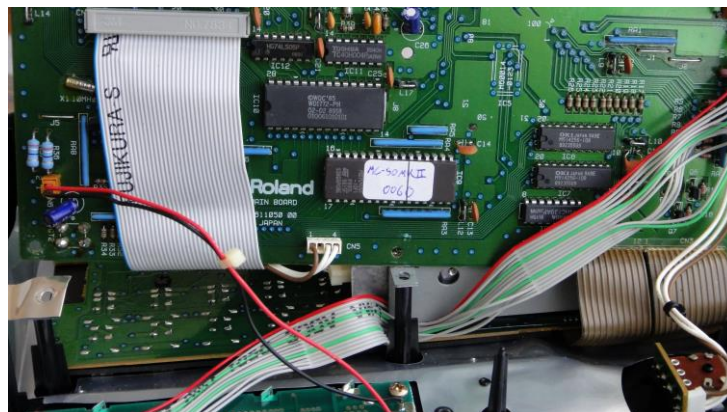


# The Roland MC-50 en MC-50 mkII sequencers

By: Roelf Backus

Last update: 10-01-2020

When the MC-50 (li) appeared on the market in 1990, this sequencer was only able to load, edit and save files of the MRC-type. Soon after however, GM midi files became the standard and Roland came up with an interim solution. In the first place, there was (free) software to convert MRC-files to MIDI and back again. This software (MRM500), on a 720 Kb diskette, could be read by the MC-50. It all worked well, but quite slowly. In 1993, Roland offered the possibility of a hardware modification. This could only be done by the Roland Service Department and the upgraded MC-50 could directly convert MIDI files via the menu and save or load them immediately. A special upgraded Roland ROM-IC (ver. 0060) was installed in the device for this purpose. The IC was not mounted in an interchangeable socket but directly soldered on the print and therefore had to be removed and replaced by the Roland Service Department.



*Roland mkII ROM-IC -with the white label- in a MC-50*

The MC-50 mkII appeared in 1992, the upgraded midi IC was already standard installed.



*MC-50*  
ROM Version  
0016 90/03/19 09:16



*MC-50 mkII*  
ROM Version  
0060 93/06/10 16:55

So there are 3 types of MC-50 sequencers on the market and they all work with the special Roland MRC files:

1. The **standard MC-50** can only store and load MRC files. Software that can be loaded separately (MRM500 program) can be used to convert midi files (MRC> MID and MID> MRC). ROM version 0016 (1990).
2. A **hardware-upgraded MC-50**, on the outside indistinguishable from a standard MC-50, but with a built-in midi conversion IC, ROM version 0060 (1993).
3. A **MC-50 mkII** with all MIDI capabilities standard built in off factory, ROM version 0060 (1993).

Another small difference is that the MC-50 has better push buttons that work a lot more easily; thin and flat and with a very light touch. The push buttons of a mkII (thicker & hollow) apparently tend to oxidize quickly and often make poor contact, especially if not used for a while. Pressing several times and harder -without any effect- is the result.

It's irritating and cumbersome; not every change is an improvement.

**The best buy thus appears to be an upgraded MC-50.**



MC-50

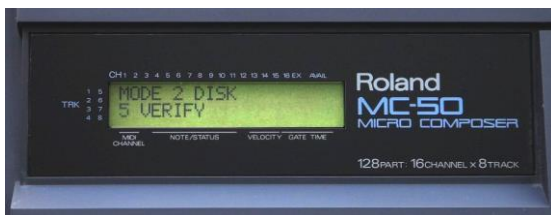


MC-50 mkII

After installing the upgraded firmware IC, the menus are expanded.

