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Conductor’s Hand

Build Document

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Introduction

This board is designed to be the full-featured Engineer's Thumb (version 1) by Valve Wizard. It has five external pots and a switch.

The main schematic provided by Valve Wizard is two knobs with no switch. I had a hard time finding PCBs that give all the options, so here you go.

Bill of Materials

Resistors

P/N	Value	Notes
R1	10M	Pull down resistor. Valve Wizard says "Any value 1M to 10M will do."
R2	1k	
R3	1M	
R4	1M	
R6	1k	
R7	10k	
R8	220R	
R9	1k	
R11	100R	
R12*	1M	See notes below.
R13	1k	
R14	1k	
R15	1M	
R16	10k	
R18	10k	

Diodes

I obtained all of my diodes from Tayda.

P/N	Value	Notes
D1	1N4148	
D2	1N4148	
D3	1N4148	
D4	1N400x	Polarity protection.
D7	3mm Red LED	Protection LED. Use only cheap red GaAs 3mm LED (from Valve Wizard).
D8	3mm Red LED	Protection LED. Use only cheap red GaAs 3mm LED (from Valve Wizard).

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Capacitors

I obtained all of my caps from Tayda.

P/N	Value	Type	Notes from Valve Wizard
C1	10n		Reduce for bass cut (e.g. – 1n)
C2	100p		
C3	10u		Up to 47u will do
C4	1u	MLCC	
C5	1u	MLCC	
C6	47u		Up to 100u will do
C7	100n		100n to 2.2u will do
C8	4n7		

Integrated Circuits

I obtained all of my integrated circuits from Tayda.

P/N	Value	Notes from Valve Wizard
IC1	TL072	Or TL062/TL082/TLE2072
IC2	TL072	Or TL062/TL082/TLE2072
LM13700	LM13700N	Or LM13600

Transistors

I obtained all of my transistors from Tayda.

P/N	Value	Notes
Q1	2N3906	

Potentiometers

I obtained all of my potentiometers from Tayda

P/N	Value	Notes
ATTACK	B100k	Version 2 uses an A100k.
LEVEL	A10k	
RATIO	A1M	
RELEASE	B1M	I have no proof of this, but if version 2 uses a log for Attack, perhaps a log is better here?
THRESHOLD	B1M	
T_ATTACK	100k	Omit unless doing internal attack only. See notes.
T_RELEASE	1M	Omit unless doing internal release only. See notes.

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Switches

I obtained all of my switches from Tayda.

P/N	Value	Notes
TREB	SPDT	ON-ON

Other Parts

Qty	Value	Notes
3	8-pin socket	2 for the TL072, and one can be used for the transistor.
1	16-pin socket	1 for the LM13700.

Modifications

Treble Boost

If you don't want the treble boost mod, remove TREB, R18, and C8.

Threshold

If you don't want THRESHOLD, put a 1M resistor from THRESHOLD pad 1 to pad 2, and then jump pad 2 to pad 3.



Release

There are a few options for RELEASE.

- Use an internal trim for RELEASE. Don't put an external pot and instead put a TRIM on T_RELEASE. **Remove** R12*.
- Use an external pot for RELEASE. Don't put an internal TRIM and instead put a pot on RELEASE. **Remove** R12*.
- Don't use a trim or pot. R12* can be any value between 100k and 1M. (Version 2 of the Engineer's Thumb uses a 470k resistor.)

Attack

There are a few options for ATTACK.

- Use an internal trim for ATTACK. Don't put an external pot and instead put a TRIM on T_ATTACK.
- Use an external pot for ATTACK. Don't put an internal TRIM and instead put a pot on ATTACK.
- Don't use a trim or pot. R11 can be 100R or higher (for longer attack). An example given by Valve Wizard is 100k.

