

Transponder

F X Type: **DELAY**

Build Level: Intermediate

Based On: EQD® Disaster Transport Jr™

Last Updated: April 25, 2024 9:20 AM

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Overview

From the [Earthquaker Devices website](#)

“The Disaster Transport JR is an analog voiced digital delay with 625ms delay time with an all analog dry signal path and true bypass switching. It was designed as an anti-modern delay for those who appreciate a nice vintage tape echo with all it’s peculiarities. Its unique tone control doubles as a noise filter on longer delay settings and really helps the delay shine with a dirty signal. The mix control allows you to boost the effected signal to nearly 4x the original signal level and the repeats control goes from one signal repeat to near infinite repeats all the way through to self oscillation.”

The Disaster Transport Jr™ is essentially a Tonepad Rebote 2.5 circuit with a lot of altered values. It’s the YetAnotherReBote of delays. And, it is a fine sounding PT2399 delay being that. In addition to the altered voicing, a Big Muff tone control has been added to the wet signal (you might remember the mbp Zero Point SDX2 from way back in 2015) and clipping diodes in the feedback path. The **Transponder** adds deadastronaut’s [envelope modulation trick](#) to round out the features.

Controls

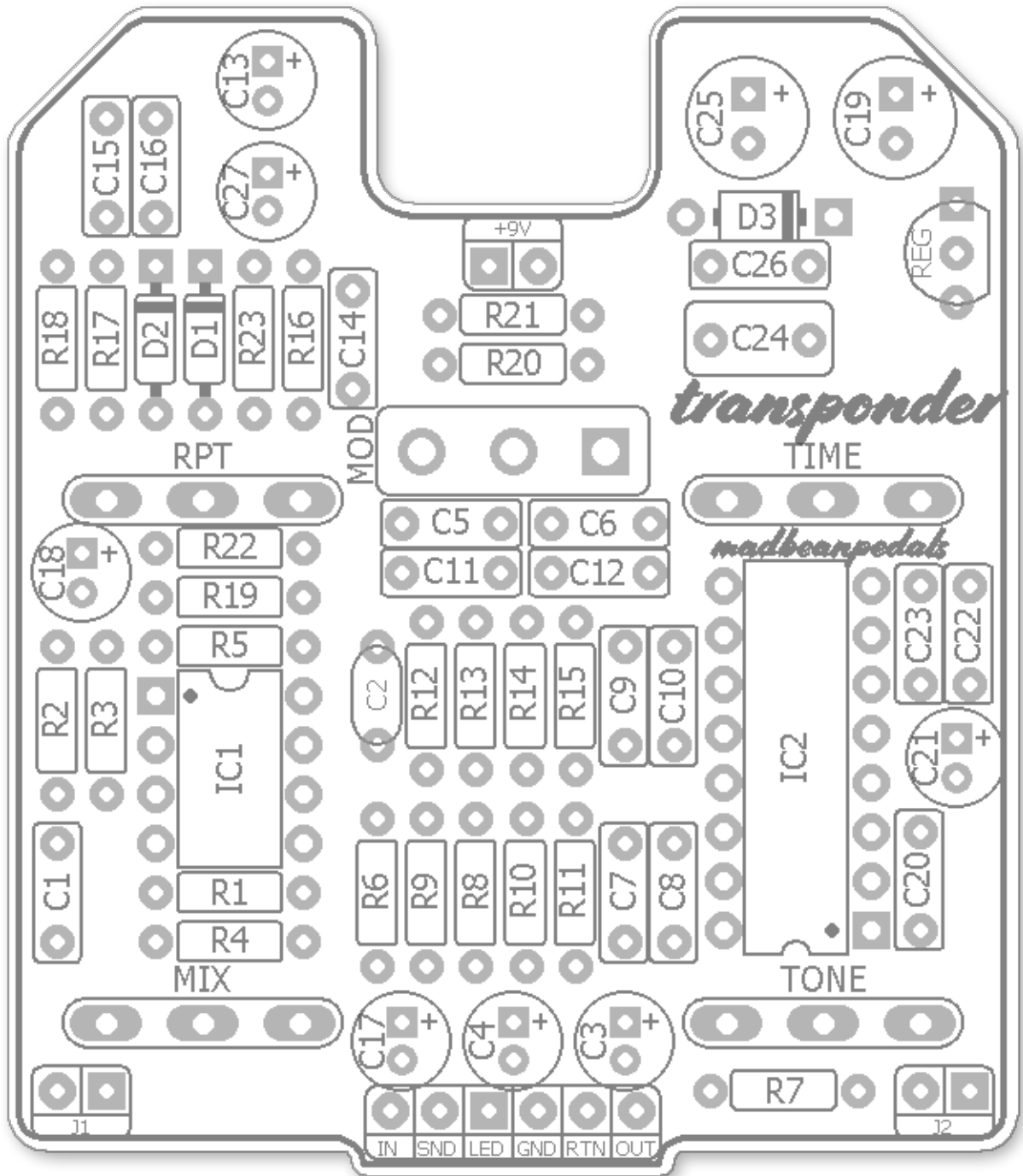
- **MIX:** Amount of wet (delay) signal mixed with the dry.
- **TIME:** Delay time (up to around 600ms or so).
- **RPT:** Delay repeats from one to “infinity” and/or self-oscillation.
- **TONE:** A Big Muff style tone control with unique tonal shaping.
- **MOD:** When switched on (right pos.), a subtle envelope-controlled modulation is added to the wet signal which is controlled by picking dynamics.

