

Adding a 720 kB disk drive to a Philips VG 8235/20

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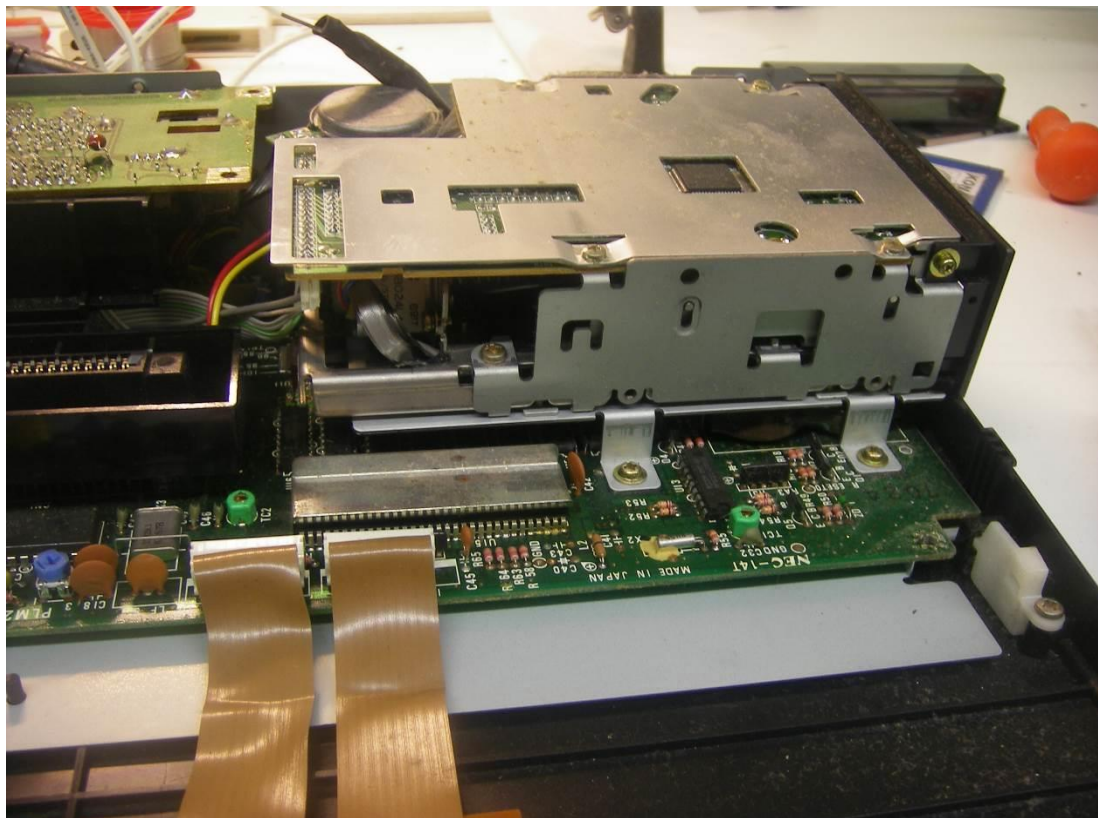
The Philips VG 8235 comes with a single sided disk drive (360 kB). These instructions apply only to the Philips VG 8235/20 (see underside of computer). The Philips VG 8235/00 is significantly different.

Before you start

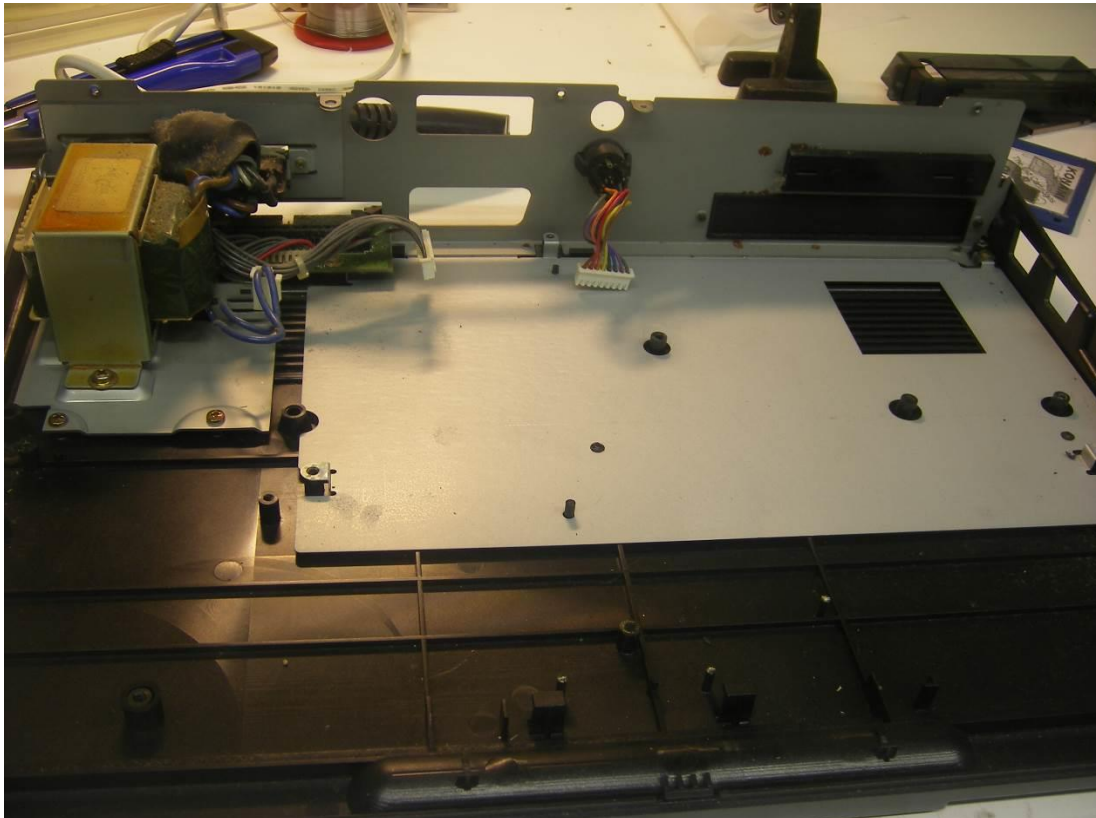
The disk drive you are going to use need to be compatible with MSX-usage and it needs to be configured correctly.

