



# User Manual



MADE IN ITALY

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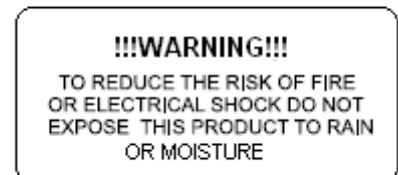
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## 1) GENERAL WARNING.



READ CAREFULLY BEFORE CONNECT CABLES.



- Do not place the instrument in wet or dirty environments
- Do not remove the protective coverings.
- Do not touch the AC plug with wet hands.
- 

### FACTORY DEFAULTS

- Crumar Mojo will accept voltage from 100V to 240V AC 50-60Hz through the original AC adapter. Be sure that local electrical standards are compliant with the instrument.
- Serial number, electrical features and international standards are printed in the plate positioned in the back panel and in the AC adapter.

**DO NOT REMOVE THE UPPER OR BACK COVERS FOR ANY REASON.**

**IN THE EVENT THAT YOU REQUIRE SUPPORT OR TECHNICAL ASSISTANCE ON YOUR INSTRUMENT, PLEASE ASK YOUR DEALER OR AN AUTHORISED CRUMAR TECHNICAL CENTER.**

**MAIN POWER CONNECTION IS SITUATED AT THE BACK LEFT HAND SIDE OF THE INSTRUMENT. THE POWER BUTTON ON THE TOP PANEL, LEFT SIDE.**

**BEFORE CONNECTING THE MAIN POWER CABLE, PLEASE MAKE ALL OTHER CONNECTIONS FIRST.**

When you are using the instrument, please be aware of the following:

- If present, ventilation holes must not be covered.
- Air must circulate freely around instrument
- The instrument must be installed in a place free of vibration.
- Do not expose it to electro-magnetic interference
- Do not expose it to heat, cold, wet and dust.
- Do not expose it to direct sunlight.
- Do not expose it to electrostatic forces.
- Do not place on it things with flames like candles etc...
- Do not place on it vessels containing fluids.

**If anything enters the instrument, please contact your dealer or the official CRUMAR service support.**

**N.B.**

1. Do not unplug the power cord by forcing the cable.
2. When not in use, please unplug the AC cable from the AC main.
3. Please unplug the AC cable during thunderstorms.

**WHEN THE INSTRUMENT IS CONNECTED TO THE AC MAIN AND THE POWER SUPPLY IS CONNECTED TO THE INSTRUMENT, PRESSING THE "POWER" BUTTON, WILL CAUSE THE INSTRUMENT TO POWER ON: POWER BUTTON WILL LIGHT AND THE BOOT SEQUENCE WILL START (YOU CAN SEE THE BOOT SEQUENCE LEDS).**

## **2) PACKAGE AND HANDLING.**

Please remove the organ from its packaging carefully. Crumar Mojo weights just over 17 KG!

If not placed in the original Crumar stand, we recommend to placed the organ on a stand rated at 20 KG, which will give a more than sufficient safety margin.

We recommend to keep the original packaging material for future usage in the case you need to move it.

**The packaging bag is not a toy. Keep it outside the reach of children.**

**CRUMAR, is not responsible for any injuries incurred by incorrect use of the organ or the packaging materials.**

## **3) ACCESSORIES IN YOUR PACKAGE.**

- **CRUMAR MOJO** organ.
- User manual.
- Power supply.
- AC plug IEC and ROHS compliant. (US plug or EU plug).
- Windows XP embedded license (in the internal DOM support).

Others not listed here may be considered optional. The organ can be equipped with some original accessories like the expression pedal, sustain pedal, rotary control pedal, rotary halfmoon control, original stand, soft or hard bag. For information regarding how to purchase original Crumar accessories, please refer to your dealer or contact Crumar directly.

## 4) CONNECTIONS AND CONTROLS.

Your instrument is designed to be connected to a power source with the same characteristics as reported in the label located in the rear of the original power supply of the instruments.

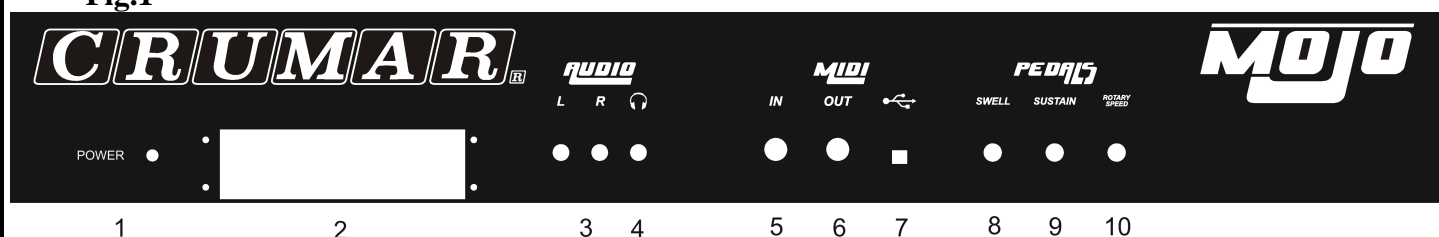
If you are planning to use the instrument in countries with different electric characteristics, please contact your dealer or a CRUMAR authorized service center.

