Tubbutec OrganDonor

Installation manual for Crumar Performer

Tools you will need:

- Soldering iron
- Wire stripper
- Metal drill 3.5mm (or similar)
- Metal drill for a 15mm hole (stepping drill for example)
- Center punch
- Screw driver

Included in the kit:

- OrganDonor Main Board
- 4x OrganDonor Switch Board (1 single), 2x16pin Connector, 1x20 pin connector, 1x 2pin connector
- Analog switch connection: 1x16 – 70cm, 1x16p – 60cm, 1x20 – 55cm, 1x2 - 30cm
- Interconnect cables: 1x 4cm, 1x 5cm, 1x 11cm, 1x 13cm
- Midi connector assembly
- Power connector, extended
- Learn button
- 17x screw 2,9x6,5
- Midi socket drill guide
- 2x M3 bolt, 2xM3 nut for midi socket

Principle of operation

OrganDonor uses analog switches to simulate keyboard presses directly. Normally this would require to solder two wires for each key. Luckily this can often be avoided by grouping common signals. OrganDonor features solder jumpers to connect common signals on the back of each analog switch board.

In the case of the Crumar Performer there is one common signal.

Preparation

After the first batch of OrganDonor we decided to consolidate different synthesizer models in one kit where reasonable.

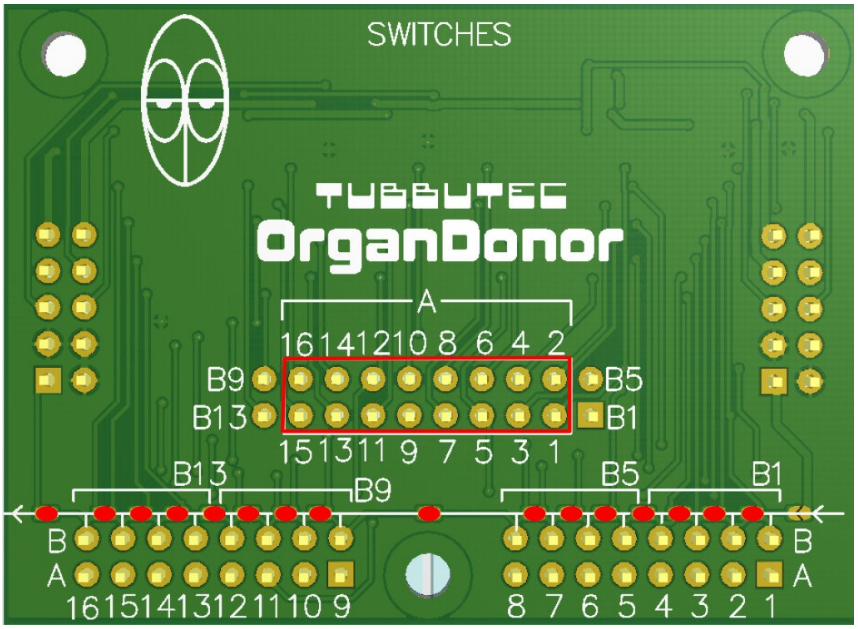
That means that there might be more screws than needed for your model, or the wires are too long, or there might even be a wire assembly you don’t need for your installation. So don’t get confused.

But most importantly this also means you have to solder the shrouded headers to the switch boards, and solder the little jumpers on the backside of the switchboards.

Here’s how to do it:

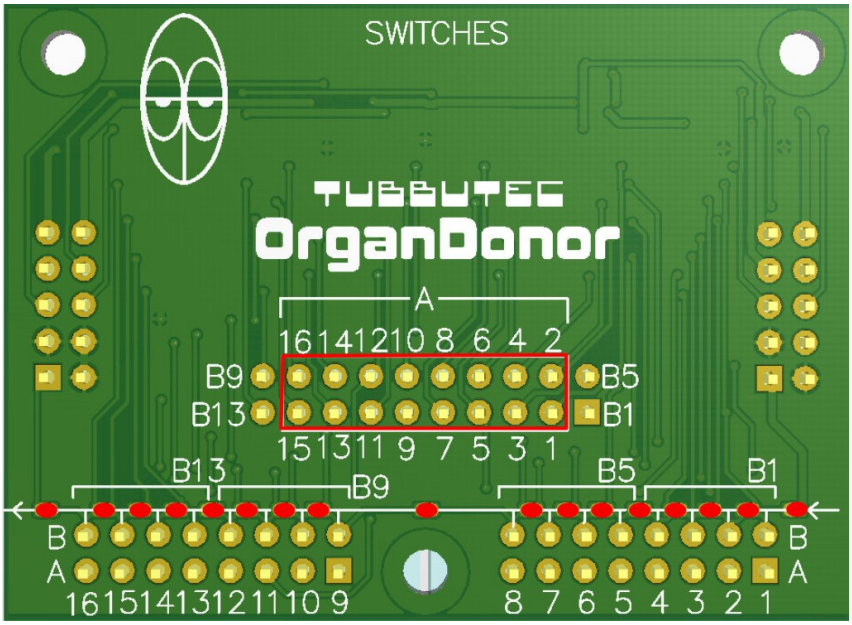
Switchboard 1

16pin Header – make sure to install the header centered on the top side of the board. Solder the jumpers on the backside of the board as shown.



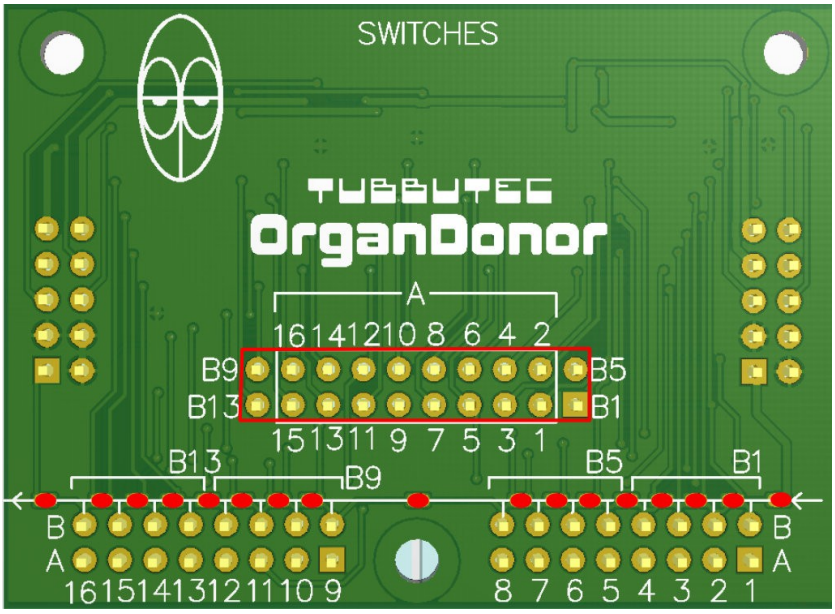
Switchboard 2

16pin Header – make sure to install the header centered on the top side of the board. Solder the jumpers on the backside of the board as shown.



