

## Assembly instruction



Date:	11-04-20	Project:		Remark:	
File:	RBDIY-CTSVCOA-1.1	Version:	1.2		
Title:	<b>CATCH VCO-A DIY</b>	HW version:	1.1		
REF:		Page:	1		

**Thank you for purchasing this ReBach DIY Voltage-controlled Oscillator !**  
We hope you enjoy the construction and use of this beautiful VCO.

### Package Content:

- 1x Main PCBA RB1815
- 1x Front PCB RB1816
- 2x 10K Pot-meter
- 1x 50K Pot-meter
- 2x 10K trimmer
- 3x M7 Washer
- 3x M7 Nut
- 6x 3.5mm Jack incl nut
- 3x Knob White
- 3x Knob cab
- 1x Ribbon power cable
- 2x 3mm screw

### Note:

Check if all the above-mentioned parts are present in the packaging before starting construction! Contact your supplier if a part is missing before you start building.

You the customer agree that if the packaging has been opened and some construction steps have been made, you are responsible for a successful construction.

Follow the steps in this building instructions carefully to prevent errors

The conditions of your supplier are respected by ReBach!

Note:

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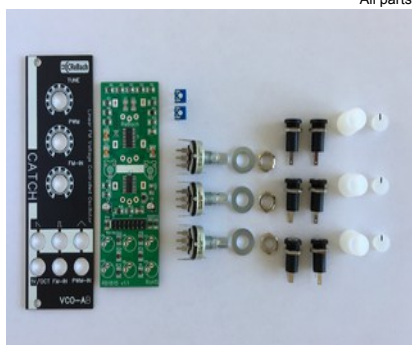


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## Overview

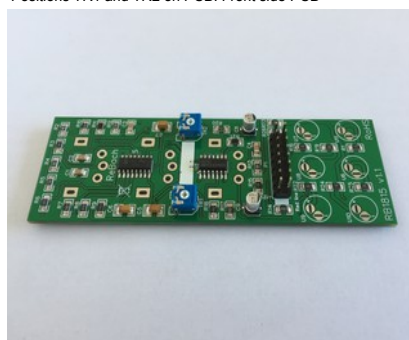
All parts



## Place 10K trimmers on the PCB

2

Positions TR1 and TR2 on PCB. Front side PCB



3

## Solder

Check trimmer contacts in good position and solder



Tip:

Place and solder the trimmers first before placing the potentiometers

## Place pot-meters on the PCB

4

Position RV1=50k, RV2=10k, RV3=10k Back side PCB



5

## Check

Check pot-meter 50K is on position RV1 (top)



## Check

6

Check pot-meters 10K on position RV2 & RV3



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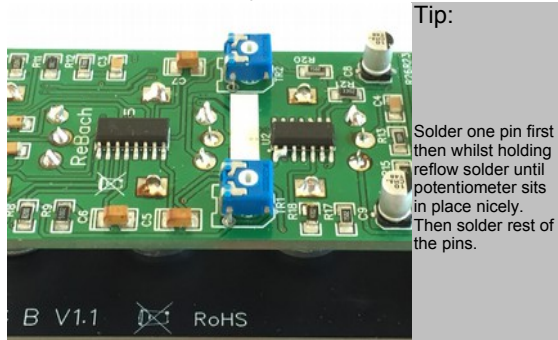


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### Solder

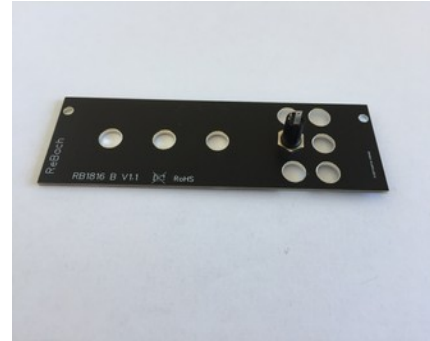
Check potentiometer contacts are in a good position and solder.