Your instrument is suitable for use in most countries around the world: its power supply accepts voltages from 100 to 240 Volt AC. For more details, please contact your dealer.

We recommend to connect and use only compatible devices or accessories in perfect working condition; connection of broken or incompatible devices in Crumar Mojo's sockets, inputs and outputs can damage the instruments; do not insert objects into ventilation holes or into sockets and plugs. If you are not sure about compatibility of your equipment, we strongly recommend to contact CRUMAR MUSICAL INSTRUMENTS.

### Back panel connections and controls (Fig.1):

Fig.1



- **1 – Plug for power supply:** it is located on the left side of the instrument: used for connect the original Crumar Mojo power supply (12 Volt CC). It's recommended to use only the original power supply included in your package.
- **2 – Slot/access to the motherboard connections:** through this window you can access the ports dedicated to motherboard connections: for connecting a VGA-compatible 15-pin connection use the blue port, for connecting mouse or keyboard use din PS/s purple or green ports or available USB; USB ports can also be used for connecting other devices such as USB pen drives for data transfer. LAN port as well as the audio connections blue, green and purple, are not working. The usage of motherboard connections are dedicated to expert user and are used only for updates or advance instrument configuration.
- **3 – Main audio out L & R (Left and right channels):** These two outputs are used for connect the instrument to the main amplification system: for take advantage of all features of sounds we suggest to use a stereo amplification system. If the internal VB3 II VST software is configured for using the vertical simulation out-split "V.S. Technology", the L channel will be Bass/Rotor simulation and R channel will be treble/horn simulation; the internal crossover will take care of filtering out signals, in this case please put the speaker connected to R on top of the other one connected to L.

- **4 – Headphones (stereo):** Is used to connect headphones for individual listening of the instrument; It is recommended to disable vertical simulation if you would like to hear the instrument with this output, because headphones only allow stereo listening.
- **5 – Midi in connection:** input 5 poles DIN. This input can be connected to a device capable of sending MIDI messages, such a master keyboards or a midi bass pedalboard. You can also use it to update the instrument's firmware with the MFU technology (MIDI FIRMWARE UPLOAD).



- **6 – Midi Out connection:** Output 5 poles DIN.  
Through this output you can connect a MIDI device receiving midi data from the organ. Controls, as production standards, are configured this way:  
Channel 1 : Drawbars, pots, and all other controls; upper manual.  
Channel 2 : Lower manual.  
Channel 3 : Lower manual if “Pedal to Lower” function is on.

**CAUTION: It is highly recommended not to connect or disconnect midi cables with the instrument on. The instrument can be damaged or work in wrong way.**

- **7 – USB output:** through this output is it possible to connect CRUMAR MOJO to a computer without needing of converter. It is useful in case you would like to play softwares or sounds inside a computer connected to the instrument. Please check driver and software compatibility first
- **8 - Swell Pedal:** 6,3 mm stereo output jack. It is used to connect an expression pedal (optional).  
**Please use only genuine CRUMAR expression pedals. Other pedals and/or equipment can damage the instrument. For compatibility list, please contact CRUMAR MUSICAL INSTRUMENTS.**

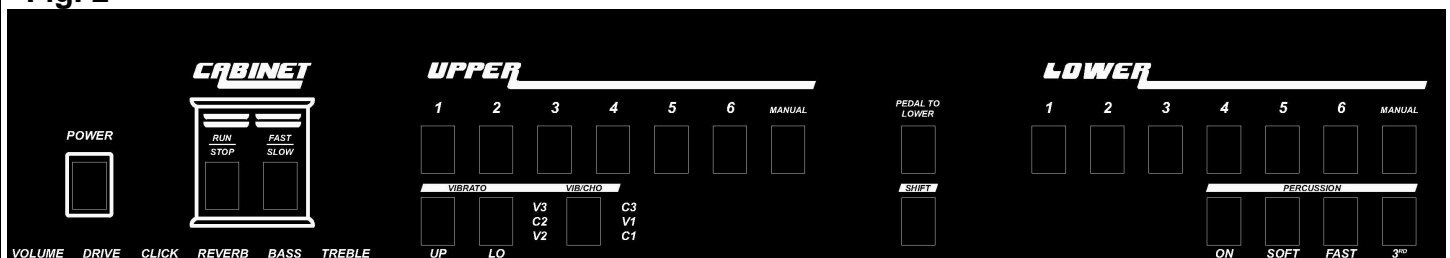
**CAUTION: Do not ever connect or disconnect the expression pedal with the instrument on. The instrument can be damaged or work in wrong way.**

- **9 - Sustain:** 6,3 mm mono output jack. It is used to connect a sustain pedal control (optional) momentary ON-OFF type. Crumar Mojo accepts both pedals configured as normally closed and pedals configured as normally open; to properly configure the polarity auto-adjustment, connect the pedal to the instrument (without pressing it) before turning the instrument on.

