

Mounting a 720 kB disk drive into a Philips VG 8235/20

Original by: Bas Kornalijnslijper

Translated by: Jan Wilmans and Bart Hamer

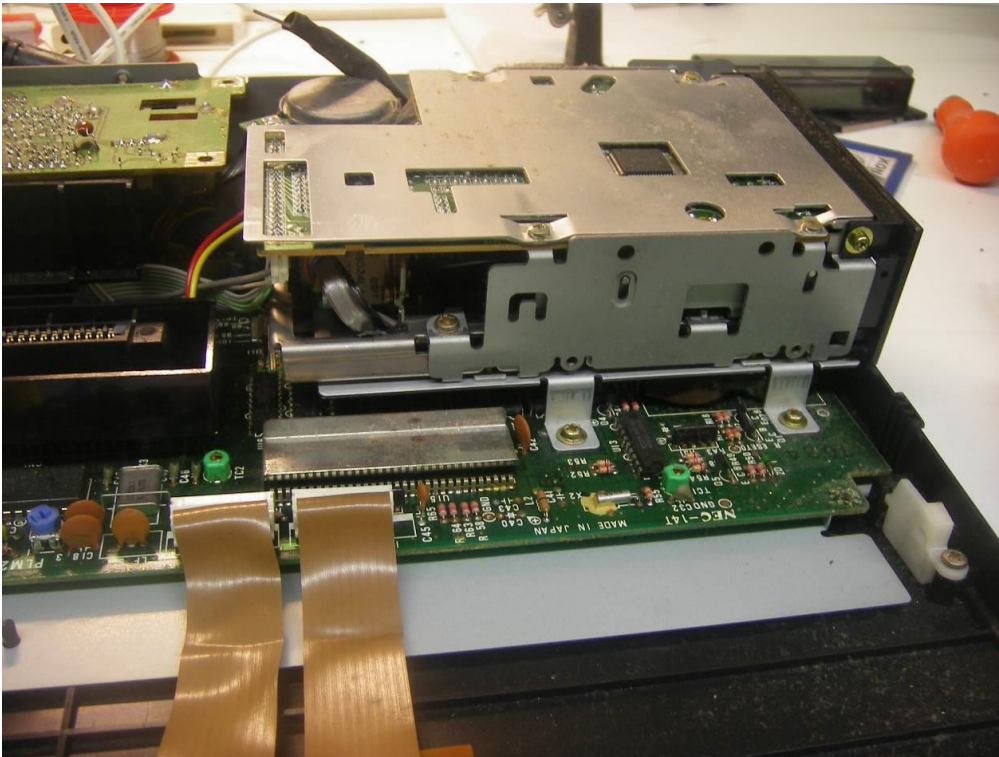
Warning:

The most important part in the computer is the printed circuit board (PCB). Parts can be replaced, but not the PCB. Do not try to unsolder the parts, but cut them loose and then remove the solder pins. The use of IC sockets is recommended.

