Important Information

To protect the device from damage, never use it in over-heated or damp locations, or in direct sunlight.

The MP-44's electronic components are very sensitive to voltage fluctuations; you are advised not to use it during electrical storms or where the mains supply is suspect.

The device contains no user-serviceable parts, and should be opened by authorised personnel only. If there is a technical problem, never open the casing yourself to attempt a repair since there is a risk of electric shock. This can result in irrepairable harm to both you and the device.

Disks are sensitive to magnetic influences. Always keep them away from loudspeakers, televisions, electric currents, light dimmers etc ... avoid over-heating, direct sunlight, humidity, dust etc.

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Appendices

Welcome aboard!

The MP-44 MIDI-PLAYER is a powerful device intended for use by all kinds of musician, not just those involved in sequencer-oriented music. Thanks to its 8 MIDI ports, it will help you flexibly control small to mid-sized MIDI systems.

The MP-44 was conceived to provide a useful, stage-oriented sequencer which would handle not just preprogrammed effects, "sequencer lines" or or even complete 64-track musical playback, but would also contain a host of functions intended to simplify your day-to-day contact with MIDI on stage and in the studio.

To do this the MP-44 has four function areas: it combines the abilities of a MIDI Merge patchbay, MIDI processor, MIDI controller and MIDI sequence-player.

The sequencer

With its 64 tracks, it supports a resolution of up to 1/1536th notes (384 pulses-per-quarter note). It cannot, and is not intended to, replace the comprehensive editing possibilities of a software sequencer, but complements it by concentrating on stage work. Because it is compact and reliable, it is ideal for situations where you want to be creative and work in a relaxed environment, but where you don't want to risk using the computer which was not really intended for applications outside the office.

By allocating individual program numbers to entire songs (a system known as File Assignment) songs can be swapped around like sounds in a synthesizer. By expanding the memory up to as much as 4 megabytes it is possible to have 60, 80 or even more songs (depending on complexity) instantly available, with no load time.

(→ The Sequencer)

The MP-44 uses the universal MIDI FILE standard for its internal format, and is thus helping to broaden the use and expand the development of this common "language".

The MP-44 provides and enhances trouble free communication between MIDI instruments and sequencers. Another important facet of the MIDI Player is its compatibility with Atari ST series and IBM compatible microcomputers.

The Matrix

The MP-44 has a MIDI processor which is capable of recognising, transforming and re-transmitting MIDI data in real time. This generally makes external MIDI accessories such as merge boxes, MIDI processors and so on completely unnecessary. The matrix deals with the major functions of a master keyboard (split, transpose, velocity etc) for small to medium sized systems.

Applications

The MP-44 performs two different tasks in your MIDI system:

The first concerns the recording, storage and replay of songs or sequences. The SEQUENCER section of the unit is responsible for this part.

The second concerns the reception, distribution and manipulation of incoming MIDI data (e.g. played live). The MATRIX part of the unit handles this task.

The MP-44 deals with both tasks simultaneously and independently.

1. Terminology

Normal mode: the first level of operation, or if you prefer, the "first page" of the MP-44. This mode is active when the unit is switched on.

SEQ. mode: sequencer or Song mode. The mode arrow in the far left of the display shows which of the two modes is active.

MATRIX mode: a matrix is a grid in which it is possible to link any intersection with any other. This principle is behind the organisation of the four inputs and four outputs of the MP-44. The processor and master keyboard functions of the unit are controlled from Matrix mode.

JOB: a programmed series of functions. With the MP-44 the user can program a series of commands of any length using a kind of "mini programming language".

LOAD: strangely enough, load from disk!

SAVE: you guessed it, save to disk!

ENTER: call up or confirm. For questions, it's a "yes". For Atari-style folders or IBM-style directories on disk, it means "open". For loaded songs, it means "play".

EXIT: quit, desist, leave, abandon... For questions , it's "no", for folders and directories it's "close", for songs which are playing, it's "stop".

FILE: a single piece of data on a disk. A file has an eight character name and a three character "extension", separated by a full-stop.

(→ terminology)

EXTENSION: the extension is used to indicate the file type. MP-44 songs always end in the extension .MID for standard "MIDI-file format".

ASSIGNMENT: song organisation. In the MP-44 songs can be given different program numbers and routed through different outputs.

ASSIGN FILE: the file in which these assignments are stored.

SysEx: System Exclusive information. These are messages which are not in common MIDI language. They are "exclusive" to, i.e. can only be understood by, one device (e.g. one model of synthesizer). So that MIDI doesn't get completely muddled by this "foreign language", a "SysEx Header" is transmitted before the message, and an "EOX" (end of message) after. "Disguised" in this way, these peculiar messages can be delivered along with normal MIDI data. The messages themselves contain such portentous tidings as: "Brand-name Roland; device D-20; set filter cut-off to 0!" or "Brand-name Yamaha; device DX7II; complete set of data for the edit buffer!" and so on.

CONTROL: MIDI events whose function is determined by the first value in the data. For instance, "Control 1" is the modulation wheel, 2 = Breath Control, 4 = Foot Pedal, 7 = MIDI volume, 64 = Sustain On/Off etc.

PITCH WHEEL: also known as the pitch bend wheel or lever.

AFTERTOUCH: Channel Pressure and Poly Pressure - these events are sent from some keyboards by pressing down on the keys.

PROGRAM CHANGE: a command to change programs, which can include sounds, reverb treatments, etc.

2. Getting started

(See also page 105):

- In the bottom line (the "Song line"), each song in the set is allocated a program space in the MP-44. This ordering is stored on the disk as the "Assign file", see Chapter 4: "File Assignment".

- Each song (or even individual tracks within a song) can be routed to any of the four outputs of the MP-44. These routings are also stored in the Assign file, see Chapter 2, section 4: "Output assignment".

Each time the MP-44 is switched on the Assign file has to be loaded first, followed by the songs. This process can even be completely automated, see page 88. Entire setups can be loaded automatically and swiftly, simply by switching on with the appropriate start up disk (see Chapter 2, sections 2.3 and 2.4).

- JOBS are put together...

A job is a series of simple commands which go a long way towards automatting the process of playing. These "macros" start the song while activating the relevant MATRIX program with its processing functions, load up the next song and so on. A job consists of various individual steps which are carried out at the push of a button (or the stomp of a footswitch!)

(→Getting started)

For example, typical JOBS might be composed of steps like these:

- Start song no. 25, activate Matrix program 98 and wait for the footswitch...

- When the footswitch is pressed, activate Matrix program 12. This changes the way the master keyboard acts on the expanders (perhaps for a solo) without interrupting the playback of the song.

- When the song comes to an end, start song no. 74 and activate Matrix program 30... and so on (see Chapter 7: JOB functions).

Tip: the MIDI Player plays, processes and stores songs in the Standard MIDI File format. The easiest way to work with the MP-44 is therefore if you already have songs on disk in Midifile format. This allows you to use songs on Atari ST or MS-DOS disks without any setting up or adaptation. If your songs are in a different disk format, or have not been saved as Midifiles, they will have to be recorded into the MIDI Player through one of its inputs. The MIDI Player uses very high note resolutions such as 1/1536th of a whole note, which guarantees a faithful recording of the original.

3. Basic operation of the MP-44

Front view of MP-44

3.1 Display

The display always shows you exactly where you are in the unit, and which parameter will change if you alter a value. In Normal mode (on power-up) it is split into an upper MATRIX line and a lower SEQ line. At the very left of the display is the mode arrow. The position of this arrow tells you which mode the unit is in.

In the appendices you will find a complete list of all the displays (Appendix A).

3.2 MODE keys

The blue MODE keys have five different functions:

1) Toggling between the SEQ and MATRIX modes. The mode arrow at the left of the display shows the current mode.

2) Double-clicking (pressing twice in quick succession) brings you into the corresponding FUNCTION SELECT level (see section 3.4 below).

3) When entering names these keys move the cursor left and right.

(-› MODEkeys)

4) Pressing the MATRIX MODE key while already in Matrix mode calls up the "MIDI EYE" function (see page 51, MIDI EYE).

5) Pressing the SEQ MODE key while already in Sequencer mode opens the window with the "tape recorder functions", the bar counter and synchronisation indicator (see page 27).

3.3 UP/DOWN keys

The grey UP and DOWN keys change the chosen parameter up or down in steps of +/- 1. This applies for all the displays in the MP-44.

When selecting a program (in Normal mode, see 3.1 above) these keys immediately call up the next or previous program, without the need to press ENTER.

3.4 Number keys, ENTER and EXIT

The number keys have various functions, depending on the current display:

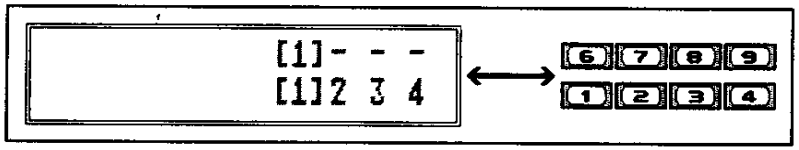
Program selection: in Normal mode the number keys allow the direct entry of program numbers (simply type a number in, then confirm it by pressing ENTER). If EXIT is pressed the number will be cleared without changing the program.

Calling up functions: double-clicking on one of the MODE keys will bring up either "MATR. FUNCTION SELECT" or "SEQ. FUNCTION SELECT" in the display. Pressing one of the number keys will then call up the corresponding function. Practically every display in the MP-44 can be reached in this way.

Remark: in this manual this process (the operation of the various functions of the MP-44) is always shown in a small illustration, e.g.:

Double-clicking on SEQ MODE calls up the Function Select page

Direct cursor selection: keys 1, 2, 3, 4 and 6, 7, 8, 9 also bear the titles "IN 1 2 3 4" and "OUT 1 2 3 4". These keys allow you to select the MIDI inputs and outputs directly from within many of the displays. The positions of the keys relate directly to the digits in the display:



Logical relationship of keys to display

Key 0: as well as representing a 0 value when inputting numbers and refreshing the display of disk directories in disk functions, the 0 key always operates the "TRANSPARENT PANIC" function (see page 90).

Key 5: as well as representing a value of 5 when entering values, this key acts as the STOP/CONTINUE function when in the bar counter display.

EXIT/LOAD, ENTER/SAVE: the EXIT and ENTER keys represent the STOP and START functions. They also serve as the LOAD and SAVE keys for songs and other files. Please read the relevant sections for more information.

3.5 The ASSIGN file

"FILE ASSIGNMENT" is one of the MP-44's fundamental functions. The MP-44 differs from other sequencers in that it can hold several (up to 256!) songs in its memory at once. Whilst it is true that all but the most prolific of us will not wish to play 256 complete songs in one evening, it is worth remembering that a "song" in MP-44 terms can also be a single note-event or a phrase, ready to be called up at the decisive moment!

What has all that to do with FILE ASSIGNMENT? Well, once songs have been given a number they can be selected with a single keystroke (for instance, by a program change command from your master keyboard). Songs are given individual program places using the File Assignment functions.

These program allocations can be stored on disk as one or more ASSIGN files, with the extension ".ASG". These ASSIGN files do not contain any song data, simply the names of songs and their place numbers. In addition, track to output routings can also be stored there (see Chapter 2).

The ASSIGN file is stored in standard ASCII format, which means that it can be loaded into a word processing program such as WordPlus or Tempus, and edited very easily, just like normal text, using all the on-board block, cut-and-paste, copy and move functions in these programs. The finished result is then saved to disk again, and can be loaded directly into the MP-44 as an ASSIGN file!

For more information on programming these allocations, read Chapter 4: "File Assignment".

1. General

The MP-44's song line shows songs which have already been loaded, or whose names are in the current FILE ASSIGNMENT. The MIDI PLAYER can handle 256 songs.

The MIDI standard allows only 128 songs in Song Select, so the MP-44 has two banks of 128 program spaces each. The banks are called "S" and "P". Matrix function 99 makes it possible to set a separate selection method for each bank (Song Select or Program change 1-16). See page 16 for more on this.

A loaded song is indicated by its name in its chosen program space and its status (STOP, PLAY or CONT) after the song name. If a song name is in the assignment, but the song itself has not yet been loaded, four vertical lines appear after the name, meaning "not loaded".

When the Load function is called, only files with a ".MID" (MIDI FILE) extension will be displayed. To load a song which uses a different extension, press the "0" key after calling the Load function. This allows all files to be displayed and loaded.

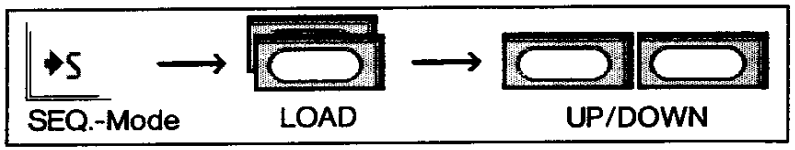
Warning! This technique should only be used in desperate situations! We cannot guarantee that the MP-44 will be able to sort out what's going on if you try to load, for instance, a piece of text into it! It will usually realise that an error has occurred, and give you a friendly "WRONG FILE FORMAT" message.

For trouble-free working with the MIDI PLAYER we therefore recommend sticking to the standard ".MID" extension for songs.

2. Loading songs

2.1 Loading a song without an assignment

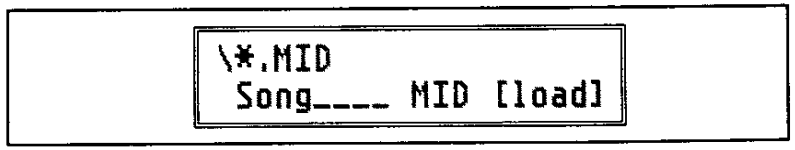
- The song is already on the disk in MIDI FILE format.



Loading a song without an assignment

- Any folders or directories which already exist on the disk (shown by a sign in front of the song name) are opened with "ENTER" and closed with "EXIT".

- Display the name of the required song by using the "UP" and "DOWN" keys, and press "ENTER". The song will be loaded.



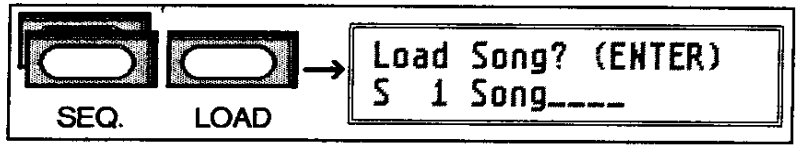
Display of the directory

The song can now be started by pressing "ENTER". For now, it will be sent from all MIDI outputs simultaneously (see page 17).

The above method is useful for the spontaneous replay of individual songs. If you have several songs in your repertoire, Chapter 4 "File Assignment" is for you. The methods detailed there will let you organise your songs and loading procedures much more comfortably.

2.2 Loading a song during playback

Individual songs can be loaded into the MP-44's memory, even while another song is playing:



Simultaneous loading and playing

- Using the "UP/DOWN" keys, display the program space into which you wish to load the song. Press "ENTER".

Warning: you must choose a different number from the song which is playing, otherwise playback will stop.

- Now find the required song and press "ENTER".

When the song has finished loading the display will return to the song which is currently playing.

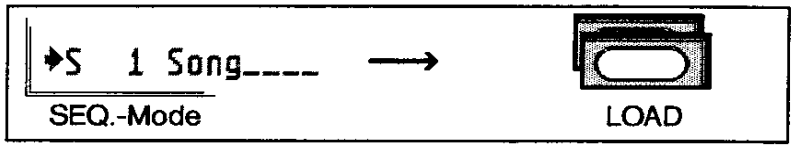
With this function you can load songs "on the fly", even if they are not in the current assignment, perhaps from a completely different disk with its own assign file.

Important: if a song had already been loaded into the selected program space ("S..." or "P...") the new song will replace the existing one in the assignment. The output assignment of the old song will still apply, because no new assign file has been loaded (see Chapter 4).

2.3 Loading a song with an assignment

This function, and the next one, will only work if an assignment has already been created or loaded. See Chapter 4 "File Assignment" for more information.

- Display the required song number in the song line (Normal Mode).

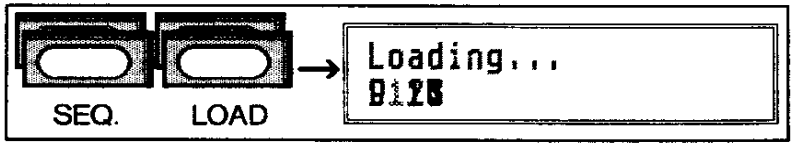


Loading a song with an assignment

The song will automatically be found and loaded from the disk.

2.4 Loading all songs within an assignment

(See Chapter 4 "File Assignment")



Loading songs in the current assignment

All the songs in the current assignment are automatically found in and loaded from the disk. This function will stop automatically if the memory is not big enough for all songs. It can be aborted manually by pressing "EXIT".

-If the songs are on different disks, select this function again each time you change disks. The MP-44 will scan each disk and load the relevant songs.

