MA-5
Authoring Tool
User's Manual
(ATS-MA5-S Edition)

Ver.2.3.1

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⊛YAMAHA

Introduction

MA-5 Authoring Tool is the application software for authoring, correcting, and verifying the contents for portable terminals. The operating systems for running this software include Windows®2000 and Windows®XP.

The use of this application allows a conversion from SMF (*Standard MIDI file*) into MLD format (**.mld*), editing of voices, editing of management information, and verification of voice generation by MA-5 emulator.

Recommended Operating Environment

The recommended operating environment of this authoring tool is as follows.

Compatible Operation System	Microsoft® Windows® XP Microsoft® Windows® 2000
CPU / Clock	Pentium®, Celeron™, or compatible processor/ 400MHz or more
Memory	64MB or more
Required hard disk space	40MB or more

【Note】 All names of products that are presented in this manual are trademarks and registered trademarks of their companies respectively.

Contents

Revision History

Ver.	Date		Description
2.1.0	2004/03/08		Newly Released
2.2.1	2004/11/02		Composition of whole document was changed.
			GUI in this document was updated according to the update of this tool.
			Figure Numbers/Preference Page Numbers were newly added into GUI in this document.
		2.1	Description about "*Installation of MA-5 Authoring Tool*" was newly added.
		2.2	Description about "*Start-up Authoring Tool*" was newly added.
		3.	Description about Chapter 3 was newly added.
		3.1	In the description about "*Application Window*", descriptions about "*LED/MTR Bar*", "*Preference Bar*", and "*Density Report Bar*" were newly added. In addition, "*Note*" about those bars were newly added.
		3.2.1	"*Icon Popup Menu*" was renamed to "*System Menu*."
		3.3.1	In the section about "*File Menu*", description about "*Export to SMF…*" function was newly added.
		3.3.3	Description about "*View Menu*" was newly added. Moreover, descriptions about "*LED/MTR Bar*", "*Density Report Bar*", and "*Preference Bar*" were newly added in this section.
		3.3.4	Description about "*Window Menu*" was newly added.
		3.3.5	Description about "*Option Menu*" was newly added.
			Description about "*Reset*" function was corrected.
		3.3.6	Description about "*Help Menu*" was newly added.
		3.4	Description about "*Control Bar*" was newly added.
		3.5	Description about "*Volume Bar*" was newly added.
		3.6	Description about "*Report Bar*" was newly added.
		3.7	Description about "*Tool Bar*" was newly added.
		3.8	New Function: descriptions and GUI about "*LED/MTR Bar*" were newly added.
		3.9	New Function: descriptions and GUI about "*Preference Bar*" were newly added.
		3.10	New Function: descriptions and GUI about "*Density Report Bar*" were newly added.
		3.11	Part of descriptions about Status Bar was changed/deleted since "Density Report Bar" was newly added.
		4.	Description about Chapter 4 was newly added.
		4.1	Description about "*File List Window*" was changed.
			"*Direct Play (Procedure of Playback a MLD File Format Music Data)*" was newly added.
		4.2.2	Description about "*VS and LED for StreamPCM*" was changed.
			Description about "StreamPCM (WAVE→MLD) Conversion Procedure was changed.
		4.3~	Composition of descriptions about "*Voice List Window*" was changed.
		4.4~	Composition of descriptions about "*Voice Assign Map Window*" was changed.
		4.5~	Composition of descriptions about "*StreamPCM Assign Map*" was changed.
		4.9	Explanation about "*Code Type*" was corrected.
		4.14~	Descriptions about "*Voice Edit*" were newly added.
		5.2~	"*Error Messages*" were updated.
		5.3~	"*Warning Messages*" were updated.
		5.4~	"*Verification Messages*" were updated.
2.3.0	2005/9/30	3.1	Images of tool window and tool bar were replaced. Explanation was corrected.
			Images of each menu were replaced.
		3.3	New file creation function "New" was added.
		3.3.1	Note for "Export to Voice List" was added.
		3.3.2, 3.7	Transpose function was added.
		3.3.4	The figure of Help was replaced.
		3.3.6	The figure of the tool bar was replaced.
		3.7	New file creation function "New" was added.
			Description of a file loading by drag-and-drop was added to File List Window.
		4.1	An image of the Score Window was replaced.
			"No.15 Stream PCM Edit" was added.
		4.2	"No.16 Cue Point Setting Column" was added. Karaoke Scoring section setting column was added.
		4.2.1, 4.2.2	A subsection for explanation of Cue Point Setting was added.
		4.2.3	An explanation for "creation from a new file" was added to StreamPCM conversion

Ver.	Date		Description
			procedure.
		4.4	The figure of Voice Assign Map was replaced.
		4.4.1	Editing function of default bank voice was added.
			The figure of Voice Assign Map was replaced.
		4.4.2	The figure of Voice Assign Map was replaced. Note was added.
		4.8	The way to set the change rate of Velocity Change was changed.
		4.11	Description of Transpose function was added.
		4.14	The figure of About Authoring Toll was replaced.
		4.16	The figure of FM Voice Edit Window was replaced.
			"All Sound Off" was added to No.33, 38.
			Description of No.37 "DrumKey Assign" was changed.
		4.17	The figure of PCM Voice Edit Window was replaced.
			Description of No.8 "Load Wave File" was corrected.
			"All Sound Off" was added to No.24, 27.
		4.18	The figure of AL Voice Edit Window was replaced.
		5.3.1	Warning Message at Input/Output was added.
		5.3.4	Warning Message at User's Operation was added.
2.3.1	2006/4/20	4.14	The figure of About Authoring Toll was replaced.
		5.2.6	An error message for user's operation "Can not reload SMF file." was added.

1. About MA-5 Authoring Tool

Independence of MA-5 Authoring Tool and Sequencer

MA-5 Authoring Tool is independent application software that is used together with general-purpose MIDI sequencer. Therefore, the user is allowed to select the most familiar sequencer. All operations up to conversion to MLD file (*.mld*) can be made by performing sequence using your sequence software, and performing editing of voices and editing of management information using MA-5 Authoring Tool.

Maximum of Enabling Simultaneous Voices

MA-5 Authoring tool has "*FM16 mode*", "*FM32 mode*", and "*ALL64 mode*." The maximum of enabling simultaneous voices depends on the mode setting, or whether using or not using AL Channel.

The maximum of enabling simultaneous voices without AL channel are described as follows.

	FM Synthesizer	PCM Synthesizer	Stream PCM	Total
FM16 Mode	16	16	2	34
FM32 Mode	32	16	2	50
ALL64 Mode	32	32	Disable	64

The maximum of enabling simultaneous voices with AL channel are described as follows.

	AL	FM Synthesizer	PCM Synthesizer	Stream PCM	Total
FM16 Mode	1	15	15	2	33
FM32 Mode	1	31	15	2	49
ALL64 Mode	Disable	32	32	Disable	64

In PCM synthesizer, you can use your favorite sound as the maximum of 16 notes (without AL channel) by FM16/FM32 mode and the maximum of 32 notes (with a size limitation) by ALL64 mode by reading the sound file (*AIFF, WAVE*) of 16bitPCM (encoding to 4bitADPCM) and by performing the frequency change, envelopes change, loop points setup, etc..

Sequencer Direct MIDI Playback Function

By directly playing back a file with your sequencer software, data, voice, and etc. can be confirmed.

Event Viewer Function

This function allows confirming the event information on Score Window by reading SMF. In addition, it allows verifying the contents of SMF on "*Event List Window*" or "*Piano Roll Window*." During a confirmation of the playback, "*Piano Roll Window*" advances synchronously. Furthermore, it allows performing an editing of music information.

Real Time Voice Editing Function

The read SMF data can be confirmed on "*Event Viewer*." In a voice change, voice change in real time is possible.

Stream PCM Pasting Function

By using this function, StreamPCM files to perform a synchronized playback with channel sequence can be read and assigned. In addition, the exclusive data to applicable channels and applicable notes can be transmitted to MA-5 emulator when it is assigned. For the reasons, an editing and verification of Stream PCM can be performed easily by combining the external MIDI sequencer with MA-5 Authoring Tool.

AL Parameter Equip Function

The effect of filter is obtained by setting "*AL parameters*" in FM voices, PCM voices, and Noises.

Realize the Various Sounds Easily by Using Voice Library

Voice Libraries (*VLF-MA3/VLP-MA3/VLP-MA5/VLA-MA5/VLW-MA3*) which are recorded various sounds are attached in this application.

- *"VLF-MA3"* is an extended voice library of FM voice, and it is able to extend voices which differ from default voices, easily.

- *"VLP-MA3"*and *"VLP-MA-5"* is the PCM voice library, and it can easily realize real sounds that differ from FM.

- "*VLA-MA5*" is the voice library with AL parameters; in addition, the sound which has the filter effect to FM voice and PCM voice can be used.

- *"VLW-MA3"* is the Ethnic Library; in addition, it can expand the sounds for the folk instruments.

By using these three voice libraries, the various sounds are easily realizable.
For details about the registration method of each voice libraries etc., see the manual attached with library. (*VLF-MA3_v***.pdf, VLP-MA3_v***.pdf, VLP-MA5_v***.pdf, VLA-MA5_v***.pdf, VLW-MA3_v***.pdf*)

2. How to start up the MA-5 Authoring Tool?

This chapter describes the installation procedures for MA-5 Authoring Tool and steps to start up the MA-5 Authoring Tool.

2.1. Installation of MA-5 Authoring Tool

This section describes the installation procedure for MA-5 Authoring Tool.

1. Double click "*setup.exe*" icon.

2. "*Setup Wizard*" dialog is displayed.

3. Click "*Next*" on "*Setup Wizard*" dialog.

4. Then, "*Select Installation Folder*" dialog appears.

5. Select the folder in which the application will be installed. Then, click "*Next.*"

6. "*Confirm Installation*" dialog appears.

7. Select "*Next*", then, installation is started. When the installation is completed, "*Installation Complete*" dialog is displayed.

8. Click "*Close*" on "*Installation Complete*" dialog.

9. Installation is now completed; in addition, a shortcut icon "*ATS-MA5-S*" is also created on your desktop.

2.2. Start-up of Authoring Tool

After the installation of MA-5 Authoring Tool was completed, MA-5 Authoring Tool can be started up with the following procedures.

Double Click

1. Double-click "**MA-5_AT.exe**" that can be found in "**Exe**" folder or double-click the shortcut of "**AT-MA5-S**" icon which was created on your desktop at the installation.

2. Startup displays are appeared in order.

3. Program is started up normally, and then Application Window is displayed. (See, p.9)
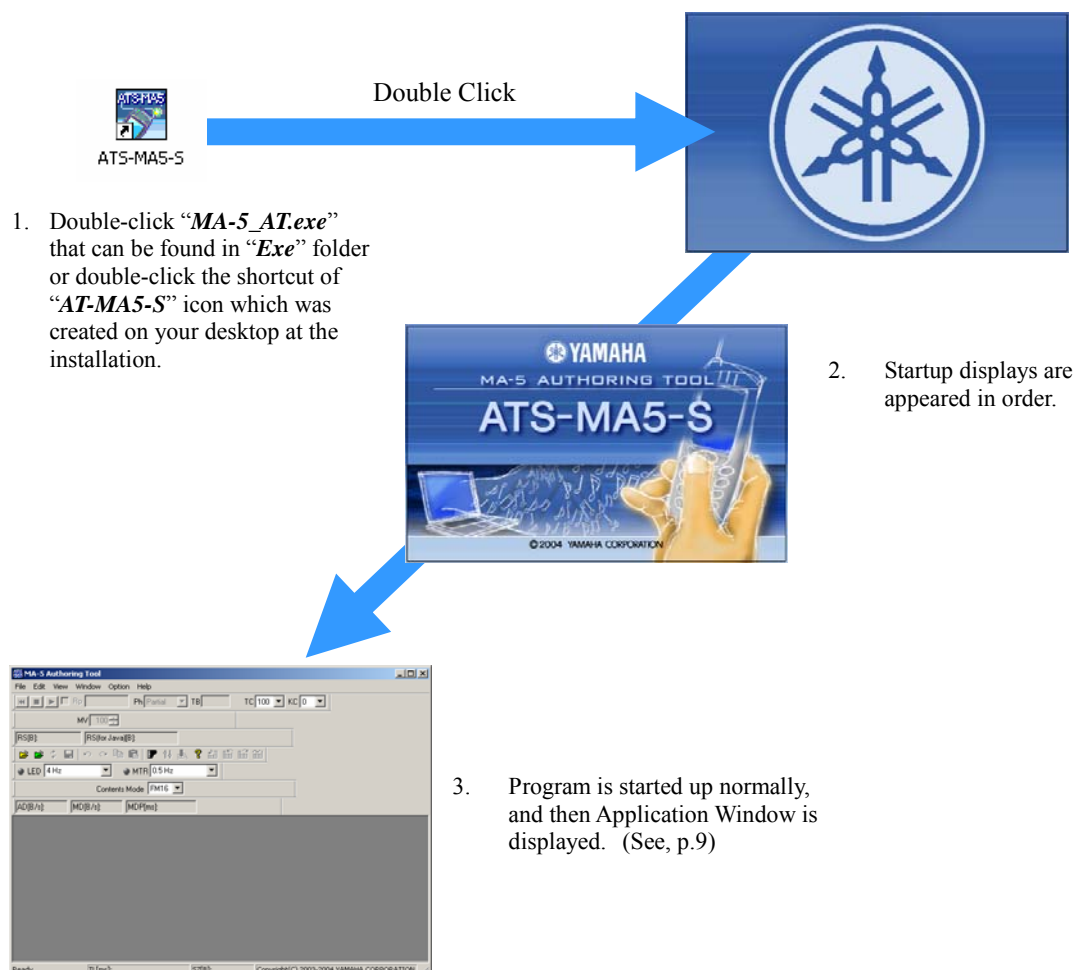
3. Reference

This chapter describes the names and functions of each window, bar, and menu provided in MA-5 Authoring Tool.

3.1. Application Window

Each edit windows are opened on this "***Application Window***." This window provides "***Menu bar***", "***Control bar***", "***Volume bar***", "***LED/MTR Bar***", "***Preference Bar***", "***Report bar***", "***Tool bar***", "***Density Report Bar***", and "***Status bar***" that are applicable commonly to all edit windows. The Menu bar, Volume bar, LED/MTR Bar, Preference Bar,Tool bar, Preference Bar, and Control Bar are used to select or execute various functions by clicking or dragging. In addition, Report Bar, Density Report Bar, and Status Bar show the present status.
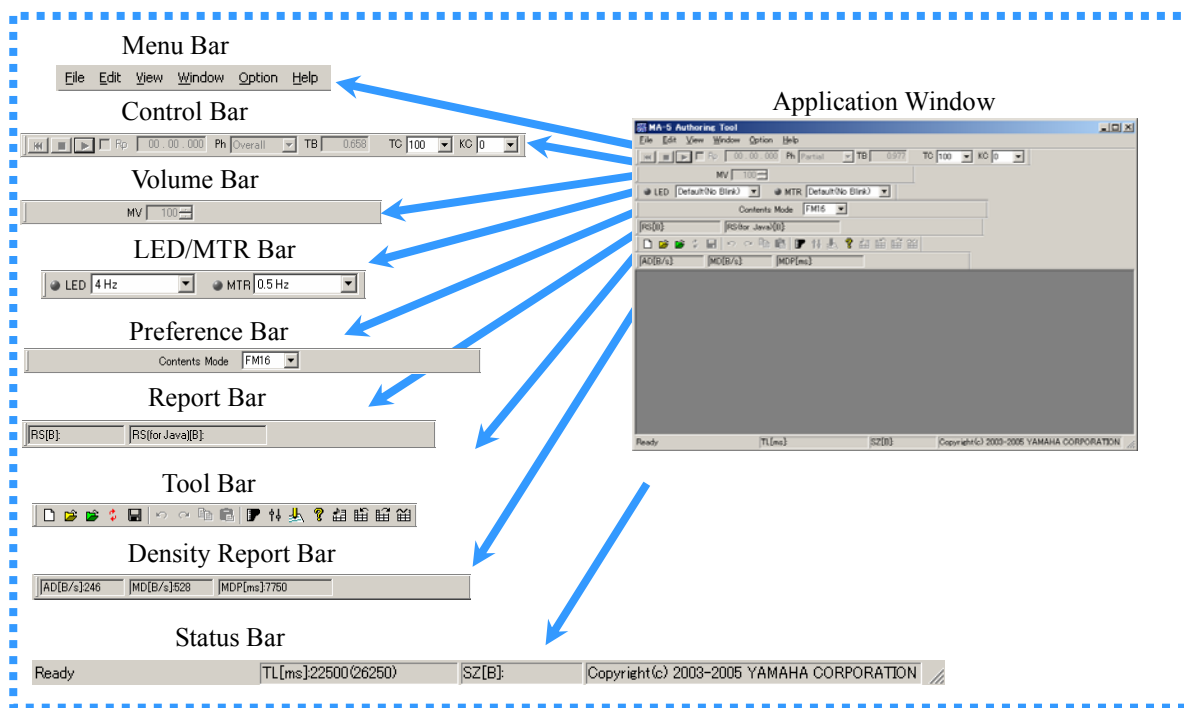
Figure. 3-1   Application Window

【Note】 The Control bar, Volume bar, Report bar, Tool bar, Preference Bar, LED/MTR Bar, Density Report Bar, and Status Bar can be displayed or hidden as necessary.

【Note】 By clicking "***View***" menu on Menu bar, a pull-down menu is displayed. By clicking a name of Tool bar, Status Bar, Report Bar, Volume Bar, Preference Bar, LED/MTR Bar, Density Report Bar, and/or Control Bar and placing a check, Tool bar, Status Bar, Report bar, Volume bar, Preference Bar, LED/MTR Bar, Density Report and Control Bar are displayed on Application menu. Conversely, by clicking the name of Control bar, Volume bar, Report bar, Toolbar, Preference Bar, LED/MTR Bar, Density Report Bar, and/or Status Bar once again, these windows are hidden from Application menu.

