

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.

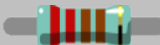
Some steps are not obvious, so even if you're an experienced DIYer please read the steps thoroughly before starting. If this is your first project, please read this article before you start assembling the kit:

www.befaco.org/howto/

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

HAVE FUN!

BAG A

RESISTORS 			
Qty	Value	Code	Name on PCB
31	100k	Brown, black, black, orange, brown	R4, R38, R41, R42, R43, R44, R46, R48, R49, R54, R55, R68, R69, R70, R71, R105, R106, R107, R108, R109, R110, R111, R112, R123, R124, R125, R126, R144, R145, R146, R147
22	10k	Brown, black, black, red, brown	R1, R5, R6, R8, R10, R11, R14, R17, R18, R58, R59, R76, R77, R78, R79, R100, R132, R133, R134, R135, R136, R137
12	2k2	Red, red, black, brown, brown	R19, R20, R21, R23, R25, R27, R29, R31, R117, R118, R119, R120
11	1M	Brown, black, black, yellow, brown	R13, R26, R30, R33, R35, R53, R56, R72, R73, R74, R75
9	1k	Brown, black, black, brown, brown	R129, R131, R143, R148, R149, R150, R151, R152, R153
8	110k	Brown, brown, black, orange, brown	R24, R28, R34, R37, R60, R61, R62, R63
8	470k	Yellow, violet, black, orange, brown	R32, R36, R39, R40, R45, R47, R50, R51
6	330k	Orange, orange, black, orange, brown	R2, R3, R15, R16, R52, R57
5	2k	Red, black, black, brown, brown	R122, R139, R140, R141, R142
4	20k	Red, black, black, red, brown	R64, R65, R66, R67
4	47k	Yellow, violet, black, red, brown	R121, R127, R128, R130
4	56k	Green, blue, black, red, brown	R113, R114, R115, R116
4	91k	White, brown, black, red, brown	R101, R102, R103, R104
1	560 Ohm	Green, blue, black, black, brown	R12
1	9k1	White, brown, black, brown, brown	R138
1	68k	Blue, gray, black, red, brown	R22
1	240k	Red, yellow, black, orange, brown	R7
1	680k	Blue, gray, black, orange, brown	R9

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
11	1N4148	D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11
2	1N5817 (black)	D12, D13

FERRITE

To solder the two ferrite beads use a recycled resistor leg passed through each ferrite and proceed as if it were a resistor. Ferrite beads don't have polarity.

Qty	Name on PCB
2	F1, F2

OPEN ICs FOAM

ICs

Place the sockets (taking care to orientate them properly – the notch or dot on one end of the IC should match the image on the silkscreen) and solder them into their correct positions.


Qty	Value	Name on PCB
4	DIL8	IC1, IC8, IC9, IC100
4	DIL14	IC4, IC5, IC6, IC7
2	DIL14	IC10, IC11
1	DIL16	IC2
1	DIL14	IC3

BAG B

CAPACITORS

Identifying capacitors can be quite tricky. Codes stated are indicative, please take a look at this guide for help identifying capacitors: <http://www.wikihow.com/Read-a-Capacitor>


Qty	Value	Code	Name on PCB
24	100n	104	C1, C2, C3, C4, C13, C14, C15, C16, C17, C18, C19, C20, C27, C28, C29, C30, C33, C34, C35, C36, C37, C39, C104, C107
8	2n2	2n2	C5, C6, C7, C8, C9, C10, C11, C12
2	10pF	10	C105, C106
4	100p	101	C100, C101, C102, C103
2	1nF	102	C25, C26
2	4n7	4n7	C38, C40



ELECTROLYTIC CAPACITORS

Values are written on the side of the capacitor. Mind their polarity (The long leg of the capacitor is the positive (+)).


Qty	Value	Code	Name on PCB
6	10uF	10uF	C21, C22, C23, C24, C31, C32



TRANSISTORS


Be sure they are orientated correctly. The curved and flat sides of the silkscreen outline of the transistor on the PCB must match that of the transistor's body.

