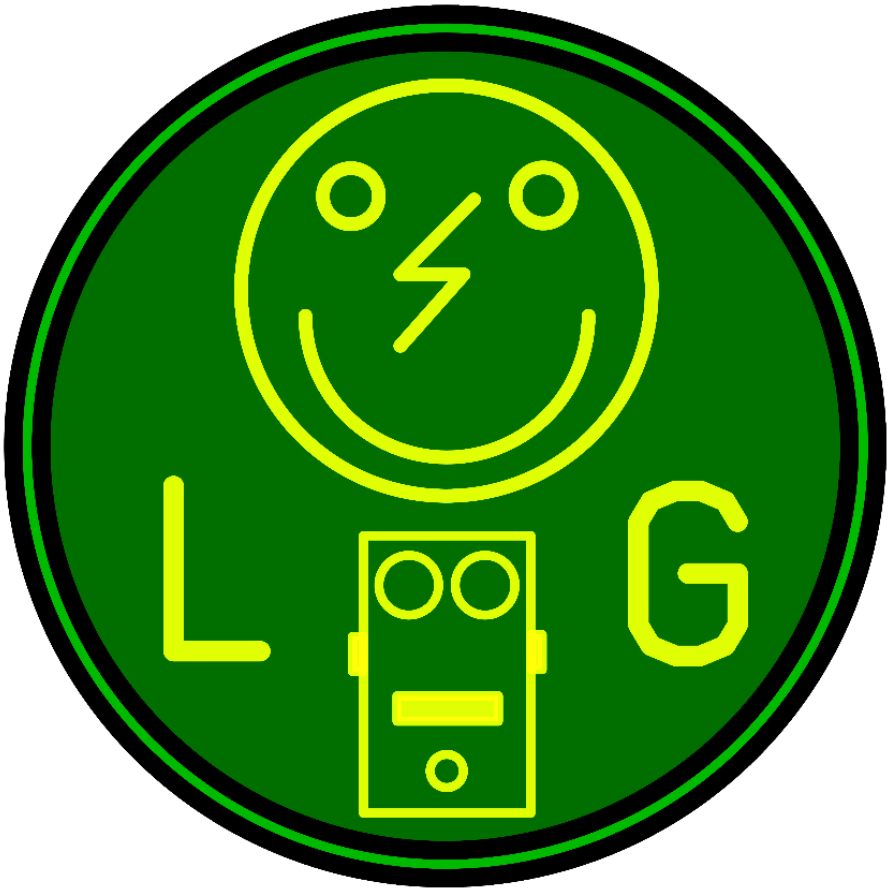
Oceanic Delay

Building instructions

V1.1



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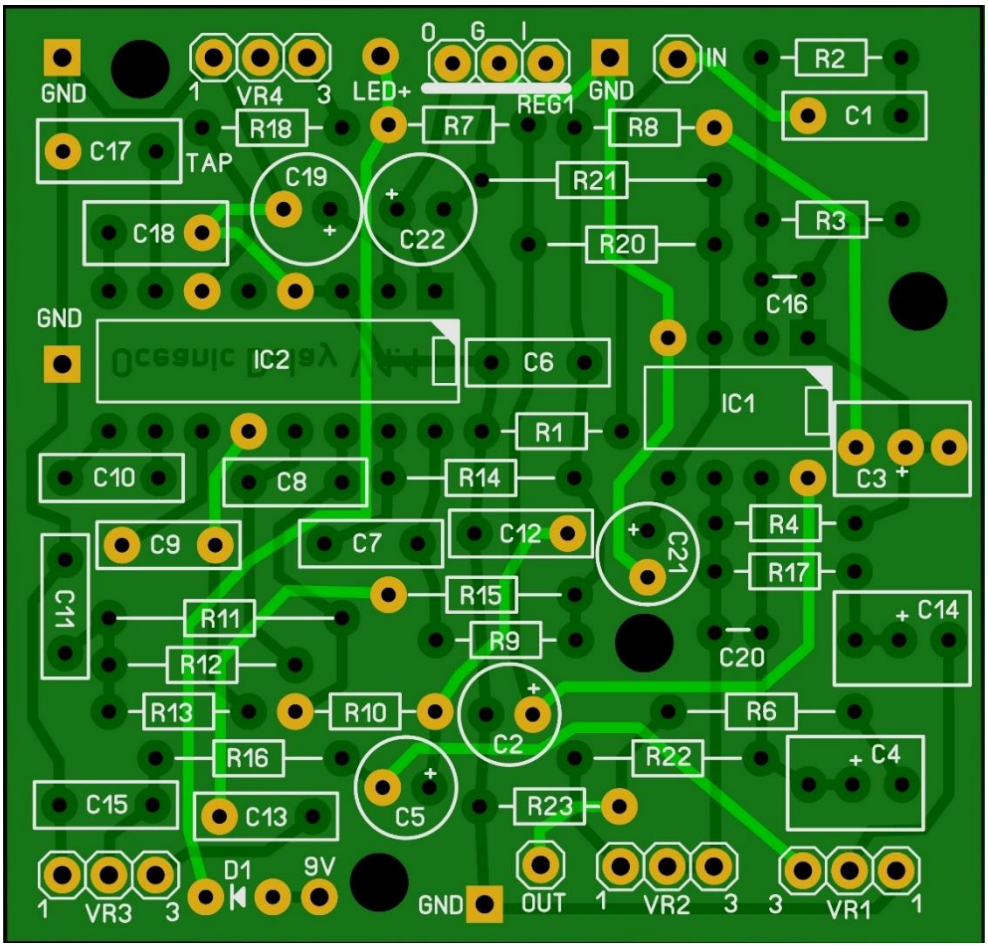
Components

