Turbo 7 MHz for the Philips NMS 8220 MSX-2 Computer
Original by: Bas Kornalijnslijper
Translated by: 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.

Upgrade package contents:
- Completely pre-assembled expansion board
- 40-pin IC socket
- Switch with led
- Resistor array (2K2)
- Insulating material (shrink tubing)
- Thin wire

The Philips NMS 8220 MSX-2 computer.
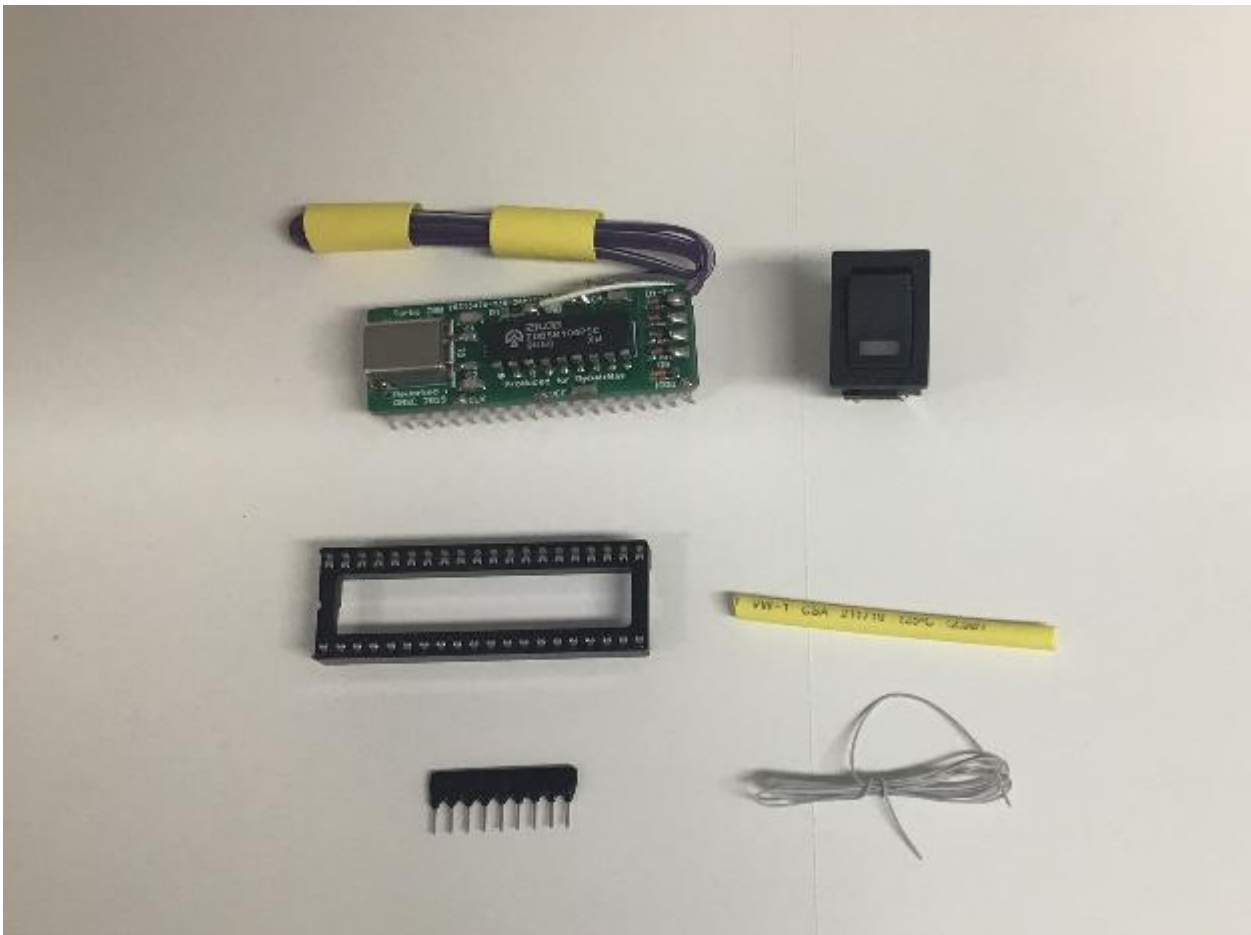
The contents of the upgrade package.

Installation:

- Remove the cover with keyboard (2 screws and 1 cable).
- Remove any earth cables present.
- Remove the keyboard (2 cables).
- Remove the motherboard including the video PCB (5 screws and 1 cable).
- Remove U10 (Z80).
- Remove LF31.
- Remove R20 (47Ω).
- Interrupt the print track of pin 30 of U7 (MSX-Engine).
- Make a connection between R20 (U10 side) and LF31 (cartridge slot side).
- Make a connection between R20 (side U10) and U7 pin 30.
- Place the 40-pin IC socket in the empty place of U10 (Z80).
- Place the Turbo 7 MHz expansion board in the IC socket.
- Mount the switch with LED in the top cover or another place of your choice.
- The red or white wire is the positive side of the LED.
- The brown or black wire is the negative side of the LED.
- The orange/yellow or gray/purple wire pair is for the switch.
- Insulate the solders with a piece of shrink tubing.
- The resistor array (2K2) is not used.

Testing the Turbo 7 MHz:

The operation of the Turbo 7 MHz can be tested with the following BASIC test program:

```
10 FOR I=1 TO 100
20 FOR J=1 TO 100: PRINT J;: NEXT J:  NEXT I
```