurred from unauthorized service to this unit, or from electrical or mechanical modification to this unit. This warranty does not cover damage resulting from abuse, accidental damage, misuse, improper electrical conditions such as mis-wiring, incorrect voltage or frequency, unstable power, disconnection from earth ground (for products requiring a 3 pin, grounded power cable), or from exposure to hostile environmental conditions such as moisture, humidity, smoke, fire, sand and other debris, and extreme temperatures.

United will, at it's sole discretion, repair or replace this product in a timely manner. This limited warranty extends only to products determined to be defective and does not cover incidental costs such as equipment rental, loss of revenue, etc. Please visit us at www.unitedstudiotech.com for more information on your warranty, or to request warranty service.

This warranty applies to products sold in the United States of America. For warranty information in any other country, please refer to your local distributor for United Studio Technologies. This warranty provides specific legal rights, which may vary from state to state. Depending on the state in which you live, you may have rights in addition to those covered in this statement. Please refer to your state laws or see your local retailer for more information.

NON-WARRANTY SERVICE

If you have a defective unit that is outside of our warranty period or conditions; we are still here for you and can get your unit working again for a modest service fee. Please visit us at www.unitedstudiotech.com to contact us about setting up a repair or for more information.

With the proper care, your United gear should last a lifetime and provide a lifetime of enjoyment. We believe the best advertisement we can have is a properly working unit being put to great use. Let's work together to make it happen.



CHAPTER 1: LET'S GET STARTED!

1.1 CONTROLS

FRONT PANEL:

Color Switch - Selects either Harmonic or Transparent operating modes..

Phase Inversion Switch - Engages an 180° phase inversion on the output.

Ground switch - Engages a ground lift.

Level Control - Sets the output level of the Replay Box.

REAR PANEL:

Output 1/4" - This is the main re-amp output for connecting to instrument-level devices like amplifiers and stompboxes.

Input XLR - Input for the Replay Box. Connect an output from your audio interface or mixer here.

Thru-put / Input 1/4" - When using the XLR Input, this instrument-level jack passes the XLR signal out. Use this in conjunction with the Output to drive a second Replay Box or any processor/device simultaneously.

When not using the XLR Input, this jack functions as a 1/4" input.

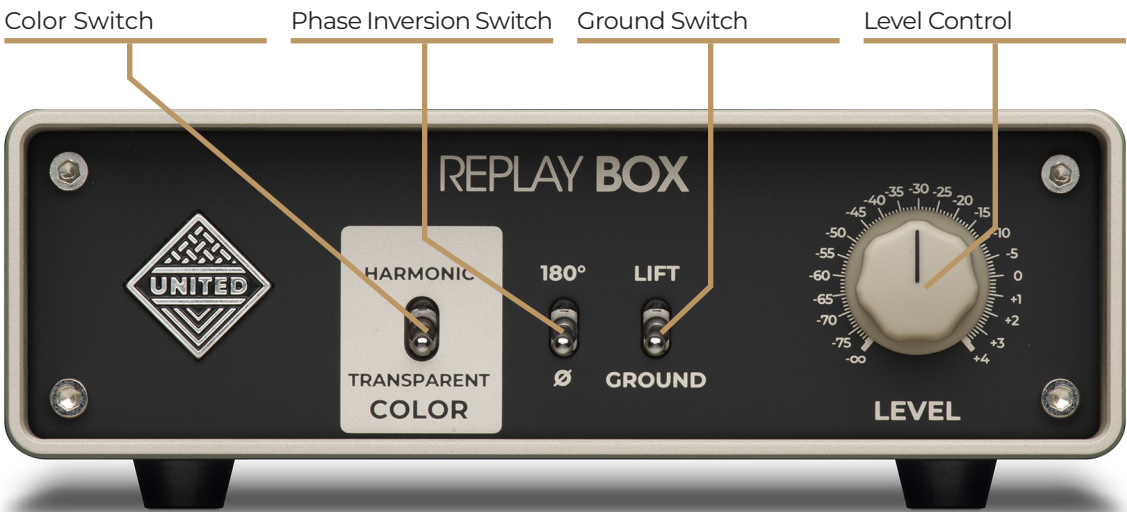


Fig. 1: The front panel of the Replay Box; this contains all controls.