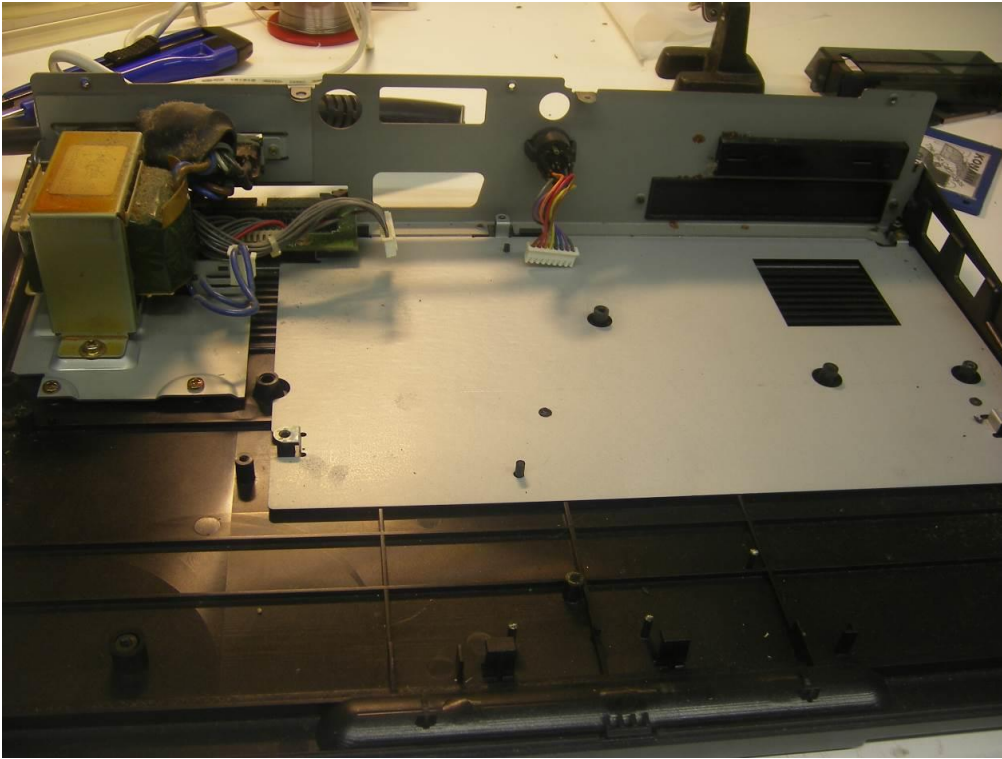
The Philips VG 8235 comes with a single sided disk drive (360 kB). This instruction is only for the Philips VG 8235/20 (see underside of computer). The Philips VG 8235/00 is significantly different. For this model a separate manual is available.

Disassembly

- Remove the case, there are two clips, one on each side of the outer casing.
- Remove the keyboard, it is attached to a board with a band wire that can be unplugged.
- Remove the AV-PCB.
- Remove the disk drive.
- Remove the power supply PCB.
- Remove the main board.



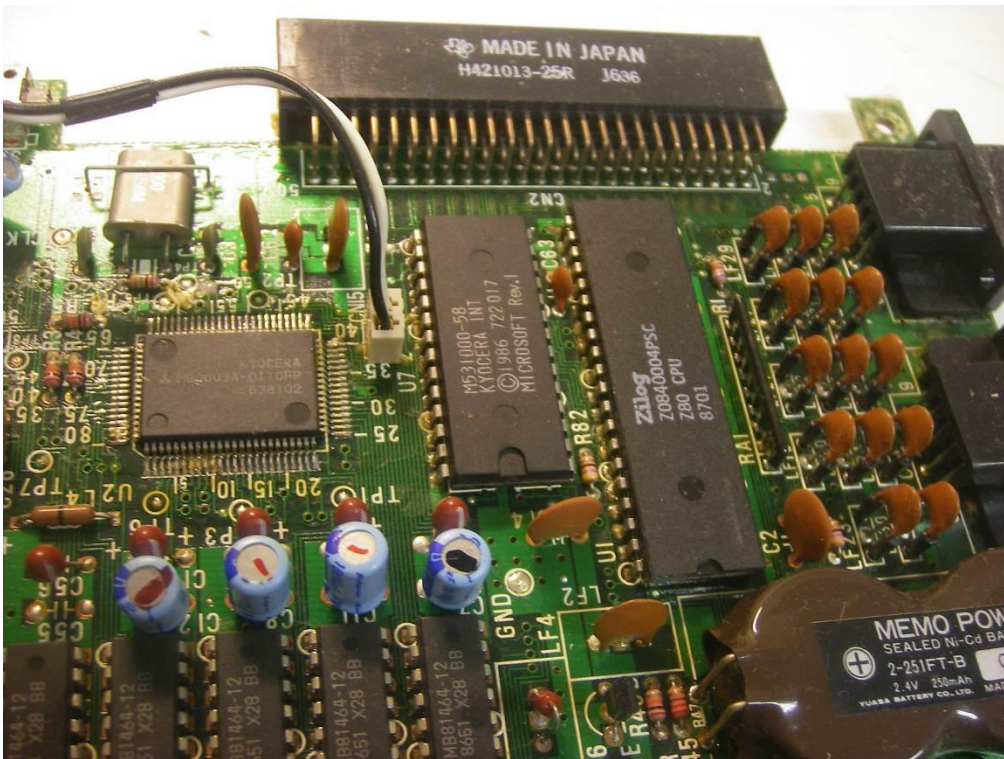
The single sided disk drive.



