

Thanks for choosing our kits!

This manual has been written taking into account the problems that we usually find in our workshops. The order 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 completely before starting.

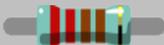
If this is your first project, please read this article before you start assembling the kit:

www.befaco.org/howto/

May the luck be with you!

Main PCB (The small one)

Open Main Board Bag A

			
RESISTORS			
Qty	Value	Code	Name on PCB
32	100k	Brown, black, black, orange, brown	R6, R8, R9, R10, R11, R14, R15, R18, R23, R24, R26, R28, R30, R32, R33, R34, R35, R37, R38, R41, R42, R48, R49, R54, R56, R57, R59, R61, R69, R80, R81, R85
16	10k	Brown, black, black, red, brown	R17, R21, R22, R31, R46, R55, R60, R63, R66, R67, R71, R75, R82, R83, R84, R87
6	560k	Green, blue, black, orange, brown	R1, R4, R12, R27, R72, R74
6	1M	Brown, black, black, yellow, brown	R19, R36, R39, R40, R65, R76
4	2k2	Red, red, black, brown, brown	R43, R44, R45, R47
4	3M	Orange, black, black, yellow, brown	R13, R16, R20, R29
4	1k	Brown, black, black, brown, brown	R79, R88, R89, R90
4	4K7	Yellow, violet, black, brown, brown	R70, R73, R77, R78
4	110k	Brown, brown, black, orange, brown	R2, R3, R50, R51
2	22k	Red, red, black, red, brown	R68, R86
2	180k	Brown, gray, black, orange, brown	R53, R64
2	470k	Yellow, violet, black, orange, brown	R58, R62
1	75k	Violet, green, black, red, brown	R25
1	10M	Brown, Black, Black, Green, brown	R5
1	20k	Red, black, black, red, brown	R52

		
DIODES		
Solder the diodes observing the polarity . The black or white line on the diode must be in the same place as white line on diode symbol on PCB silkscreen.		
Qty	Value	Name on PCB
23	1N4148(orange color)	D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D24, D25
2	1N5817(black color)	D22, D23

FERRITE

Solder the two ferrite beads using a recycled resistor leg passed through each ferrite and proceed as if it were a resistor. Ferrite beads don't have polarity.
 The space for the ferrites is a bit tight. You can either leave some slack in the leads or leave them till after you have fitted the power connector.

Qty	Name on PCB
2	FERRITE+, FERRITE-

Open Integrated Circuits Bag

ICs



Place the IC sockets taking care of the orientation and solder them on IC1, IC2, IC3, IC4, IC5, IC6, IC7 and IC8. The orientation must match the PCB's outline.
 Place the eight ICs on the sockets taking care of polarity. The mark on the front of the IC must match the mark on the socket and the PCB's silkscreen.

Qty	Value	Name on PCB
8	TL074/84	IC1, IC2, IC3, IC4, IC5, IC6, IC7, IC8

Open Main Board Bag B

CAPACITORS



Qty	Value	Code	Name on PCB
20	100n	104	C3, C4, C5, C7, C8, C12, C13, C14, C17, C18, C19, C21, C23, C24, C25, C26, C27, C28, C31, C32
2	100p	101	C20, C22
2	560p	561	C10, C11
2	2n2 Polypropylene	222 Red color	C15, C16

ELECTROLYTIC CAPACITORS



Values written at the side of the capacitor. Mind polarity. The value is written on the side of the capacitor. **This is a polarised component** so make sure the longer leg goes to the positive terminal on board.

Qty	Value	Code	Name on PCB
2	10uf	10ufsad	C29, C30

TRANSISTORS



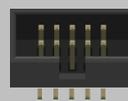
Make sure they are positioned correctly with reference to the silkscreen outline on the PCB

Qty	Value	Name on PCB
4	2n3904	T1, T2, T3, T4



MALE PIN HEADERS

Place and solder the two Male Pin Headers on the silkscreen side, ensuring it is 90° to the PCB. Shortest side of the pins is for soldering.

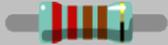


POWER CONNECTOR

Solder the power connector ensuring the position is correct: it must be on the silkscreen side with the pins facing the edge of the PCB. Have you remembered to fit the ferrites?

Control PCB

Open Control Board Bag A



RESISTORS

Qty	Value	Code	Name on PCB
13	1k	Brown, black, black, brown, brown	R100, R101, R102, R103, R105, R106, R118, R119, R123, R125, R134, R135, R140
10	100k	Brown, black, black, orange, brown	R110, R111, R112, R115, R120, R121, R128, R131, R148, R149
6	2k2	Red, red, black, brown, brown	R104, R107, R108, R109, R136, R137
6	10k	Brown, black, black, red, brown	R116, R117, R122, R124, R145, R147
4	24k	Red, yellow, black, red, brown	R138, R142, R143, R146
4	110k	Brown, brown, black, orange, brown	R113, R114, R126, R127
3	4k7	Yellow, violet, black, brown, brown	R129, R130, R139
2	22k	Red, red, black, red, brown	R132, R133
2	4M7	Yellow, violet, black, yellow, brown	R141, R144



DIODES

Solder diodes observing the correct polarity. The black line on the diode must be in the same place as white line on the diode PCB silkscreen.