- **10 - Rotary Speed:** 6,3 mm stereo output jack. It is used to connect a foot pedal (optional) or a frontal half-moon (optional) to control the speed of the internal rotary speaker simulator. Please use only original Crumar half-moon or foot pedal. Other pedals and/or equipment, can damage the instrument. The instrument is equipped with auto-adjustment: if you connect a halfmoon or a pedal before turning the instrument on, it will be immediately configured for proper use. For set it please refer to section 6 of this manual.

## Front Panel controls (Fig. 2):

Fig. 2



- **Power:** Button for power on and off the instrument. When you press this button, Mojo starts the boot process; led on the button lights and the other leds on the panel lit in sequence indicating that the unit is booting. Holding down the button for 4 seconds turns the instrument off.
- **Cabinet Section:** this section contains buttons for controlling the rotary speaker simulation; the first button “Run/Stop” starts or stops the rotors of the cabinet and the “Fast/Slow” works on the speed of the rotors changing from “Slow” (chorus effect) to “Fast” (vibrato effect).
- **Upper Section:** This section consists of 6 buttons called “presets” and a button called “manual”: these buttons control the sound settings related to drawbars of upper manual (set placed under the same section). “Manual” allows the use of the 9 drawbars in real time to create you own sound setting while the 6 preset buttons disable the functionality of the drawbars on the upper manual and set the sound according to the previously saved recordings; to store a sound in any of the 6 buttons, just make your own drawbars settings using the set on left (upper manual) when you are on “manual” and holding for 5 seconds the preset button where you want the sound to be saved. The recordings remain even after turning the instrument off.
- **Lower Section:** This section consists of 6 buttons called “presets” and a button called “manual”: these buttons control the sound settings related to drawbars of lower manual (set placed under the same section). Features and usage are the same as Upper but always refer to the lower manual.



- **Vibrato Section:** consists of 3 buttons and 6 leds near the button of vibrato/chorus. With these 3 buttons is possible to add vibrato or chorus effect to sound and control it. “Vibrato Up” button enable effect only on upper manual, “Vibrato Lo” enable effect only on lower manual. With “Vi/Cho” button you can choose the type of effect C3 – V1 – C1 – V2 – C2 – V3 (related led will turn on).
- **Percussion section:** this section has four buttons. With these buttons is it possible to add percussion effect to sound and control it. Effect only acts on upper manual. “percussion on” button enable or disable percussion, “soft” button change the volume of percussion, “fast” button selects type of decay fast or slow, “3” button selects the harmonics.
- **Pedal to Lower button:** with this button you can choose to play the classic tone of the pedal with the lower manual without the use of bass pedals: the sound of the lower manual will be lower and deeper. In order to control the sound, you can use the two central drawbars. When this feature is disabled (led off) the lower manual will behave in normal way and the typical sound of the pedals will be executed only if a pedalboard is connected to the instrument via the Midi in connector.
- **Shift button:** pressing this button, the instrument enters edit or programming mode: related led will blink slow and “pedal to lower” led will blink fast **(to use this function, see section “programming”)**.
- **Drawbars section:** Mojo has 20 drawbars arranged into two sections of 9 and a central section of 2. First section (or left set) refers to upper manual, second section (or right set) refers to lower manual, central section (or pedalboard set) is used to control the sound of the pedal. The two sets, upper and lower, are composed of 9 drawbars in the following colors:

<b>brown:</b>	<b>16' – 5e1/3</b>
<b>white :</b>	<b>8' – 4' – 2' – 1'</b>
<b>black:</b>	<b>2&amp;2/3 – 1&amp;1/3 – 1&amp;3/5</b>

with these, you can mix harmonics and set the volume on each from min. of 0 (closed drawbars) to max. of 8 (drawbar fully opened).

From left to right each set is composed by:

16'	One octave under 8' with repetition of first low octave.
5-1/3	A fifth above 8'
8'	Fundamental
4'	An octave above 8'
2-2/3	An octave and a fifth above 8'
2	Two octave above 8' with repetition of the last upper octave.
1-1/3	Two octave and a third above 8'
1-3/5	Two octave and a fifth above 8'
1	Three octave above 8' with repetition of the two last upper octaves.

#### Pedalboard drawbars

In the middle of the 2 drawbars sets, there are two brown drawbars used for control 32' and 16' when a midi pedalboard is connected to the instrument or when pedal to lower function is active.

- **Control knobs:** In the left part of the instrument under "cabinet" section, there are 6 knobs used for control other parameters of the sound:
  1. Volume: Main volume of the instrument.
  2. Drive: control for the tube overdrive.
  3. Click: control for the keyclick simulation.
  4. Reverb: control for regulate the depth of the spring reverb simulation.
  5. Bass: tone control for bass.
  6. Treble: tone control for treble.

