GuitarPCB presents

Space Modulator

Introducing the NostalgiTone Space Modulator, a groundbreaking release in the NostalgiTone series. This all-in-one pedal merges Delay, Reverb, and Chorus modulation, three effects essential for crafting rich, soundscapes. Whether placed at the end of your signal chain or integrated into your amp's effects loop, these effects work seamlessly together to elevate your tone. The Space Modulator is not only a tonal powerhouse but also a perfect complement to other NostalgiTone releases, making it an indispensable tool in your musical arsenal.

Chorus: The Chorus effect provides rich modulation, ranging from subtle tone enhancement to deep, warbling effects. Its intuitive controls for Rate and Depth make it easy to achieve the perfect level of movement and warmth. Additionally, because this Chorus is integrated into the Triple Combo, it can not only affect your core tone but also add lush, swirling tones to your Delay and Reverb settings, creating even more expansive soundscapes.

Delay: The Delay effect allows you to transition from crisp, "bathroom" slap echoes to expansive, Gilmour-style delays, with a maximum delay time of up to 600 milliseconds. Featuring an intuitive four-knob control layout, you can adjust Time, Repeats, Tone, and Mix. The analog warmth of this Delay ensures a rich, organic sound quality. Additionally, you can incorporate Chorus modulation with Width and Rate controls, providing even more tonal variation. Whether you are aiming for subtle ambiance or rich, modulated repeats, this Delay offers a broad spectrum of sonic possibilities.

Reverb: The Reverb circuit is crafted to deliver rich, spring-inspired tones using the BTDR-3H Brick. Unlike standard DSP-based reverb modules, this circuit excels in capturing the warmth and character of traditional spring reverb, offering superior sound quality. A standout feature is its ability to incorporate Chorus modulation and Delay tones into your Reverb, providing a distinctive tonal palette. This combination allows musicians to blend classic reverb with modern, dynamic effects for a versatile and unique sound experience.

Though it has a slightly higher component count than previous NostalgiTone releases, the Space Modulator is still a **straightforward, step-by-step build**. The three circuits—Chorus, Delay, and Reverb—are designed to work together, creating a **seamless tonal experience**. Just follow the process, and you will have a **professional-quality pedal** that brings out the best in your signal chain.

Easy Wiring: No more daunting wiring hassles! Say hello to beauty under the hood. Enjoy all-analog tones with modern features that will slip into your gig bag, ensuring you are always ready to unleash your musical magic.

Available Components: We recognize the hurdles of component availability. Rest assured, we've carefully selected components for the **NostalgiaTone** series that are currently available from today's popular vendors.

Do not settle for the ordinary when you can have extraordinary. Elevate your tone with the **NostalgiTone** series combo builds from GuitarPCB. Get yours today and discover a world of sonic possibilities like never before!

Part	Value
R1	1M
R2	220k
R3	220k
R4	220k
R5	20k
R6	470R
R7	100k
R8	10k
R9	10k
R10	20k
R11	10k
R12	10k
R13	10k
R14	20k
R15	20k
R16	220k
R17	100k
R18	220k
R19	220k
R20	10k
R21	33k
R22	2k2
R23	100R
R24	68k
R25	47R

Part	Value
R26	10k
R27	10k
R28	1M
R29	220k
R30	220k
R31	220k
R32	20k
R33	470R
R34	100k
R35	22k
R36	10k
R37	10k
R38	47k
R39	10k
R40	10k
R41	10k
R42	22k
R43	20k
R44	220k
R45	22k
R46	10k
R47	1M
R50	1M