Disassembly

- Remove the case, there are two clips, one on each side of the outer casing
- Remove the keyboard, it is attached to main 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.

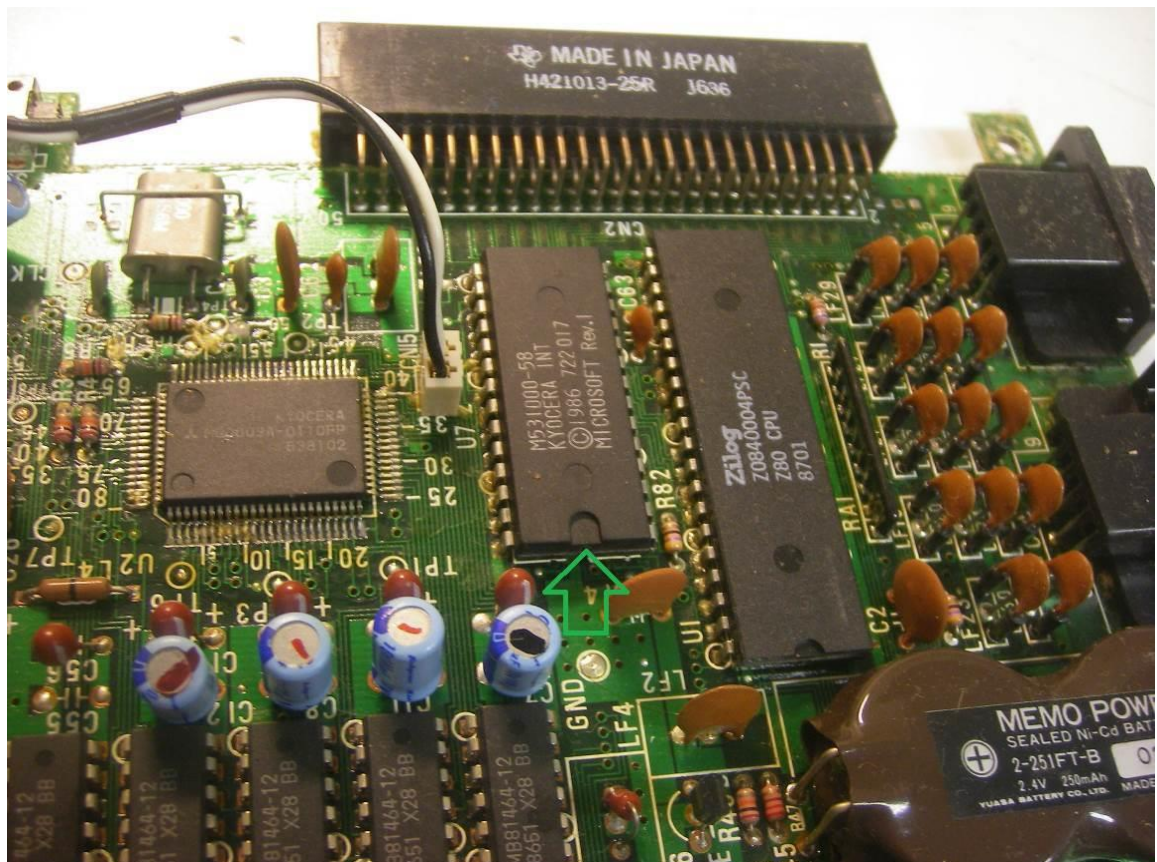
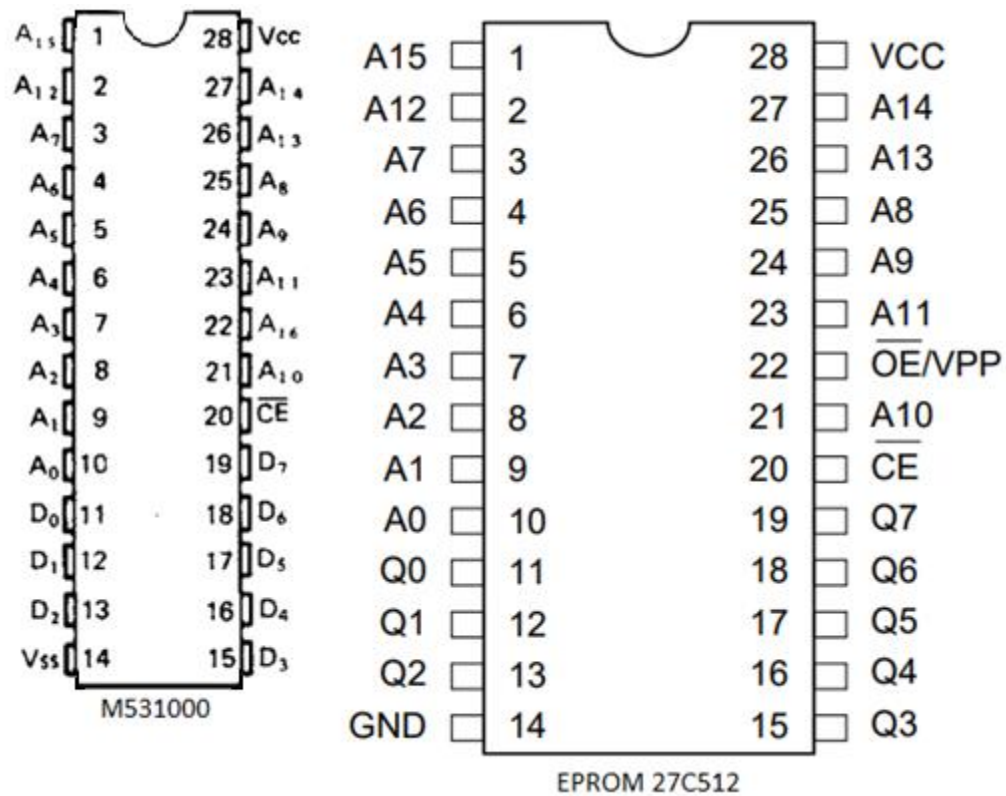
Main board changes

