C.M.I. FLASH KIT

Kit Flash for Fairlight C.M.I. (I, II, IIx and III)

MuStudio

Version 2

lundi 12 octobre 2015

About the FLASH KIT

The FLASH KIT is the solution to do without the original 8" drives !

Why should you replace one of the 8" disk drives of your Fairlight Computer Musical Instrument by this diskdrive emulator ?

There are three reasons :

- It's currently very difficult to find or to buy functional blank 8" floppy disks.
- The diskdrives are often faulty or grimey, and it is more difficult to find a cleaning floppy or alignment floppy ! And what about a new functional diskdrives ?
- The original floppy disks, which are often more than 30 years old, are very often unreadable because they are worn, damaged (by scratch, mildew) or corrupt (by magnetism).

The Fairlight C.M.I.'s FLASH KIT is the solution to these problems and new features are added !

Figure 1. – My Fairlight C.M.I. IIX fitted with the flash drive.

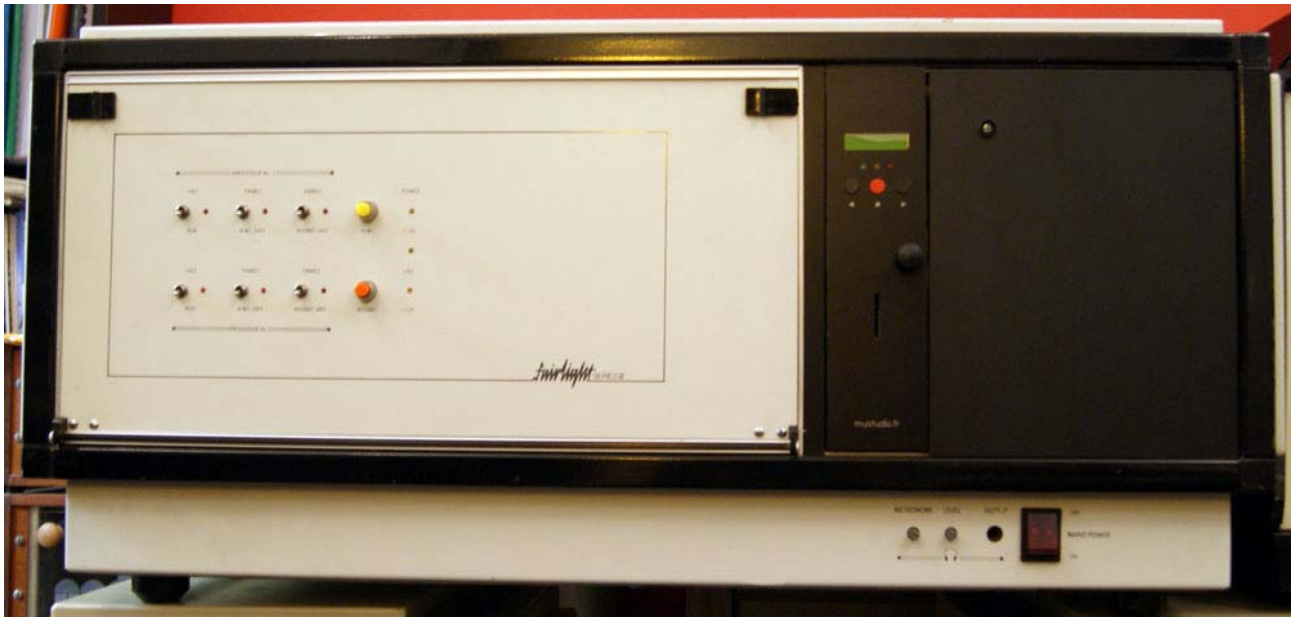

Figure 1a. – A Fairlight C.M.I. III fitted with the flash drive (half size)

Indeed, the flash kit allows you to do the following :

- save your sounds on your computer (Mac PC),
- easily exchange your sounds and compositions via Internet,
- access to hundreds of virtual disks with out having to carry large and heavy 8" disks,
- not have reliability problems disks that do not work at a crucial moment.

The FLASH-KIT

Today, there are threee models of Flash Kit : one full size with one switch, one full size with two switches, and a half-size model.

The Flash Kit includes :

- documentation (the one that you are reading now),
- a SD type flash Memory card where the disk images are stored,
- a Flash drive (The black metal structure with many electronics boards),
- a fifty way cable,
- a thirty-four way cable with converter attached,
- a two way power cable.