Part	Value	Comment	Part	Value	Comment	Part	Value	Comment
C1	22n	MKT	**C18**	100n	MKT	**R11**	20k	
C2	100u	Electrolyte	**C19**	47u	Electrolyte	**R12**	10k	
C3	1u	Electrolyte	**C20**	100p	Ceramic	**R13**	10k	
C4	1u	Electrolyte	**C21**	47u	Electrolyte	**R14**	10k	
C5	1u	Electrolyte	**C22**	47u	Electrolyte	**R15**	5k1	
C6	4n7	MKT	**D1**	1N5817		**R16**	2k	
C7	2n2	MKT	**IC1**	TL072	Socket	**R17**	20k	
C8	2n2	MKT	**IC2**	PT2399	Socket	**R18**	2k7	
C9	100n	MKT	**R1**	1M		**R20**	10k	
C10	100n	MKT	**R2**	180k		**R21**	10k	
C11	15n	SMF	**R3**	**360k**		**R22**	5k1	
C12	10n	MKT	**R4**	22k		**R23**	100k	
C13	22n	MKT	**R6**	1k		**REG1**	LM78L05	
C14	1u	Electrolyte	**R7**	33R		**VR1**	B50k	Mix
C15	47n	MKT	**R8**	10k		**VR2**	B25k	Volume
C16	47p	Ceramic	**R9**	10k		**VR3**	B50k	Feedback
C17	100n	MKT	**R10**	1k		**VR4**	B50k	Delay

A=Log, B=Lin, C=Rev. Log



General guideline for components

- Capacitors: All values under 1nF should be ceramic disks. From 1nF up to 1uF should be MKT (foil/metal film capacitors) and over 1uF use electrolyte caps (or tantalum) 16V+ rated and watch out for polarity! In this build there are some deviations from this rule so we marked all capacitors with the required type in the table on page 3.
- Resistors: use 1% metal film for the best results.
- Socket all IC's and the voltage regulator. This way you can easily mod them or replace them if they brake.

General building tips

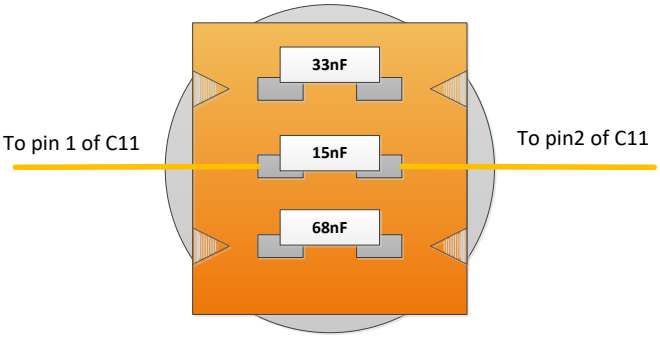
Soldering this board can be complicated for some people since the solder pads can be very close together. Use a magnifying glass to make the job easier.
Start by soldering the resistors. It is best to solder diode D1 in an upright position (remember the polarity) so do not solder it yet. Next, solder the sockets for the IC's and voltage regulator. For the voltage regulator you can buy a 20 pin SIL socket and cut of the pins you need. IC1 requires a 8 pin DIL socket, IC2 a 16 pin DIL socket. Now solder the ceramic capacitors, the diode D1, then you can solder the MKT capacitors and the electrolyte capacitors. Note that C3, C4 and C14 fit both MKT and electrolyte. Watch out for their polarity! The polarity of the 3 holes of C3 are **- + +**. For C4 and C14 this is **+ + -**. Now finish by soldering the Greenie capacitors. Place the IC's and voltage regulator and you are almost ready to rock. The white triangle on the IC's point to where pin 1 of the IC should be inserted.