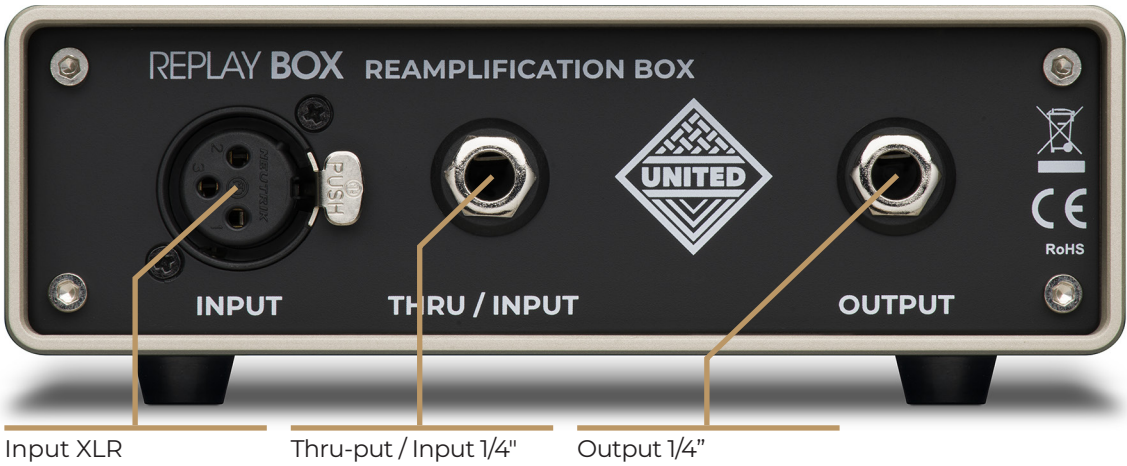


Fig. 2: The rear panel of the Replay Box; this contains all I/O.



1.2 CONNECTIONS

To operate, simply plug your audio source (typically from an Output on an audio interface or mixer) into the XLR input, and connect the 1/4" instrument-level Output to the receiving device -typically an amplifier or stompbox effect.

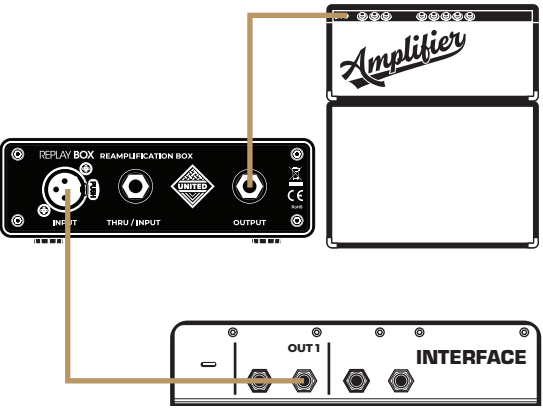
You can connect a second Replay Box or processing rig via the Thru/Input connection when using the XLR Input.

Alternatively, you can re-amp a signal using an 1/4" instrument level input by connecting your instrument to the Thru/Input connection.

The Replay Box has a broad range of Level settings ensuring the best compatibility with a

wide range of amps and processors.

The Replay Box is passive, requiring no battery or wall-adaptor power source.



1.3 USING THE HARMONIC/TRANSPARENT MODES

Choose the Transparent mode for the cleanest signal.

