

MOONBLASTER

----- INTRODUCTION -----

Hardware

To work with this program, at least the following hardware is required:

- MSX2 Computer with 128 kB RAM and 128 kB VRAM
- MSX-MUSIC and/or MSX-AUDIO sound-chip
- A single-sided FDD disk drive

In order to obtain the stereo sound as intended with this program, both sound chips and a stereo amplifier are required. It is preferable to connect the sound of the MSX-MUSIC chip to the left input and the sound of the MSX-AUDIO to the right input of the amplifier. For an accurate description of this, we recommend you to refer to appendix C.

The program

If the configuration of your system meets the above requirements, you are ready to save the program. Please note that the following items were in the box when they were purchased:

- This instruction
- 1 diskette with the MoonBlaster v1.3 program
- 1 floppy disk with sample music, sample kits and the necessary play routines with explanations and source codes
- 1 floppy disk with samples, voices and voicebanks

Starting the program

To start the program, place the program disk in drive A :. Reset the computer or switch it on. If there is a music module, keep the [ESC] key pressed down (Note: For some music modules, the ROM with the internal program has been deleted or changed, so there is no need to start with [ESC].) The computer will then display MoonBlaster loading and is ready to use.

The installation

If you have turned on or reset the computer, you can press and hold the [I] key during the boot. This activates the install menu. After starting the install menu, a screen will be displayed with the top menu at the top. This main menu contains three choices that can be selected with the cursor up / down and the space bar.

Edit Parameters

With this choice, the current installation settings can be changed. All settings can be changed by just pressing the space bar. However, setting the colors works slightly differently. Four different colors can be set, namely:

1. Foreground color # 1 - This is the color with which almost all text appears on the screen.
2. Background color # 1 - This is the normal background color.
3. Foreground color # 2 - This is the color with which the text appears within the selection bar. This is set to yellow by default.
4. Background color # 2 - This is the background color of the selection bar. This is set to red by default.

Changing these colors is as follows: Use the selection bar to select the color you want to change and press the space bar. Now enter three values ranging from 0 to 7. These values represent resp. the red, green and blue intensity of the color. After entering these three values, the change is immediately implemented so that you can immediately see if the color you like is correct. Before you make the other settings, it is best to first read the entire manual for the function of these settings. This does not apply to the Character Set and the Frequency. The Character Set can be set to MoonBlaster and Normal. If this is set to MoonBlaster the program will start with the special MoonBlaster character set and otherwise the normal MSX character set will be used. The Frequency determines the interrupt frequency at which the computer will run. This can be 50 Hz or 60 Hz. This will default to 50 Hz, but if your monitor / TV can handle this it is better to choose 60 Hz.

Save Parameters

This will save the settings made to disk. Make sure that the MoonBlaster program disk is in the drive and that it is not write protected!

Exit to MoonBlaster

Leave the install menu and start the MoonBlaster program.

----- THE MUSIC EDITOR -----

For every menu, submenu and input event: everything can be canceled with the [ESC] key.

Patterns and positions, playing music

When composing music in MoonBlaster it is important to know that this program works according to the pattern and position system. This system has already been used in many other music programs on various computer systems and has proven to bring many advantages in practice. Both for the composer and for the programmer who wants to use the music later in his own programs. Below is a brief explanation of this system.

What are patterns and positions?

The memory of the computer is divided into small pieces in which music data is stored. We call this pattern. A complete piece of music consists of a series of these patterns arranged in a random order. The order in which the patterns are arranged can be determined by setting a pattern to a specific item number. These are the positions. As a result, it is also possible to play a pattern several times within a piece of music, while it only once in memory. You can compare this system with a CD player. Set the tracks on the CD equal to the patterns and the order of the tracks equal to the positions. If you want to listen to the fourth track first, then the first and then the fourth one is on position 1 track (pattern) 4, on position 2 track (pattern) 1 and on position 3 track (pattern) 4. Maybe the pattern / position system sounds a bit complicated, but in practice it is very easy and saves a lot of time and memory space.

Editing patterns and positions

Note: The current pattern means: the pattern that is currently displayed, the current position is the position indicated at the top right of the screen. If you change the current position, the current pattern automatically changes to the pattern that is in that position. That is not the case!

The patterns are numbered from 1 t/m to 76. The positions range from 0 t/m to 199. In total, a song can be 200 positions long. During edits of music it is necessary to walk through the patterns and positions quickly. With the [TAB] - and the cursors left / right you can walk through the positions in steps of 1; [TAB] and cursors up / down provide steps of 4. The patterns can also be run without changing the current position. With the [CTRL] and cursor left / right this goes with steps of 1, [CTRL] above and below provide steps of 4. With [CTRL] and the space the current pattern is set to the current position. [CTRL] - [A] adds the current pattern after the last position.

A pattern can also be inserted, this can be done with [TAB] - [INS]. The current pattern is then inserted at the current position (the Mast position1 worth clan also incremented by 1), The deletion of a pattern from the sequence series works in the same way: the [TAB] and [DEL] keys extract the pattern from the position order. The load position can be adjusted with [SHIFT] and the cursor keys. This allows the length of the track to be determined.

Pattern / Position editor

You enter the pattern / position editor with the function key F6. Here you get an extensive overview of the sequence of the patterns. Editing patterns is very easy: with the cursor keys you can move the cursor on the screen to a certain position, with a press of the space the pattern number can be changed. Insert and delete patterns with resp. the [INS] key and the [DEL] key. In this menu it is also possible to play the track (F1) or a pattern (F2) and to swallow the load and loop position. This works in the same way as in the music editor (CTRL-L and SHIFT cursors).

Loop Position

A song can also continue indefinitely by setting a 'loop position'. This means that when the load position is reached, the song will jump back to the loop position, which is

indicated at the bottom of the screen. It is therefore possible to make an "infinitely long" song. A loop position can be set by pressing [CTRL] - [L] and then adjusting the loop position with the cursor keys. With [RETURN] you confirm the change, with [ESC] you can undo the change. The track will end after the last position if an 'OFF' is entered at the loop position.

Playing the song

Before a song can be played, you can first choose for which sound chip the music should be played. This can be done with the [SELECT] key. You can choose from: Stereo, MSX-MUSIC and MSX-AUDIO.

In addition, you can also turn on and off the output indicator that is playing while playing music with the [CTRL] - [O] combination. The command line at the bottom of the image will then show whether it is on or off.

The same applies to the Settings Scan. This is easy if you are creating a song and want to start playing in the middle of the song. It can not be ruled out that an instrument change has already taken place. The Settings Scan looks at all the changes and settings that occur in the song for the current pattern before the song is played back. This can be switched on and off with the [CTRL] - [S] keys. If the Settings Scan is off, it starts with the settings that apply at the beginning of the track. When the Settings Scan is on, MoonBlaster will first scan the track to settings for the current position or pattern after pressing F1 or F2. You can see this by the pattern / position numbers at the top right of the screen.

The MSX-MUSIC has the possibility to play 6 channels of music + 1 drum channel or 9 channel music. The [CTRL] - [F] combination switches between both options. The number of playable channels is shown on the right of the screen.

The actual playback of the song starts with the [F1] key. The song will start at the current position and end at the last position. The [F2] key plays only the current pattern. The latter is useful during composing.

Stopping the playback

While the music is playing, only the space bar, the [ESC] and the [STOP] keys work. The spacebar and the [ESC] have the same function, they stop the music and go back to the position that was selected before the playback was started. The [STOP] key is very useful for debugging. If you hear a fake note, press the [STOP] key and the music will stop at the position currently being played.