- 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.

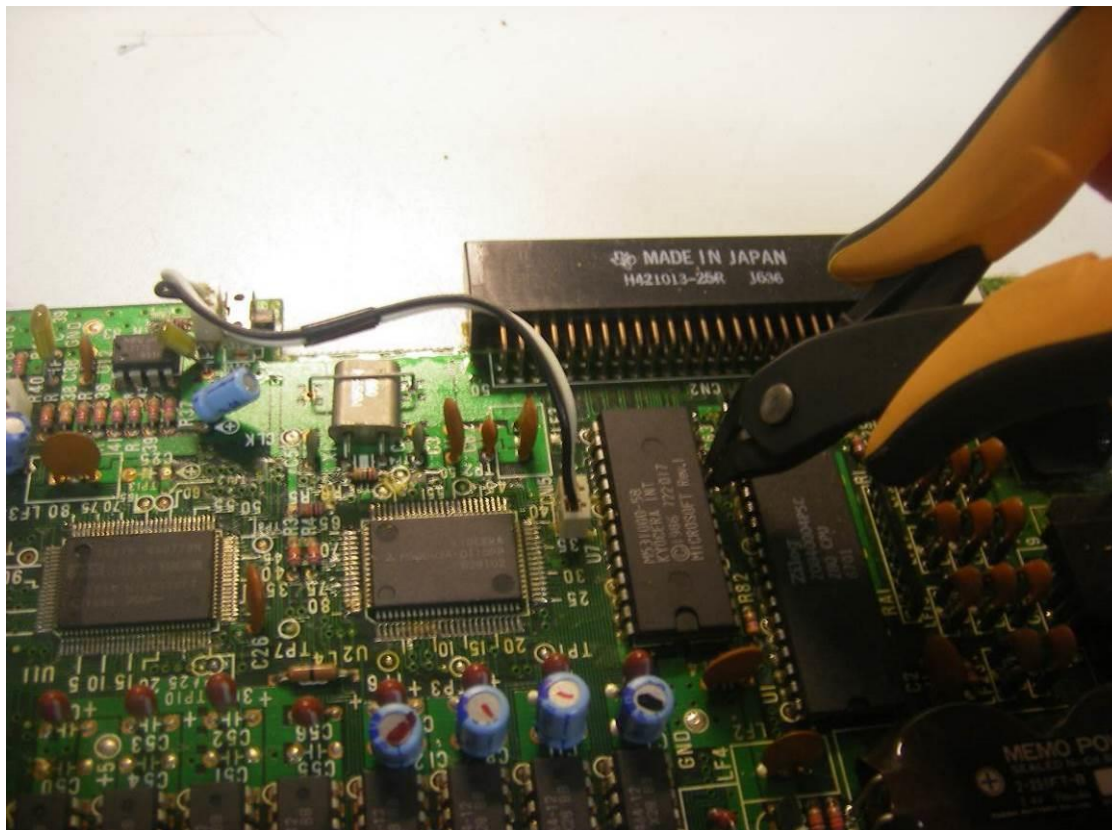
The original system-ROM can be either a 27C512 (a 64kB ROM) or a M531000 (a 128kB ROM).

