Transport Device

Based on:
EQD's Disaster transportation Jr.

Number of parts:
Average, 60 components

Enclosure type:
125b

Effect type:
Vintage Delay

Technology:
PT-2399

Get your board at:
Transport Device

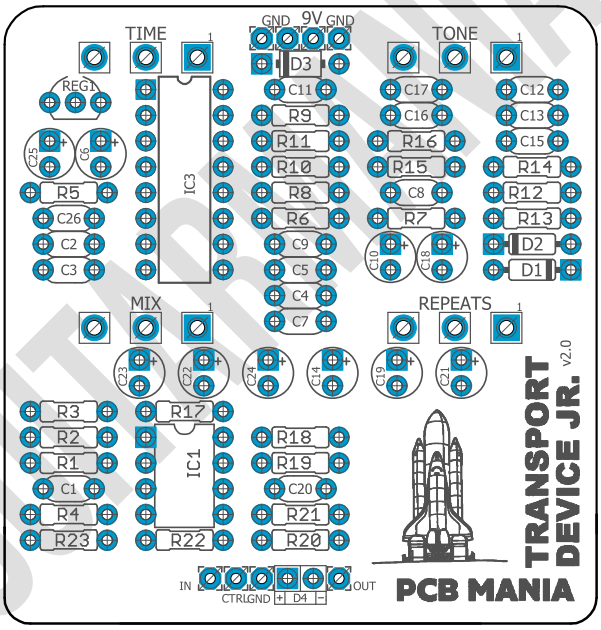
Build difficult:
Intermediate

Power consumption:
9V

Get your kit at:
Das Musikding (Europe)

Project overview:

Inspired by the EQD's Disaster Transportation Jr. This fantastic board is an analog voiced digital delay that features 625ms delay time with an all-analog dry signal path.



Index

Introduction

The Transport Device Jr. is an anti-modern delay for those who appreciate a nice vintage tape echo with all its peculiarities. Its unique tone control equals 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 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.

Controls

- **Repeats:** Sets the regeneration of the delay line. From one single repeat fully counterclockwise, subtle repeats around 9 O'clock, strong naturally decaying repeats at noon, near infinite repeats around 2 O'clo,ck and full-on self-oscillation fully clock- wise.

- **Time:** From about 30ms fully counterclockwise to about 625ms fully clockwise.

- **Tone:** Most delay pedals are heavily filtered at the output to remove the clock noise and other unwanted hash that is common from extending the range of the delay time beyond the limit of the circuitry. This usually leaves the delay sounding dark, muddy and disappear when hitting it with dirt. The Transport Device has done away with a lot of the heavy filtering and replaced it with a tone control which allows the user to choose their desired sound and results in more natural tape-like repeats. The tone control is at its darkest fully counterclockwise and brightens as you turn it clockwise. A good rule of thumb is to leave the tone control between off (fully counterclockwise) and noon at longer delay times. This will remove all the common noise from hyper-extending the circuit.

- **Mix:** Sets the output level of the effected signal. This should be treated as a gain control/master volume for the delay line. Unity is around noon and everything above noon will boost the delayed signal louder than the original. This is a gain control so, like any pedal with a lot of gain, a hint of noise and distortion at max setting is completely normal.

Bill of materials

Resistors	
Part	**Value**
R1	1M
R2	470K
R3	470K
R4	220K
R5	1K
R6	10K
R7	10K
R8	10K
R9	10k
R10	22K
R11	47k
R12	10k
R13	22k
R14	22k
R15	20K
R16	220K
R17	47K
R18	10K
R19	47k
R20	100k
R21	4k7
R22	10K
R23	10K

Capacitors	
Part	**Value**
C1	220n
C2	100n
C3	100n
C4	100n
C5	100n
C7	22n
C8	22n
C9	2n2
C11	1n
C12	22n
C13	22n
C15	100n
C16	22n
C17	22n
C20	100p
C26	100n

Electrolytic Capacitors	
Part	**Value**
C6	10u
C10	1u
C14	1u
C18	1u
C19	1u
C21	1u
C22	100u
C23	10u
C24	100u
C25	100u

Potentiometers	
Part	**Value**
REPEATS	B5k
TIME	B50K
TONE	B25K
MIX	B5K

IC	
Part	**Value**
IC1	TL072
IC2	Pt-2399

Voltage regulator	
Part	**Value**
REG1	**78L05***

Diodes	
Part	**Value**
D1	1n4148
D2	1n4148
D3	1n5817
D4	3mm red LED

Shopping list

Resistors		
Qty	**Value**	**Parts**
8	10K	R6, R7, R8, R9, R12, R18, R22, R23
1	1K	R5
1	1M	R1
1	20K	R15
2	220K	R4, R16
3	22k	R10, R13, R14
2	470K	R2, R3
3	47k	R11, R17, R19
1	4k7	R21
1	100k	R20

Capacitors		
Qty	**Value**	**Parts**
6	22n	C7, C8, C12, C13, C16, C17
1	2n2	C9
1	220n	C1
6	100n	C2, C3, C4, C5, C15, C26
1	100p	C20
1	1n	C11