Entering music

The music notation in MoonBlaster goes according to the American principle, so an A in octave 3 becomes 'A 3', an A# in octave 3 'A # 3' (moles are not possible, so a des becomes C #). MoonBlaster supports all octaves of MSX-MUSIC and MSX-AUDIO, 1 through 8. 'C 5' is the 'central C'. A pattern is divided into 16 steps. The slips that are next to each other are played simultaneously at the same time. There can be one thing per channel on one step (for example, a note).

A note can be entered in two different ways. MoonBlaster has two input systems, between which can be switched with the [CAPS] key.

With the first input system (CAPS off) notes have to be entered via several keys, namely the letters [A] to [G], for the correct note (plus possibly the [+] or [#] keys to a half note increase) and the numbers from [1] to [8], for the correct octave. With [ESC] key, the input can be canceled. If a note has been entered, the same note can be placed several times with the [RETURN] key without having to enter it again.

The second input system (CAPS on) lets the keyboard function as a music keyboard, in which two rows are created. Each row represents an octave, the current octaves are displayed where normally the loop position is displayed. You can increase this with the [+] and [.] And decrease the [,] with the [-]. The following keys are used:

2	3	5	6	7		
Q	W	E	R	T	Y	U

(low octave)

S	D	G	H	J		
Z	X	C	V	B	N	M

(high octave)

So for entering a C, press the [Q] or [Z] key to enter a Gft on the [6] or [H]. If you want to enter something other than a note (for example, a volume change or a detune), the CAPS must first be switched off again.

While entering the notes, it may be useful to listen to the sound (note audition). This can be set with the [CTRL] - [K]. If the note audition is on, the correct tone will sound for each input note. This way, mistakes can easily be made. Of course, the [F1] and [F2] buttons (play) can also be used. A tone can (and sometimes must) be turned off. This can be done with the [O] key. An 'OFF' will then appear in the pattern. If you want to play an A # 5 on channel 5, and you only need to play a step (a sixteenth note), you have to move the cursor to channel 5 with the cursor keys (this is the fifth column) and type A # 5 there, immediately followed by an OFF event.

A somewhat more extensive OFF is only possible for MSX-MUSIC, namely the sustain option. The nut is not immediately cut off, but slowly dies out. This command can be entered with the [U] key. A 'SUS' will then appear in the pattern. With MSX-AUDIO this simply becomes an OFF.

Special options

The special functions can be entered in the first 9 columns and influence the tone in the desired way. A number must be entered for a number. You must press [RETURN] to end the entry if your number is shorter than the maximum length.

Volume change

The volume of each channel can be set with the [V]. After pressing the [V] you can enter a number from 1 (soft) to 63 (hard). In the pattern a volume change is shown

with a V, for example 'V43'. For MSX-AUDIO all volume changes work, for MSX-MUSIC it runs in steps of 4, as shown by the label below:

V setting:	MSX-MUSIC
60,61,62,63	15
56,57,58,59	14
52,53,54,55	13
48,49,50,51	12
44,45,46,47	11
40,41,42,43	10
36,37,38,39	9
32,33,34,35	8
28,29,30,31	7
24,25,26,27	6
20,21,22,23	5
16,17,18,19	4
12,13,14,15	3
8,9,10,11	2
4,5,6,7	1
1,2,3	1

Detune switch

The detune is an option that increases or decreases a channel (up to 3 frequency steps up or down). You can use this to give the track a full effect, see chapter 9. You can enter a detune with the [T], followed by the [+] or the [-] and a number between 0 and 3 (detune overturning with T + 0). In the pattern a detune command is represented by the T, for example 'T + 1'. With the detune option in MoonBlaster is counted from the 'zero point' which means that if a detune is given it is not counted in the previous detune setting (so T + 1, followed by a T + 3 becomes NOT T + 4). The detune will only be carried out when striking a new note.

Pitchbend

By giving a pitch bend, a tone is smoothed upward (+) or downward (-). This can be done with the [P] and [+] or [-]. Then you type a number between 0 and 9. The speed of this attenuation depends on this number, 1 is slow, 9 is the fastest. If the value 0 is given, the pitch bend stops. The pitch bend will also stop at a note, OFF, SUS or MOD event. In the pattern the pitch bend is represented by a P, for example 'P + 3'

Modulation

The modulation can be given with the [M] button and let the tone vibrate. This means that the frequency of the tone is quickly moved up and down. This will automatically stop at a note, OFF, SUS or pitch bend event. In the pattern a modulation is displayed with 'MOD'.

Linking

With the linking option you can play a new note without 'striking' it. It is therefore smoothly switched from the previous note to the new note. You can enter a link by pressing the [L], then you indicate with an 'offset' to which note to enter, this offset is between -9 and +9. You can enter this with the [+] or [-] and the digit keys. The offset is "canceled" at the current tone and is specified in semitone intervals (this is equal to the difference in pitch between two keys on a piano, where the black keys count).

Examples

From: To: Link command:

C5 C#5 L+1

E3 D3 L-2

A#6 F7 L+7

After a link, a new link can also be given; this tells the value at the previous link.

Instrument

In the voice menu (see chapter 4, Select voices), a maximum of 16 instruments with start volume can be selected. These 16 instruments can be alternated during song playback; this can be done with the [I] key. After this, enter a number between 1 and 16. The numbers behind the I correspond to the numbers in the list of selected voices. For MSX-MUSIC only one software voice can be played simultaneously, keep that in mind! See chapter 4 for more information about voices. In the pattern an instrument change is shown with an I, so for example 'I 7' Note: in addition to the instrument (voice) the volume is also changed! At the 'I' command does not become an 'OFF' given. Normally you always put an 'OFF' for an instrument change, otherwise it does not sound nice. You can use this to get special effects. Make own voices that differ only slightly from each other. With a command you can then switch to the other voice with one voice while playing a tone, this can give a great result

Stereo settings

Behind the S instruction, which can be entered with the [S] key, a 0, a 1 or a 2 can be set. 's 0' means that the channel will be switched to MSX-AUDIO, 'S 1' to MSX-MUSIC, 'S 2' stands for stereo (BOTH).

This setting will only be made if you have selected STEREO with [SELECT]. Otherwise, stereo settings will be ignored.

The Sample and FM Drum channels

These are the channels FRQ (frequency), VLM (volume), SAM (sample) and DRM (drum). Here too, the last entry is under the [RETURN] key, for each channel separately. The first three columns (FRQ, VLM and SAM) are intended for the MSX-AUDIO sampler and therefore do not have to be used by people who only own an MSX-MUSIC.

In the SAM column the values can be 1 to 14, these values are stored on the sample blocks (see Chapter 5). If there is a 1 in the SAM channel, then sample block 1 will be played, there will be a 2, sample block 2 etc.

The VLM channel represents the volume of the sample. This volume can be changed before, during and after the sample is switched on. A sample can also be switched off by giving the value 1. The maximum volume is 127, minimum 1. The initial volume setting when playing the track is always 127. The volume does not have to be specified separately for each sample, if you do not enter anything, the last specified volume will be maintained.

The FRQ channel will change the frequency of the sample. For example, this can be very useful when playing a sample recorded at a low frequency. Here, too, a sample can be exchanged during sample playback (sample pitch bending!). The minimum value is 1, a maximum of 60. The initial setting is 49. The frequency does not have to be specified separately for each sample, if you do not enter anything, the last specified frequency will be maintained.

The fourth column represents the rhythm channel of the MSX-MUSIC. For those who only own an MSX AUDIO, it is not necessary to use this channel.

