

Tubbutec OrganDonor

Installation manual for Yamaha SK-10



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 with installed PNP transistor
- 3x organ Donor Switch Board, 3x20 pin connector
- Analog switch connection: 3x20 – 21cm, 29cm, 55cm
- Interconnect cables: 1x 80cm, 1x 23cm, 1x 12cm
- Midi connector assembly
- Power connector
- Learn button
- 2x screw 2,9x9,5, 3x screw M3x16mm
- Midi socket drill guide
- 2x M3 bolt, 2xM3 nut for midi socket

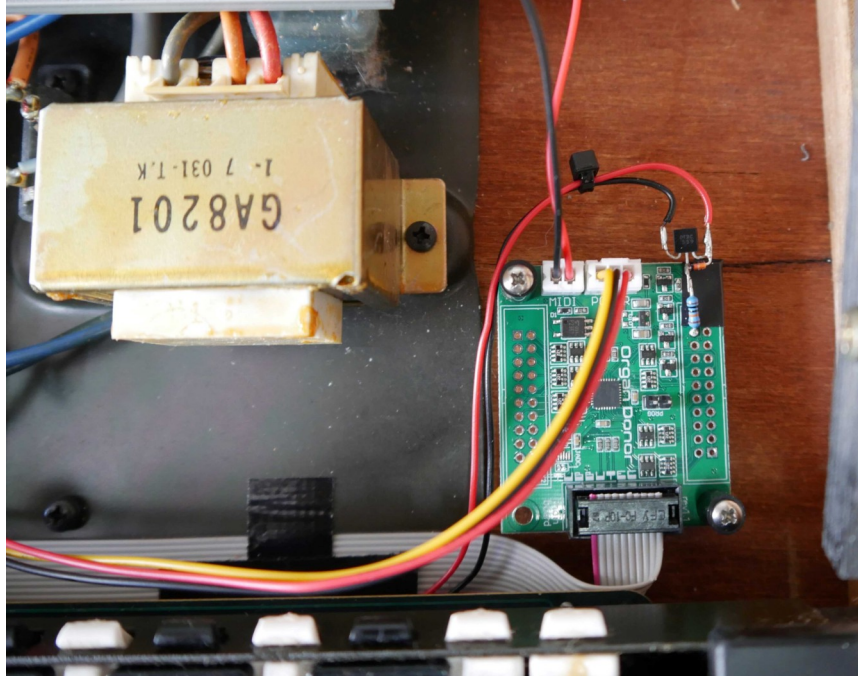
Principle of operation

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. We already connect these jumpers for you.

In the case of the Yamaha SK-10 there are 8 common signals.

Main board installation

Mount the main board with the 2 2,9x9,5 screws directly on the bottom of the synthesizer, right next to the power transformer.