Terms of Use: You are free to use purchased **Transponder** circuit boards for both DIY and small commercial operations. You may not offer **Transponder** PCBs for resale or as part of a “kit” in a commercial fashion. Peer to peer re-sale is fine, though.

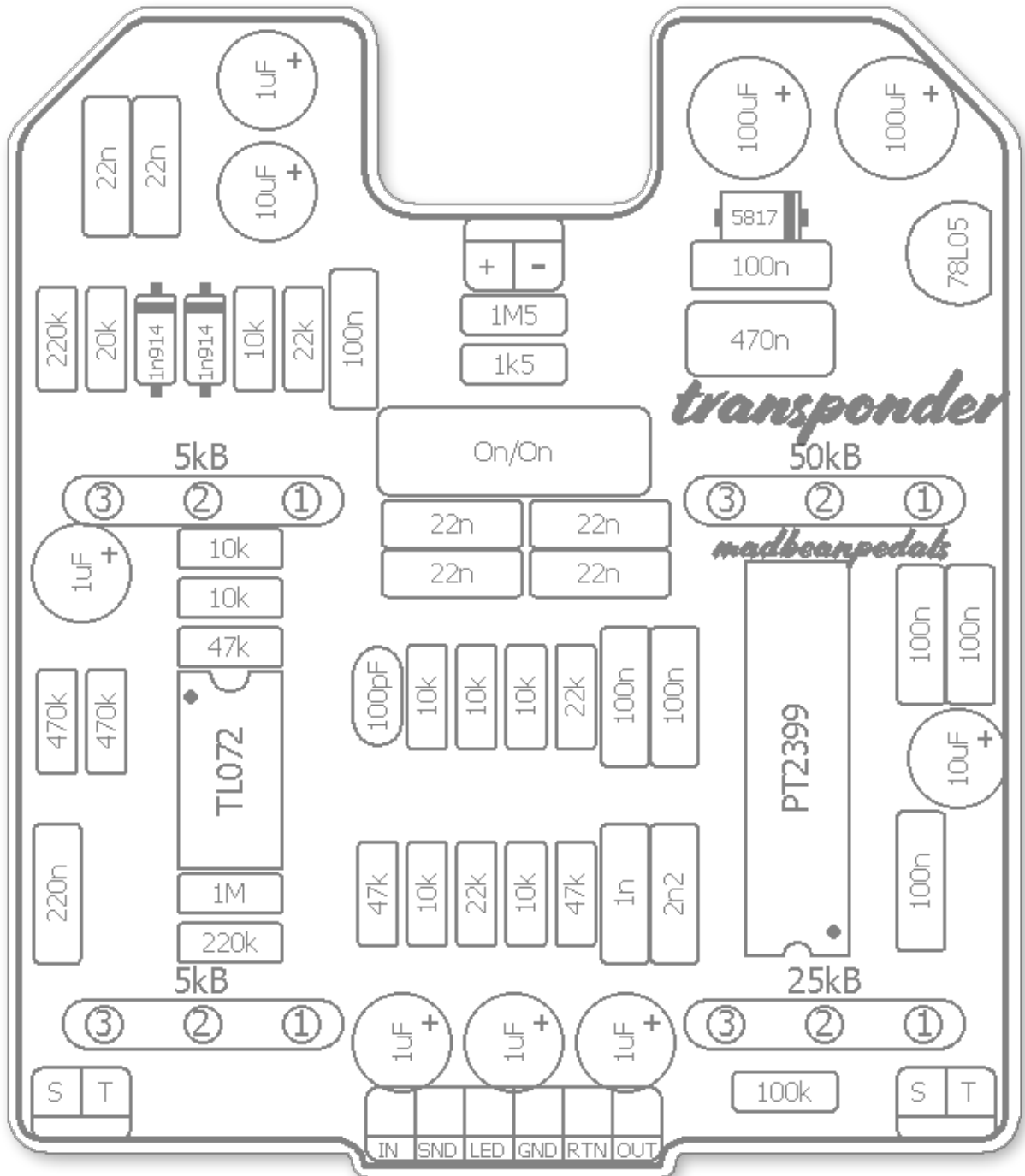
Technical assistance for is available via the [madbeanpedals forum](#). Please go there rather than emailing me for personal assistance. This is because (1) I’m not always available to respond via email in a timely and continuous manner, and (2) posting technical problems and solutions in the forum creates a record from which other members may benefit.

