

FAIRLIGHT

COMPUTER MUSICAL INSTRUMENT

SERIES IIx
SUPPLEMENT

Scanned by J-B. Emond
www.fairlight.free.fr

INDEX	COMMAND:
PAGE 1...	INDEX
PAGE 2...	DISK CONTROL
PAGE 3...	KEYBOARD CONTROL
PAGE 4...	HARMONIC ENVELOPES
PAGE 5...	WAVEFORM GENERATION
PAGE 6...	WAVEFORM DRAWING
PAGE 7...	CONTROL PARAMETERS
PAGE 8...	SOUND SAMPLING
PAGE 9...	KEYBOARD SEQUENCER
PAGE A...	ANALOG INTERFACE
PAGE C...	MCL COMPOSER
PAGE D...	WAVEFORM DISPLAY
PAGE F...	USER DEFINED FUNCTIONS
PAGE I...	INTERFACE CONFIGURATION
PAGE L...	DISK LIBRARY
PAGE R...	REAL-TIME COMPOSER
PAGE S...	SCREEN PRINT
USER NAME : Fairlight Australia	

Fairlight



C. M. I.

V4:C5,R1:14

This release of CMI software is called Version V4-C5,R1:14.

Two new pages have been added to the CMI index, and PAGE 7 - CONTROL PARAMETERS has additional effects.

PAGE I is the GENERAL INTERFACE for use with option hardware. See separate manual for operation of this page.

PAGE F is called USER DEFINED FUNCTIONS and operates in conjunction with PAGE 7 to allow more real-time control for you.

DISPLAY PAGE 7) CONTROL PARAMETERS

Here is Page 7 display. New features include patchable functions, auxiliary level control and switchable damping rates.

INDEX			VOICE: 8
COMMAND:			SOLOGTR
Control File: SOLOGTR .CO			
MODE = 4	GLISSANDO = OFF	LOOP CNTRL = OFF	
MAIN LEVEL = KEYV,D	PORTAMENTO = OFF	LOOP START = 1	
AUX. LEVEL = KEYN,C	SPEED = 0	LOOP LNTH = 1	
FILTER = 20	CONST TIME = ON	B/F LOOP = OFF	
DAMP-MODE = SW01	PITCHBEND = CN02	VIB DEPTH = CN03,G	
DAMPING-1 = 50	BENDWIDTH = 12	VIB SPEED = 90	
DAMPING-2 = 200	DEAD-SPOT = ON	VIB DELAY = 5	
ATTACK = 0	START SEG = 1	VIB ATTACK = 15	
SLUR = SW48	SUSTAIN = OFF		
Voices		Patch Selectors	Cntrls
1 to 4	5 to 8		Switchs
BDRUM	MELLOW	TENS : 1 2 3 4 5 6 7 8 9	1 5 1 OFF
SNARE	MELLMED	UNITS: 0 1 2 3 4 5 6 7 8 9	2 64 2 OFF
HIHAT	MELLHI		3 34 3 OFF
BASSYNTH			4 64 4 OFF
		FNCTN: B C D E F G H I J	5 64 5 OFF
			6 64

KEYBOARD FUNCTIONS

KEY VELOCITY is computed by the music keyboard for each key that is played.

The **MAIN LEVEL** and **ATTACK** control parameters can both be patched to the **KEY VELOCITY** function for touch control of the voice's volume and (in **MODE 4**) attack time.

Thus the **harder** you play the music keyboard the **louder** the sound or the **faster** the attack.

The default setting of **MAIN LEVEL** is **KEYVEL**.

KEYNUM is similar in operation to **KEYVEL**, except that the data controlling the effect is derived from the number of that key starting from the left side of the music keyboard. The **lowest F** generates a **KEYNUM** of 0. The **highest F** generates a **KEYNUM** of 72. Thus if **KEYNUM** was patched to **MAIN LEVEL** for a voice, the **lowest** keyboard note would be loudest, and the **highest** note would not sound. **KEYNUM** data can be used for cross-fades between multi-voice registers when patched with appropriate functions. See **PAGE F** description.

KEYPRS is key pressure. This is not generated by the CMI music keyboard but makes use of the continuous key after-pressure data generated by many MIDI devices. **PAGE I** and the optional **General Interface** hardware allows communication between the CMI and other MIDI equipment. **KEYPRS** is similar in operation to **CONTRL** patches, with the same range, 0 to 127.

KEYREL is key release. This is not generated by the CMI music keyboard, and presently is not patchable to any effect. It will make use of key release data generated by other MIDI equipment.