## 5) START-UP AND SHUT DOWN OF THE INSTRUMENT: USE.

**START-UP:** after connecting the audio cables, the expression and sustain pedal, you can connect the power supply to the instrument and to the AC main: the instrument is under voltage. Pressing the “power” button, Crumar Mojo will start-up and the red light on the “power” button will light up. At this point, the instrument starts the boot process during which some control operation will take effect (instrument state control, auto-regulation of sustain pedal, etc) and the internal processor starts to load the sound software: this operation lasts about 20 seconds. The boot sequence is also displayed through the light-up in sequence of the LEDs on the top panel indicating that the instrument needs to be synchronized once the tone generator has been initialized: when the instrument plays acting on the keyboards, you must manually press manual upper and manual lower push-buttons (or any of the preset buttons on lower and upper manual) to synchronize MIDI-sound software: the sequence of LEDs will turn off and the LEDs related to active functions will turn on.

**OFF:** to switch off, you must hold down the button “power” on top panel for 4 seconds: all LEDs will turn off: it is important to remember that the instrument is still under voltage until you disconnect the power supply; in the case you are planning to leave the instrument off for more than one or two hours, we recommend to unplug the power supply from the AC main to extend the life of the power supply and to avoid unnecessary waste of energy.

**USE:** Crumar Mojo is a modern computer-based musical instrument which offers significant advantages over a traditional one: the “heart of sound” is based on VST technology VB3 HE II that runs on a Windows XP Embedded (XPE in short): well if the instrument is immediately intuitive and easy to use, its construction offers advanced programming, edit and upgrade features that make it unique: in fact, just connecting to Crumar Mojo a mouse and a computer screen, you can access the software GUI and perform many operations and customizations.

Difference between traditional Windows XP desktop and Windows XP embedded is that Windows XP Embedded is modulated in components.

Windows XP Embedded is basically a special version of XP, created for a particular application, as in our case, to make music: hence the direct benefits that relate to the minimal size of the system, the absolute stability and integration of the components based on actual demand, and very fast start-up time; adding to that, the familiarity that average user has got with a personal computer that allows it to gain access to the classic features of a regular PC.

Windows XP Embedded also offers some additional features that make it actually more than the traditional Windows XP.

The most important feature of XP Embedded for the user is the management of the filter called “Enhanced Write Filter” from now on called “EWF”. “EWF” provides the opportunity to protect the image of XPE from accidental or voluntary over-writing, without going deeper, it is important to know that this feature allows you to boot XPE for example from a CD-ROM. Protect your XPE image (Crumar Mojo operating system) is very important in two ways: as Mojo doesn’t come with hard drives but all the system works using a flash

memory, this effectively extends the life of the support, since during normal use, no data is written in it and then behaves like a read-only media.

Any data you try to write to the operating system, any software you install, any changes you try to do, the next time it is “misunderstood” and the system will always start in the default of factory.

Obviously, for our choice, we give you the opportunity to work on the operating system, disabling the functionality of “EWF” to allow you to make changes you deem appropriate, hence some details and caveats: disabling “EWF” exhibit the system to all the changes that you make, positive or negative whether even the total destruction of the operating system itself. It is recommended to make an informed basis and it is recommended to avoid any action that might jeopardize the stability of the system, if you do not feel perfectly able to perform these operations, we strongly advise you not to do so.

CRUMAR MUSICAL INSTRUMENTS will not respond for any damage you can cause to the operating system, but, through our web site or by contacting CRUMAR, we always will be able to restore the system with the original settings.

Please also note that the compact flashes, when they are converted from read-only media to read-write media, shorten their lives and may break in short time: it is recommended to re-enable “EWF” functionality whenever you are finished to perform the editing operations in the OS.

#### **“EWF”: ENABLE AND DISABLE OPERATION.**

If it becomes necessary to make changes to the system and configure it to start with different configurations than those “factory default”, the correct procedure is to disable the filter “EWF”

**WARNING: THE FOLLOWING INSTRUCTIONS NEED SOME KNOWLEDGE OF MICROSOFT WINDOWS SYSTEM. IF YOU ARE NOT SURE ABOUT, PLEASE AVOID DISABLING FILTER.**

- 1) With the instrument off, please connect a mouse and a computer screen into sockets in the back of the instruments, you can also use available USB connections.
- 2) Turn the instrument on.
- 3) Once finished the boot procedure, when you can see the VB3 HE II GUI in the screen, close the VB3 HE II application: click on “start” icon on widows taskbar, look the software called “EWF MANAGER” and open it.
- 4) click on “DISABLE”.
- 5) You can now perform all the changes you need.

