Zephyr Stereo Chorus

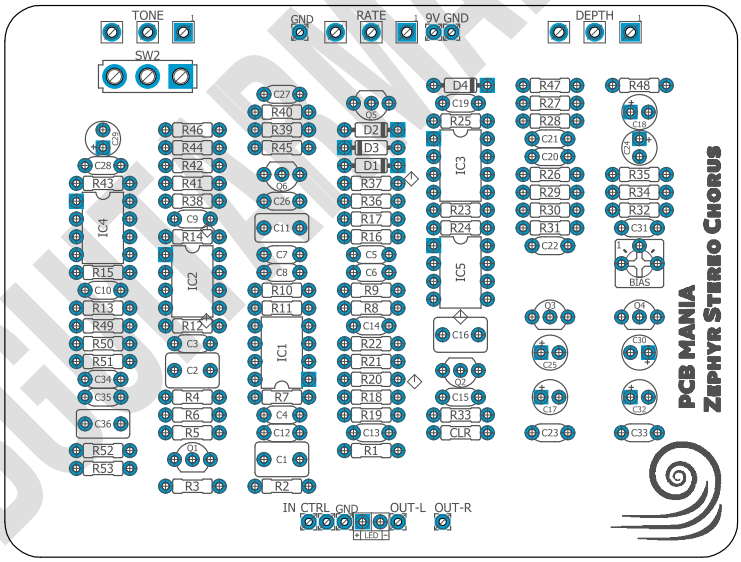
Based on:
Arion SCH-1 Stereo Chorus
Effect type:
Stereo Analog Chorus
Build difficult:
Advanced

Amount of parts:
High, total 111 components
Technology:
MN3207
Power consumption:
9V

Enclosure type:
1790NS
Get your board at:
Zephyr Stereo Chorus
Get your kit at:
Das Musikding (Europe)

Project overview:

Inspired by Arion SCH-1 Stereo Chorus Effect, a powerful chorus pedal from the 80s almost unobtainable by other means than DIY. Designed to provide you with a high-quality experience, this classic and intuitive board is ready to deliver that gratifying chorus effect that made it so famous in its days.



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Introduction

Zephyr Stereo Chorus is a classic so intuitive and organic that it allows you to jump right into using it without previous knowledge. You can change your waves' rate, depth, and tone till you reach the exact effect you need. Capable of running it into mono or splitting in a really nice stereo, the pleasing Leslie-type sounds will wrap you and your audience like a gentle breeze from all directions.

If you search for the original pedal, you will notice that it's difficult to find and is even more challenging to convince an owner to sell it. Therefore, we decided to add this circuit to our collection so any pedal creator can have his own.

The Tone knob is unusual for a typical chorus pedal, and it will give you a beautiful and unique chorus sound while interacting with the treble frequencies. You can start by setting all the knobs at noon for a nice sixties Leslie chorus type sound or try a widest more eighties-like effect by putting Rate at 9 o'clock, Depth at max, and Tone at 2 o'clock. We recommend trying as many knobs positions as possible because each of them is a breath of fresh air that will inspire your playing.

Controls

- Depth
- Rate
- Tone

Bill of materials

Resistors	
Part	**Value**
CLR	4k7
R1	1m
R2	1k
R3	470k
R4	10k
R5	47k
R6	10k
R7	47k
R8	1k
R9	33k
R10	33k
R11	1m
R12	51k
R13	47k
R14	47k
R15	10k
R16	1k
R17	100k
R18	100k
R19	10k
R20	10k
R21	10k
R22	10k
R23	220r
R24	100k
R25	56k
R26	1m
R27	10k
R28	10k
R29	10k
R30	10k
R31	10k
R32	10k
R33	39k
R34	10k
R35	1k5
R36	160k
R37	3k3
R38	33k
R39	10k
R40	390k
R41	470k
R42	5k6
R43	1m
R44	470k
R45	10k
R46	10k
R47	8k2
R48	10k
R49	47k
R50	47k
R51	10k
R52	1k
R53	100k

Capacitors	
Part	**Value**
C1	1u
C2	1u
C3	6n8
C4	100p
C5	2n2
C6	15n
C7	10n
C8	10n
C9	100p
C10	6n8
C11	470n
C12	33n
C13	3n3
C14	8n2
C15	470p
C16	1u
C19	22n
C20	4n7
C21	8n2
C22	470p
C23	22n
C26	47p
C27	22n
C28	100n