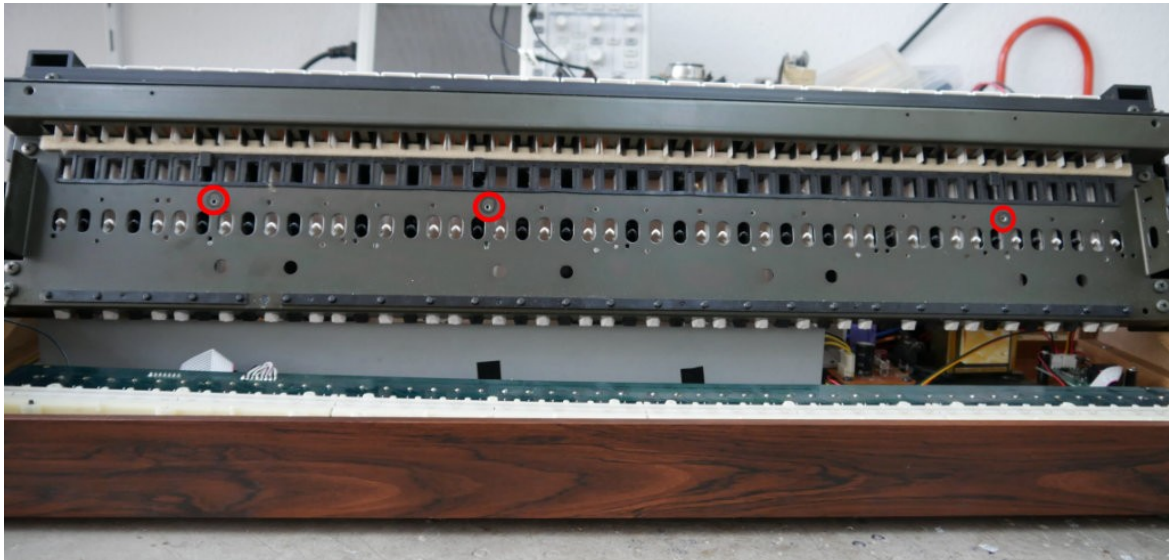


Solder the power cable assembly to the bottom side of the regulator board as shown. The red wire of the cable assembly gets soldered to one of the black cables on the bottom side of the connector, the black and yellow wires get soldered to the yellow wires on the bottom side of the connector.