With the standard MC-50 there are 5 options in the MODE 2 DISK menu and with the mkII 3 have been added:

6 LOAD [MIDI FILE], 7 SAVE [MIDI FILE] and 8 DELETE [MIDI FILE]



MODE 2 DISK			
MC-50		MC-50 mkII	
1 LOAD	[SONG FILE]	1 LOAD	[SONG FILE]
2 SAVE	[SONG FILE]	2 SAVE	[SONG FILE]
3 DELETE	[SONG FILE]	3 DELETE	[SONG FILE]
4 RENAME	[SONG FILE]	4 RENAME	[SONG FILE]
5 VERIFY		5 VERIFY	
		6 LOAD	[MIDI FILE]
		7 SAVE	[MIDI FILE]
		8 DELETE	[MIDI FILE]

When purchasing a second-hand MC-50 it is possible to check which options are present in the MODE 2 DISK menu and determine whether it is an upgraded model that can process midi files. press Cancel + 0 during power-up to display the ROM version.

<i><b>MC-50</b></i>	<i><b>MC-50 mkII</b></i>
ROM Version	ROM Version
<b>0016</b> 90/03/19 09:16	<b>0060</b> 93/06/10 16:55

# How to upgrade a Roland MC-50 sequencer to a MC-50mkII

By: Roelf Backus, Zeist - the Netherlands

Last update: January 10, 2020

Page added: November 14, 2017

The Roland MC-50 sequencer came in two types: the MC-50 in 1990 and its successor the MC-50mkII in 1992.

With minor differences both are the same, except the fact that the mkII can **save, load** and **delete** standard MIDI files (SMF, MID) directly to a 720 Kb DD diskette.

The MC-50 too, can handle midifiles, but needs the free Roland MRM500 conversion software, a program that runs on a MC-50 only. With the introduction of the mkII the MRM500 conversion software was hardware provided in ROM.



MC-50



MC-50mkII

The MC-50 can easily be upgraded to a mkII by replacing the original 'mkI' program ROM by an upgraded ROM-IC that can be ordered directly from Roland (about \$ 20), with the following order specifications:

- **MC-50mkII EPROM**  
Part number: 15 209 267  
ROM Version 0060

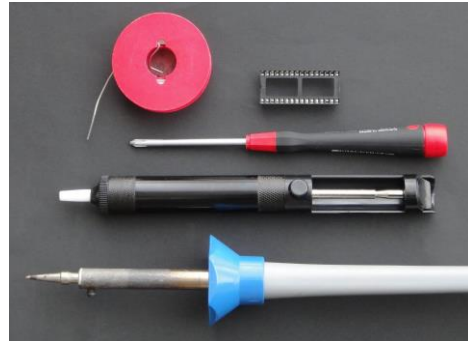


You can check the ROM version of a MC-50/mkII by holding down [CANCEL] + [0] while switching the POWER ON.

*If you want to make your own upgrade ROM refer to the section below: Technical Information about flashing an EPROM.*

## What do you need to install a mkII upgrade IC:

- Phillips screwdriver
- Soldering iron & solder
- De-solder device (solder-sucker or solder-wick)
- Optional: an IC holder, 32 pins - 15.24 mm



## Instructions

Keep all the screw sets on different piles or in small boxes and work backwards when mounting. This will prevent parts left when re-assembling. If you're not common to service electronics, take photographs of all steps.

- Unfasten the MC-50 bottom plate:

5x parkers

&

6x bolts with ring



- Unfasten the backside: 2x long parkers and 1x short parker between tape sync in/out



- Slide the bottom plate backwards to remove it completely



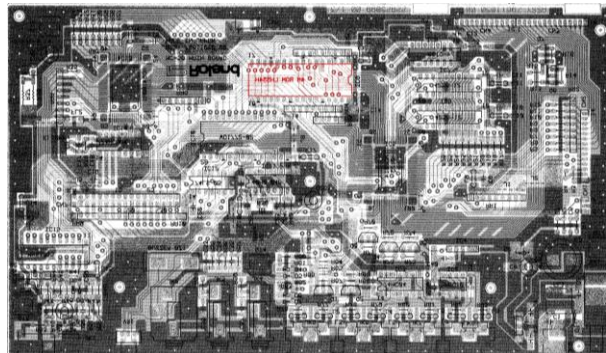
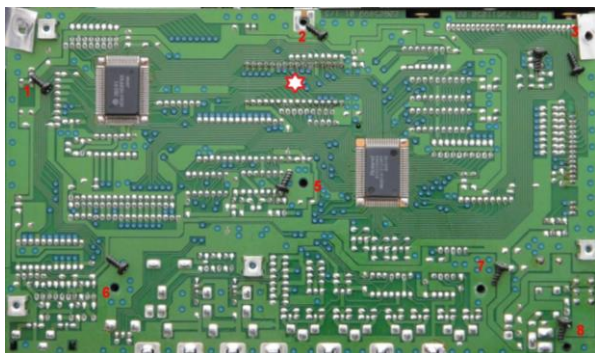


- The electronics exposed: main board and diskette drive, both partial covering the keyboard below. The main board is fixed by 8x parker screws, it is not necessary to remove these at this stage.