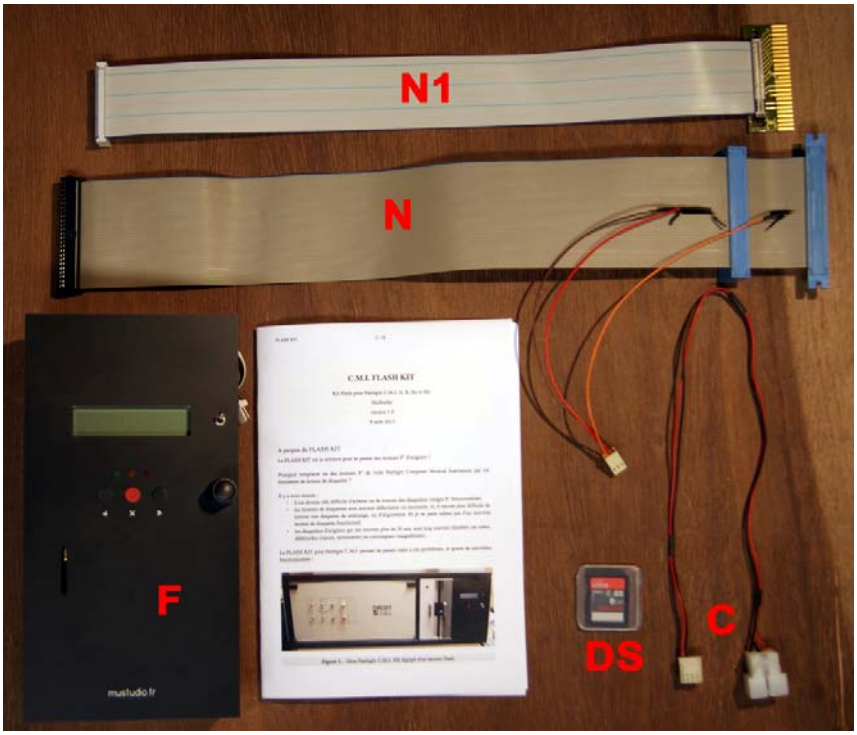

Figure 2. – The elements of Flash kit.

Figure 2a. – The three models of front panel.

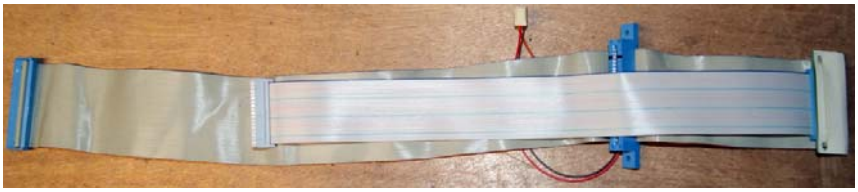

Figure 2b. – The new fifty and thirty-four way cable (Na).

About the documentation.

The documentation is written in order to help you during the Flash Kit's installation. Some rules have to be respected : the most important one is to follow the chronology of the installation procedure.

Each element has a unique and specific name. For example F for Front side, N1 for cable , V1 for screw 1, etc . . .

You can locate easily an element on figures.

Safety and installation instruction

WARNING

When modifying electronic products, basic precautions should always be followed, including the following :

- unplug the power supply cord from the power outlet,
- unplug all connectors from C.M.I. mainframe.

The device should be turned 'OFF' in order to make the complete installation. The presence of power can create the possibility of damage to property and / or personal injury !

To install the kit, the following tools are required :

- Cross screwdriver,
- Flat screwdriver.
- And if necessary soldering / unsoldering tools to modify the QFC9 card.

Before starting the installation, make sure that you have the latest version of this document. The latest version is available on : mustudio.fr

If you have any doubts or questions, contact us at contact@mustudio.fr . We will help you and try to find a solution.

Flash kit's installation

Removing of the floppy drive and installation of the Flash drive.

There are three kit's models :

- A model for CMI I, II and IIx full size, fitted with a unique drive's switch.
- A model for CMI I, II and IIx full size, fitted with a two drive's switchs.
- A model for CMI III half size

In order to install the Flash Kit in the **CMI I**, **II** and **IIx** or replace the old 8" floppy drive, you have to open the CMI referring to figures 3, 4 and 5. Remove the floppy drive in the following step :