Notice the 'notch' on the system-ROM and make sure to mount the new system-ROM in the same orientation.

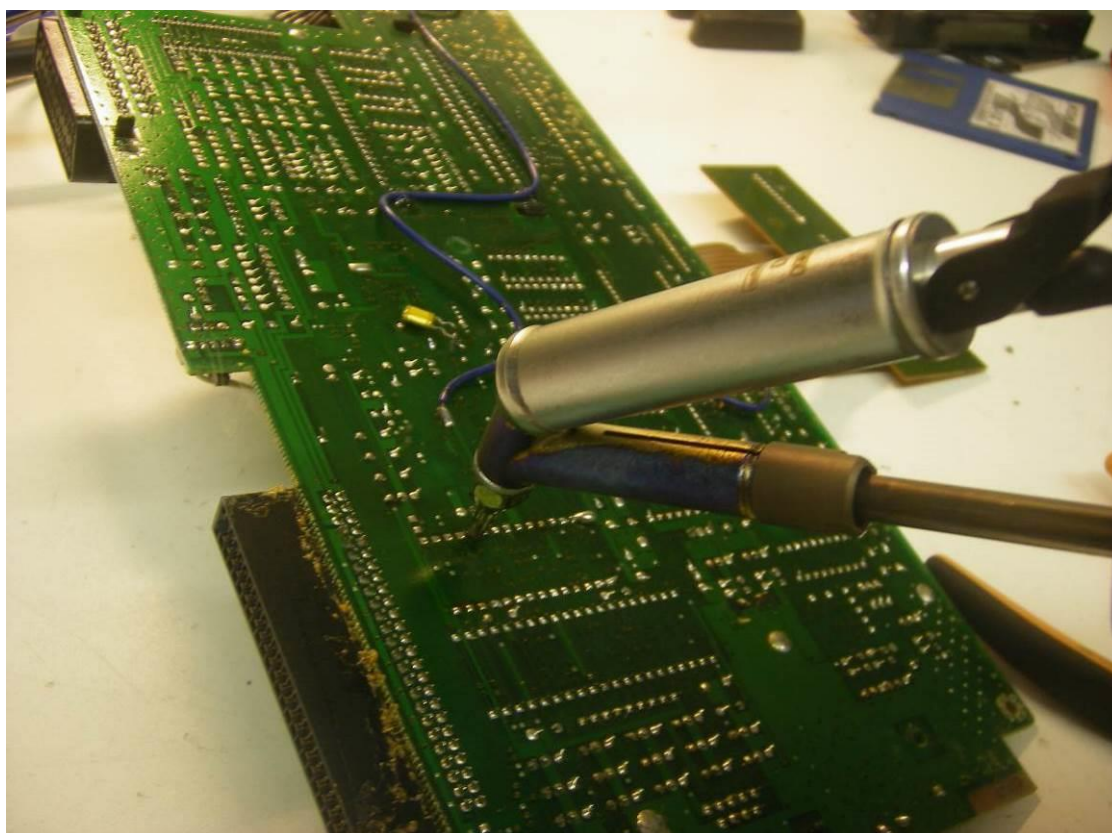
- At the bottom side of the main board two extra connections need to be added.
(Located on the disk drive connector side of the main board)



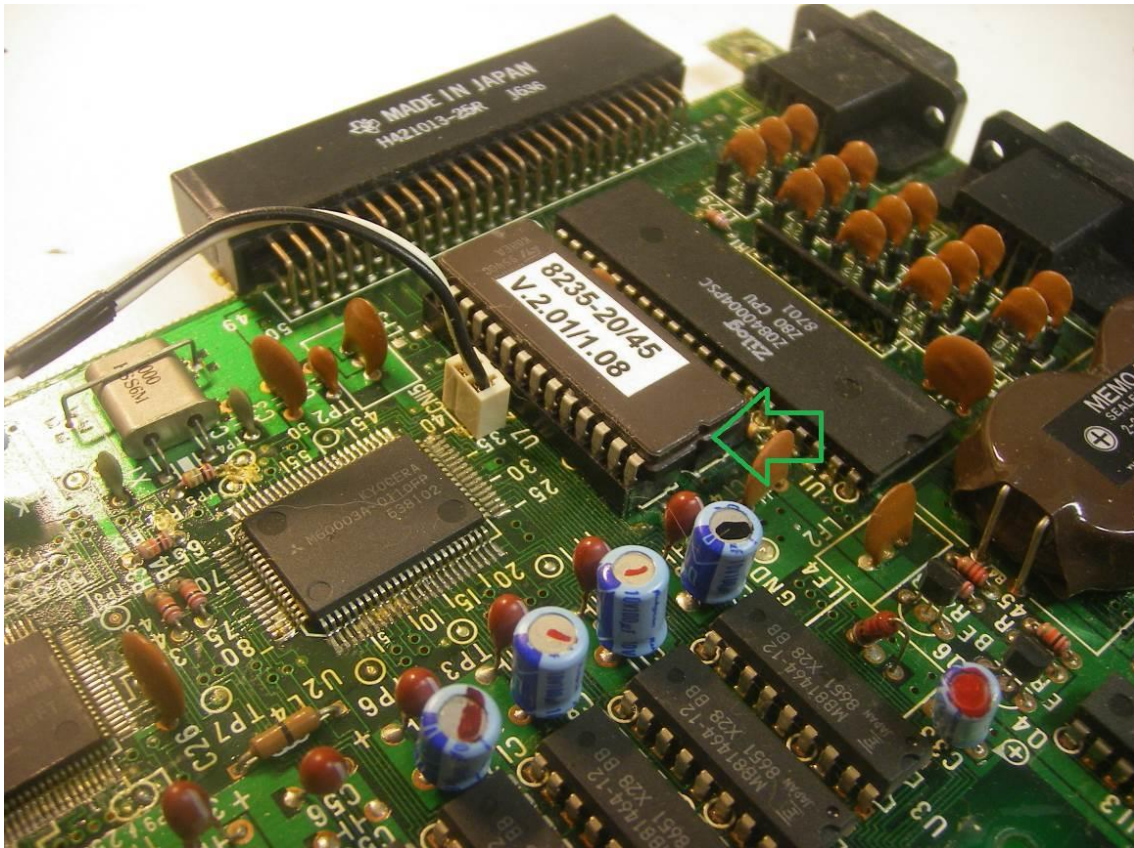
Here the original system-ROM is a M531000 which directly soldered onto the PCB.