The Transparent mode features our custom-wound, US-made, 5043 step up transformer, which provides extraordinary signal isolation and noise rejection for mastering-grade quality. It accepts your balanced or unbalanced line level input signal to deliver an absolutely clean, isolated, unbalanced output capable of driving any amp, pedal, or processor. Because the transformer is wound to have passive gain, it has about 3 dB of additional gain on tap above its already +4 dB rated input from your DAW or recorder. No active circuitry or other components are involved — you get the cleanest gain available on any re-amplification device.

Choose the Harmonic mode for added character.

Harmonic mode is for those who desire a bit more coloration or fattening in the re-amp stage. Harmonic mode engages an alternate transformer specifically designed to add character. This transformer is wound to offer a steeper gain ratio alongside a very gentle rolling-off of the uppermost high frequencies. It adds both harmonic and phase distortion in the sub-bass region, fattening the low mids and delivering a more aggressive and warmer tone.

PRO TIP: We recommend using as short of a cable as possible to connect the Replay Box to an amplifier. The connection between playback source (interface / tape machine / etc) can be as long as needed. This ensures the highest quality unbalanced instrument signal into the amplifier.

The Replay Box is exceptionally well shielded, meaning that it will not pickup additional noise when placed on top of an amplifier — even when using digital amplifiers!

1.4 LEVEL SETTING

Replay Box offers a wide range of output levels compatible with a broad array of amplifiers and effects. Choose an output level that works with your amp's preamp stage to deliver the tone you're looking for.

The Level Control can be very useful for experimentation, and it's suggested to explore the wide tonal options by trying different positions. This is especially useful when using different types of instruments!

1.5 POLARITY

The Polarity switch inverts the waveform at the 1/4" Output by 180°. This is useful when using Replay Box to capture a signal being reamped from both the Output and Thru/Input connections simultaneously.

If material recorded via Replay Box's Outputs and Thru/Input sounds thin or phasey when played back in uni-

son, you likely have a phase-cancellation issue that can be quickly resolved with a flip of the polarity switch.

Additionally, some vintage studio equipment uses a non-standard pin configuration in its XLR connections, which can result in poor, phase-cancelled signal quality when connected to contemporary devices. Because

the Polarity switch functions by toggling pins 2 and 3 of the XLR connection, engaging it can do a great deal to mitigate these phase issues.

You may also opt to adjust your mic positioning to help resolve phase issues.

1.6 USING THE GROUND LIFT

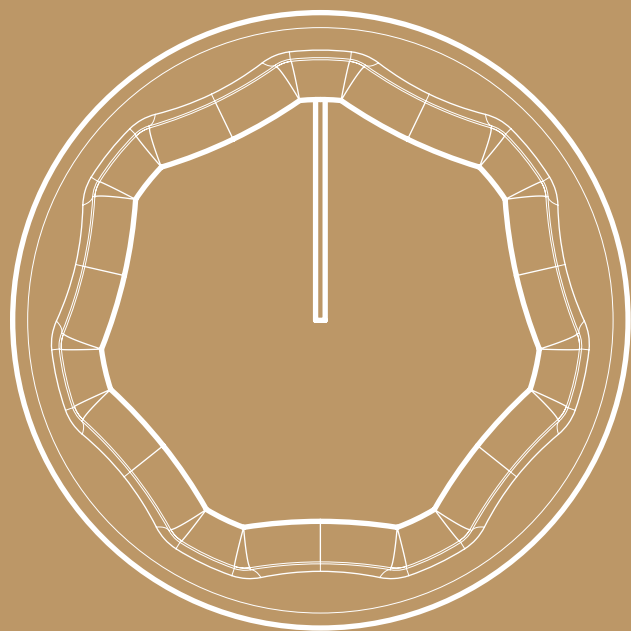
Unwanted hum and noise are commonly caused by ground loops, which occur when there is a difference in electrical potential between multiple grounding points.

The Ground switch removes ground-loop induced hum and noise by disconnecting (lifting) the ground between the Input and Output.