### Place the PULS out jack socket

8

PULS is in the middle of the top row



9

### Check

Align the jack socket as shown



### Tighten the jack socket

10

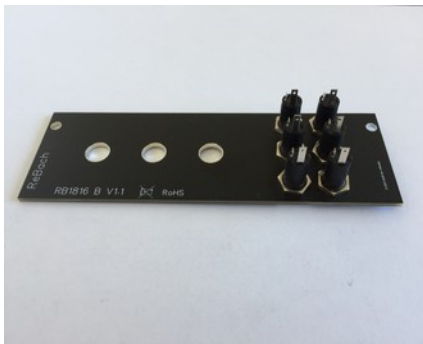
Tighten the nut without changing the alignment



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### Other Jack sockets

Place the remaining jack sockets



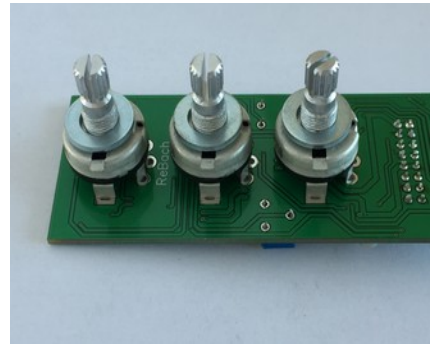
### Tip:

Tighten the nuts hand-tight so that the jack sockets can move slightly !

### Spacer

12

Place the spacers on the potentiometers.



### Note:

Do steps 8, 9, 10 before the other sockets are placed, otherwise it cannot be tightened

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## 13 Place Front

Place the front and enter the Jack solder tabs through the PCB



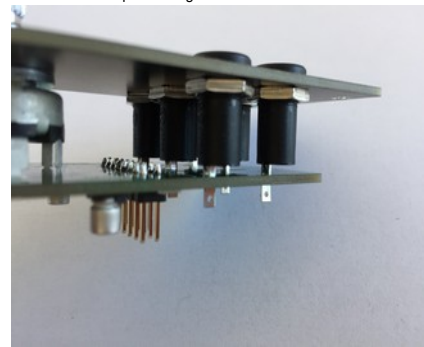
Tip:

Adjust alignment of the jack sockets if needed so they can enter through the PCB

## Place Front

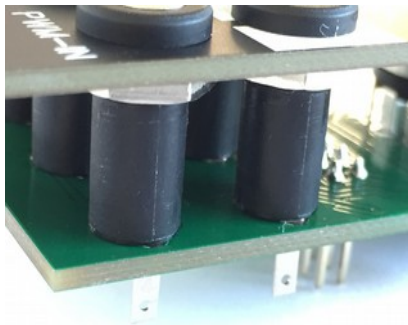
14

Insert the solder pins through the PCB



## 15 Check

Check whether the jack sockets fully connect to the PCB



## Check

16

Turn over and check the solder tabs are completely through the PCB



## 17 Nuts

Place the nuts on the potentiometers and hand tighten them



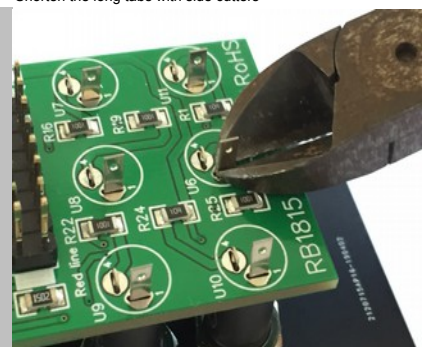
## Solder tabs

18

Shorten the long tabs with side cutters

Tip:

Shorten the long tabs before soldering !



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### Solder

Solder the jack socket contacts



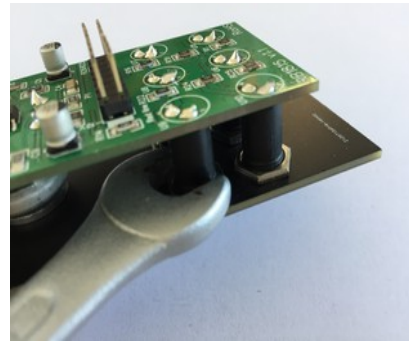
#### Tip:

Use a little flux for a perfect solder connection (remove flux residues with flux remover to prevent damage to the PCB !)

### Tighten Jacks

20

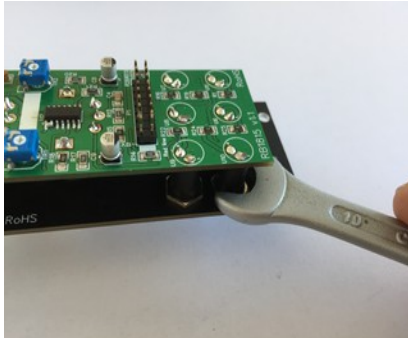
Tighten the jacks with your wrench



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### Tighten Jacks

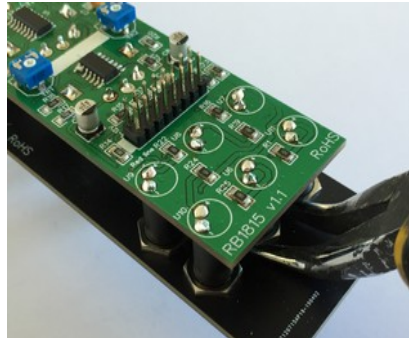
Tighten the jacks with your wrench



### Tighten Jacks

22

Tighten the FM-IN jack with pointed pliers if wrench is too big



23

### Tighten nuts

Tighten the pot meter nuts with a wrench



#### Note:

Step 19: make sure that no short circuit occurs between the solder tabs by soldering  
Step 20 to 23: Tighten the jacks and nuts with policy, not too tight to prevent damage