Switchboard 3

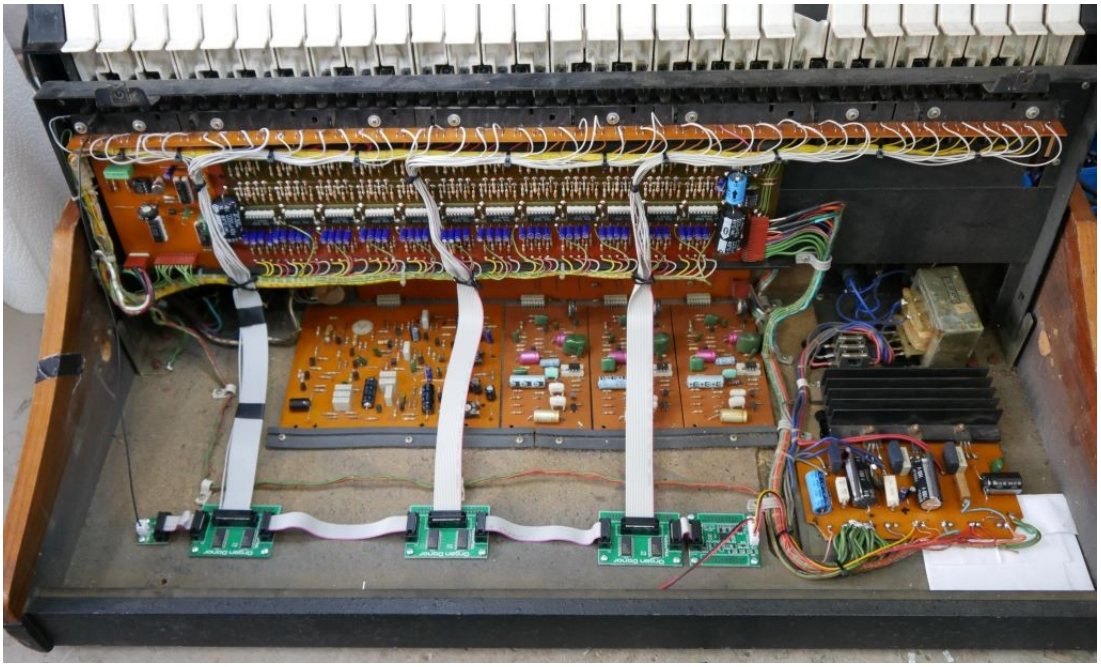
20pin Header – make sure to install the header on the top side of the board. Solder the jumpers on the backside of the board as shown.



Switchboard 4 (Single Switch)

We already soldered the jumper on this board, you can use it as is.

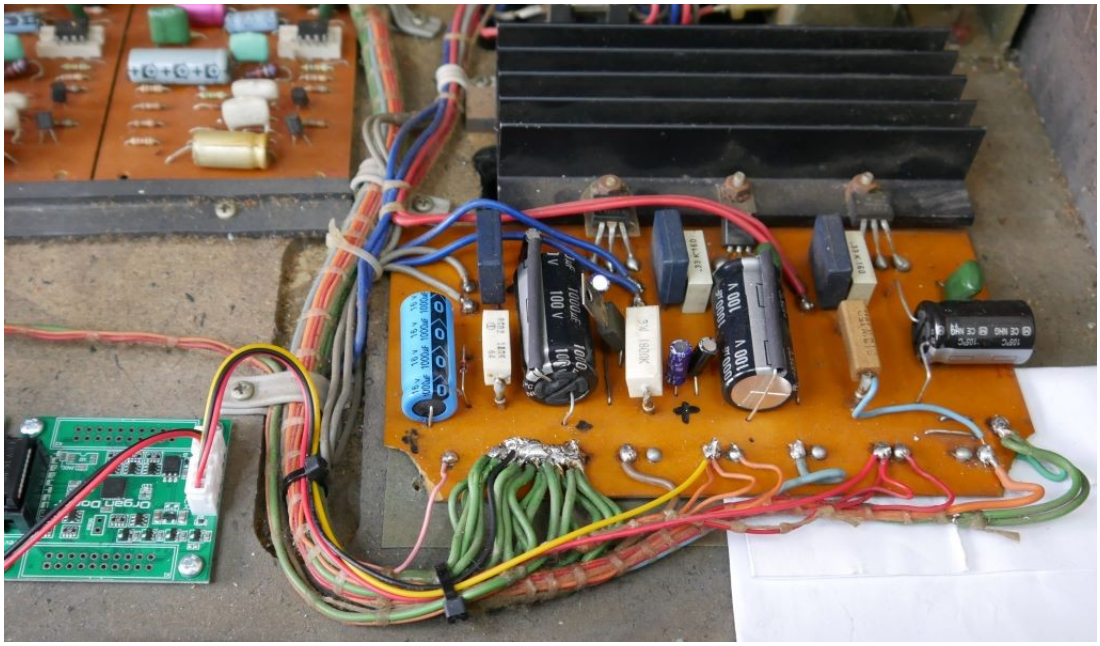
Switch board installation



Mount the switch boards and the main board on the bottom plate of the synthesizer as shown in in the picture using the 17 2,9x6,5mm screws. The rightmost and middle board have 16pin connectors, the large one on the left a 20pin connector. The leftmost board is a single switch pcb, especially for 49-key synths.