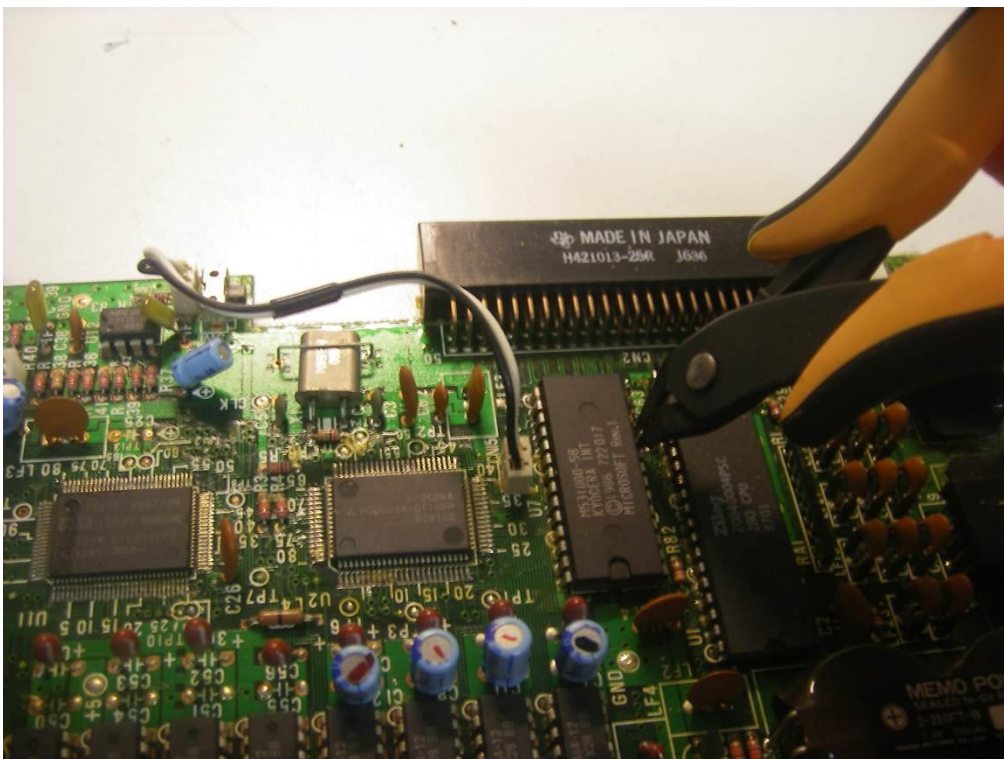
After disassembly.

Main board changes

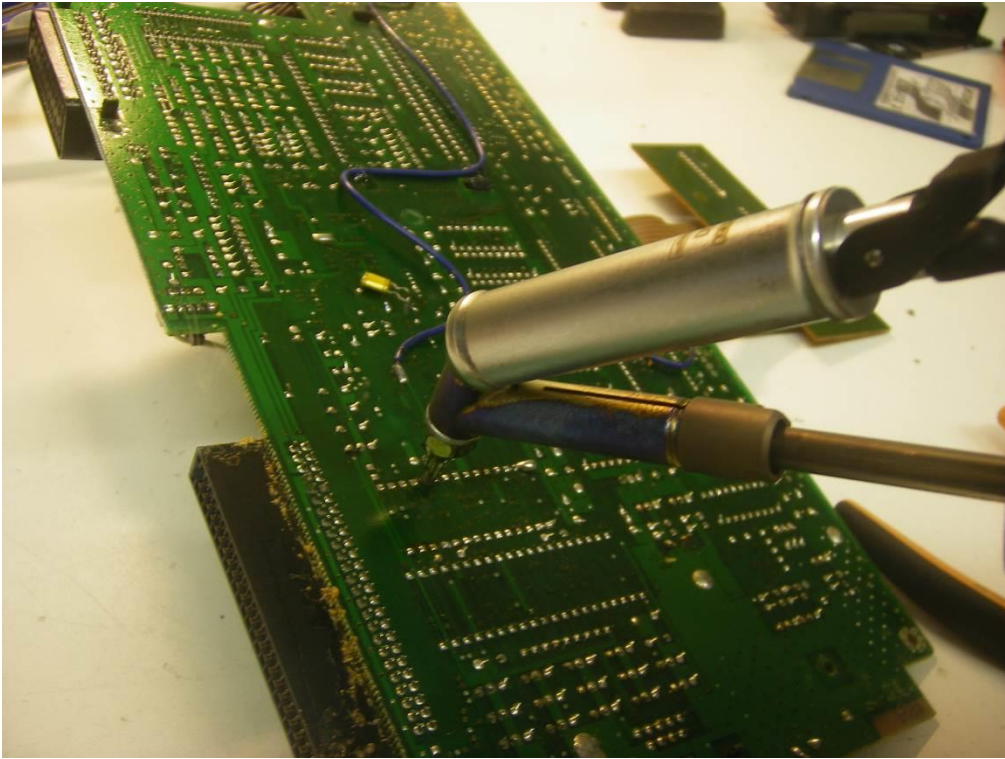
- Remove U7, the system-ROM. There are two different versions, the computer in the picture has a soldered-on system-ROM and in this case all U7's pins are cut first, the pins are de-soldered and finally the pads are cleared and cleaned.
- Mount a 28-pin IC-Socket in place of U7 and insert the new system-ROM (27C512 EPROM). This new system-ROM is required for double-sided operation.
- At the bottom side of the main board two extra connections need to be added. (Located on the disk drive connector side of the main board).