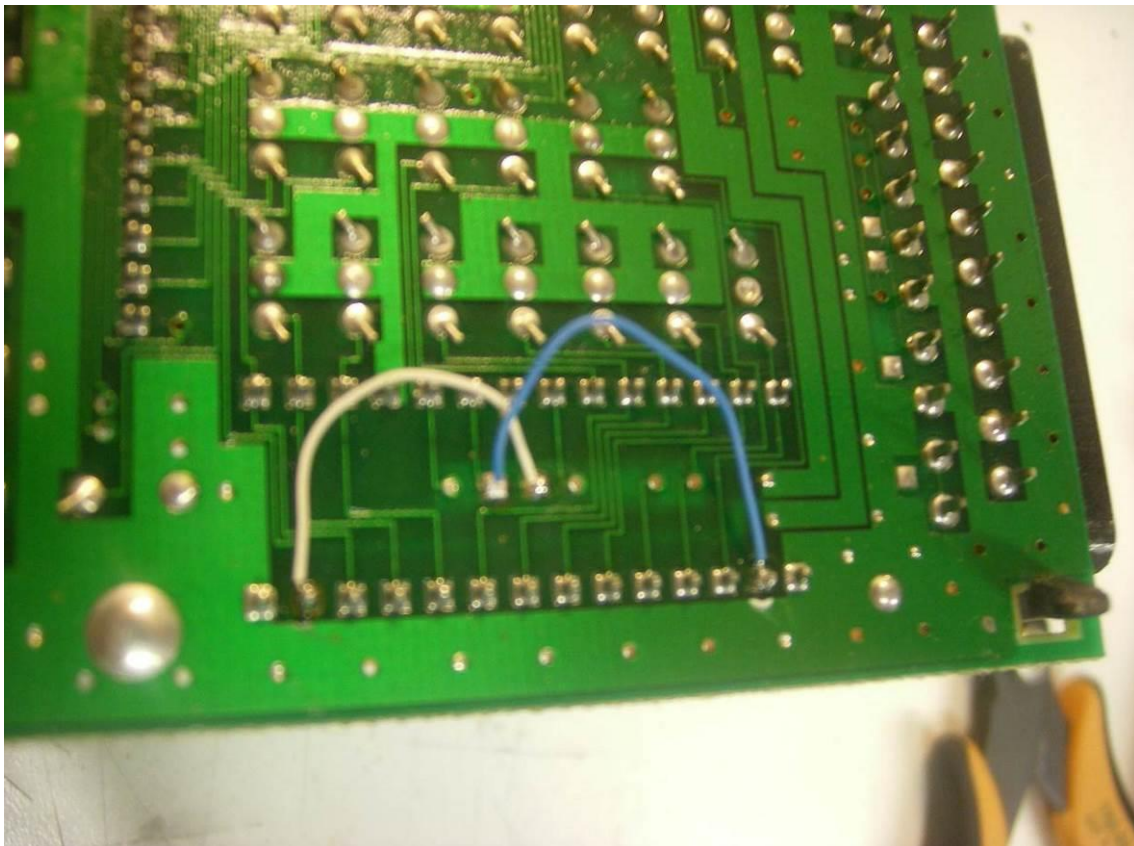
Cut all the pins of the system-ROM, U7, and remove all the pins afterwards.



Cleaning the pads and removing all the solder.



The new system-ROM seated in a 28-pin socket (low cost is fine).