3.2. Title Bar

"*Title Bar*" on the "*Application Window*" displays the name and the location of a file which is presently opened in MA-5 Authoring Tool. The Title Bar of each "*Edit Window*" displays the name of each window. Functions provided by "*Title Bar*" are described as follows.
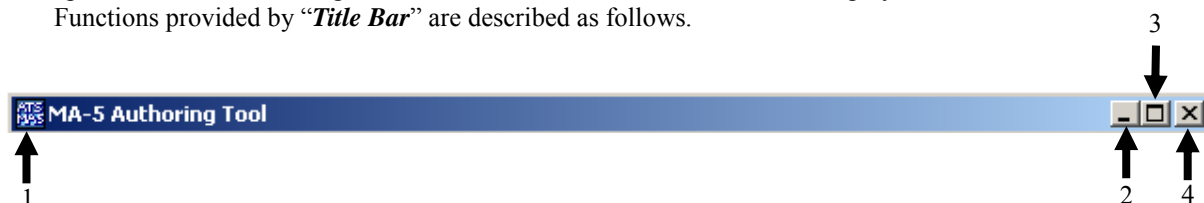
Figure. 3-2   Title Bar

No.	Name	Description
1	Application icon	By clicking this icon, System menu is opened. (For details, see "**3.2.1System Menu**.")
2	Minimize button	By clicking this button, windows are minimized (to make it an icon).
3	Maximize button/Undo (Minimize) button	By clicking this button, windows are maximized. Window is restored to the original size by clicking this button once again.
4	Close button	By clicking this button, windows are closed. In case of "*Application Window*", windows are closed and application is also ended. In case of "*Edit Windows*", each window is closed one by one.

3.2.1. System Menu

By clicking the "*Application Icon*" located on the left end on "*Title Bar*", this "*System Menu*" is opened. Function provided in this menu as follows.
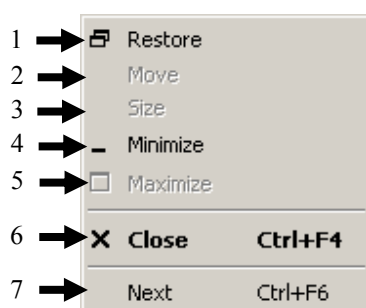
Figure. 3-3   System Menu

No.	Name	Description
1	Restore	When the size of window has been changed by size change etc., the window is restored to original size by clicking this function.
2	Move	Mouse pointer is changed to the moving tool by clicking this function. Use this pointer to move the windows by clicking & dragging the title bar of windows. The maximized windows cannot be moved.
3	Size	Mouse pointer is changed to the size-change tool. Put this pointer on the upper, lower, left and right side lines of the window, and clicks and drugs the line to change the size of the window. The maximized window cannot be changed.
4	Minimize	Windows are minimized (to make it an icon)
5	Maximize	Windows are maximized. If the window is already maximized, this function cannot be selected.
6	Close (Alt+F4) (Ctrl+F4)	Windows are closed by clicking this function. In case of "*Application Window*", all windows are closed and application is also ended. In case of "*Edit Window*", each window is closed one by one.
7	Next (Ctrl+F6)	If multi-Edit Windows are opened on Application Window, a Window in active can be changed by clicking this button. This function is only available on the System menu of Edit Window.

3.3. Menu Bar

In Manu Bar, the following menus are provided to execute and control various functions.
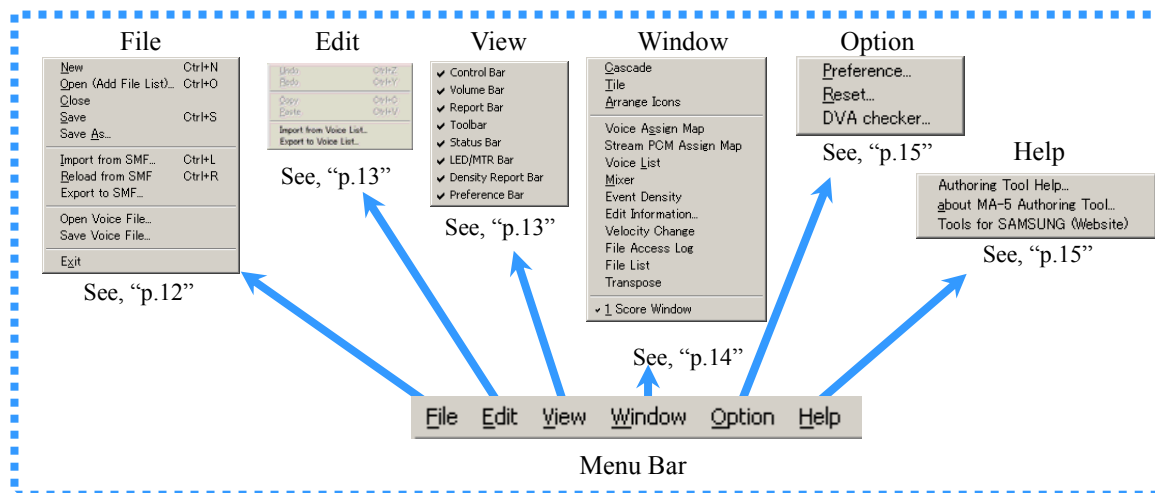
Figure. 3-4   Menu Bar

3.3.1. File Menu

A series of operation such as open, close, save, and end of files can be performed with this menu.
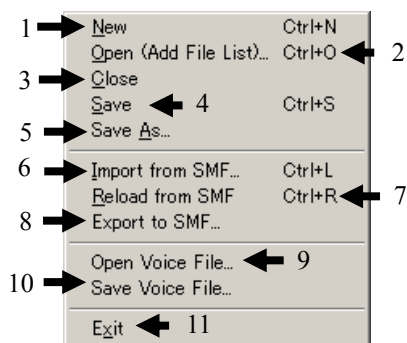
Figure. 3-5   File Menu

No.	Function Name	Contents
1	New	Creates a new file. **SMAF including StreamPCM or HV can be created without reading SMF.**
1	Open (Add File List)… (Crtl+O)	Opens a MLD file into File List Window. (*.*mld*)
2	Close	Closes a SMF file. (*.*mid*)
3	Save (Ctrl+S)	Saves a file in MLD file format. (*.*mld*)
4	Save As…	Saves a MLD file with another name. (*.*mld*)
5	Import From SMF… (Ctrl+L)	Loads a SMF file. (*.*mid*)
6	Reload from SMF… (Ctrl+R)	Reloads a SMF file (*.*mid*). If the file contains an event related with StreamPCM, a confirmation message about updating is displayed. Reloads a SMF file. (*.*mid*)
7	Export to SMF…	Saves a file in SMF format (*.*mid*) Only the events described in the "***Contents Authoring Guideline***" is output. Even the file which does not contain note-events allows to be saved.
8	Open Voice File	Loads a MA-3 voice file (*.*vm3*) and MA-5 voice file (*.*vm5*).
9	Save Voice File	Saves a file in MA-3/MA-5 voice file format (*.*vm3/.vm5*).
10	Exit	Exists from MA-5 Authoring Tool.

3.3.2. Edit Menu
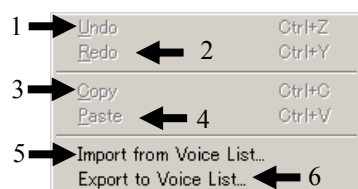
Figure. 3-6   Edit Menu

No.	Function Name	Contents
1	Undo (Ctrl+Z)	In Voice Assign Map, the voice parameter updated by paste operations is returned to the parameter before the operation.
2	Redo (Ctrl+Y)	The voice parameter updated by Undo operation is returned to the parameter before the operation.
3	Copy (Ctrl+C)	Copies voices which is selected in the Voice List or Voice Assign Map. When nothing is selected, it is displayed with gray color.
4	Paste (Ctrl+V)	Pastes the copied voices on the designation locations of Voice list or Voice Assign Map.
5	Import from Voice List…	When the voice is registered in Voice Assign Map, the voice specified by Bank (*M/L*) and Pch# is stuck into Voice Assign Map from Voice List.
6	Export to Voice List…	When the voice is registered in Voice Assign Map, the voice specified by Bank (*M/L*) and Pch# is stuck into Voice List from Voice Assign Map. [Note] Voice data cannot be exported to the preset voice bank area.

3.3.3. View Menu

Each bar is displayed and/or hidden from Application Window by left clicking on the name of each bar to place/replace a check mark. Check mark is displayed to the menu by which function has been activated. For details about each function in View Menu, see the following table.
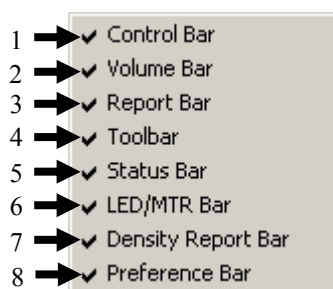
Figure. 3-7   View Menu

No.	Function Name	Contents
1	Control Bar	Switches a display/non-display of Control Bar. (For details, see "*3.4Control Bar*")
2	Volume Bar	Switches a display/non-display of Volume Bar. (For details, see "*3.5Volume Bar*")
3	Report Bar	Switches a display/non-display of Report Bar. (For details, see "*3.6Report Bar*")
4	Tool Bar	Switches a display/non-display of Toolbar. (For details, see "*3.7Tool Bar*")
5	Status Bar	Switches a display/non-display of Status Bar. (For details, see "*3.11Status Bar*")
6	LED/MTR Bar	Switches a display/non-display of LED/MTR Bar. (For details, see "*3.8LED/MTR Bar*."
7	Density Report Bar	Switches a display/non-display of Density Report Bar. (For details, see "*3.10Density Report Bar*")
8	Preference Bar	Switches a display/non-display of Preference Bar. (For details, see "*3.9Preference Bar*")

3.3.4. Window Menu

In Window menu, display/non-display arrangement of each window can be controlled. By placing a check on the name of each window, windows are opened on Application Window. Check mark is displayed to the menu by which function has been activated. For details about each function in Window Menu, see the sections for each window. In addition, windows and dialogs displayed on "*Application Window*" can be arranged by selecting "*Cascade*", "*Tile*", and/or "*Arrange Icons*."
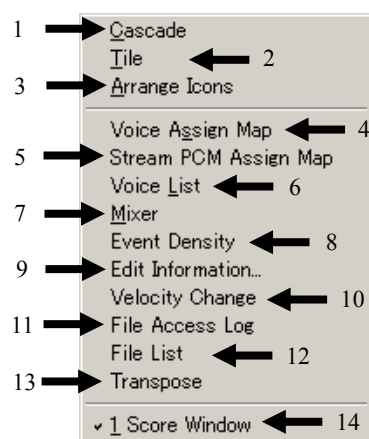
Figure. 3-8   Window Menu

No.	Function Name	Contents
1	Cascade	Displays windows in piles.
2	Title	Displays windows in a line.
3	Arrange Icons	Arranges the minimized windows on the bottom of "*Application Window*."
4	Voice Assign Map	Displays Voice Assign Map. (For details, see "*4.4Voice Assign Map*.")
5	Stream PCM Assign Map	Displays Stream PCM assign map. (For details, see"*4.5StreamPCM Assign Map*.")
6	Voice List	Displays Voice list. (For details, see "*4.3Voice List Window*.")
7	Mixer	Displays Mixer Window. (For details, see "*4.6Mixer*.")
8	Event Density	Displays Event Density window (For details, see "*4.7Event Density*.")
9	Edit Information	Displays management information dialog. (For details, see "*4.9MLD Information.*")
10	Velocity Change	Displays Velocity Change dialog. (For details, see "*4.8Velocity Change*.")
11	File Access Log	Displays File Access Log window. (For details, see "*4.10File Access Log*.")
12	File List	Displays MLD File List window. (For details, see "*4.1File List Window*.")
13	Transpose	Displays the Transpose window. (For details, see 4.11 Transpose.")
14	List of Windows	Lists the windows currently opened in Application Window. In addition, a window currently active is shown with checked mark as shown like in figure. Moreover, the selected window will become an active condition if optional windows are chosen from a list.

3.3.5. Option Menu

In "***Option Menu***", basic operation-environment for working on Authoring Tool, etc. can be set up. For details, see the section for each function.
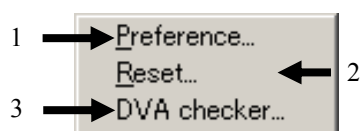
No.	Function Name	Contents
1	Preference	Opens preference dialog. (For details, see "***4.12Preference***.")
2	Reset	This function is not available.
3	DVA Checker	DVA checker window is opened, and then the maximum number of pronunciation in data can be checked. (For details, see "***4.13DVA Checker"***)

Figure. 3-9   Option Menu

3.3.6. Help Menu

In "***Help Menu***", following functions which supports user's operations are provided. For details, see the following sections for each function.
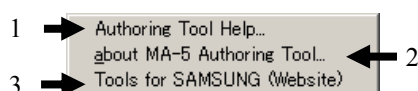
No.	Function Name	Contents
1	Authoring Tool Help…	Displays "***MA-5 Authoring Tool User's Manual.***"
2	about MA-5 Authoring Tool	Displays "***about MA-5 Authoring Tool.***" (For details, see "***4.14about Authoring Tool***.")
3	Tools for SAMSUNG (Website)	URL ***http://smaf-yamaha.com/tools/samsung/***

Figure. 3-10   Help Menu

3.4. Control Bar

Control Bar is a functional group to display or control the contents of data which was converted from SMF file (*.mld*). A series of operation from playback to stop of data can be performed by checking the musical piece data. Descriptions about each functions, see the following table. For details, see the following table.
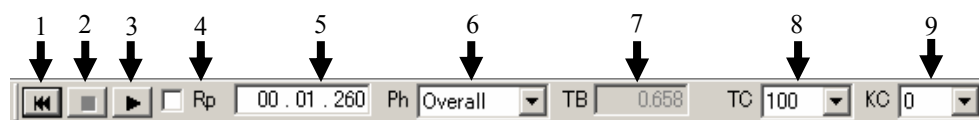
Figure. 3-11   Control Bar

No.	Function Name	Contents
1	Rewind	Playback bar is moved to the head of music.
2	Stop	Playback of music is stopped.
3	Play	Playback of music is started.
4	Repeat (Rp)	Repeat is designated.
5	Playback Position Indicator	Playback position is displayed. Arbitrary values can be input directly. Display unit is "*ms.*"
6	Phrase List (Ph)	Select a phrase list to be an object for playback. Change of playback mode is available. When "*Overall*" is selected, a music is played from head to end, and if "*Partial*" is selected, a music only a section specified by marker is played. For details about the specification of marker, see "*Contents Authoring Guideline For MA-5 Authoring System*."
7	TimeBase (TB)	Time base is displayed. It displays a time about 1Tick in "*ms*" unit.
8	Tempo Control (TC)	Tempo control is displayed. Tempo value set in the read data is possible to be changed and played back by "*70% - 130%*"of a rate. Default is "*100*."
9	Key Control (KC)	Displays the key control, which can be changed from "*+12 to -12*." Default is "*0*." Only the channel which uses the tone of a normal bank receives key control. The channel which uses the tone of a drum bank does not receive key control.

【Note】 The Repeat setup, Playback mode change of Phrase List, Tempo Control Setup, and Key Control setup becomes valid only when Authoring tool is used, and does not reflect to MLD files. Time base is displayed per 1Tick in (*ms*) unit.

3.5. Volume Bar

Volume bar is a function to set the playback volume, speed, height of key, etc. of musical pieces in MA-5 Authoring Tool.

Figure. 3-12   Volume Bar

No.	Function Name	Contents
1	MV (Master Volume)	Displays the maximum value of Master volume which was input in music. When the master volume of data to input is not defined, the master volume is automatically set to "*100*."

【Note】 Be sure to set up the Master volume to SMF. If Master volume is not defined, a playback volume by sequencer and a playback volume by Authoring Tool may differ.

3.6. Report Bar

In "***Report Bar***", RAM size used in music is displayed. The unit is "***Byte***."
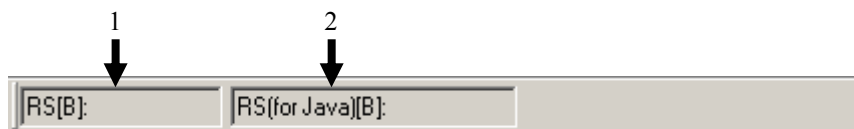
Figure. 3-13   Report Bar

No.	Function Name	Contents
1	RS (RAM Size)	Total RAM Size in music is displayed by byte unit.
2	RS (for JAVA)	Total RAM size on a piece of music used in a Java application is displayed.

RAM Size Check Timing
When "***OK***" button of VoiceEdit dialog is clicked.
In case of SMF Import
In case of SMF Reload
In case of Voice Paste to VoiceAssignMap
In case of import from Voice List
When "***OK***" of Preference is selected.
When Reserve setting in Piano Roll/Stream PCM Edit View are changed.

3.6.1. About RAM Size

The total RAM size of MA-5 is 8192-byte, and thus, if it exceeds the capacity, it cannot play back the music. Authoring Tool calculates the used RAM size in music, in addition, if it exceeds 8192-bytes, an error message will be output. Size calculation serves as the following sum totals.

