THANKS FOR CHOOSING ONE OF OUR KITS!

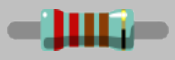
This manual has been written taking into account the common issues that we often find people experience in our workshops. The order in which the components are placed on the board is meant to make assembly as easy as possible.

Some steps are not obvious, so even if you're an experienced DIYer please read the steps thoroughly before starting.
If this is your first project, please read this article before you start assembling the kit
www.befaco.org/howto/

You will be soldering both boards at the same time. Keeping them in the panel together, until stated to split them, might help you through the build. Check the last pages of the Build for PCB pics to help you identify components.

OPEN BAG A

RESISTORS



It's strongly recommended to measure the resistors with a multimeter. Color code might be hard to read with blue background.

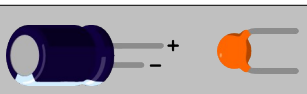
Qty	Value	Code	Name on PCB
10	100Ω	Brown, black, black, black, brown	R9, R12, R13, R16, R22, R36, R41, R47, R52, R57
14	560Ω	Green, blue, black, black, brown.	R20, R21, R25, R27, R28, R29, R30, R33, R48, R49, R59, R64, R65, R67
8	1k	Brown, black, black, brown, brown	R19, R23, R24, R32, R34, R35, R43, R58
8	100k	Brown, black, black, orange, brown	R1, R2, R53, R55, R61, R62, R63, R66
6	5k1	Green, brown, black, brown, brown	R8, R17, R39, R40, R42, R46
6	10k	Brown, black, black, red, brown	R26, R31, R44, R45, R50, R51
4	33k	Orange, orange, black, red, brown	R10, R11, R14, R15
4	51k	Green, brown, black, red, brown.	R4, R5, R6, R7
4	1M	Brown, black, black, yellow, brown	R54, R56, R60, R68
2	22Ω	Red, red, black, gold, brown.	R3, R38
2	2k	Red, black, black, brown, brown.	R18, R37

DIODES

Solder the diodes **observing their polarity**. The black or white line on the diode must match with the white line on the diode symbol on the PCB silkscreen.

Qty	Value	Name on PCB
8	BAT85/48	D1, D2, D3, D4, D5, D6, D7, D8
1	1N4007	D9

CAPACITORS



Identifying capacitors can be quite tricky. Codes stated are indicative and might change from batch to batch, please take a look at this guide for help identifying capacitors http //www.wikihow.com/Read-a-Capacitor

Qty	Value	Code	Name on PCB
4	220p	221	C7, C11, C20, C22
4	2.2n	2n2k100	C2, C13, C18, C23
4	10n	10n	C4, C8, C9, C10
3	100n	104	C15, C25, C27
2	4n7	4n7k100	C12, C17
2	1nf	102	C14, C16
8	10uF (**POLARIZED!**)	10uF	C1, C3, C5, C6, C19, C21, C24, C26

FUSE

Identifying capacitors can be quite tricky.

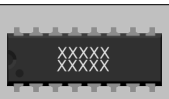
Qty	Code	Name on PCB
2	x20	F1, F2

REGULATORS AND TRANSISTORS

Make sure it is positioned correctly with reference to the silkscreen outline on the PCB

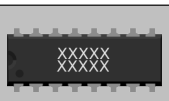
Qty	Code	Name on PCB
6	2n3904	T1, T2, T3, T4, T5, T6
1	AMSR 78L05	U2

IC SOCKETS



First **we will place the sockets** (taking care to orientate them properly – the notch on one end of the socket should match the silkscreen) and solder them into their correct positions. Get them from ICs bag.

Qty	Value	Name on PCB
1	DIL8	IC2
1	DIL14	IC1

ICs 
Place ICs in their sockets. Take care of polarity, notch or dot mark orientation.

Qty	Value	Name on PCB
1	MCP6022	IC2
1	MCP6024	IC1

OPEN BAG B

This is the point to split both Boards apart. Use pliers to help you and make sure to carefully remove the locating tabs. Leaving board edges flat!

SPACERS
Secure the nylon spacer onto the CONTROL PCB (in the hole between DC Jack and Output minijack) with one of the included screws.