CHAPTER 2: ABOUT THE REPLAY BOX

2.1 CHAD KELLY’S HISTORY OF REAMPS.



My involvement with reamps goes back over 20 years to an experience working on a record in a Texas studio which had a pair of reamp units that were common at the time. I had owned one of the earliest commercially available units as well, and used it for many years in my home studio. I felt both were lacking in certain ways that really frustrated me in the studio. I felt that none of them really had sufficient gain and almost always required a boost pedal following the reamping device, which added further noise and THD.

I also felt that they had a somewhat pinched and midrange-focused tone, which may have been OK for electric guitar, but not so great for bass guitar or anything else that you might want to throw at it. There was also some noticeable phase shift or phase inversion in the operation of these early units I worked with.

Chapter 2: About the Replay Box

2.2 A Reamping Device Should Do 3 Things:

2.2 A REAMPING DEVICE SHOULD DO THREE THINGS:

- 1.) It should offer true ground isolation from input to output for cases where there is a potential for ground loop between the control room and tracking room.** Most of the commercially available devices had a ground lift of sorts which may have lifted the chassis from the pin 1 (something that very rarely solves anything); but nothing really provided true ground isolation to break up potential ground loops.

2.) It should have sufficient passive gain. Knowing that the incoming +4 balanced signal should in theory have enough energy to drive the instru-
- ment input of an amp, I did not like the fact that most available devices had to throw away so much level that an external boost pedal wound up becoming necessary, inviting a lot of unnecessary noise and interference. I understood the reasons for doing so were based out of the need to isolate the source from the destination; but knowing that there has been a lot of advancement in how transformers can be designed and wound, I felt that there was a better way of doing this without sacrificing as much level.

3.) It should be absolutely sonically neutral. The whole idea of these units
- is to fool an amp into believing it has a guitar plugged into it. It doesn't need to be voiced for guitar, because the recorded DI signal ALREADY IS voiced for guitar... and guitar is only one of many things I like to reamp. I reamp bass, I reamp software and analog synths into a keyboard amp, and I have even reamped snare and kick drum and vocals for effect. A reamp also should serve as a studio interface between the recording studio and the guitar pedal world. So for that reason, the reamp has to be invisible to this process.



The Replay Box pictured with a few friends. Though reamplification boxes can be used for a variety of applications, they're always at home when paired with a guitar amplifier.

L-R: Dr. Z JAZ 20/40, Roland RE-201 Space Echo, Valve Junior, Randall RT-30, 1964 Fender BandMaster, 1968 Sound City Mark II Custom, Friedman Buxom Betty, Bogner Überschall (Rev Blue). Cabinets include Dr. Z 2x15 closed back, 1970 Fender 2x15, Orange PPC212, and 2 Marshall 2x12.



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Version 1.0 as of 6/3/2024

Additional Support

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2.3 STARTING FROM SCRATCH...

So with these criteria in mind, I set out to start figuring out how to make my own unit. The first units I made were overly complicated, utilizing quite a few semiconductors (resistors, capacitors, inductors, transformers, pots, switches, and more); but over time the design continued to be simplified, while consulting with transformer companies, until just about everything I needed could be done with just the transformer. For many years, I manufactured these by hand, on request, and it was sustained purely through word of mouth. These units became a secret weapon for many big-name producers and engineers; but were never really available to the public and never widely known about.

The design was relatively stable for many years, and boasted a near-unity level output, which was far more gain than any other commercially available unit at the time. It was only after listening to one popular recording studio engineer and influencer, that I realized my box probably still needed a bit more gain. It dawned on me that while a +4, balanced signal should in theory be much hotter than an instrument level, unbalanced signal; in reality it may not be loud enough just due to how insanely dynamic a direct guitar pickup signal can be. If recorded diligently, ensuring no clipped peaks, the average of the signal can be vanishingly low just due to this extraordinary dynamic range of the completely un-distorted, uncompressed dry signal.