EXAMPLE 1 To make KEYNUM **cross-fade** between two voices ...

Load **two** voices into the **one** register. See PAGE 3 description under multi-voice load command.

Page 3 should look similar to this ...

REGISTER	NPHONY	VOICE	MODE	OCT	SEMI	FINE	CHANNELS
A	4	1) PIANOLO	4	0	0	0	1.3.5.7.
		2) PIANOHI	4				.2.4.6.8

KBD	SELECTION	MASTER TUNING
1 A A A A A A	1 : MASTER	PITCH: 128
2 B B B B B B	2 : SLAVE	SCALE: $12\sqrt{2.00}$
3 C C C C C C		

Go to Page 7.

We will now control the level of each voice by using KEYNUM and two preset function curves from PAGE F. Function B, on Page F, has a preset **logarithmic** curve. Function C has a preset **inverse logarithmic** curve. In this way, depending on which notes are played on the keyboard, one voice becomes louder and the other becomes quieter.

Patch **AUX. LEVEL** to **KEYNUM,B** for voice 1

Type **KEYNUM,B<set>**

→

Voices	
1 to 4	5 to 8
PIANOLO	
PIANOHI	

Patch **AUX. LEVEL** to **KEYNUM,C** for voice 2

Type **KEYNUM,C<set>**

→

Voices	
1 to 4	5 to 8
	PIANOLO
	PIANOHI

A control fader could be used instead of KEYNUM. Just substitute a **control number** for KEYNUM in the above example.

DISPLAY PAGE 7) CONTROL PARAMETERS (continued)

FUNCTIONS

User Defined are curves drawn on PAGE F and used on PAGE 7 allowing different responses for KEYVEL, KEYNUM, control faders, and KEYPRS.

Some possible uses are: a control fader could be given an exponential response, rather than linear; by doing a multi-voice load on Page 2, cross-fades between voices can be performed by KEYNUM or keyboard control faders; the music keyboard touch sensitivity can be varied to suit personal playing style.

Sixteen functions, A to P, are possible as seen on Page F. For compact display, only functions A to J are lightpen hittable on Page 7.

Function A is the default (linear) and is not seen if patched. If a function is not allowed for a particular patch, a warning message "UNRECOGNIZED ITEM" is displayed.

To include a FUNCTION in a patch TYPE: LIGHTPEN:
 PATCH,x<set> x:PATCH

where PATCH = KEYVEL, KEYNUM, KEYPRS, CONTROL
 x = function letter, A to P

EXAMPLES: KEYVEL,C<set> C6,P<set> KEYNUM,M<set>

CONTROL filename

File loading and saving on PAGE 7 is slightly different now.

On PAGE 7 ...

- 1) A voice or instrument file may be loaded
- 2) A control file may be loaded only if the .CO suffix is included
- 3) A control file is necessary to save and load PAGE F function curves
- 4) A control file is not necessary to save a "function-less" PAGE 7.

A CONTROL FILE (.CO suffix) can be SAVED on the RH disk to preserve a particular setup of the control parameters for a voice or group of voices.

By LOADING the voice file, all settings and patches will be restored. However, a control file may be LINKED to a voice, causing it to be loaded automatically whenever that voice is loaded, overriding voice settings.

TO SAVE CONTROL FILE TYPE:
as internal part of voice but **no functions** - **S;I<return>**
or just - **S<return>**
to use displayed CONTROL FILENAME - **S,CO,filename<return>**
to use a new CONTROL FILENAME - **S,CO,newname<return>**

where: filename = 1-8 character filename
(see PAGE 2 description of filenames)

EXAMPLE:

S,CO,PLUCK<return> Save PLUCK.CO - CONTROL FILENAME
or S,PLUCK.CO<return> Same effect as above

The setup of all CONTROL PARAMETERS for the selected voice will be SAVED in a CONTROL FILE. If the file already exists on the disk, it will be OVERWRITTEN.

If no filename is specified then the displayed CONTROL FILENAME will be used.

Note that **voice** and **instrument** files may be loaded and saved on Page 7. This means that you **must** type the **.CO** suffix to save or load a control file.

TO LOAD CONTROL FILE setting TYPE:
as internal part of voice but **no functions** - **L;I<return>**
or just - **L<return>**
to use a CONTROL FILENAME - **L,CO,filename<return>**
to shuffle functions, no overwriting - **L,CO,filename;S<return>**

where: filename = 1-8 character filename
(see PAGE 2 description of filenames)

EXAMPLE:

L,CO,TRUMP<return> Load a new control file called TRUMP.
L,TRUMP.CO<return> Same effect as above

The setup of the CONTROL PARAMETERS at the time the file was last SAVED will be completely restored.