Size List	
Registration of Voice Parameter	FM2op : 16 bytes / one voice FM4op : 30 bytes / one voice PCM : 14 bytes / one voice
Registration of AL Parameter	AL+FM2op : 16 bytes / one voice AL+FM4op : 30 bytes / one voice AL+PCM : 14 bytes / one voice AL+Noise : 14 bytes / one voice
Registration of PCM Voice Waveforms	Bytes number in data section (1 byte will be added if it is an odd number.) / one waveform
Registration of FM Fundamental Waveform	2048 byte / one waveform
Registration of Stream PCM Waveform	When not used (No Reserved) / 0 byte When max. number of voices pronouciation number is "1." (1 Voice Reserved) /1024 bytes When max. number of voices pronouciation number is "2." (2 Voice Reserved) /2048 bytes

3.7. Tool Bar

Tool Bar contains a series of functions which are also provided in "***File Menu***", "***Edit Menu***", etc.
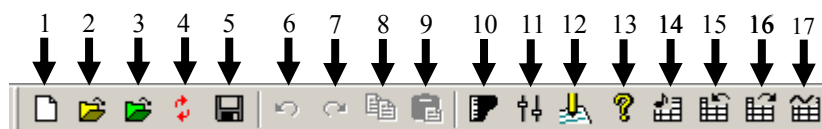
Figure. 3-14   Tool Bar

No.	Function Name	Contents
1	New	Creates a new file. **SMAF including StreamPCM or HV can be created without reading SMF.**
2	Open (Add File List)	Registers a MLD file into file list. Opens the MLD file *(*.mld)*
3	Import from SMF	Imports a SMF *(*.mid)*. Refer to the following "***Note***."
4	Reload from SMF	Reloads a SMF *(*.mid)*.
5	Save	Saves a MLD file *(*.mld)*.
6	Undo	Voice data paste is undone.
7	Redo	Voice data paste is redone.
8	Copy	Copies a voice data.
9	Paste	Pastes a voice data.
10	Voice List	Displays the Voice List Window. (For details, see "***4.3Voice List Window***.")
11	Mixer	Displays the Mixer Window. (For details, see "***4.6Mixer***.")
12	Information	Displays the Information Window. (For details, see "***4.9MLD Information***.")
13	Help	Opens the "***MA-5 Authoring Tool User's Manual***."
14	Voice Assign Map	Displays the Voice Assign Map. For details, see "***4.4Voice Assign Map***.")
15	Import from Voice List	Imports voices with the same bank number and the same voice number to the voice list in the Voice Assign Map.
16	Export to Voice list	Exports voices with the same bank number and the same voice number from the voice list in the Voice Assign Map. [Note] Voice data can not be exported to the preset voice bank area.
17	Stream PCM Assign Map	Displays Stream PCM Assign Map. (For details, see "***4.5StreamPCM Assign Map***.")

【**Note**】   It is only applicable for "***SMF Format 0***" and "***SMF Format 1***."

3.8. LED/MTR Bar

LED/MTR status returned by polling which opposes to Emulator can be displayed and set up with this bar.

Figure. 3-15 LED/MTR Bar

No.	Name	Description
1	LED	Sets the blinking frequency of LED. The frequency of polling is 0.1sec. One of "*Default (No Blink)*", "*18Hz*", "*16Hz*", "*12Hz*", "*8Hz*", or "*4Hz*" is selectable.
2	MTR	Sets the blinking frequency of MTR. The frequency of polling is 0.1sec. One of "*Default (No Blink)*", "*2.25Hz*", "*2.0Hz*", "*1.5Hz*", "*1.0Hz*", or "*0.5Hz*" is selectable.

3.9. Preference Bar

This is a dialog bar to set the MA-5 Authoring Tool operational environment.
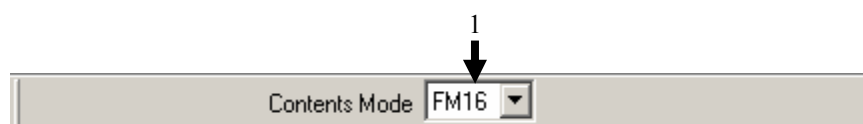
Figure. 3-16 Preference Bar

No.	Function Name	Contents
1	Contents Mode	Switches FM mode. When a music-data is loaded in Authoring Tool, FM mode can not be changed. In that case, be sure to close the file once, and then reset the contents mode.
		FM16 mode
		This is a mode to generate 16-tone by using 2-operator/4-operator voices and PCM voice.
		FM32 mode
		This is a mode to generate 32-tone by using 2-operator voices and PCM voice.
		ALL64 mode
		This is a mode to generate 32-tone by using 2-operator voice as FM section and generate 32-tone as PCM section.

3.10. Density Report Bar

This bar shows the event density information in music data.

Figure. 3-17   Event Density Report Bar

No.	Function Name	Contents
1	AD (Average Density)	Converts the event density in the read music, which put through one music, to MIDI byte numbers; and then, it is displayed. The unit is "*Byte/sec*." (One musical note is counted as 6-Byte.)
2	MD (Max Density)	Displays the event density per unit, which is the highest in one music. The unit is "*Byte/sec*."
3	MDP (Max Density Position)	Displays the position which has the highest event density in music. The unit is "*ms*."

【**Note**】　When the value of Average Density exceeds "*500 byte/s*," warning is displayed and the "*AD*" column of "*Status Bar*" blinks in red.

【**Note**】　When the value of Max Density exceeds "*1000 byte/s*," warning is displayed and the "*MD*" column of "*Status Bar*" and the "*MDP*" column blink in red.

【**Note**】　While one of the "*AD*", "*MD*" or "*MDP*" is blinked in red, it cannot save as a MLD file.

3.10.1. Calculation Method of Event Density

The size consumed by MIDI event is differed. When an error comes out by event density, it is necessary to cut the event in reference to "*4.7Event Density*."

The number of consumption bytes of a MIDI event	
Note Event	6Byte
Control Chan	3Byte
Program Change	2Byte
Pitch bend	3Byte
Exclusive Message	Byte in Data Section + 2 (F0, F7) Byte

3.11. Status Bar

In "*Status Bar*", current status information of tool, contents information, etc. are displayed.
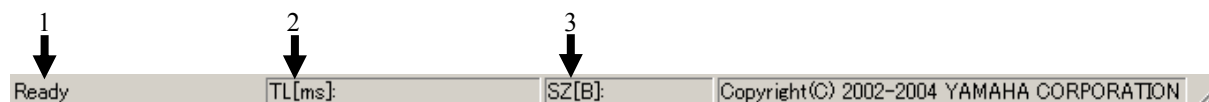
Figure. 3-18 Status Bar

No.	Function Name	Contents
1	Status Display	Displays the simple explanation about each buttons and functions in the position where the mouse is pointing. When nothing is pointed out, it shows "*Ready*."
2	TL (Total Length)	Displays the "*Actual Playing Total Time (end position)*" in the read music. The unit is "*ms.*" The actual playing total time is the time from Start Point to Stop Point. The end position is displayed with Tick count from the head.
3	SZ (Size)	Displays the size of MLD when file is saved in MLD format (*.mld*), or when MLD is read.

4. Description of each Window

This chapter describes the names and functions of each window provided in MA-5 Authoring Tool.

4.1. File List Window

MLD files can be loaded into this window as a list.
A SMAF file can be dropped and added to the File List Window (multiple files can be dropped.)
If one of MLD file loaded into File List Window is selected; in addition, "*Play*" in "*Control Bar*" is pressed, "*Direct Play*" is performed.
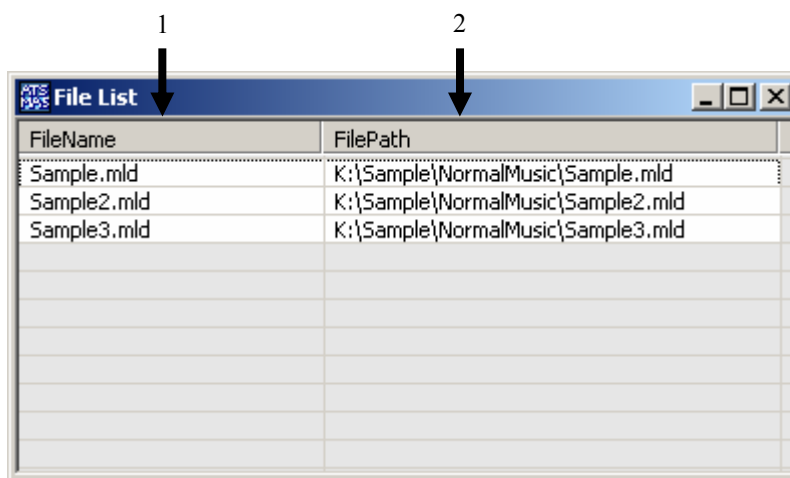
Figure. 4-1   File List Window

No.	Function Name	Contents
1	File Name	Displays a file name of loaded MLD file. (*.mld*)
2	File Path	Displays a file pass of loaded MLD file. (*.mld*)

Direct Play (Procedure of Playback a MLD File Format Music Data)

Open a music file (*.mld) using the mentioned three ways A, B, and C. When a music file is opened, it is assigned into File List. Select one of music file (*.mld) which has been assigned on File List Window; then "Direct Play" is started by pressing "Play" button on "Control Bar."

Right click on a blank area on Voice List Window. Then, New/Delete popup menu is appeared. Select "New" from the menu.
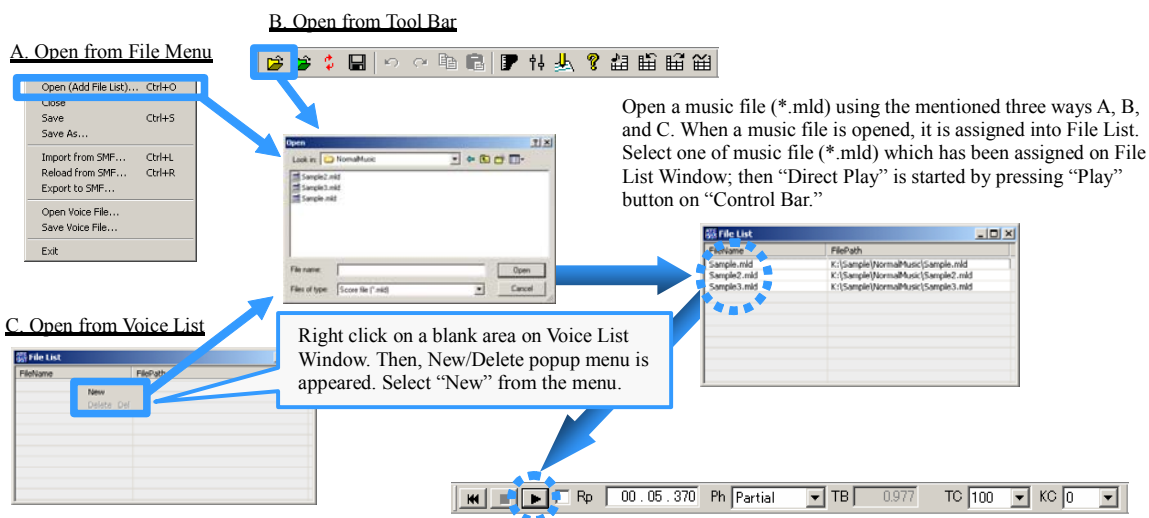
4.2. Score Window

Score Window is a window to display the data content of read SMF (*.*mid*) or MLD File (*.*mld*).
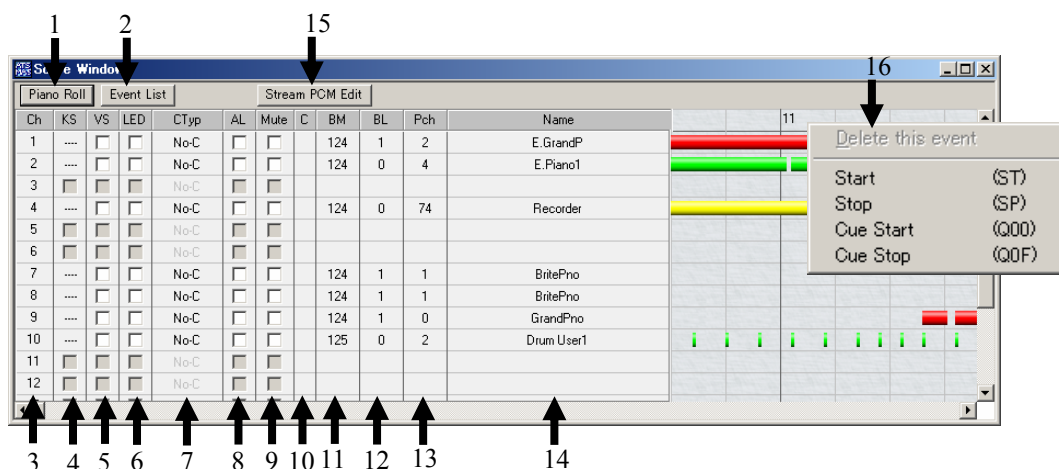
Figure. 4-2   Score Window

No.	Function Name	Contents
1	Piano Roll	Displays the contents read into "*Score Window*" on "*Piano Roll Window*."
2	Event List	Displays the data read into "*Score Window*" on "*Event List Window*."
3	CH	Shows channel numbers.
4	KS (Key Control Status)	When Key Control is set up, specification of whether KeyControl is performed or not to the applicable channel is determined. By placing a check in the box, KeyControl becomes effective. In addition, in channels which use a voice of Normal bank (KS box is marked as "--"(default")), KeyControl is valid. Conversely, in channels which use a voice of Drum bank, KeyControl is invalid.
5	VS (Vibration Status)	Designates whether Vibration Control is performed synchronizing with the data of applicable channel or not. Placing a check in the box to enable a Vibration. For VS setting of Stream PCM, refer to the following term "*VS and LED Setup of Stream PCM*".
6	LED	Designates whether LED Control is performed synchronizing with the data of applicable channel or not. Placing a check in the box to enable LED. For LED setting of Stream PCM, refer to the following term "*VS and LED Setup of StreamPCM*".
7	Ctyp (Channel Type)	Designates Channel Type for applicable channel. Clicking on the column of Ctyp of each channel changes the content as No-C, Melo, No-M and Ryh in this order.
8	AL (Analog Like)	By placing a check in this box, the channel can be set for AL voice channel. All voices of channel that has been set for AL voice channel become monophonic voices. After placing a check in the box of AL, and double-clicks any voice in voice assign map; in addition, places a check in the "*Enable AL*" of AL Voice Edit, and then, the effect of AL parameters can be obtained.
9	Mute	Mutes the channel by placing a check in the relevant channel. This setting is not reflected to MLD file.
10	C (Change Flag)	If the result shows difference when compared with voices that has the same bank number and voice number in the Voice List, a blue circle is displayed. When any of voices, which are different from the voice list in the relevant channel, exists, a blue circle is displayed.
11	BM (Bank Select MSB)	Displays BankSelect MSB at the head of voice.
12	BL (Bank Select LSB)	Displays BankSelect LSB at the head of voice.
13	Pch (Program Change)	Displays program change number at the top of voice.
14	Name	Displays name of voice at the head of voice. When a voice name is double-clicked, Voice Edit window will open. (Voice Edit window of built-in ROM voices cannot be opened.)
15	Stream PCM Edit	Displays Piano Roll Window (Stream PCM Edit View).
16	Cue Point Setting Column	Cue Point (Start point, End point) can be set by right-clicking on the column.

4.2.1. Setting of Cue Point (Start Point, Stop Point)

The cue point can be designated on a dialog displayed by right-clicking on the Tick display area in the Score Window.
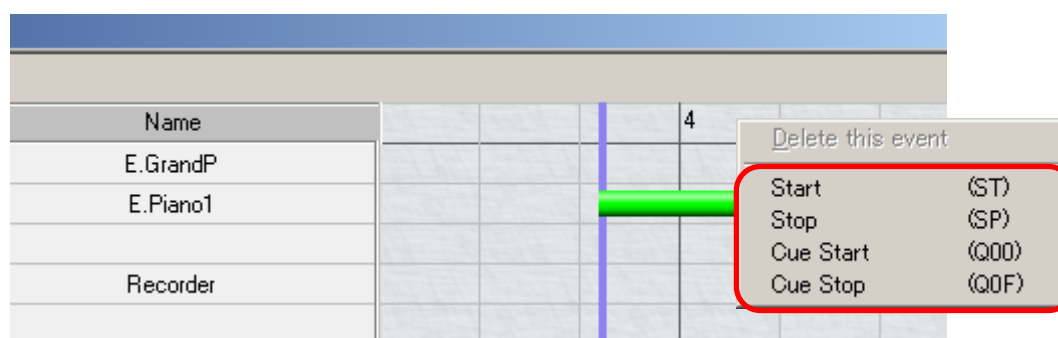
Display colors for cue point
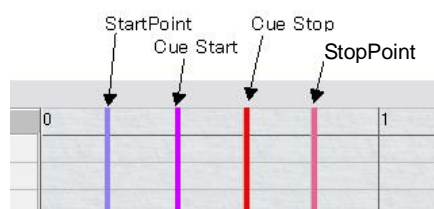
The cue point can be moved while drugging it.
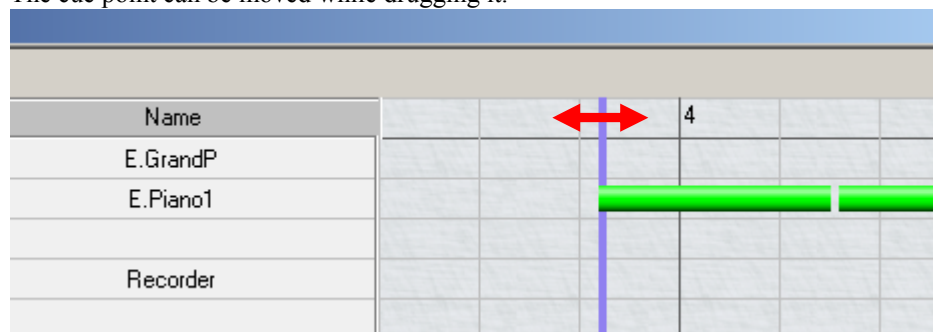
Double-clicking on a cue point opens the cue point setting dialog shown below and allows inputting a position by Tick.
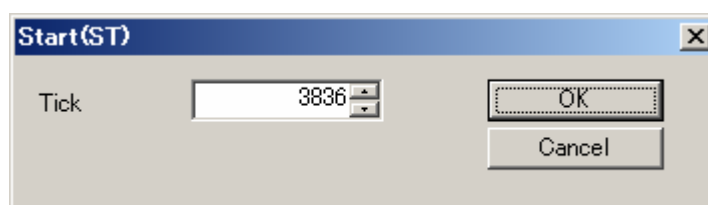
【Note】 ・ **A cue point cannot be created when any Note event is not present.**

・**A position of the StartPoint cannot be created and moved after the StopPoint.**

・**A position of the StopPoint cannot be created and moved before the StartPoint.**

4.2.2. Piano Roll Window

Displays the content of music data which was read into the "*Score Window*" on "*Piano Roll Window*."
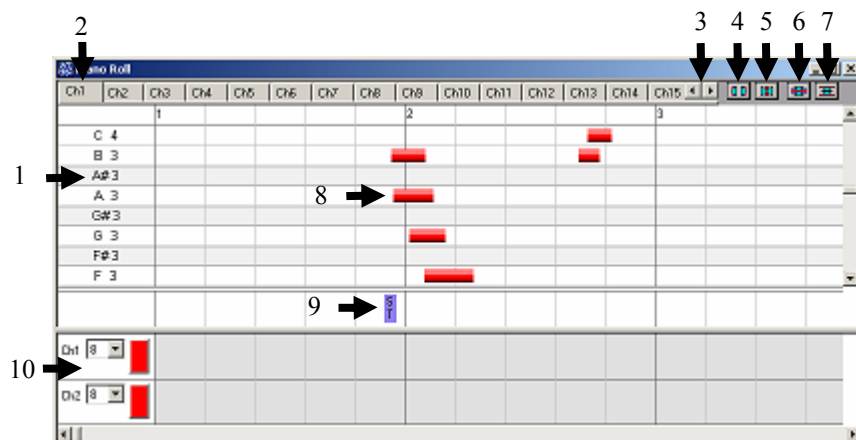
Figure. 4-3   Piano Roll Window

No.	Function Name	Contents
1	Interval Display	Displays the intervals of "*Piano Roll Window*."
2	[Ch1~16] and [All] part tabs	By clicking each tab, a part to display on "*Piano Roll Window*" can be changed.
3	Scroll buttons	A part tab scrolls from side to side. Un-displayed part tab can be displayed.
4	Horizontal zoom-in button	By clicking, the display size of window can be enlarged horizontally.
5	Horizontal zoom-out button	By clicking, the display size of window can be decreased horizontally.
6	Vertical zoom-in button	By clicking, the display size of window can be enlarged vertically.
7	Vertical zoom-out button	By clicking, the display size of window can be decreased vertically.
8	Note bar	Displays intervals and gate time of each MIDI note.
9	Controller/Cue Point display	Displays a control change, pitch bend, or cue point (StartPoint, StopPoint) input into each part. See "4.2.1 Setting of Cue Point."
10	Stream PCM Edit View	Assign of "*StreamPCM*" can be performed.