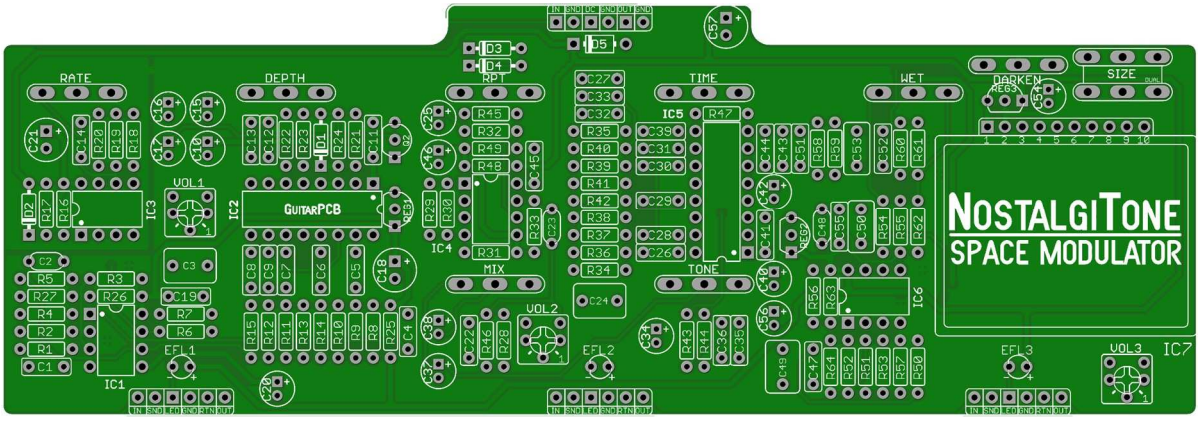
Part	Value
R51	220k
R52	220k
R53	220k
R54	10k
R55	10k
R56	470R
R57	100k
R58	22k
R59	1k
R60	1k
R61	5k1
R62	5k1
R63	10k
R64	10k
C1	100n
C2	150pF
C3	1uF
C4	100n
C5	1n5
C6	4n7
C7	10n
C8	10n
C9	100n
C10	47uF

Part	Value
C11	100n
C12	100n
C13	100n
C14	10n
C15	10uF
C16	10uF
C17	47uF
C18	100uF
C19	100n
C20	47uF
C21	100uF
C22	100n
C23	150pF
C24	1uF
C25	1uF
C26	22n
C27	22n
C28	1n
C29	2n2
C30	100n
C31	100n
C32	22n
C33	22n
C34	1uF
C35	22n

Part	Value
C36	22n
C37	1uF
C38	1uF
C39	100n
C40	47uF
C41	100n
C42	10uF
C43	100n
C44	100n
C45	100n
C46	10uF
C47	100n
C48	150pF
C49	1uF
C50	470n
C51	4n7
C52	220n
C53	470n
C54	47uF
C55	100n
C56	47uF
C57	220uF
VOL1 - Trim	50k
VOL2 - Trim	50k
VOL3 - Trim	50k

Part	Value
RATE	C100K
DEPTH	B500K
RPT	B5K
TIME	B50K
TONE	B25K
MIX	B5K
SIZE	B100K Dual Gang
DARKEN	B10K
WET	A10K
D1 - D4	1N4148
D5	1N5817
Q2 - No Q1	2N2222
REG1 - 3	L78L05
IC1	RC4558
IC2	PT2399
IC3	RC4558
IC4	RC4558
IC5	PT2399
IC6	RC4558
IC7	BTDR-3H
EFL1 - 3	Status LED
EF1 - 3	6PIN.HD

Part | CLR (current limiting resistors) x 3. - Value | [1k8 to 4k7]



Build Notes:

Included with the purchase of the main PCB board will be (3) standard foot switch wiring boards (6 pins), as well as (3) pieces of ribbon connector. This simplifies the wiring process while keeping troubleshooting to a minimum.

*** CLR x3** - Each wiring board needs an onboard current limiting resistor (CLR) for the main board status LEDs. You can use a resistor value between 1k8 (bright) and 4k7 (dim). Solder the 3PDT foot switches to the underside of the wiring boards, opposite the CLR side.

Solder the wiring boards (correct side) to your preferred 3PDT footswitch, attach one end of the ribbon cable to the wiring board, and then proceed to solder the three assembled footswitches to the main board. Utilize the top center pads for connecting power and the In/Out jacks.