- If there is not enough memory for all the songs when loading the next batch, display a higher song number before using the function. Lower numbers will then be left out.

Example: there are 15 songs on the disk, but only enough memory for 10 of them in the MP-44. You want to load songs 5 - 15:

- Load the assignment.
- Select song number 5 in the display.
- Double-click on SEQ.MODE and double-click on LOAD. All songs from 5 upwards will be loaded, provided there is enough memory space available. This function will operate even during playback of another song!

2.5 Auto-delete

When a new batch of songs is loaded automatically, it is possible to run out of memory. When this happens some songs must be deleted from the memory.

In this situation the MP-44 will automatically delete any songs which have already been played. A song is counted as "played" if it has been started once or more. Starting at song 1, the unit will search through the songs, and firstly delete any songs not involved in a recently activated JOB. A song which has not yet been played will never be deleted automatically. This function is not active when loading songs manually.

(-› Auto-delete)

Auto-delete can not be switched off. If you want to prevent played songs from being deleted, you will have to make sure that there is enough free memory before you start to load, by manually deleting unwanted songs. Bear in mind also that the memory of the MP-44 can be expanded to 4 MBytes. With expansion you should never experience any problems with auto-delete, even with complex JOBs with several song repetitions.

2.6 Selecting songs on the MP-44

The MP-44 can handle up to 256 song numbers. These are split into two banks, called "S" and "P", containing up to 128 songs each.

To change the song program, position the MODE arrow on the song line. You can then step through the songs using the UP and DOWN keys.

To select songs directly, you can type in a song number using the numbered keys. You must then, as before, confirm your selection by pressing "ENTER". If you want to change the bank as well, use the UP and DOWN keys instead of "ENTER" (UP = S, DOWN = P).

2.7 Song selection over MIDI

All 256 songs can be selected over MIDI. Songs can be selected in two ways, either using "Program change" messages on MIDI Channels 1 - 16, or by "Song select" messages, which don't use a particular Channel. It is possible to treat each bank independently. You can set the type of message you prefer using MATRIX function 99 (for exact procedure, see page 86).

3. "Output Assignment"

3.1 General

This function is used to route complete songs or individual tracks of songs to the MIDI PLAYER's outputs. This means that the MP-44's 64 possible tracks can be sent in parallel from its four outputs. These routings can be saved in the assign file using "Save Assignment".

Default: the song and all individual tracks are sent to all MP-44 outputs simultaneously.

Tip: the main purpose of this default setting is for testing. Since all tracks and all MIDI Channels are played over all four outputs, no timing improvements are apparent yet (see below).

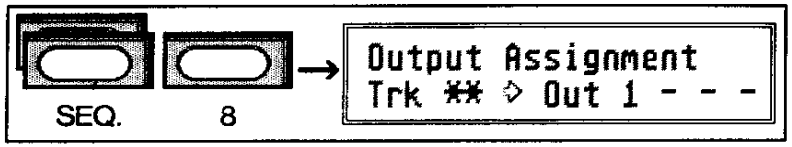
If the whole song has been recorded through one MIDI input, you can route the entire song to a single MIDI output. The reason is that MIDI contains no track information, which means that if the song was recorded on the MP-44 in one "pass", it will all be on one track.

If you want to route individual tracks of the song to separate outputs, you will have to record these tracks one at a time (mute the tracks you wish to separate, transfer the song to the MP-44, then mute all the tracks except one of your chosen ones, transfer again, change mutes, transfer again...). This rather round about way of doing things (especially if several tracks are to be "split") is only necessary if you want to send the song to the MP-44 down a single MIDI cable (see also page 28, section 3.1).

If, on the other hand, you have your songs in MIDI STANDARD FILE format already, or if your sequencer has more than one MIDI output, more tracks are automatically available.

Routing different tracks to the MIDI PLAYER's separate outputs can be very useful. For one thing, you can improve the timing of MIDI data during playback (because the great mass of information is divided between several outputs). For another, it makes MIDI switch or thru boxes redundant in smaller MIDI systems.

3.2 Operation



"Trk **" means an entire song (all tracks). Any routing applied here will affect all tracks at once.

"Trk 0" is a data track, which doesn't normally contain any note information, and need not be assigned. The MP-44, like most sequencers, reserves track 0 for tempo change and time signature information etc.

"Trk 1 to "Trk 64" are the numbers of the individual tracks. Careful! the numbering of tracks on your sequencer may not be the same!

- Use the UP/DOWN keys to select the song ("Trk **") and route it to the outputs using the OUT keys.

If you want to route tracks to outputs individually, it is best to delete the "Trk **" routings first. This means that initially the whole song is routed nowhere, i.e. muted.

- Use the UP/DOWN keys to select the tracks one at a time, and route each one to the required outputs using OUT keys 1 to 4 (6, 7, 8, 9).

- When all tracks have been routed in this way, confirm your settings by pressing "ENTER". Routings for each song can be stored by using SAVE ASSIGNMENT (sequencer function 9). They are saved in the ASSIGN file on disk, and can be examined or edited with a word processor on an Atari or IBM computer.

- "EXIT" will quit this function. However, routings will be lost when you change songs.

The output settings are retained, even if you manually replace the song in a song number space with a new song which doesn't appear at that location in the ASSIGN file. The new song will be transmitted using the routing which the ASSIGN file would have applied to the original song.

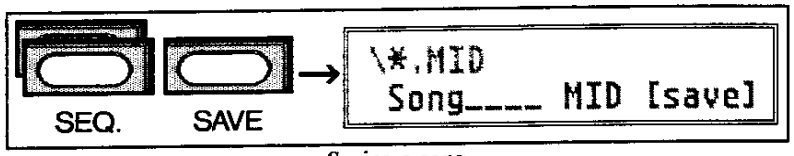
4. Starting a song

A song can be started manually using the ENTER key, or the footswitch. EXIT or the footswitch will stop a song which is playing.

A song can also be started automatically over MIDI, or via a JOB (see pages 86 and 93ff).

5. Saving a song

- If you wish to retain a song after switching the unit off, you must save it onto a disk:



Saving a song

- Press ENTER. The Song will now be saved to disk.

5.1 Song name

- If you want to give the song a new name before you commit it to disk, after double clicking on "SEQ MODE" and pressing "SAVE", call up the cursor using one of the "MODE" keys.

The "MODE" and "UP/DOWN" keys are used to enter names:

UP	-› Alphabet/numbers forwards
DOWN	-› Alphabet/numbers backwards
MATRIX MODE	-› Cursor right
SEQ. MODE	-› Cursor left

Note: remember to keep to the extension ".MID".

- When you have finished the name, press "ENTER". The song will now be saved to disk.

In addition, the new song name and its song number will be entered into the current assignment (the one in the MP-44's memory).

If your assignment was already in memory before the song was saved, then all you need to do is call up "SAVE ASSIGNMENT" (function 9) to bring the ASSIGN file on disk up to date.

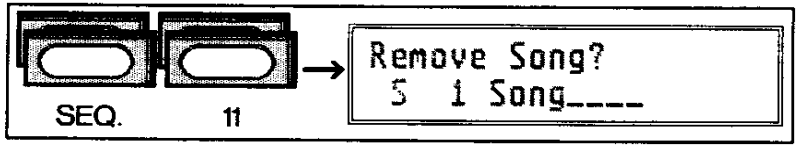
If your assignment is not in memory, yet you still wish to save all your new allocations to disk, call up the "SAVE ASSIGNMENT" function, enter a new name and press "ENTER". You can find out on page 47 how to "mix" this new file with the old one.

6. Deleting songs

6.1 Deleting a song from the memory ("Remove Song")

A single song can be deleted from the internal memory using SEQ function 11. The ASSIGNMENT is left unchanged:

- Call the song which is to be deleted into the song line.

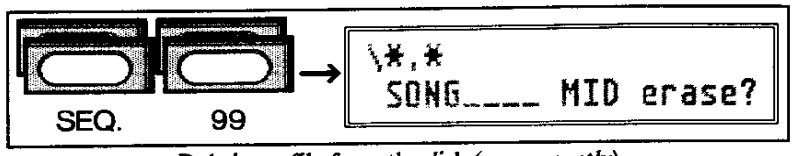


Deleting a song from the temporary memory

- "ENTER" deletes the current song. "EXIT" aborts the operation.

- Using the "UP/DOWN" keys, all songs can be erased at once.

6.2 Deleting a song (file) from the disk ("erase?")



Deleting a file from the disk (permanently)

This function is used to erase songs (.MID), or other file types, such as ".ASG" (assign files), ".M44" (256 Matrix programs) etc.

6.3 Formatting disks

So that extra utility functions can be offered in the future, the MP-44 has the facility to load up further functions from disk. The following function (as well as "Song End", see page 42) fits into this category:

- Place the disk containing the formatting program into the MP-44's disk drive.
- Double click on "SEQ MODE", double click on 8.
- Find the file "FORMDISK.MPF" using the "UP/DOWN" keys and press "ENTER". The utility program will now be loaded.
- Now place the disk you wish to format into the disk drive and press "ENTER" again.
- "ENTER" formats the disk, erasing anything that may have been on it. "EXIT" aborts the procedure (see also appendix A, Load ".MPF").

7. Dump Functions

7.1 Universal Dump

This function is used for the storage, management and transmission of tone parameters and other System Exclusive information. The unusual thing about the MP-44's treatment of Universal Dumps is that the user will not notice any unusual treatment of them! The reason for this is that the unit handles SysEx data exactly like song data. In effect, it makes no difference to the MIDI PLAYER whether the data coming in or going out is a song or a sound bank. This means that all the MP-44's functions can be used for organising system exclusive data too. Of course, it is also possible to combine song and SysEx information in one file. A single file could contain sound banks for all the instruments connected to the MP-44's outputs. Using the four parallel outputs the MP-44 can "feed" SysEx data to four expanders at the same time. Files can be called up via MIDI, by footswitch, or directly, just like songs, or integrated into JOBS.

- Set the unit up for recording, exactly as if you were about to record a song (see Chapter 3).

If it is definitely only SysEx data which is to be recorded, then all there is to do is to enter the record inputs. Tempo and time signature are irrelevant. It makes no difference which type of synchronisation is in use either, except that if the MP-44 is set to external synchronisation (MIDI Clock), you must start it manually by pressing ENTER, because your synthesizer will not think to send a "start" command when you ask it to dump its memory.

(→ Universal Dump)

- Start the dump from your MIDI instrument. If you have several instruments connected to the inputs, and you wish to dump sound banks from all of them, start the dump from each of these in turn.

- When all transmissions are complete, stop the MP-44 by pressing EXIT, select the RECORD function (no. 1) and press ENTER to "keep" the received data.

- Go to OUTPUT ASSIGNMENT (section 4 above) to route the tracks to the outputs, so that the SysEx data will be sent to the right expanders.

7.2 Dump Request

Some MIDI instruments will dump their sound parameters when they are given a command to do so over MIDI, making manual patch dumping unnecessary. These commands are known as "DUMP REQUEST" messages, and they are not all the same. The particular message format required by your instrument will undoubtedly be given in the owner's manual. The MP-44's "SEND DATA" function (see pages 82 onwards) allows you to program and store the right DUMP REQUEST messages for your own equipment.

Don't forget that with the MIDI PLAYER you have direct access to 256 MATRIX programs, that's 256 SEND DATA combinations (times 4 outputs). Not only that, but there is no limit to the number of MATRIX banks you can store on disks!

The same is also true for the SysEx files themselves, of course. All the functions available for the management of songs, such as File Assignment and JOBs, can be used without any problem on SysEx files. So if you need to deal with a large number of SysEx files, the MIDI PLAYER will prove to be an immensely powerful tool for you.

7.3 Storing, loading and sending Dump Requests

Storing, loading and sending SysEx files are dealt with in precisely the same way as song files. You send them by pressing PLAY, receive them with REC, load and save them with, yes, LOAD and SAVE. File names on disk must also end with ".MID".

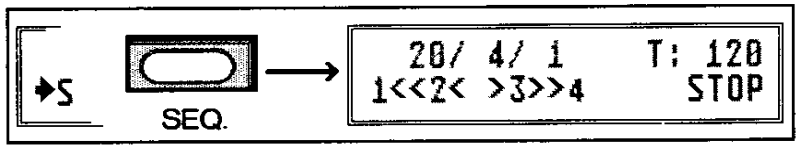
1. General

Most sequencer functions can be found by double clicking on the "SEQ.MODE" key. "SEQ. FUNCTION SELECT" will appear in the display. You can now select the page you require by pressing the appropriate number key (see the appendix for an overview of the functions).

Tip: instead of the number keys you can scan through all the functions one at a time with the UP/DOWN keys, and select the one you need by pressing ENTER.

2. Tape recorder functions

In Normal mode ENTER is the key for PLAY, EXIT for STOP. In the Bar Counter display there are other functions:



Display for Bar Counter, tempo, song status; tape recorder functions

In this window the current song position in bars/quarter notes/ 96ths is shown in the top left. Underneath, the functions for keys 1-4 are displayed graphically:

1	=	fast rewind	(«)
2	=	rewind	(‹)
3	=	forward	(›)
4	=	fast forward	(»)

(→ Tape recorder functions)

If the synchronisation type is set to "Internal" (Sequencer function 2) the tempo is displayed in the top right ("T: ...").

The tempo can be changed with the UP/DOWN keys. If the synchronisation type has been set to "MIDI clock", "SYN:MIDI" will be displayed. The tempo will be controlled by an external MIDI clock source (and it will not be possible to change it internally).

Underneath the tempo field, the song status is shown as follows:

"STOP", "PLAY" (the song has been started with the ENTER key), "CONT" (the song has been restarted with key 5). In this mode key 5 has the function "STOP/CONTINUE".

Pressing EXIT or SEQ. MODE will take you out of the Bar Counter display and back into Normal mode.

3. Recording ("REC")

3.1 General

The STANDARD MIDI FILE format, which most sequencers have access to, and with which the MP-44 MIDI Player works exclusively, is a good one in many respects.

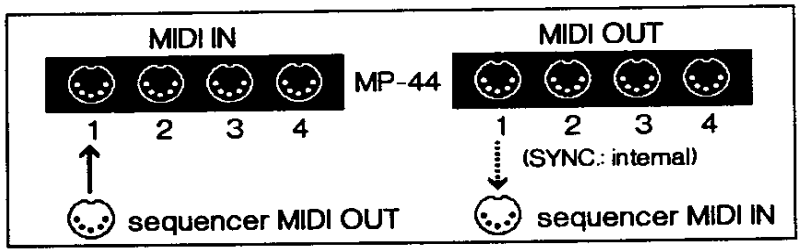
However, certain playback parameters used by some sequencers are unfortunately not properly implemented in the format. Furthermore, not all sequencer manufacturers make full use of this format's potential. If your songs have reached a degree of complexity which goes beyond the capacity of the MIDI file format, the playback of your MIDI files will therefore not give exactly the same results as those you expect from your sequencer's own format.

If this happens, simply play back your songs and record them via the MP-44's MIDI inputs.

If your sequencer can access four parallel MIDI outputs, you can, of course, hook them straight up to the MP-44's four inputs. The MP-44 will then record four tracks simultaneously, one for each input. You must then use OUTPUT ASSIGNMENT to allocate outputs to each track, otherwise all four tracks will play back over all four outputs at the same time.

3.2 Recording a song

- Connect the output of the sequencer with one of the MP-44's inputs:



Connecting the MP-44 to another sequencer

- Call up an empty song number in the MP-44's Song Line (UP/DOWN keys, or type in a number with the number keys and press ENTER).

- With SEQ. function 1, select the inputs which will be used for recording.

- With SEQ. function 2, select the synchronisation type (UP/DOWN keys). If whole songs are to be transferred, it is a good idea to use MIDI clock synchronisation. To do this, the other sequencer must be ready and able to send a MIDI START command and MIDI clock when you start its playback.

- If this is not possible, you can stick to internal sync. and designate an output to send MIDI clock, synchronising the other sequencer to it. You will need to connect another lead from the selected output to the MIDI input of the other sequencer. Warning! Switch the sequencer's MIDI thru parameter off. In most cases, however, none of this will be necessary.

- With function 3, set the tempo which the song will use for playback (you can alter this later if you change your mind).

If there are tempo or time signature changes programmed into the song, and you are going to want to synchronise a drum computer with the MP-44 during playback, pay particular attention to the sections dealing with this in this Chapter.

- Start the song, from the sequencer if the MP-44 is in external sync, or if not then from the MP-44 itself (press ENTER). Recording commences, and the song status shows "REC".

In external sync recording will stop automatically when the sequencer sends a MIDI STOP command. Remember to put the synchronisation type back to "Intern" if you want to play the song back. If sync was set to internal anyway, you can stop the recording by pressing EXIT.

Important: you must remember to confirm your recording with the "Keep" procedure! Please read section 3.5.