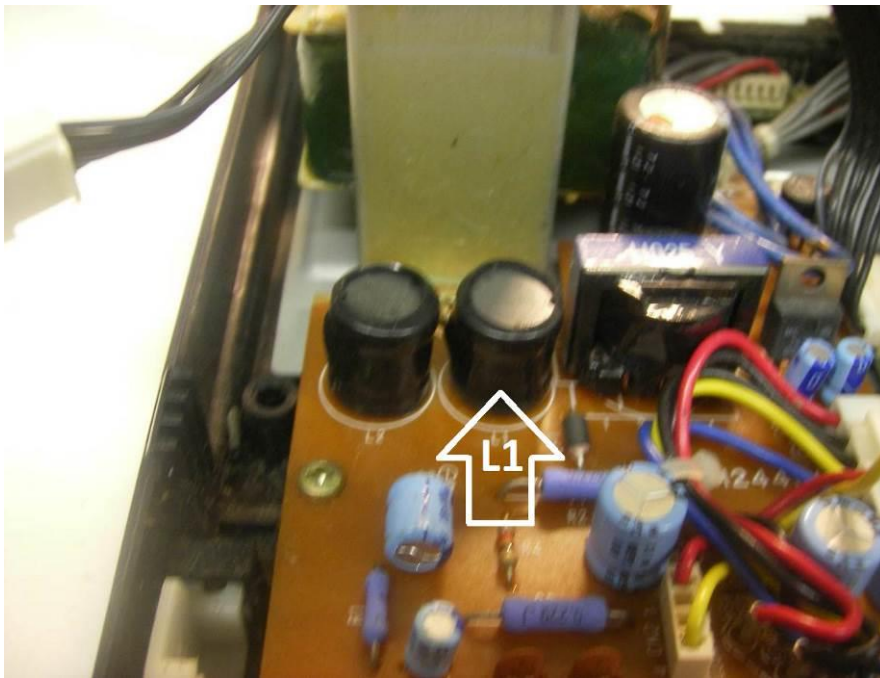


Two extra connections at the bottom side of the main board are required.

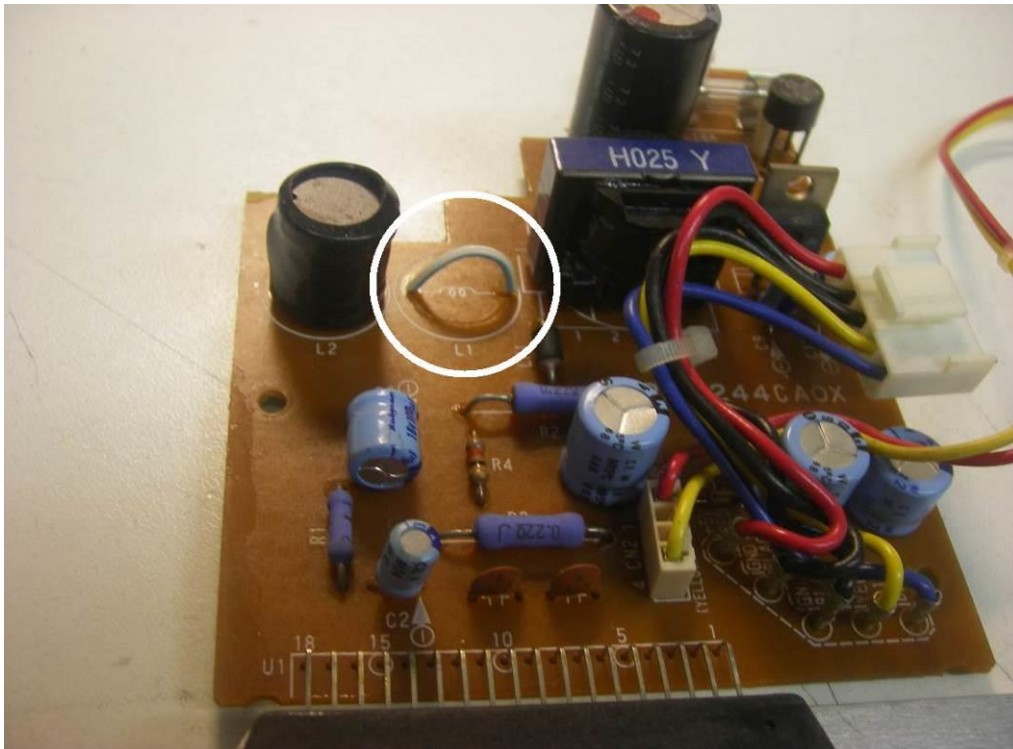
Adjustments to the power supply

The original disk drive of the Philips VG 8235 use a 14-pin connector. Also, it requires both 12V DC and 5V DC. The replacement disk drive has a 34-pin connection and require 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 resolved by replacing coil L1 on the power supply PCB with a simple wire.



The power supply before removing L1.



The power supply after replacing L1 with a simple wire.