C31	100n
C33	100n
C34	100p
C35	6n8
C36	470n

Electrolytics Capacitors	
Part	**Value**
C17	10u
C18	4u7
C24	10u
C25	220u
C29	22u
C30	100u
C32	10u

Potentiometers	
Part	**Value**
DEPTH	100k B
RATE	100k B
TONE	100k B

Trimpots	
Part	**Value**
BIAS	100k

IC	
Part	**Value**
IC1	TL072
IC2	TL072
IC3	MN3207
IC4	TL072
IC5	MN3102

Transistors	
Part	**Value**
Q1	BC550
Q2	BC550
Q3	BC550
Q4	BC550
Q5	BC550
Q6	BC550

Switches	
Part	**Value**
SW2	SPDT ON/ON

Diods	
Part	**Value**
D1	1n914
D2	1n914
D3	1n914
D4	1n5817
LED	3mm red LED

Shopping list

Resistors		
Qty	**Value**	**Parts**
4	100k	R17, R18, R24, R53
19	10k	R4, R6, R15, R19, R20, R21, R22, R27, R28, R29, R30, R31, R32, R34, R39, R45, R46, R48, R51
1	160k	R36
4	1k	R2, R8, R16, R52
1	1k5	R35
4	1m	R1, R11, R26, R43
1	220r	R23
3	33k	R9, R10, R38
1	390k	R40
1	39k	R33
1	3k3	R37
3	470k	R3, R41, R44
6	47k	R5, R7, R13, R14, R49, R50
1	4k7	CLR
1	51k	R12
1	56k	R25
1	5k6	R42
1	8k2	R47

Capacitors		
Qty	**Value**	**Parts**
3	100n	C28, C31, C33
3	100p	C4, C9, C34
2	10n	C7, C8
1	15n	C6
3	1u	C1, C2, C16
3	22n	C19, C23, C27
1	2n2	C5
1	33n	C12
1	3n3	C13
2	470n	C11, C36
2	470p	C15, C22
1	47p	C26
1	4n7	C20
3	6n8	C3, C10, C35
2	8n2	C14, C21

Electrolytics Capacitors		
Qty	**Value**	**Parts**
1	100u	C30
3	10u	C17, C24, C32
1	220u	C25
1	22u	C29
1	4u7	C18

Potentiometers		
Qty	**Value**	**Parts**
3	100k B	DEPTH, RATE, TONE

Trimpots		
Qty	**Value**	**Parts**
1	100k	BIAS

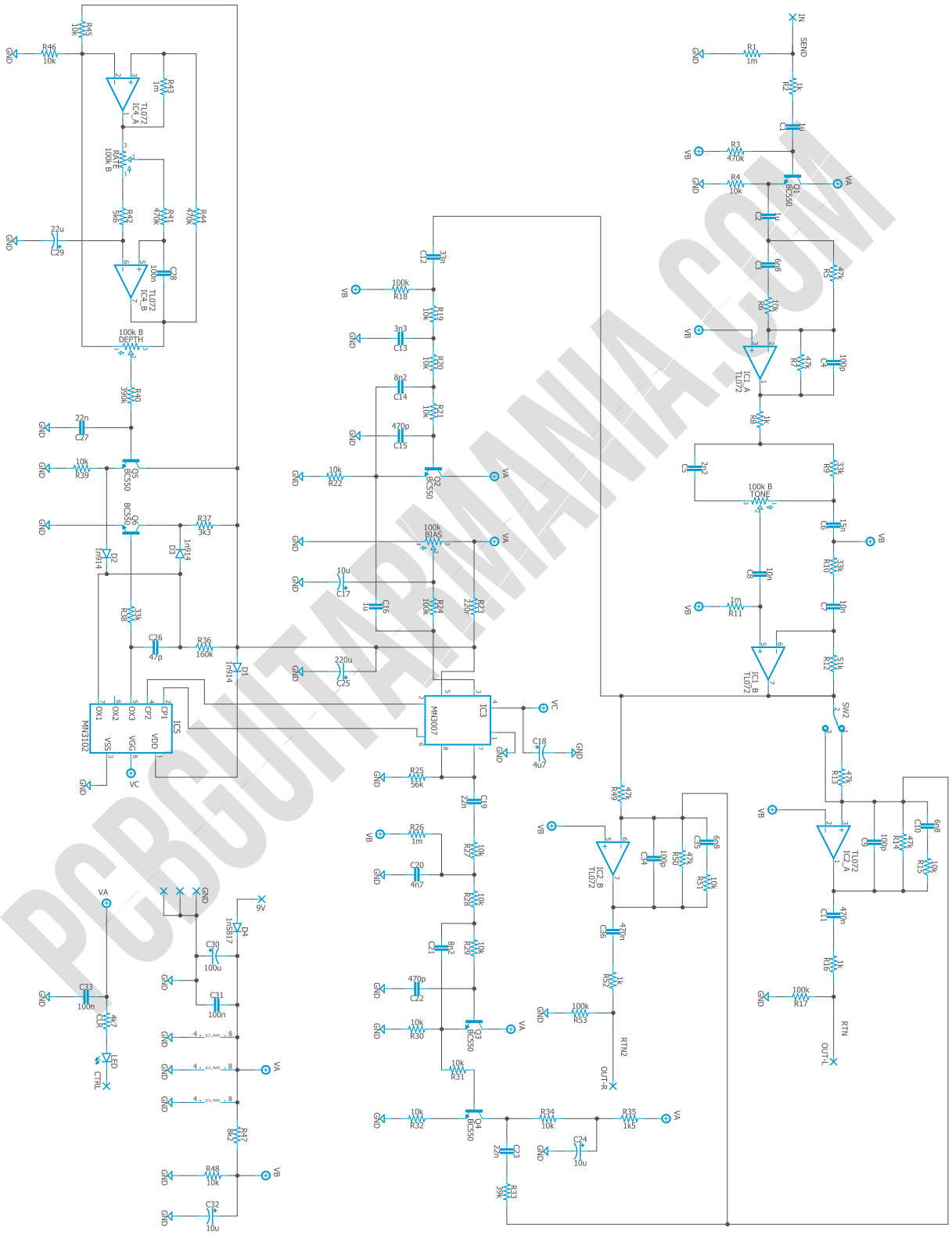
IC		
Qty	**Value**	**Parts**
1	MN3102	IC5
1	MN3207	IC3
3	TL072	IC1, IC2, IC4