1. Unscrew the screws V1, V2, V3 and V4, then V9 and V10 and at least V11 and V12.
2. Now, switch the C.M.I. upright as shown in figure 5. As you can see in figures, it is better to have a blanket under the C.M.I. to avoid damaging the paint.
3. Remove the top cover (fan side) and the bottom cover (wood feet side).
4. Unscrew the screws V5, V6, V7 and V8 and remove the rear side cover as shown in right picture of Figure 5.
5. Take the opportunity to clean inside using a vacuum cleaner or a cloth !
6. Disconnect the cable N2 of floppy drives L1 and L2 and unlug the power cable C1 of the floppy drive L1. If the C.M.I. has got full-size floppy drive, you have to unplug the cable C2 as shown in Figures 7 and 7.
7. Unscrew the screws V13, V14, V17 and V18 in order to remove the right 8" drive (DRIVE 1). Be careful if you have half-size drives, as shown in Figure 7, there must be a block of foam or blanket between the two disk drives to prevent it from falling on the bottom. The best is to do as shown in the right picture of Figure 7.
8. Remove the 8" floppy drive L1 by pulling it from the front of the C.M.I.
9. Disconnect the cable N2 of the C.M.I. Open the front door and there is the cable N2 (50 way) which is the most right in the rack. Disconnect the connector which is plugged into the drive's socket of the QFC9 or QFC2 (for CMI I and II) as shown in Figure 11. Remove the cable very gently via the rear hole on the C.M.I. as shown in the right picture of Figure 8.
10. Set up the new cable N or Na by the inverse of the previous operation. Respect the keyed side on the connector that goes on the QFC9 (or QFC2)
11. Set up the cable of drive's selection. As previous operation, inserted the new cable via the rear hole on the CMI as shown in right picture of figure 8.
12. Remove the QFC9 card, and unsoldering the switch. Replace it by new three way cable as show on figure 11a and 11b.
13. Plug the connector of cable N or Na in the QFC9's connector (or QFC2) and plug the first connector at the rear of the C.M.I. in the 8" floppy drive.
14. Plug the 34 way cable N1 with the converter in the Flash drive's socket.
15. Plug the power cable C in the appropriate Flash drive's socket.
16. Set up the Flash drive in the free housing.
17. Screw the screws V13 and V18 in order to fix the Flash drive, see Figure 6.
18. If necessary plug the converter to the second connector of the new cable at rear of the C.M.I. be careful with the direction, because there is a non keyed direction. There is a black line on the cable connector which indicates the keyed direction on the drive and on the converter. See Figure 10.
19. Plug the power connector as shown in Figure 9.
20. Connect the cable of the flash drive, that allows you to select the drive, to the wire. See the right picture of Figure 9.
21. Shut up the rear panel and screw the screws V5, V6, V7 and V8 as shown on figure 3.
22. Shut up the two covers (up and bottom) and screw the screws V1, V2, V3, V4, V9, V10, V11 and V12, see Figures 3 and 4.
23. Your Flash Kit is ready to use !

In order to install the Flash Kit in the **CMI III** or replace the old 8" floppy drive, you have to open the CMI referring to figures 3, 4 (this is similar to the other CMI's versions) and 11d to 11g. Remove the floppy drive in the following step :

1. Unscrew the screws V1, V2, V3 and V4, then V9 and at least V11.
2. Now, switch the C.M.I. upright as shown in figure 5. As you can see in figures, it is better to have a blanket under the C.M.I. to avoid damaging the paint.
3. Remove the top cover (power supply side) and the bottom cover (feet side). Remove all screws !
4. Unscrew screws V25, V26, V27 and V28 and remove the rear side cover as shown in figure 11g.
5. Take the opportunity to clean inside using a vacuum cleaner or a cloth !
6. If there is a drive, disconnect the cable N2 of floppy drive L1 and unplug the power cable C1 of the 8 » floppy drive L1.
7. Unscrew the screws V21, V22, V23 and V24 in order to remove the 8 » floppy drive L1.
8. Remove the 8" floppy drive L1 by pulling it from the front of the C.M.I III.
9. Set up the Flash drive in the free housing, see figures 11b and 11g.
10. Screw the screws V21, V22, V23 and V24 in order to fix the Flash Drive, see figure 11d and 11f.
11. Plug the converter to the connector of the cable at rear of the CMI. Be careful with the direction, because there is a non keyed direction. There is a black line on the cable connector which indicates the keyed direction on the drive and on the converter., see Figure 10.
12. Plug the power connector as shown in Figure 9.
13. Shut up the rear cover and screw the screws V25, V26, V27 and V28, see figure 11g.
14. Shut up the two covers (up and bottom) and screw the screws V1, V2, V3, V4, V9 and V11.
15. Your Flash Kit is ready to use !

Figure 3. – The rear side of the C.M.I IIx and the numerous screws.

Figure 4. – The two lateral sides of the C.M.I.

Figure 5. – The C.M.I. placed vertically and the rear side open.

Figure 6. – The screws of the 8” floppy drives.