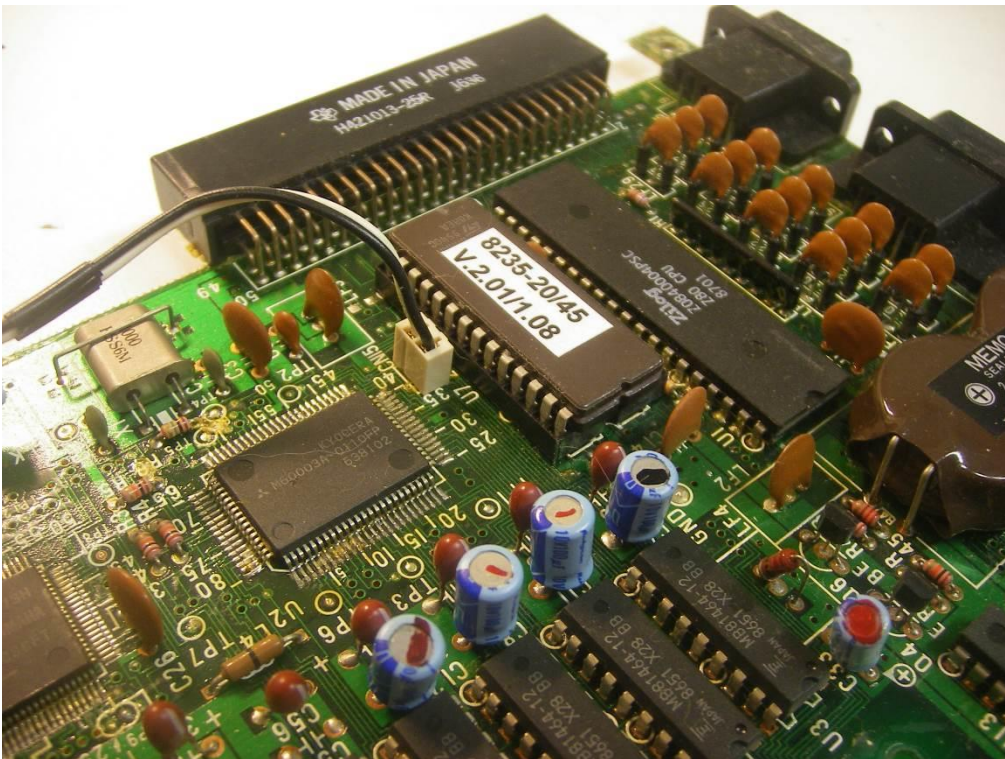
This original system-ROM is directly soldered onto the PCB.