3.3 Permanent Record

The MIDI PLAYER makes no distinction between playback and record. As long as inputs have been activated for recording on the Record page, it will be recording even when songs are played back.

After stopping playback, if you decide that you want to use what has been recorded, you can choose to "keep" it with the RECORD function (see next section). This way of doing things means, for instance, that you can play along spontaneously with your songs (solos and so on) and that if you like what you did, you can choose to keep it and save it. This has no adverse effect on the playback of the song and in no way stretches the MP-44. Provided you have enough free memory, this is positively the best way to use the unit.

So, while a song is playing back, the MP-44 always records any data coming into the active input(s), until the song stops, or the memory runs out.

When the song has ended, the new track(s) can be added to the song with the "keep" function (see next section) and allocated suitable outputs with OUTPUT ASSIGNMENT.

If the new tracks are not needed, they will be erased automatically when the song is started again, or if a different song is selected.

3.4 Recording SysEx and control events

As well as notes, any other MIDI data can be recorded and organised in tracks, e.g. program change commands which will select specific sounds in your expanders before the song starts, or SysEx files (see Chapter 1, section 1: "Terminology").

To record tracks which are to be played back right at the beginning of the song, and which contain no notes (program changes, controllers etc), adopt the following procedure:

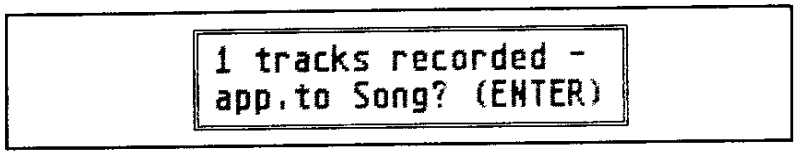
- Set "Sync" to "MIDI clock" (external sync).
- Start the song manually with the ENTER key. In this case the MP-44 receives no START command over MIDI (and therefore stays on the very first beat), yet is still recording.
- Now play in the SysEx data, program change, MIDI volume or whatever, and end recording by pressing EXIT.
- Use OUTPUT ASSIGNMENT to allocate the correct outputs to the new tracks.
- Confirm acceptance of the recording with "KEEP" (next section).

3.5 Keep song

- After recording, select the record function (no. 1) again.

The display indicates how many tracks have been recorded.

While "X Tracks recorded" is showing in the display you can check the record inputs with the UP/DOWN keys. If you change anything at this point, the whole recording will be lost!



- Press ENTER.

This will verify your acceptance of the recorded tracks (KEEP).

If you do not do this, the new track(s) will be lost when the next program change is received (the reason for this will be apparent from the previous section).

- Now save the altered song to disk.

3.6 Lengthening a song

If you wish to add a new track which extends past the end of the existing song, this can be achieved using the CONTINUE function:

- From Sequencer mode, press the SEQ. MODE key once.

The beat counter display appears (see section 2). On this page, songs are started with ENTER, and key 5 acts as the STOP/CONTINUE function.

- Start the song and "fast forward" to the end of it with key 4; the song stops.

- Press key 5 so that the MP-44 plays on.

The MP-44 will now end its playback (and therefore also its recording) when the EXIT key is pressed again, or when no more memory is left.

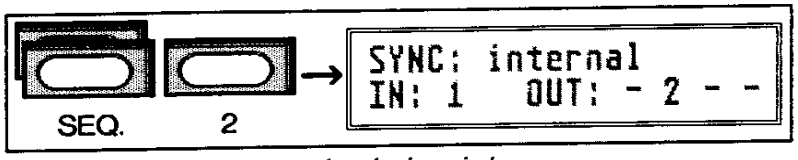
3.7 Track numbering

Example: if you record using inputs 2 and 4, input 2 is counted as the first recorded track and becomes track 1 (Trk 1). Input four is therefore the second recorded track, track 2. If extra tracks are added to the song, the new track from input 2 becomes track 3, and from input 4 becomes track 4 etc.

The numbering of tracks created during one recording is determined purely by the set-up in the record window.

Example: during a single recording, one of the inputs is receiving no MIDI data, yet was activated on the RECORD page: this creates a new (empty) track.

3.8 Synchronisation



Synchronisation window

- Using the IN 1 to 4 keys, it is possible to select one input for an external MIDI clock source. In external synchronisation (MIDI clock) the tempo is determined by that of a device connected to this input. Any clock signals received are passed on to the outputs.

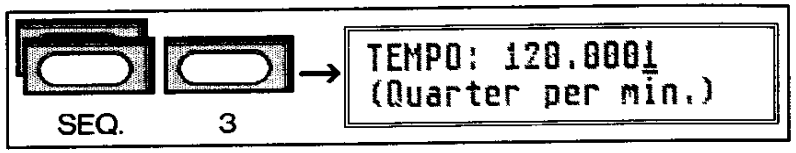
- In internal synchronisation (Internal) the OUT 1 to 4 keys are used to select which outputs will transmit the internally generated MIDI clock. In this mode the MP-44 ignores any external tempo, yet obeys START/STOP/CONTINUE commands at the designated input. This can be disabled (IN: -).

- The UP/DOWN keys switch between internal and external sync.

- All settings need to be confirmed with the ENTER key, and become active immediately.

- Use the EXIT key to abort any changes.

3.9 Tempo



Tempo window

The tempo can only be entered directly using the number keys. The range of values you can enter is 7.2 to 255.9999 BPM (the lower limit depends on the resolution you use). The MODE keys move the cursor from left to right. To the left of the decimal point three figure numbers can be typed in (as for program changes). The four decimal places are entered one at a time.

- Before recording, type in the required tempo and press ENTER.

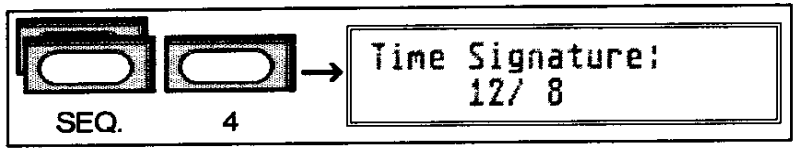
If external sync is being used, the only effect of this setting is to save the tempo along with the song.

The tempo can also be altered afterwards. See section 4 for details.

- Pressing EXIT will quit the tempo window without changing anything.

3.10 Time signature

The time signature is only used as a reference by the beat counter display. It has no effect on the playback. However, if time signature changes are needed, false readings on the beat counter can make it very difficult to see what's going on. So, if the time signature is anything other than the default setting of 4/4, change it as follows:



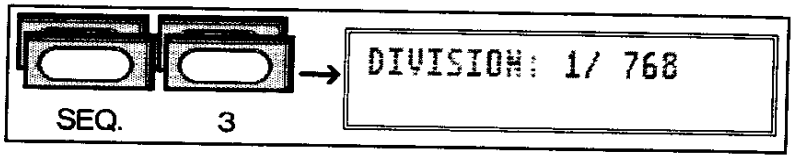
Time signature window

- Before recording, set the required time signature using the UP/DOWN keys. Changes can only be made while the MP-44 is stopped.

It is also possible to change the time signature after recording. See section 4.

- As usual, your changes need to be confirmed by pressing ENTER, or can be aborted with EXIT, which also returns you to NORMAL mode.

3.11 Resolution (DIVISION)



DIVISION display

- Select the resolution required using the UP/DOWN keys (1/96, 1/192, 1/384, 1/768 or 1/1536).

Tip: a 1/768th note represents 2.6 milliseconds at 120 BPM. This resolution is perfectly adequate for this or a higher tempo, because it exceeds the transmission speed of the MIDI interface (1 ms per event) as soon as three notes or more (i.e. a chord) are meant to be transmitted simultaneously. At the highest resolution (1/1536th note) and a tempo of 156 the limit of MIDI's technical specification is reached (1 ms per played and transmitted note).

When playing back MIDI files the resolution is read from the data track and adopted. Some sequencer programs use even higher resolutions, in which case the MP-44 will accurately replay MIDI files with resolutions up to 1/1920th note, if this information has been entered into the song. Such high resolutions only make sense if unquantised tracks are being played at very slow tempi.

4. Sequencer Edit

4.1 Tempo changes

Changes in tempo are not recognised during recording via the MIDI inputs, since sequencers cannot "know" whether perhaps notes are simply being played faster, but in the same tempo. For this reason, even though the song is played back as it was recorded, the tempo display (and the outgoing MIDI clock) does not change. After the tempo change, notes are simply moved out of position relative to the bars.

For this reason, the MP-44 makes it possible to alter playback tempo at any desired locations within the song, after recording is complete.

It is worth noting at this point that changing tempo after recording is only necessary if you wish to connect rhythm machines (or other tempo-related devices) to the MP-44, and to synchronise them via MIDI clock.

The position of each tempo change has to be located in the Bar Counter display. Once located, the TEMPO function can be called up and the new tempo entered.

- Call up the Bar Counter display by pressing SEQ. MODE once.
- Find the desired location using keys 1 - 4.
- Once you have found the right position, call up the TEMPO window (SEQ function 3) and enter the new tempo.
- Press UP or DOWN. The display shows "-› Song" (tempo to song).

(→ tempo changes)

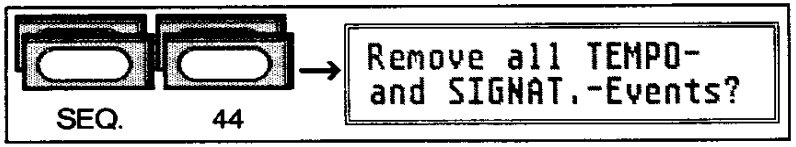
- ENTER will insert the new tempo at the chosen bar position.
- Repeat steps 1 - 5 for any other necessary tempo changes.
- If a tempo change needs to be altered again, find its position (tempo is displayed, even while the MP-44 is stopped or in rewind/fast forward) and repeat steps 2 - 5.

4.2 Time signature changes

Exactly the same method is used for programming time signature changes, except that changes are made in the Bar Counter window and inserted into the song by pressing ENTER. There is no secondary function like "tempo to song".

4.3 Deleting tempo and time signature changes

Sequencer function 44 ("Remove all TEMPO and SIGNAT. Events?") deletes all tempo and time signature changes from the song which is currently in the song line. Tempo and time signature changes can only be deleted together:



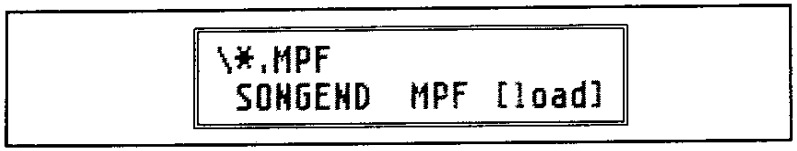
Deleting tempo and time signature changes

- Pressing ENTER deletes all tempo and time signature changes, and automatically quits the window.
- Pressing EXIT quits the window without deleting any settings.

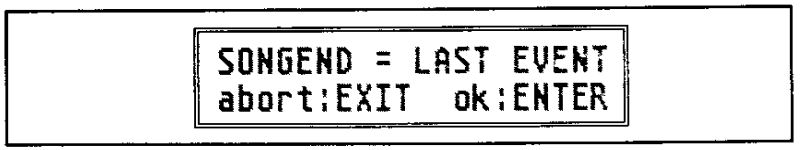
5. Creating a Song End

This function (like FORMDISK.MPF, see page 22) is a utility program. It is on the disk supplied with the MP-44 and is mainly of interest to Cubase users. It locates the last event in the song and creates a Song End just after it:

- Call up the relevant song in the display.
- Double click on SEQ. MODE, then double click on 8.
- Place the Utility disk in the MP-44's disk drive.

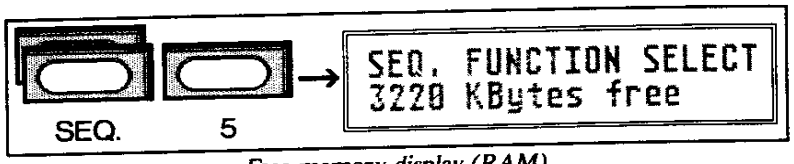


- Using the UP/DOWN keys, find the file "SONGEND.MPF" and press ENTER.



- Pressing ENTER again will generate a Song End for the current song, or EXIT will abort the function.

6. Free memory display (MEMORY)



Free memory display (RAM)

Sequencer function 5 shows remaining internal memory space in KBytes. The MP-44's memory can be expanded up to 4 MBytes. A large memory is particularly useful if you need to get to songs at random without any load time (e.g. via MIDI from your master keyboard).

If you always tend to play your songs in the same order you will be able to manage perfectly with less memory space. This is because the MP-44 will happily load the next song whilst the current song is playing ("Load While Play", page 13).

The standard memory size (1 MB) is generally enough for around 20 songs, all residing in memory at the same time (approx. 130000 notes).

1. General

The previous Chapters have often referred to this one. This is because the functions described here, especially those concerning disk operations, make working with the MP-44 considerably easier.

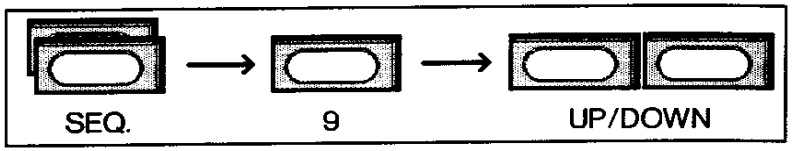
When the MIDI PLAYER is first switched on there will be no songs in its memory. These have to be loaded first. If it were not for the Assignment functions it would be necessary to painstakingly find each song on the disks and load each one into the MP-44's memory individually using the LOAD function.

The Assignment functions mean that it is only necessary to do this job once. Each song on one or more disks can be given a program number in the song line. All this information is then saved in a special "ASSIGN FILE" on a disk (Save Assignment).

Once this work is complete, this file can be loaded (even automatically) whenever the MP-44 is switched on, with the "Load new Assignment" function.

For every S and P number which has been used, the name of the song allocated to it will now be displayed. You now have an overview of all existing songs. The songs themselves can now be loaded using the load functions (see page 14).

The numbering of songs by means of File Assignment is also necessary for direct selection of songs using PROGRAM CHANGE or SONG SELECT commands. Once loaded, "assigned" songs can be swapped around in the MP-44 like sounds in a synthesizer.



File Assignment

- The UP/DOWN keys allow you to scroll through "Clear Assignment", "Save Assignment", "Load new Assignment", "Merge Assignment", and "Assign to File".

2. Assign to File

This function allows you to allocate the required program spaces to your songs in the MP-44's Song Line. Later you will be able to use these program numbers to call up your songs over MIDI. If possible, we would recommend that you allocate spaces to all of your songs. This will make loading and managing songs much easier (see also the example on page 15).

- Choose an empty song number.
- Call up the File Assignment window (see illustration).
- Using UP or DOWN, put the "Assign to File" function in the display and press ENTER.
- Again using the UP/DOWN keys, find the name of the required song in the disk directory.

Tip: folders can be opened with ENTER and closed with EXIT. Normally the MIDI PLAYER shows only file names with the extension ".MID". If you have used a different extension, press key 0 now.

- When the required song name is in the Song Line, press ENTER.

The "Assign to File" operation is now complete. The song has been given the program number which you chose at the beginning.

- Repeat this process until every song on the disk has been allocated a number.
- Save the Assign file which you have just created with the "Save Assignment" function (next section).

3. Save Assignment

This function is used to save all the work you have done in "Assign to file" in the ASSIGN file.

If you have set up any output routings using "Output Assignment" (see page 17 onwards), these will be saved at the same time.

The ASSIGN file is written on the disk in the ASCII format. It can be loaded into and, edited with, any word processor program which will accept these ASCII files. You can even create your ASSIGN file from scratch using a word processor, saving it to disk as an ASCII file, and giving it an ".ASG" extension (provided that you understand the layout of the ASSIGN file - which is fairly straightforward). You can also examine and print out the file from the Atari desktop (double click on the file icon).

- Call up the "File Assignment" function.
- Using the UP/DOWN keys, find "Save Assignment".
- Press ENTER.

The default name for the ASSIGN file, "ASSIGN.ASG", appears in the display.

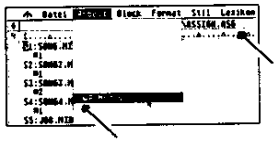
- If this name is not suitable, for instance if a file with this name already exists on the disk and you wish to keep it, press one of the MODE keys and enter a new name.

Put in the new name using the UP/DOWN keys (or use the number keys for bigger steps) and moving the cursor with the MODE keys (see also page 20).

You should use the extension ".ASG", or the MP-44 will not immediately recognise the file as an ASSIGN file when loading.

- Press ENTER.

The ASSIGN file will now be written to disk. The old file will be erased unless a new name has been entered.



1st WordPlus, Atari ST

Tip: if you wish to load this file into a program such as "Word Plus" and to alter it, pay particular attention to two things when saving the file: 1) Switch off the so-called "WP Mode" before saving, so that a standard ASCII file is produced. 2) Use the extension ".ASG" and not the normal ".ASC".