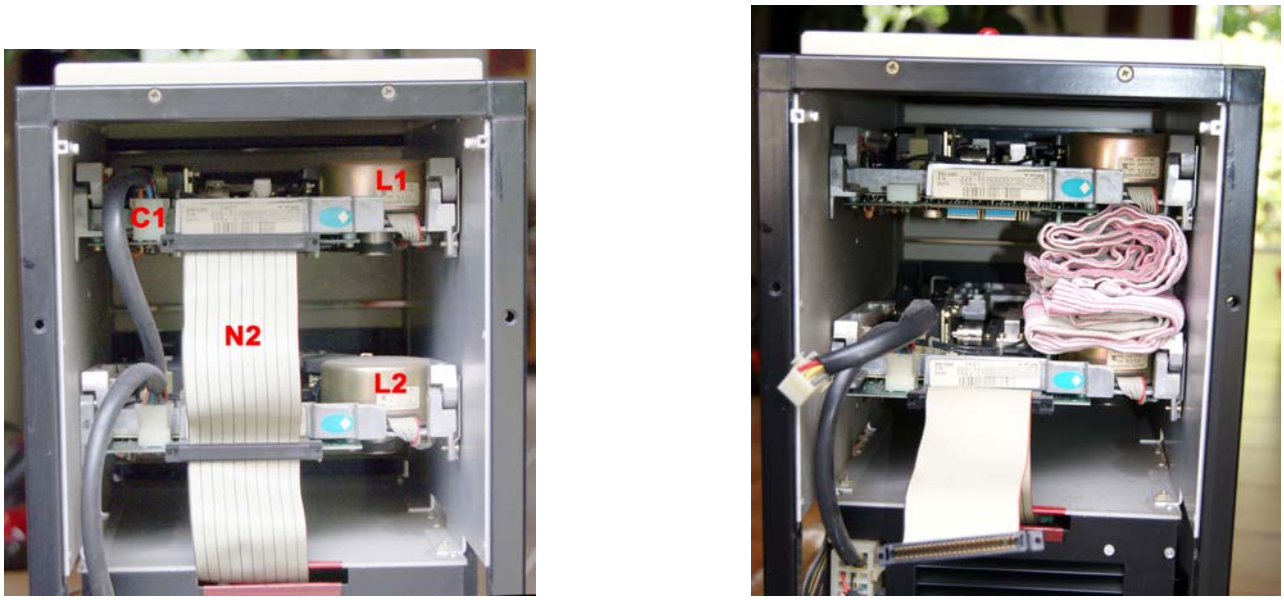

Figure 7. – The rear side of the half-size 8” floppy drives.

Figure 8. – The rear side of the full-size floppy drives and the passage (way) for the 50 wire.

Figure 9. – The two connectors of power, on the right the C.M.I.'s one and on the left the flash drive's one the connectors for the selection between the flash drive and the new 50 wire N.

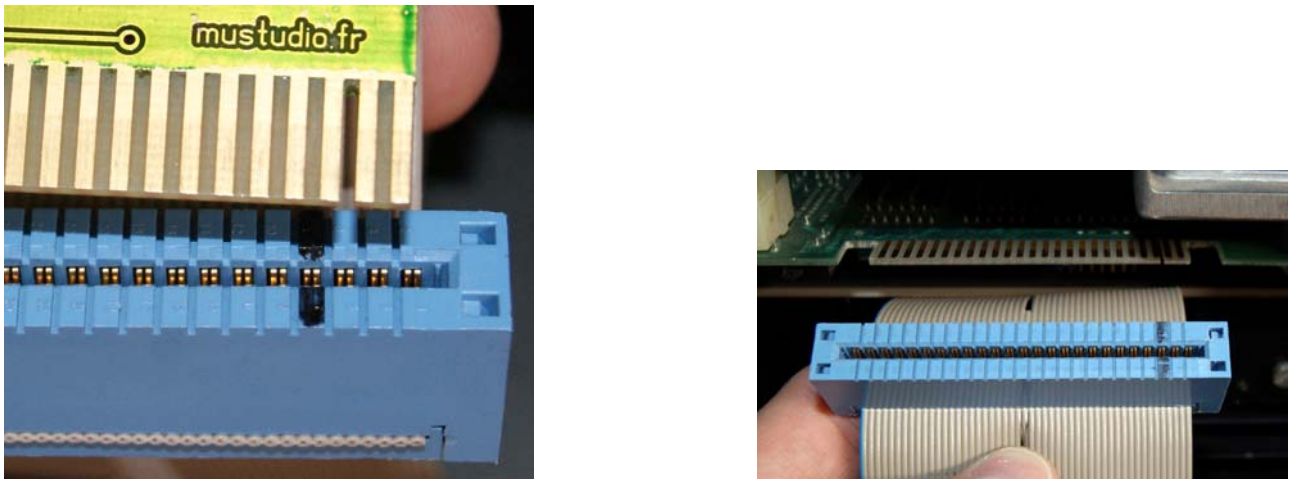

Figure 10. – The two connectors to plug in the converter on the left and in the 8" floppy drive on the right. In either case pay attention the alignment of the contacts because there is a keyed direction on the cable !

