
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.

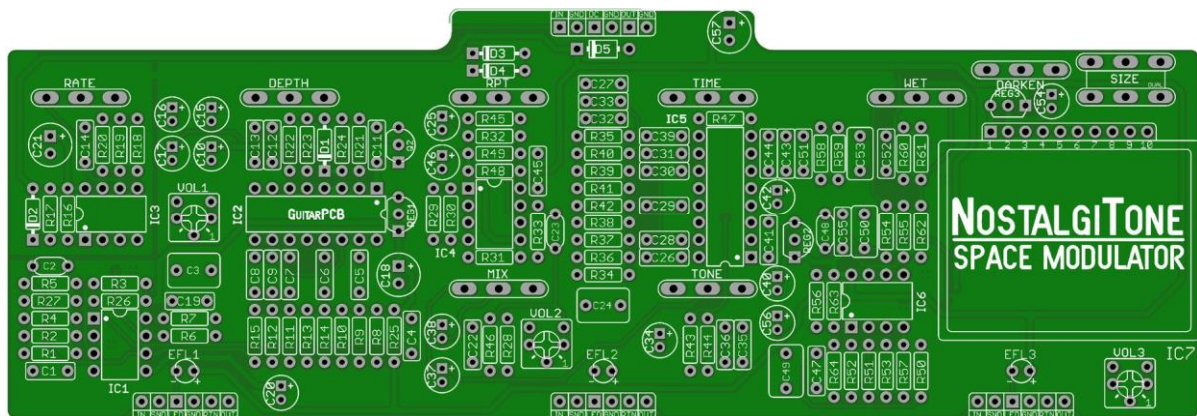
Though it has a slightly higher component count than previous NostalgiTone releases, the Space Modulator is still a **straightforward, step-by-step build**. The three circuits—Chorus, Delay, and Reverb—are designed to work together, creating a **seamless tonal experience**. Just follow the process, and 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	Part	Value	Part	Value	Part	Value	Part	Value	Part	Value
R1	1M	R26	10k	R51	220k	C11	100n	C36	22n	RATE	C100K
R2	220k	R27	10k	R52	220k	C12	100n	C37	1uF	DEPTH	B500K
R3	220k	R28	1M	R53	220k	C13	100n	C38	1uF		
R4	220k	R29	220k	R54	10k	C14	10n	C39	100n	RPT	B5K
R5	20k	R30	220k	R55	10k	C15	10uF	C40	47uF	TIME	B50K
R6	470R	R31	220k	R56	470R	C16	10uF	C41	100n	TONE	B25K
R7	100k	R32	20k	R57	100k	C17	47uF	C42	10uF	MIX	B5K
R8	10k	R33	470R	R58	22k	C18	100uF	C43	100n		
R9	10k	R34	100k	R59	1k	C19	100n	C44	100n	SIZE	B100K Dual Gang
R10	20k	R35	22k	R60	1k	C20	47uF	C45	100n	DARKEN	B10K
R11	10k	R36	10k	R61	5k1	C21	100uF	C46	10uF	WET	A10K
R12	10k	R37	10k	R62	5k1	C22	100n	C47	100n		
R13	10k	R38	47k	R63	10k	C23	150pF	C48	150pF	D1 - D4	1N4148
R14	20k	R39	10k	R64	10k	C24	1uF	C49	1uF	D5	1N5817
R15	20k	R40	10k			C25	1uF	C50	470n	Q2 - No Q1	2N2222
R16	220k	R41	10k	C1	100n	C26	22n	C51	4n7	REG1 - 3	L78L05
R17	100k	R42	22k	C2	150pF	C27	22n	C52	220n	IC1	RC4558
R18	220k	R43	20k	C3	1uF	C28	1n	C53	470n	IC2	PT2399
R19	220k	R44	220k	C4	100n	C29	2n2	C54	47uF	IC3	RC4558
R20	10k	R45	22k	C5	1n5	C30	100n	C55	100n	IC4	RC4558
R21	33k	R46	10k	C6	4n7	C31	100n	C56	47uF	IC5	PT2399
R22	2k2	R47	1k5	C7	10n	C32	22n	C57	220uF	IC6	RC4558
R23	100R	R48	10k	C8	10n	C33	22n	VOL1 - Trim	50k	IC7	BTDR-3H
R24	68k	R49	10k	C9	100n	C34	1uF	VOL2 - Trim	50k	EF1 - 3	Status LED
R25	47R	R50	1M	C10	47uF	C35	22n	VOL3 - Trim	50k	EF1 - 3	6PIN.HD



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. Alternatively, you may use 2N3904.
- Avoid changing the values of resistors, capacitors, or potentiometer tapers, as they play a crucial role in the functionality.

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.