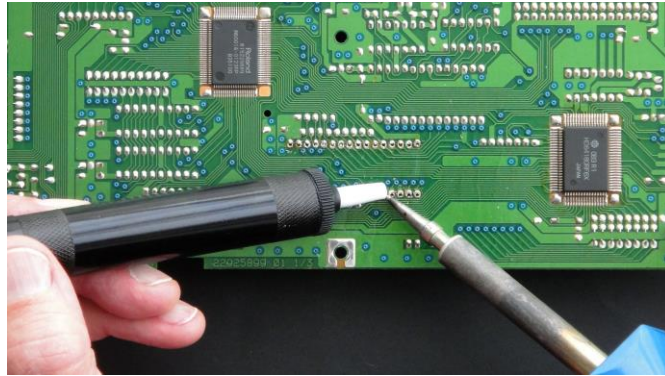
*main board in situ*

- Observe the main board, locate and identify the 32-pins (= two parallel rows of 16) of the program IC\* to be removed, **red** in the diagram on the right.

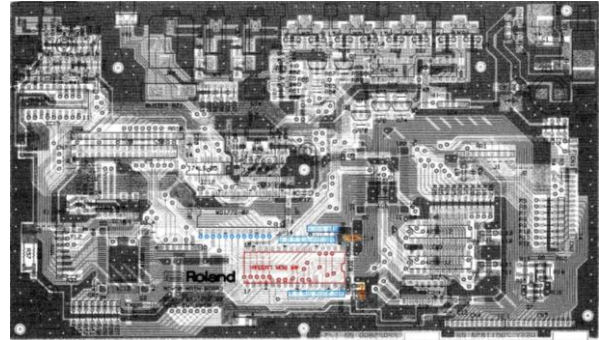


*main board (wired side)*

- De-solder the 32 IC-pins using a soldering iron and a vacuum hand pump or solder-wick. De-soldering instruction-video (4 min) on [YouTube](#)

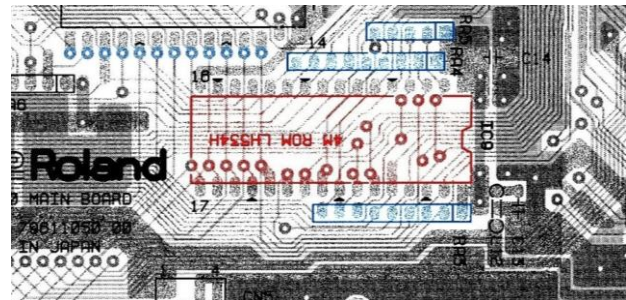


- Remove the 8 parker screws of the mainboard, turn de unit 180°, carefully lift the main board and remove the de-soldered program IC by hand.



*main board flipped over (component side)  
(multi-connector cables removed for picture only)*

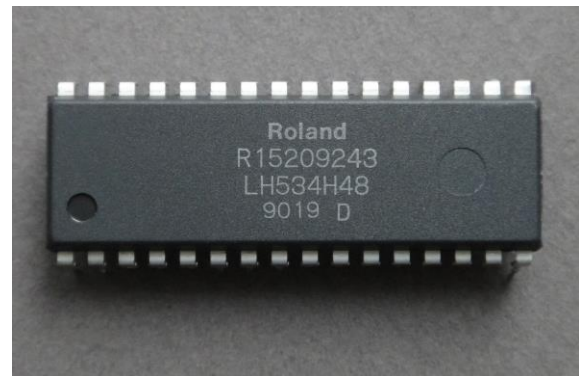
- Detail



*main board flipped over (component side)  
Note: **original** 'mkl' IC mounted with lettering upside down and **ID hole** towards the **IC9** name on the board*



- The removed (mkI) IC



- Carefully insert the new IC, or first the IC-holder, firmly in place.  
Note the IC **notch towards the IC9 name print (!)** on the component board and solder the 32 leads on the *wiring side*. Beware not to overheat the IC-pins when soldering the IC directly in place without a holder.  
When using an IC-holder, insert the IC *after* the soldering ...of course.