PIN HEADERS			
Place the headers, **Make sure they are straight. Then solder them**			
Qty	Type	Size	Place on PCB
2	Female	1x10	JP2, JP4
2	Male	1X10	JP1, JP3
TIP Place the pin headers on both pcbs and connect them before solder.			

In order to place the **owl board** properly straight, we will first place the female pin headers in the pcb then male headers into these females. This will give the right placing for the owl platform.

OWL PIN HEADERS	
Place all pins on control PCB at silkscreen side side, **Solder them making sure they are straight.**	
Qty	Size
3	1x5
1	1x10
2	1x12
1	1x3

Place male pin headers into the female ones. Its the long pin that will fit into the females.
You have two 1x40 long pin strips. This should be enough for all your needs and leave you a few spares just in case some get damaged when cutting.
Place Owl board on the pins. Do this **gently**, Once all pins are in place, **proceed to solder them all.**
Remove Owl board from the pcb to continue with the assembly.

Now we will proceed to mount the mechanical parts. This part of the assembly is **CRITICAL**. Please take your time and read the following instructions carefully.
These components must **NOT** be soldered until they are placed on the PCB and fully attached to the front panel.

OPEN MECHANICAL COMPONENTS BAG

USB CONNECTORS
Place USB connectors but **don't solder them yet.**

DC connectors
Put the DC connector in place but **do not solder it.**

MINIJACKS		
Place the mini-jacks on the PCB ensuring they are on the side with the silkscreen but **don't solder them.**		
Qty	Value	Name on PCB
2	Stereo jack (green)	Stereo, on the upper part of the pcb.
12	Mono jack (black)	

BUTTONS			
Place the buttons on the PCB ensuring they are on the side with the silkscreen but **don't solder them.**			
Qty	Value	Name on PCB	
4	Led pushbutton	Sw1, Sw2, Sw3, Sw4	There is a hole in the PCB that mark where the notch in the bottom of the button goes. You can also orientate the red stripe to the right of the PCB.
1	Tactile switch	SW5	Place also the switch cap.

POTS		
Screw a hexagonal nut in each pot and place them on the PCB but... **don't solder it yet!**		
Qty	Value	Name on PCB
5	10k Linear	P1,P2, P3, P4, P5

LEDS
Place LEDs, minding polarity. Flat side in silkscreen is negative pad. Short led from the Led is the negative. **Do not solder it yet.**

FRONT PANEL

Attach the **front panel** adjusting the parts one by one if necessary until they fit. First **Mini-jacks** then **Pots** and **DC connector.** Use the red nuts for all Outs, the smaller black nuts for the rest of the minijacks and the larger black ones for all pots. Ensuring all of the above parts are flush with the panel.
Solder Mini-jacks, pots, dc connector and the USB Type B connector. Then connect the USB cable to the USB A connector, this will help you to be sure that the connector is perfectly align with the hole on the panel, solder now the connector with the cable still plugged in, remove the cable when all the pins of the USB A are soldered. Now **press all buttons to make sure they are flat with the PCB** and all pins in their right place (beware no bent legs!), proceed to solder them.
Adjust the **LEDs** so that they are flush with the panel and solder them.

FINISH YOUR BUILD!

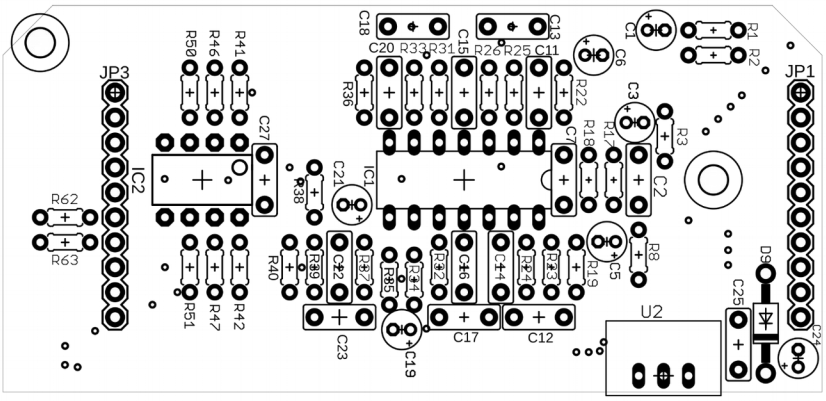
Connect both PCBs together. Then Proceed to put in place OWL board.