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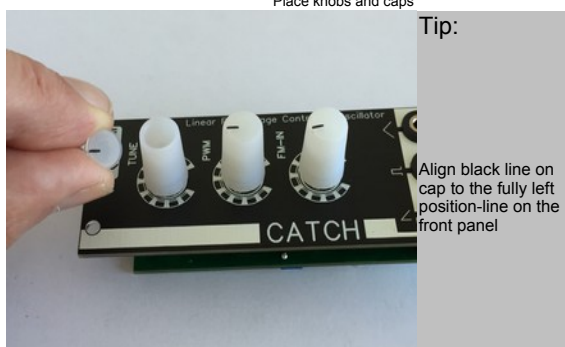


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## Place knobs

Place knobs and caps



## Place knobs

25

Allow minimal space between knob and nut !



26

## Ready

Now advance to page 7 for tuning the VCO.



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## Tuning

To calibrate this VCO, you need either a tuner or a different VCO or keyboard/Synth. Your second VCO or SYNTH is used as the reference source!

For good results, please let the VCO warm up for at least 5 minutes!

- 1 Set the two trimmers (TR1 & TR2) in the middle position (ex works they are in the middle position)
- 2 Connect the VCO 1V / Oct input to a keyboard CV-note output or Midi interface CV output (1V / Oct outputs)
- 3 Connect a tuner to the TRI output of the VCO (see note A)
- 4 Connect the power supply ribbon cable to the VCO (make sure the red band is on the right hand side)
- 5 Turn on the power and let the VCO warm up for at least 5min (at normal room temperature – plm 20C)
- 6 Set the TUNE knob on the VCO front approximately to the middle position and press C3 on the keyboard. adjust the TUNE knob further until the VCO and your reference have the same frequency (Low tracking adjust. See also note B)
- 7 Press the keyboard C3 and measure or listen to the frequency. Then press C2 and C1, they must exactly 1 or 2 oct lower. If the C2 and C1 have a lower frequency then adjust TR1 slightly up (CW). are the C2 and C1 higher than each other? Adjust TR1 slightly down (CCW). After every time you adjusting TR1 you have to adjust the TUNE knob again so that you are back at the same freq as the reference source !!
- 8 Press the keyboard C5 and measure or listen to the frequency. then press C4 and C3. if the C4 and C3 have a lower frequency then adjust TR1 slightly up (CW). C4 and C3 are higher then adjust TR1 slightly down (CCW). then check C2 and C1 again. After every time you adjusting TR1 you have to adjust the TUNE knob again so that you are back at the same freq as the reference source !!
- 9 Repeat step 7 as many times as necessary until all octaves are equal.
- 10 Adjust the TUNE knob on the front 2 oct lower and repeat steps 6 and 7. if they are good go to step 10
- 11 Now adjust the TUNE knob on the front 4 oct higher and press C3 on the keyboard. Adjust the TUNE knob further until the VCO and your reference have the same frequency (High tracking adjust. See also note C)
- 12 Press the keyboard C3 and then C2 and measure or listen to the frequency. Now press C5 and C6. C5 and C6 have a lower frequency adjust TR2 than slightly up (CW). If C5 and C6 have a higher frequency, adjust TR2 slightly down. After every time you adjusting TR2 you have to adjust the TUNE knob again so that you are back at the same freq as the reference source !!
- 13 Repeat step 12 as many times as necessary until all octaves are equal and check C2 and C1 again !
- 14 If the low octaves are slightly out of tune after step 12, go through step 7 again
- 15 If necessary, go through all steps several times if the octaves continue to have mutual differences

Note: A If you do not have a tuner, connect a second VCO or SYNTH which receives the same CV-Note signal. Mix the output of both so that you can hear and compare both signals at the same time ! If you use a second VCO, it must be properly adjusted!

Note: B Low tracking adjustment takes place via TR1

Note: C High tracking adjustment takes place via TR2. This trimmer only affects high frequencies (approx C5 or higher) . At low frequencies, this trimmer will have no significant influence

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