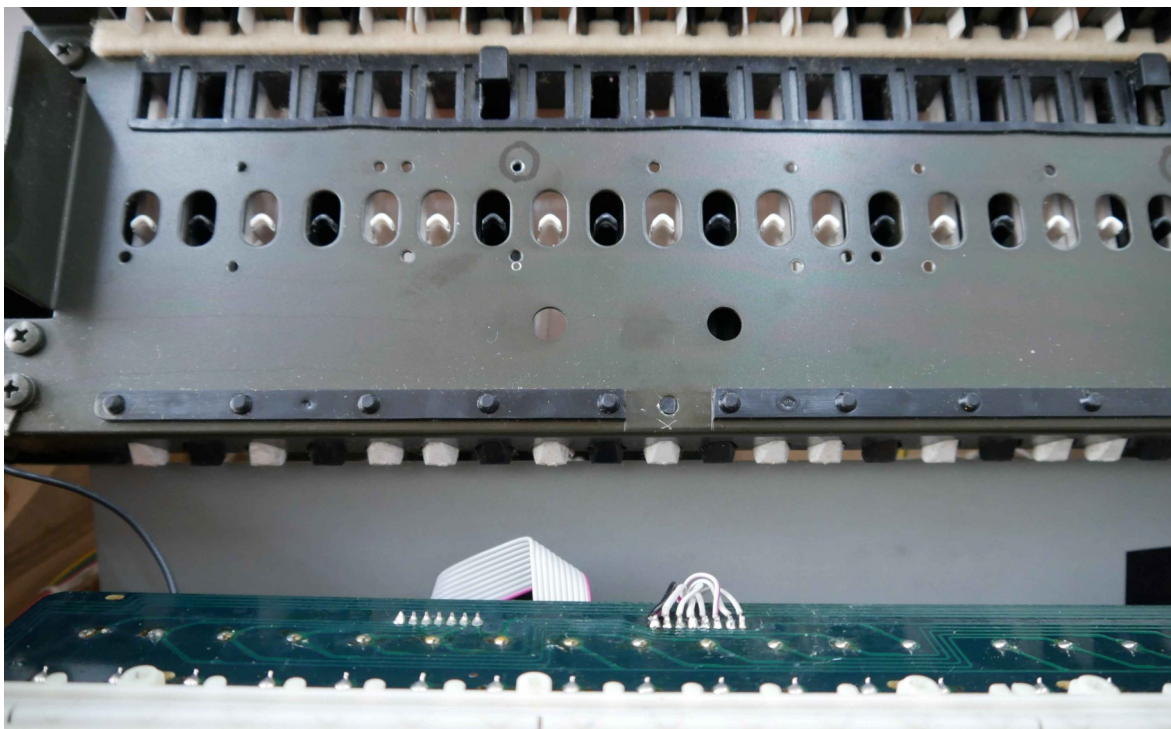


Switch board installation

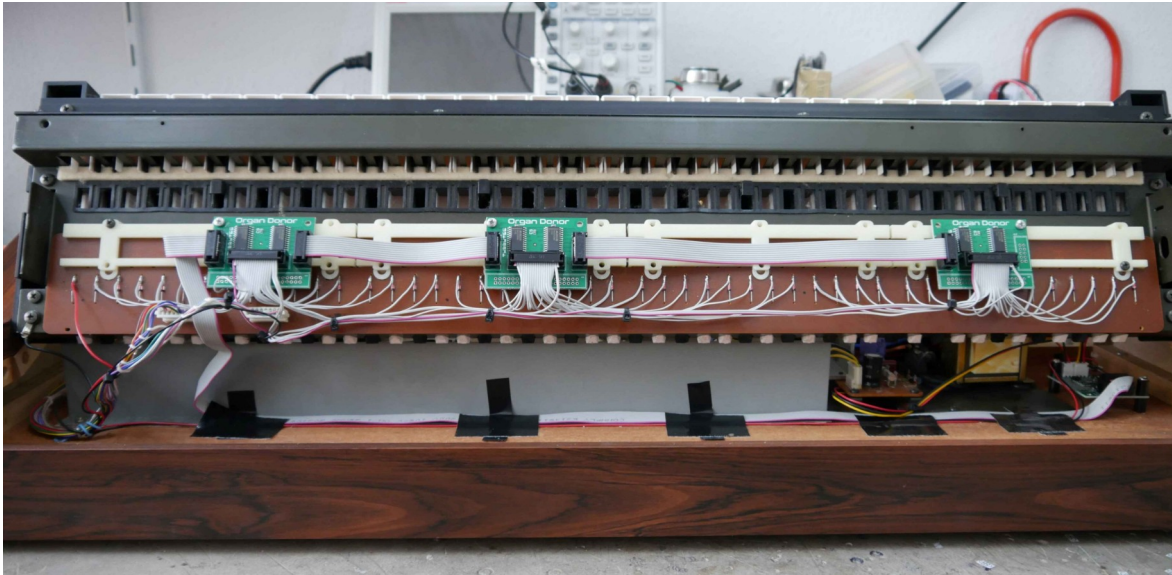
Before you mount the switchboards you need to prepare a few things. First you need to disassemble the keyboard pcb by removing all screws. Then you need to cut a thread in the marked holes (M3 – if you don't have an M3 thread cutter you can optionally order one with the kit).



Next you need to cut away a bit of the rubber strip directly under the keyboard connector. This is where the common connections get routed to the connector.



Now reassemble the keyboard pcb, but use only the 3 M3x16mm to screw the switch boards to the holes you cut the threads in. Leave the other screws away for now.