TIPS:

- **VOL1 – VOL3** Each circuit features its own trim pot to adjust the volume. This set-and-forget option ensures you can fine-tune the Volume of each effect to your preference. As a starting point, set the Chorus at 11:00, Delay at 12:00, and Reverb at 2:00, then adjust by ear while comparing the sound with the bypassed signal.
- **Reg1 – Reg3 are voltage regulators. Use L78L05, or LM78L05. Both use Pin 1 as the Output.**
- **IC2 and IC3 are PT2399 while IC7 is the Belton Reverb Brick model BTDR-3**
- **IC1, IC3, IC4, and IC6 use RC4558** for their low noise proper6es, price, and availability. Try NE5532, JC4558, OPA2134, as well.
- **D1 – D4 use 1N4148 diodes.**
- **Q2 – 2N2222.** Note that there is no Q1. Alterna6vely, you may use 2N3904.
- Avoid changing the values of resistors, capacitors, or poten6ometer tapers, as they play a crucial role in the func6onality.

Usage Guide:

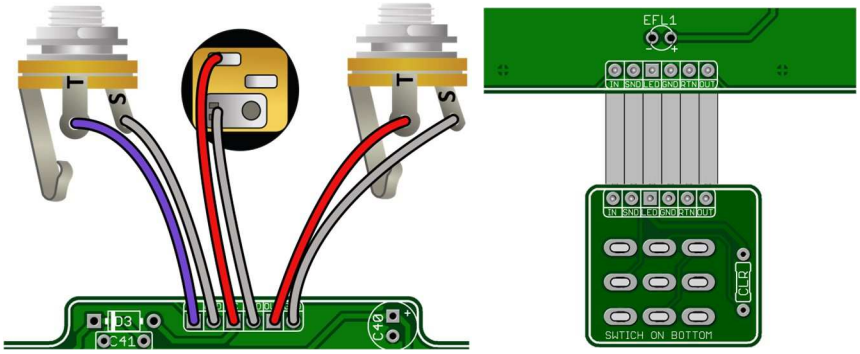
Controls: After setting the VOL1 – VOL3 trimmers as outlined previously, position all potentiometers at 12:00, which serves as an ideal starting point for each effect. For a smooth Chorus tone, try both the Depth and Rate at 11:00. Increasing the Rate will result in faster modulation pulses. For a slap-back Delay, set Time and Repeats to 9:00. Gradually increase the Time knob for more rhythmic delays or to enhance guitar solos, and combine with Chorus for added modulation. Begin with the Reverb's Depth and Rate at 12:00 for a Spring Reverb effect, adjusting the Darken control to achieve a darker, more subdued reverb tone.

Note on the PT2399 Chip

The PT2399 chip provides smooth delay effects with a maximum delay time of approximately 600 milliseconds. Although it excels in most applications, pushing the chip to its maximum delay time might introduce subtle artifacts. Many users find these artifacts add unique character to the sound rather than detracting from it. The extent of these artifacts can vary with each chip's tolerance.
If you prefer to avoid any potential artifacts, you can adjust the maximum delay time to 500 milliseconds. Simply solder a 150k resistor between lugs 1 and 2 of the TIME potentiometer to achieve this modification.

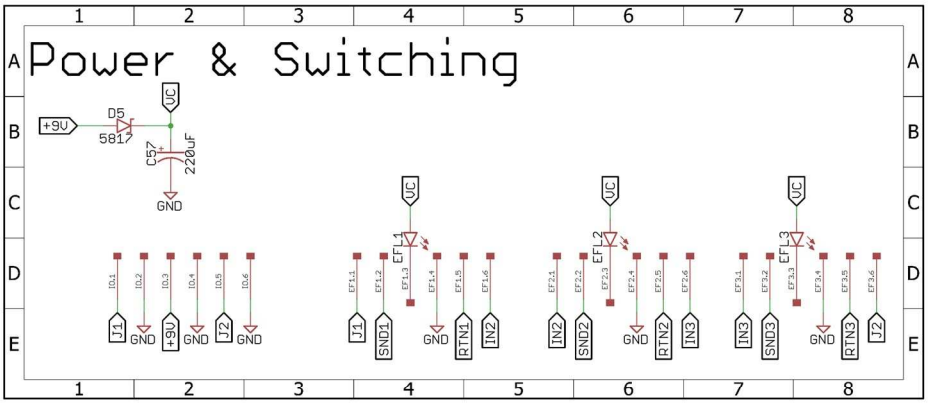
Power Supply: Always use a 9-volt power supply (nothing higher) with a 2.1mm plug and a negative tip.
Power Supply Requirements: To ensure optimal performance of the pedal, use a power supply capable of providing at least 100mA of current.