Loading PAGE F functions: Because different voices may use the SAME function letters for different things, the ;S option may be typed. This will SHUFFLE functions around when loading so that functions with the same letter are not overwritten.

A maximum of 16 functions may be loaded at once.

Note that on all pages except Page 9 and Page R, saving a voice with the ;C option will automatically SAVE the Control file and LINK it to the associated voice file.

QUICK REFERENCE CHART shows **ranges** and possible **patches** for each control parameter. Permitted function patches are also shown.

Control Parameter	Range:	Patch:	Function:
MODE	1,4	NO PATCH	NO
MAIN LEVEL	Ø-255	CONTRL 1-64, KEYVEL	YES
AUX. LEVEL	Ø-127	CONTRL 1-64	YES
FILTER	1-127	CONTRL 1-64	YES
DAMP-MODE	1,2	SWIT 1-64	NO
DAMPING 1 & 2	Ø-65535	CONTRL 1-64	YES
ATTACK	Ø-16383	CONTRL 1-64, KEYVEL	NO
SLUR	ON,OFF	SWIT 1-64	NO
GLISSANDO/PORTAMENTO	ON,OFF	SWIT 1-64	NO
SPEED	Ø-127	CONTRL 1-64	NO
CONSTANT TIME	ON,OFF	SWIT 1-64	NO
PITCHBEND, BENDWIDTH	Ø-127	CONTRL 1-64	NO
DEAD-SPOT	ON,OFF	SWIT 1-64	NO
START SEGMENT	1-128	CONTRL 1-64	NO
SUSTAIN	ON,OFF	SWIT 1-64	NO
LOOP CONTROL	ON,OFF	SWIT 1-64	NO
LOOP START	1-128	CONTRL 1-64	NO
LOOP LENGTH	Ø-128	CONTRL 1-64	NO
BACKWARD/FORWARD LOOP	ON,OFF	NO PATCH - Mode 1 only	
VIBRATO DEPTH	Ø-127	CONTRL 1-64	YES
VIBRATO SPEED	Ø-127	CONTRL 1-64	NO
VIBRATO DELAY	Ø-127	CONTRL 1-64	NO
VIBRATO ATTACK	Ø-127	CONTRL 1-64	NO

Controls 1 to 6 and switches 1 to 5 are real-time, adjustable from the music keyboard.

Controls 1 to 64 and switches 1 to 64 are adjustable through the Music Composition Language - Page C. See separate manual.

AUXILIARY LEVEL

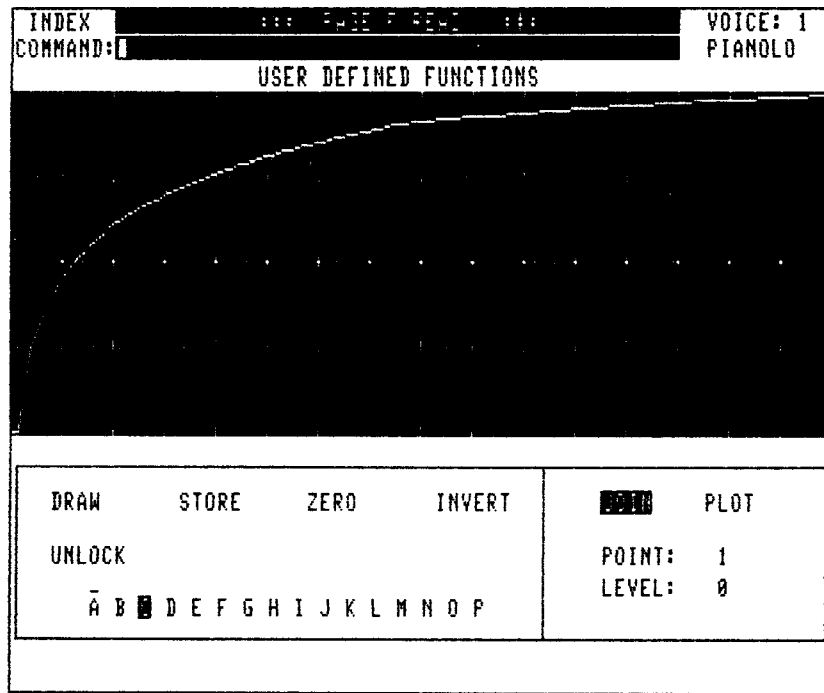
AUX. LEVEL range: 0-127 patch: **CONTRL**

This patch allows a secondary volume control. For example, if KEYVEL were patched to MAIN LEVEL, AUX. LEVEL could control overall volume range of KEYVEL. Patching to functions allows cross-fades between multi-voice registers.