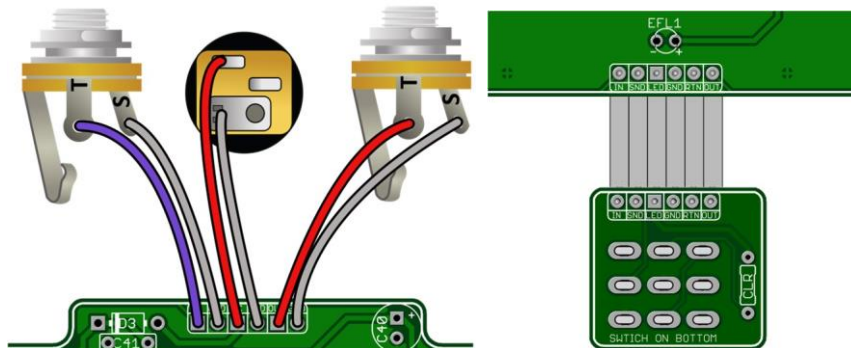
Power Supply: Always use a 9-volt power supply (nothing higher) with a 2.1mm plug and a negative tip.

Power Supply Requirements: To ensure optimal performance of the pedal, use a power supply capable of providing at least 100mA of current.



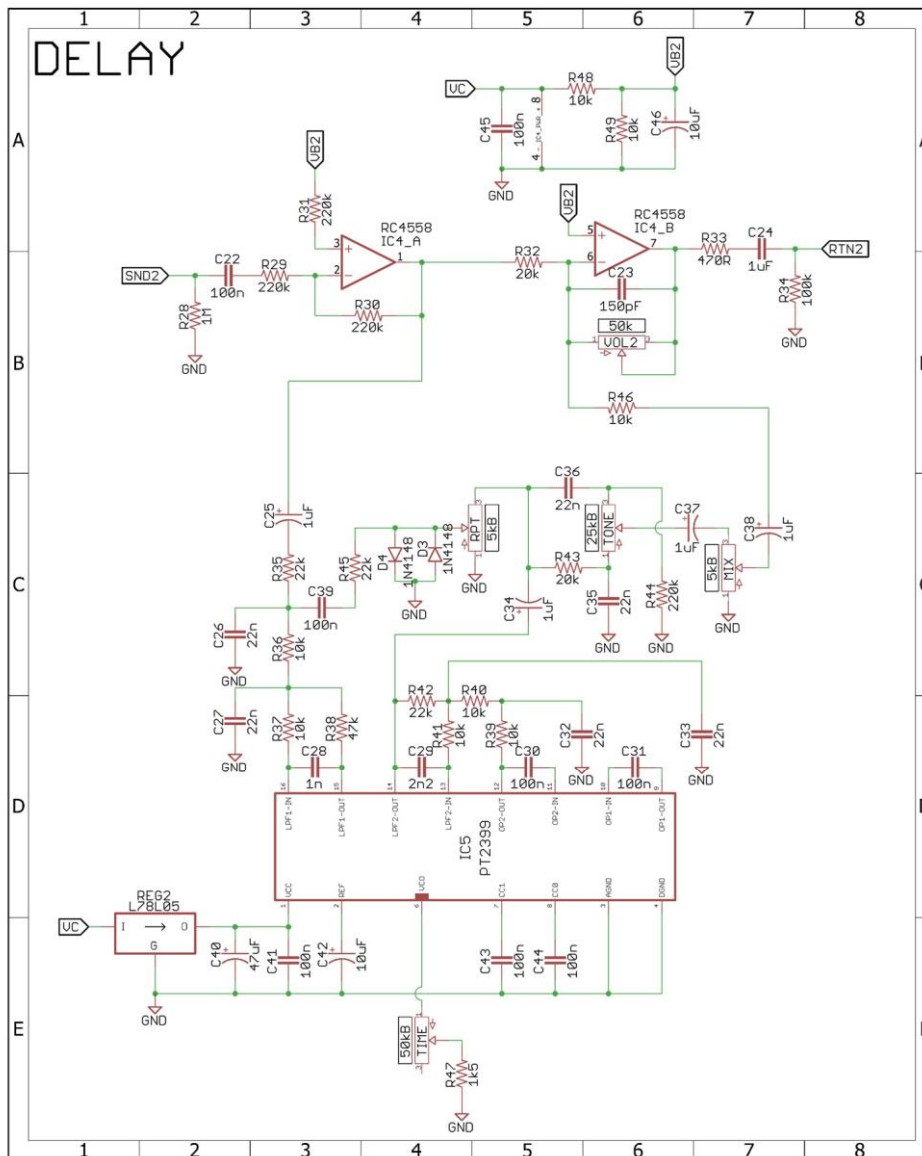
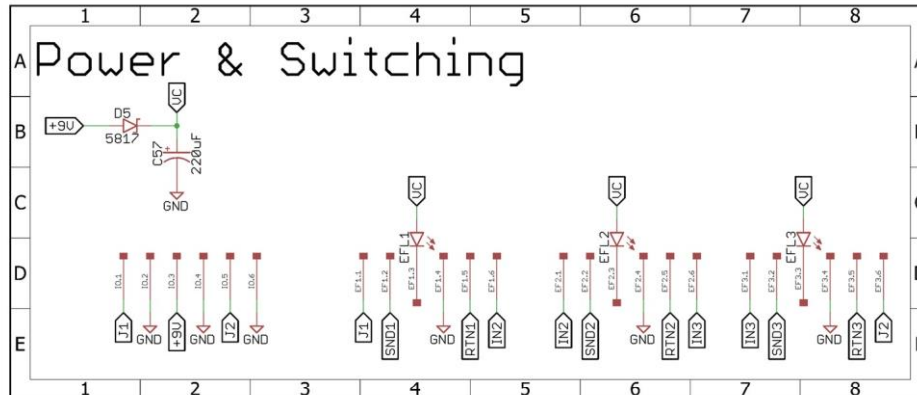
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A link for a Tayda Pre-drilled enclosure is on the Shop page at GuitarPCB.com