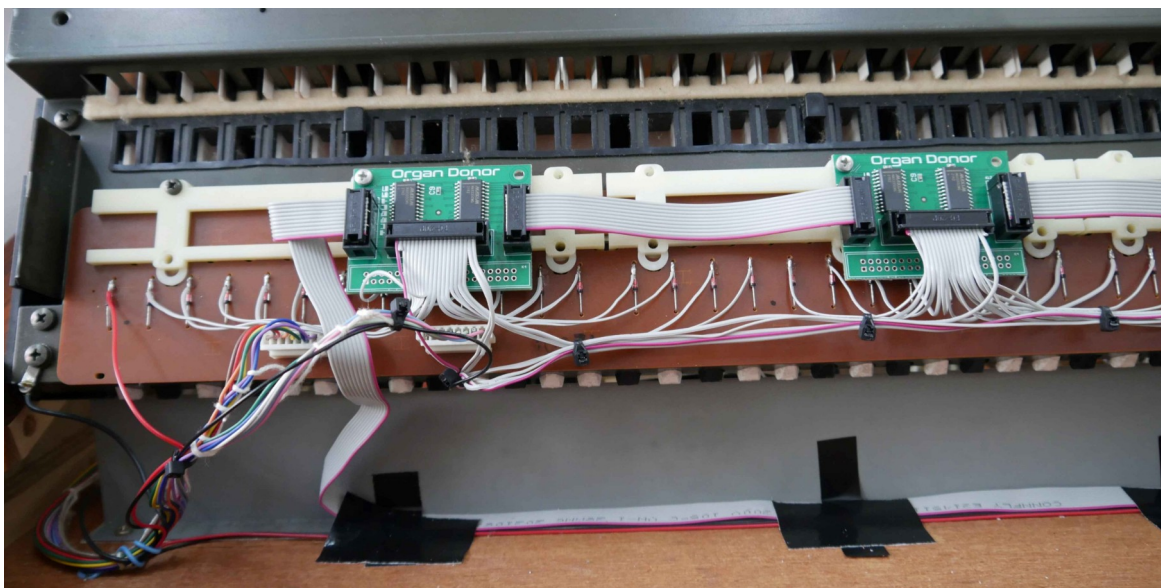


Install the interconnection cables and the switch cable assemblies.

Cut the cables to length and strip the wires.

Now solder the wires to the Anode side of the diodes on the keyboard pcb.

ATTENTION: the first wire of switch board 1 gets soldered to the second diode on the keyboard pcb and so on. More on that later.



Switch board 1:

Wire 2 gets cut.

Wires 3-18 get soldered to diodes 2-17 on the keyboard pcb.

Switch board 2:

Wire 1 gets cut.

Wires 3-18 get soldered to diodes 18-33 on the keyboard pcb.

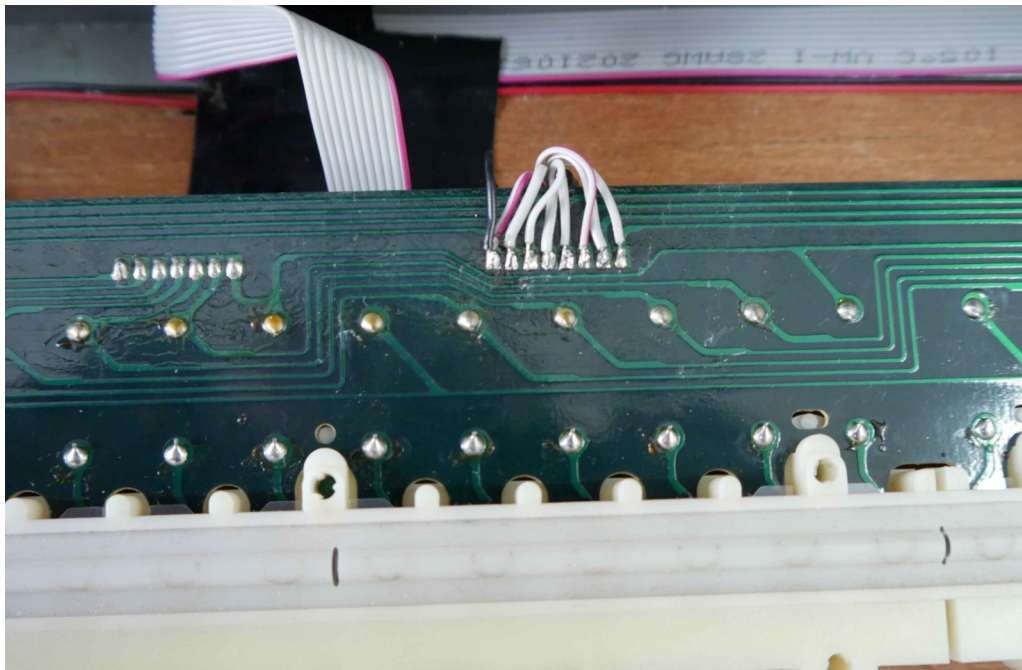
Wire 20 gets cut

Switch board 3:

Wires 3-18 get soldered to diodes 34-49 on the keyboard pcb.

Wire 19 gets cut.

Next you need to solder the common connection wires to the backside of the keyboard connector on the keyboard pcb. To do so disassemble the keyboard pcb again carefully to get access to the backside.



Switch board 1:

Wire 1 gets soldered to the first pin of the keyboard connector (counted from the left in the picture).

Wire 19 to the second pin.

Wire 20 to the third pin.

Switch board 2:

Wire 2 gets soldered to the fourth pin of the keyboard connector.