2.4 PUSHING THE TRANSFORMER

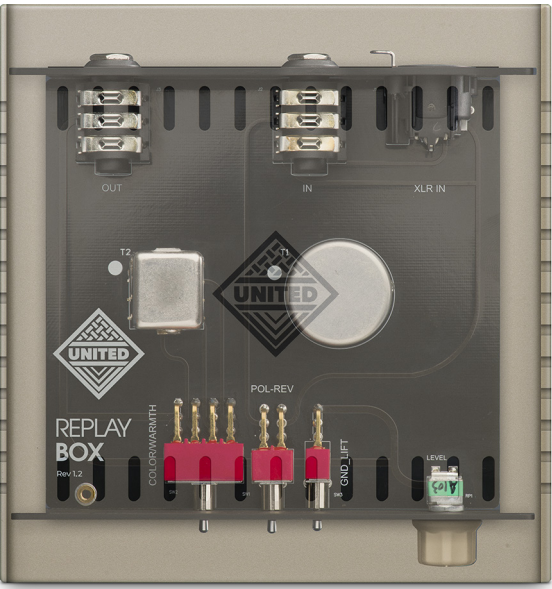
After consulting again with our transformer winders, and much trial and error, we were able to push the limits of what this transformer could do, by winding an additional set of secondaries to the transformer that could double the amount of available gain on tap. We experimented with making the transformer even hotter still; but discovered that any more gain beyond this would begin to cause pretty noticeable artifacts. We knew, at long last, that we had squeezed every bit of performance we could out of this basic design concept.

Somewhere during the long gestation period while these products were being made by hand, I experimented with making a version of the reamp that had intentional color, to juxtapose against the standard version which was extremely transparent. Some of my earliest handmade units from 20 years ago used an inductor and a switch to offer a warmth

mode; but the considerable amount of signal loss (which had to be matched on the clean channel) was something I hoped to avoid this time around. I was able to find an obscure telecommunications transformer that had the inductance specs I was looking for that could be used in place of my standard transformer, when configured in a pretty unorthodox way. This deliberately coloured version of the reamp offered even slightly more gain on tap, as well as enhancing the signal with some subtle warmth and thickness. This model became known as the AngReAmp, aptly named by one of the first customers who acquired one. It became popular with indie rock and metal, and with folks who liked to experiment more with their recording techniques. I found it to be a great way to add some thickness and depth back into thinner sound DI captures that may have been a bit anemic due to passing through cheaper pickups, direct boxes, or preamps on the way in.

2.5 20 YEARS ON, THE REPLAY BOX IS READY.