4. Merge Assignment

This function is used to add an assignment from disk to the one in memory. This allows you, for instance, to make a single, complete assignment from two incomplete ones. If it happens that conflicting assignments occur for certain program numbers, the second set will take priority.

- Call up the "File Assignment" window.
- Using the UP/DOWN keys, find "Merge Assignment".
- Press ENTER.
- Find the required ASSIGN file and press ENTER again.

Your new "mixed" ASSIGN file can now be saved, if you wish, by following the "Save Assignment" procedure.

5. Clear Assignment

This function cancels the allocation of a single song to the program number shown.

Warning: it erases the song from memory at the same time.

Use this function only to remove songs from your repertoire. Of course, it could also be used to erase songs temporarily from the internal memory in order to free memory space for new songs.

- Call up the song you wish to clear in the Song Line.
- Call up the "File Assignment" function.

(→ Clear Assignment)

- Using the UP/DOWN keys, find "Clear Assignment".
- Press ENTER.

If you wish to store this change in your repertoire onto the disk, make a new ASSIGN file using "Save Assignment".

6. Load New Assignment

It is a good idea to use this function immediately after switching on the MP-44, in order to load the complete assignment into the unit's internal memory. For this reason it is always the first function to appear when you call up the "File Assignment" functions.

- Call up the "File Assignment" window.
- Using the UP/DOWN keys, find "Load New Assignment".
- Press ENTER.
- Find the required ASSIGN file and press ENTER again.

When a new ASSIGN file is loaded (or when a file which exists in memory is loaded again), all songs are cleared from the MIDI PLAYER's internal memory. It is therefore necessary to load up all the songs again (see page 14).

1. General

The MP-44's Matrix operates completely independently of its sequencer section. Matrix programs can be called up without affecting the sequencer functions at all.

It is even possible to program Matrix functions and to save Matrix programs to disk without interrupting playback. Activating Matrix functions, such as transposition and filtering, will not affect the recording or replay of songs, but only MIDI data which is routed somewhere from the inputs.

Tip: when recording via the MP-44's inputs, the sequencer section takes the incoming data before it reaches the Matrix, and therefore before the "Realtime Processor" (see next Chapter). For this reason processor settings have no effect on the recording.

2. Calling up Matrix programs

2.1 Program selection on the MP-44

Matrix programs are shown on the top line of the display. There are 2 banks of 128 programs each. These banks are called A and B.

With the mode arrow pointing to the Matrix line, it is possible to change Matrix program numbers. You can step through the programs using the UP/DOWN keys. Alternatively you can type in a program number directly using the number keys, and press ENTER.

If you wish to switch to the other bank, first type in the number, then press the DOWN key for bank A or UP for bank B instead of ENTER.

2.2 Selecting programs via MIDI

Matrix programs can also be selected by using MIDI program change or Song Select messages (Matrix function 99, see page 86).

2.3 Copying programs

This function has no function number of its own, but can be achieved by entering and leaving the Routing page:

- Call up the program which you wish to copy.
- Double click on the MATRIX MODE key, then press key 1.
- Leave the window by pressing MATRIX MODE.

The MP-44 will ask "Store Program?" Choose the program number you wish to copy into with the UP/DOWN keys. Pressing ENTER will perform the copy, and the target program will be erased and replaced by the copy.

2.4 Deleting a program

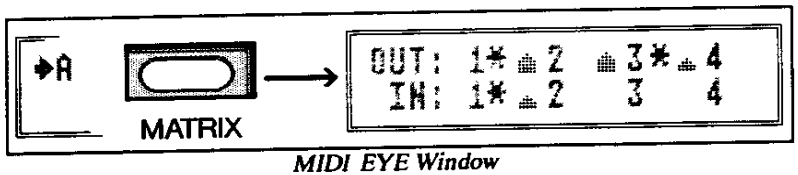
- Call up the program you wish to delete.

Deleting a Matrix program

Pressing ENTER will delete the program shown from the internal memory. EXIT will leave this page without deleting anything.

3. MIDI functions

3.1 "MIDI EYE" display



MIDI EYE Window

The MIDI EYE display will help you to set up and test the MIDI routing in your MIDI system, and to check your connections. For example, you could use it to check whether MIDI data is actually being sent from the MP-44's outputs when you play back a song.

The MIDI EYE uses tiny "level meter" displays to show whether any MIDI data is being received at the inputs, and whether the MP-44 is sending any data from its outputs.

3.2 Switching MIDI inputs and outputs on and off

In the MIDI EYE window, number keys 1-4 and 6-9 (IN/OUT keys) act as MIDI ON/OFF switches. Each of the MP-44's inputs and outputs can be turned on and off independently.

An asterisk denotes that the relevant input or output has at least one routing associated with it (see next section).

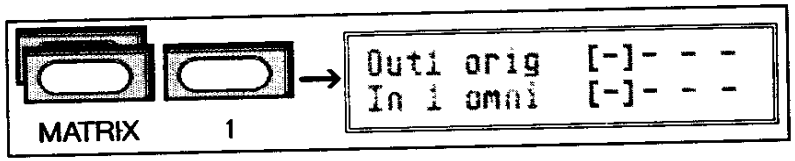
Switching off inputs has absolutely no effect on song recording. By the same token, switching off one of the outputs will not interfere with its transmission of a song's tracks.

(→ Switching MIDI inputs and outputs on and off)

Pressing one of the OUT keys blocks any MIDI data being passed to this output from the inputs and sent on (MIDI OFF). To avoid the possibility of droning notes, the MP-44 automatically sends an ALL NOTES OFF command from the relevant output on all 16 MIDI Channels whenever an output is switched off.

Pressing one of the IN keys has the result that any data received at that input is blocked and not processed (MIDI OFF). In this case an ALL NOTES OFF command will not be sent, because in certain programs the combination of inputs would cause complications. If droning notes do occur, however, they can be cleared with the TRANSPARENT PANIC function (key 0).

3.3 Routing



3.3.1 Overview

On the Routing page, connections are made between the MP-44's inputs and outputs. You can route any of the four inputs to any of the four outputs in any combination. All sorts of combinations of merge and switching functions are possible. The MP-44 has a non-volatile RAM memory area which retains the Matrix programs and their processing functions after the unit is switched off. This means that you have 256 programs at your disposal immediately on switching on.

3.3.2 Omni Mode ("omni/orig.")

When this appears in the display it means that the currently active input will receive on all Channels ("Omni mode").

If you also select this setting for the outputs, then all data on any MIDI Channel will simply be sent out again on the same Channels (original).

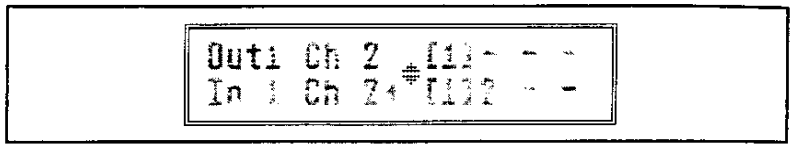
You can also call up a single MIDI Channel for an output. All data, no matter which Channel it was received on, will then be sent out on the specified Channel. To do this, first select the output in the display and then enter the required Channel number.

3.3.3 The principle of "MULTI CONVERTING"

"Multi converting" is a unique process which we have developed allowing much greater control of receive and transmit Channels than that offered by the "omni/orig" setting.

Every MIDI Channel on each of the MP-44's inputs can be independently routed, re-Channelised and assigned.

Tip: this method of assignment is essential for programming processor functions such as keyboard split. It is therefore important that you familiarize yourself with it.



Routing window

The top line shows the outputs and their MIDI Channels, the bottom line is for the inputs and their Channels.

- Using the IN keys, select the input which you wish to program.
- Using the UP/DOWN keys, select the MIDI Channel whose data you wish to process. If you keep the default setting of "omni", then for this input all MIDI Channels will be processed.
- With the OUT keys, select the output which is to send this data.
- Now set the MIDI Channel on which this data is to be sent, using the UP/DOWN keys. If you retain the "orig" setting, the data will be sent on the same Channel as the MP-44 received it on.
- Press ENTER to establish the connection. Two small arrows signify that the connection has been made (see also section 3.3.5).
- If the same input is to be routed to more than one output, these can also be selected and programmed as necessary.

Repeat this process to connect other MIDI Channels from the same or different inputs. By carefully following this procedure you can route and convert all 16 MIDI Channels for all four inputs individually. This is the fundamental feature of "Multi Converting".

3.3.4 "MANIFOLD"

"MANIFOLD" is another function of Multi Converting. It allows a single receive Channel to be converted to several transmit Channels at the same time.

Example: MIDI receive Channel 1 is to be converted to Channels 2, 3, 4 and 5 simultaneously and routed to output 2. If a MONO MODE synthesizer or expander is connected to output 2, it would be possible to utilise 4 of its instrument voices at once, i.e. one key on the keyboard would play 4 expander sounds at once.

At its most extreme, the function can be used to convert one MIDI Channel to 16 transmit Channels, so that a 16 Channel MONO MODE expander can be made to play 16 sounds at the same time. You are free to choose any transmit Channels you wish.

- Call up the Routing window and select the required input using the IN keys (1, 2, 3 or 4).
- Use the UP/DOWN keys to select the MIDI receive Channel.
- Press the required OUT key.

(→ 'MANIFOLD')

- Using the UP/DOWN keys, select the first of your transmit Channels and press ENTER. The connection will then be made.

- Select the next transmit Channel and press ENTER again. A "plus" sign shows that the input Channel has more than one destination.

- Repeat this process until all the transmit Channels have been routed to the relevant receive Channel.

If you wish to apply this multiple routing to other MIDI Channels selectively for this or other inputs, always select the input first, then the receive Channel, then repeat the above procedure starting at point 3.

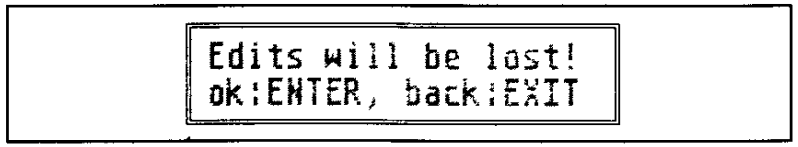
3.3.5 Breaking connections

A single press of the ENTER key makes a connection, whereas a double click on ENTER will break the currently-selected connection.

Warning: this breaks all connections between an input and an output at the same time; individual connections cannot be broken.

3.3.6 Quitting the Routing page

- Press the EXIT key. A warning message appears:

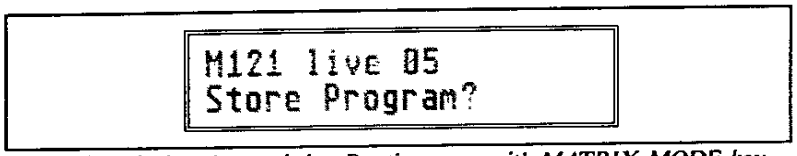


Warning displayed on quitting Routing page with EXIT key

- Pressing ENTER will lose any changes made since the Routing page was called up (i.e. any connections which have been made or broken). EXIT will return you to the Routing page with your edits still intact.

3.3.7 Saving Routings

- Quit the Routing page by pressing the MATRIX MODE key.



Warning displayed on quitting Routing page with MATRIX MODE key

The warning invites you to store your new routing program.

- If you do not wish to delete the original routing, use the UP/DOWN keys or the number keys to select another memory location for your new program.

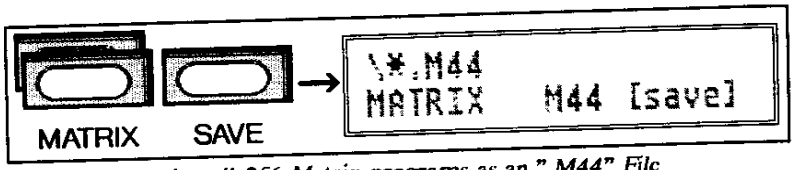
- If a new name is needed, move the cursor with the MODE keys and use the UP/DOWN keys to find the letters.

- Finally, pressing ENTER will store your program, with its new name, in the program memory location you have selected.

4. Disk Functions

4.1 Matrix Save

The entire contents of the Matrix banks (256 programs) can be saved onto a disk. This function is called up from Normal mode:



Saving all 256 Matrix programs as an ".M44" File

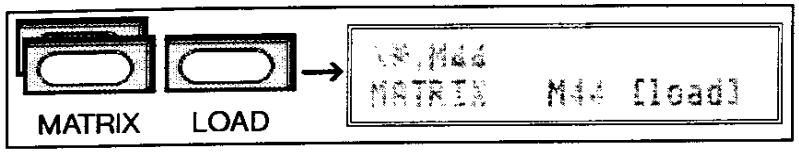
- Using the UP/DOWN keys, find the correct file name on the disk. Press key 0 to display extensions other than ".M44".

- If you wish to change the name, bring up the cursor by pressing one of the MODE keys, which also move it from left to right. Choose the letters you need with the UP/DOWN keys (the number keys jump through the alphabet in bigger steps).

- Press ENTER.

The Matrix file is now saved on the disk. This can also be done during the playback of a song.

4.2 Matrix Load



Loading all 256 Matrix programs

- Select the required Matrix file using the UP/DOWN keys.

(If the file you are looking for turns out to be on a different disk, insert the correct disk, then press 0, which will display the new directory).

- Press ENTER.

The Matrix file (256 programs) will be loaded.

Warning: this is the only function which cannot be carried out whilst a song is playing.

4.3 Erasing a Matrix file from the disk

In fact, one of the Sequencer functions (number 99, see page 22 or appendix A) is used for this, because the same function is used for all file types on disk.

Chapter VI: Realtime MIDI Processor

1. Overview

"Processing" is a data-altering function. Each MIDI event consists of between one and three bytes, which are blocks of numbers no bigger than 127. For example: with notes, one number will be the velocity, another the note number. "Real Time" means that any processing happens straight away, while you play. Finally (not wishing to get too silly here!) MIDI stands for Musical Instrument Digital Interface, which means what it says!

Since MIDI events are really just numbers, a computer can be used to change them. For example, if the command is "add twelve to each note number", the result will be a transposition of one octave (i.e. twelve semitones) up.

The MP-44 gives you control of all the most important processing functions which might be needed on stage or in the studio.

The processing functions basically belong to the Matrix part of the MP-44, and are stored within the 256 Matrix programs. You will therefore find all the processor windows by double clicking on the MATRIX MODE key. The display will show "MATRIX FN. SELECT". Pressing the appropriate number key will then call up the relevant processor window. Alternatively you can scroll through all the processor windows with the UP/DOWN keys, selecting the required one with the ENTER key.

Any changes you may make within a window will be saved automatically to internal memory when you quit the window by pressing EXIT.

Processor functions have absolutely no effect on the playback of songs. Matrix and Sequencer functions are completely separate and independent.

2. Filter functions

The filter functions allow you to filter the following events out of the incoming MIDI data:

- All notes
- Program Change
- Pitch Bend
- After Touch (POLY/Channel Pressure)
- Individual controllers
- All controllers at once
- System Exclusive messages
- General MIDI messages (Song Pointer, Tune Request, EOX).
- Real Time
- Active Sensing.

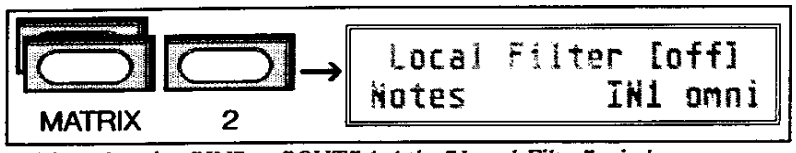
You will find all the controller numbers listed in appendix E. No more than 6 separate control filters can be activated per input or output (global and local filters should be counted together).

In practice it can make a difference whether MIDI data is filtered at the input or at the output. This is why the MP-44 allows you to activate filters separately for each input, each output and each MIDI Channel.

Remark: while working through the procedures in this Chapter you will often see the display "sel.I/O!", which asks you to select an input or output. We have assumed that you will do this, and therefore this step is often missed out in the next few paragraphs.

2.1 Local Filter

"Local Filter" means that the settings act only on the currently selected program.



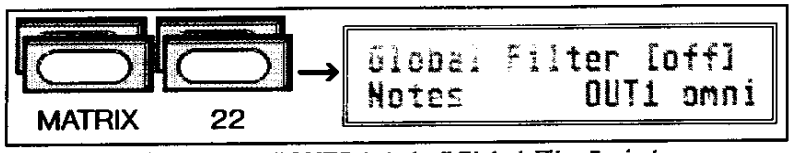
After choosing "IN" or "OUT" 1-4 the "Local Filter" window appears

- Use the UP/DOWN keys to find the event type you wish to filter. (If you cannot find this window, see the "Tip" above).
- If the filter is supposed to act on one MIDI Channel only, move the cursor across with the MODE keys and use UP/DOWN to change "omni" into the required Channel number.
- Finally, switch this filter on by pressing ENTER.
- You can leave the filter window by pressing EXIT, which automatically stores your settings.
- You can activate up to 80 filters per program. You can switch a filter "off" again by bringing it into the display and double clicking on ENTER.