Besides the components mentioned in the table on the first page, you will need:

- **2 input jacks**. 2 mono jacks if you are not going to use a battery but only the 9V adapter. 1 mono (for output) and 1 stereo jack (for input) if you will be using both a 9V battery and the 9V adapter.
- **3PDT footswitch** (9 pins). I also carry an easy off board circuit for this.
- **2,1mm DC jack** (isolated).
- **9v battery clip** (optional).
- **22 gage stranded hook-up wire.**
- **Hammond 1590BB** case (or similar) in your favorite color.

Modifications

If you want darker repeats then you can replace the C11 (15nF) with a higher value or make it switchable like this (middle position is stock value of 15nF). You are free to choose different values!

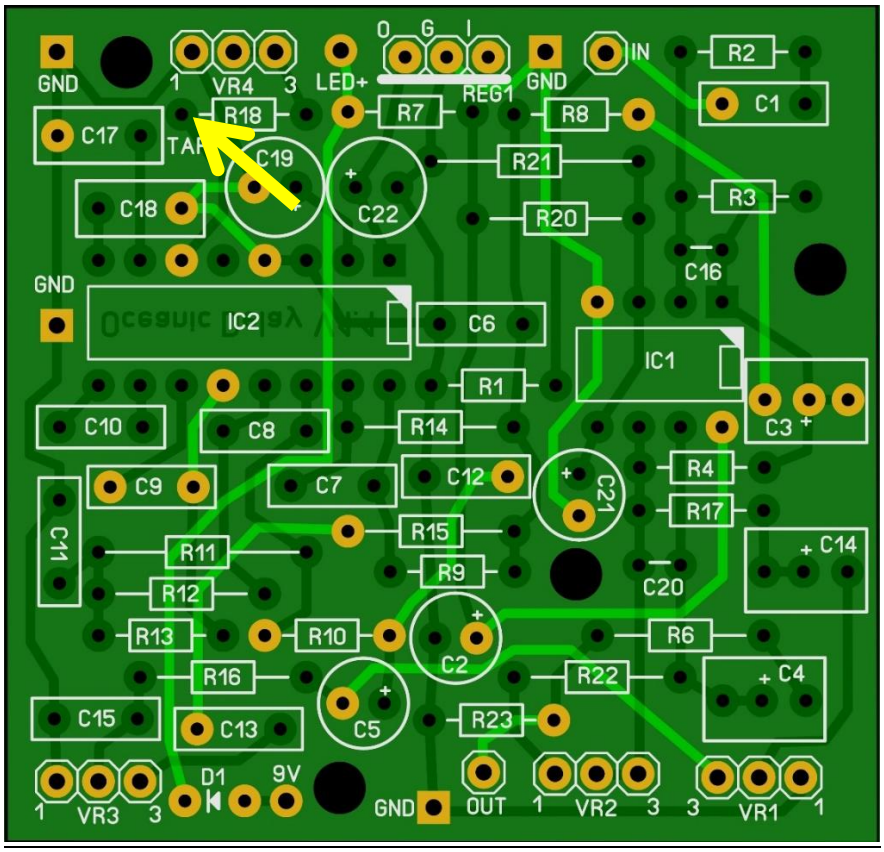


DP3T On-Off-On switch

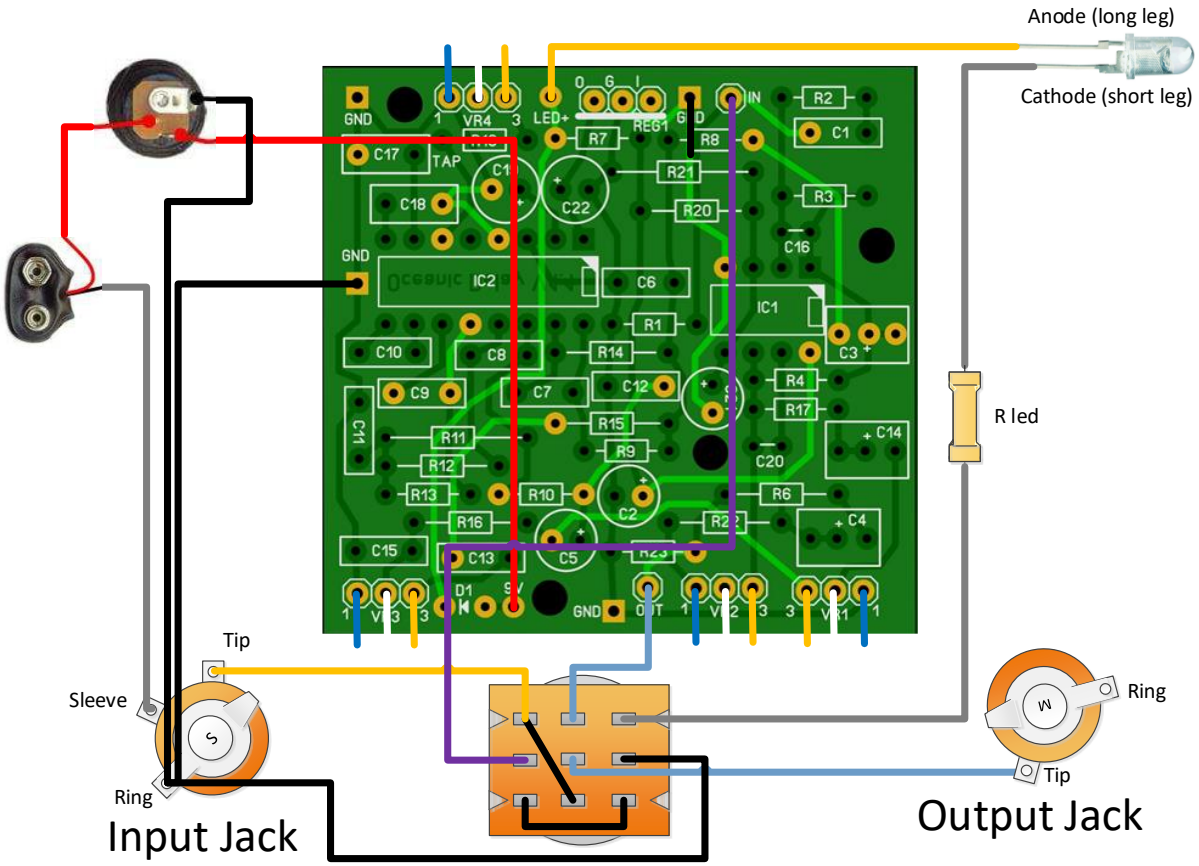
Some people prefer another IC than the TL072. You could try a OPA2134 instead.

Tap Tempo Daughterboard

If you are planning on using a taptation tap tempo daughterboard (sold separately, contact your seller) then <u>do not</u> connect R18 and VR4. You can connect the PT2399 pin 6 output of the daughterboard via the left hole of R18 marked with “TAP”.