The DRM channel contains only number codes that refer to the drum blocks set in the FM-Drum menu ([F8], see Section 6). Are there a snare drum, an tom and a hi-hat on drumblock 3, and there is a 3 in the DRM channel, then a snare drum, a tom and a hi-hat will sound simultaneously during the playback of this channel.

The CMD channel

The CMD channel, the last column of the pattern, manages a number of special functions, which are described below.

Pace change

With the [T] key, the tempo of the song can be changed, after the T a number between 1 (slow) and 23 (fast) can be entered. In the pattern this is represented by TMP, so for example 'TMP17'

End of Pattern

With this option an early end can be given to a pattern. It can be entered with the [E] key, and is displayed by "ENDOP". Normally a pattern consists of 16 steps, but there is an ENDOP on step 8, then the pattern stops after playing step 8. This function is very useful for, for example, songs in a quarter of a quarter.

Drumset switch (MSX-MUSIC only)

The drum sets (see Chapter 6) are exchanged with the [D] key followed by the number of the drum set (1,2 or 3). This is shown in the pattern with DSET, for example 'DSET2'. If a DSET is given, then it will change the frequency of the FM Drums. These frequencies are adjusted in the FM-Drum menu (chapter 6). The initial setting is DSET1.

Edit functions

For all functions described below it is expected that no block has been defined.

Clearing steps, channels, patterns and song

Do you want to delete a step, because something should not be there for example then you can use the [DEL] key. This clears the step where the cursor is located. A channel can be deleted with the [SHIFT] + [DEL] keys. The channel where the cursor is located is then erased. A pattern is deleted with [CTRL] and [DEL]. The current pattern will then be deleted. With the [F7] key, the entire song is deleted. A confirmation will first be requested before the song is erased. Also, all settings will be reset as they stood when MoonBlaster was just started up.

Copying patterns, channels

A number of patterns can be copied to another location in the song using the [CTRL] - [P] keys. First you will be asked which pattern you want to copy, then the place where this pattern needs to be copied and finally the number of patterns is requested. So if you want to copy patterns 4, 5 and 6 to 10, 11 and 12 then you first use the [CTRL] - [P] after that you type in: [4] [RETURN], then [1] [0] and for the number of patterns [3] [RETURN].

Channels can also be copied, to a channel in the same pattern. It can also be specified how it must be moved up about the source channel (echo-steps). This can be done with the [CTRL] - [C] keys. Beware: no block may be defined (see 3.5).

Changing two channels

With [CTRL] - [X] two channels can be exchanged. Its operation is fairly simple: first the first channel is requested, then the second and these two channels are exchanged.

Transpose of channels

Channels can be transposed per half tone distance or per octave at the same time. This can be done with the [,] Or [+] key for incrementing with a semitone distance, while the [,] or [-] decreases the channel by another half tone pitch. Increasing an octave can decrease by [>] or [CTRL] + [+] with [<] or [CTRL] + [-]. The channel where the cursor is located will then be raised / lowered.

Turning channels off

The channels can be turned off to easily listen to a specific channel when playing a song. This can be done by moving the cursor to a channel and pressing [CTRL] - [W]. Above the channel, the message 'OFF ' to appear. The channels are also switched on again with the same operation. (NB: The CTRL-W settings are not saved, as they are only meant for editing.)

Defining a block, editing

You can put a part of the song in a block, then all sorts of operations on this block can be released. You can determine the beginning of the block (upper left corner) with [CTRL] - [B], the end (bottom right corner) with [CTRL] - [E]. The block will get a different color than the rest of the song. You can clear the block definition with [CTRL] - [D]. This does not delete the contents of the block, only the starting end position.

Deleting a block

The contents of the block are erased by placing the cursor in the block, and then pressing the [DEL] key. You will first be asked for confirmation, so if you accidentally press [DEL] there is nothing to worry about.

Transpose

Just like channels individually, blocks can also be transposed per half-tone distance or per octave. First place the cursor in the block. Then [.] Or [+] a block can increase a semitone distance, [,] and [-] lower the content of the block by a semitone distance. The content of the block is increased by an octave by [>] or [CTRL] + [+], the [<] or [CTRL] - [-] decreasing the content an octave.

Copying a block

The block that has been defined can be copied with [CTRL] - [C] to where the cursor is currently located. Note: if no block is defined, a channel is copied instead of a block.

Changing a block

This is only possible if the block is a channel wide; the length does not apply. Place the cursor on the channel where the block should come and press [CTRL] - [X]. This changes the block with the contents of the intended channel and vice versa. Note: the initial settings (such as instrument, detune, etc.) are not exchanged. You can do this (if desired) by hand.

Entering the song name

The song name at the top of the screen can be adjusted using the [CTRL] - [N] keys. The cursor will then appear at the top of the screen and the name can be entered. With [RETURN] the new title is recorded, with [ESC] the old title is retained.

RAMdisk

The MoonBlaster ramdisk provides content to a song and can only be used in the program itself. The current song can be written with [CTRL] - [R]. The question then appears whether to read from or written to the ramdisk. With the [S] the song is then written away, with [L] the program will bring out the song again. With [ESC], you can continue to return to the song.

Initial setting Stereo and Detune

The begin settings are the settings that the song will start with. The stereo and detune settings can be set per channel. With [F9] the stereo setting is adjusted. The cursor appears in the stereo column and the cursor keys left and right can be selected from: BOTH, MSX-MUSIC or MSX-AUDIO. This only works if the chip is also on the stereo position! (NB: BOTH stands for MSX-MUSIC and MSX-AUDIO, so stereo.)

The detune menu is located under the [F10] function key. Here the desired detune can be set per channel with the cursor keys left / right.

Modulation Depth

With [CTRL] - [M] the modulation depth of the song can be set. This only applies to the MSX AUDIO.

Tempo

The initial tempo can be set with [CTRL] - [T]. The tempo is between 1 (slow) and 23 (fast). In the table below, it assumes 'number of quarter notes per minute' (a popular tempo indication for sheet music) that you use a pattern per measure (a quarter note is four steps). (Kwn / min means quarter notes per minute f Steps / min means number of steps per minute, the numbers are rounded.)

Tempo:	Kwn/min 50Hz:	Steps/min 50Hz:	Kwn/min 60Hz:	Steps/min 60Hz:
1	31	125	38	150
2	33	130	39	157
3	34	136	41	164
4	36	143	43	171
5	38	150	45	180
6	39	158	47	189
7	42	167	50	200
8	44	176	53	211
9	47	188	56	225
10	50	200	60	240

11	54	214	64	257
12	58	231	69	277
13	63	250	75	300
14	68	273	82	327
15	75	300	90	360
16	83	333	100	400
17	94	375	113	450
18	107	429	129	514
19	125	500	150	600
20	150	600	180	720
21	188	750	225	900
22	250	1000	300	1200
23	375	1500	450	1800

Songinfo

With [CTRL] - [I] an information screen will appear on the image. This information screen contains all information about the current song, such as the begin settings, which sample kit belongs to the song and which modulation depth is set (for MSX-AUDIO).