4.2.3. VS and LED for StreamPCM

The "*Channel Status Window*" is displayed by clicking the check box of "*VS*" or "*LED*" on the STM field of "*Score Window*." "*VS*" and "*LED*" can be set to the channel into the note which plays Stream PCM is input.
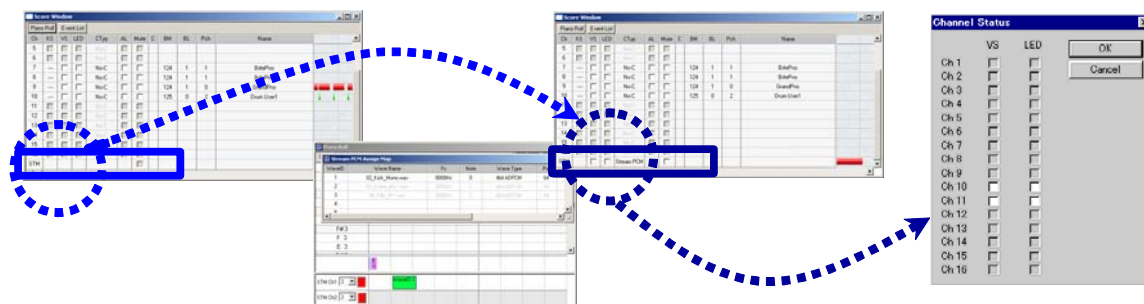
If any StreamPCM is not assigned in music, VS&LED check box on "*STM*" is not available. In order to set VS&LED to StreamPCM, any of StreamPCM must be assigned in music. For details about "*how to assign a StreamPCM in music?*," see the next page "*StreamPCM (WAVE → MLD) Conversion Procedure.*"

When StreamPCM become assigneable, place a check on VS or LED check box, then "*Channel Status*" dialog is appeard on Application Window; in addition, both VS and LED can be set for StreamPCM.

StreamPCM (WAVE → MLD) Conversion Procedure

1. Load a SMF which has no Midi-event or includes a note for Stream.
   * It can be also created from a new file. See [New] in "3.3.1 File Menu."
   note for Stream (BANK/MSB125-Note Number 0 to 12, 92 to 110)
2. Open the Piano Roll Window. The following windows are opened.
   *When note for Stream is contained in SMF, WAVEID which corresponds to the note number is automatically displayed.
3. Register the WAVE Data of which a sampling frequency was optimized beforehand into StreamPCM Assign Map. Or load the existing StreamPCM File (*.sm3).
   *When a note for Stream is attached to SMF, be sure to register a WAVE corresponding to note number/WAVE ID.
4. If Stream is newly added into music, Drag & Drop method shown blow can be used to assign.

Stream PCM Edit View is a window to assign a Stream PCM to MLD.
Since the maximum pronunciation of Stream PCM is two tones, it is divided into two levels (Upper/Lower).
By dragging and dropping from Stream PCM Map to here, it becomes assignable.
For details about how to assign the Stream PCM, see "4.5StreamPCM Assign Map."
By double-clicking the Stream truck, velocity conversion of Stream truck is possible; in addition, by right-clicking, Stream truck can be deleted.
Moreover, displacement of position (*Drag*) and change of length (*Drag adjustment*) can be executable.
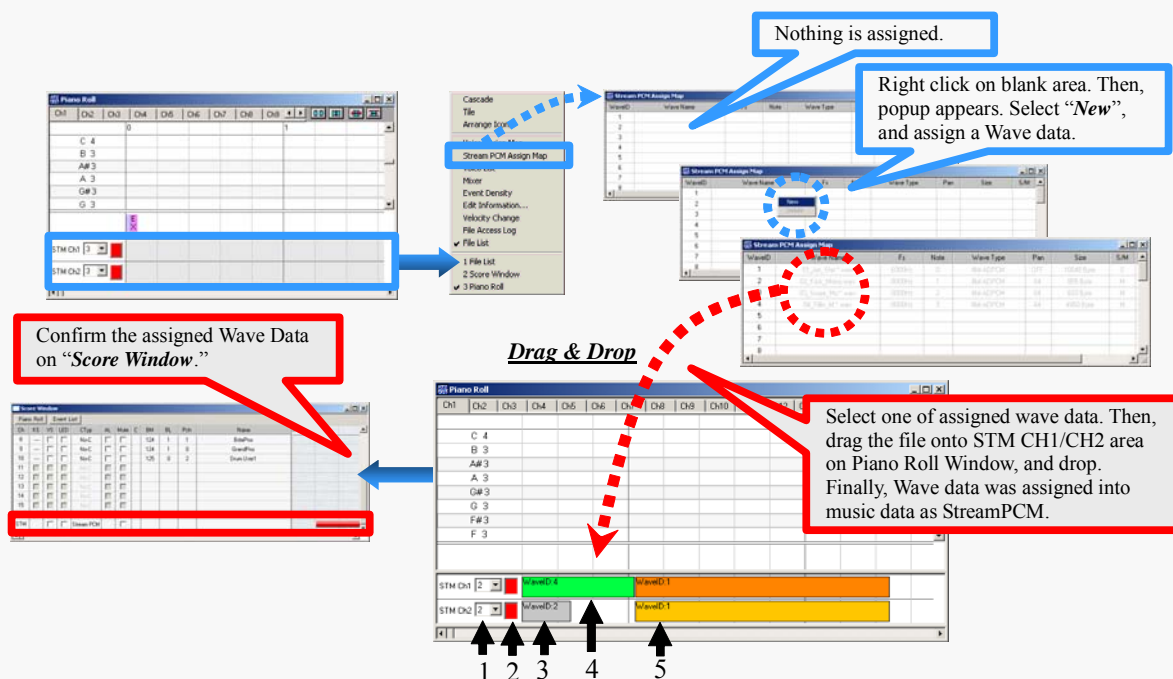
No.	Name	Description
1	Ch	The channel which inserts a StreamPCM event is selected. From newer to older, the number in channel without events is initial-displayed.
2	Stream PCM Reserve Button	Sets the reserved number of Stream PCM. According to the reserved numbers, the amount of RAM consumption will be changed. Please refer to "3.6.1About RAM Size" for details.
3	Stream PCM Track (Not Assigned)	It is the Stream PCM track with which only the stream event exists and a voice is not assigned. It is indicated in gray.
3	Stream PCM Track (Mono)	It is the Stream PCM track of monophonic pronunciation. It is displayed in yellow-green.
5	Audio Bar	WaveID of a StreamPCM event and assigned channel number are shown. In the case of a monophonic, it is displayed in yellow-green; in addition, in the case of stereo, it is displayed in orange.

4.2.4. Event List Window

In "***Event List Window***", contents read into "***Score Window***" are displayed.
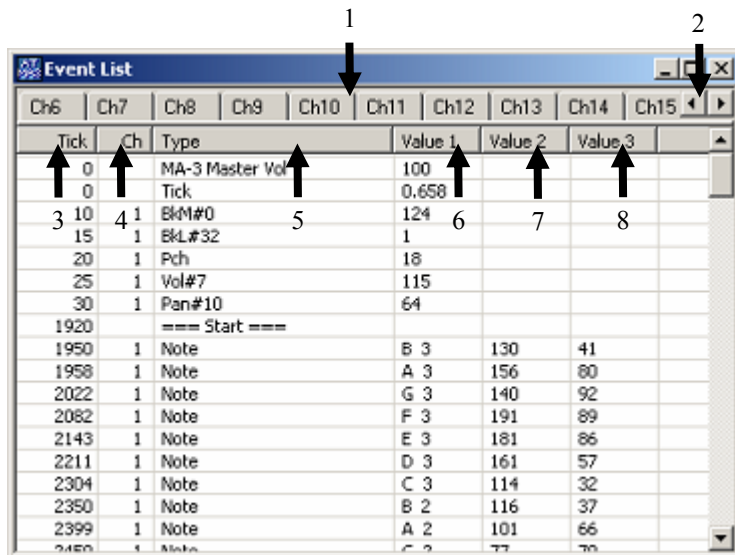
Figure. 4-4   Event List Window

No.	Name	Description
1	[Ch1~16], [Stream PCM] and [All] part tabs	By clicking each tab, a prat displayed on the "***Event List Window***" can be changed.
2	Scroll buttons	Part tab is scrolled left or right by pressing this button. Part tab that is not displayed can be displayed.
3	Tick (Location)	Displays a location of each event by using the unit of Tick.
4	Ch (Channel)	Displays a channel of each event.
5	Type	Displays the type of each event.
6	Value1	"***Control Change***"…Displays a data value. "***Pitch Bend***"…Displays a pitch bend value. "***Note***"…Displays a note number. "***Stream PCM***"…Displays a WaveID.
7	Value2	"***Note***"…Displays game time of note. "***StreamPCM***"…Displays gate time of Stream PCM.
8	Value3	"***Note***"…Displays velocity of note. "***StreamPCM***"…Displays velocity of Stream PCM.

4.3. Voice List Window

Display "*Voice Map*."
Click "*Voice List*" in "*Application Window*", or select "*Voice List*" from "*Window Menu*" in "*Menu Bar*."
When SMF is loaded, applicable voices of Voice List are assigned as a MLD voice.

4.3.1. Normal Voice List

"*Normal Voice List*" is displayed by clicking "*Normal Tab*."
In "*Normal Voice List*", voice names and voice types which correspond to program changes per bank are displayed.
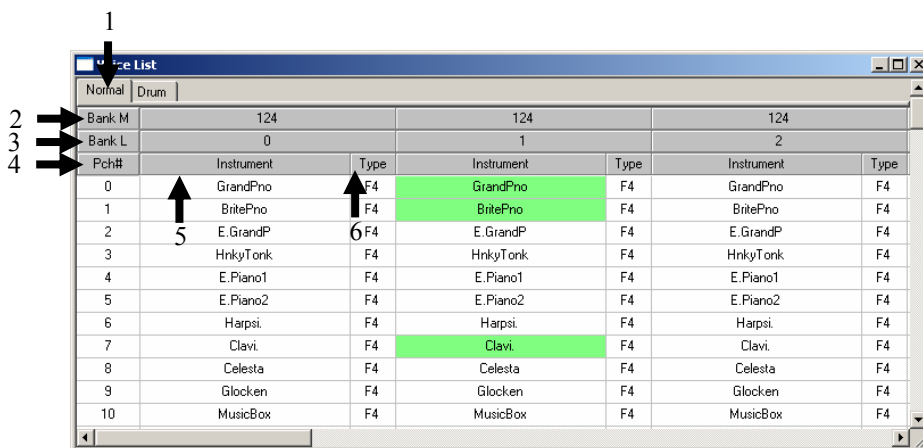
Figure. 4-5　Voice List Window (Normal Voice)

No.	Function Name	Contents
1	Normal tab	Displays Normal Voices.
2	Bank M	Displays BankSelect MSB.
3	Bank L	Displays BankSelect LSB. In case of drum voice, it becomes "*Pch#*" display.
4	Pch#	Displays voice numbers. In case of drum voice, it becomes "*Note#*" display.
5	Instrument	Displays voice names. When voice name is double-clicked, Voice Edit window is opened. The background of voices that includes "*AL parameters*" is displayed with green.
6	Type	Displays operator that is used. F4: 4 Operators setting / F2: 2 Operators setting / P: PCM setting

【Note】　By "*Import from Voice*" button in tool bar, import of voice from Voice list to Voice Assign Map is possible, in addition, by "*Export from Voice*" button, export of voice from Voice Assign Map to Voice list is possible.

【Note】　In normal voice list, voice names and voice types corresponding to program numbers of each Bank are displayed, and in drum voice list, voice names and voice types corresponding to note numbers of each program are displayed.

【Note】　Each voice can be changed and be saved by Bank unit. For details about the save of voice list, see "*4.15.3Save of Voice List.*"

4.3.2. Drum Voice List

"*Drum Voice List*" is displayed by clicking "*Drum Tab*."
In "*Drum Voice List*", voice names and voice types which correspond to program changes per bank are displayed.
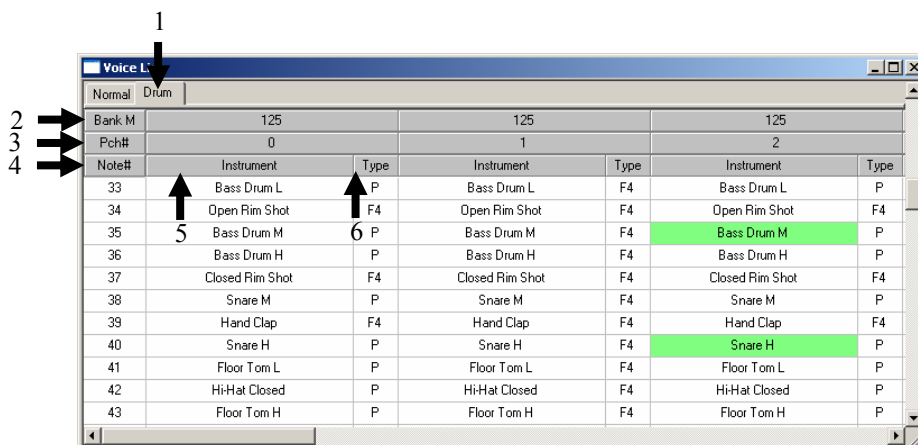
Figure. 4-6   Voice List Window (Drum Voice)

No.	Function Name	Contents
1	Drum tab	Displays Drum Voices.
2	Bank M	Displays BankSelect MSB.
3	Pch#	Displays voice numbers. In case of drum voice, it becomes "*Note#*" display.
4	Note#	Displays Note Numbers.
5	Instrument	Displays voice names. When voice name is double-clicked, Voice Edit window is opened. The background of voices that includes "*AL parameters*" is displayed with green.
6	Type	Displays operator that is used. F4: 4 operators setting / F2: 2 operators setting / P: PCM setting

4.3.2.1. Voice List Window (Copy & Paste Function)

By right-clicking the voice name of Voice List Window, "***Voice data Copy/Paste***" function menu is displayed.
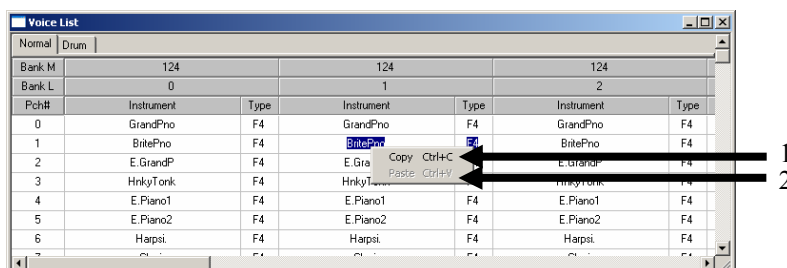
Figure. 4-7   Voice List Window (Copy & Paste Function)

No.	Function Name	Contents
1	Copy	Voices can be copied.
2	Paste	Voice can be pasted.

4.3.2.3.1. Copy & Paste

1. At first, right-clicks the mouse on the voice, which you want to copy, on the voice list window. Popup menu is displayed, and then selects "***Copy***" here.

2. Secondly, right-clicks the mouse on the voice name of voice, where you want to paste the copied voice. Popup menu is displayed, and then selects "Paste" here. For the details about voice paste to "***Voice Assigned Map***", refer to "***4.4.1Voice Assign Map (Copy & Paste Function)***."

3. Finally, the voice is pasted.
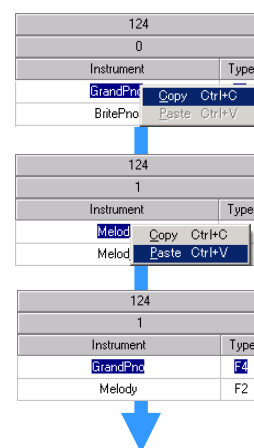
【Note】   The copy/paste operation of voices can also be made by using "***Copy***" or "***Paste***" on the "***Edit***" menu of the application, or by using Toolbar of the application.