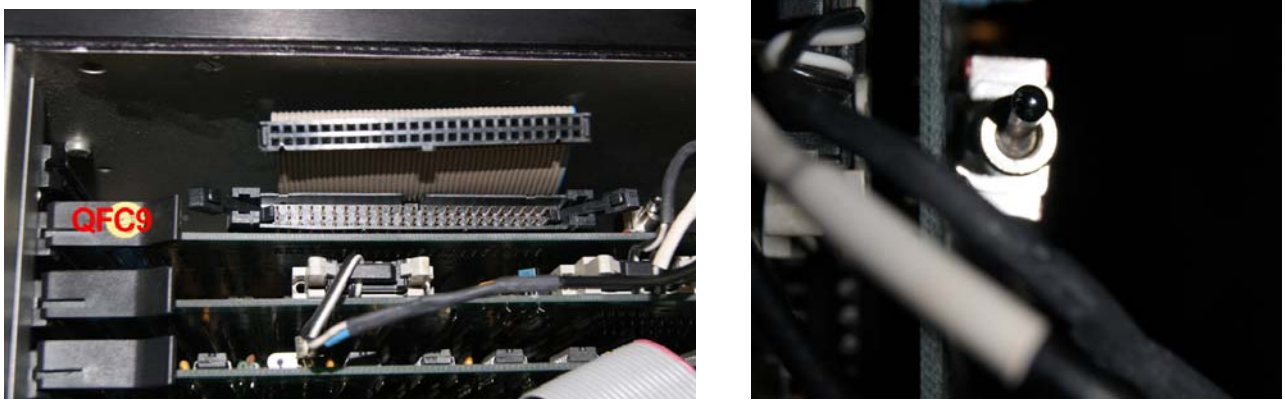

Figure 11. – The cable connector of the floppy drive and the switch for select disk 0 or 1.

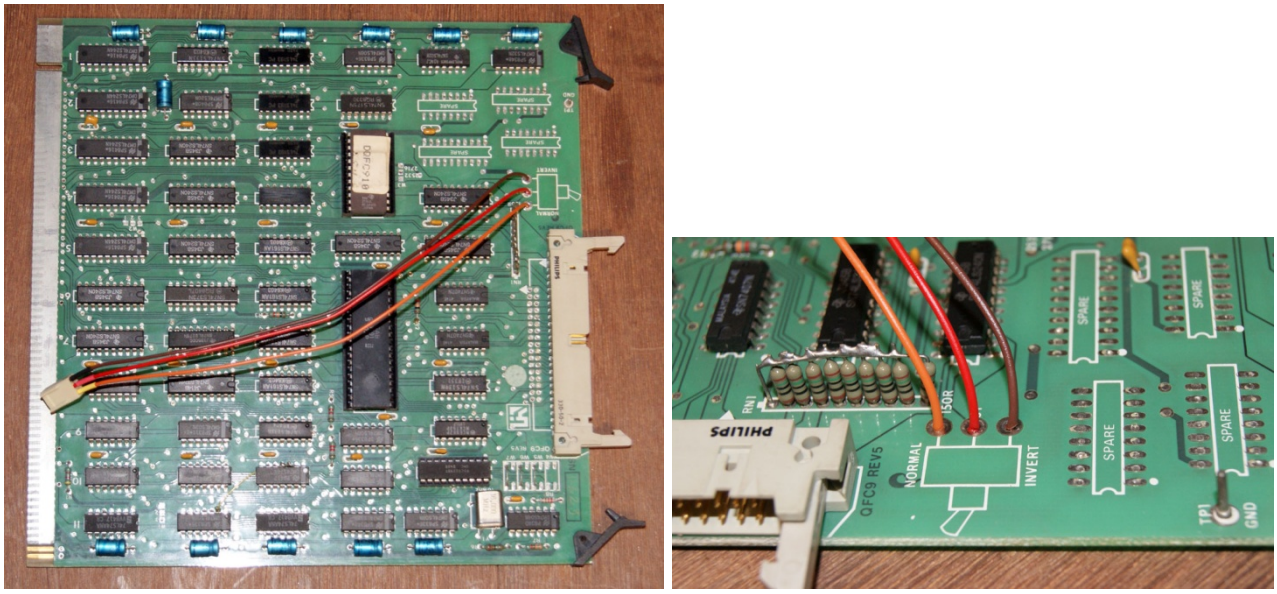

Figure 11a. – On the left, the QFC9 card with the new three way cable soldered in place of the drive's Switch (0 or 1). On the right, a zoom of the QFC9 card.