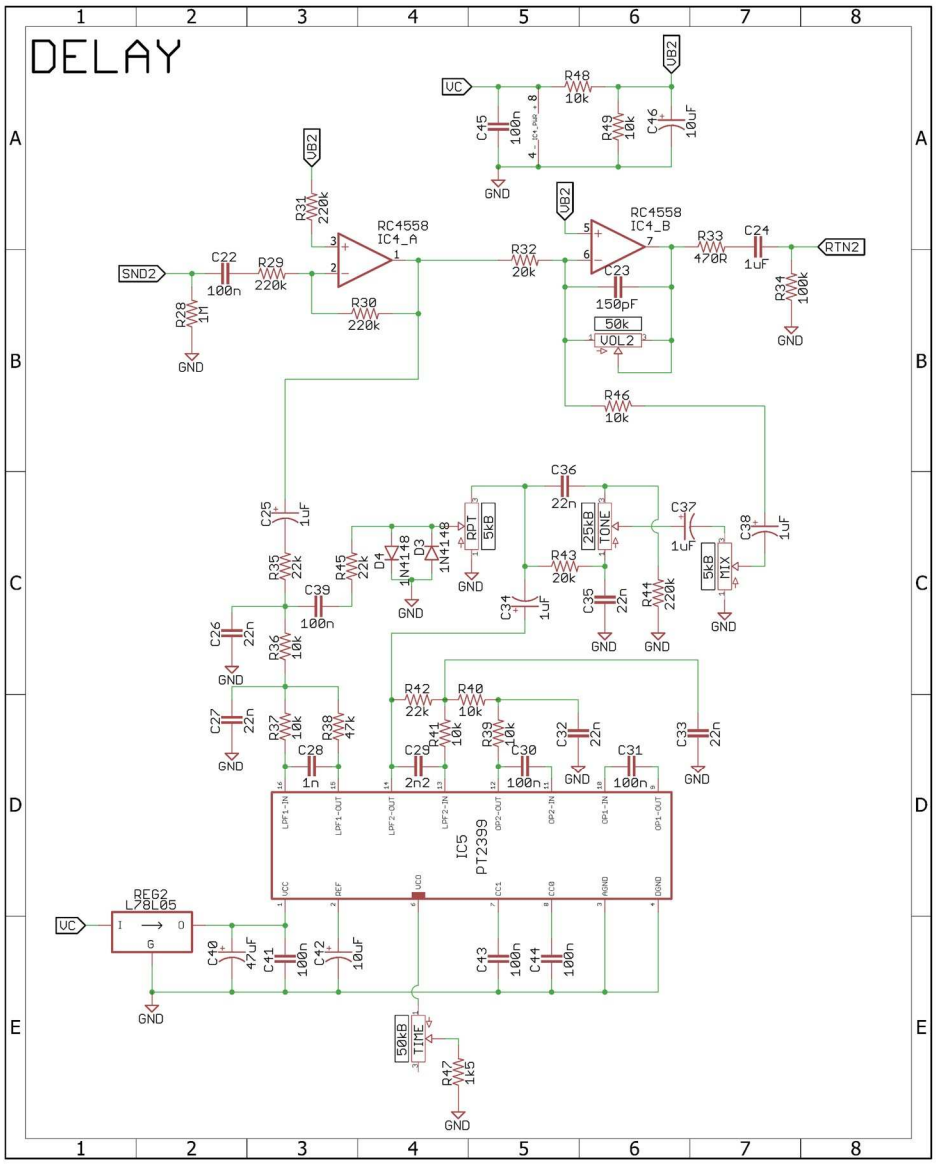
A link for a Tayda Pre-drilled enclosure is on the Shop page at GuitarPCB.com



Easy Wiring Guide – Install the 3PDT switch on the bottom. CLR is the Top.