----- VOICE MENU -----

By pressing the function key 4 you enter the voice menu (instruments menu). A menu appears where you can make the following choices:

- Select Voices
- Set Start Voices?
- Create Own Voice

Select Voices

The first choice of the voice menu is 'Select Voices'. This function allows you to select instruments (voices) with their corresponding start volumes for the track. First make your choice for which sound chip you want to select the voices. You will then receive a table with numbers from 1 to 16 (these are the numbers that you have to put in the patterns behind the 'I'). This table contains the instruments that will be saved in the piece of music. You can go through this table with the cursor keys. If you press the space now, you will enter the voicebanks. These voicebanks are filled with the standard instruments that MoonBlaster has on board. With [CTRL] + cursor left / right you can walk through the voice banks. The last column of the voicebanks covers the 'Own Voice' list. For more information on the own voices, see Section 4.3 - Create Own Voice. When you have found the right instrument, press the space bar and return to

the instrument table. With [ESC] you can also leave the voice banks, but you will not choose an instrument. You can thus put an instrument at any place. You can use these chosen instruments for instrument change (see chapter 3) or for starting instruments. The initial volumes of the instruments (these are located behind the instruments in the instrument table) are changed with the cursor left (decrease volume) or the cursor right (increase volume).

The Voices can be listened to when selecting an instrument. With the F3 key you can select the right keyboard with which the instrument must be played. This can be done with the MSX keyboard, the keyboard of the Philips Music Module or via MIDI.

MoonBlaster knows the following MIDI interfaces: 1205 MIDI (available in the Philips Music Module), the MSX-MIDI standard or the FMI (FAC MIDI Interface). The appropriate MIDI interface can be selected with the [M] key.

With [F1] and [F2] you can change the height of the keyboard per octave, because some instruments will sound too high or too low. (Note: When using the MSX keyboard, the layout differs from the one-button input system.)

MSX AUDIO and MSX-MUSIC

With MSX-AUDIO chips there are no restrictions on the choices of instruments, but with the MSX-MUSIC. The hardware voices (always the first column of the voicebanks) are then marked with a '*'. These hardware voices can all be chosen. Up to six of the other voices (software voices) can be selected. Here too, there is a restriction: the MSX-MUSIC only has FM Synthesis, which means that the AM Voices can not be selected and listened to.

Set Start Voices

The second option of the voice menu shows the channels (channels) with their corresponding instrument. On the left is the MSX-AUDIO, on the right the MSX-MUSIC settings. The instruments that come with the channels are those instruments with which the song will start. For example, on channel 1 and 2 are both instrument 1, and instrument 1 is a violin with volume 13, then the song on channel 1 and 2 will play a violin with volume 13, until a V or I is switched to another volume respectively another instrument plus volume.

MSX-AUDIO and MSX-MUSIC

The MSX-AUDIO gives no problems with this option, the MSX-MUSIC has a number of limitations. The MSX-MUSIC has 6 FM channels and 1 FM drum channel. This number can be changed, leaving 9 FM channels without FM drum channel available. If there are only 6 channels and 1 FM drum channel, then there is no point in setting a start voice on channels 7, 8 and 9 (of course it is allowed).

The MSX-MUSIC can only play a software voice at the same time. This means that only one instrument can be used as a starting instrument without a '*' sign. If there are several, MoonBlaster takes the software instrument on the highest channel.

Create Own Voice

This option allows you to design your own software voices. These voices are stored in the song under the name "OWN VOICE" with a song or they can be written to disk (F5 key), with a number of 1 (voice) or 16 (voice bank) at the same time.

The 'Own Voice'-screen is structured as follows: on the left you see the 'Voice Bank' where 16 own voices are stored. You can walk up / down through this voice bank with the cursors. On the right, the register values of Own Voices are displayed. If you press the space, you can change these values so that your own instrument can be created.

The sound-forming functions

It would be going too far to explain the complete functioning of FM synthesis in this manual. That is why we will suffice with a short description of all functions.

Multi Sample Wave: this sets the generator frequency. Values: 0 to 15.

Key Scale Rate: The swelling, waning and extinction of the tones goes faster as the octave is higher. How much faster is this function determined. Values: 0 (slow) to 7 (fast).

Vibrato: on (1) and off (0) setting the vibration of an instrument.

Amplitude modulation: switches on the slow amplitude modulation (1) or off (0).

Total Level: For FM Synthesis, the total level of register A is the controller for the modulation depth, and register B controls the volume of the instrument. In the AM Mode, both registers control the volume.

Key Scale Level: This function controls the decrease in volume with increasing pitch, so the higher the KSL the softer the instrument becomes at high tones. Values: 0 to 3.

Percussion: 1 = percussion off, 0 = percussion on. For the function of percussion he has to look at the Sustain Level.

Attack Rate: This function sets the swell times of a tone. Values: 0 to 15.

Decay Rate: The decrease in the intensity of the tone after the maximum concentration is achieved can be set with this function. Values: 0 to 15.

Sustain Level: If the percussion is off, this is the loudness at which the tone falls back (Decay) after the maximum swallowing strength (Attack) has been reached. However, if the percussion is on, this is the loudness at which the drop will turn into extinction (Release). Values: 0 to 15.

Release Rate: The decay time is set with this function. If the Release Rate is set to 0, the tone will continue forever. Values 0 to 15.

Feedback: Allows the waveform of register A to be set. If the value is 0, the wave is a pure sine, with the values 1 to 5 this wave becomes an increasingly sharp sawtooth, 6 and 7 contain noise.

Connect: Choice of FM and AM mode. The MSX-MUSIC can not use this function.

Audition: MSX-MUSIC or MSX-AUDIO. Indicates which music chip the voice can be listened to during editing.

Note: if you have changed a particular voice, it will only become part of the song companion if you choose it again with Select Voices.

Existing voice edits

If you have a certain Own Voice and press the F4 key, you can select a MoonBlaster instrument and copy it to the Own Voice data. You can walk through the voice banks with the [CTRL] and cursors left / right. Use the space to copy the chosen instrument to Own Voice. This makes it easy to customize a MoonBlaster instrument to your own taste. The instruments can be listened to during the compilation via the MSX keyboard, the Philips keyboard for the NMS 1205 or one of the following MIDI Interfaces: 1205-MIDI, MSX-MIDI or Fac Midi-Interface. These can be selected with the F3 key and the [M] key for the correct MIDI interface. With F1 / F2 you can lower or lower an octave. to increase.

Disc menú

You can also save Own Voices with the F5 key (Disc menu). For further explanation of the disc menu, please refer to the seventh chapter, which concerns the disc menu.

----- THE SAMPLER -----

Those who only have access to an MSX-MUSIC chip or a Toshiba module with MSX-AUDIO (both lack an ADPCM sampler) can skip this chapter.

What is a sample?

A sample is a digitized sound, in which case the data of the sample is stored in the computer. The sampler of the MSX-AUDIO always scans for a few thousandths of seconds the external signal (eg the microphone) and converts the incoming value into a number. The time between these scans can vary, this is called the sampling frequency.

The Moon Blaster sampler

MoonBlaster has the ability to use the sampler of the MSX-AUDIO, and to record, play and edit samples. The sample memory of the MSX-AUDIO is 32 kB and MoonBlaster divides it over 14 samples. These 14 samples together are called a sample kit. In these sample kits you also find the location in the sample memory where a specific sample is located. You can go to the sampler from the music editor by pressing the [F3] key. The following things can be set in the sampler:

Adjust sample signal

This allows you to set the correct volume of the incoming signal (eg via the microphone). The volume is indicated by a red expanding bar at the bottom of the screen. If you turn up the signal, the bar will continue to expand, if you make the signal softer, the bar will turn out less far.

Start sampling

This is the real sampler, the incoming signal is recorded. A variety of factors can be set for proper sampling. These factors are described below.