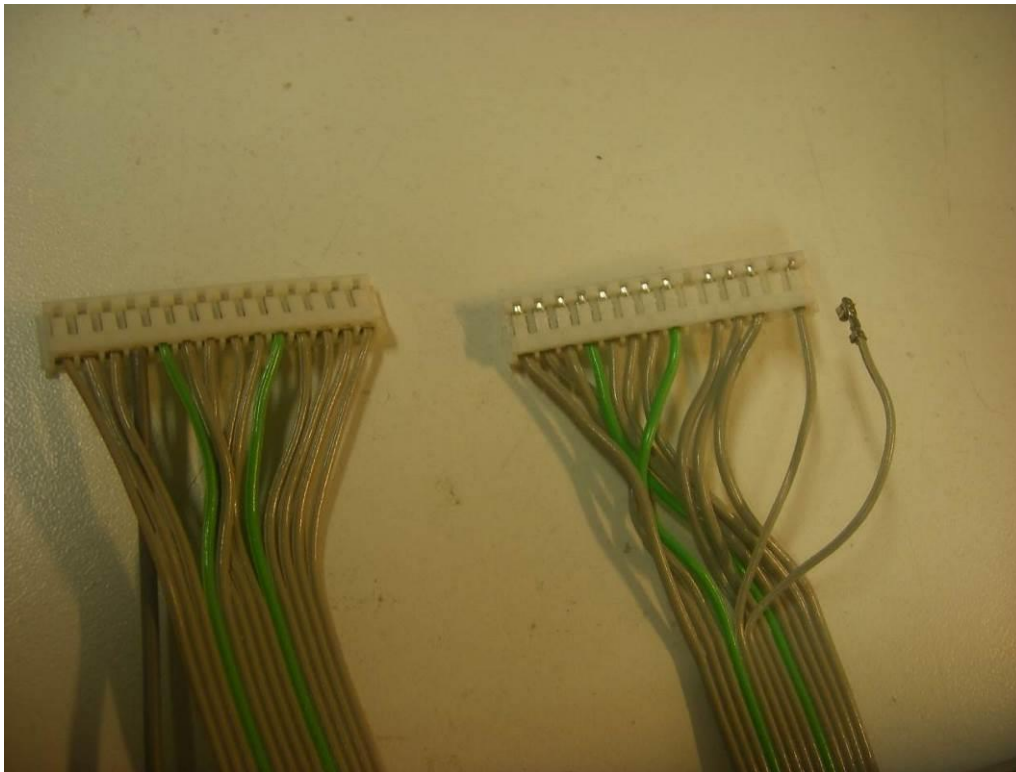
Adapting the 14-pin disk drive cable

The existing cable can be reused, but it needs to be rewired. This is done by putting several cables to different positions on the disk drive side of the cable. The 14-pin connector can be plugged into the 34-pin disk drive connector.

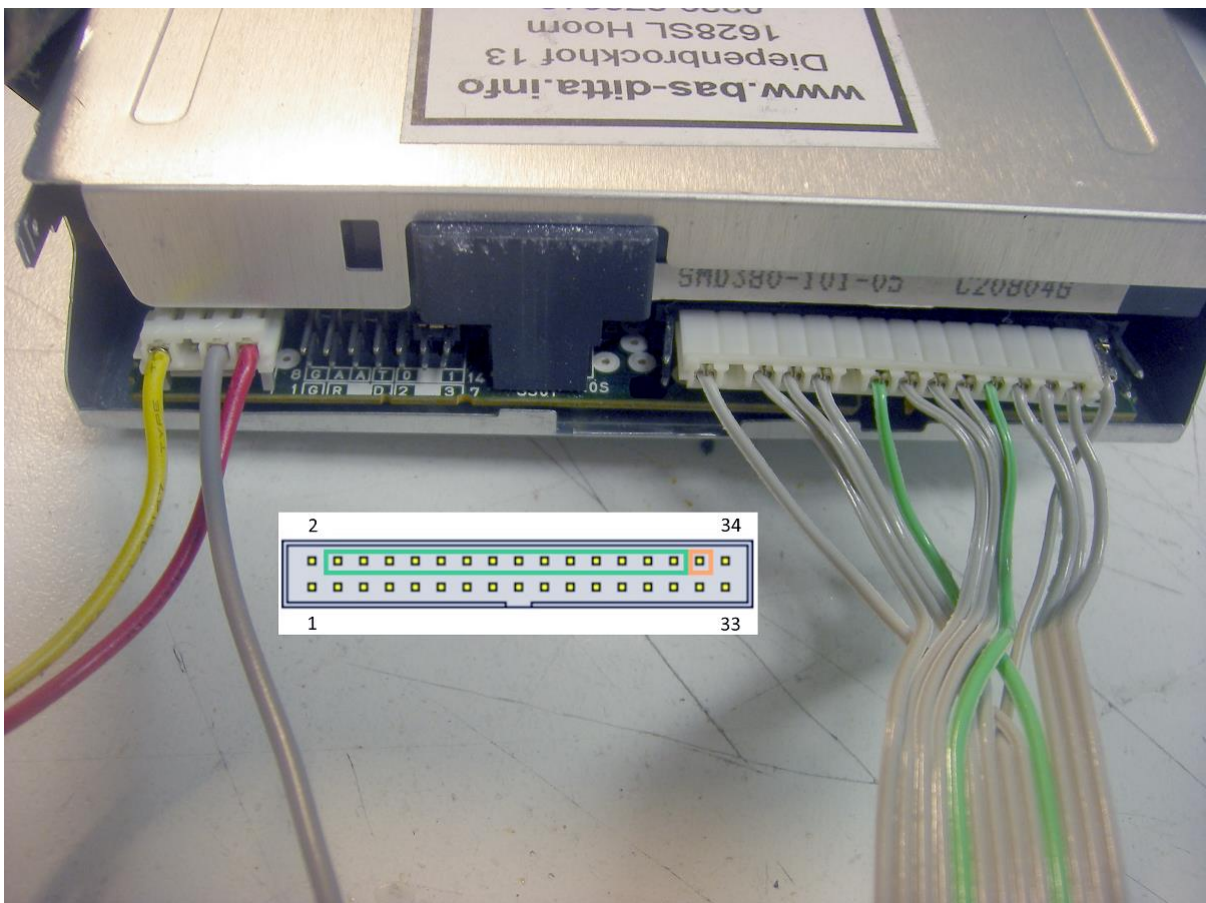
The 'thicker' gray wire (pin 11) is a ground wire, it is connected next to the red wire on the 4-pin power connector of the disk drive.