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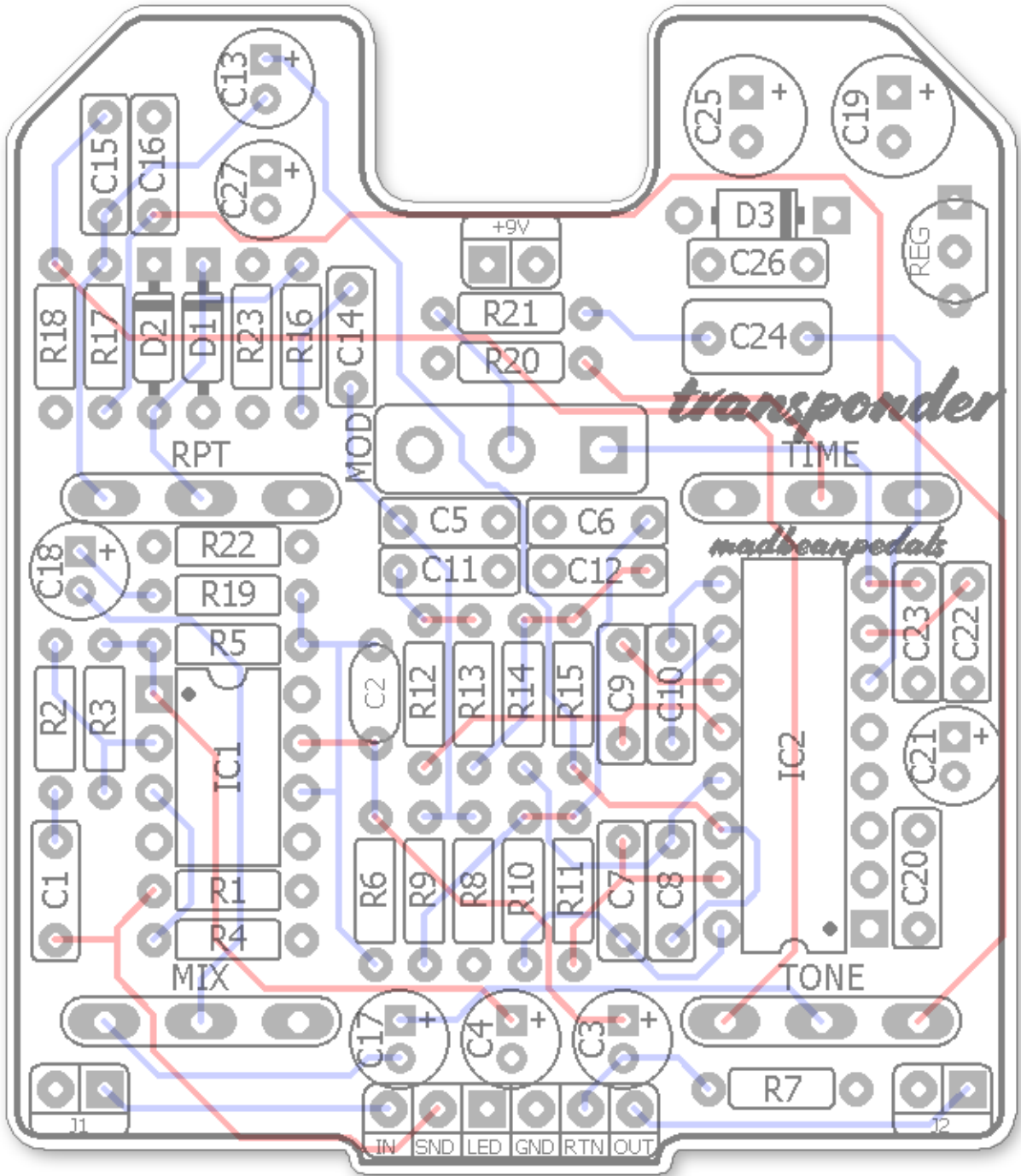
Parts Layout