DAMPING

DAMP-MODE range: 1,2 patch: **SWIT,CONTRL**

This patch allows switching between DAMPING-1 and DAMPING-2 rates. Note that a control can be used as the switch.



Here's function curve C on Page F.

USER DEFINED FUNCTIONS are curves drawn on PAGE F and used on PAGE 7 letting you shape response curves for KEYVEL, KEYNUM, CONTROL faders, and KEYPRS.

Some typical applications would be: a control fader could be given an exponential response, rather than linear; by doing a multi-voice load on Page 2, cross-fades between voices can be performed by KEYNUM or keyboard control faders; touch sensitivity of music keyboard can be varied.

Sixteen functions letters, A to P, are presented on the bottom of the screen. Point the lightpen at any one of these letters to make it the currently displayed function.

For a drawn function to have an effect, it must be patched to desired control parameter on Page 7.

A function can be drawn on the screen with lightpen, similar to WAVEFORM DRAWING on PAGE 6. For detailed work, the alphanumeric keyboard can be used. All this works in real time, so that if a function is included in a PAGE 7 patch, and is being drawn, you can hear the results immediately.

PRESET FUNCTIONS

Three preset functions are loaded into function slots A, B and C at CMI start-up time.

Function A is the default setting ($x=y$) and is not able to be re-drawn.

Functions B and C are specific to AUX. LEVEL on Page 7 and are such that a CONTROL FADER or KEYNUM can be used to pan smoothly between two voices loaded in a multi-voice register. To do this, load a register with two voices on Page 2, go to PAGE 7 and patch AUX. LEVEL on one voice to KEYNUM,B or a control with function B. On the second voice, patch AUX. LEVEL to KEYNUM,C or a control with function C. This can improve realism with MODE 4 sounds, as well as allowing you to create some very interesting effects.

Unlike function "A", functions "B" and "C" can be re-drawn but once re-drawn, the original 'system defined' functions will be lost until the CMI is next re-booted.

EXAMPLE To make KEYNUM cross-fade between two voices ...

Load two voices into the one register. See PAGE 3 description under multi-voice load command.

Go to Page 7.

We will now control the level of each voice by using KEYNUM and two preset function curves from PAGE F. Function B, on Page F, has a preset logarithmic curve. Function C has a preset inverse logarithmic curve. In this way, depending on which notes are played on the keyboard, one voice becomes louder and the other becomes quieter.

Patch AUX. LEVEL to KEYNUM,B for voice 1

Type KEYNUM,B<set>

INDEX	Co
COMMAND:	
MODE	= 4
MAIN LEVEL	= KEYVEL
AUX. LEVEL	= KEYNUM,B
FILTER	= 20
DAMP-MODE	= 1
DAMPING-1	= 50
DAMPING-2	= 200
ATTACK	= 0
SLUR	= OFF
Voices	
1 to 4	5 to 8
PIANOLO	
PIANOHI	

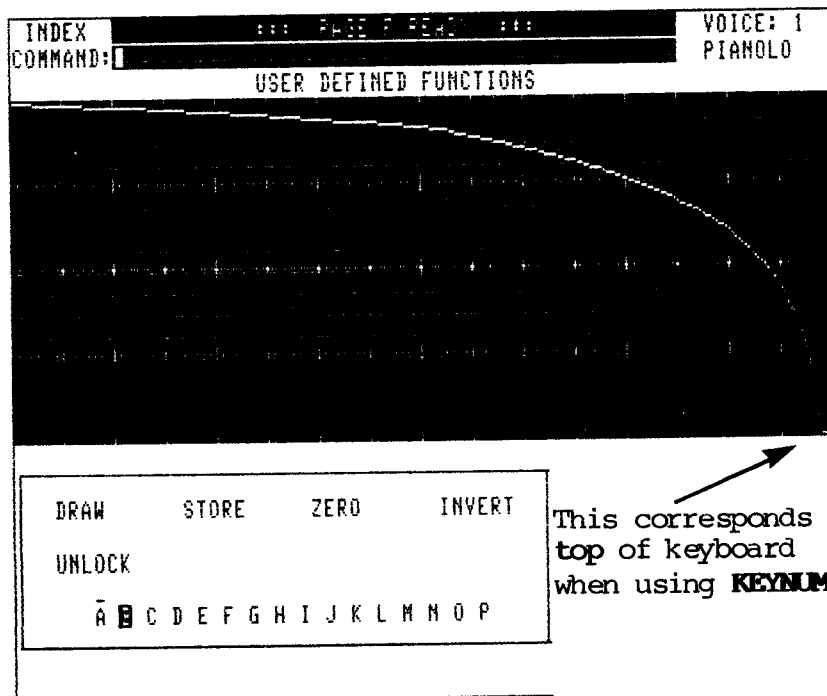
Patch AUX. LEVEL to KEYNUM,C for voice 2