4.3.2.2. Voice List Window (Right-Click Menu)

By right-clicking the "**Bank M**" section, a pop-up menu is displayed.
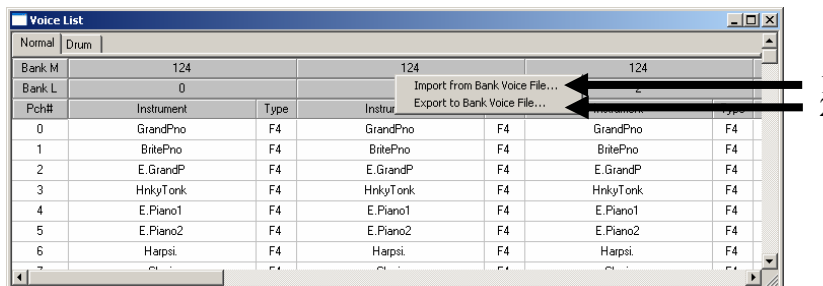
Figure. 4-8   Voice List Window (Right-Click Menu)

No.	Function Name	Contents
1	Import from Bank Voice…	Saves voice by Bank unit. For details, see "*4.3.2.4Saving Voice List*."
2	Export to Bank Voice	Loads voice by Bank unit. For detail, see "*4.3.2.3Loading Voice List*."

4.3.2.3. Loading Voice List

4.3.2.3.2. Loading of All Voice

Saved voice file can be read.
Select "**Open Voice File**" from "**File**" menu of the menu-bar on the "**Application Window.**" "**Open**" dialog box is displayed, and then, selects a file name and click "**Open**" button to read the voice file.
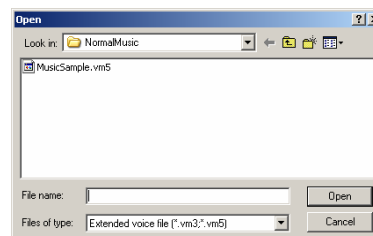
Figure. 4-9   Loading of All Voices

4.3.2.3.3. Loading by Bank Unit (Normal/Drum Voice Bank)

Saved voice file can be read in Normal Voice List and Drum Voice List.

Bank voice files saved with MA-3 Authoring Tool or MA-5 Authoring Tool can be read for the Normal voice list or the Drum voice list.
Right-clicks on the Bank MSB field of Voice List. Selects "**Import from Bank Voice**" from the "**Popup Window**." "**Open**" dialog box is displayed. Selects a file name, and then click "**Open**" button to read the voice file.

4.3.2.4. Saving Voice List

4.3.2.3.4. Saving All Voices

    Select "*Save Voice File*" from "*File*" menu of the menu-bar on the "*Application window*." "*Save As*" dialog box is displayed. Enter the file name in "*File name*" (the extension are "*.vm3(MA-3)*", "*.vm5(MA-5)*"), and then click "*Save*" button to save the data.
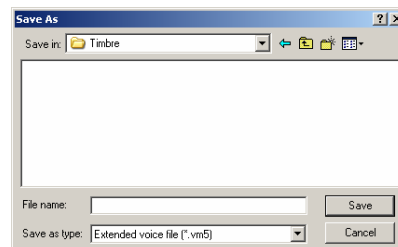
Figure. 4-10 Saving All Voice

4.3.2.3.5. Loading by Bank Unit (Normal/Drum Voice Bank)

    Voices that is registered in the Normal or Drum voice list can be saved by bank unit.
Right-clicks on the Bank MSB field of Voice List. Select "*Export to Bank Voice*" from the "*Popup window*." "*Save As*" dialog box is displayed. Enters the file name into the "*File name*" (extension are ".*vm3 (MA-3)*", ".*vm5 (MA-5)*") and click "*Save*" button to save the data.

4.4. Voice Assign Map

Display voices which are used by each channel per channels.
Voices up to 128 including all channels can be displayed. (Data which uses more than 128 voices cannot be read.)
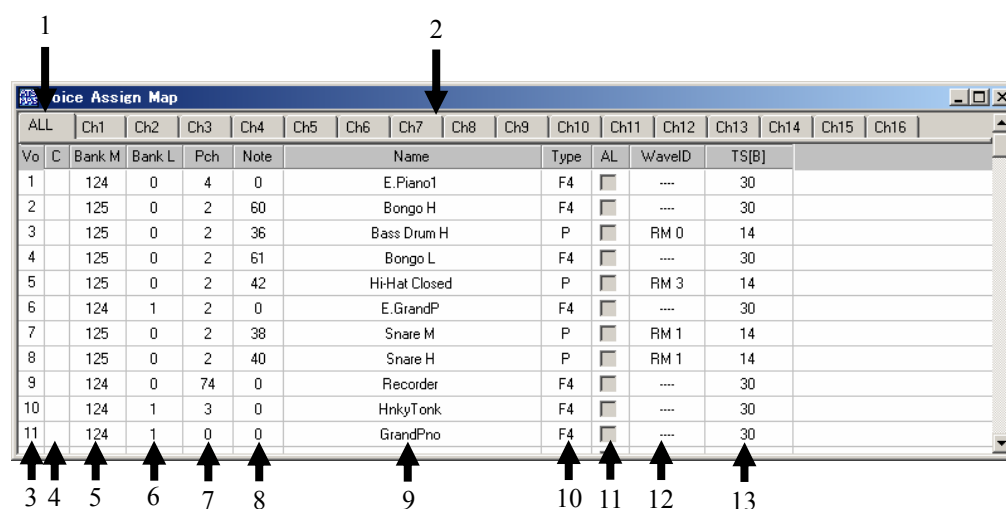
Figure. 4-11   Voice Assign Map Window

No.	Function name	Contents
1	ALL	Displays all used voices.
2	Ch1~Ch16	Displays the used voices per channels.
3	Vo.	Displays the number of used voices.
4	C (Change Flag)	When comparing the bank number of same voice list and voice of same voice number, and if the result is different, a blue circle is displayed.
5	Bank M (Bank Select MSB)	Displays BankSelect MSB.
6	Bank L (Bank Select LSB)	Displays BankSelect LSB.
7	Pch	Displays program change number.
8	Note	Displays note number.
9	Name	Displays voice name. When a voice name is double-clicked, Voice Edit window will be opened. (Voice Edit window of built-in ROM voices cannot be opened.)
10	Type	Displays voice type to use. F4: 4 operators setting, F2: 2 operators setting, P: PCM setting.
11	AL	AL voice use in an applicable voice is specified.
12	WaveID	When used voice PCM and RAM voice is used, its WaveID is displayed. When using Drum voice "*RM*" of ROM, "*RM0~6*" is displayed.
13	TS[B] (Total Size)	RAM size for used voice is displayed. The unit is "*Byte*." For details about RAM size, see "*3.6.1About RAM Size.*"

4.4.1. Voice Assign Map (Copy & Paste Function)

By right-clicking the voice name of Voice Assign Map, "***Voice data Copy/Paste***" function menu is displayed.

【Note】 **For details of Color Data Copy/Paste function, see "4.3.2.3.1 Copy & Paste."**

【Note】 Preset voice (*1) assigned on Voice Assign Map can be edited.
Edited voice data can be copied and pasted onto the Voice List as a user voice (*2).

(*1) Preset voice	Normal voice	Bank MSB=124, LSB=0
	Drum voice	Bank MSB=125, LSB=0, Pch#=0,1
(*2) User voice	Normal voice	Bank MSB=124, LSB=1 to 9
	Drum voice	Bank MSB=125, LSB=0, Pch#=2 to 9
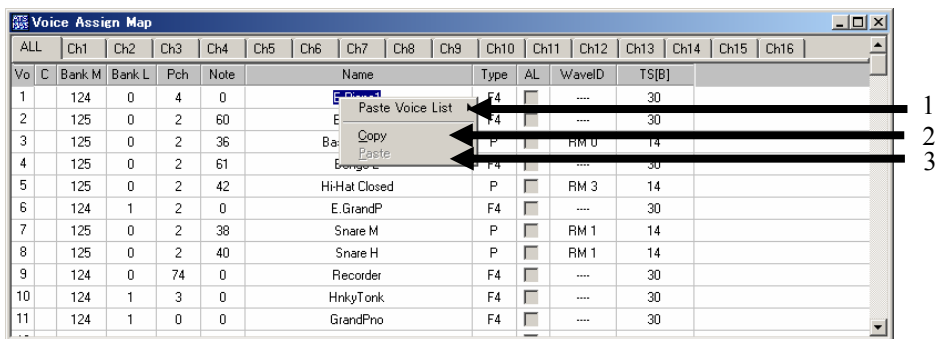
Figure. 4-12   Voice Assign Map (Copy & Paste Function)

No.	Function Name	Contents
1	Paste Voice List	Displays the contents of Voice List. For details, see the following figure.
2	Copy	Voices can be copied.
3	Paste	Voice can be pasted.

The voice assignment method to MLD can also select and assign a voice from "***Paste Voice List***" of Voice Assign Map besides copy & paste of Voice List to Voice Assign Map.
It is possible to change a voice by choosing Paste Voice List, and following and choosing a voice from the menu displayed by carrying out the right click of the voice name changing.

Voice Copy/Paste Function
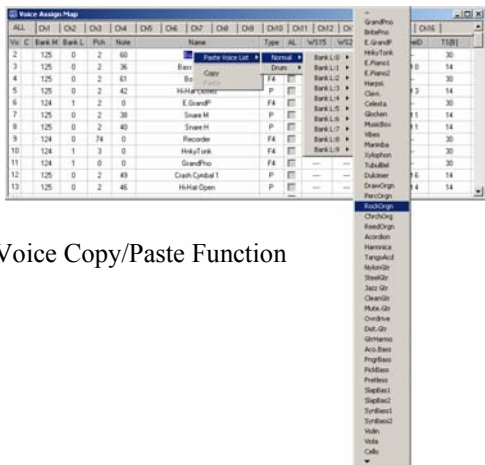
4.4.2. Voice Assign Map (Right-Click Menu)

By right-clicking on a status such as "**Bank M**", the Voice Assign Map right-click menu will appear.
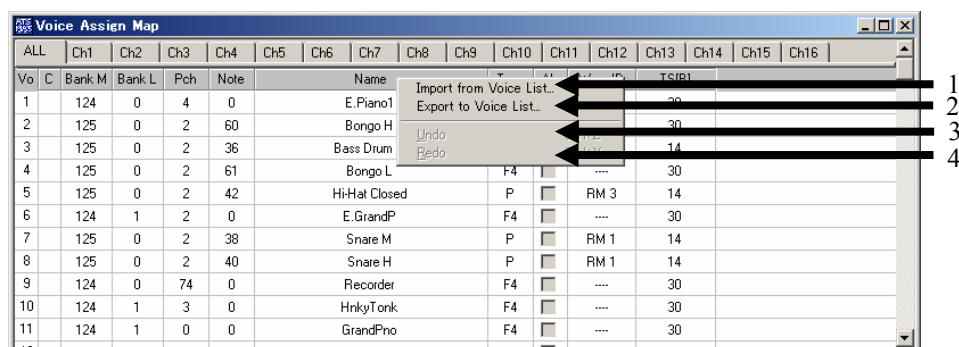
Figure. 4-13   Voice Assign Map (Right Click Menu)

No.	Function name	Contents
1	Import from Voice List	Voice, which has the same voice number and same bank number in the Voice List, is imported into Voice Assign Map. In addition, the same operation can be performed same operation with "**Import from Voice List**" in a tool bar. For details, see "**4.15.2.1Assignment of Voice Data in Block**."
2	Export to Voice List	Voice, which has the same voice number and the same bank number in the Voice List, is exported from Voice Assign Map. In addition, the same operation can be performed with "**Export to Voice List**" in a tool bar. For details, see "**4.15.2.1Assignment of Voice Data in Block**."
3	Undo	Makes the last copy operation for voice invalid and returns it into the previous state.
4	Redo	Repeats the same process as the last performed process.

【**Note**】The voice data of the same bank and voice number as a preset voice is not exported to the Voice List by [Export to Voice List]. For registering such voice data into the Voice List, paste it into the user voice bank area with Copy/Paste function. For the detail, please refer to "4.4.1　Voice Assign Map (Copy & Paste Function)."

4.5. StreamPCM Assign Map

Stream PCM is assignable.
Stream PCM can be registered the maximum of 32 waves, and can be simultaneously generated to two sound.
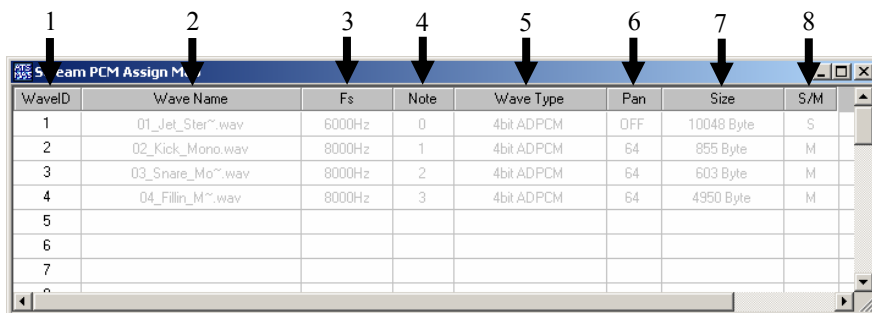
Figure. 4-14 StreamPCM Assign Map

No.	Function Name	Contents
1	WaveID	Displays wave ID. Corresponds to Note number. Up to 32 waves can be registered.
2	Wave Type	Displays wave type.
3	Fs	Displays the frequency of wave.
4	Note	Displays note numbers. (0 to 12 and 92 to 110)
5	Wave Type	Displays wave type.
6	Pan	Displays pan of Wave.
7	Size	Displays the size of the read wave data.
8	S/M (Stereo/Mono)	The read wave data indicates whether it is stereo wave data and whether it is monophonic wave data.

4.5.1. Details about Note to which a StreamPCM can be assigned

In order to register a Stream PCM event into SMF, it is necessary to set up by Bank Select, Program Change, or Note number beforehand, in other words, assigns by Stream PCM Edit Window of Piano Roll.
The bank selection of the note which can be used as a Stream PCM, a program change (an arbitrary value needs to be program changed for decision of a bank selection), and the note number are as follows.

Bank MSB	Note number	Definition	
125	0	Stream PCM	WaveID:1
	1		WaveID:2
	:		WaveID:X
	12		WaveID:13
	13	Drum Channel	
	14		
	:		
	91		
	92	Stream PCM	WaveID:14
	93		WaveID:15
	:		WaveID:X
	110		WaveID:17

【Note】   For details, see "*Contents Authoring Guideline*."

4.5.2. Details about Sound File which can be registered as StreamPCM

In MA-5 Authoring Tool, it is possible to convert a sound file as an encoding-processed (*compressed*) StreamPCM and to register it to MLD, so that a channel sequence and a sound file (*AIFF/WAVE*) can be played synchronously on MLD. Stream PCM can be registered up to 32 kinds and can generate up to 2 sounds simultaneously.

Read Sound File			Stream PCM
Bit Rate	Sampling Frequency	Bit Rate	Sampling Frequency
16-bit	4KHz ~24KH**z**	AIFF/WAVE Monophonic	4-bit ADPCM
16-bit	4KHz ~12KH**z**	AIFF/WAVE Stereo	4-bit ADPCM

4.5.3. StreamPCM Assign Map (New/Delete Function)

By right-clicking the Stream PCM Assign Map window, "***New/Delete***" menu is displayed. In addition, it makes possible to perform the registration and delete of sound files.
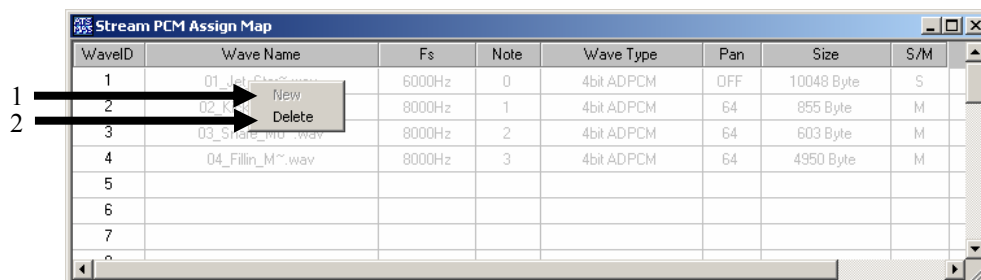
Figure. 4-15   StreamPCM Assign Map   (New/Delete)

No.	Function Name	Contents
1	New	Opens a new WAVE data.
2	Delete	Deletes an opened Wave data.

If the right click of the inside of a "Stream PCM Assign Map Window" is carried out, a New/Delete menu is displayed and registration of a sound file and deletion can be performed.

【**Note**】   Refer to "***4.5.2Details about Sound File which can be registered as* StreamPCM**", for details about Fs of the file which can be read as a Stream PCM, and the encoding system which can be chosen.

【**Note**】   Stereo Sound can be registered to one wave ID. (Stereo Lch/Rch is considered as one wave and it is counted as one).

4.5.4. StreamPCM Wave Panpot

By double-clicking the pan-display column, "*Stream PCM Wave Panpot*" dialog opens and the panpot can be set.
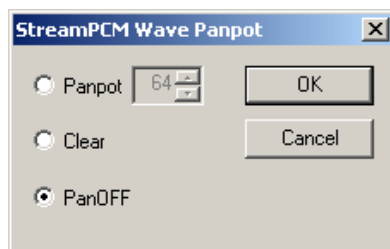
Figure. 4-16   Stream PCM Wave Panpot

When a section of Pan Display is double-clicked, "*Stereo PCM Wave Panpot*" is opened;
In addition, pan can be set up.
When a sound file is loaded, Panpot will be set up automatically according to the kind of sound file.

- ・   Mono sound file   : Panpot=64
- ・   Stereo sound file   : PanOff (Stereo Playback)

【Note】   For "*Stream PCM Wave Panpot Clear*" and "*Stream PCM Wave Panpot PanOFF*", refer to "*Contents Authoring Guideline For MA-5 Authoring Tool*."