Qty	Value	Name on PCB
13	2n3906	T3, T6, T7, T8, T9, T10, T11, T12, T13, T100, T101, T102, T103
6	2n3904	T1, T2, T4, T5, T14, T15



POWER CONNECTOR

Solder the power connector at "POWER" ensuring it is facing out from the edge of the PCB.

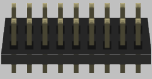


ICs

Place the ICs in their respective sockets taking note of their orientation – the notch or dot on the top of the IC must match that of the socket and silkscreen.

Qty	Value	Name on PCB
4	TL072	IC1, IC8, IC9, IC100
4	TL074	IC4, IC5, IC6, IC7
2	AS3360	IC10, IC11
1	CD4044BE	IC2
1	LM339	IC3


BAG C



MALE PIN HEADERS

Place and solder the Male Pin Headers on the silkscreen side of the main board (It is the shorter pins that you are soldering). Double check they all are perfectly straight.

Qty	PINs	Name on PCB
2	2x8	SV2, SV3
1	2x6	SV1

		
FEMALE PIN HEADERS		
Place the female pin headers on the control board over the silkscreen markings at positions and solder. Double check they all are perfectly straight.		
Qty	PINs	Name on PCB
2	2x8	SV101, SV102
1	2x6	SV100

Now it's a good moment to split the boards apart.

SPACER
Secure the spacer onto the CONTROL PCB (through the two hole with silver outline) with the main body of the spacer on the component side, and the nut on the opposite.

FADER	
Place the faders on the PCB where it is indicated by the silkscreen (on the reverse side to the smaller components). You can solder two of the small pins first to make sure faders are straight. Then solder the rest.	
Qty	Name on PCB
4	D_P_1, D_P_2, D_P_3, D_P_4

You're nearly at the end, but the next part is critical and takes a good bit of concentration. If you're feeling a bit strained, a break would definitely help. Reply to those unread messages or prove someone wrong in Internet, for example. Mechanical parts are really delicate and will need your full attention.

FRONT PANEL COMPONENTS MOUNTING TIPS:

Now we will proceed to mount mechanical parts to panel. 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!!!

There are two reasons for this:

- The height of the panel components are not all the same. Because of this, if not attached properly before soldering, they will not stay properly seated against the panel. This might cause mechanical stress reducing their life expectancy and in the worst case cause them to break.
- The second reason is that it is very difficult to align the components to the holes if the panel is not positioned prior to soldering.

MINI-JACKS
Place the mini-jacks on the PCB ensuring they are on the side with the silkscreen. Some of the minijacks ground legs will share the same solder holes (the 12 at the bottom). don't solder them until the front panel is in place with all nuts screwed to it. This way it's easier to solder them in the right position. Keep in mind that the front panel holes are quite narrow and it is almost impossible to place it with all the components already soldered.

POTENTIOMETERS

Now place the potentiometer on the PCB but... **don't solder them yet!**

Qty	Type	Name on PCB
4	Single (3pin) B100k	VOL1, VOL2, VOL3, VOL4

SWITCHES

Place the switches in their right places. **don't solder them yet!**

Qty	Type	Name on PCB
2	Mini. One circuits two position	LINK1, LINK2

LEDs



Place the LEDs onto main PCB minding its polarity, but **don't solder them** until the front panel is in place. This is the only way to solder them the right position.

Qty	Type	Name on PCB
4	Red LED 2mm	L_1, L_2, L_3, L_4

FRONT PANEL

Attach the **front panel** adjusting the parts one by one if necessary until it fits. At this point a pair of fine tweezers can be helpful.

To Finish:

- Screw in the parts in this order: A) **Mini-jacks** B) **Pots**.
- Ensuring all of the above parts are flush with the panel and both PCB and panel are perfectly parallel. Then you can **finally solder** them!
- Fit the LEDs on the panel holes and solder them
- Put the **knobs** on the potentiometers and the red caps on the switches/Faders.
- Connect the **power ribbon cable**: The red wire (-12V) on the power ribbon cable corresponds to pin number one on the male power connector. The number one pin is indicated with a small triangle on the male power connector and a white line on the main PCB. A white or black line (or “-12v”) marked on your power bus normally indicates the corresponding pin.