Schematic Part 1:





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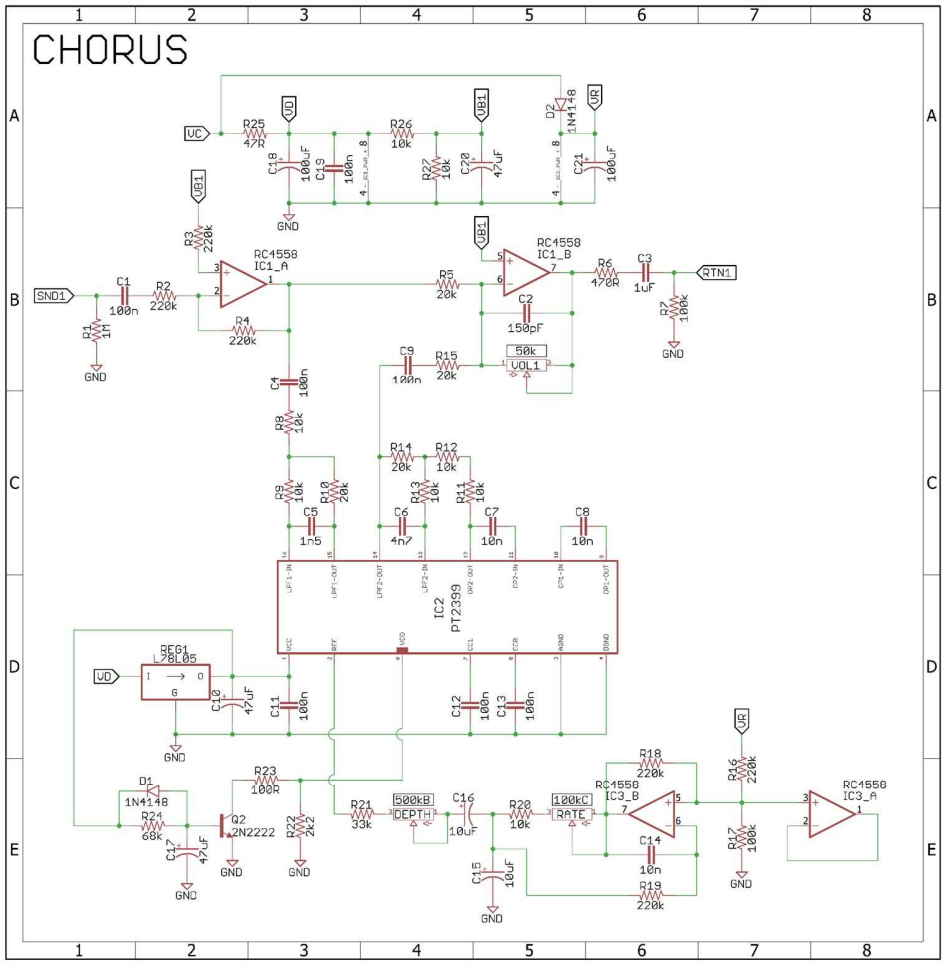
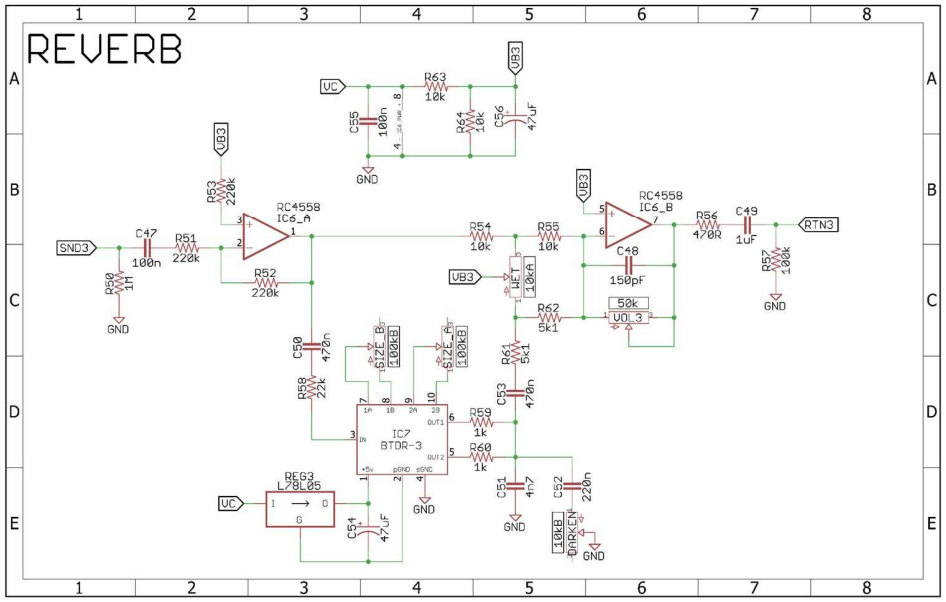