Transistors		
Qty	**Value**	**Parts**
6	BC550	Q1, Q2, Q3, Q4, Q5, Q6

Switches		
Qty	**Value**	**Parts**
1	SPDT ON/ON	SW2

Diods		
Qty	**Value**	**Parts**
3	100k B	DEPTH, RATE, TONE
1	1n5817	D4
3	1n914	D1, D2, D3
1	3mm red LED	LED

Schematic



Components Recommendations

As many people like to experiment with some pedals with higher voltage, always ensure your **electrolytic capacitors'** max tolerance is over 25v.

This board has been tested using Film box capacitors for most of the values over 1nf and ceramics discs for those under 1nf. However, high-quality components such as Wima's Capacitors and Panasonic's electrolytics can deliver a better performance.

All the resistors used for testing this project are 1/4W Metal Film.

The BOM and Shopping list are exclusive regarding this project. It doesn't include all the hardware like the 3PDT bypass switch, audio/dc jacks, enclosure, etc.

Build Notes

If this is one of your first projects, I recommend you to take a look at our Pedal Building Guide.

For a successful and tidy build, it's recommended the following order:

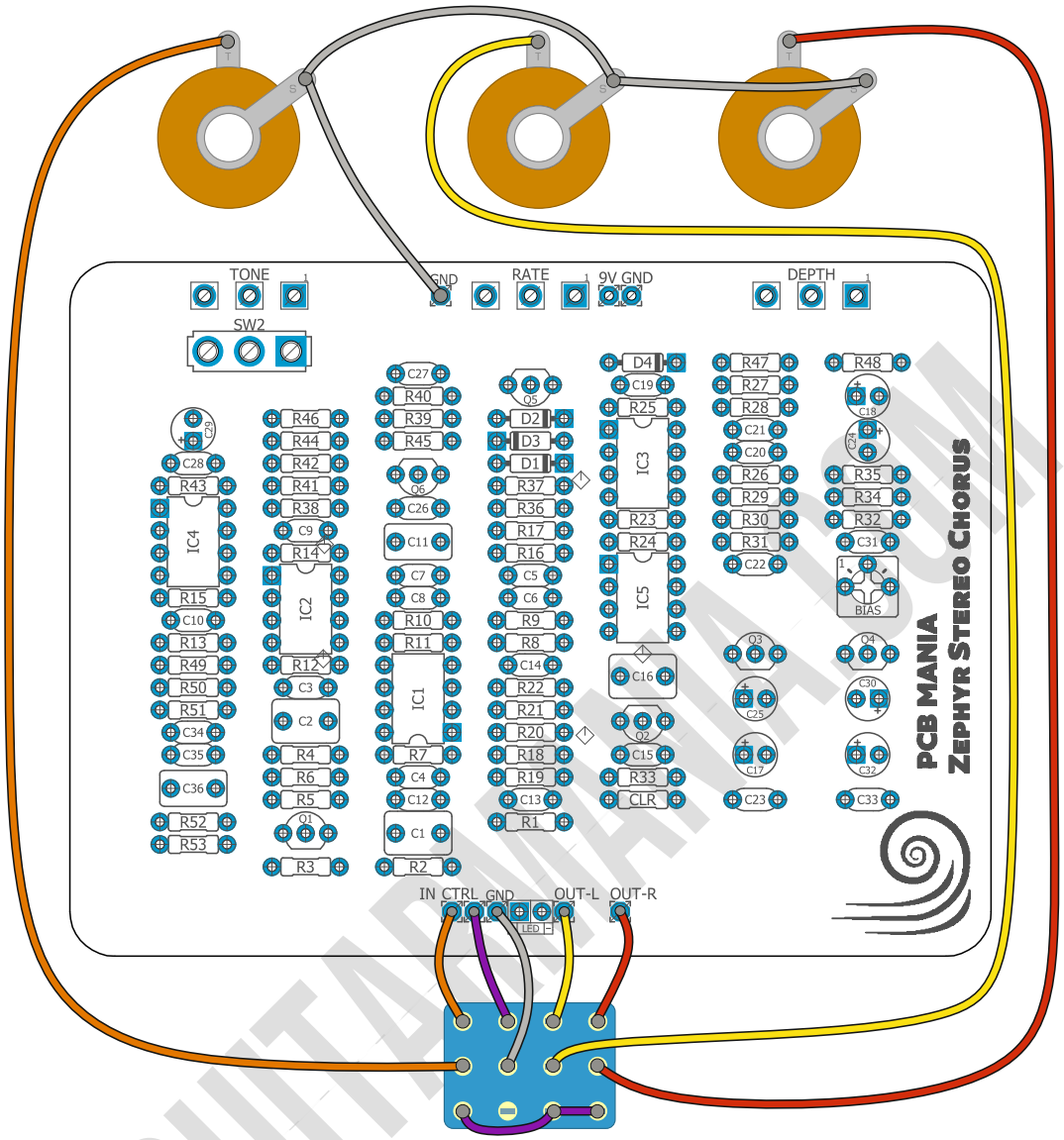
1. Resistors & diodes
2. Capacitors, starting with the smaller ones and the ceramic ones.
3. Electrolytic capacitors (always check the polarity)
4. Transistors
5. Wires
6. Potentiometers and switches
7. Off-board wiring

Wiring Diagram

All our projects include a free 3PDT Board to make the wiring easier and tidier. Also, all of our PCBs feature the status LED on board.

The pad named "Ctrl" or "LED" is the one that controls the status of the led; wire it to the "LED" pad on the 3PDT board or in the control slug of your 3PDT.

This board has been designed to match our EZ 3PDT PCB; check it here to access our Pedal Wiring Guide.



Drill Template

This Project has been planned to fit into a 1590bb enclosure type.