Qty	Value	Name on PCB
4	1N4148	D100, D101, D102, D103



CAPACITORS

Qty	Value	Code	Name on PCB
2	470n Polyester	.47k	C104, C105
2	100n	104	C102, C103
4	10n	103	C106, C107, C108, C109
2	47n Polyester	47n	C100, C101



TRANSISTORS

Make sure they are positioned correctly with reference to the silkscreen outline on the PCB.

Qty	Value	Name on PCB
4	2n3904	T100, T101, T102, T103
2	2n3906	T104, T105



TRIMMERS

Solder the two 10k trimmers on SYMETRY_A and SYMETRY_B with the screw facing out of the PCB.

Open Control Board Bag B



FEMALE PIN HEADERS

Place the two female pin headers (To_con_A, To_con_B) and solder them ensuring it is 90° to the PCB. Then with snips, cut the excess from the pins on the other side to allow correct placement of the faders (next step)

FADERS

Solder the faders on the side indicated by the drawing ensuring that they are 90° to the PCB.

Qty	Name on PCB
4	FALL_POT, FALL_POT_B, RISE_POT, RISE_POT_B

SPACERS

Fit the two spacers with the male end passing through the control board with the M3 nuts on the same side as the faders.

Front panel components mounting tips

Now we will proceed to mount jacks, potentiometers, switches and LEDs. This part of assembly is **CRITICAL**. Please be gentle and read the instructions carefully. These components must **NEVER** 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 torsions, reducing their life expectancy and in worst cases they will break.
- The second reason is that it is very difficult to align the components to the holes if the panel is not positioned before soldering. In the case of the LEDs, they are almost impossible to set to the correct height without reference to the front panel.

Open Mini-jacks bag

MINIJACKS

Place the mini-jacks ensuring they are on the silkscreen side but **don't solder them** until the front panel is in place and 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.

Caution: the switch nuts and the jack nuts look alike but they are not and will not fit in each other's thread so don't mix them!

POTENTIOMETER

Cut the locating lug on all three pots with cutting pliers as pictured:



Now place potentiometers on the PCB but... **don't solder them.**

Qty	Type	Name on PCB
2	Dual (6pin) 10K	SHAPE_A, SHAPE_B
1	Single (3pin) 1M	Crossfader

SWITCHES

Place the four toggle switches but **don't solder them** until they are screw to the front panel. This way it's easier to solder them in the right position.

For the blue switch leave one nut and shreaded washer placed. Then save the other nut for screwing later.

Remove the nut from the two push buttons but leave the washers on the switch. Fit the push buttons with the washers on to the panel but **don't solder them yet.**

Qty	Type	Name on PCB
2	Single two position (Blue)	CYCLE_A, CYCLE_B
2	Single tree position (Red)	RANGE_1, RANGE_2
2	Push Button	M_TRIG_A, M_TRIG_B

LEDs



Put the LEDs in place checking the polarity, but **don't solder them** until the front panel is on place. This is the only way to solder them in the right position.

Long Leg is the + and short is the minus. On the PCB the square pad is the minus and there is a + symbol to indicate the correct position.

Qty	Name on PCB
9	F_A_LED, F_B_LED, LED_A, LED_A>B, LED_B, LED_MAX, LED_MIN, R_A_LED, R_B_LED

FRONT PANEL

Place the front panel moving a little the parts one by one if necessary until you fit them to the top. At this point a sharp tweezers can be helpful.

Screw in the next order: Mini-jacks, Switches, Pots and Push buttons.

Until all of them are flat and touching completely the panel. **Then (finally) solder all of them. ;)**

Place the LEDs in the panel holes making sure they are on the right level and proceed to solder them.

Plug the PCB1 on the PCB2 using the pin headers and ensuring the two 3mm holes match the spacers. Screw both boards using two screws.

Put the knobs on the potentiometers and the caps on the switches/faders

Plug the power ribbon cable: The red wire (negative) correspond to the pin number one of the connector. The pin number one is indicated with a small triangle and usually with a line on your power bus.

ADJUSTMENT PROCEDURE

Sometimes, due to the tolerance of the pot's value, the response of the shape Pot may not be quite symmetrical. In that case adjustment of "SYMETRY_A" and "SYMETRY_B" trimmers is needed.

1. Connect the Rampage's Out A to an oscilloscope. A software oscilloscope on your computer is enough but in this case the signal needs to be attenuated to avoid clipping. If attenuation is needed you can use the "Max Out" in place of "Out A" and adjust the amplitude with the Balance pot.
2. Set range switch A to Mid (bottom position).
3. Set the Cycle Switch A to Cycle (Top position).
4. Push "Manual trigger A" button, to put your rampage in to oscillation.
5. Set Rise and Fall faders at minimum.
6. Turn the "shape A" pot all the way clockwise. Check if rise and fall times are equal. If so you are done. If not go to the next step.
7. Move the "SYMMETRY_A" trimmer and try to match (as much as possible) the rise and fall times.
8. Repeat the procedure for "SYMMETRY B" Adjustment.

Enjoy!