Electrolytic Capacitors		
Qty	**Value**	**Parts**
5	1u	C10, C14, C18, C19, C21
3	100u	C22, C24, C25
2	10u	C6, C23

IC		
Qty	**Value**	**Parts**
1	TL072	IC1
1	Pt-2399	IC3

Voltage Regulator		
Qty	**Value**	**Parts**
1	**78L05***	Reg1

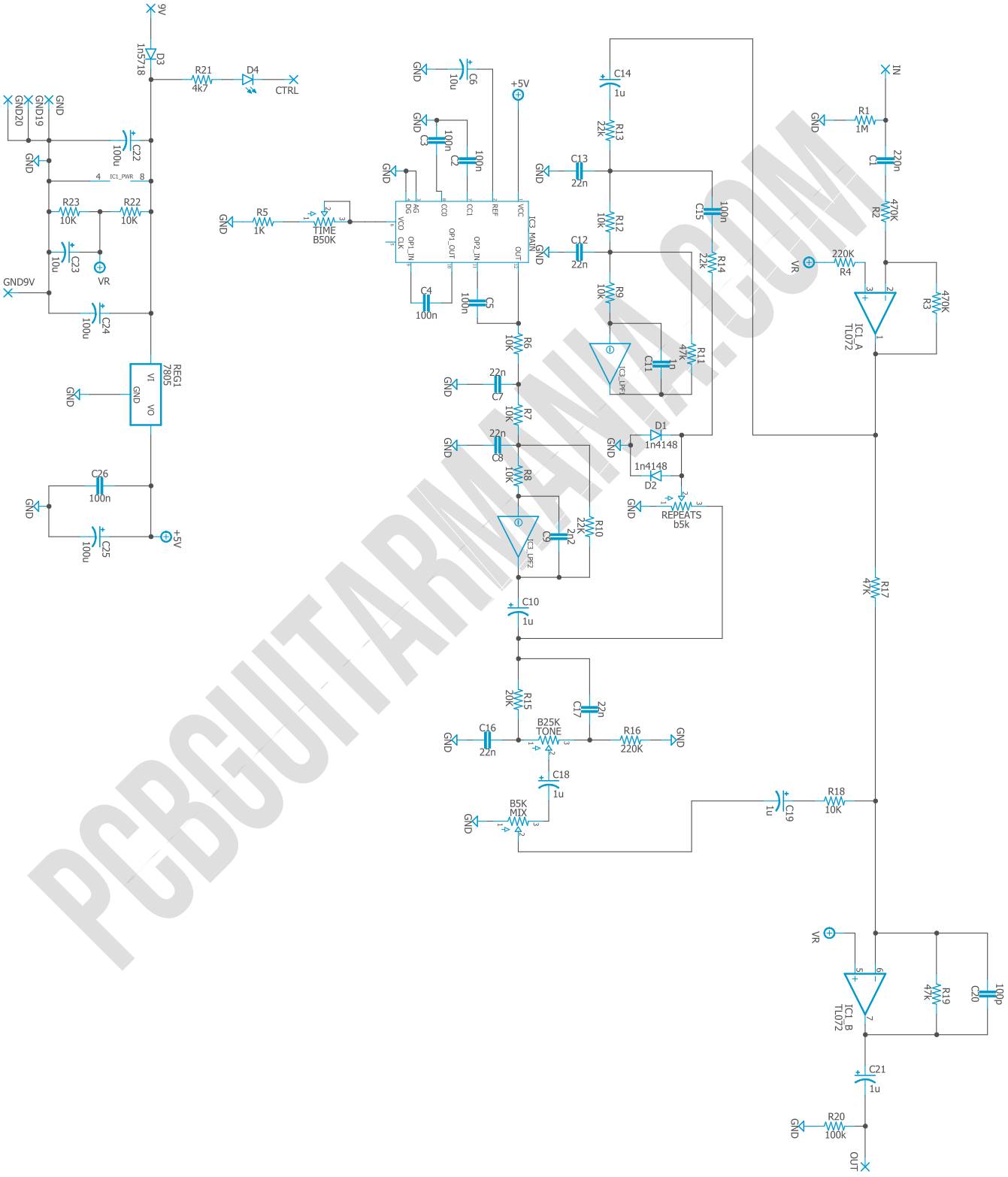
Potentiometers		
Qty	**Value**	**Parts**
1	B25K	TONE
1	B50K	TIME
2	B5K	MIX, REPEATS

Diodes		
Qty	**Value**	**Parts**
2	1n4148	D1, D2
1	1n5817	D3
1	3mm red LED	4D

Switches		
Qty	**Value**	**Parts**
1	3PDT Stomp foot	-

Jacks		
Qty	**Value**	**Parts**
1	DC Jack	-
2	Audio Jack	-

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

78L05*:

It is recommended to use a 78L05 on a TO-92 package.

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 125b 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.

Follow us on Instagram and Facebook to stay in tune with the latest projects!