**WARNING: WHEN EDITING OPERATIONS ARE FINISHED, IT IS IMPORTANT TO RE-ENABLE “EWF” TO AVOID COMPROMISE COMPACT FLASH THAT IS THE HEART OF THE INSTRUMENT. WORKING WITH “EWF” DISABLED FOR LONG PERIODS CAN CAUSE THE STRENGTH OF THE FLASH SUPPORT.**

## RE-ENABLING “EWF”.

Do the same as on point 1, 2 & 3.

4) click on “enable ewf” and confirm all messages: instrument will reboot.

5) After that, filter will be enabled.

## “COMMIT CHANGES” FUNCTION.

With this function, as option present in the “EWF Manager”, when “EWF” is enabled, you can save changes “on the fly” without the need to disable the filter. This feature can be useful in case of “light changes” such as modifications of settings of the VB3 HE II (eg. changing the type of tonewheel generator or type of rotary speaker simulation).

Open “EWF Manager” and click on “**commit changes**”. All the changes made so far, will be immediately saved in the flash support without rebooting the instrument; **filter will then automatically re-enabled**.

## “COMMITANDDISABLE –LIVE” FUNCTION.

With this function, when “EWF” is enabled, you can immediately save your changes and disable “EWF” in one single operation. To use it: make the necessary customizations, open “EWF Manager” and select “**commitanddisable –live**”. All changes will be permanently recorded on flash support and “EWF” will be disabled. **When finished, it is recommended to re-enable “EWF”**.

Crumar Mojo is factory set with VB3 HE II that autostart whenever you turn the instrument on: VB3 HE II actually is the most advanced electromagnetic organ emulation software and it offers significant advanced features to change the sound and timbre. From the control panel of MOJO you can use and modify all the parameters of the software without necessarily using the graphical interface, the mouse and the screen; however, we suggest to study the software in order to understand fully the potential and the functionality.

The graphical interface in Fig. 3 shows the main screen of the software.

Fig. 3



“Tonewheel Generator Set” section offers the possibility to choose between 20 different types of tone generator, in fact 20 different settings of the same electromagnetic generator typical of the American tonewheel organs.

“Generator” section provides the ability to vary the typical “Leakeage” and “CrossTalk” that makes the sounds unique and inimitable.

“Percussion” section allows you to change advanced parameters affecting the percussive effect as the volume of the percussion, the duration and dropout.

“Pedals” section enables or disables the “pedal to lower” and adjust the sustain of it.

“Vibrato” section allows you to adjust the effect of vibrato to sound: “Vibrato Depth” adjusts the depth of effect and the control “V/C mix” the mixing between Vibrato and Chorus. **To hear the difference between the various settings of the “vibrato depth” control in necessary to change from one type to another via the “vi/cho” button on the control panel.**

“Reverber Lenght” is used to adjust the duration of the reverb in the spring reverb simulation.

“Keyclick Lenght” is used to increase or decrease the duration of keyclick.

“DRIVE1” or “DRIVE2” switch the type of simulation you want to use via the “drive” knob on top panel.

“Rotary speaker” section offers many controls that manipulate the rotary speaker simulation by varying the parameters: “Balance” between the sound of the horn and the sound of rotor, “Ambience” is a simulator of the outside space, “Cabinet” is used to vary the dimensions of the virtual rotary amplifier, “Microphone Angle” adjusts the angle of the microphone in the horn, “Distance” adjusts the distance of microphones. “Horn equalization” adjust the equalization of the horn. The last control called “Out Split”, turns on or off the rotary speaker vertical simulation “V.S. Technology”: when the control in “ON”, audio L output turns itself into simulation of bass rotor and audio R output into horn

simulation with 800 Hz internal crossover and then placing the two speakers on top of each other, the simulation will be “monoaural”, but will reflect the physics of rotary amplifiers with bass on bottom and treble on top, whereas the control is “OFF, the rotary speaker simulation will work in common stereo way.

Finally, the red button “**store**”, stores the changes made and makes them “default” at every boot of the instrument; **it is important to remember that if the filter “EWF” is enabled, by pressing “store”, changes will not be recognized on next boot of Mojo because “EWF” will filter the selections; To make permanent changes, it is necessary that “EWF” filter is disabled through the “disable”, “commit changes” or “commit and disable – live” functions.**

The principles of working of Mojo is therefore expected that user can modify the sound through the various options offered by VB3 HE II software and acting first on “store” and then on “EWF” makes permanent changes to instrument to ensure that it will always boot with configuration changed at will: it is obviously possible to change them later, when you want. Many parameters of the software described above can be changed during performance without the need to interface the screen and the mouse and without access to VB3 HE II user interface; in this case you have to use the “shift” button, very useful in the case you won’t your modifications to be permanent, for example if you think they are responding only to a temporary necessity. The most relevant example is the activation/deactivation of “Out Split”: according to amplification system you are planning to use in a particular situation, may be necessary to enable or disable this feature but without made this modification permanent.