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 'thick wire'	-----	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.



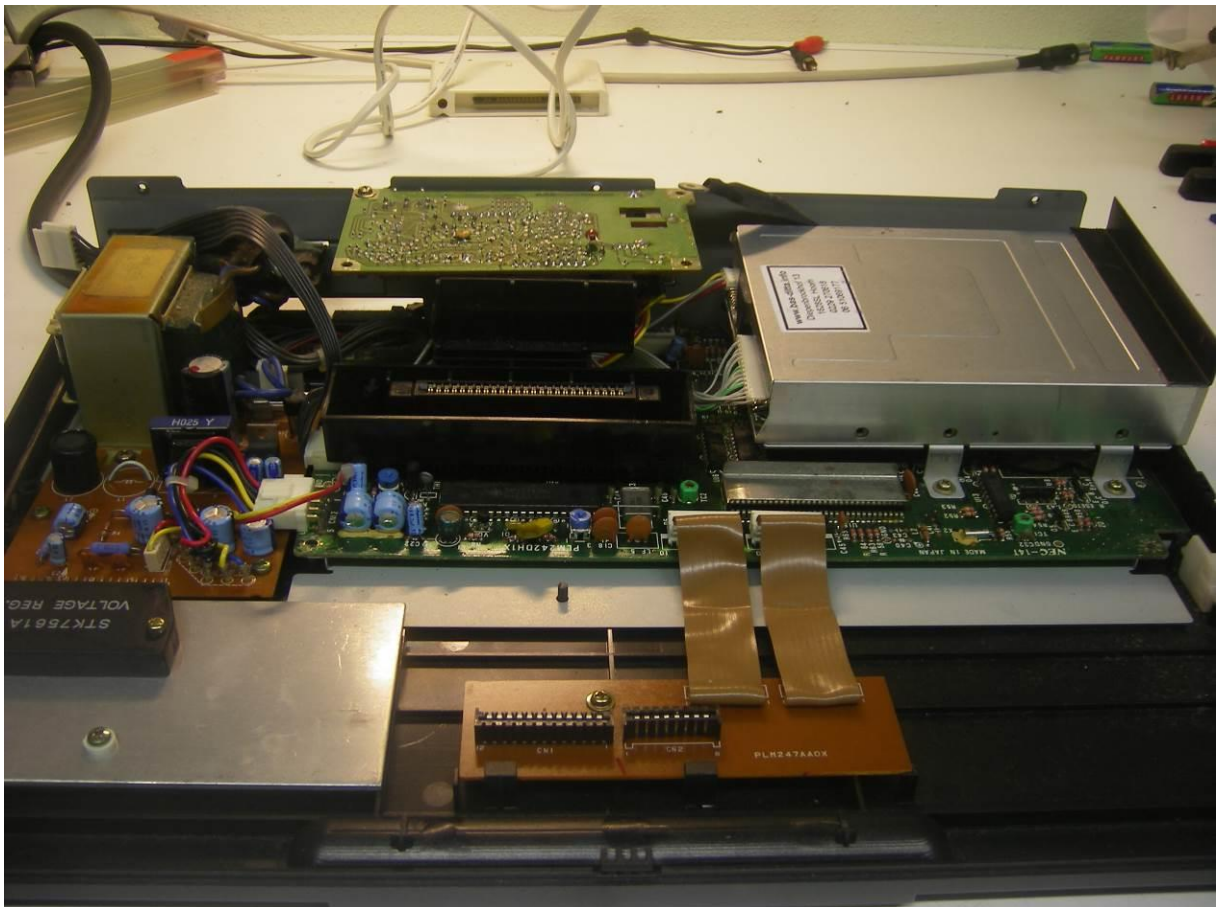
This is the way to connect the rewired cable without the need for a conversion PCB.

Mounting the disk drive

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. Search Google for: 'black PVC equal L-shaped angle profile 15x15 mm'.

This angle piece can be glued on using a sealant adhesive or you can use 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.