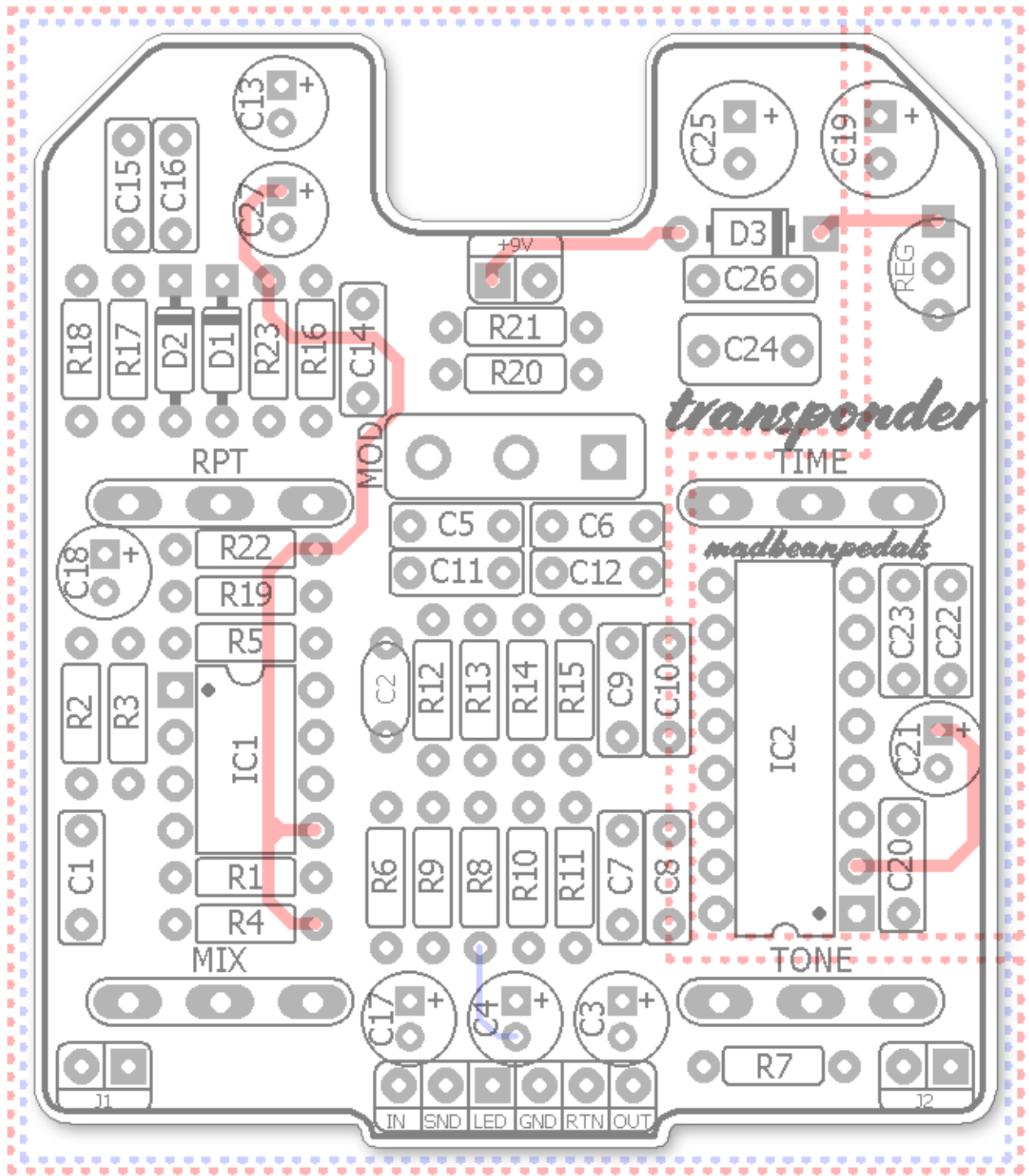
Component Values



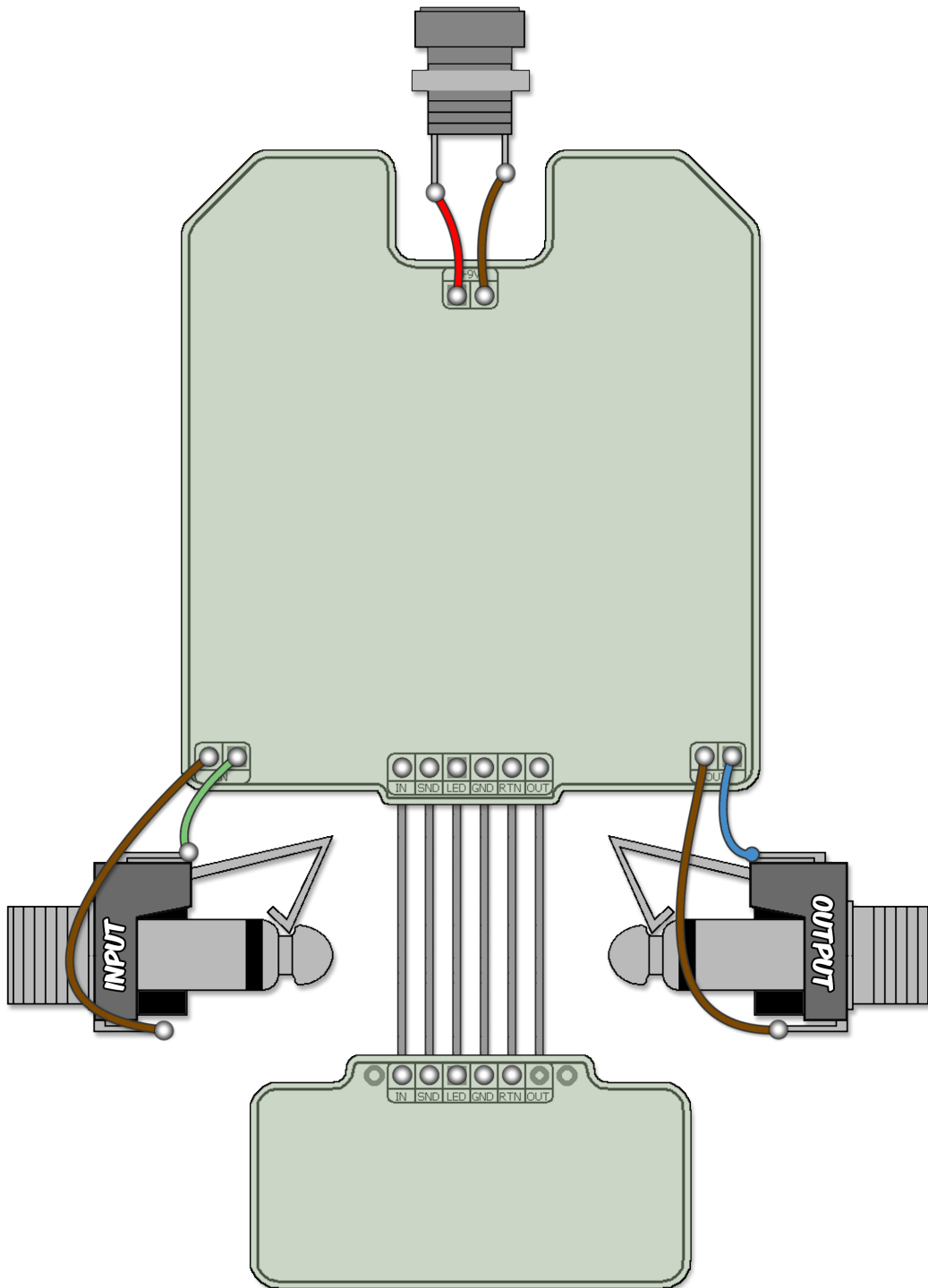
Trace Layout - Outer Layers



Trace Layout - Inner Layers



Wiring



Unless otherwise noted, all Standard Series projects have the same wiring regardless of which 3PDT bypass board is used. A 6-pin, 2" ribbon cable is recommended for soldering the connections between the two PCBs.

B.O.M.

Resistors		Caps		Diodes	
R1	1M	C1	220n	D1	1n914
R2	470k	C2	100pF	D2	1n914
R3	470k	C3	1uF	D3	1n5817
R4	220k	C4	1uF	IC	
R5	47k	C5	22n	IC1	TL072
R6	47k	C6	22n	IC2	PT2399
R7	100k	C7	1n	Regulators	
R8	22k	C8	2n2	REG	78L05
R9	10k	C9	100n	Switches	
R10	10k	C10	100n	MOD	On/On
R11	47k	C11	22n	Pots	
R12	10k	C12	22n	MIX	5kB
R13	10k	C13	1uF	RPT	5kB
R14	10k	C14	100n	TONE	25kB
R15	22k	C15	22n	TIME	50kB
R16	22k	C16	22n		
R17	20k	C17	1uF		
R18	220k	C18	1uF		
R19	10k	C19	100uF		