## 6) EDIT AND PROGRAMMING MODE.

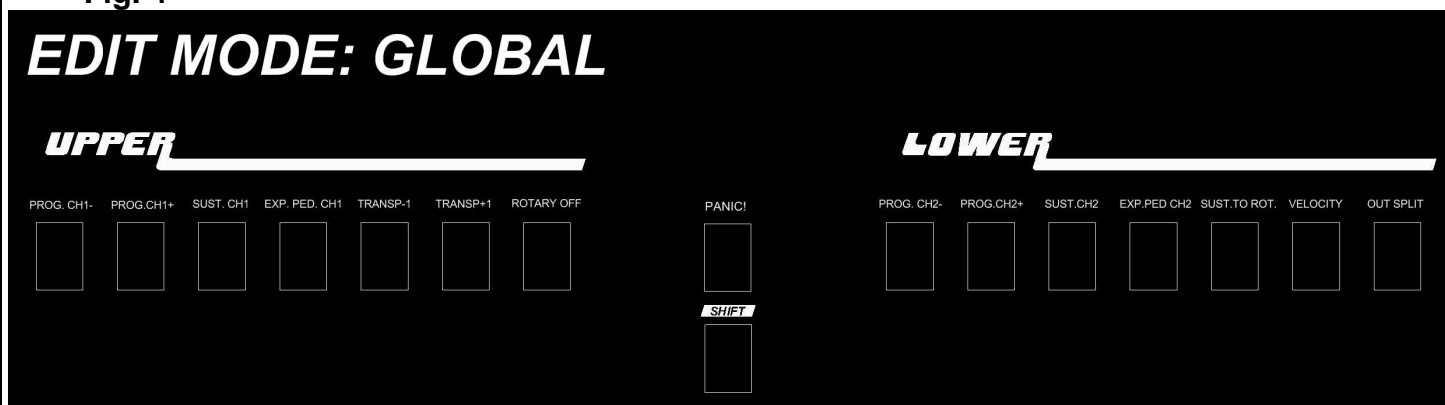
By pressing “SHIFT” button on the control panel, you can access the “edit” mode: CRUMAR MOJO will enter programming mode and few buttons, knobs and drawbars take an alternative function. When “shift” is activated, LEDs on “shift” and on “pedal to lower” buttons will blink.

Functions associated are a lot, from global settings of the instrument to settings related to VB3 HE II.

### GLOBAL EDIT FUNCTIONS.

Pressing “shift” and pressing buttons as on fig. 4, you can access global instrument settings. Data will be saved when you exit edit mode pressing “shift” button (related leds turns off).

Fig. 4



1:

Upper manual preset 1 ► program change midi channel 1 –.

Upper manual preset 2 ► program change midi channel 1 +.

With these two buttons it's possible to send midi messages of program change on channel 1 both on internal Mojo software both on midi out and USB out. Pressing “-“ or “+” you send messages in a descending or ascending way from 0 to 127. When you reach program change 0, led on button “program change channel 1 –“ will turn on and is not possible decrease anymore, same when you will reach 127: led on “program change channel 1 +” will turn on and is not possible to increase anymore.

2:

Upper manual preset 3 ► sustain pedal midi channel 1.

With this button you can choose if sustain pedal works or not on midi channel 1 (upper manual).



3:

Upper manual preset 4 ► expression pedal midi channel 1.

With this button you can choose if expression pedal works or not on midi channel 1 (upper manual).

4:

Upper manual preset 5 ► global transpose -1.

Upper manual preset 6 ► global transpose +1.

With these two buttons it is possible to adjust global transpose of the instrument ( upper and lower manual) of Mojo with -12/+12 semitones range; pressing “global transpose -1” button the instrument will decrease with a semitone (led on it will turn on for indicate that transpose - is active), pressing “global transpose +1” button the instrument will increase with a semitone (led on it will turn on for indicate that transpose + is active). When transpose is 0 (OFF) both leds are off.

5:

Manual Upper ► Rotary simulation on/off - control change 53.

With this button is it possible to enable/disable the internal rotary speaker simulation for example for connect a genuine rotary speaker to the instrument.

6:

Pedal to Lower ► Panic!

If you hold this button for 3 seconds, Mojo will send a “all notes off” message to all 16 midi channels and then will reboot the midi processor.

7:

Lower manual preset 1 ► program change midi channel 2-.

Lower manual preset 2 ► program change midi channel 2+.

With these two buttons it's possible to send midi messages of program change on channel 2 both on internal mojo software both on midi out and USB out. Pressing “-“ or “+” you send messages in a descending or ascending way from 0 to 127. When you reach program change 0 led on button “program change channel 2 -“ will turn on and is not possible decrease anymore, same when you will reach 127: led on “program change channel 2 +” wil turn on and is not possible to increase anymore.

8:

Lower manual preset 3 ► sustain pedal midi channel 2.

With this button you can choose if sustain pedal works or not on midi channel 2 (lower manual).

9:

Lower manual preset 4 ► expression pedal midi channel 2.

With this button you can choose if expression pedal works or not on midi channel 2 (lower manual).