Plug in the interconnection cables between the boards.

Now solder the power connections as follows:



The black wire gets soldered to the green ground wires, the yellow wire gets soldered to the orange wires (-12V) and the red wire gets soldered to the red wires (+12V).

Please note that the board are installed upside down in reverse order (counting from right to left) to make sure we don’t need a too long interconnection cable between the main board and the first switch board.

That also means the key assignment is reversed, switch 1 triggers the highest note and switch 49 triggers the lowest note. Keep that in mind should you wish to play with the configuration!

Installing the key contacts

Cut the ribbon cables to length and strip the wires.

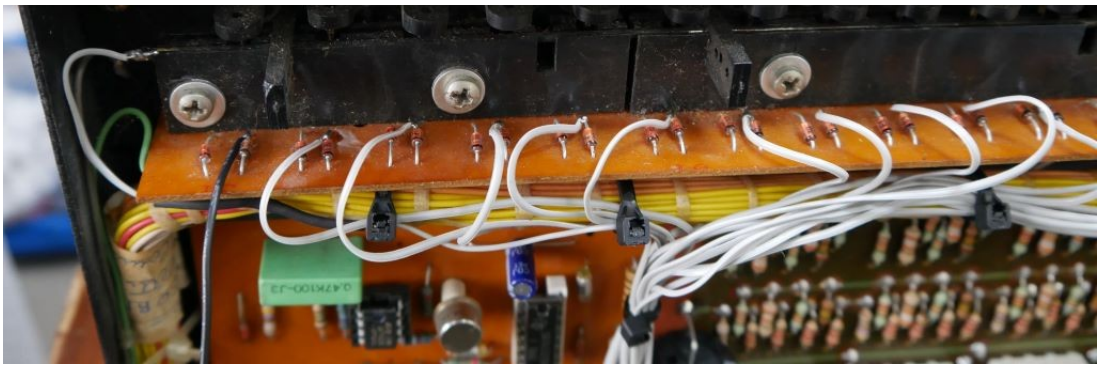
Switch board 3 (20pin connector):

Wires 1 and 2 get cut.

Wires 18–3 get soldered to key contacts 2–17.

Wire 19 gets cut.

Wire 20 gets soldered to the busbar (common contact).



There are 2 diodes per key. The switch contacts get soldered to the anode of the right diode.

Switch board 4 (the tiny one):

The single wire gets soldered to the lowest key contact.

Switch board 2 (16pin connector):

Wires 16-1 get soldered to key contacts 18-33.

Switch board 1 (16pin connector):

Wires 16-1 get soldered to key contacts 34-49.

Installing the midi socket

The midi socket can be installed on the back of the machine (not pictures).
Use the provided drill guide to center punch the locations of the 3 holes. The two small holes need to be about 3.2mmm to 3.5mm in diameter, the large hole 15mm. Here we typically use a stepping drill.
Install the MIDI socket using the 2 M3x8mm screws and the 2 M3 nuts.

Installing the optional learn button

The optional learn button can be used to set midi channel. It needs to be connected to the IO “2” and “G” pin on the main board. (The back of the main board has labels on it). Wires are not included in the kit.
Press the learn button and while it is pressed send a midi note on any midi channel. organDonor will use this midi channel from now. These settings are saved.

Configuration

You need to flash the corresponding configuration file to OrganDonor using our configuration tool.
The configuration tool can also be used to experiment with settings and key assignments.
You`ll find the configurator here:
https://tubbutec.de/files/organDonor/tubbutecOrganDonorConfigurator.html
This is a browser application, it works with Chrome and Safari right away, Firefox needs to be configured for web MIDI.
The configurator allows you to upload your settings directly from your browser to Organ Donor, safe and load settings and export settings as SysEx files for uploading to Organ Donor via another SysEx tool.