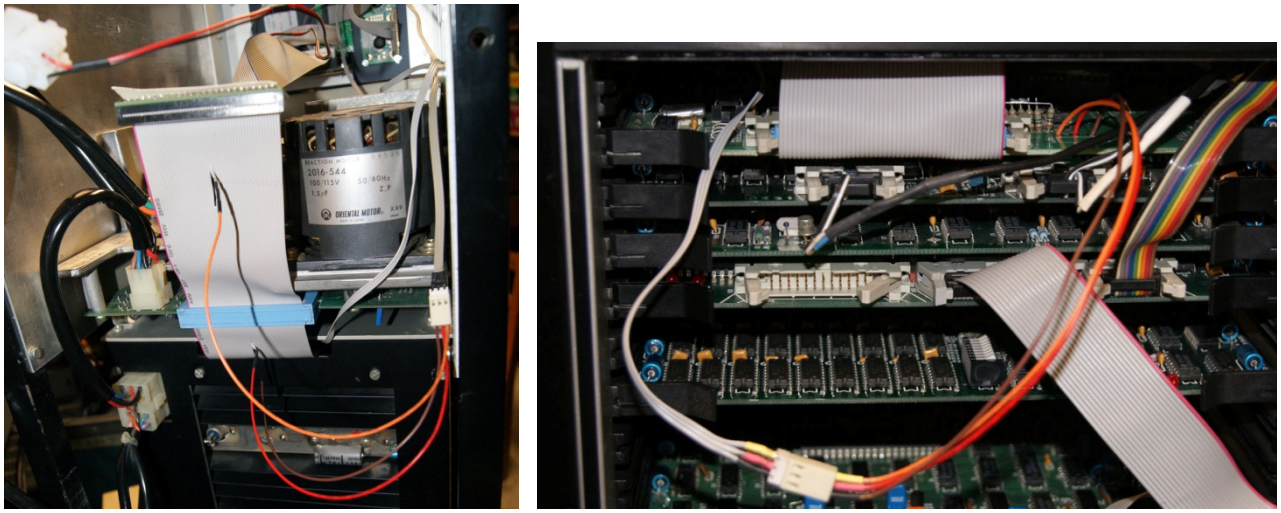

Figure 11b. – The rear side of CMI (on the left) and cards on front panel.

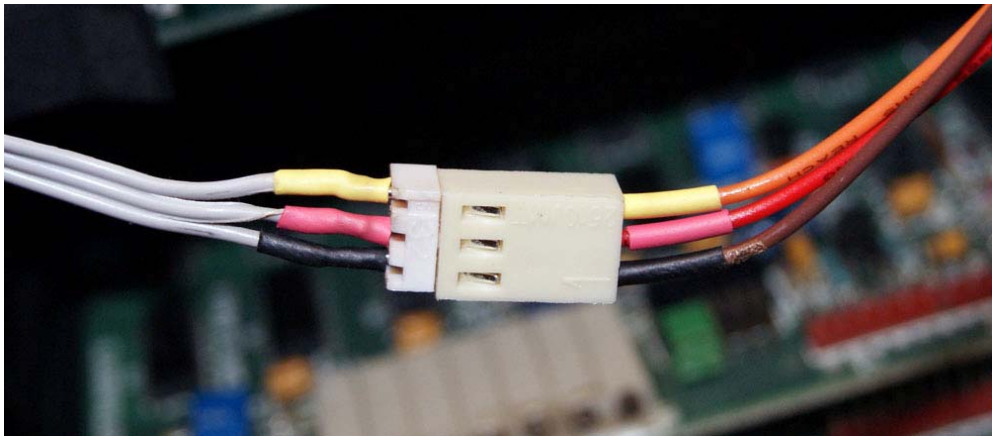

Figure 11c. – The new three way cable (notice the cored keyed direction).

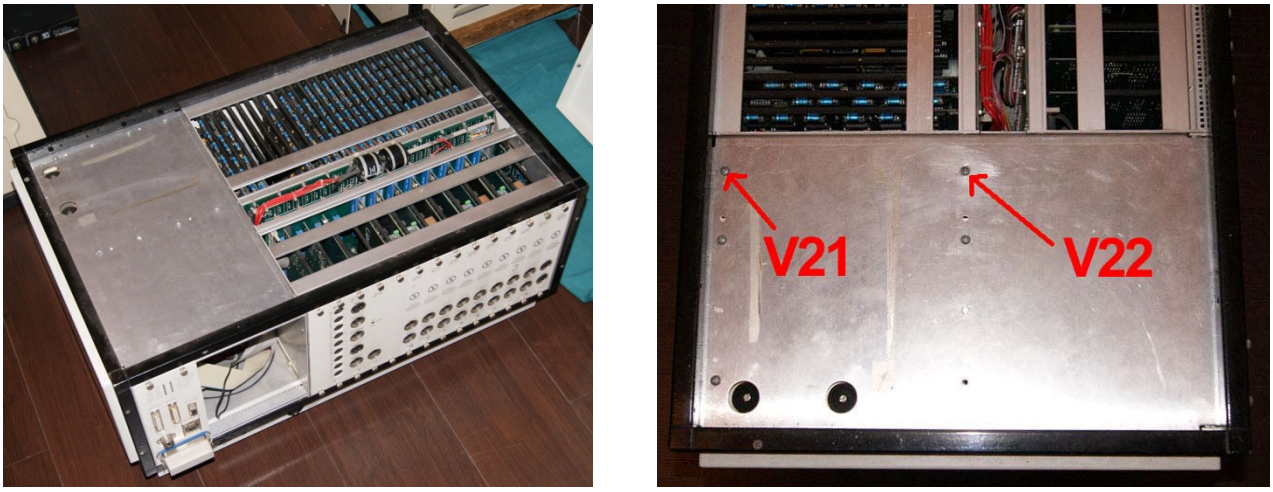

Figure 11d. – The CMI III without the upper plate.