4.5.5. StreamPCM Assign Map (Right-Click Menu)

By right-clicking on the status such as "*WaveID*" or "*Fs*", a pop-up menu is displayed.
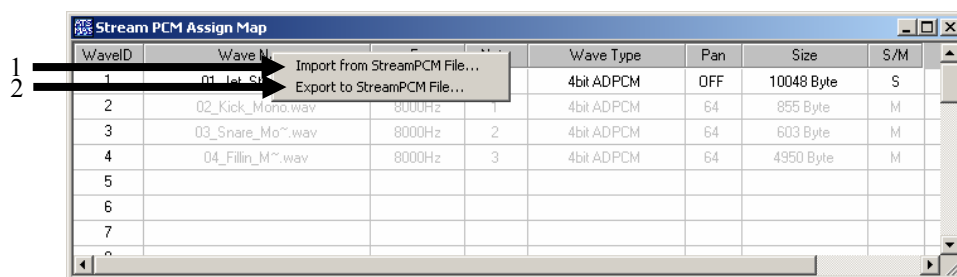
Figure. 4-17   StreamPCM Assign Map (Right-click Menu)

No.	Function name	Contents
1	Import from Stream PCM File	Waveform data can be read from Stream PCM File that has been saved in Export to Stream PCM File.
2	Export to Stream PCM File	All waveform data registered in Stream PCM Assign Map can be saved in StreamPCM File. (extension is "**.sm5*")

4.6. Mixer

The playback balance of each channel can be kept. (The balance cannot be changed during a playback of data.)
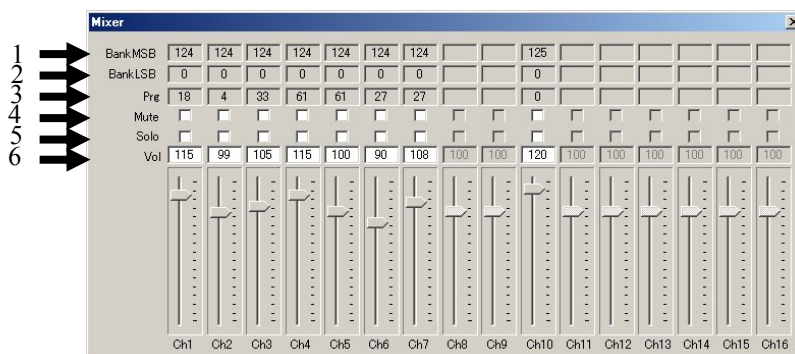
Figure. 4-18 Mixer Window

No.	Function name	Contents
1	Bank MSB (Bank Select MSB)	Displays BankSelect MSB.
2	Bank LSB (Bank Select LSB)	Displays BankSelect LSB.
3	Prg (Program)	Displays Program Change Number.
4	Mute	Mutes a relevant channel. This is not reflected on the music data (*MLD*).
5	Solo	Plays a relevant channel with solo. This is not reflected on the music data (*MLD*).
6	Vol	Displays a volume value.

4.7. Event Density

Converts the event density to the MIDI byte counts in the read music and displays it.
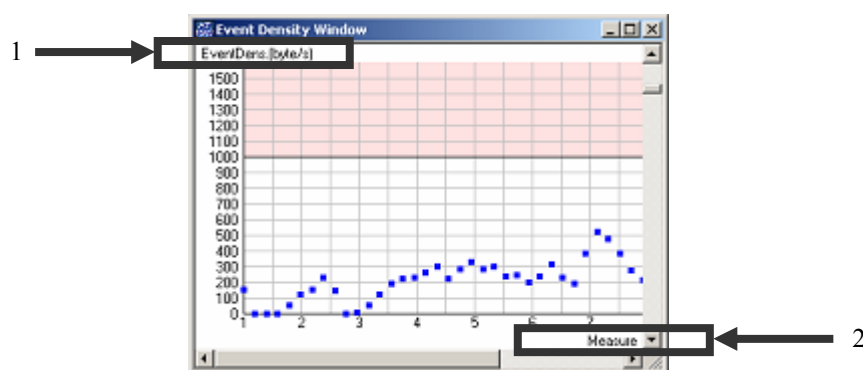
Figure. 4-19 Event Density

No.	Function name	Contents
1	Event Density [byte/s]	Displays event density. The unit time used as criteria when converting an event density can be set up by preference.
2	Measure/Time [Sec]	Displays time. •In case of SMF import : Measure (*beat unit*) is displayed. • In case of MLD Open : Time "*sec*" is displayed.

4.8. Velocity Change

Velocity of Note event in read music can be changed.
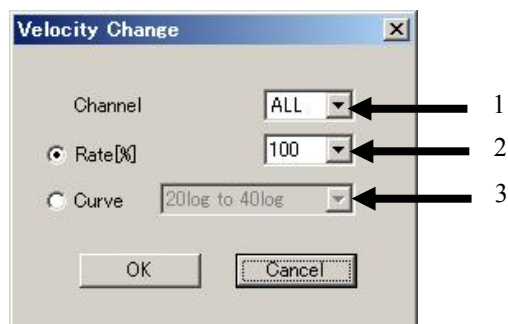
Figure. 4-20   Velocity Change Dialog

No.	Function name	Contents
1	Channel	Designates the channel to change its velocity. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16 channel, STM (StreamPCM), and ALL (All note event) can be designated.
2	Rate [%]	Designates the change rate of velocity value 50 ~ 200%.
3	Curve	Designates the curve which changes a velocity. There are two kinds of curves "*20logto40log*" and "*40logto20log.*"

4.9. MLD Information

Information can be input / edited.
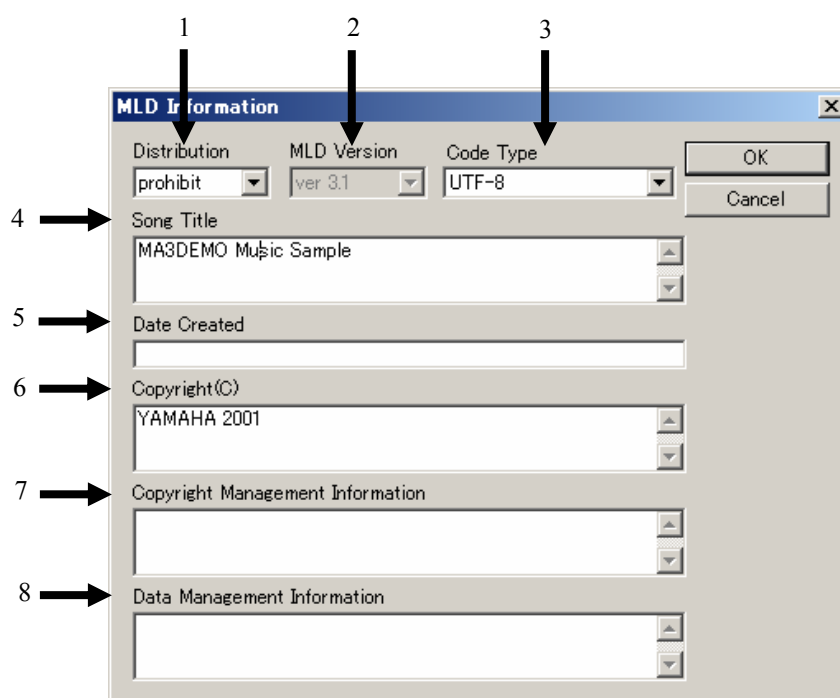
Figure. 4-21 Edit Information

No.	Function name	Contents
1	Distribute	Sets up allow/prohibit of re-distribution.
2	MLD Version	Displays the version information.
3	Code Type	Sets up the code type. Only "*UTF-8*" can be selected.
4	Song Title	You can enter the song name here. The available character numbers are up to 50 by half size character.
5	Date Created	You can enter the creation date and time here. Be sure to type 8 half size characters here. E.g. January/15/2004 → 20040115
6	Copyright©	Copyright can be input. The number of character which can be input is up to 255 in half-size.
7	Copyright Management Information	Copyright management information can be input. The number of character which can be input is up to 255 in half-size.
8	Data Management Information	Data management information can be input. The number of character which can be input is up to 255 in half-size. In addition, name of lyric writer can be input here.

4.10. File Access Log

Figure. 4-22   File Access Log

Log is displayed when operation related to the file is performed.
The performed operation and path of file are displayed.
The contents of display do not disappear until application ends.

4.11. Transpose

The note number of the note event in the sound data can be shifted in the range of "+12" – "-12."

No.	Function name	Contents
1	Channel	Selects the channel to shift the note number. When "ALL" is selected, the note number of all channels is shifted. [Note] - This setting is valid only for normal channel. - The channel having no note event and HV channel are not selectable. - The note number of drum channel doesn't shift.
2	Transpose	Sets Key control. The range from "+12" to "-12" is selectable.

【Note】 Setting of Transpose is reflected to SMAF file.

4.12. Preference
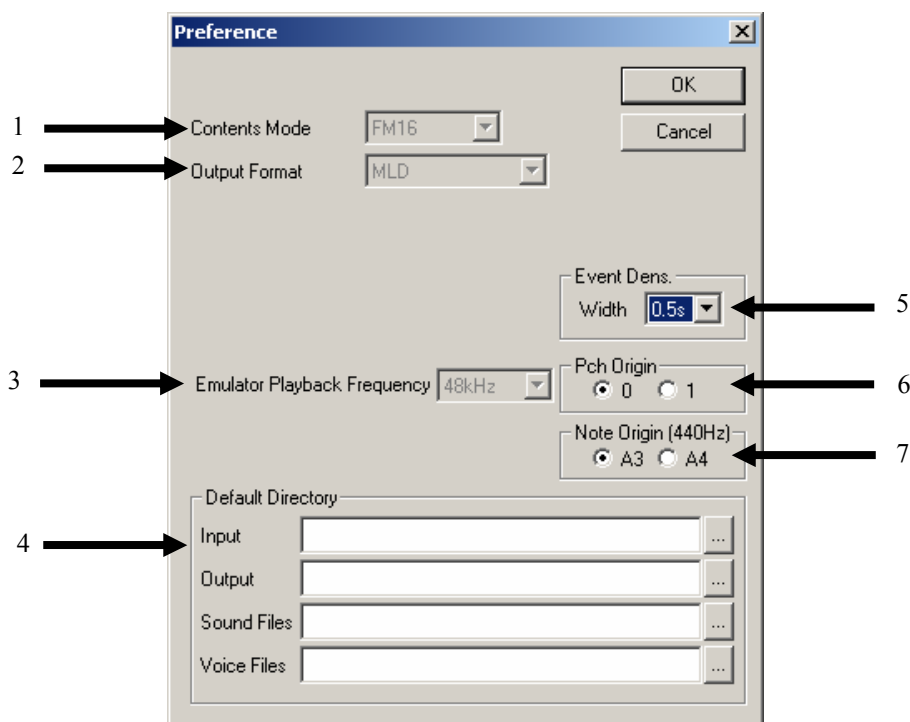
Figure. 4-23   Preference Window

No.	Function name	Contents
1	Contents Mode	Switches FM mode. When music data is read in Authoring Tool, FM mode can not be switched. So, be sure to switch to FM mode after close music data.
		FM16 Mode
		This is a mode in which can use 2-operator voice, 4-operator voice, and PCM voice.
		FM32 Mode
		This is a mode in which can use 2-oerator voice and PCM voice.
		ALL64 Mode
		This is a mode which can use 2-Operator voices and PCM voices. (Both AL parameter and StreamPCM can not be used). For details about the maximum number of voices that can be generated simultaneously, see "1About MA-5 Authoring Tool."
2	Output Format	Displays an output format.
3	Emulator Playback Frequency	Playback frequency of emulator can be set up. Either of 48kHz (Default), 44.1kHz, 32kHz, or 22.05kHz can be selected.
4	Event Dens. Width	The unit time used as the reference at converting event density can be set up. 0. 1 Sec, 0.2 Sec, 0.5 Sec, 1.0 Sec, 1.5 Sec, or 2.0 Sec can be chosen. (Density unit is Byte/Sec=Density/Width.)
5	Pch Origin	Whether program change number starts from "*0*" or from "*1*" can be selected by selecting Pch Origin.
6	Note Origin	It can set to display Note of 440Hz as A3 or A4. The Note display of EventList and PianoRoll change, but the tone of the voice to generate does not change.
7	Default Directory	It can be set as the default directory at the time reading various files by clicking the right side button and choosing arbitrary folders.

4.13. DVA Checker

This is a window to check the maximum simultaneous pronunciation numbers.
When an error occurred in the maximum simultaneous pronunciation number, it is used to pinpoint the error parts.
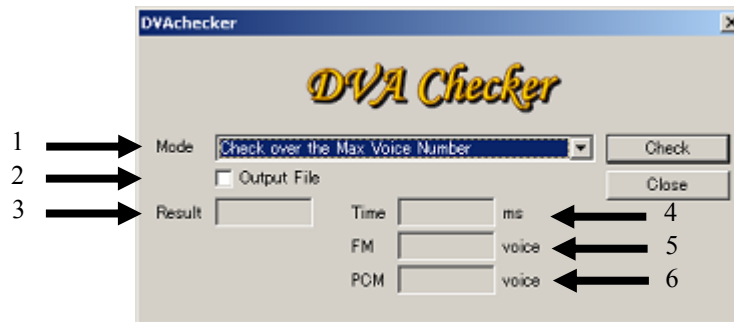
Figure. 4-24 DVA Checker

No.	Function name	Contents
1	Mode	***Check over the Max voice***
		By clicking the Check button, the position of which it exceeded the number of maximum simultaneous pronunciation in each mode (***FM32, FM16, ALL64***) and its pronunciation number are checked. The value of "***Time***", "***FM***" and "***PCM***" are displayed when the result is "***Over***."
		Check the Max Voice Number of Sequence
		By clicking the Check button, the position of the maximum simultaneous pronunciation number in data and the number of pronunciation are checked. The value of "***Time***", "***FM***" and "***PCM***" are surely displayed, it is not concerned with Result.
2	Output file	By placing a check in a box, time of which it exceeded the number of maximum simultaneous pronunciation in each mode (***FM32, FM16, ALL64***) and its pronunciation number can be saved by text-file format. (***DVAChecker_result.txt***) The text file is saved in the folder which is installed in MA-5 Authoring Tool.
3	Result	Displays the result which checked the simultaneous pronunciation number. If it is not over the number of maximum simultaneous pronunciation in each mode, "***O.K.***" will be displayed. If it is over, "***Over***" will be displayed. And if the result is "***Over***", open the above text file and confirm the details, please.
4	Time	Displays the object time in "***ms***" unit.
5	FM	Displays the number of simultaneous pronunciation of FM voice.
6	PCM	Displays the number of simultaneous pronunciation of PCM voice.

4.14. about Authoring Tool
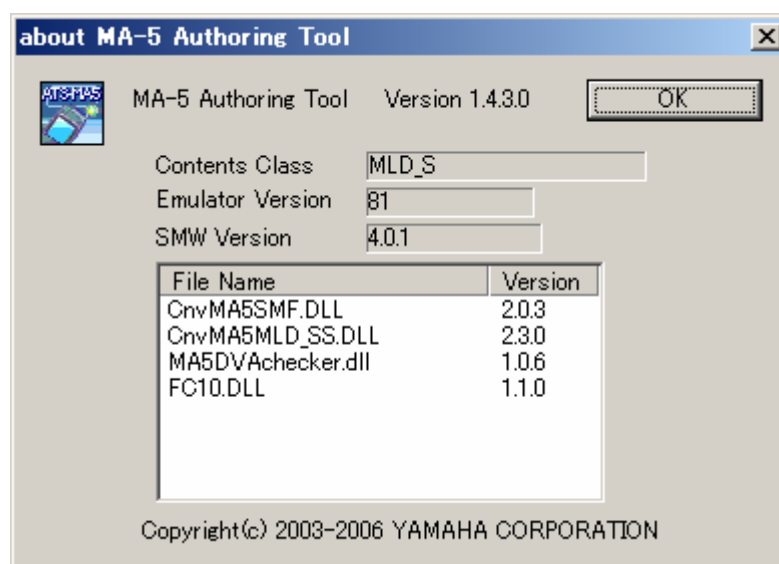
Figure. 4-25   about Authoring Tool

【Note】   Refer to "**3.3.6Help Menu**" to open this window.

4.15. Voice Edit

4.15.1. About Voice Bank

This is a list of voice banks which can be used by MLD. Assigned area differs depending on a bank specified in SMF. Voice edit possible or impossible, voice, etc. differs depending on an assigned bank.

Normal Voice

Kinds of voice	Preset	User
Bank MSB	124	124
Bank LSB	0	1 to 9
Program Change	0 to 127	0 to 127
Voice Edit	Impossible	Possible

Drum Voice

Kinds of voice	Preset	Preset	User
Bank MSB	125	125	125
Bank LSB	0	1	2 to 9
Program Change	13 to 91	13 to 91	13 to 91
Voice Edit	Impossible	Impossible	Possible
Others	Mixed with PCM voice	Only FM	―

【Note】 For details, see "***Contents Authoring Guideline***."

4.15.2. Assignment of Voice Data

4.15.2.1. Assignment of Voice Data in Block

The voices of Voice List and Voice Assign Map are imported or exported in block.

Import from Voice List

Export to Voice List
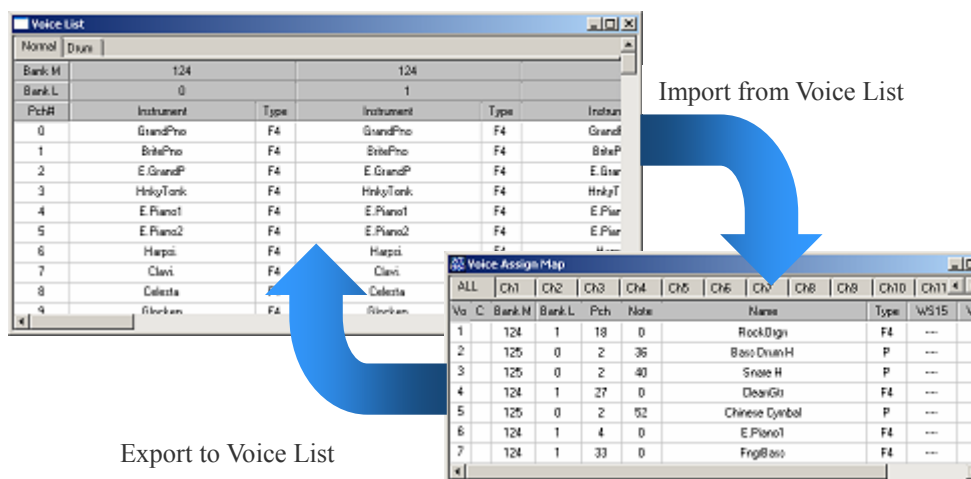
Function name	Contents
Import From Voice List	This is a Right-click menu of Voice Assign Map. Voices in the same Bank position are imported from Voice List to Voice Assign Map in block. It is effective when loading a Voice file.
Export to Voice List	This is a Right-click menu of Voice Assign Map. Voice Assign Map data is exported as voices whose Bank position is the same in VoiceList.