Now put the yellow cardboard on the bottom of the hammond case, place the the witch, and secure it with the screws.

In order to calibrate V/oct input, follow this link and the instructions in that site. Remember you need to use a web MIDI compatible browser

https //pingdynasty.github.io/OwlWebControl/calibration.html

ENJOY YOUR NEW BEFACO MODULE!


JP3
JP1
IC2
IC1
U2
C1
C2
C3
C4
C5
C6
C11
C12
C13
C15
C17
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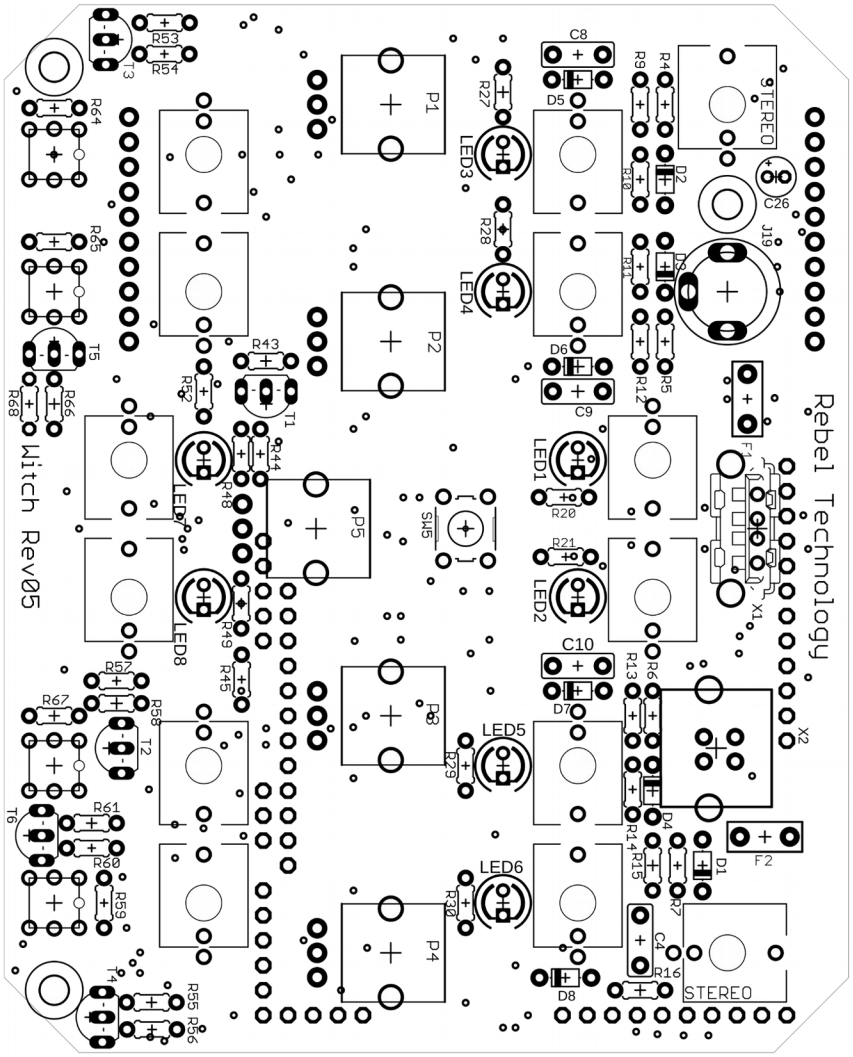
F2


Witch Rev05
Rebel Technology
STEREO
STEREO
P1
P2
P4
P5
P8
LED1
LED2
LED3
LED4
LED5
LED6
LED7
LED8
SW5
X1
X2
J19
F2
T1
T2
T3
T4
T5
T6
C8
C9
C10
R13
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