Repeatedly pressing an input or output key will scroll through all the filters associated with it. (As with all functions, filter settings only affect the Matrix, not song tracks.)

2.2 Global Filter

Settings in the Global Filter window affect all programs in the MP-44.

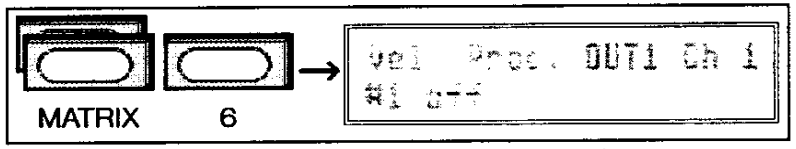


After choosing "IN" or "OUT" 1-4, the "Global Filter" window appears

Global filters are programmed in exactly the same way as local filters. Global filters act on all programs in the MP-44, and do not show in the Local Filter window.

Global filters have priority over local ones. Up to 10 global filters can be activated.

3. Velocity functions



After choosing an output the "Velocity Processing" window appears

This function allows you to manipulate the initial velocity values of your controller keyboard. The following functions are catered for: Velocity Switch, Velocity Crossfading, Velocity Off, Limit, Velocity Factor, Reverse Velocity. A basic example is given below for each function. Each function can be "fine tuned" to your personal taste and requirements by altering the relevant parameters.

3.1 "threshold", "below", "above" and "offset"

For each output and each MIDI Channel there are five parameters which affect velocity values:

- Threshold
- Below Factor (Gradient below the threshold)
- Above Factor (Gradient above the threshold)
- Offset (Adds a fixed value to the velocity)
- Stage (Shows which stage is being altered)

By setting the "threshold" parameter, the velocity curve is divided into two sections. By adjusting "fact.above" and "fact.below" the gradient and direction of each section can be changed. Each example below is accompanied by a diagram, showing the relationship between each parameter:

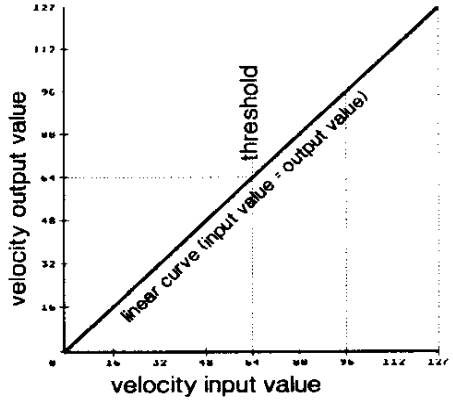
Default (normal velocity curve):

#1 (1 Stage)

threshold = 64 (Half way between 0 and 127)

fact.below = 1 (Incoming value x 1 = output value)

fact.above = 1 (Incoming value x 1 = output value)



The setting for "threshold" is irrelevant in this example, because the "below" and "above" values are the same (=1). Below are some examples of ways to manipulate the curve:

(→ "threshold", "below", "above" and "offset")

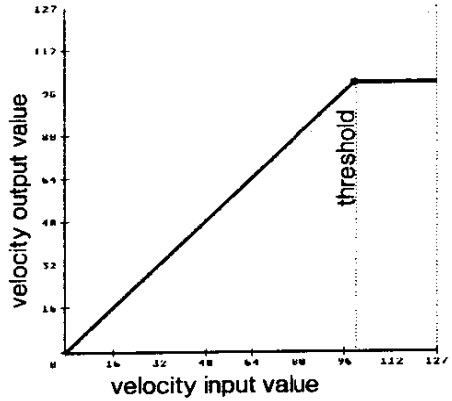
1.) "Limiter"effect at velocity 100:

#1 (1 Stage)

threshold = 100

fact.below = 1.00

fact.above = 0.00



With this curve the original velocity is left unchanged up to a value of 100 (e.g. 85 x 1 = 85). From 100 upwards the "above" factor takes over. Since this factor is zero, any key velocities higher than 100 are ignored and sent out as 100.

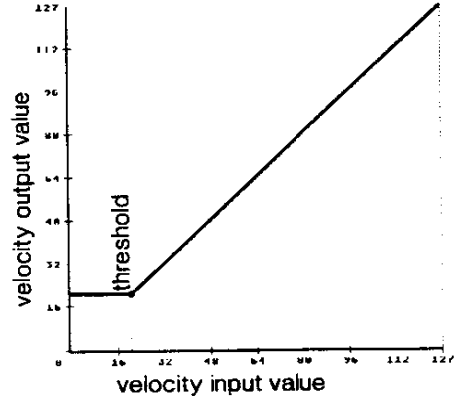
2.) "compressor" effect at velocity 20:

#1

threshold = 20

fact.below = 0.00

fact.above = 1.00



The opposite effect to example 1. Now any velocity **below** 20 is ignored and sent out as 20.

It is also possible to program multi-stage processing. In these cases the result of stage 1 is passed on to the input of stage 2, the result of stage 2 becomes the input for stage 3 etc. The following diagram shows the resulting curve when the two examples above are "mixed", i.e. programmed in as two consecutive stages:

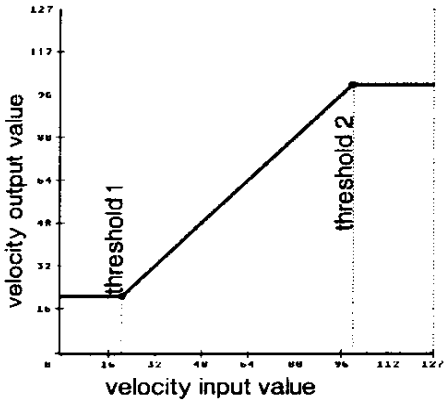
3.) Simultaneous "compressor/limiter" effect:

#1 (first stage):

threshold = 100
fact.below = 1.00
fact.above = 0.00

#2 (second stage):

threshold = 20
fact.below = 0.00
fact.above = 1.00



This example goes to show that much can be achieved with only one threshold, one "below" value and one "above" value, because multiple stages (up to eight) can be used.

(→ "threshold", "below", "above" and "offset")

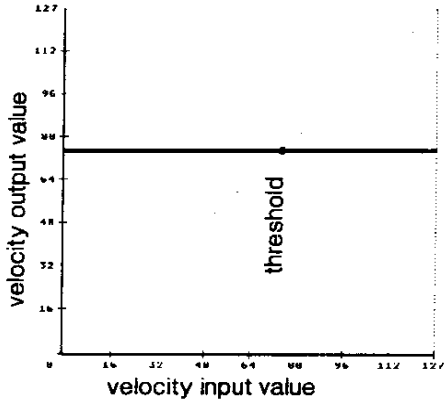
4.) Fixed velocity of 75:

#1

threshold = 75

fact.below = 0.00

fact.above = 0.00



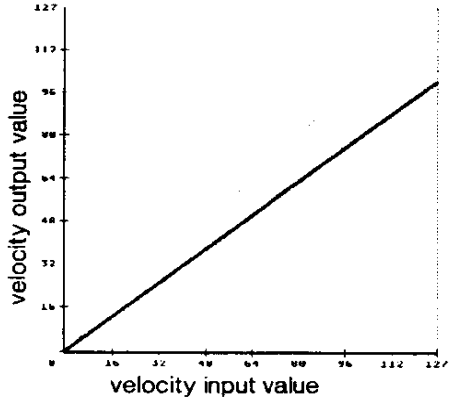
The next two examples will be of interest to owners of certain YAMAHA equipment. One the one hand, they can distort on receiving velocities higher than 100, and on the other they will not send velocities higher than 100 when used as the master controller.

Keyboard receives velocity 0-100:

threshold = 0

fact.below = (anything)

fact.above = 0.75

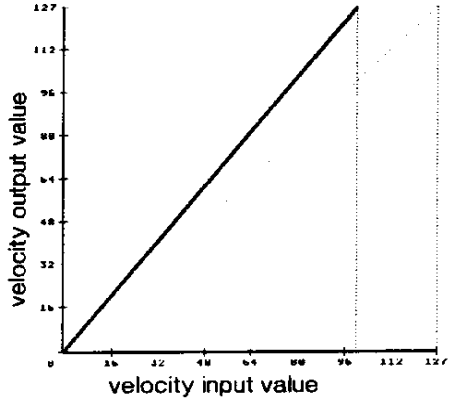


Keyboard sends velocity 0-100:

threshold = 0

fact.below = (anything)

fact.above = 1.25



3.2 Operation

- Call up the "Velocity Processing" window (double-click on MATRIX MODE then press key 6)
- Choose the necessary output (keys 6, 7, 8 or 9)
- Using the UP/DOWN keys, select the MIDI Channel of the synthesizer or expander you wish to play.
- Press ENTER. The processing function is now active, and the first two parameters "#" (stage) and "threshold" appear.
- You can move the cursor between the different positions in the display using the MODE keys. The UP/DOWN keys allow you to select a parameter or enter a value.

Realtime

- The figure #1-8 shows the processing stage which is being programmed. Usually one stage is enough. The default setting for stages 2-8 is "off". Stages can be switched on by pressing ENTER.

- Double clicking ENTER de-activates the processing function again.

- Pressing EXIT quits the window and automatically stores the settings.

3.3 Velocity Switch

The Velocity Switch function allows the routing of MIDI messages to expanders connected to the MP-44's outputs to be controlled by key velocity. Soft and hard key strikes will play on different expanders.

The force with which a key is struck on a MIDI keyboard has a definite numerical value. The range is from 1 (softest) to 127 (hardest). "Threshold" sets an exact value - the switch point. Any note received by the MP-44 whose velocity falls below the switch point will be routed to one expander, whereas notes with velocities higher than the switch point will go to a different expander.

Example: all note messages coming from the master keyboard connected to one of the MP-44's inputs having velocities lower than 70 are to be played by expander 1 at output 1. Notes with velocities higher than 70 are to go to expander 2, output 2.

Proceed exactly as described in section 3.2 "Operation" (described again below in brief):

- Double click MATRIX MODE then press key 6.
- Press OUT 1 (key 6).
- ENTER (activate)
- MODE keys, move cursor to number to right of "threshold".
- Using UP/DOWN keys, set display to "threshold 70".
- MODE keys, move cursor to "threshold", using UP/DOWN keys change to "fact.below"
- Move cursor to value and change to 1.00
- Move cursor to "fact.below", change to "fact.above".
- Change "above" value to its lowest setting of minus 16 (-16.00).

Important: the input must be routed to both outputs! See page 52 onwards.

The result of this setting is that notes with a velocity higher than 70 are no longer sent from output 1. To ensure that notes with velocities higher than 70 are sent to expander 2, repeat this procedure for output 2 (OUT 2, Channel 2), and simply exchange the values for "below" and "above" ("below" = -16.00, "above" = 1.00).

If you have made a mistake with the MIDI Channel or the output, you can de-activate the velocity processing settings by double clicking on ENTER. If you realise that you don't want to de-activate, you can change your mind when the safety prompt appears (EXIT).

3.4 Reverse Velocity

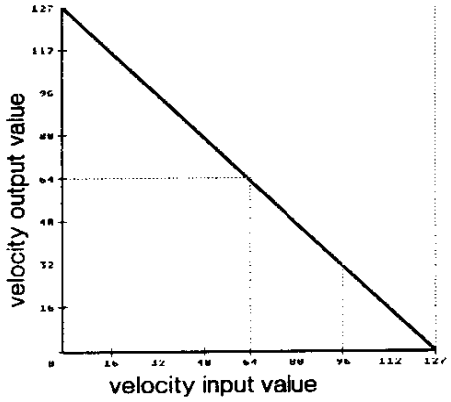
It is possible to completely reverse the velocity curve, so that a soft touch on the master keyboard results in a high velocity effect in the expander, and a hard strike on the keyboard produces a soft effect on the expander:

threshold = 0

below = -1.00

above = -1.00

offset = 127.



The same effect can be achieved with two other settings:

threshold = 64	threshold =127
below = -1.00	below = -1.00
above = -1.00	above = -1.00
offset = 0	offset =-127

Realtime

4. Split functions

Using the split function you can divide any MIDI keyboard connected to each of the MP-44's inputs into two, three or four "split zones". You can therefore organise split points and zones independently on up to four master keyboards at the same time, one for each of the MP-44's inputs, and assign each zone to any of the outputs.

Routing split zones to the outputs is handled by the "Multi Converting" function (page 53), which lets you make your connections extremely easily and flexibly.

The lowest zone is always assigned to the same MIDI Channel as the transmit Channel of the keyboard. The next zone is automatically allocated the next MIDI Channel, and so on...

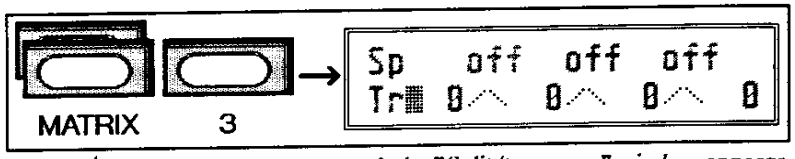
Example: Keyboard transmit Channel = 3

First split zone = Channel 3
Second split zone = Channel 4
Third split zone = Channel 5
Fourth split zone = Channel 6

The MP-44 behaves as if it had received these Channels from the outset.

You can now use Multi Converting in the Routing window to assign each MIDI Channel to any output, and to convert any Channel to any other (see page 53).

Realtime



After an input key has been pressed, the "Split/transpose" window appears

- (Press the key for the required input).
- Use the MODE keys to position the cursor on the first split point (top line, far left).
- Use the UP/DOWN keys to set the split point note in the display.
- If necessary, position the cursor on the next split point (MODE keys), and set this with the UP/DOWN keys.

On the bottom line each zone can be given a transposition (see also page 77).

In this way you can program split points for all four inputs. By pressing one of the input keys (1 - 4) you can view and edit that input's split points.

You can delete a split point or transposition by positioning the cursor on the unwanted value and double clicking the ENTER key.

You can leave the Split Zone window at any time by pressing EXIT, which automatically stores the settings into the current program.

Tip: these split functions act on the MP-44's **inputs**. If you have not yet assigned the outputs, or have assigned them wrongly, you may produce weird or unexpected results! Please read the section starting at page 52 on programming the **outputs**.

4.1 Special treatment of controllers in split mode

Modulation, sustain and other, similar MIDI information come under the general heading of "controllers and switches".

In split mode the MP-44 treats all controllers and pitch bend messages as an independent split zone.

In fact, it allocates all controller-type information automatically to particular Channels. No matter which Channel the MP-44 receives the data on from the MIDI keyboard, it allocates all controllers and pitch bend information internally to MIDI Channel 15, exactly as if they had been received on this Channel.

Whereas this function certainly means extra programming and a certain amount of pondering, it has definite advantages:

For each split zone it is possible to say whether you want controller information to be sent with the normal note data or not.

Of course, you can use Multi Converting to put the controller information on different MIDI Channels before it is sent, and to route it to any of the outputs.

If you wish controller information to be transmitted within a particular split zone you will need to assign MIDI Channel 15 for the relevant input, in exactly the same way as for the zone's own MIDI Channel.

- To do this, call up the Routing window, select the input which is being split and link Channel 15 to the required output, at the same time converting it to the correct MIDI Channel for the expander.

Example: transmit Channel of keyboard = 3, input 1

First split zone	= Channel 3
Second split zone	= Channel 4
Third split zone	= Channel 5
Fourth split zone	= Channel 6
Controller split zone	= Channel 15

The four split zones are assigned like this:

Channel 3, input 1	to	Channel 10, output 2
Channel 4, input 1	to	Channel 11, output 2
Channel 5, input 1	to	Channel 12, output 2
Channel 6, input 1	to	Channel 13, output 2

Channel 15 must, therefore, be routed to Channels 10, 11, 12 and 13 in output 2 if all four zones are to react to controller data.

If you do not assign the controller Channel for a particular zone, you can effectively filter out controller data for that zone.

5. Transposition

The Transpose function allows the whole keyboard, or the zones which have been set up in split mode, to be transposed in pitch. Transpositions of up to 63 semitones up or 64 semitones down are catered for. Transpositions can be programmed independently for each input, each output and each MIDI transmit Channel.

5.1 Input transposition

Transposing the whole keyboard. This function is activated from the Split window:

- Double click on MATRIX MODE, then press key 3.
- Press the INPUT key for the input whose pitch is to be transposed. As before, the Split Zone display appears.
- With the cursor flashing in the bottom left of the display, you can use the UP/DOWN keys to set the transposition in semitones. If all split points are set to "off", this transposition affects the whole keyboard range for this input.
- After the desired value has been set you could transpose other inputs by pressing their INPUT keys and repeating the process.
- Return to Normal mode by pressing EXIT. The settings you have made will be stored automatically in the current program memory.