Type KEYNUM,C<set>

INDEX	Co
COMMAND:	
MODE	= 4
MAIN LEVEL	= KEYVEL
AUX. LEVEL	= KEYNUM,C
FILTER	= 20
DAMP-MODE	= 1
DAMPING-1	= 50
DAMPING-2	= 200
ATTACK	= 0
SLUR	= OFF
Voices	
1 to 4	5 to 8
PIANOLO	
PIANOHI	

Go to Page F and select function B, that is LIGHTPEN ==> B
 ==> DRAW.

Observe function B's logarithmic nature. This is what you should see ...



This corresponds to bottom of keyboard when using KEYNUM

This corresponds to top of keyboard when using KEYNUM

TO SELECT a FUNCTION for DRAWING point LIGHTPEN at a function letter. Then DRAW desired function curve. Alternatively, the cursor control keys and POINT/LEVEL assignment may be used for fine detail.

When drawing is complete, point lightpen at STORE or type

ST, function letter<return>.

A bar will appear above stored function signifying that the function is "locked" that is unable to be redrawn. To perform further modification, the function must be UNLOCKED. See UNLOCK description.

1. DRAW

<u>DRAW command</u>	TYPE:	LIGHTPEN:
	D,x<return>	==>x
		==>DRAW

where x = function letter A to P

This command displays current contents of selected function. By using DRAW, then selecting another function letter and STORING, curves may transferred between functions.

2. STORE

<u>TO STORE A FUNCTION</u>	TYPE:	LIGHTPEN:
	ST,x<return>	==>x
		==>STORE

where x = function letter B to P

Currently displayed curve is stored in function slot and a bar appears above function letter. This signifies overwrite protection. Opposite of UNLOCK. If functions are loaded from disk via CONTROL files (.CO), they are automatically assigned over-write protection.

NOTE: Function A is a system preset and permanently protected in that it cannot be re-drawn.

3. ZERO

<u>TO ZERO A FUNCTION</u>	TYPE:	LIGHTPEN:
	Z<return>	==>ZERO

Currently displayed curve is zeroed.

4. INVERT

TO INVERT A FUNCTION TYPE: LIGHTPEN:
 I<return> ==>INVERT

Currently displayed curve is inverted horizontally. This is useful in quickly creating the inverse curve, for example, when panning between two voices loaded in one register using one control fader.

5. UNLOCK

TO UNLOCK A FUNCTION TYPE: LIGHTPEN:
 UN,x<return> ==>x
 ==>UNLOCK

where x = function letter B to P

Opposite of STORE. Function loses over-write protection and may be re-drawn. Bar disappears above function letter.

NOTE: Function A is a system preset and cannot be UNLOCKED.

LOAD/SAVE FUNCTIONS

PAGE F function curves is stored as part of a CONTROL to which it relates on PAGE 7. If a control file contains several patches making use of functions, then saving that control file to disk will also save the appropriate functions as part of that control file. Loading that control file will then restore the function to their appropriate slots in memory. Function data already in those slots will be overwritten. If it is desired to preserve functions already loaded into memory, but the slots occupied clash with the function letters specified in the control file to be loaded, then a new load command option may be used.

The "S" for **SHUFFLE** option causes the function tables contained in the control file being loaded to be assigned to the first free slots in memory, regardless of their function letters. The CMI then adjusts any function letters specified in patches to match the position of the actual function within memory.

Type L <filename>.CO;S<return>

where filename is control filename
;S is the shuffle option

To save the adjusted patches to disk, re-save the control file in the normal way. A maximum of 10 function tables can be stored in a control file. A maximum of 16 function tables can be loaded into memory at any one time.