*Note: an IC mark (notch/hole) identifies pin number 1 (red arrow picture below/right)*



IC-holder



inserted mkII IC

- Put the main circuit board back in its original position, fold back the metallic ground foil and fasten the 8 parker screws.
- Slide the bottom plate in place and put the 5 parkers and 6 bolts & ring back carefully BY HAND first. When all screws fit well, tighten them firmly with a (electric) screwdriver.
- Fasten the back-side with the remaining 3 parkers.



- The finishing touch:



Use the removed IC to impress your family and friends ☺ ...in case you succeed.

- The result of the firmware update:

Check the version by holding down [CANCEL] + [0] while switching the POWER ON.



*before*

&



*after*

# Technical Information about flashing an EPROM

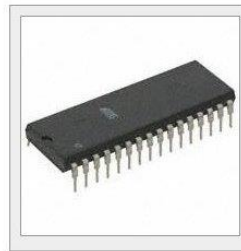
In case you can't obtain an original Roland upgrade ROM, you can decide to flash (burn) your own mkII firmware in ROM.



27c4001 EPROM with MC-50 mkII firmware as provided by Roland

What you need:

- A standard 27c4001 EPROM (Erasable Programmable Read-Only Memory) type **AT27C040**, 8 x 512K, 32-DIP (2 x 16 pin) 70 or 90ns. The original Roland chip is 200ns but any faster chip <200 will do.



Product Overview	
Digi-Key Part Number	AT27C040-70PU-ND
Quantity Available	181 Can ship immediately
Manufacturer	Microchip Technology
Manufacturer Part Number	AT27C040-70PU
Description	IC OTP 4MBIT 70NS 32DIP
Lead Free Status / RoHS Status	Lead free / RoHS Compliant
Moisture Sensitivity Level (MSL)	1 (Unlimited)
Manufacturer Standard Lead Time	12 Weeks
Detailed Description	EPROM - OTP Memory IC 4Mb (512K x 8) Parallel 70ns 32-DIP

<https://www.digikey.com/product-detail/en/microchip-technology/AT27C040-70PU/AT27C040-70PU-ND/1008550>

- An EPROM flasher/burner such as the **TL866** with application software for Windows. The TL866 is the most popular and one of the cheapest.

Both hardware and software on this site:

[http://www.autoelectric.cn/en/tl866\\_main.html](http://www.autoelectric.cn/en/tl866_main.html)

[Home](#)
[OBD2/Diagnosis](#)
[TL866 Programmer](#)
[Download](#)
[Contact Us](#)

**TL866 USB High Performance Programmer**

Well-designed cheap professional programmer. Production of high-density SMD technology, a unified user interface, easy to use, fully functional, reliable program running of application software, ultra-small code -runs faster, supports bilingual(English and Chinese), it can automatically identify the operating system to install and run under WIN 2000/WIN XP/VIN 2003/WIN 2008/WIN VISTA /WIN7/WIN8/WIN10 (32/64/64Bit).

The Outstanding advantages of TL866 programmer

**Application Software and Others**

- TL866 Special Adapters  
T80P32/40/48 BOP18 BOP44 Special
- TL866 Dealer List  
Distributor and dealer
- IC List  
IC supported List
- TL866 Application Software( **V6.60** ) Download  
Download TL866 Application software for win2000/2003/2008/VISTA/win7/win8/WIN10
- Upgrade History

- The Roland MC-50 mkII firmware (ROM image):  
<http://dbwbp.com/index.php/9-misc/37-synth-eprom-dumps>  
Scroll down on this site to find the Roland firmware.

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