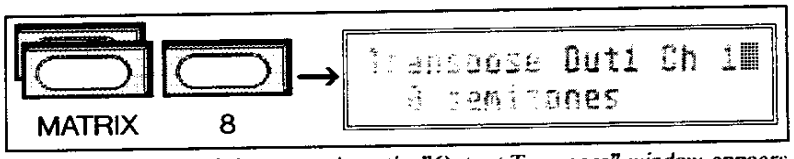
5.2 Transposing Split Zones

The transposition value for each of the four possible Split Zones is shown in the bottom line of the Split Window. The cursor can be moved onto each value using the MODE keys. The required value is set using the UP/DOWN keys. Of course, you need to set up some split points in the top line for anything to happen! You can set up the other inputs by pressing the relevant INPUT key, or leave the window and return to Normal mode by pressing EXIT.

As mentioned above, you can erase any split or transpose value by double clicking the ENTER key. Only the value under the current cursor position will be erased.

Pressing the input keys while in the Split window will display the splits and transpose settings for that input.

5.3 Transposing the outputs



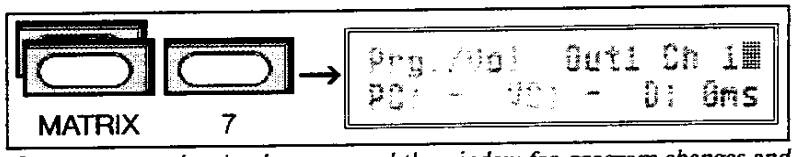
After pressing one of the output keys the "Output Transpose" window appears

- Choose an output with the OUTPUT keys, and a MIDI transmit Channel with the UP/DOWN keys.
- Move the cursor between the Channel and its transpose value with the MODE keys.
- Set the required transposition in semitones with the UP/DOWN keys.
- Select further MIDI Channels or outputs.
- You can leave this window by pressing EXIT, which automatically stores your settings in the current program memory.
- Double clicking on ENTER will return the currently displayed transposition to zero.

Repeatedly pressing an output key will display the transpositions for each MIDI Channel on that output.

Realtime

6. Program change and MIDI volume



Once an output key has been pressed the window for program changes and MIDI volume appears

This page gives access to two transmit functions, which send predetermined program change and volume settings to your expanders whenever you select a program on the MP-44. You can set up a program change and a volume level for each MIDI Channel of each output, and store them ready to be sent when you select a program. 256 such combinations can be held in memory, one for each of the MP-44's programs.

- Call up the function and select the required output key.
- With the UP/DOWN keys, select the MIDI Channel you wish to send on.
- Move the cursor onto each parameter using the MODE keys, and set the program change number and MIDI volume level (UP/DOWN keys).
- The "D" parameter allows you to set a delay time (multiples of 10 milliseconds) between transmission of the two messages, because some expanders cannot deal with such a quick succession of data.
- Pressing ENTER sends all your settings to the expanders. This allows you to check your programming as you go along.
- Now choose another MIDI Channel for this or any other output.
- When all necessary settings are done, press EXIT to store them into the current program and return to Normal mode.

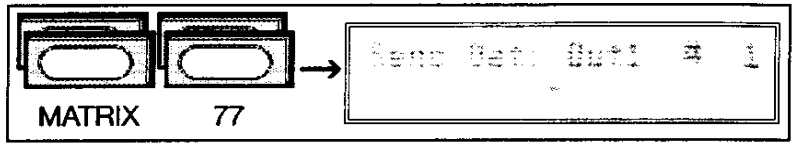
Some expanders use a different control number for MIDI volume, instead of the usual number 7 (for instance Dr. Böhm expanders use number 0). By double clicking the output key for the expander in question, you call up a window which allows you to change controller numbers (UP/DOWN keys). Press EXIT to return to the Prg./Vol. window.

Warning: this particular setting acts on ALL programs in the MP-44!

By repeatedly pressing an OUT key, you can search through all the MIDI Channels and check or edit their settings.

- double clicking on ENTER will erase all the settings for the MIDI Channel currently in the display.

7. Sending MIDI and SysEx messages



Once an output key has been pressed the "Send Data" window appears

"Send Data" is a function which lets you send a series of MIDI data bytes to your expanders whenever you select an MP-44 program. You can program and store a set of data for each output of each program. Send Data can be used for such things as:

- Send Request - asks the expander to dump its sound patches
- Omni/Poly/Mono - changes the expander's receive mode
- Controller switches (e.g. Sustain, Portamento)
- Start/Stop/Continue/Song Pointer etc.
- Local on/off
- etc.

In order to make any real use of this function you will need a fairly thorough working knowledge of the MIDI protocol and format. You can enter data bytes (0 - 255) in hexadecimal or decimal.

Key 0 acts as a "HELP" key (keep it held in), since the operation of the Send Data page is quite different to the other functions:

Realtime

1:add	- **a byte is generated.**
2:delete Byte	- **the current byte is deleted.**
3:dec/hex	- **toggles the display between decimal and hexadecimal (decimal 0 - 9, hexadecimal 0 - F).**
ENT:transm	- **the ENTER key is used to send the data to the selected output.**

- Call up the Send Data function and select the required output key.

- Press key 1 to generate or insert a byte. Change its value with the UP/DOWN keys.

- Pressing key 3 will toggle between hexadecimal (hex) and decimal representation of the bytes. The hex display is always indicated by a "$" symbol.

- Continue to add new bytes using key 1, and set their value using the UP/DOWN keys.

- You can move the cursor between the bytes in the chain using the MODE keys. This time the cursor remains static and the chain moves back and forth, allowing you to change any existing value.

- Pressing key 1 lets you insert a new byte anywhere in the chain. Key 2 is used to delete the byte under the cursor.

- When all the bytes have been put in the correct order, leave the window by pressing EXIT. As usual, your settings are stored automatically in the internal memory.

Realtime

7.1 Example: Local Off

The command "LOCAL OFF" has the following MIDI format:

Bn 7A 00 (hex)

This gibberish should give you some idea what you're up against here! However, you can enter this example without any understanding at all of what it means - the MP-44 will believe you and send the message exactly as you have entered it. Provided that the expander at the end of the cable speaks standard MIDIspeak (conforms to the MIDI format!) it will carry out your command, and you will have mastered one of the hundreds of possible MIDI data chains. If you are interested in this kind of programming you should contact your dealer for sources of further information. Deeper investigation of this subject is way beyond the scope of this manual. So, back to our "Local Off" message:

Bn 7A 00

B = Controller.
n = Channel number (nos. 1 - 16 correspond to hex $0-F).

7A = the number of the "LOCAL OFF" controller.

00 = OFF (switching LOCAL OFF; for "LOCAL ON" you would need to replace 00 with 7F).

When program 12 is called up on the MP-44, we wish a "Local Off" command to be sent automatically on Channel 5 from output 2:

- Select program 12 and call up the Send Data window.
- Press key 1 to generate a byte.
- Change the byte to B4 (UP/DOWN).

- Generate another byte with key 1.
- Set it to 7A (UP/DOWN).

- Press key 1 to add the third byte.
- Set it to 00 (UP/DOWN).

Pressing the OUT keys will display the Send Data settings for each output. Use the MODE keys to move the chain from left to right.

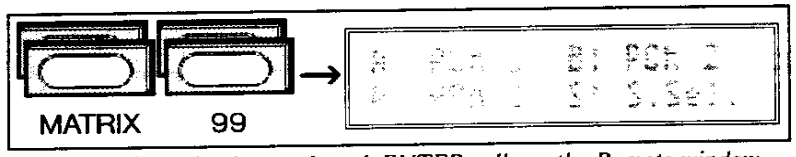
Pressing key 2 will delete whichever byte the cursor is on at the time. You can erase the whole chain by double clicking on ENTER. When the prompt appears you can erase the chain with ENTER, or change your mind with EXIT.

8. Default settings

8.1 Remote program selection over MIDI

This function allows songs to be selected and started over MIDI. When the MP-44 receives the relevant command at the chosen input it calls up the selected song in its Song Line. If the song is not yet in memory, the disk is scanned and the song loaded.

In the Installation window (see page 88) you can also specify whether the song should start to play immediately after it has been selected (by Program Change or Song Select), or whether it should wait until a footswitch or the ENTER key have been pressed (incidentally, this also applies to the loading and starting of JOBs). Matrix programs are always activated immediately.



After an input has been selected, ENTER calls up the Remote window

Two MIDI commands are available for the selection of Matrix and Song programs in the MP-44: Program change and Song Select.

Program Change messages can be sent from almost all MIDI instruments, whereas Song Select is not so common.

The format of Song Select is (hex) "F3, nn", where "nn" is the number of the required program. To use this command you will therefore need an instrument which can send Song Select messages, or one which can be made to generate the appropriate MIDI data (e.g. MIDITEMP PMM-88).

If it is only possible for you to work with Program Change commands, you can give each of the MP-44's four banks (A and B for the Matrix, S and P for songs) its own MIDI Channel. By doing this you can determine what the result of sending the MP-44 a Program Change will be.

You may be interested to know that if you give a Matrix bank and a Song bank the same MIDI Channel, a Program Change on that Channel will call up the song and the corresponding Matrix program at the same time. You can also give both Song banks the same Channel number, in which case only songs in the current bank will be called up. You can then change banks manually (e.g. for two versions of the same song).

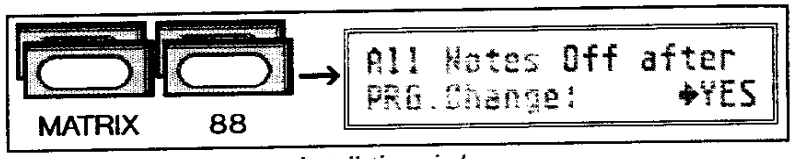
- Call up the Remote window.
- Use the IN keys to select the required input, then press ENTER. ,
- You can move the cursor between the four banks with the MODE keys, and change their settings with the UP/DOWN keys. "A" and "B" are the Matrix banks, "S" and "P" are the Song banks.

The settings available are:

-	=	no setting
S.Sel	=	Song Select
PCh	=	Program Change

Leave this window by pressing EXIT. These settings remain in memory even after the MP-44 is switched off.

8.2 Installation



Installation window

In this window you can set up some parameters which are held in the MP-44's permanent memory, and which are activated every time you switch the unit on.

- Call up the Installation window.
- Call up each parameter with the UP/DOWN keys.
- The ENTER key will switch each parameter on and off.
- EXIT will take you back out of the window, and your settings will be active immediately.

The parameters are:

All Notes Off after Prg.Change:

- This allows you to choose whether or not you want an "All Notes Off" command to be sent whenever you select a new Matrix program.

This is particularly important if you often need to change programs while a song is playing. Sending an "All Notes Off" can result in the unwanted muting of notes. On the other hand, it can also result in the muting of unwanted notes! The choice really depends on the characteristics of the synthesizer in use, and is therefore left open for you.

Start with Song Sel.:

- This parameter sets whether songs will start immediately after they have been selected over MIDI (with Song Select or Program Change) or whether they are to be started manually with a footswitch or by pressing ENTER.

POWER UP:
Load ASSIGN.ASG

- Whether the Assign file will be loaded automatically on power up.

POWER UP:
Load Songs

- Whether songs in the Assign file will be loaded automatically on power up.

9. TRANSPARENT PANIC

- From Normal mode, press key 0 (also works from many other windows).

If a MIDI connection is accidentally or prematurely broken, notes can be left droning, or controllers can be left active instead of returning to their off positions. If there are expanders in your set-up which do not use the All Notes Off command, all hell can be let loose, especially in a live situation.

The MP-44's Transparent Panic function will correct these errors without interrupting the processing of incoming MIDI data. With luck no-one will even notice that disaster has just been averted!

Whilst in Normal mode, press key 0. "*TRANSPARENT PANIC*" appears in the display, and the Panic function is activated. While the function is working (about 6 seconds) you can continue to play on your master keyboard, or let the sequencer continue its playback. Pressing any key will interrupt the Panic function immediately. After the function has run for its full time, the MIDI PLAYER will return to the mode it was in before you pressed 0.

TRANSPARENT PANIC sends the following messages from all outputs on all MIDI Channels:

Pitch Wheel	value 64 (middle position)
Controller No. 1 (Modulation)	value 0
Controller no. 2 (Breath Ctrl.)	value 0
Controller no. 33 (Modulation [fine])	value 0
Controller no. 64 (Hold/Sustain)	value 0
Controller no. 65 (Portamento)	value 0
Controller no. 66 (Sostenuto)	value 0
Controller no. 67 (Soft Pedal)	value 0

Soft Note Off 1-128 on all 16 MIDI Channels.

The massive amount of MIDI data pouring from each output while this function is working can sometimes lead to slight delays, especially during very complex or fast pieces. This is because the expanders, and the MIDI interfaces themselves, have a lot to cope with at this time. In practise it is only the expanders which are set to Omni mode which will tend to suffer, because they have to deal with every single message on every single Channel!

1. Overview

A "JOB" is a series of commands, programmed by the user, which the machine carries out step by step. This is the highest organisational level in the MP-44, and is capable of making manual operation largely redundant (especially useful in live situations).

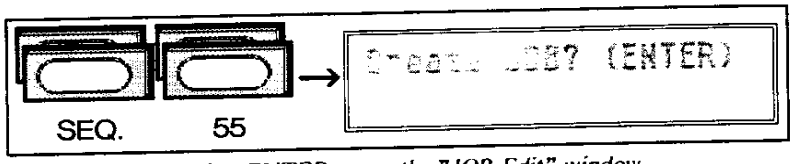
The idea is to automate the playback of songs which always follow the same order in the live set. This means that you are free to concentrate on the most important aspect of your stage show - namely playing! By carefully programming your JOBs, you can literally forget about the MIDI PLAYER. After switching it on, the footswitch is the only thing you need to think about.

Matrix programs can also be incorporated into JOBs. The names of the JOBs can be entered into the Assignment, just like songs, and saved to disk in the ASSIGN File, which means that they too can be called up using Program Change commands.

The MP-44 saves the actual commands within a JOB to disk as files with the extension ".MPJ". A JOB file is always 1 KByte in size. Please ensure that these files are always on the disk, otherwise the JOBs cannot be carried out.

Creating JOBs is rather like programming a computer. However, before you slam this manual shut and tear your hair out in despair, please rest assured that you do not need a degree in Astrophysics to do this. You'll master the simple method very quickly. To start with, there are only six basic commands, and you already know them!

2. The Commands



Pressing ENTER opens the "JOB Edit" window

At the moment, the MIDI PLAYER can understand the following commands:

0: STOP (stops the current playback)

1: MATRIX (activates a Matrix Program)

2: SONG (loads and selects a song). If a song is playing at the time, a new song is loaded into memory, but nothing more.

3:FOOT SWITCH (waits for the footswitch to be pressed before going on to the next step in the chain).

4: START (starts the most recently selected song in the JOB chain).

5: WAIT FOR STOP (waits for the end of the song, then jumps to the next command in the JOB chain).

6: WAIT FOR START (waits for the next start command).

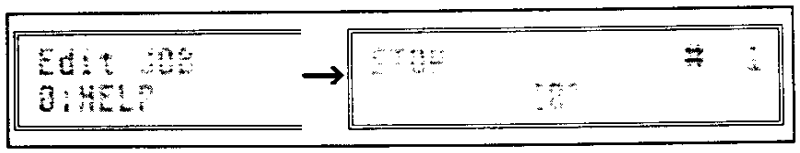
The crucial role here is played by the FOOT SWITCH command. Whenever this appears in the JOB chain, the MP-44 will carry out all the commands in the chain up to that point, then wait for you to press the footswitch before obeying the next command.

By pressing the footswitch (or the UP key) you can determine the exact moment at which a programmed step will occur. If the MP-44 finds no FOOT SWITCH entries in the JOB chain, the footswitch serves a second function. It will stop a song which is currently playing.

3. Operation

While working through this manual, you have probably loaded a few songs, recorded some tracks, created an ASSIGN File, with some Matrix and Song programs, and so on. Use your own set of songs to experiment now.

- Load your ASSIGN File.
- Choose an unoccupied program space in the MP-44's Song Line.
- Call up the JOB function (double click on SEQ MODE, double click on 5). When the MP-44 asks "Create JOB?", press ENTER to do just that!



Commands 1 to 6 are selected with the UP/DOWN keys.

Use the MODE keys to move the cursor from left to right through the JOB chain.

Creating commands is similar to the SEND DATA function (page 83). Press the 0 key and hold it in:

1: add — **(a command is added or copied with key 1).**

2: delete Event — **(key 2 deletes the event marked by the current cursor position).**

3: sel.Data — **(key 3 moves the cursor up to the top line so that a Song or Matrix program can be selected).**

The UP/DOWN keys allow you to select the required Song or Matrix program.