4.15.2.2.Individual Assignment of Voice Data

Copy & Paste is performed between Voice List and Voice Assign Map, and voice is assigned.
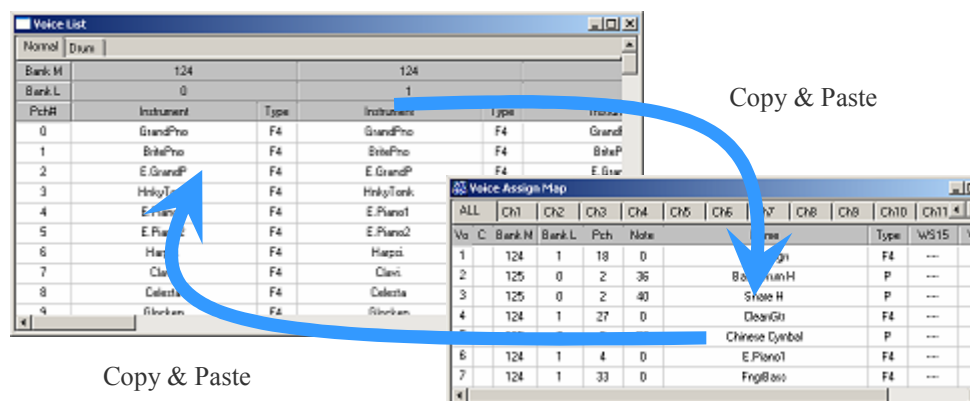
【Note】   It is possible to assign voices from "***Paste Voice List***" of "***Voice Assign Map***." For details, refer to "."

4.15.3. Save of Voice List

4.15.3.1.Saving All Voices

Select "***Save MA3/5 Voice File***" from "***File***" menu of the menu-bar on Application Window. "***Save As***" dialog box is displayed. Enter the file name in "***File name***" (extension is "****.vm3/*.vm5***") and click "***Save***" button to save the data.

4.15.3.2.Saving by Bank Unit

Right-click BankMSB column of VoiceList. Select "***Export to Bank Voice***" from the popup window. "***Save As***" dialog box is displayed. Enter the file name in "***File name***" (extension is "***.vm3***") and click "***Save***" button to save the data.
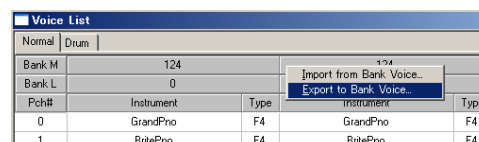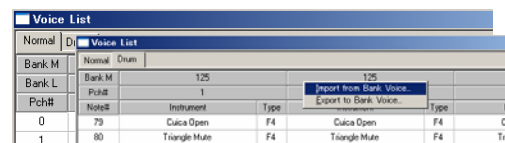
4.15.4. Loading Voice List

4.15.4.1. Loading All Voices

Select "*Open MA3/5 Voice File*" from "*File*" menu of the menu-bar of Application Window. "*Open*" dialog box is displayed. Select the name of extension voice list file to read and click "*Open*" to open the voice list file.

4.15.4.2. Loading by Bank Unit

Right-click BankMSB column of VoiceList. Select "*Import from Bank Voice*" from the popup window. Dialog box is displayed. Select the name of extension voice list file to read and click "*Open*" button to read the voice list file.

4.16. FM Voice Edit Parameter

By double clicking the user voice name, Voice Edit window is displayed.
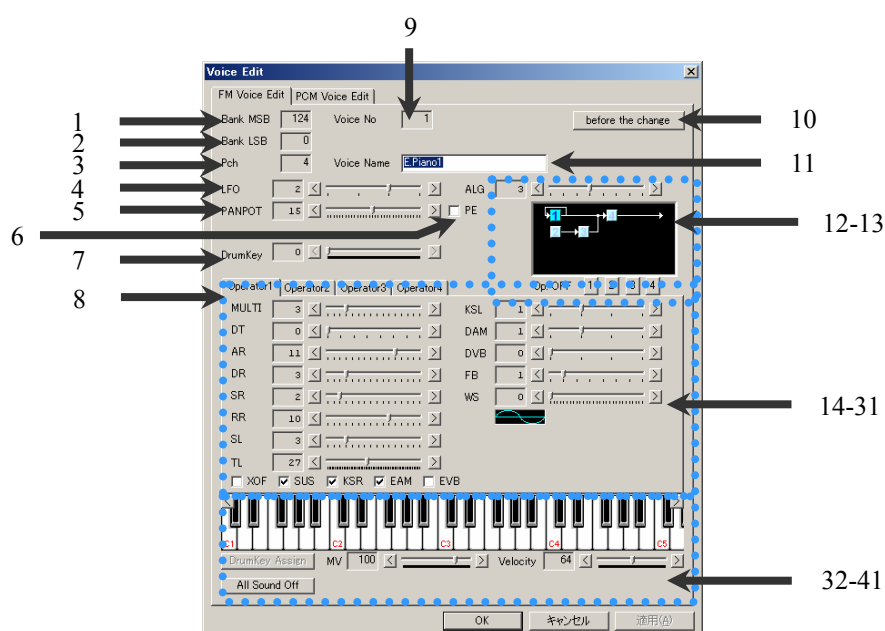
Figure. 4-26   FM Voice Parameter

No. 1- 12

No.	Function name	Contents
1	Bank MSB	Displays Bank MSB in which the voices being edited exist. It cannot be changed here.
2	Bank LSB	Displays Bank LSB in which the voices being edited exist.
3	Pch	Displays/Changes the program change for the voices being edited.
4	LFO	Sets LFO frequency that is used for each voice. LFO= 0 : 1.8 Hz, LFO= 1 : 4.0 Hz, LFO= 2 : 5.9 Hz, LFO= 3 : 7.0 Hz
5	Panpot	Sets right-left balance for each channel. (0…15…31) The smaller value, the further it pans to the left, or the larger value, the further it pans to the right.
6	PE	Place a check in this box to disable the pan setting of the control change and to enable the value of panpot of the voices.
7	DrumKey	Parameter that functions only at edition of the drum voice. It changes the key which the voice being edited actually generates.
8	Operator 1, 2, 3, 4	Changes Operator. The display changes between 1 to 2 and 1 to 4 in accordance with the setting of the algorithm. Right-click on the tab of Operator1 to 4 to display Copy/Paste menu with which the Operator can be copied.
9	Voice No.	Displays the voice number being edited with Voice Assign Map.
10	Before the Change	Press this switch to listen to the voices before they are edited. Press this switch again to restore the voices being edited.
11	Voice Name	Sets the voice name being edited.

No.12-13
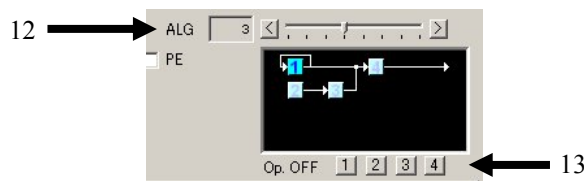
No.	Function name	Contents
12	ALG (Algorithm)	Sets algorithm. 2 Operator or 4 Operator is set in accordance with the type of algorithm. In FM32 mode, when algorithm of 2op is not selected, it does not generate normally. Please set 0 or 1 to ALG. Algorithm 1 Algorithm 2 Algorithm 4 Algorithm 3
13	Op OFF [Operator OFF]	The output of each operator can be turned OFF by selecting the button of 1 to 4.

No.14-31

No.	Function name	Contents
14	MULTI	Designates a multiplier for the frequency.

MULTI	0	1	2	3	4	5	6	7	8	9	10,11	12,13	14,15
Multiplier	1/2	1	2	3	4	5	6	7	8	9	10	12	15

No.	Function name	Contents
15	DT (Detune)	Designates Detune. Detune shifts the pitch delicately to cause the feeling of chorus. DT=1 to 3 shifts the pitch upwards. Difference width becomes large in the order of 1, 2, and 3. DT=5 to 7 shifts the pitch upwards. Difference width becomes large in the order of 5, 6, and 7. DT= 0 and 4, it is standard pitch. The frequency of Detune is affected by the setting of MULTI. When MULTI= 2 times, the values of Detune are doubled.
16	AR (Attack Rate)	Attack Rate is the time from the starting of tone generation (-96 dB) to the time of maximum volume (0 dB).
17	DR (Decay Rate)	Decay Rate is the decay time from the moment the maximum volume (0 dB) to the moment Sustain Level (SL).
18	SR (Sustain Rate)	Sustain Rate designates the rate of decay from the moment a Sustain Level is attained. Unlike other rate setting, setting this to "*0*" causes continuation of the Sustain Level.

No.	Function name	Contents
19	RR (Release Rate)	Release Rate is the time from key off to the moment the silent state (-96 db) is attained. When a check is placed in the check box of SUS, the setting is ignored.
20	SL (Sustain Level)	The Sustain Level is the one at which Decay Rate changes to Release Rate for decaying tone, or the level at which volume of a continuous tone is sustained.
21	TL (Total Level)	Sets the level of envelope.
22	KSL (Designation of Level Scaling)	For natural instruments, the volume generally decreases and the interval becomes higher. The scaling of level simulates this phenomenon. KSL sets the amount of decay per octave. KSL= 0 :　0,　KSL= 1 :　3.0dB / oct KSL= 2 :　1.5dB / oct,　KSL= 3 :　6.0dB / oct
23	DAM (Depth of Amplitude Modulation)	Sets the depth of amplitude modulation (AM). DAM= 0 : 1.3 dB, DAM= 1 : 2.8 dB DAM= 2 : 5.8 dB, DAM= 3 : 11.8 dB
24	DVB (Depth of Vibrato Modulation)	DVB= 0 : 3.4 cents, DVB= 1 : 6.7 cents DVB= 2 : 13.5 cents, DVB= 3 : 26.8 cents
25	FB (Amount of Feedback)	This function enables only Modulator side Operator. It designates the degree of feedback modulation. <table><tr><td>Setting value</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>Degree of modulation</td><td>0</td><td>$\pi/16$</td><td>$\pi/8$</td><td>$\pi/4$</td><td>$\pi/2$</td><td>π</td><td>2π</td><td>4π</td></tr></table>
26	WS (Waveform election)	Designates waveform of each Operator that is used for FM operation. The waveform that is used can be selected from 29 types.
27	XOF (Ignore KeyOff)	Sets whether to ignore KeyOff or not. Place a check in the check box to ignore KeyOff. KeyOff does not cause the change of state.
28	SUS (Sustain)	Sets whether to allow the rate change after KeyOff is allowed or not. When check is placed in the check box and Hold 1 (damper) information of MIDI message is received, SR continues after KeyOff. For making effective the hold1 (damper) of MIDI message, be sure to set SUS to ON.
29	KSR (Rate scaling)	Sets rate key scale ON/OFF. Place a check in the check box to enable setting of KSL. Key scale ON/OFF of the rate can be set up by checking this box. By the natural musical instrument, the standup and falling of sound become early as a pitch becomes high in general. The key scale of the rate simulates this phenomenon.
30	EAM (AM modulation)	Sets amplitude modulation ON/OFF. Place a check in the check box to enable setting of DAM.
31	EVB (Vibrato modulation)	Sets vibrato modulation ON/OFF. Place a check in the check box to enable setting of DVB. Be sure to set EVB to ON to enable modulation of MIDI message.

4.16.1. List of FM Fundamental Waveform

FM Fundamental Wave Form

No. 32-36 Keyboard

The voice under editing can be monitored by clicking the keyboard.

Display of normal voice being edited
In the case of normal voice, it generates higher musical interval as going the right side of the keyboard, and lower musical interval as going toward the left side.
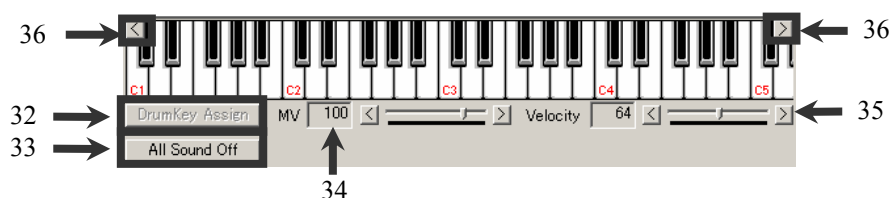
No.	Function name	Contents
32	DrumKey Assign	It is not used when editing normal voice. (It is valid only when editing drum voice)
33	All Sound Off	Sound generation of all the designated channels stops.
34	MV (Master Volume)	Master volume value when monitoring by the keyboard can be changed.
35	Velocity (Velocity)	Velocity value when monitoring by the keyboard can be changed.
36	Scrolling button	By pushing this button, the displayable range of keyboard can be changed. ▪ Click of right side button displays higher interval. ▪ Click of left side button displays lower interval.

No. 37-41 Keyboard

<u>Display of drum voice edited</u>
In the case of drum voice, it generates only when Note No. under editing is clicked.

No.	Function name	Contents
37	DrumKey Assign	By pushing this switch, it can generate the drum voice in higher musical interval as going toward the right side of keyboard, and in lower musical interval as going toward the left side. A generated key is automatically set to DrumKey. (DrumKey Assign shown in the following figure means the switch is being pushed.) DrumKey Assign All keys can be generated by pushing the DrumKey Assign switch.
38	All Sound Off	Sound generation of all the designated channels stops.
39	MV (Master Volume)	Master volume value when monitoring by the keyboard can be changed.
40	Velocity (Velocity)	Velocity value when monitoring by the keyboard can be changed.
41	Key	Displays only the note number under editing.

4.17. PCM Voice Edit Parameter
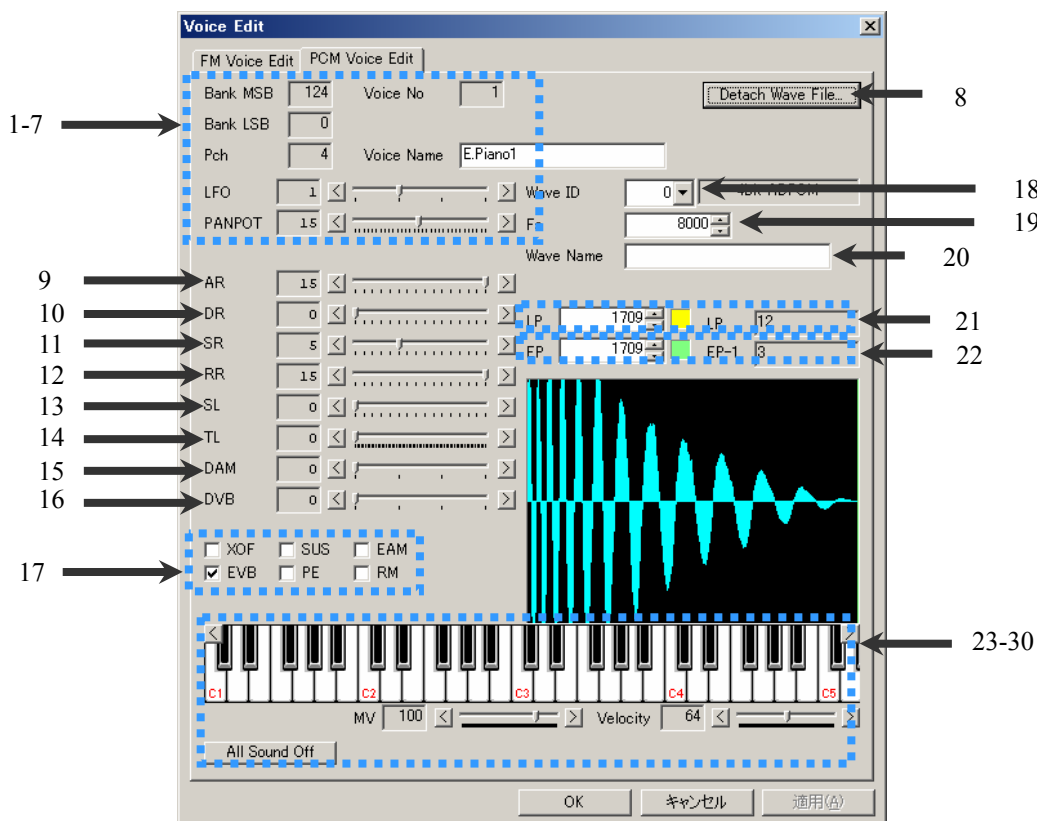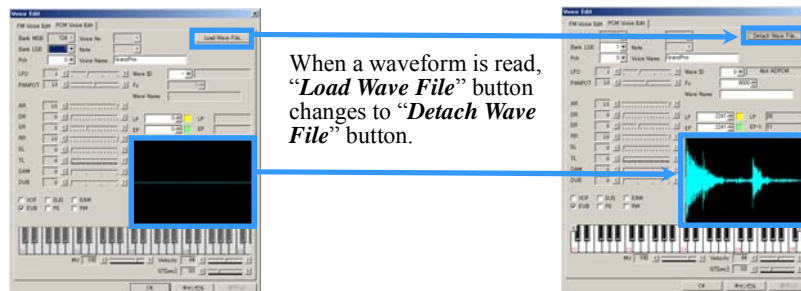
Figure. 4-27 PCM Voice Edit Parameter

No.1-7
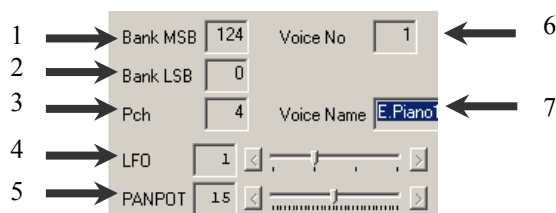
No.	Function name	Contents
1	Bank MSB	Displays BankSelect MSB in which the voices being edited exist. It cannot be changed here.
2	Bank LSB	Displays BankSelect LSB in which the voices being edited exist.
3	Pch	Displays and changes program change for the voices being edited.
4	LFO	Sets LFO frequency that is used for each voice. LFO= 0 : 1.8 Hz, LFO= 1 : 4.0 Hz LFO= 2 : 5.9 Hz, LFO= 3 : 7.0 Hz
5	Panpot	Sets right-left balance for each channel. (0…15…31) The smaller value, the further it pans to the left, or the larger value, the further it pans to the right.
6	Voice No.	Displays the voice number being edited with Voice Assign Map.
7	Voice Name	Sets the voice name being edited.