Figure 11e. – On the left, the underside cover removed. On the right, the power supply's PCB removed.

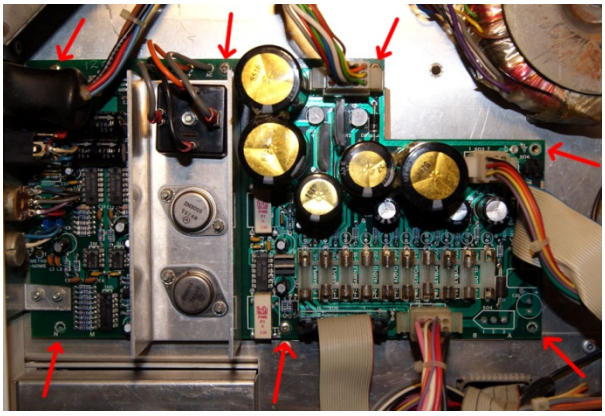

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Figure 11f. – On the left, the PCB's screws to remove. On the right, the screws V23 and V24 to remove.

Figure 11g. – On the left, the rear side of CMI III. In the middle, the rear side without the fan's cover. On the right, the front panel filted with the Flash Kit.

Using the flash drive

The flash drive behaves as a 8" floppy drive ! When you start the C.M.I. nothing will happen until you select a startup disk image !

There are many different operating mode between the remaining 8" floppy drive (startup drive) and the flash drive that comes configure disk1 (data drive)

The flash drive is capable of emulating two virtual drives : drive A and drive B !

The flash SD card is inserted through the hole T1 in the front panel.

The use of the flash drive is very easy. As it is based on the HxC drive, it works like it ! There are also three LED : green (L1), orange (L2) and red (L3).

The left (B1) and right (B3) black buttons allow you to scroll through the choices. The validation button (B2) is to confirm your choice. In order to have the configuration mode, press and hold the validation button (B2) for many seconds. A specific menu will appear on the LCD display.

The display contrast can be adjusted using the knob (P1) to the right of the front panel.

You have also a sound beep when the flash drive change of virtual head and when you move in folder's, file's and when you confirm a choice.

Compatible flash cards are SDHC Card and up to 32GB capacity. They are being formatted in FAT32 format. Caution ! I do not recommend to use a Macintosh, because Mac OS/X creates hidden files that can affect the proper functioning of the Flash Player. Use a PC.

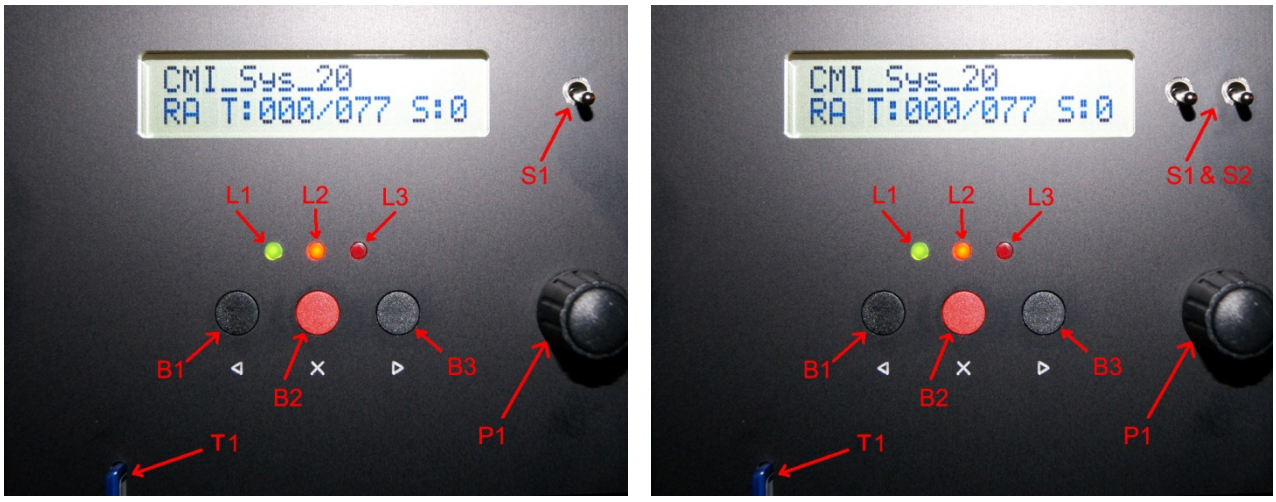


Figure 12. – The rear panel of the full size of the Flash. The rear panel for half size is similar to the full size model except for the switches S1 and S2.

For information, your flash drive comes configured already, and with a valid firmware software version and all is tested !

Please, do not change the settings !