10:

Lower manual preset 5 ► rotary connection temporary/latched.

With this button it is possible to set the principle of working of the rear socket “rotary speed” in case you connect and device with temporary or latched behaviour.

11:

Lower manual preset 6 ► Velocity on/off.

With this button it is possible to set both keyboards of Mojo for working in velocity mode (for example for playing sound that need touch response) or on velocity off mode with fast action (for controlling organ sounds).

12:

Manual Lower ► Out Split on/off - control change 54.

With this button it is possible to activate/deactivate vertical simulation "out split".

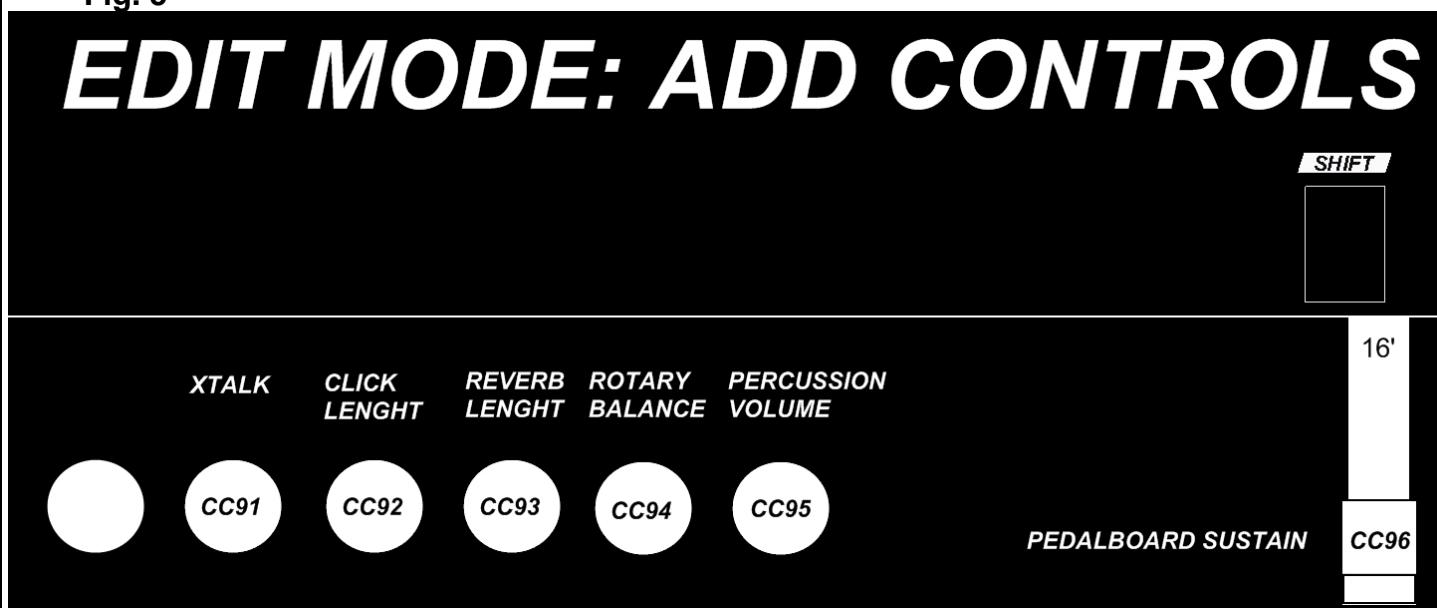
### EDIT FUNCTIONS : ADD CONTROLS.

Pressing "shift" and selecting buttons as on Fig.5, you can access the add controls features of the instruments. Data will be saved when you exit edit mode pressing "shift" button (related leds turns off).

Numbers of control change are factory set with the functions below: using "midi learn" feature of VB3 HE II with the graphical interface, is possible to set the add controls to different parameters of the software. For do it, you must click with the mouse right button on the control you want to be assigned to the physical knob and select in the menù the "midi learn" option and move the physical knob on the instrument top panel; then pressing "store" on VB3 HE II and disabling "EWF", is it possible to set these modifications as default.

Fig. 5

## EDIT MODE: ADD CONTROLS



1:

Drive ► Crosstalk Control Change 91.

2:

Keyclick ► Keyclick length Control Change 92.

3:

Reverb ► Reverb Length Control Change 93.

4:

Bass ► Rotary Balance Control Change 94.

5:

Treble ► Percussion Volume Control Change 95.

6:

Pedalboard Drawbar 16' ► Pedalboard sustain Control Change 96.

## 7) UPDATE.

Crumar Mojo offers many opportunities to upgrade due to its architecture that combines optimally hardware and software.

There are two levels of update: firmware update and software update.

Update the firmware is the ability, through upload of a file by the user via midi in, to change the operating mode of the instrument interface and in general of the Mojo. CRUMAR MUSICAL INSTRUMENTS may issue new updates to solve an bug or to change/add new functions to the interface (eg add new controls in edit mode). This operation is possible through MFU (midi firmware upload) technology.