Check the Attached “Drilling templates” to drill the box properly. The files are on Scale 1:1, ready to print on an A4 page.

Licensing and Usage

We really appreciate your trust and support in buying this PCB, as well as your will to dive into the DIY electronics world. For us, that's why you can make this project work properly and enjoy not only the building process but also experiment and play with it on your rig.

We try to reply to every question we receive on our email or our social media. Still, we try to encourage all our customers to join our PCB Guitar Mania – Builders Group on Facebook to post all your doubts, issues, suggestions, or requests, share your builds, and have some feedback from other fellow builders and us!

We tested all our projects following this same guide on their standard configurations. Although, not all of the variations and mods have necessarily been checked. These are suggestions based on the schematic analysis and the experiences and opinions of others. Feel free to share with us your views and recommendations regarding the mods your personal experimentation.

These boards may be used for commercial endeavors in any quantity unless expressly noted. No attribution is necessary, though accreditation or a link back is always much appreciated.

If you are a builder planning to make your own run of pedals, we also offer the service of custom-made boards with your brand and logo, design according to your specifications.

The only usage restrictions are that, first, you cannot resell the PCB as part of a kit without prior arrangement with us, and second, you cannot scratch off the silkscreen or other way of trying to hide our logos and the source of the PCBs. Like it's written above, if you want to have your designs with your brand and logo, we could undoubtedly reach an agreement.

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