Wire 19 the fifth pin.

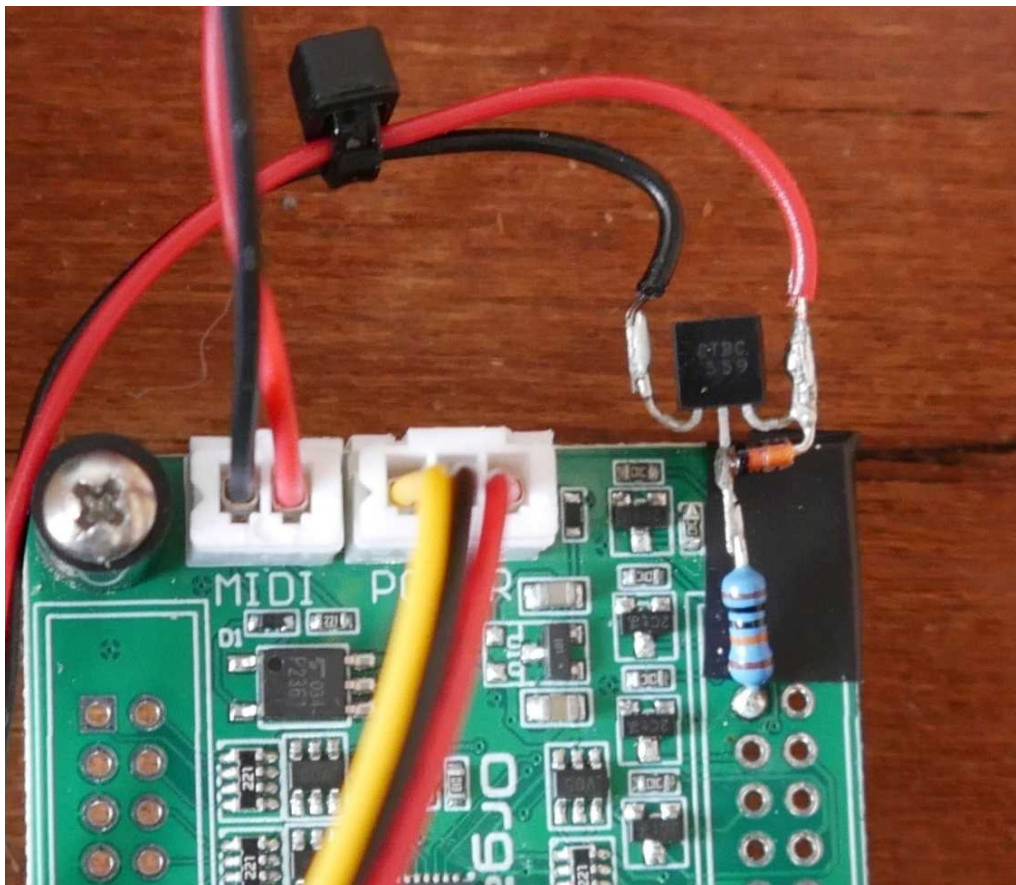
Switch board 3:

Wire 1 gets soldered to the sixth pin of the keyboard connector.

Wire 2 to the seventh pin.

Wire 20 to the eighth pin.

Next up is the switch contact for the lowest key. This key gets triggered via a PNP transistor on the main board. Solder the black cable coming from that transistor also to pin 1 of the keyboard connector. The red wire coming from the transistor gets soldered to the Anode side of the first diode on the keyboard pcb.



Now you can reassemble the keyboard pcb and secure all the screws. Make sure to route the common wires through the cut-out in the rubber strip.

Installing the midi socket

The midi socket can be installed on the back of the machine like we did. Use the provided drill guide to center punch the locations of the 3 holes. The two small holes need to be about 3.5mm in diameter, the large hole 15mm. Here we typically use a stepping drill.



Installing the 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 on. These settings are saved.

Configuration

We already flashed the corresponding configuration file to Organ Donor. There is, however, a software configuration tool available, in case you want to play around 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 OrganDonor, save and load settings and export settings as SysEx files for uploading to Organ Donor via another SysEx tool.