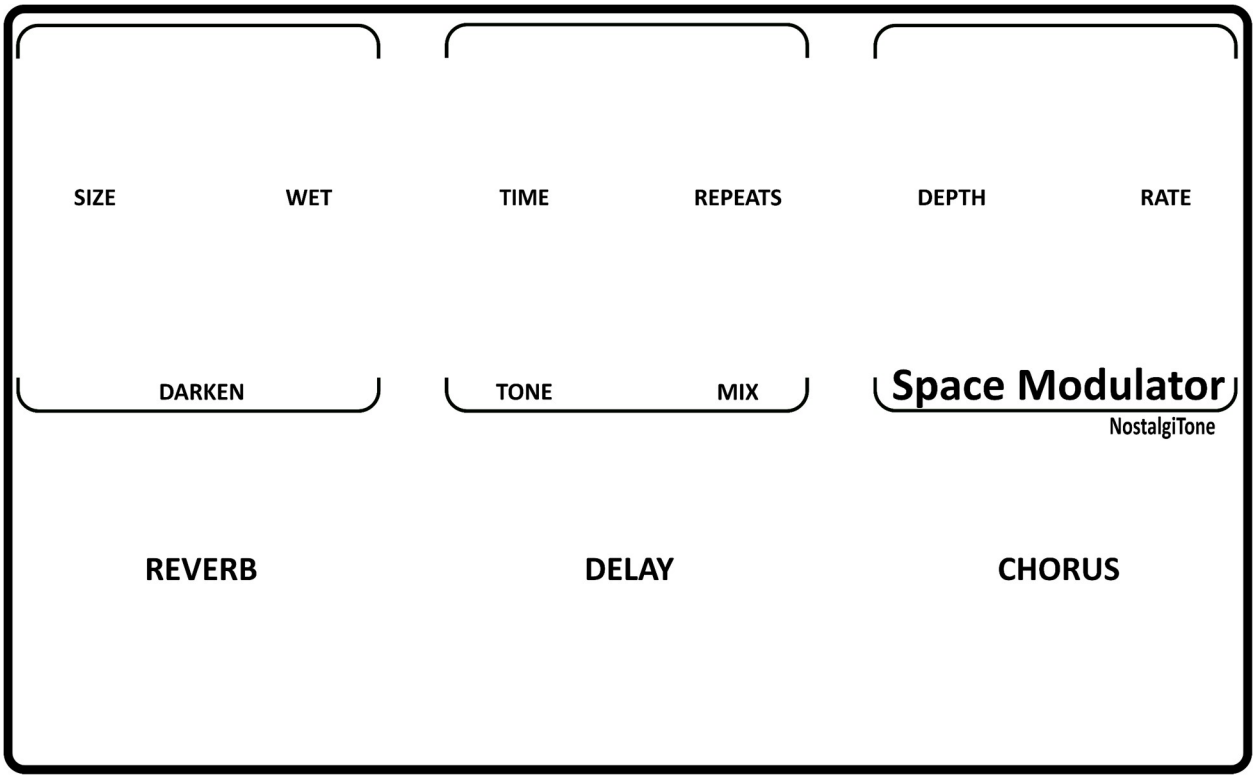
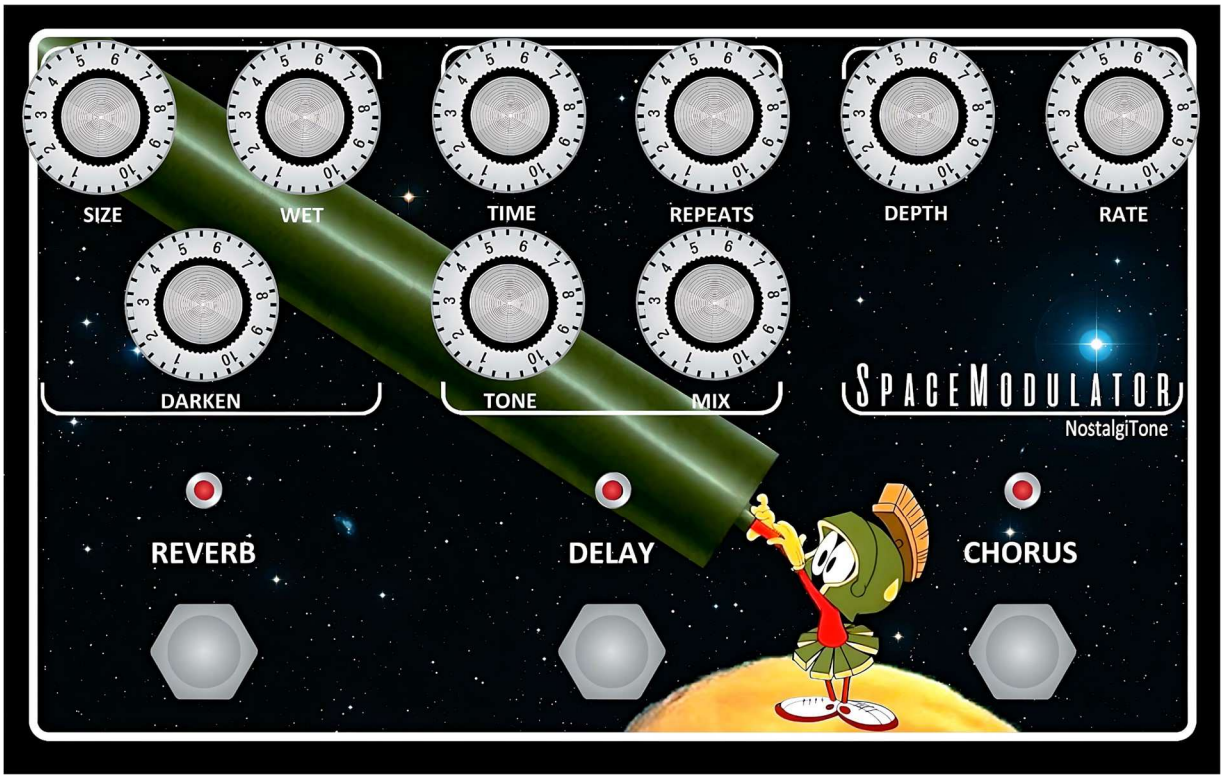