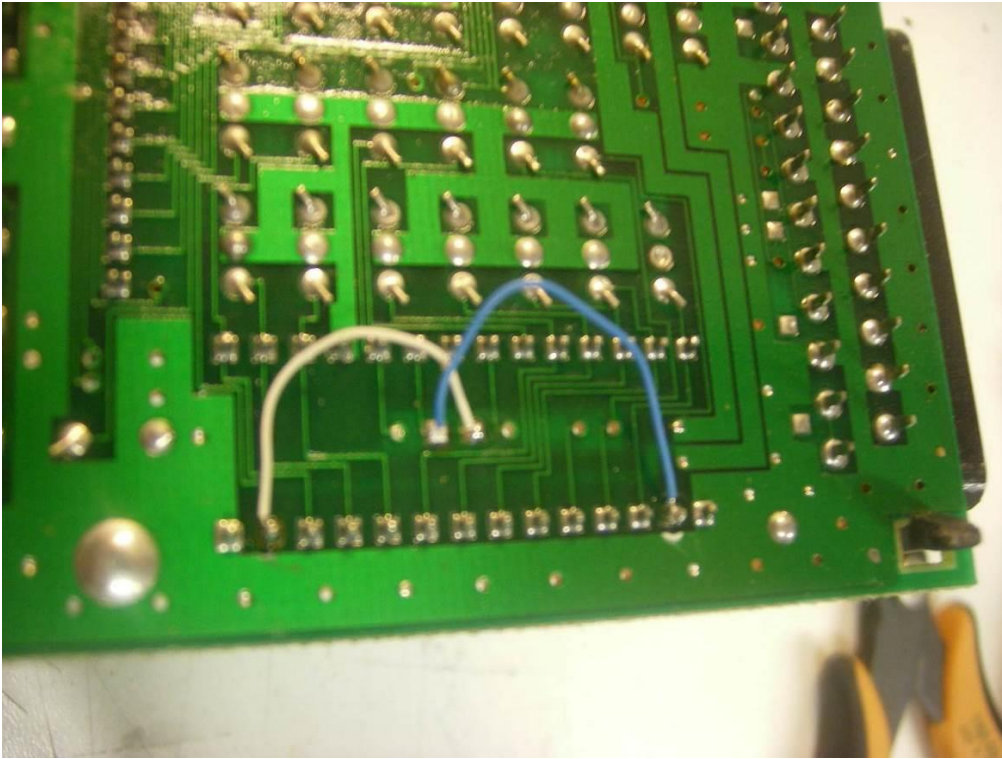
Cut all the pins of the system-ROM, U7, and remove all the pins afterwards.



Cleaning the pads and removing all the solder.



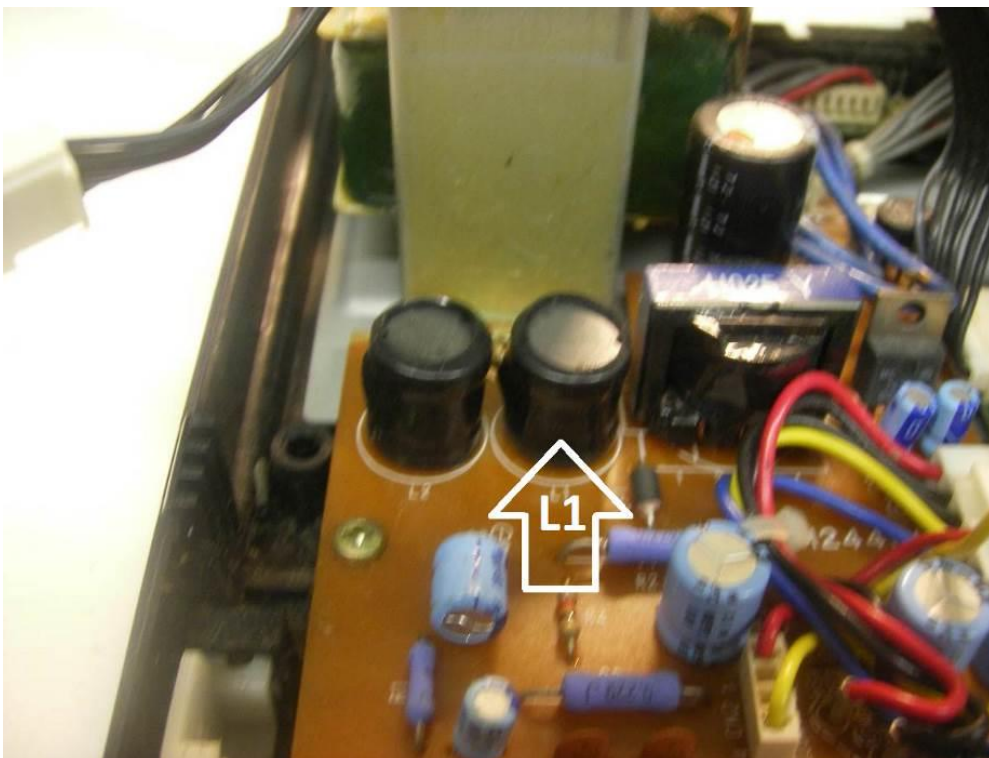
The new system-ROM seated in a 28-pin socket.