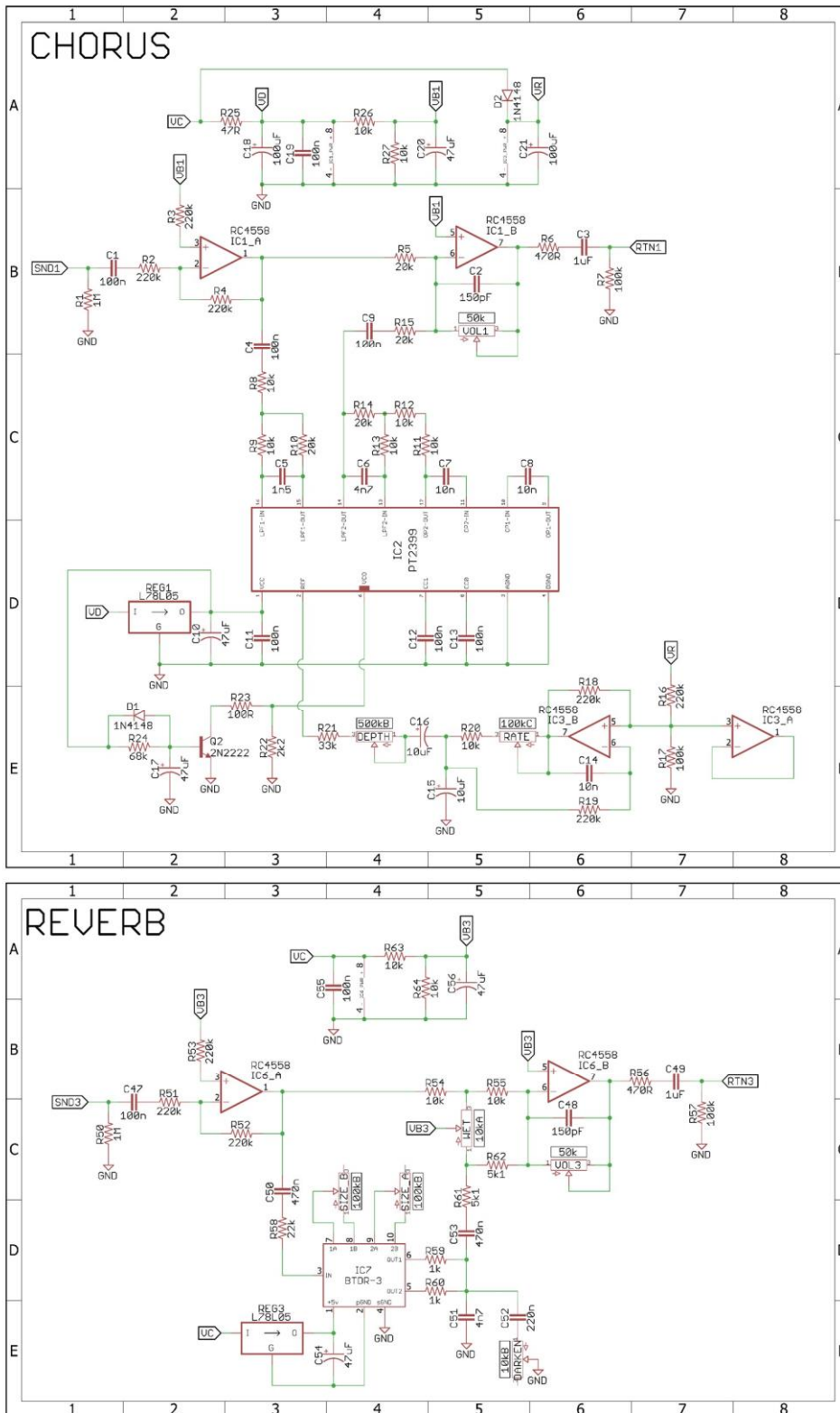


Easy Wiring Guide – Install the 3PDT switch on the bottom. CLR is the Top.

Schematic Part 1:



Schematic Part 2:



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

SIZE		WET		TIME		REPEATS		DEPTH		RATE	
DARKEN			TONE			MIX			Space Modulator NostalgiTone		
REVERB				DELAY				CHORUS			

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