R20	1k5	C20	100n		
R21	1M5	C21	10uF		
R22	10k	C22	100n		
R23	10k	C23	100n		
		C24	470n		
		C25	100uF		
		C26	100n		
		C27	10uF		

Shopping List

Value	QTY	Type	Rating
1k5	1	Carbon / Metal Film	1/4W
10k	8	Carbon / Metal Film	1/4W
20k	1	Carbon / Metal Film	1/4W
22k	3	Carbon / Metal Film	1/4W
47k	3	Carbon / Metal Film	1/4W
100k	1	Carbon / Metal Film	1/4W
220k	2	Carbon / Metal Film	1/4W
470k	2	Carbon / Metal Film	1/4W
1M	1	Carbon / Metal Film	1/4W
1M5	1	Carbon / Metal Film	1/4W
100pF	1	Ceramic / MLCC	16v min.
1n	1	Film	16v min.
2n2	1	Film	16v min.
22n	6	Film	16v min.
100n	7	Film	16v min.
220n	1	Film	16v min.
470n	1	Film	16v min.
1uF	5	Electrolytic	16v min.
10uF	2	Electrolytic	16v min.
100uF	2	Electrolytic	16v min.
1n914	2		
1n5817	1		
TL072	1		
PT2399	1		
78L05	1		
SPDT	1	On/On, PCB Pin	
5kB	2	PCB Right Angle	16mm
25kB	1	PCB Right Angle	16mm
50kB	1	PCB Right Angle	16mm