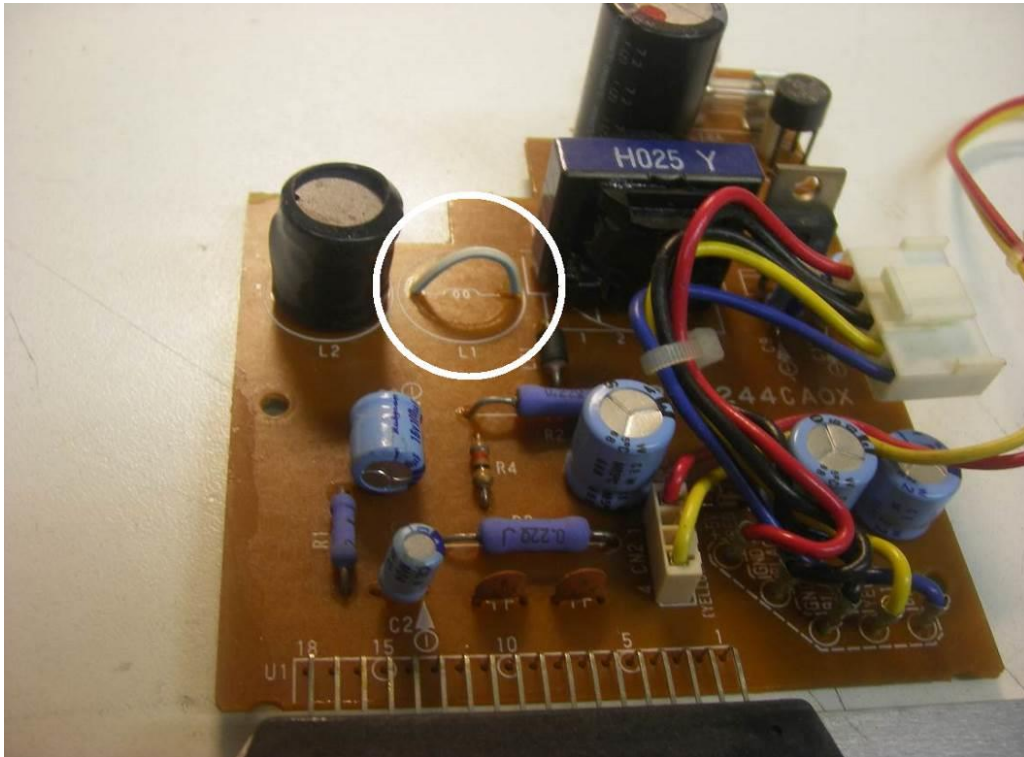
Two extra connections at the bottom side of the main board are required.

Adjustments to the power supply

The original disk drive of the Philips VG 8235 uses a 14-pin connector. Also, it requires both +12V DC and +5V DC. The replacement disk drive has a 34-pin connection and requires only +5V DC. Because the new disk drive requires more power from the +5V DC powerline distortions can be seen on the screen during disk activity. This problem can be solved by replacing coil L1 on the power supply PCB with a wire.



The power supply before removing L1.