Offboard wiring

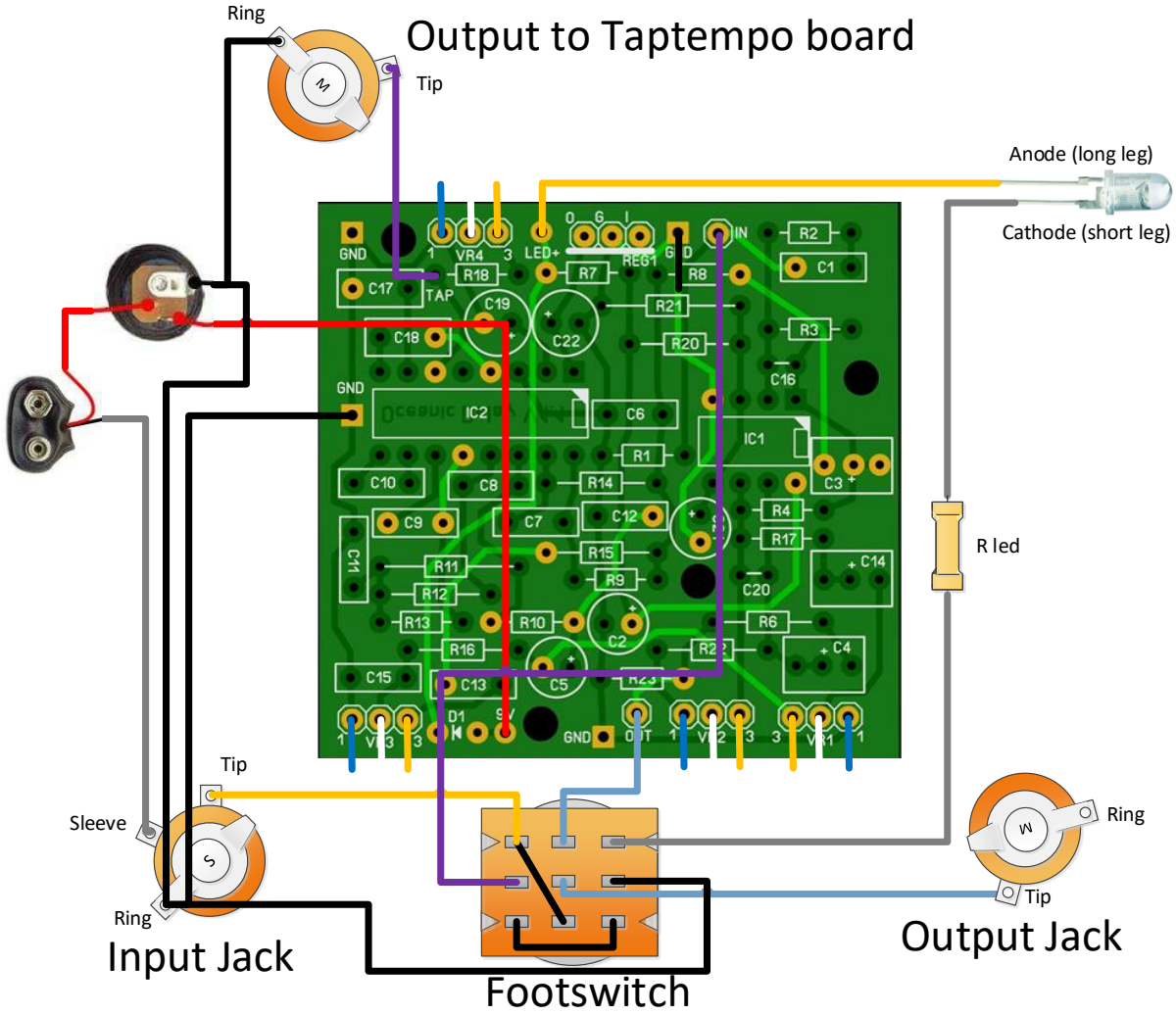


Blue = pin 1
White = pin 2
Yellow = pin 3

Notice that in the “off” position the effect input is connected to ground to prevent possible oscillation. Also note that the output jack ground is not connected. Make sure there is good electrical contact between the jack and the enclosure. If not you can connect the output ground to the input ground like the rest for stargrounding.

The LED requires a resistor (R led in the diagram) depending on the type of LED you are using. An ultra-bright red or blue LED requires a 3k3 resistor, Green requires 680R.

If you decide to use the tap tempo daughterboard in a separate case you can wire it like this:



Blue = pin 1
White = pin 2
Yellow = pin 3

If you are getting a groundloop then first try to disconnect the ground from the output to your taptempoboard and see if that solves the problem.