Pressing key 3 again will return the cursor to the centre of the bottom line.

ENTER:run — **(the ENTER key starts the command at the beginning of the chain).**

- Use the UP/DOWN keys to choose the first command.

The top line shows the JOB event type. In the top right of the display the number after the ⌗ sign shows which position in the chain you are looking at.

- If the event type you have chosen is a Song or Matrix program, use key 3 to move the cursor up to the top line, select the program number with the UP/DOWN keys, and move the cursor back again with key 3.

- Press key 1 to generate another event.

- Set up the new event and repeat this process until the whole JOB is complete.

- End your programming by pressing EXIT. The display asks "QUIT JOB?" (ENTER).

- If you quit the JOB window by pressing ENTER instead of EXIT, the JOB will be immediately started from the current cursor position.

4. Playing a JOB

In exactly the same way as a normal song, you can load a JOB via the ASSIGN File, and start it by pressing ENTER, or by sending the MP-44 a Program Change or Song Select message over MIDI (see page 86).

An existing JOB can be identified in Normal mode by the word "JOB" in the bottom right of the display.

When a JOB is active, the letter "J" appears at the far left of both lines in the display (instead of the Mode Arrow). You cannot call up a Matrix or Sequencer function. Only the Bar Counter and MIDI Eye windows and their functions are available.

Key 0: as usual activates the TRANSPARENT PANIC function.

"ENTER": starts the current song in the JOB.

"EXIT": stops the current song in the JOB.

"UP": causes the MP-44 to skip the current step in the JOB. You can use this, like the footswitch, to continue the JOB, even when no FOOT SWITCH command has been entered.

"DOWN": calls up the JOB Edit window (return with ENTER).

5. Jumping to commands within a JOB

Every now and then you will want to start a JOB from somewhere in the middle, rather than from the beginning. To do this, call up the JOB Edit window, find the required starting point with the MODE keys and press ENTER. The window will close, and the JOB will immediately start from the chosen position.

As mentioned in the previous section, you can enter the JOB Edit window whilst a JOB is active simply by pressing the DOWN key. Even while a song is playing you can use the MODE keys to find the required event in the chain. Pressing ENTER will immediately restart the chain from this new position.

It is even possible to make changes to the events in this window whilst the JOB is active, if you wish to make spontaneous changes to the JOB. However, you're going to need nerves of steel if you intend to try this during a live performance!

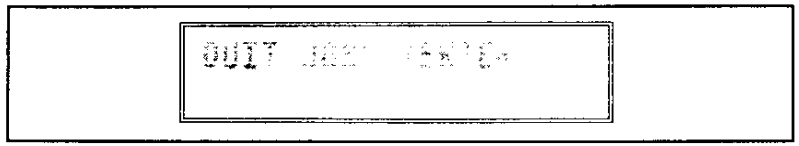
6. Loading and saving JOBs

Since JOBs have S and P numbers, and are handled exactly like songs, the disk operations for JOBs are identical to those for songs. The name of the JOB is saved along with the song names in the ASSIGN File, and the JOB itself is put onto the disk like a song. If you need to program a lot of JOBs, reserve some S and P program spaces purely for JOBs.

7. Ending a JOB

You can stop a currently active JOB by pressing EXIT again after a song has been stopped. The confirmation message "QUIT JOB?" appears (press ENTER to confirm).

A JOB will end automatically after the last command has been completed. The MP-44 will then switch itself back into Normal mode (Song).



Confirmation message when stopping a JOB

8. Examples

Example 1:

Display bottom line reads: 2-1-3-4-3-1-3-2-4

Meaning:

* SONG * MATRIX * FOOT SWITCH * START * FOOT SWITCH * MATRIX * FOOT SWITCH * SONG * START

Result when JOB started:

1 SONG = song no. 1 is loaded and selected.

2 MATRIX = Matrix program 1 is activated.

3 FOOT SWITCH = the MP-44 waits for the footswitch (press the footswitch or simulate this by pressing the UP key).

4 START = on detecting the switch movement, the MP-44 starts the selected song (song 1).

5 FOOT SWITCH = press the footswitch or UP key when you are ready to proceed to step 6.

6 MATRIX = a new Matrix program is activated. Playback of song 1 is not affected.

7 FOOT SWITCH = when song 1 has ended, press the footswitch to proceed to step 8.

8 SONG = song no. 2 is loaded and selected...

9 START = ... and starts immediately.

Example 2:

In the above example you would need to be very sure that, when the JOB reached step 7, the old song had stopped playing, otherwise, although the new song would be loaded as intended, the Start command would be ignored because there is no Stop command preceding it in the chain. The reason for this is that the MIDI PLAYER will never interrupt a song which is playing unless specifically asked to do so.

If you want to allow for the possibility that a song may have to be interrupted and a new song started immediately, this part of the chain should look like this:

... (as example 1)

7 SONG = load song 2 while song 1 is playing.

8 FOOT SWITCH = Press footswitch to proceed to 9.

9 STOP = stops song 1...

10 SONG = Selects song 2...

11 START = ...and starts it immediately.

Example 3:

In the above examples command steps were separated by the "FOOT SWITCH" command, pausing the JOB until a footswitch, or the UP key was pressed. This allows active participation in the progress of a JOB.

If "WAIT FOR STOP" commands are used in place of "FOOT SWITCH", the JOB runs fully automatically.

SONG * MATRIX * START * WAIT FOR STOP * SONG * START ....

1 SONG = the required song is loaded and selected.

2 MATRIX = a Matrix program is activated.

3 START = the song is started.

4 WAIT FOR STOP = only when the song stops, the JOB proceeds to step 5.

5 SONG = a new song is loaded (or selected, if it is already in memory) and...

6 START = ...starts immediately (etc).

Using this method it is possible to play back a whole series of songs one after the other and fully automatically. Of course, you can combine FOOT SWITCH, WAIT FOR STOP and WAIT FOR START commands in any way you like, so that your performance is only partly automated. WAIT FOR START is particularly useful for changing Matrix programs "in sync" with the start of each song. However, we'll leave you to ponder the possibilities of these combinations, and how they relate to your own needs.

At this point, let's not forget the other function of the footswitch, which is always ready for use - the START/STOP function.

When assembling your JOB chain, if you use WAIT FOR STOP commands to link your songs and the FOOT SWITCH command does not appear at all, its START/STOP function will still be active. If, for instance, you've had enough of the song which is currently playing, you can stop it with the footswitch, which will cause the JOB to skip the corresponding WAIT FOR STOP command. It makes no difference at all to the MIDI PLAYER whether the song stops by itself, or is stopped deliberately. Immediately, the steps following the WAIT FOR STOP command will be carried out (e.g. select and start a new song). This means that you can automate your performance and still have some direct control.

Tip: Obviously, only song programs from the current Assignment and Matrix programs currently in memory can be selected, because the MP-44 can only know the names of songs in the current ASSIGN file. Even coupling a song to a Matrix program won't help, because a JOB can consist purely of songs or purely of a series of Matrix programs.

(→ Examples)

Example 4:

Command chain: 2-4-2-2-2-2-5-2-4 ...

Meaning:

Song 1 - START - Song 2 - Song 3 - Song 4 - Song 5 - WAIT FOR STOP - Song 2 - START

Result when JOB started:

1 Song 1 is loaded...
2 ... and started immediately.

3 While song 1 is playing, the next songs in the set (songs 2 to 5) are loaded into memory.

4 WAIT FOR STOP - When song 1 comes to an end...
5 ... song 2 is automatically selected...
6 ... and starts playing immediately (etc).

Example 5:

A JOB can also consist of a chain of Matrix programs:

Event chain: 1-3-1-3-1...

Meaning:

Matrix prg. 1 - FOOT SWITCH - Matrix prg. 2 - FOOT SWITCH - Matrix prg. 3 ...

9. Using all the features of the MP-44

- Record the finished versions of all your songs via the MIDI inputs, or use your sequencing software to turn them into complete (i.e. no loops etc) MIDI Files (see Appendix F, example 4).

- Save each of your sets of songs (i.e. each group of songs which would normally be played together in one performance) on a separate disk.

- Make up several disks with different combinations of songs.

- Construct an ASSIGN File containing all the names of your songs and the Matrix programs, with all their processing functions. By all means use your computer's word processor to help you (see page 46).

- Either: Make use of the 256 song and 256 Matrix programs. Program up different sets (different running orders), but using the same songs (see pages 14/15).

- Or: Create JOBs which call up different running orders. Think about where you may wish to take control yourself ("FOOT SWITCH") and where you would prefer to have everything taken care of automatically ("WAIT FOR START/STOP").

- Or: Load all the songs, then select them as required from your master keyboard, together with the necessary Matrix programs, using program changes. Have them start as soon as they are selected, or start them manually with the foot-switch.

- Call up the Installation window (SEQ. 88) and select automatic loading of the ASSIGN File and songs on power up.

- In the Remote window, put song and Matrix program selection on two different MIDI Channels.

Having done all this, each time you take the stage this is all you have to do:

Switch the MP-44 on and send it the required Program Change from your keyboard.

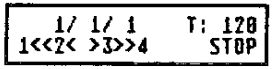
Every now and then you may need a hand free to hit a Program Change button or change the occasional disk, and your left foot may have to advance the JOB chain from time to time.

Apart from that the MIDI PLAYER will do all the chores!

Appendix A - The displays

Normal Mode; selecting S or P programs
P. 3

Bar Counter display (1x SEQ. MODE)
P. 27

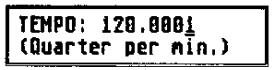


Selecting functions (2 x SEQ. MODE)
P. 7f

Recording inputs (SEQ 1)
P. 29

Synchronisation window (SEQ 2)
P. 35

Tempo window (SEQ 3)
P. 36



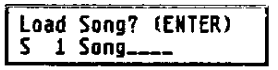
Setting time signatures (SEQ 4)
P. 37

Free memory display (SEQ 5)
P. 42

Output assignment (SEQ 8)
P. 17ff

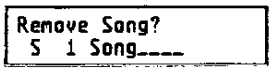
Assign management (SEQ 9)
P. 43ff

Load song with Assignment (SEQ LOAD) -›
P. 14 -›
-› (after ENTER)
-› (...)

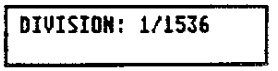


Save song (SEQ SAVE)
P. 20f

Remove song (SEQ 11)
P. 21



Resolution (Division display) (SEQ 33)
P. 38



Remove temp. and time sig. events (SEQ 44)
P. 40

Warn. wh. trying to "Create JOB" over song
P. 95

```
S- or P-Program
must be a JOB!
```

Creating a JOB (SEQ 55) →
P. 94 →

```
Create JOB? (ENTER)
```

→ Brief HELP reminder →
→ P. 95 →

```
Edit JOB
0:HELP
```

→ JOB Edit window →
→ P. 96f →

```
STOP              # 1
          [0]
```

→ Quitting a JOB (with EXIT)
→ P. 99

```
QUIT JOB? (ENTER)
```

Load ".MPF" (SEQ 88); format disk →
P. 22 →

```
\*.MPF
 FORMDISK MPF [load]
```

→ (after ENTER) →
→ (...) →

```
FORMAT FLOPPY DISK
insert disk! (ENTER)
```

→ (aft. insert. blank disk, then ENTER) →
→ (...) →

```
WARNING! Next step
will destroy data...
```

→ final opportunity to abort →
→ (...) →

```
...on inserted disk!
ok:ENTER abort:EXIT
```

→ (after ENTER) disk is formatted →
→ (...) →

```
▀▀▀▀▀▀
▀▀▀▀▀▀▀
```

→ Format another disk? yes/no
→ (...)

```
Format another disk?
yes:ENTER   no:EXIT
```

Load ".MPF" (SEQ 88); creat. a Song End →
P. 41 →

```
\*.MPF
 SONGEND  MPF [load]
```

→ ENTER creates a Song End aft. last ev.
→ (...)

```
SONGEND = LAST EVENT
abort:EXIT  ok:ENTER
```

erase a file from disk [* . *] (SEQ 99)
P. 22

```
\*.*
 Song____ MID erase?
```

load all songs in Ass. (SEQ 2xLOAD)
P. 14f

```
Loading...
01Z0
```

(SEQ 0 = key 0 = Panic button)
P. 90

```
*TRANSPARENT PANIC*
```


Normal Mode; selecting Matrix programs
P. 3

```
▸A  1 Patch
 S  1 Song        STOP
```

MIDI EYE display (1x MATRIX MODE)
P. 51

```
OUT: 1*▲2  ▲3*▲4
 IN: 1*▲2   3   4
```

selecting functions (2x MATRIX MODE)
P. 8

```
MATR.FUNCTION SELECT
```

Routing window (MATR. 1) →
P. 57 →

```
Out1 orig ▲[1]- - -
In 1 omni ▼[1]- - -
```

→ quit and save Routings ... (MATR.) →
→ (...) →

```
A  1 Patch
Store Program?
```

→ quit Routing without saving (EXIT)
→ (...)

```
Edits will be lost!
ok:ENTER, back:EXIT
```

select in/outp. for local filter (MATR. 2) →
P. 63 →

```
loc. FLT OUT - - - -
slct I/O! IN - - - -
```

→ (after pressing IN/OUT 1 - 4)
→ (...)

```
 Local Filter [off]
Notes        IN1 omni
```

select input for split/transp. (MATR. 3) →
P. 73ff, P. 77ff →

```
Split/Transpose
slct Input! - - - -
```

→ Split/Transpose window
→ (...)

```
Sp   off  off  off
Tr▀ 0◠  0◠  0◠  0
```

selecting outp. for vel. proc. (MATR. 6) →
P. 64ff →

```
Vel. Proc.   - - - -
select Output!
```

→ Velocity Processing window
→ (...)

```
Vel. Proc. OUT1 Ch▀1
#1 threshold      64
```

selecting output for Prg./Vol. (MATR. 7) →
P. 80f →

```
Prg./Vol. OUT- - - -
select Output!
```

→ window for Prg. Ch. and MIDI Volume
→ (...)

```
Prg./Vol. OUT1 Ch 1▀
PC:128 VC: 96 D:10ms
```

sel. outp. for OUT Transp. (MATR. 8) →
P. 78f →

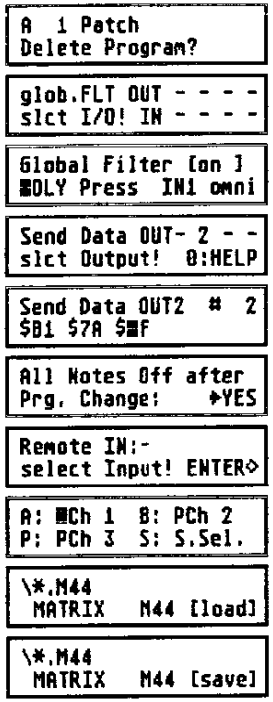
```
Transpose OUT- - - -
select Output!
```

→ OUT Transpose window
→ (...)

```
Transpose OUT1 Ch 1▀
+12 semitones
```

(-› display overview)

delete single Matrix program (MATR. 11)
P. 50
sel. in/outp. for global filt. (MATR. 22) -›
P. 64 -›
-› Global Filter window
-› (...)
sel. in/outp. f. SEND DATA (MATR. 77) -›
P. 82ff -›
-› Send Data window
-› (...)
Installation window (MATR. 88)
P. 88f
sel. input for MIDI remote (MATR. 99) -›
P. 86ff -›
-› Remote window (Prog. sel. via MIDI)
-› (...)
load Matrix [".M44"] (MATR. LOAD)
P. 59
save Matrix [".M44"] (MATR. SAVE)
P. 58



Appendix B - Function overview

1) SEQUENCER functions

SF 0:	**PANIC**	(P. 90)
SF 1:	**RECORD**	(P. 29)
SF 2:	**SYNC**	(P. 35)
SF 3:	**TEMPO**	(P. 36)
SF 4:	**TIME SIGNATURE**	(P. 37)
SF 5:	**MEMORY...**	(P. 42)
SF 6:	-	
SF 7:	-	
SF 8:	**OUTPUT ASSIGNMENT**	(P. 17ff)
SF 9:	**FILE ASSIGNMENT**	(P. 43ff)
SF 11:	**REMOVE SONG**	(P. 21)
SF 22:	-	
SF 33:	**DIVISION**	(P. 38)
SF 44:	**REMOVE TEMPO/SIGNATURE CHANGES**	(P. 41)
SF 55:	**CREATE/EDIT JOB**	(P. 95ff)
SF 66:	**MPF 1 (MP-44 Function 1; FORMAT)***	(P. 22)
SF 77:	**MPF 2 (MP-44 Function 2; SONGEND)***	(P. 41)
SF 88:	**LOAD MPF [FORMDISK, SONGEND]**	(s. a.)
SF 99:	**ERASE FILE**	(P. 22)

