

# SLOTH chaos Build info & BOM vers.3

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The BOM includes part numbers for components at Tayda (<http://www.taydaelectronics.com/>), where you can get everything except the 10uFBP caps and LED, see BOM for where to source these. Just put the code into the search box on the Tayda site to find the components. Resistors come in packs of ten, so you will end up with spares, but they are only 1c each and spares (of everything) are good.

COMPONENT	SLOTH	Tayda part #	Super SLOTH	Tayda part #
R1	100k	A-2248	1M	A-2277
R2	100k	A-2248	680k	A-2192
R3	1k	A-2200	1k	A-2200
R4	1k	A-2200	1k	A-2200
R5	100k	A-2248	910k	A-2150
R6	1M	A-2277	6M8	A-2612
R7	4M7	A-2357	10M	A-2287
R8	2k2	A-2341	2k2	A-2341
R9	100k	A-2248	1M	A-2277
R10	91k	A-2126	820k	A-2333
R11	10R	A-2198	10R	A-2198
R12	10R	A-2198	10R	A-2198
C1	100uF	A-4538	1000uF	A-4552
C2	100uF	A-4538	1000uF	A-4552
C3	1uF	A-321	10uF BP (non-polarized)	see notes
C4	1uF	A-321	10uF BP	see notes
C5	1uF	A-321	10uf BP	see notes
C6	10uF	A-4548	10uF	A-4548
C7	10uF	A-4548	10uF	A-4548
IC socket	14 pins	A-004	14 pins	A-004
IC	TL074	A-1138	TL074	A-1138
LED	must be 2 pin bipolar	see notes	must be 2 pin bipolar	see notes
P1	10kB	A-1847	250kB	A-1843
Kobiconn sockets (need 2)		A-865	Kobiconn sockets (need 2)	A-865
knob		see notes	knob	see notes
pin header strip	to make power connector	A-197	pin header strip	A-197

**Knob:** choose your own from

<http://www.taydaelectronics.com/potentiometer-variable-resistors/knobs-29.html>

If using the pots listed in the BOM, you need a knob with a set screw, which will be listed in the details

The **LED** must be a two pin bipolar type to show positive and negative going voltages, the LED is simply one colour when the output is positive and changes to the other colour when the signal goes below 0V. In **Super Sloth**, it may stay one colour for a very long time, but usually a cycle crosses zero at some point. You can get these on ebay, a pack of ten for \$2 with free shipping. Search for '**5mm Bi-Polar Dual Color LED**', make sure you choose the 2 pin types, NOT the 3 pin.

**Sockets** should be Kobiconn or similar (the ones from Tayda are ok, maybe get a couple of spares)

For **Super Sloth** version, **Capacitors C3-5** must be 10uF 50V bipolar/non-polarized capacitors.

For **Sloth**, these can be regular 1uF (not electrolytic)(4.5mm spacing).

I buy 10uF 50V BP or NP capacitors on ebay, search for ‘**10uF 50V BP**’ or ‘**10uF 50V NP**’ and search for the cheapest. Expect to pay \$1-2 per cap. The voltage rating can be higher than 50V and can be as low as 35, but 50V is usually in the right sized package and will never feel stressed in the circuit.

C1-5 have extra holes for mounting larger or smaller capacitors.

In **Sloth** version, one cycle takes approx. 15 seconds. In **Super Sloth**, one cycle takes approx. 15 minutes.

The pot does alter frequency a little, perhaps from 12-16 seconds in **Sloth** and 12-16 minutes in **Super Sloth**. It also alters the patterns, at some settings the will be little activity, sometimes for a few minutes.

## BUILDING

1. install IC socket and pin header to make Euro-rack power connector
2. install resistors
3. install capacitors, small ones first, then electrolytics.
4. attach jacks to the panel, make sure they are oriented correctly, so the ground tab will match the appropriate hole on the PCB
5. insert pot and LED on PCB but **do not solder**
6. mate the panel with the PCB, make sure the pot and LED go into their holes nicely and the tabs of the jacks are not bent.
7. solder on pot, LED and jacks.
8. solder on wires from the PCB to the ground tabs of the 2 jacks, you should be able to do this without removing the PCB from the panel
9. install TL074, be sure it is orientated correctly.
10. use a multi-meter to check there are no shorts between the power rails and ground.
11. attach power connector, make sure the red stripe is -12V and correct on the PCB
12. turn on
13. best way to test is patch the outputs to the CV in of a VCO, you should be able to hear the VCO pitch changing, for super Sloth, this change is very slow but it is noticeable.
14. enjoy chaos!

nonlinear circuits	
sloth & sloth <sup>2</sup>	
andrewF	Rev 1.0 22/08/2014
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