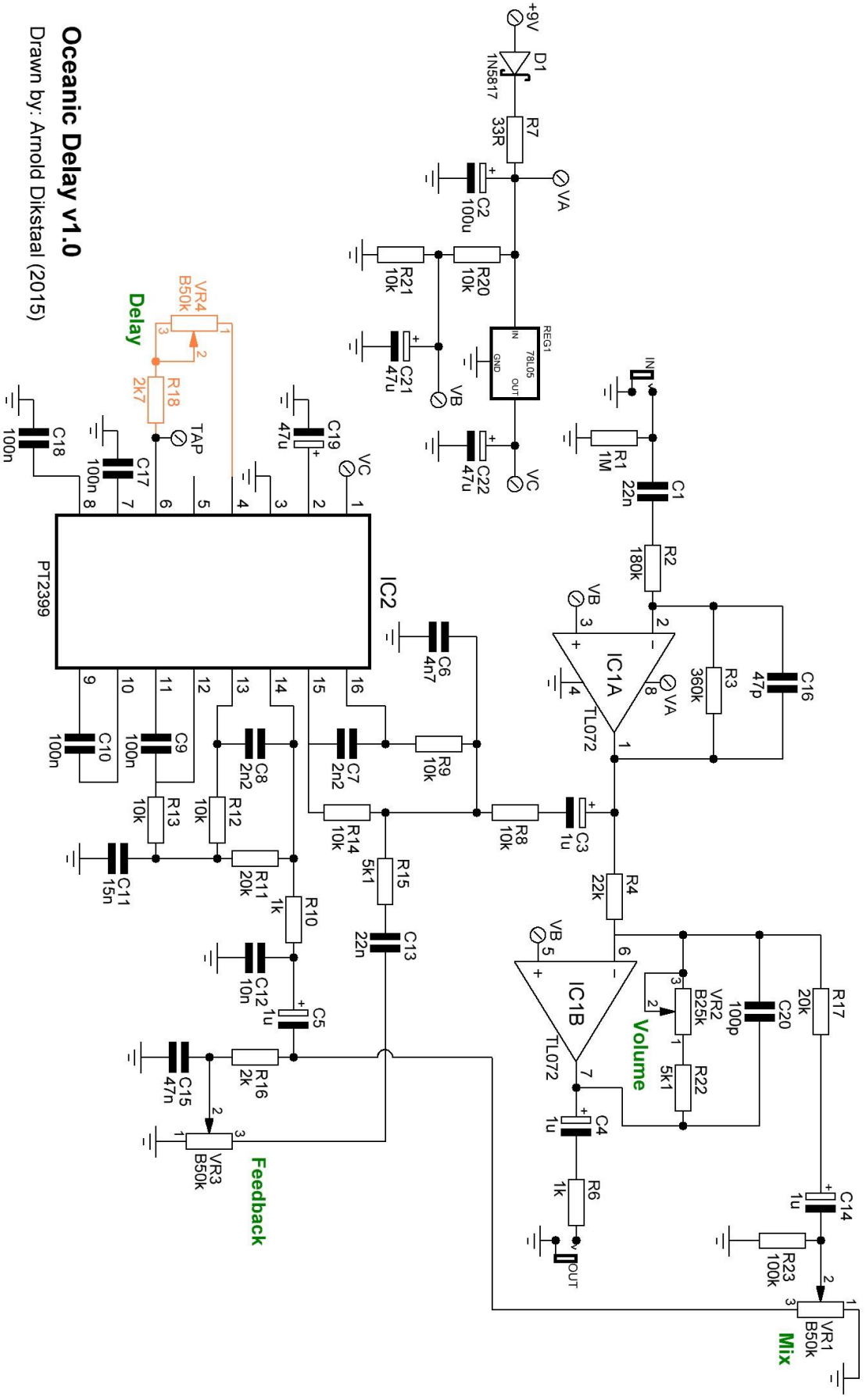
Troubleshooting

All PCB's have been e-tested 100% in the factory, so there should not be a connection problem on the PCB itself.

The board is not working (at all), what now?

- Check if your 9V is plugged in correctly (and/or soldered correctly on the board).
- Check that you oriented the capacitors, IC's ,transistors and diodes the right way. MKT capacitors and resistors do not need to be oriented.
- Check if you used the correct values of the components. For resistors you can look here: http://www.diyaudioandvideo.com/Electronics/Color/
- Double and triple check your soldering! A lose or cold solder can be really bad for your board.
- Replace the IC's and transistors, one might be defective. Before doing that first unplug the 9V and wait 5 seconds.
- Check that you have good/high grade components. A lot of Chinese sourced parts are fakes (especially high end opamps) so be careful that you source your parts from reliable suppliers.

Schematic


Oceanic Delay v1.0
Drawn by: Arnold Dikstaal (2015)
+9V
D1
1N5817
R7
33R
C2
100u
VA
R21
10k
R20
10k
C21
47u
VB
REG1
78L05
IN
GND
OUT
C22
47u
VC
R1
1M
C1
22n
R2
180k
IC1A
TL072
R3
360k
C16
47p
R4
22k
IC1B
TL072
R17
20k
C20
100p
VR2
B25k
Volume
R22
5k1
C4
1u
R6
1k
OUT
C14
1u
R23
100k
VR1
B50k
Mix
C3
1u
R8
10k
R9
10k
C6
4n7
IC2
PT2399
VR4
B50k
Delay
R18
2k7
TAP
C18
100n
C17
100n
C19
47u
C10
100n
C9
100n
C8
2n2
C7
2n2
R14
10k
R13
10k
R12
10k
C11
15n
R11
20k
R10
1k
R15
5k1
C13
22n
C12
10n
C5
1u
R16
2k
C15
47n
VR3
B50k
Feedback