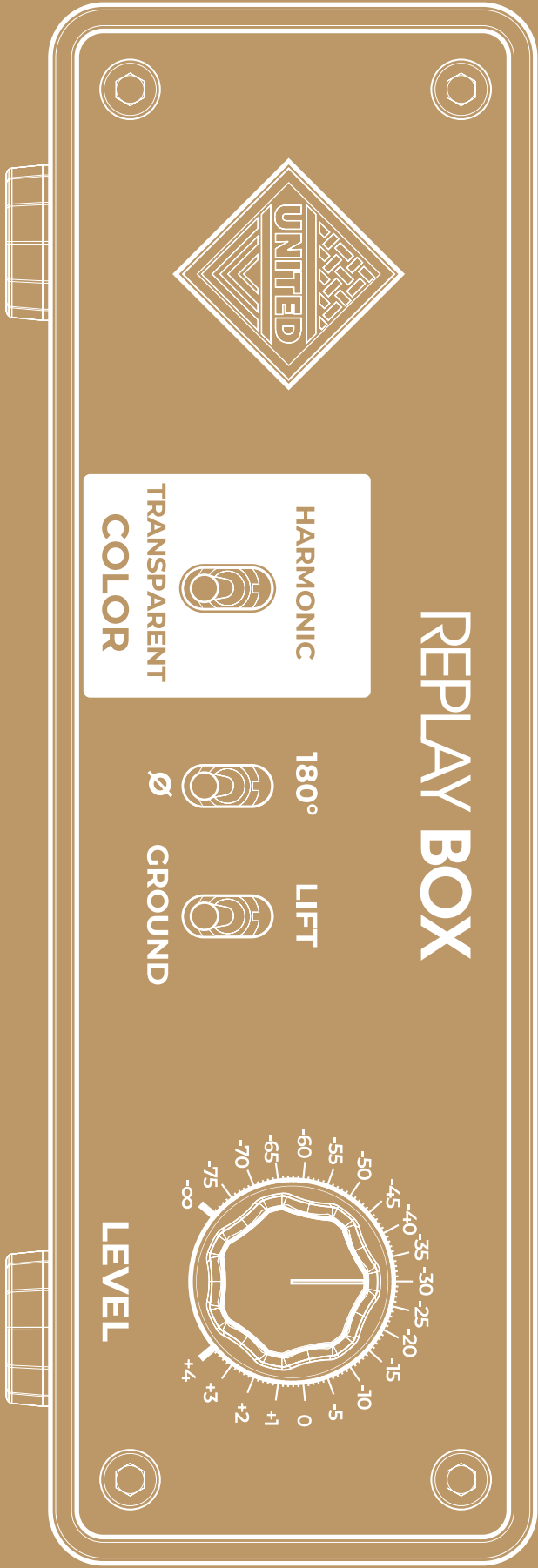
Now, after more than 20 years, these boxes have been combined together for the first time, into one unit and made commercially available for the first time. A secret weapon only known to a handful of successful producers and engineers for decades, the RePlay Box is the final word on this novel reamping circuit approach that is considered by many to be the very best way to reamp tracks!



CHAPTER 3: TECHNICAL SPECIFICATIONS

Input Impedance	Transparent Mode: 300 Ω Harmonic Mode: 50 Ω
Output Impedance	Transparent Mode: 1k Ω Harmonic Mode: 150 Ω
Frequency Response	Transparent Mode: 20 hZ-20 KhZ +/-0.5 dB Harmonic Mode: 40 hZ-20 KhZ +/-0.5 dB
Output Gain Level	Transparent Mode: +3 dB above Input Level Harmonic Mode: +5 dB above Input Level
Recommended Input	+4 Line Level Balanced Input
Auxillary Controls	Phase Inverse, Ground Lift
Dimensions	Height (w feet): 52 mm / 2" Height (w/o feet): 46 mm / 1.8 Width: 149 mm / 5.86" Depth: 155 mm / 6.1"
Weight	.8kg / 1.76 lbs

As a commitment to constant improvement, United reserves the right to change any specifications, at any time, without notification.



OUR STORY IS YOUR STORY.

Every musician and audio engineer has to start somewhere. We start with the entry-level gear we can afford, and work our way up to using the best of the best gear.

In today's age, we all have the luxury of simulating all of the best classic gear directly in a DAW — but is a simulation as good as the real thing? Sure, we think plenty of it is great, but it never settles our need for the original gear. With the rise of software-variants of classic gear, quite a few companies have taken to selling the “original” as a hardware recreation — but very sadly, many of us have seen we're not being sold the real thing by these companies. And to top it all off, the best classic gear is getting older, less reliable, and more expensive — even finding truly great technicians to work on them has gotten to be very difficult.

We at United are working hard to make sure everyone can finally access gear built like the original classics, with zero compromise. We have put everything we have into our products — from conception, custom parts, New Old Stock parts, and in many cases final assembly and testing that is done by hand in Baton Rouge, Louisiana.



United UT FET47 Prototype Phase 3 #1. This is where we started to take shape, and define our future.

CAVE DAUGHDRILL
Vice President / Co-Founder /
Pinball Fanatic

CHAD KELLY
President / Co-Founder /
Barista / Music Director



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Welcome to the United family!

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