The only one setting you should use is the assignment of a disk image of two virtual drives labeled A or B !

If you think you changed the settings, you can reset the Flash's parameters. At any moment, you can remove the flash card and press the middle button (B2) to browse the contents. You press the right button (B3) until you see « clear settings », and valid your choice by yes.

Until there is no SD Flash card in the Flash drive many messages (material version, software…) will appear on the display. As a SD Flash card is inserted, you can browse the contents of directories and choose a image disk. When a disk image is selected, the Fairlight can access to it.

In order to choose another disk image, press briefly the validation button (B2) and choose another disk image pressing the left (B1) and right (B3) button, and validate your choice by pressing the validation button (B2). If you select sound disk images, you can change by directly pressing button (B1) or (B3).

At any moment you can change the selected disk image to one of the two virtual drives by pressing the red button (B2) until the menu [change drive] appear.

To import or export datas between the 8" floppy drive and the flash drive, use the fallowing table (configuration of drives), that gives you the possible combinaitions between the three drives (8" floppy drive and two virtual flash drives).

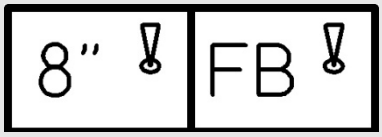
To select the desired mode, the switch of the QFC9 card (the card is positioned in the 19th slot in the C.M.I.) and the switch S1 on the right of the LCD display of the front panel.

For example, if you want the startup on the flash drive to read sounds on a 8" floppy drive, use the combination 3 : Flash drive B on DRIVE 0 and 8" floppy drive as DRIVE 1 with the switch of QFC9 card down and the switch of the flash drive (S1) up, then choose a start image on the flash drive A (startup drive) and the same image on the flash drive A (inactive), finally insert the 8" floppy of sounds to read in the 8" floppy drive.

If you want to write a sound previously loaded on the 8" floppy drive on a disk image on the flash drive, switch to the combination 2 : flash drive A as DRIVE 0 (boot system) and flash drive B as DRIVE 1 (sounds) by setting the switch of the QFC9 up and the switch of the flash drive down, then choose the same system start image on the flash drive A and the sound disk image on the flash drive B.

Configuration of the drives

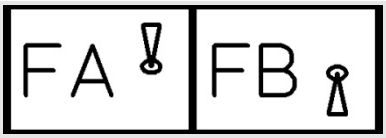
1) **8'' = Drive 0** **Flash B = Drive 1**



Switches

QFC9 or S2 Up	Flash or S1 Up
8''	Active as drive 0 « Boot system »
Flash Drive A	Inactive
Flash Drive B	Active as drive 1 « Sounds »

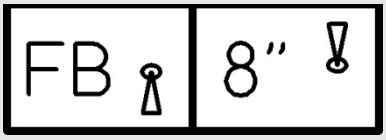
2) **Flash A = Drive 0** **Flash B = Drive 1**



Switches

QFC9 or S2 Up	Flash or S1 Down
8''	Inactive
Flash Drive A	Active as drive 0 « Boot system »
Flash Drive B	Active as drive 1 « Sounds »

3) **Flash B = Drive 0** **8'' = Drive 1**



Interrupteurs

QFC9 or S2 Down	Flash or S1 Up
8''	Active as drive 1 « Sounds »
Flash Drive A	Inactive
Flash Drive B	Active as drive 0 « Boot system »

The flash card

On the flash card provided, you find according to your kit's version all software needed to operate the C.M.I. (Fairlight System, QDOS, format and diagnostics). You´ll also find sound libraries (1.1 and 1.3) from Fairlight for C.M.I. I, II and IIx. You find personal sounds and some sounds from recovery and some wonders.

You will also find all softwares needed to operate the CMI III.

The directory tree card complied with this logic :

For CMI I, II and IIx :

```
.
|-- QDOS          The QDOS operating system, utilities, etc.
|-- Sounds        Sounds and sequences
|   |-- 1.1       Fairlight Sound Library 1.1 (Blue)
|   |-- 1.3       Fairlight Sound Library 1.3 (Pink)
|   |-- Others    From Internet . . .
|   `-- Unsorted  Unsorted ...
|-- Systems       The C.M.I. software
`-- Virgin        Blank Images to store sounds, sequences or programs
    |-- 6800      Format Sounds and sequences
    `-- 6809      Format Software
```

For CMI III :

```
.
|-- OS-9          The OS-9 operating system, and CMI III software
|-- Sounds        Sounds and sequences
|   |-- 1.1       Fairlight Sound Library 1.1 (Blue)
|   |-- 1.3       Fairlight Sound Library 1.3 (Pink)
|   |-- Others    From Internet . . .
|   `-- Unsorted  Unsorted ...
`-- Virgin        Blank Images to store sounds, sequences or programs
    |-- 6800      Format Sounds and sequences
    |-- 6800      Format Software
    `-- 6809      Format OS-9
```

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