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Build Notes

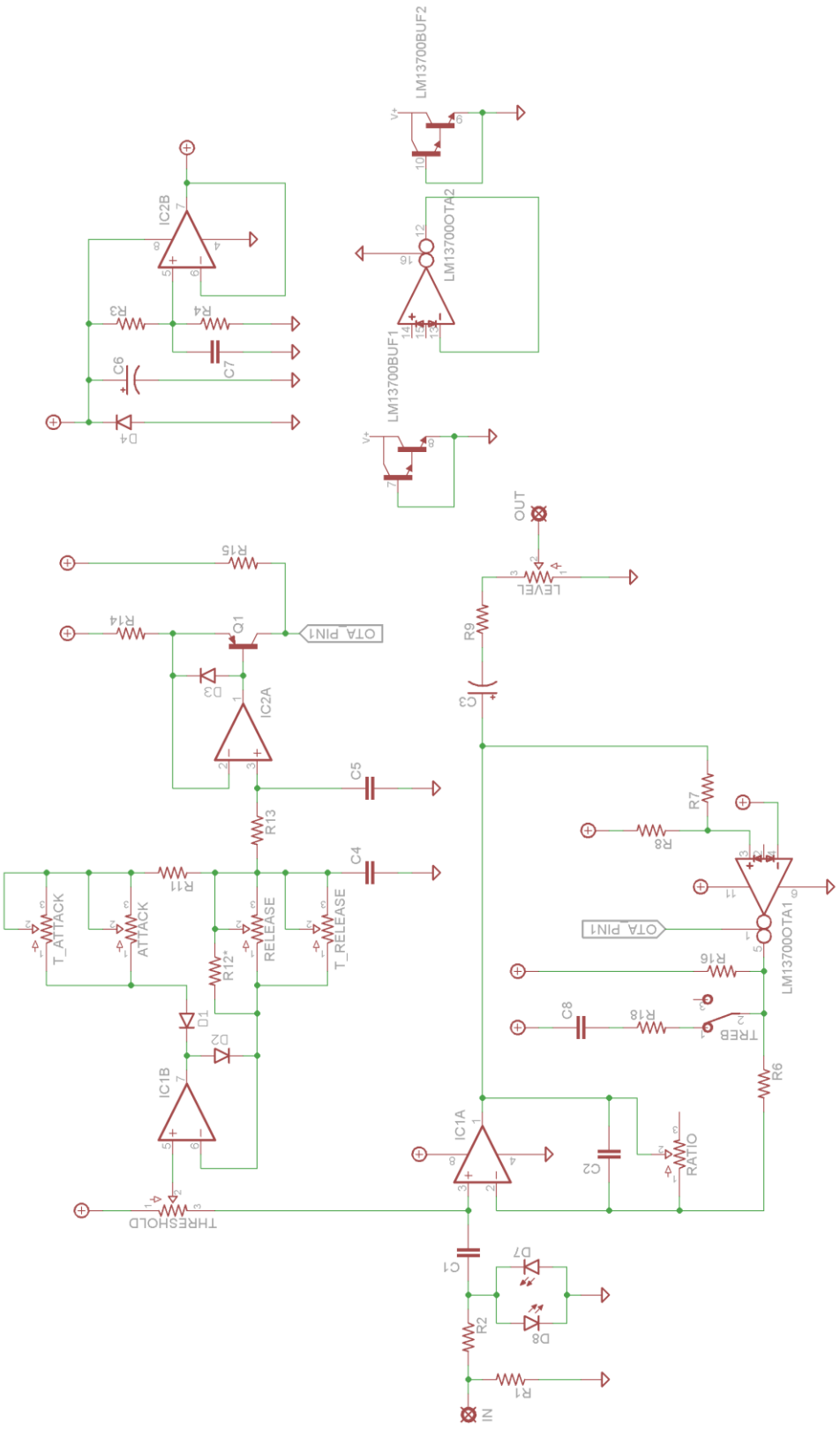
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Suggested Solder Order

Usage

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Schematic



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Images

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