*) Access indirectly via SF 88

2) MATRIX functions

MF 0:	**PANIC**	(P. 90)
MF 1:	**ROUTING**	(P. 57)
MF 2:	**LOCAL FILTER**	(P. 63)
MF 3:	**SPLIT/TRANSPOSE**	(P. 73ff, 77ff)
MF 4:	-	
MF 5:	-	
MF 6:	**VELOCITY PROCESSING**	(P. 64ff)
MF 7:	**PROGRAM CHANGE & MIDI VOLUME**	(P. 80f)
MF 8:	**TRANSPOSE OUT**	(P. 78f)
MF 9:	-	
MF 11:	**DELETE MATRIX PRG**	(P. 50)
MF 22:	**GLOBAL FILTER**	(P. 64)
MF 33:	-	
MF 44:	-	
MF 55:	-	
MF 66:	-	
MF 77:	**SEND DATA**	(P. 82ff)
MF 88:	**INSTALL**	(P. 88f)
MF 99:	**REMOTE**	(P. 86ff)

Appendix C - Specifications

Power requirements

Connector:	Euro socket
Voltage:	220/240 Volts
Frequency:	50/60 Hz
Power consumption:	approx 15 W

Physical characteristics

Dimensions in mm:	44.5 x 483 x 200 (standard 19", 1U rack)
Weight in gms:	2520

Footswitch (optional)

Connector:	6.3 mm (1/4") jack
Type:	momentary
Polarity:	automatically recognised

Computer

Processor:	6502, 8 bit architecture, 4 Mhz clock
Memory:	1 Megabyte, expandable to 4 Megabyte
Static memory:	32 KByte
Connections:	4 x MIDI IN, 4 x MIDI OUT/THRU
Disk drive:	3.5" double sided, double density, 9 sector / 80 track. Activity LED
Disk format:	MS-DOS/Atari ST compatible (MFM)
Display:	2 x 20 character illuminated LCD
Keypad:	Number keys 1 - 0, 2x MODE keys, ENTER, EXIT, increment/decrement (UP/DOWN)

Anhang D - Index

Anhang E - Event list

(HEX)		
9n	Note On	(Byte 1 = note number, 2 = velocity)
9n	Note Off	(Byte 1 = note number, 2 = 0 [off])
8n	Soft Note Off	(Byte 1 = note nr., 2 = release velocity)
An	PolyPressure (polyph. Aftertouch)	(Byte 1 = note number, 2 = value)

Channel Messages:

En	Pitch Wheel	(Byte 1 = LSB, 2 = MSB*)
Cn	Program Change	(Byte 1 = Program number)
Dn	Channel Pressure (Ch. Aftertouch)	(Byte 1 = value)

Controller (Ch.-Message)		(Byte 1 = status, 2 = value):
Bn	Modulation Wheel	1
Bn	Breath Control	2
Bn	Foot Control	4
Bn	Portamento	5
Bn	Data Slider	6
Bn	Volume	7
Bn	Balance	8
Bn	Panorama	10
Bn	Expression	11
	(Control 32 to 63 change the LSB-values for corresponding Controls 0 to 31)	
Bn	Sustain/Hold Pedal	64
Bn	Portamento	65
Bn	Sostenuto	66
Bn	Soft Pedal	67
Bn	Hold 2	69
Bn	Tremolo Depth	92
Bn	Chorus Depth	93
Bn	Celeste Depth	94
Bn	Phase Depth	95
Bn	Increment	96
Bn	Decrement	97
Bn	Local On/Off	122

*) LSB - Least Significant Byte
Fine tuning for MSB (127 values for each MSB value)

MSB - Most Significant Byte
normal value range 1-127

Using both Bytes the accuracy is 14 Bit (16383 Pitch values)

Channel Mode Messages (Control):

Bn	All Notes Off	123
Bn	Omni Off	124
Bn	Omni On	125
Bn	Mono On (Poly Off)	126
Bn	Poly On (Mono Off)	127

(→ Event list)

System-Messages

System Exclusive:

F0	System Exclusive	(Byte 1 = manuf.-ID*, 2 = device ID, Byte 3 = parameter ID [no Channel Byte]), followed by message of any length
F7	End Of Exclusive (EOX)	(2 Bytes: end of system exclusive message, in fact "Common" message, see below)

System Realtime:

F8	MIDI-Clock	(1/96th interv., only after Start command)
FA	Start	(Start command, from beginning of song)
FB	Continue	(continue after Stop command)
FC	Stop	(Stop command, MIDI Clock still running)
FE	Active Sensing	(200 ms interv., checks MIDI connection)
FF	System Reset	(sends a "reset" comm. to some devices)

System Common:

F1	MIDI-Timecode (MTC)	(quasi-"SMPTE via MIDI")
F2	Song Position Pointer	(16383 song positions with LSB/MSB)
F3	Song Select	(call up one of 128 songs)
F6	Tune Request	(tune request, only some devices)
F7	End Of Exclusive (EOX)	(see above)

The manufacturer ID may also consist of three Bytes, eg MIDITEMP $00, $20, $00

Appendix F - Troubleshooting

1. The "Active Sensing" problem

Symptom:

Expanders or synthesizers suddenly switch notes off for no apparent reason, and controllers are reset (e.g. volume to maximum).

Problem:

No MIDI events have been sent down the MIDI cable for 300 milliseconds. The device on the receiving end concludes that the MIDI connection has been broken, and promptly switches off any notes which are "on", or possibly resets itself to its power-up state (volume to maximum etc).

Explanation:

This bizarre behaviour usually occurs when Active Sensing is in use, and the MIDI signal is being split across several outputs, or filtered in some way.

Active Sensing is a message which is sent by the master device (keyboard, sequencer etc) every 200 ms, whenever no other MIDI data is being transmitted. Its job is to act as a "yes, I'm still here" message to tell the other devices in the system that the connection is still intact.

The problem occurs when the data coming from the master is processed by an intermediate device (MP-44, PMM-88 etc) in such a way that some of the data is filtered or split and not sent to the expander. If the master is sending out a lot of MIDI data, it will not need to (or have time to!) produce Active Sensing messages. If this data is split so that not all of it reaches every expander, gaps of longer than 300 ms may result, and the expanders will think there is a problem!

Solution:

Active Sensing must be disabled from the outset. If the master device has no function for switching it off, set up a global Active Sensing filter at the relevant MP-44 input. This works because when an expander has been reset or switched on, once it has received an Active Sensing message it will expect to keep receiving them. If it hasn't received one, it will not expect to!

2. System Exclusive and Realtime data errors

Symptom:

System Exclusive transmissions from the MP-44 to the expander or synthesizer do not work.

Problem:

The device in question is not capable of dealing with SysEx data mixed with Realtime data.

Explanation:

If an output on the MP-44 has been designated for synchronisation, the unit will send regular clock events in time with the current tempo setting, whether or not you are trying to send SysEx data through the same output. According to the MIDI specification it is perfectly all right to send Realtime messages like MIDI Clock at any time - even in amongst the bytes of a SysEx dump! (Even when stopped the MP-44 will send these clock pulses, so that slave units can set their tempo to match before the Start command is issued).

Solution:

Sync must be disabled from the output which is connected to this expander or synthesizer, or the expander should be connected to an output which never or hardly ever needs MIDI clock (i.e. not in line with any sequencers or drum machines etc).

3. The MP-44 will not play the song

Symptom:

After the Start command, the MP-44 pauses on the first note of the first bar, instead of playing normally.

Problem:

The MP-44 is set to "SYNC: MIDI clock".

Explanation:

After the song was recorded across into the MP-44 using external synchronisation someone (yes you!) probably forgot to switch the SYNC mode back to internal. Now the MP-44 is waiting for a MIDI clock, and it could be in for a very long wait ...

Solution:

Set SYNC to internal and start the song again.

4. The "MIDI File Format" problem

Symptoms:

When played by the MP-44 the MIDI file created by your sequencing software simply does not sound the same as it did on the computer. Sections are missing, sometimes whole tracks, drum and bass parts stop after only four bars, several of your settings (Channels, transpose, velocity changes, volume etc) are totally ignored, only the intro of the song is played, or the whole song plays on only one synthesizer, or not at all.

Problem:

The playback parameters of your software have not been converted into the MIDI file, or not saved.

Explanation:

The MIDI PLAYER will only play back exactly what has been saved in the MIDI file. The standard MIDI file format allows the following data to be saved:

- several parallel tracks with any number of events on any or all 16 MIDI Channels,
- the full resolution (e.g. 1/768th note),
- all Channel related events (controllers, poly or Channel pressure etc),
- one way SysEx data (no handshake),
- tempo,
- time signature,
- (text events).

The sequencing software will save the events on the Channel which appears for those events on the editor screens (i.e. the "original" Channel for each event). Their velocity, note value, position etc will also be the "original" ones.

It is therefore possible that the sections which seem to be "missing" are in fact being played on the wrong MIDI Channels, i.e. the Channels on which they were originally recorded.

The same is true of any "playback parameters". Any tracks which have been transposed here will play back in their original (and therefore wrong) key.

In addition, the whole song must be saved as one long pattern. An arrangement made up of several patterns will not translate into the MIDI file format.

Solution:

Before saving the song as a MIDI file, you must turn the playback parameters into hard event data. For example, use the "Normalize" and "Fix Quantize" functions on Notator/Creator, convert MIDI Channels using "Process Data" or [Shift-T] in the editor.

Loops also count as playback parameters, and you must therefore physically copy them out in full (in Notator/Creator use "Segment Copy"; the number of copies = loop value/beats per bar x number of bars).

On Notator/Creator you must combine the patterns in an Arrangement using "Arrange-To-Pattern-Copy" to make one long pattern.

Having done all of this, save the song as a MIDI file, load it back into your software and check for accuracy.

5. POWER UP: Load ASSIGN.ASG

Symptom:

On power up, the automatic loading of the Assignment fails to work.

Problem:

The ASSIGN File on the disk in the drive is not called ASSIGN.ASG.

Explanation:

If automatic loading has been selected, the MP-44 looks on the disk for a file with the name "ASSIGN.ASG" and loads it if it can be found. ".ASG" files by any other name are ignored.

Solution:

Rename your ASSIGN File "ASSIGN.ASG". Naturally, you can have different ASSIGN Files on different disks, all using the same name, so you are not restricted to working with only one ASSIGN File.

6. Error messages

Symptom:

When loading the Assignment, the following appears:

** ERROR
MThd (<-- These are the first letters in a Standard MIDI File)

Problem:

An attempt has been made to load a song instead of the Assignment, or worse still, you have accidentally replaced the Assignment on disk with song data (very unlikely).

Explanation:

In the former situation the MIDI PLAYER has realised that the ASSIGN File is in the wrong format. This message will appear for other types of incongruities too, and the first 20 characters of the corrupt or incorrect line will be shown on the bottom line.

In the latter situation three things must have happened, namely:

1) you wished to save a song with the name of an ASSIGN File,

2) you pressed key 0 to examine all the files on the disk,

3) when saving the song you failed to notice the ".ASG" extension of the file on the disk.

We are using this example as a warning to be careful, and to show you what to do about it if it happens. We do not recommend that you try it!

Solution 1:

Make two back up copies of all the files (including Matrix) which you use on your MIDI PLAYER. Keep one in your backstage bag or other safe place, and put the other in a cool, dry place at home. Then you can erase whatever you want to!

Solution 2: (preventive!)

Double-check that you are using the correct file extension before every load or save procedure. The MP-44 will always show only the "correct" file extension for each file type, unless you press 0.

7. Load Song

Symptom:

When a song is loaded the message "WRONG FILE FORMAT" appears.

Problem:

The file format is not what the MP-44 was expecting.

Explanation:

Either (usually) an attempt has been made to load a song which has been saved onto the disk in your sequencer's own file format instead of in MIDI file format, or (occasionally) the file is a WORDPLUS document or other non-musical file (see Chapter 2, section 1), or you have the opposite problem to the previous example.

Solution:

See examples 6 and 4.

8. Wrong disk format

Symptom:

The message "WRONG DISK FORMAT" appears.

Problem:

The disk in the drive is illegible.

Explanation:

This message means that the disk is unformatted or in the wrong format. The MP-44 cannot read overlaps, 10 or 11 sector tracks or 83 track disks! Standard formats only please!

Solution:

Use only disks which are formatted to give 720 kbytes (double sided) or 360 kbytes (single sided). The disks must be marked "DD" (double density) and not "HD" (high density).

Appendix G - Error messages

WRONG FILE FORMAT
WRONG DISK FORMAT

Wrong file format / wrong disk format or unformatted disk (see also Appendix F).

DISK: read only

The disk is physically write protected. Double-check that you really want to save something onto this disk. If you do, slide the plastic write-protect tab closed, replace the disk and press ENTER.

FILE: read only ...

In the computer it is possible to write protect individual files (e.g. Atari: Show Info -› Read Only). The MP-44 obeys this protection and informs you of it with this message.

Can't open File

The file which has been requested is not on the disk.

NO FILE

There are no files on the disk with the extension you are looking for (top line of display). Technically this is not really an error message.

[new]

Like "NO FILE", this is not really an error message. During save procedures, if the MP-44 is going to give the file a default name such as "ASSIGN.ASG" or "MATRIX.M44", this message tells you that there is no file of that name already on the disk.

Disk full!

There may be space left on the disk, but not enough for the file which you are trying to save.

Bad Sector!

A sector on the disk is damaged or unreadable.

Disk Operation impossible!

A disk operation cannot be carried out because the processor is being heavily taxed by a consistant, heavy flow of MIDI data. This message warns you that the disk operation has been aborted, and will appear if the MP-44 has not managed to read or write a single sector after 50 revolutions of the disk.

**ERROR 31

The disk controller has requested data, even though no disk operations are in progress. This indicates a hardware failure!

Out of Memory

The MP-44's song memory is full. Either there is not enough room to load a song from disk, or (during recording) there is too much data coming in for the remaining memory space. Recording of the track which caused the error to occur is immediately aborted, and any data already on that track erased. Any other tracks which are being recorded at the time will continue unaffected.

SRAM FULL!

The memory which is used for Matrix programs is full. There are too many Matrix programs, or they are too complex.

Bar length › 2!

The time signature which you have entered would exceed the MP-44's maximum permitted length of two whole notes per bar.

invalid Tempo

The tempo which you have entered, or the tempo of the song which has been selected, is too fast or too slow.

MAKE ROUTING FIRST!

You have not yet created a Matrix program into which the functions which you are trying to access could be stored.

Sequ.Prg. must be a JOB!

A MIDI file cannot be edited using JOB functions (Sequencer function 55).

JOB calling itself!

A JOB is trying to select itself (possible via one or more other JOBs). A JOB can certainly call up another JOB, but never itself.

n INVALID M-PRGS DELETED!

Under very exceptional circumstances it is possible for something to become muddled up in the MP-44's battery backed static memory. This is extremely rare, but can be caused by hardware failure, an exhausted backup battery (these have a lifespan of around 5 years) or power failure during an internal storage process. Next time the MP-44 is switched on it will go through its usual set-up and test all the checksums for the Matrix programs. Any programs whose checksums do not add up will be erased. This message warns you that this has unfortunately been necessary (n = number of programs lost). We hope that this very rare message never rears its ugly head on your MP-44!

MIDI Buffer full
Input # n

A MIDI bottleneck at one of the outputs has meant that the MP-44 has been unable to transmit the data as fast as it has received it. The buffer memory at input "n" is full (each input has a 256 byte buffer). This will only occur when all of the MP-44's inputs and outputs are overworked by playing back a very complex song at the same time as using multiple merging, manifold etc. Usually the culprit here is the relatively slow transmission speed of the MIDI format itself (and not the MP-44!).

MIDI Data Error
Input # n

This message indicates that an incomplete MIDI message has been received at input "n", i.e. the usual format of a single MIDI byte (start bit, 8 bit data, stop bit) was not received. Possible causes are: poor cables, a chain of THRU -› IN connections before the data reaches the MP-44, or a random impulse from a synthesizer which has just been switched on.

Re-initialisation:

If the unit should ever behave in ways not covered by this manual (program selection is not possible, no functions will operate) you can try re-initialising it.

Switch the unit off, then switch it on again whilst holding in both MODE keys at once. Please be absolutely sure that you want to do this, because in doing so you will erase all the Matrix programs and the basic set up parameters.

DIAGNOSE.MPF

If the same error messages keep appearing again and again you should load the "DIAGNOSE.MPF" program supplied with the unit and test the MP-44 for hardware problems. This program contains test routines for the static RAM, the key functions (press the keys!) the MIDI sockets (connect MIDI INS to MIDI OUTS), the disk drive, the RAM configuration and a bit and socket test (checks the memory and any memory expansion).

The tests can be started with the ENTER key or will start automatically. You can skip individual tests with the EXIT key.

If you have any questions, or require advice after an error has occurred, please contact MIDITEMP directly.