Additional Hardware

- (1) 1590B enclosure
- (2) Lumberg 1/4" Compact mono jacks
- (1) Slim 2.1mm DC jack
- (1) Standard 3PDT footswitch
- (1) 5mm LED

Build Notes

- The Transponder should be a fairly easy build, but I recommend it as a third or fourth build if you are completely new to DIY. It is a dense circuit board and some experience in component population and soldering would be advantageous.
- You can expect to adjust the Tone control in conjunction with Time quite often. The first half of the Tone is for longer delay times, when heavier filtering is necessary for the reduced bandwidth of the PT2399. But, at short delay times (under 300ms) you can get a much bright sounding delay. With slapback, the Tone control can be cranked all the way up.

Mods

Two areas you can try modding:

1) Change the diode type for D1 and D2. The clipping diodes clamp the delay repeats so that even with self-oscillation the volume won't get out of control. I did a similar mod on my very first Rebote build. But, in that case I used two 1n4001's instead of 1n914. It's a subtle difference, but it will clip a little less than the 1n914s.

2) You can change the amount of modulation by reducing R21. A 1M5 produces a fairly subtle result. If you want to get into pitch bend territory then try a 1M or 750k. A 470k will produce wild pitch bend when you hit the strings hard. Note that the modulation is one-shot, not continuous. IOW, when you strike a note, the delay will "bloom" rather than the chorus type effect you get from using an LFO. It's a really beautiful sounding effect once you get into it.

Circuit Voltages

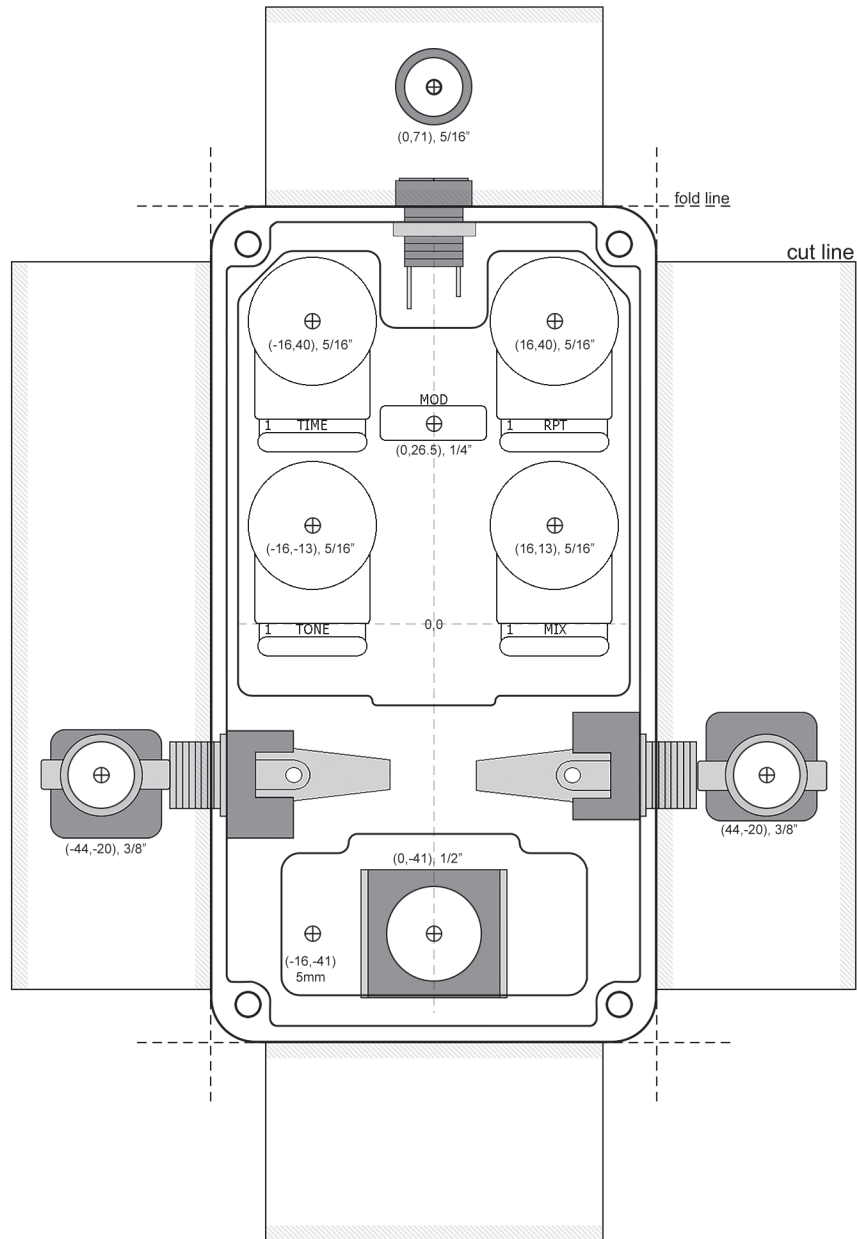
IC1	TL072	IC2	PT2399
1	4.60	1	5.01
2	4.62	2	2.51
3	4.50	3	0
4	0.00	4	0
5	4.60	5	2.81
6	4.60	6	2.5
7	4.61	7	0.73
8	9.20	8	0.76
REG	78L05	9	2.51
I	9.20	10	2.51
G	0.00	11	2.51
O	5.01	12	2.5
		13	2.51
		14	2.52
		15	2.51
		16	2.51