Set sample addresses (F4)

This allows you to set the start and end address of the 14 samples. This has some advantages: a (sampled) bass drum is not very long, leaving sample memory for a long sample. If you omit a sample (see Section 7), the length of the sample is saved. If you load a sample at a different starting address, then the end address is automatically adjusted. The start and end addresses are stored in the sample kit. The addresses must be entered hexadecimal. It means that the number system does not run from 0-9, but from 0-F (after the 9 follows the A). The lowest possible address is 0000 and the highest possible is 1FFF. Note that leading zeros must also be entered.

Current sample block

You can use this to select one of the 14 sample blocks. This applies to both sampling and loading and storing samples. There are 14 sample blocks.

Sample frequency

This function sets the frequency of recording the sample. A high frequency means high quality, but short sample, a low frequency means low quality, but long sample. The highest frequency is 16 kHz, the lowest 2 kHz.

Threshold

An incoming signal has a certain volume. With the Threshold function you can draw a limit to how loud the signal may be before the sampler is allowed to sample. If this limit is exceeded, the sampler starts his work. The border is shown with an arrow, the loudness of the signal is shown with a red bar. This function only works when the Sample Control is set to Automatic (see below).

Sample control

You can set the Sample Control to Automatic or Manual. If the Sample Control is set to Automatic, the incoming sound is only sampled when it is hard enough to exceed the threshold value (see Threshold). However, when Sample Control is set to Manual, it is only sampled if the space bar is pressed again after selecting Start Sampling.

Back to Editor (ESC)

With [ESC] or Back to Editor you leave the sample menu and go to the music edit screen

Disc menú

With [F5] you go to the disc menu. Here you can load and save individual samples or complete sample kits. See chapter 7.

For all the above functions money: choose a function with cursors, change a value with the spacebar and then the numeric keys.

Play in the sample menú

The samples that have been recorded can be played while playing music in the music edit screen, or in the sample menu. With F3 you can choose the right keyboard to play the sample with. You can choose from the keyboard of your MSX, the Philips Klavier that belongs to the Music Module, or MIDI. The MIDI interfaces supported by MoonBlaster are the MSX-MIDI (which is built into the turbo R FS-A1GT), NMS 1205 MIDI (in the Music Module) or FMI (the FAC MIDI interface). With the [M] - key you can select one of these MIDI interfaces, MoonBlaster tells you whether this interface is present or not. If you press one of the keys on your keyboard, the current sample (Current Sample Block) will be played. The height of the frequency of the sample depends on the key you press.

----- FM DRUMS -----

The FM Drums are designed specifically for the MSX-MUSIC, so those who only have an MSX AUDIO can skip this chapter. With the F8 key one enters the FM-Drumset menu. Here the drums of the MSX-MUSIC can be adjusted in the right way. This can be done through three choices:

- Set Drumblocks
- Edit Drum volumes
- Edit Drum frequency

Set Drumblocks

The first choice of the FM-Drum menu consists of a screen with the hardware drums of the MSX-MUSIC and a number of pre-programmed PSG sounds. These drums and sounds are in the first column. In the top line of this screen are the numbers 1 to 15. These numbers refer to the numbers that you can use during editing of the FM-Drums in the music-edit screen. With the columns, which are below the numbers, you can switch certain drums and sounds on or off. Only a sound per drumblok may be used for the PSG sounds. The switching on and off is done by means of the cursor keys, to walk through the screen, and via the space bar, to switch the drums on or off. You can therefore make a selection from the five standard MSX-MUSIC drums (unlimited) and maximum PSG sound per Drum Block (1 through 15). The values in the patterns in the DRM column correspond to these drum blocks.

Edit Drum volumen

The volume of each FM-Drum (not the PSG) can be set with the second option of the FM-Drumset menu. With the cursor keys up / down a certain drum can be selected and with the cursor left and right the volumes resp. lower and higher.

Edit Drum frequency

If you choose this option, you can adjust the frequency of the FM-Drums so that it sounds best. For example, you can make the bass drum sound a bit lower or the tom a bit higher.

You will first be given a choice of 3 drum sets. You can set this for which Drum Set you want to adjust the frequency. The standard drum set (with which a song will always start) is Drumset 1. You do not need to set this in the music editor.

After selecting the right drum set, you can increase or decrease the frequency for each channel. The drums are distributed over the channels as follows:

Bassdrum Channel	7
Snaredrum Channel	8
Tom Channel	9
Cymbal Channel	8 and 9
Hi-Hat Channel	8 and 9

So if you raise (or lower) a channel, the other drums present on the same channel change. The frequencies can be adjusted in large steps (per octave) or in smaller steps (per frequency step) with the [CTRL] and cursor keys left / right. With [CTRL] up / down, the frequencies can be increased or decreased in increments of 10.

You can use the function keys F1 to F5 to play the FM-Drums. See the key overview for which function key stands for which FM Drum. The [HOME] key resets the frequencies to the default settings of MoonBlaster.

----- THE DISK MENU -----

From the music editor, the sample menu and the voice menu you can use by means of the function key F5 to the disc menu. In the disc menu information can be read from disk or written to disk. There are three different disc menus.

The main disk menu

From the music editor you enter the main disc menu. In this disc menu, songs and sample kits can be loaded and saved. The first four choices are related to the MoonBlaster songs. MoonBlaster songs have the extension '.MBM'.

Load Song

The MoonBlaster songs that are present on the disc are shown. Send the bar to the correct song and press the spacebar.

Save Song

Writes a MoonBlaster song to disk. There are two different file modes that allow you to write a song: 'Edit' or 'User'. These modes are described in the Edit / User mode. If you want to put the song over a song already on the disc, send the bar with the cursor

keys to the desired file name and press the spacebar. However, if you want to register the song under a new name, type the desired name (up to 8 characters). An input bar will automatically appear at the bottom of the screen. Press [RETURN] when finished.

Delete Song

Deletes a MoonBlaster song from the existing disk. MoonBlaster will ask for confirmation after choosing a song. By pressing the [Y] (Yes), the song is erased, with the [N] (No) nothing will be erased.

Show Song

The song on disk will be shown on the screen. The four following functions refer to the sample kits (see the explanation on songs for additional explanation). Moon Blaster sample kits have the extension 'MBK'.

- Load Samplekit: loads a MoonBlaster sample kit from disk.
 - Save Samplekit: writes the sample kit contained in the sample memory to disk.
 - Delete Samplekit: Deletes a selected Sample Kit from disk. With the [Y] (Yes) and [N] (No) buttons, the file can be deleted or not.
 - Show Samplekits: shows the present sample kit on the screen.
- Then come some general functions:

Drive

With the cursors left / right you can select the disk drive where the songs / sample kits should be written / loaded.

Edit / User mode

The MoonBlaster songs can be written in two different ways: the Edit or the User mode. The User mode saves the song as well as possible and will also erase the unhappy patterns. This can cause problems when a song is not finished and a few patterns with music data are not yet used. That is why the Edit mode can be chosen. Songs that are not yet finished can thus be saved under Edit mode. When a song is finished, write the song under the User mode. Only songs written in User mode can be played in your own programs with the replay routines included.

Format Disk

This function will format a diskette after the necessary information has been given.

Load FST Song

With this function you can convert songs written in FAC Soundtracker (extension '.MUS') to MoonBlaster format. After loading, the song is automatically converted. This does have some limitations:

- Pitch bends, which are present in FST2 and higher, must be in MoonBlaster to be adjusted. This is because MoonBlaster handles pitch bends at a different speed as Soundtracker. This is also the reason that you can opt to omit pitch bends completely.
- Detunes, which are present in FST2 and higher, will need to be modified because MoonBlaster handles them at a different level as Soundtracker.
- If MoonBlaster is set to 60 Hz, the tempo will have to be adjusted slightly. This is because Soundtracker makes an attempt to run the music at 50 and 60 Hz just as fast.
- It is possible that the channel where a bass is playing sounds an octave too high or too low. This is solved quickly with the help of the block functions.