The new update file from CRUMAR is sent to the instrument via a laptop or desktop equipped with a midi cable that has to be connected to midi in of Mojo as specified in the “readme” file supplied with the firmware package.

The firmware version installed on the instrument is shown during boot by the leds in the “upper” section from preset 1 to 6 and via manual button (0): for example in the case of firmware version 1.0, on boot, led on manual upper preset 1 (the first number that indicates 1) and the led “manual” that indicates 0 will light.

Software update is the ability to upgrade or replace the internal sound software of Mojo. Updates of VB3 HE II are released constantly: user can update the instrument, replacing the previous software with the new one: updates can add new features, fix bugs or improve VB3 HE II simulation algorithms. Software updates aren't downloadable from the web site but they are only released or announce by CRUMAR: customers will request them, and the request must be accompanied by name and serial number of the instrument: after that, the update package is sent by email together with loading instructions. The internal software of Mojo can also be replaced or complemented with another VST technology sound software as desired by the customer or with other softwares released by CRUMAR MUSICAL INSTRUMENTS: updates of VB3 HE II are totally free for owners of Mojo up to version II, any other additional software provided by CRUMAR may cost additional fees. We recommend to visit [www.crumar.it](http://www.crumar.it) to keep up on any new software or version of VST available.

**In the case of other non-proprietary software installations, CRUMAR reserves the right not to provide any assistance on the operation of the software and the operation of Mojo. Any software assistance under warranty refers only if in the instrument is installed original CRUMAR software and nothing else then sound software and EWF manager.**

## **8) MAINTENANCE.**

The instrument does not require any special maintenance procedures: however we recommend not to clean the unit using solvents, flammable liquids or cleaners. The wooden and iron parts of Mojo should be cleaned only with a soft, not too moist cloth to prevent entering of water into the panel through the slits of the buttons or anything.

It is recommended not to place flammable objects or bins with liquids on the instrument panel or on the keyboards.

In case of malfunctioning due to entry of foreign object or liquids into the instrument, please turn immediately off the instrument and contact authorized assistance; do not try to fix the instrument by yourself.

Instrument is covered by 2 years of official warranty. Warranty covers all defects of the instrument not attributable to misuse by the user.

## 9) ADDENDUM.

### CRUMAR MOJO MIDI IMPLEMENTATION CHART

FUNCTION	TRASMITTED	RECOGNIZED	REMARKS
Basic Channel Default: Changed:	:1-2 :1-2 : 3 with pedal to lower	Y	
Mode Messages Default: Altered:	Y	Y	
Note Number True Voice	0-127 _____	Y	
Velocity Note On Note Off	Y	Y	Y
Aftertouch Keys: Channel :	X	X	X X
Pitch Bend	X	Y	
Control Change	Y	Y	
Program Change	Y	Y	
System Exclusive	GM, GM2, MMC	O, firmware upgrade	
Song Position Common song select	X	X	
System : Clock Exclusive : Command	X X	X X	
Aux : Local ON/OFF Messages: All Notes OFF :Active Sense :Reset	X Y X X Y	X Y X Y	
Notes			

### CRUMAR MOJO EDIT FUNCTION TABLE

UPPER PRESET 1	▶ PROGRAM CHANGE MIDI CHANNEL 1-	LOWER PRESET 1	▶ PROGRAM CHANGE MIDI CHANNEL 2-
UPPER PRESET 2	▶ PROGRAM CHANGE MIDI CHANNEL 1+	LOWER PRESET 2	▶ PROGRAM CHANGE MIDI CHANNEL 2+
UPPER PRESET 3	▶ SUSTAIN PEDAL MIDI CHANNEL 1	LOWER PRESET 3	▶ SUSTAIN PEDAL MIDI CHANNEL 2
UPPER PRESET 4	▶ EXPRESSION PEDAL MIDI CHANNEL 1	LOWER PRESET 4	▶ EXPRESSION PEDAL MIDI CHANNEL 2
UPPER PRESET 5	▶ GLOBAL TRANSPOSE -1	LOWER PRESET 5	▶ ROTARY CONNECTION TEMP/LATCHED
UPPER PRESET 6	▶ GLOBAL TRANSPOSE +1	LOWER PRESET 6	▶ VELOCITY ON/OFF
UPPER MANUAL	▶ ROTARY SIMULATION ON/OFF CC53	LOWER MANUAL	▶ OUT SPLIT ON/OFF CC54

PEDAL TO LOWER	▶ PANIC! (3 SECONDS)
DRIVE	▶ CROSSTALK CC91
KEYCLICK	▶ KEYCLICK LENGHT CC92
REVERB	▶ REVERB LENGHT CC92
BASS	▶ ROTARY BALANCE CC94
TREBLE	▶ PERCUSSION VOLUME CC95
PEDAL DRAWBAR 16'	▶ PEDALBOARD SUSTAIN CC96

# **Contacts**



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