9.44vDC One Spot supply
Current Draw: ~25mA
Knobs @ 50%, Switch Left

1590B Drill Template

Coordinates are denoted in (X,Y), drill size format starting from the center (0,0) location of the enclosure.

[Link to Tayda Standard Series master drill template](#)

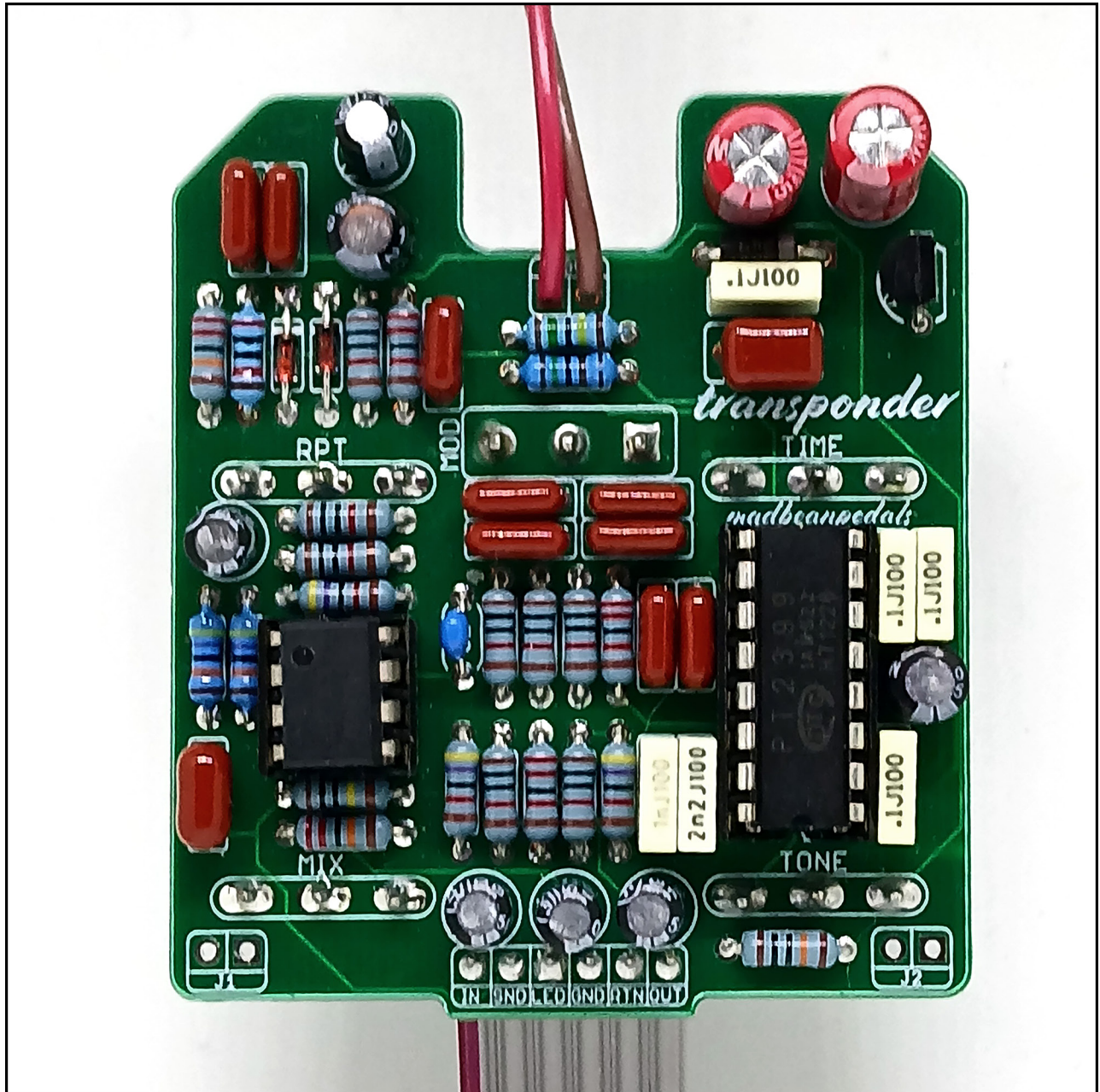


Hardware

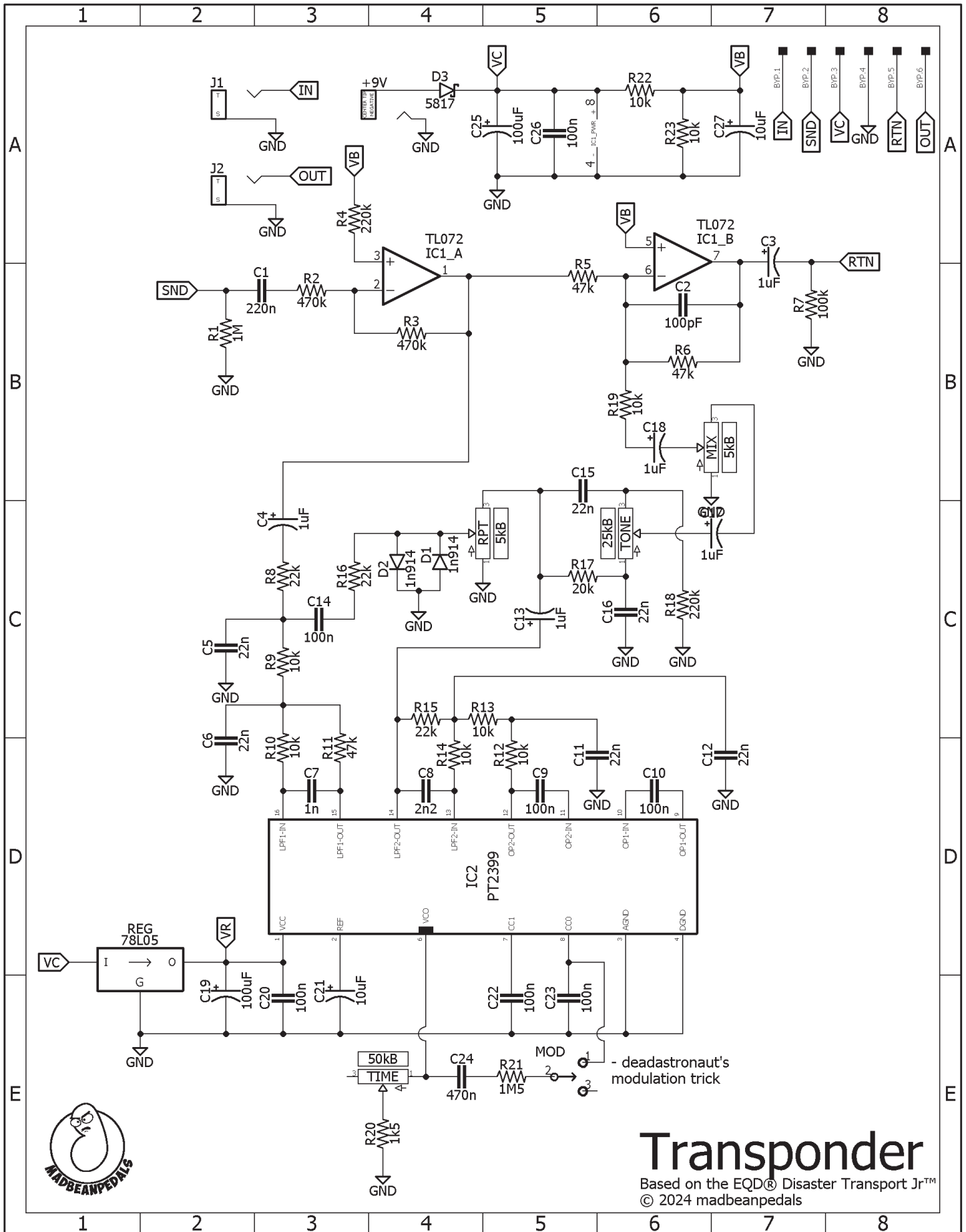
1590B enclosure
16mm pots
Lumberg 1/4" Compact mono jacks
Slim 2.1mm DC jack
Standard 3PDT footswitch
5mm LED

NOTE: Different 1/4" and DC jack styles may require different sized drill holes.

Build Pic



Schematic



Transponder
 Based on the EQD® Disaster Transport Jr™
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