Load FST Drumkit

This allows you to load a Soundtracker drum kit (extensions '.SM1' and 'SM2').

Back to Editor

Returns to the music edit screen. This is also possible with [ESC].

The Sample disc menu

From the sample menu you can access the sample disc menu with the [F5] key. Here you can process samples and sample kits. For more information about samples, please read Chapter 5. Separate samples have the extension '.MBS' and sample kits have the extension '.MBK' in MoonBlaster.

Load Sample

Loads the sample into the sample block indicated at the bottom of the image (can be changed with 'Current Sample Block'). If a sample is too long for the sample block, it will be asked whether it should be loaded or not. If you choose to load it anyway, the end address of the sample block will be automatically adjusted.

Save Sample

Writes the sample at the bottom of the screen to disk. You can choose from an existing sample (which will be overwritten), or save a new file by giving the name of this file (an input bar will automatically appear).

Delete Sample

Clears sample that you have chosen. You will still be asked for confirmation. Show Samples: Show all samples present on disk. A sampler kit consists of a number of samples that are in the sample memory. The start and end addresses are also stored in the sample kit. A sampler kit is in fact the entire 32 kbyte sample memory of the MSX-AUDIO.

-Load Samplekit: Load a sample kit from disk.

-Save Samplekit: Writes the sample kit to disk.

- Delete Samplekit: Deletes the selected sample kit.
- Show Samplekits: The sample kits on disk are shown on the screen.
- Drive: This function allows you to choose the disk drive where the samples or sample kits should be processed. Use the left / right cursors to choose the right drive.
- Format Disk: This function formats the disc according to the correct settings.

The Voice disc menu

You can use the Own Voice menu the [F5] key enters the voice-disk menu. Here, self-made voices can be loaded, written or deleted. Voicebanks can also be processed. Separate voices have the extension '.MBV' and voicebanks have the extension 'MBB' in MoonBlaster.

Load Voice

Loads the selected voice into the own-voice that is shown at the bottom of the screen (this is the voice on which the bar was in the own voice bank before you pressed [F5]).

Save Voice

Writes an own voice to disk. Which is this is indicated at the bottom of the screen. You can overwrite an existing file by placing the bar on it and pressing the spacebar. You can also write a voice under a different name than that on the disk, by simply entering the name type, followed by a (RETURN). An entry bar will automatically appear.

- Delete Voice: this function will delete the selected file from disk after confirmation.
- Show Voices: shows the voices present on the disk.

A voicebank is a collection of own-voices, which is completely removed or loaded. A full voice bank therefore contains 16 own voices and represents the last column of the voicebanks.

- Load Voicebank: loads an entire voicebank.
- Save Voicebank: writes away the entire own voicebank.
- Delete Voicebank: clears the chosen voicebank.
- Show Voicebanks: displays the existing voicebanks on the screen.
- Drive: this option allows you to select the correct drive (with left / right cursors).
- Format disk: formats the disk in the drive.

----- USE IN YOUR OWN PROGRAM -----

Use in BASIC

In order to use the MoonBlaster music in BASIC, it is essential that the BASIC driver is loaded first. This driver is on the Music disk under the name MBDRV.BIN. It is started with the command BLOAD MBDRV.BIN, R. Because the driver uses the storage area above & HDAO0, the command CLEAR 200C & HD9FF must be given to start up the driver to ensure that the BASIC program does not exceed this limit. If this has happened you have some extra BASIC commands at your disposal. Below an overview

CALL MBKLOAD ("sample kit name")

This command causes a sample kit to be loaded and put into the MSX-AUDIO RAM.

Note: this command uses the memory bank with the song as a buffer, so the contents will be erased

CALL MBMLOAD ("song name")

This allows you to load a MoonBlaster song. This song is loaded at the set address in the set memory bank. Note that only USER files will be loaded and played correctly.

CALL MBCHIP (chipnumber)

Sets the desired sound chip where the music should be played on:

- 0 MSX AUDIO
- 1 MSX-MUSIC
- 2 or higher STEREO (MSX-AUDIO and MSX-MUSIC)

CALL MBBANK (bank number)

Sets the memory bank of the memory mapper that contains the song to be played back, or in which a song is to be loaded. Only works if no music is playing. A memory bank of the memory mapper is 16 kB. Usually the value 3 will be taken for bank number. The maximum bank number depends on the amount of memory in your computer.

CALL MBADDR (address)

Sets the memory address where the song is or to which a song is to be loaded. Make sure the entire song is between the addresses & H8000 and & HC000. Only works if no music is playing.

CALL MBPLAY

Plays a song on the set sound chip. The location of the song in the memory is determined with the above commands.

CALL MBSTOP

Stops playing a song.

CALL MBCONT

Continues to play a song after a pause. Only works correctly after an MBHALT command.

CALL MBHALT

Pauses a song. This is useful, for example, when loading. Give a _MBHALT before loading, and when the loading is finished you can continue the music with a _MBCONT.

CALL MBVER

Displays the current version number of the BASIC driver on the screen. In addition, various memory addresses can also be read by the BASIC programmer:

PEEK (& HDA00) = Set sound chip with MBCHIP command.

PEEK (& HDA01) = Status: 0 = does not play, 255 = does play.

PEEK (& HDA02) = Set memory bank with MBBANK command.

PEEK (& HDA03) + 256 * PEEK (& HDA04) = Set memory address with MBADDR command.

To ensure that the commands are working properly, there is a sample program on the Music Disk under the name "BASIC.BAS." In this program, all commands will be used with the exception of the MBVER command.

Use in machine language

There are two source codes for the machine language programmers on the Music disk. These are MBPLAY.SRC and MBLOADER.SRC. The first of the two is the actual play routine and the second is a program to load the MoonBlaster songs and drum kits and to see which sound chips are present in the computer and to initialise them if necessary. The sources are written for the DevPac-80 assembler (GEN80), but can also be easily loaded into other assemblers. Some labels are used in all sources. Here, of course, the same memory address, so when merging these must be removed. Some brief remarks that are of interest to ML programmers:

- The song can remain stored in memory. Decrunching occurs during playback.
- The start address of the song and the memory mapper bank can be set. The play routine itself ensures that the switching of banks is correct.
- If PSG drums are used, only PSG channel A will be used for this. It is clearly indicated where the PSG is controlled so that this can easily be changed.
- The play routine works under both Z80 and R800 modes, but it should not be switched during processor play! The STRMUS routine checks which processor is active at that moment and, if necessary, automatically adjusts the play routine.

Other explanations are stated in the sources themselves.

----- TIPS -----

Some pattern saving tips

For example, if a bass is played first and then the same bass line but with a lead, then the lead can first be turned off by lowering the volume. Before playing the bass for the second time, the volume has to be set hard. This is the same piece played, but now with the lead.

If you want to play a channel first and then the same melody, but then an octave higher, it is useful to use an own voice. This own voice is a copy of an existing instrument, but the multi sample wave 1 has been incremented at register A and B. As a result, all tones by this instrument sound an octave higher. The first melody is played the first time, after which an instrument change is activated at the end of the pattern. This one plays the same melody one octave higher, because this instrument sounds higher.