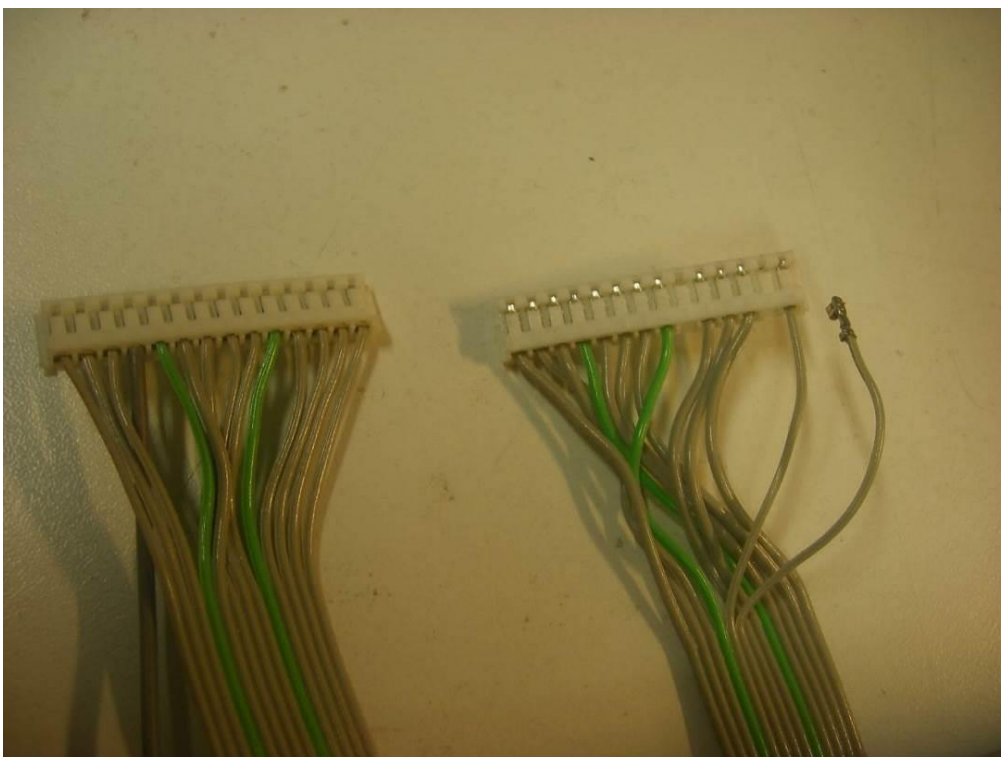
The power supply after replacing L1 with a wire.

Adapting the 14-pin disk drive cable

The existing cable can be reused, but it needs to be rewired. This is done by putting several wires to different positions on the 14-pin connector at the disk drive side of the cable. It can then be plugged into the 34-pin disk drive connector. The 'thicker' gray wire (pin 11) is a ground wire, it is connected next to the red wire in the 4-pin power connector of the disk drive.

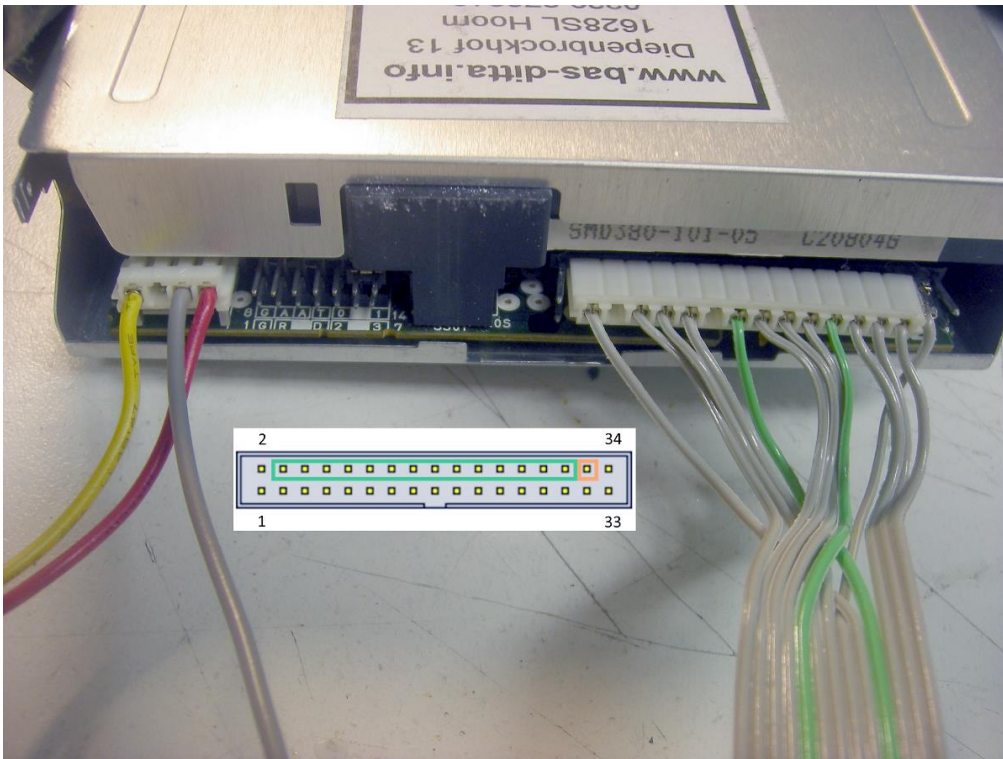
Connections of the 14-pin cable:

Main board side		Disk drive side
1	-----	3
2	-----	8
3	-----	9
4	-----	10
5	-----	11
6	-----	4
7	-----	5
8	-----	Connected right next the 14-pin connector at position '15'.
9	-----	1
10	-----	7
11	-----	Connected to the ground of the power supply of the disk drive.
12	-----	12
13	-----	13
14	-----	14



Left: cable with original wiring.

Right: the rewired cable.

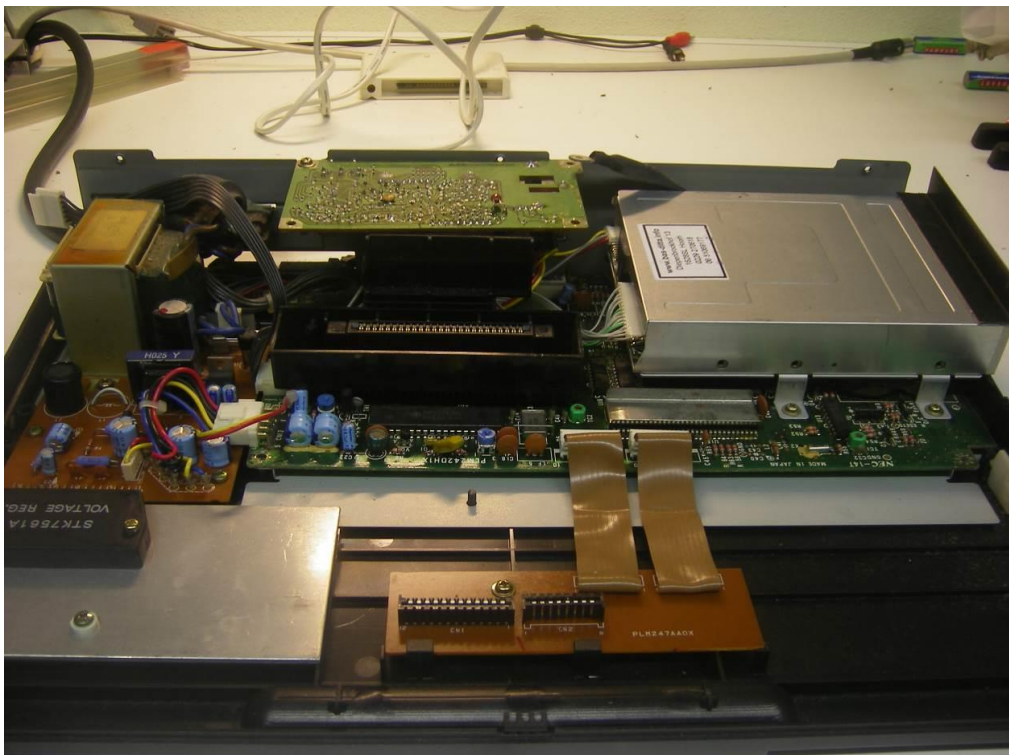


This is the way to connect the rewired cable without the need for a conversion PCB.

Mounting the disk drive

The 720 kB disk drive has to be compatible for usage in an MSX computer. Also, for using it as an A drive it has to be configured properly. Before mounting the disk drive, a filler piece is mounted on top of it. This is done to give it same height as the original disk drive. A piece of 15x15 mm angle profile can be used for this. It can be glued on using a sealant adhesive or double sided tape. The disk drive fits exactly on the original bottom bracket.

All parts are now ready and everything can be put together.



The Philips VG 8235/20 with a double sided disk drive mounted.