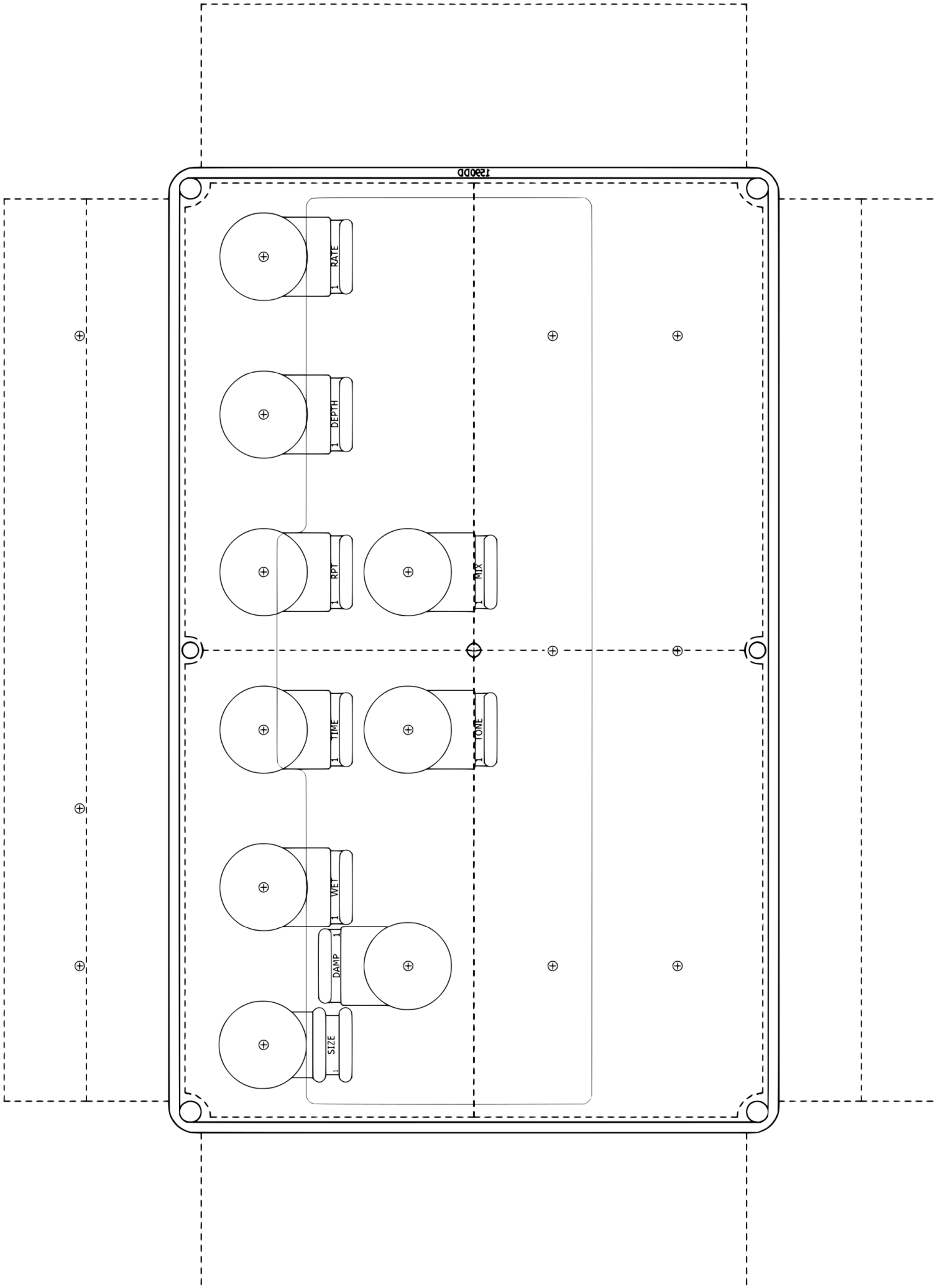
Decal Image: Obtain a High-Resolution version at the Shop Page where you purchased this PCB.



An example of a finished enclosure is below. See the Shop Page for the Artwork download.



Drill Template Tip: Set printer settings to "Actual Size" or "100%" (not "Fit to Page") before printing. If needed, adjust your printer's margin settings or use "Borderless" printing. Verify before drilling.


1590DD
RATE
DEPTH
RPT
MIX
TIME
TONE
WET
DAMP
SIZE