A handy memory support for the FM-Drumblocks

Put an FM drum on every second-power drum block (so 1,2, 4 and 8) (ie 1 bass drum, 2 snare drum, 4 hi-hat etc). Then you have to add the drum block values, and with that also the drums given on the drum block ($1 + 2 = 3$, on 3 so a bass and a snare drum, $4 + 1 = 5$, so on 5 a bass drum and a hi-hat, etc). Usually certain combinations are never used in your music, and can be replaced by eg PSG effects.

Smooth transition

The link option is very useful in combination with the pitch bend option. With the pitch bend, the tone is pulled off, after which the link stops the pitch bend and the correct note starts. You can find the right value of the pitch bend with a bit of experimentation. It may be useful to switch off the other channels with CTRL-W. For example, you have:

C5

-
-
-

E5

You can smooth the transition from the C5 to the E5 by:

C5

-
-
-

P+3

L+4

Double pace

To make the tempo exactly twice as fast the following calculation is necessary: 25 min the current tempo gives a certain value. If the tempo has to be twice as fast, then you have to divide this value by 2 (twice as slow, multiply by 2). The value that comes out of it must be deducted from 25 again. The result of this calculation is the new pace. For example, triplets can be easily made by dividing by 3, etc. An example will clarify: Suppose that a song works at tempo 19. The speed that is twice as fast is calculated as follows: $25 - 19 = 6$. $6 / 2 = 3$. $25 - 3 = 22$. So the new pace is 22.

Volume changes with AM voice

With AM Voices, volume changes can have little effect. This is because in AM sound synthesis both registers (A and B) individually have their own volume, while in FM voices the volume in register B is indicated. By creating a number of AM-own voices, where the total level of register a and b decreases with each voice, you can extinguish AM voices with instrument change.

Pitchbend and back

Suppose you want a pitch to be pitched a bit and then back to the old tone, without having to hit it again. You can do this with L + 0. Example:

C6
P+3
L+0

Echo

You can get an echo effect by copying a certain channel with echo steps to another channel. Usually two echo steps gives the best result. You can copy the channel with CTRL-C, see the explanation in chapter 3. Give that other channel the same instrument, only the volume slightly lower. Especially in stereo this sounds fantastic!

Fuller sound

You can make the sound fuller by running it over two channels and tapping the channels a bit. So for example in channel 1 and 2 the same melody, with channel 1 a T + 0 and in channel 2 a T + 1.

Exchanging channels

Suppose you have a piece of music written for MSX-AUDIO, and you want to adjust it for MSX-MUSIC. If you want to use the 6 channel plus drum mode for MSX-MUSIC, channels 7, 8 and 9 can not be played on the MSX-MUSIC. If you find these channels more important than channel 4 to 6, for example, you can switch them with CTRL-X.

Save type work

You can save yourself a lot of typing work by making good use of the block functions. For example, if you often use the same bass line in a song, but always in another root, you can first copy it as a block with CTRL-C, and then you can use [,] and [.] The bass line for each piece to to transpose the desired root.

Number of measures per pattern

When programming music, it is easiest to use a pattern for each measure. Each step is then a 16th note. However, if you also want to use 32nd notes, it is better to use two

patterns for a measure. For a three-quarter measure, you can place an ENDOP in the CMD channel in each pattern on step 12.

Stereo effects

You can create brilliant stereo effects with MoonBlaster. However, these do not automatically arise, you will have to program them yourself. You might be inspired by listening to pop music with a headphone. In this way you can hear well what kind of stereo effects the pros use.

----- APPENDIX A -----

Example

This appendix is especially intended for people who work for the first time with a music program and have never written music before, but for those who do not yet control MoonBlaster, it is also useful to read this appendix. In this appendix the files 'EXAMP1' up to 'EXAMP5' and the sample kit 'EXAMPLE' belong.

The rhythm

With this song I want to use a much used rhythm this time (see EXAMP1 '). For the MSX-MUSIC, press [F8] (FM Drum menu). Set the correct drums with the desired frequencies and volumes. With this rhythm it is better to set the hi-hats and cymbals soft and the bass drum and snare drum hard; the hi-hats and cymbals are the support of the bass and snare drums. For MSX-AUDIO there is the Sampler menu ([F3]). Here the required samples can be loaded onto each sample block (or, if this already exists, a sample kit). Finally, set the correct tempo ([CTRL] - [T]) and optionally set the MSX-MUSIC channels to 6 (use fm-drums + PSG) or 9 (use only PSG drums).

The bassline

Since the rhythm of the example song is rather slow, we also make the bassline slowly. If necessary, use a second channel to emphasize certain notes. Select the correct instrument with [F4] (voice menu). This song has a quiet and short bass, for example the Slapbass 3. A second (softer) bass provides the emphasis. Set the start voice well and the bass line is ready for use (see, 'EXAMP2'). For greater emphasis, the detune can also be set ([F10]) at the second channel.

Accompaniment

The accompaniment of a song with violins, trumpets or any other instrument that lingers (legato instrument) for the accompaniment will give a song a fuller sound. To be short-winded we choose fast support with violins. Select it again with the [F4] key. Pay attention to the starting instruments! See 'EXAMP3'.

The Lead

The lead is the importance of the song. Without the lead, a song is not complete and (usually) boring. So make sure there is a varied lead so that the song remains interesting (see 'EXAMP4'). So choose the right instruments again with the [F4] key and course of the starting instruments.

Finishing

Now that the song is almost ready, some nice effects can be added with the pitch bend or the modulation option. If you have the stereo option, you can now search for the most beautiful stereo settings. Before we finally save the song on disk, we must of course give it a name. This can be done with [CTRL] + [N]. Please note that we now have to write the song in USER mode if we still want to use it in our own programs.

Finally

Of course it is not possible to make such a one-two-three a good song, and as the saying goes: Practice makes perfect. Of course it is a bit hard to use such cliches, but it is true. Take the time and keep the button overview at hand. Most CTRL codes are kept as logical as possible, which makes remembering a lot easier. Finally, I want to wish you a lot of success with the use of MoonBlaster.

----- KEY OVERVIEW -----

Music editor

[F1]	Song Playback from current position
[F2]	Playback of current pattern
[F3]	To sample menu
[F4]	To voice menu
[F5]	To disc menu
[F6]	Pattern/position editor
[F7]	Erase song + Default settings
[F8]	To the FM drumset menu
[F9]	Setting of the stereo-channels
[F10]	Setting of the chip detune
[SELECT]	Change of sound-chip
[CURSOR]	Control of the cursor
[TAB]+[CURSOR]	Go to next Position
[CTRL]+[CURSOR]	Go to next Pattern
[SHIFT]+[CURSOR]	Last set position

[HOME]	To beginning of the song
[CAPS]	Exchange of edit modes
[DEL]	Erasing step or block
[SHIFT]+[DEL]	Clear channel
[CTRL]+[DEL]	Erase pattern
[TAB]+[INS] [DEL]	Erasing position
[INS]	Ramdisk
[TAB]+[INS]	Insert position
[ESC]	Break on input events
[RETURN]	Repeating last entry

Input notes according to letter method:

[+] or [.]	Channel increment or block with a note value
[-] or [,]	Reduce channel or block with a note value
[>] or [CTRL]+[+]	Increment channel or block with an octave
[<] or [CTRL]+[-]	Decrease channel or block with an octave

Input notes according to one key method:

[+] or [.]	Increase of edit-octaves
[-] or [,]	Reducing edit-octaves

CTRL key combinations:

^A (Add position)	Adding position with current pattern
^B (Begin block)	Turn on beginning marker block
^C (copy)	Copy of channel or block
^D (Delete block)	Remove block marker
^E (End block)	Turn on end marker block
^F (Set FM channels)	Switch between 6 or 9 FM channels (MSX-MUSIC only)
^I (Song Info)	Gives information about the song
^K (Note audition)	Put the hearing of a note on/off
^L (Walking position)	Put the loop position
^M (Modulation depth)	Sets the modulation depth (MSX-AUDIO only)
^N (Name of song)	Input of the name of the song

^O (Output indicator)	Sets the output indication on/off
^P (Pattern copy)	Copying patterns
^R (Ramdisk)	Load/Save on the ramdisk
^S (Settings scan)	Put the search for settings
^T (Tempo)	Set start tempo
^X (eXchange)	Exchange of two channels
^W (channel on/off)	Turn channel on/off for playback
^Z (hertz)	Change of interruptfrequentie (50 or 60 Hz)

During playback song:

[ESC] or [SPACE]	Stop the song
[STOP]	Stop the song on current playback position

Enter Music:

[I]	Instrument Exchange
[L]	Link
[M]	Modulation
[O]	Off

[P]	Pitchbend
[S]	Setting sound-chip
[T]	deTune
[U]	sUs
[V]	Volume

FM Drumset menu

[F1]	Playing a hi-hat
[F2]	Playing a cymbal
[F3]	Playing a tom
[F4]	Playing a snare drum
[F5]	Playing a bass drum
[HOME]	Set the default frequencies
[CURSOR]	Control of the cursor
[SPACE]	Choosing an option

Other Keys, which are used in every menu:

[HOME]	To restore default
[CURSOR]	Setting values
[CTRL]-[CURSOR]	Setting values
[SPACE]	Choosing an option
[ESC]	Back to ...

Select Voices and Create Own Voice:

[F1]	Keyboard octave down
[F2]	Keyboard octave up
[F3]	Select keyboard
[M]	Select MIDI interface

Create Own Voice:

[F4]	Copy existing voice
[F5]	Disc menu
[SELECT]	MSX-MUSIC/MSX-AUDIO

Sampler

[F3]	Select keyboard
[F4]	Set sample addresses
[F5]	Disc menu
[M]	Select MIDI interface

Pattern/Position editor

[INS]	Insert pattern at the current position
[DEL]	Delete pattern from current position
[F1]	Song play from current position
[F2]	Current pattern playback

Appendix C

Technical data MSX-MUSIC, MSX-AUDIO and STEREO

MSX-MUSIC: Yamaha YM2413
6 channel music and 1 rhythm channel or 9 channel music without
Possibilities: rhythm Limited preset options (max.1 software voice) 1 sound synthesis (FM)
Used in: MSX 2+, MSX Turbo R Panasonic FM-PAC FM-Ship FM-Stereo-PAK MK FM-PAC
MSX AUDIO: Yamaha Y8950
ADPCM sampler
Used in: Panasonic MSX-AUDIO Philips Music Module Toshiba MSX-AUDIO
STEREO: MSX-MUSIC and MSX-AUDIO
Required: Amplifier

Connection

Some MSX-MUSLCs and computers and all MSX-AUDIOS have a tulip output so that the sound can be easily connected to an amplifier. This therefore gives (almost) no problems. The rest of the MSX-MUSICs send their signal only to the computer and can best be captured via the monitor connector. Information about this can be found everywhere, but we refer you to the MSX-Club Belgie / Nederland Magazine no. 38 of November 1991, pages 76 and 77 for detailed information about all monitor connectors.

Note: if, for example, the MSX-AUDIO signal is transmitted via the tulip to an amplifier and the MSX-MUSIC via the computer, the signal from some MSX-AUDIOS (eg the music module) will also be transmitted. So you hear two signals, that of the MSX-MUSIC and the MSX-AUDIO. One solution is to tap pin 49 of the MSX-AUDIO cartridge with an adhesive tape, so that the MSX-AUDIO sound signal is no longer transmitted to the computer. Look for the location of pin 49 in the manual of your computer. (Note: Sunrise Foundation is not liable for any damage to your MSX-AUDIO or Music Module due to improper performance of these instructions.)

We advise you to place the MSX-MUSIC signal on the left and the MSX-AUDIO signal on the right, but this is of course for the user to determine.

Differences from version 1.3

The main differences are the following new options: Brightness control, Transpose and Status bytes. Furthermore, in the sample menu with [F2], the sample addresses can be reset to the initial values with blocks of 4 kB per sample. Even after loading an FST Drum kit, this will now automatically be switched back to. The input of the Current Sample Block, Sample Frequency and Threshold is also slightly extended. In addition to the old way of input, it is now also possible to increase and decrease these values with the cursor left and right. This is done in connection with a greater speed.

Brightness control

With the brightness control, the sound of an instrument can be made brighter or less clear. With the MSX-AUDIO this is possible with all instruments, with the MSX-MUSIC this is only possible with software instruments. If a hardware instrument has been selected on a channel and there is still a brightness event, it is ignored. If you use a multi-channel software instrument at MSX-MUSIC at the same time, the brightness change will also occur in the other channels.

The brightness can be entered by pressing the [X] key on channels 1-9. Then you indicate the strength of the brightness change. This can be done by pressing the [+] or [-] key and then entering a value of 1-6. The brightness change is immediately executed. If a brightness change is given after this, it is added to the current brightness, so if an X + 12 is required, for example, this must be done in two steps of X + 6.

You can switch back to the default brightness value by selecting the instrument again. The default brightness can be set by changing the Total Level value of Generator A with Own Voices. The value of total level is 63 min the brightness!

Transpose

It often happens that the same is played repeatedly within a song, but in a different pitch. This can now be easily obtained with the transpose option. This will reduce or increase the entire song by one or more semitones. This can be done by pressing the [R] key in the CMD channel. Now TR comes into the picture. Behind this a value can be entered from a minimum of 24 (2 octaves down) and a maximum of +24 (2 octaves upwards). This always assumes the standard note values. So two TR + 1 eight CRs each continue to transpose ONE half note upwards and not two! Note: the TR command does not start on the next step!

Status bytes

The status bytes have no effect on the song, but these can be useful for the programmer using the MoonBlaster replayer in its own programs. With games and demos it happens that you have to wait with the continuation of the program until the music has reached a certain point. With the status bytes it becomes very easy to test on this.

3 status bytes can be set. This can be entered by pressing the [S] key in the CMD channel and then entering a value of 1-3. When the music starts, the status bytes are set to 0. If a STAT is played in the track, the relevant status byte is set to 255. Note: this is never reset during play. If this is desired, this must be done by the programmer himself. How the bytes should be read can be found in the relevant replays.

New replay

This new version of MoonBlaster also includes a new replay routine. This new replay can of course play MoonBlaster 1.4 music, but there are a number of extra options added. The most important of these is the fade out, with which the music can fade away at the desired speed. Furthermore, more addresses can now be read.

Fade

With the BASIC replay you can have the music fade out with the command CALL MBFADE (speed). For speed you can enter a number from 1-255, with 1 being the fastest. So for example _MBFADE (2).

The fade is of course also present in the ML source, I refer you for further explanation to the comments to the source.

Addresses

Now more information can be read out when using the BASIC replay. For the sake of clarity we give here the complete overview (all addresses hexadecimal):

DA00	set soundchip with _MBCHTP command
DA01	status (0 = does not play, 255 = does play)
DA02	set mapper bank with _MBBANK command
DA03/DA04	set memory address with _MBADDR command
DA05	current position during playback
DA06	current step during playback
DA07	status byte # 1
DA08	status byte # 2
DA09	status byte # 3
DA0A-DA16	music data that will be played in the next interrupt, this can be used for example when making VU meters