No.8-23

No.	Function name	Contents
8	Load Wave File	Monoral sound file (*AIFF, WAVE*) of up to 48kHz with 8bitPCM or 16bitPCM can be loaded. 16bitPCM data is cnverted into 4bitADPCM data. The loaded wavefile is assigned to NoteNo.60 (*C key*). <u>E.g.</u> When a 24000Hz sound file is read Fs become lower when lower key is played, and Fs become higher when higher key is played, when taking C key of NoteNo.60 (*24000Hz*) as a center. When a waveform is read, "*Load Wave File*" button changes to "*Detach Wave File*" button.
	Detach Wave File	Press this switch to delete the waveform that has been read with "*Load Wave File*." When a waveform is read, "*Load Wave File*" button changes to "*Detach Wave File*" button.
9	AR (Attack Rate)	Attack Rate is the time from the starting of tone generation (-48dB) to the time of maximum volume (0 dB).
10	DR (Decay Rate)	Decay Rate is the decay time from the moment the maximum volume (0 dB) to the moment Sustain Level (*SL*).
11	SR (Sustain Rate)	Sustain Rate designates the rate of decay from the moment a Sustain Level is attained. Unlike other rate setting, setting this to "0" causes continuation of the Sustain Level.
12	RR (Release Rate)	Release Rate is the time from key off to the moment the silent state (-96 db) is attained. When a check is placed in the check box of SUS, the setting is ignored.
13	SL (Sustain Level)	The Sustain Level is the one at which Decay Rate changes to Release Rate for decaying tone, or the level at which volume of a continuous tone is sustained.
14	TL (Total Level)	Sets the level of envelope.
15	DAM (Depth of AM modulation)	Sets the depth of amplitude modulation (*AM*). DAM= 0 : 1.3 dB, DAM= 1 : 2.8 dB DAM= 2 : 5.8 dB, DAM= 3 : 11.8 dB
16	DVB (Depth of vibrato modulation)	DVB= 0 : 3.4 cents, DVB= 1 : 6.7 cents DVB= 2 : 13.5 cents, DVB= 3 : 26.8 cents
17	XOF (Ignore KeyOff)	Sets whether to ignore KeyOff or not. Place a check in the check box to ignore KeyOff. KeyOff does not cause the change of state.
	SUS (Sustain)	Sets whether to allow the rate change after KeyOff or not. When check is placed in the check box and Hold 1 (*damper*) information of MIDI message is received, SR continues after KeyOff. Be sure to set EVB to on to enable modulation of MIDI message.
	EAM (Amplitude modulation On/Off)	Sets amplitude modulation ON/OFF. Place a check in the check box to enable setting of DAM.
	EVB (Vibrato modulation On/Off)	Sets vibrato modulation ON/OFF. Place a check in the check box to enable setting of DVB. Sets vibrato modulation ON/OFF. Place a check in the check box to enable setting of DVB.
	PE (Pan-enable)	Place a check in the check box to disable pan setting of the control change and to enable the value of panpot of voices.
	RM (Designation of ROM/RAM)	Selects ROM or RAM for waveforms that are used. When ROM is designated, a waveform can be selected from seven waveform list in the ROM at Wave ID. When RAM is designated, arbitrary waveform can be designated from the load wave file.
18	Wave ID	For MA-5, multiple PCM waveforms can be read and stored. The management number can be displayed and selected.

No.	Function name	Contents
19	Fs	Displays the frequencies of waveforms that have been read. On MA-5 Authoring Tool, displays the frequency when flipping NoteNo.60 (*C key*). Changing the value changes the pitch.
20	Wave Name	Displays the names of waveforms that have been read. Wave Name is not displayed on Wave ID field immediately after attaching Wave Name. Be sure to re-open Voice Edit to display it.
21	LP	Designates a loop point for loop reproduction. In addition, a peak factor at the following point was displayed. 4bits ADPCM :Loop Point 8 bits PCM :Loop Point + 1
22	EP	Designates reproduction end point and loop reproduction loop End Point. In addition, a peak factor at the following points was displayed. 4 bits ADPCM :End Point -1 8 bits PCM :End Loop Point It does not pronounce, if the value is "0".

No.23 to 30

The voice under editing can be monitored by clicking the keyboard.

<u>Display of normal voice being edited</u>
In the case of normal voice, it generates higher musical interval as going toward the right side of keyboard, and lower musical interval as going toward the left side.
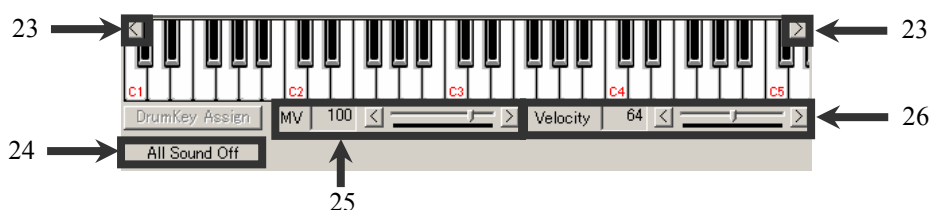
No.	Function name	Contents
23	Scrolling button	By pushing this button, the displayable range of keyboard can be changed. ▪ Click of right side button displays higher interval. ▪ Click of left side button displays lower interval.
24	All Sound Off	Sound generation of all the designated channels stops.
25	MV (Master Volume)	Master volume value when monitoring by the keyboard can be changed.
26	Velocity (Velocity)	Velocity value when monitoring by the keyboard can be changed.

Display of drum voice being edited
In the case of drum voice, it generates only when the Note number which is being edited is clicked.
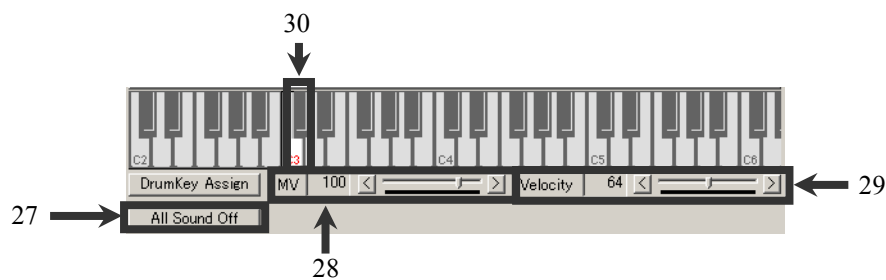
No.	Function name	Contents
27	All Sound Off	Sound generation of all the designated channels stops.
28	MV (Master Volume)	Master volume value when monitoring by the keyboard can be changed.
29	Velocity (Velocity)	Velocity value when monitoring by the keyboard can be changed.
30	Key	Only the Note number being edited can be displayed.

4.17.1. LP/EP Automatic Control Function

At the time of displaying a Voice Edit of existing PCM voice, if there are any uncorrected values which are set on it, the following confirmation messages will be displayed.

"*Automatically operated- Loop and/or End Point adjusted according to PCM mode*."

Then, the uncorrected values are rounded to a correct value automatically.

Example of rounding the sampling number "2000",

<with 4bit ADPCM>

In case of the OneShot(LoopPoint=EndPoint)

In case of (LoopPoint ≥ Sample number) or (EndPoint ≥ Sample number)

   LoopPoint = EndPoint = Sample - 1

   ex) LP=2000/EP=2000 → LP=1999/EP=1999

      LP=2000/EP=2001 → LP=1999/EP=1999

In the case in which only LoopPoint is outside of the range.

   LoopPoint = EndPoint

ex) LP=2001/EP=1500 → LP=1500/EP=1500

In the case in which only EndPoint is outside of the range.

   EndPoint = Sample - 1

   ex) LP=1500/EP=2001 → LP=1500/EP=2000

<with 8bits PCM>

In case of the OneShot(LoopPoint=EndPoint)

In case of (LoopPoint≥Sample -1) or (EndPoint≥Sample -1)

   LoopPoint = EndPoint = Sample -2

   ex) LP=2000/EP=2000 → LP=1998/EP=1998

In the case in which only LoopPoint is outside of the range.

   LoopPoint = EndPoint

   ex) LP=2001/EP=1500 → LP=1500/EP=1500

In the case in which only EndPoint is outside of the range.

   EndPoint = Sample - 1

   ex) LP=1500/EP=2001 → LP=1500/EP=1999

4.18. AL Voice Edit Parameter

Double-click user voice name on the voice list window to display voice edit window, where double-clicking on AL Voice Edit tab can set AL voice parameter.
To open voice AL voice edit on the voice assign map, the channel in which voices for which AL voice is to be used are inputted must be designated as AL channel. By placing a check in "*AL*" field of score window can be set as AL voice. Voices of AL channel are generated as monaural.
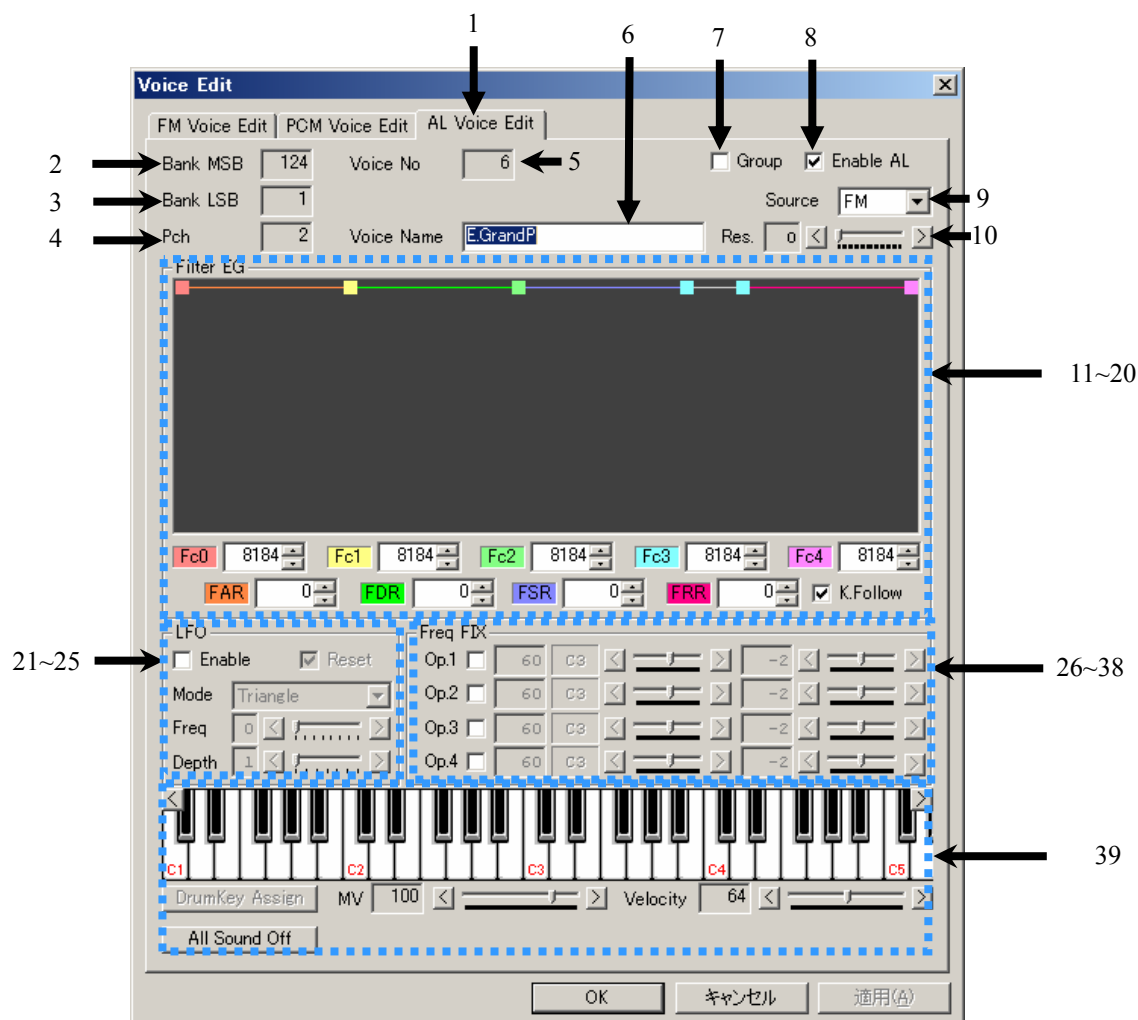
Figure. 4-28   AL Voice Edit Parameter

No.1 to 10

No.	Name	Description
1	AL Voice Parameter	Switches to AL Voice Parameter. Only when a voice which is assigned as AL voice was selected, this tab will be appeared.
2	Bank MSB	Displays bank MSB in which the voices being edited exist.
3	Bank LSB	Displays bank LSB in which the voices being edited exist.
4	Pch (Program Change)	Displays program change for the voices being edited.
5	Voice No (Voice Number)	Displays the voice number being edited with Voice Assign Map.

No.	Name	Description
6	Voice Name	Sets the voice name being edited.
7	Group display (Group Setting)	For voices of program change that exist in the channels designated by AL setting, this parameter designates whether the same AL voice parameter is used for all voice, "ON, or AL voice parameters are used for each voice individually "*OFF*".
		When Paste operation is performed for voice parameters for which Group is set on Voice Assign Map, only AL voice parameter is changed for all voices of program change that exist in the channel designated by AL setting. For FM/PCM voice parameters, only the relevant voices are changed.
8	Enable AL display (AL enable setting)	Designates whether AL is enabled, "*ON*", or disabled "*OFF.*"
9	Source display (Source selection)	Designates whether Al voice parameter is attached to FM voice parameter, "*FM*", Al voice parameter is attached to PCM voice parameter, "*PCM*", or Al voice parameter is attached to Noise, "*Noise.*"
10	Resonance (Resonance setting)	Designates resonance.

No.11 to 21 (Filter EG)
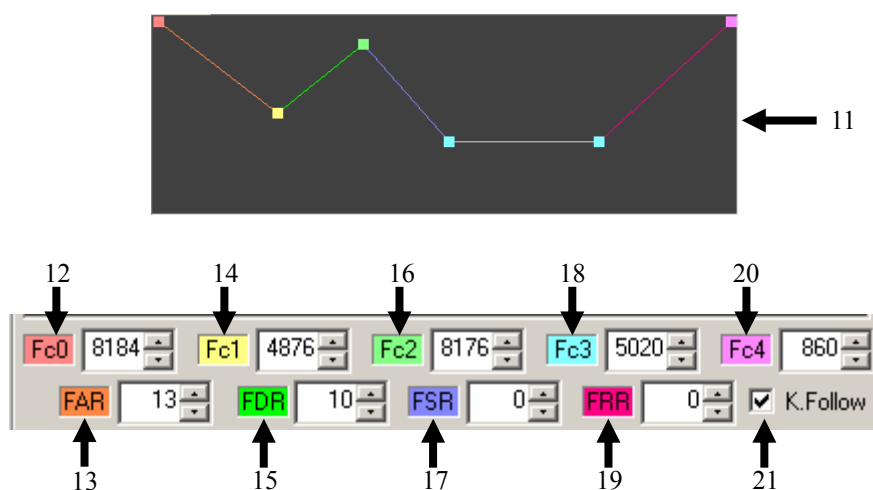
No.	Name	Description
11	Filter setting graph display	Shows Fc0 to Fc4, FAR, FDR, FSR and FRR on the sequential line graph. Click and drag the point of Fc0 to Fc4 with mouse to directly edit the graph. FAR, FDR, FSR and FRR change in accordance with the edition.
11	Fc0 display (KeyOn cut off frequency)	Designates cutoff frequency change rate in attack state.
12	FAR (Attack state cutoff frquency change rate)	Designates cutoff frequency change rate in attack state.
13	Fc1 display (Attack end cutoff frequency)	Designates cutoff frequency at attack end.
14	FDR display (Decay state cutoff frequency change rate)	Designates cutoff frequency change rate in decay state.
15	Fc2 display (Decay end cutoff frequency)	Designates cutoff frequency at decay end.
16	FSR display (Sustain state cutoff frequency change rate)	Designates cutoff frequency change rate in sustain state.
17	Fc3 display (KeyOff cutoff frequency)	Designates cutoff frequency at KeyOff start.

No.	Name	Description
18	FRR display (Release state cutoff frequency change rate)	Designates cutoff frequency change rate in release state.
19	Fc4 display (Release cutoff frequency)	Designates cutoff frequency at release.
20	Key Follow (Key follow setting) display	Designates whether the setting of key follow for cutoff frequency (increases cutoff frequency according to the advance to upper interval.

No.22 to 26 (LFO)
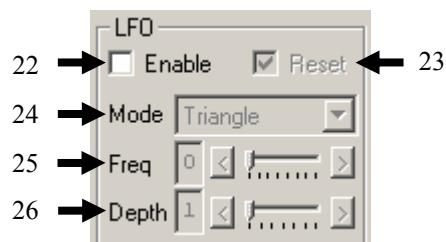
No.	Name	Description
22	LFO Enable display (LFO setting)	Designates whether LFO is enabled, "*ON*", or disabled, "*OFF*" for cut off freuqency. When a check is placed, LFO is enabled, where Freq, Depth or Mode can be changed. When a check is not placed, there parameters cannot be changed.
23	LFO Reset display (LFO reset setting)	Designates whether initial phase of LFO is reset, "*ON*" or not reset, "*OFF*". When LFO Mode is "S&H", CutOff frequency randomly changes, therefore this Reset function does not effect.
24	LFO Mode display (LFO mode setting)	Designates mode of LFO.
25	LFO Freq. display (LFO frequency setting)	Selects frequency of LFO.
26	LFO Depth display (LFO depth setting)	Selects depth of cutoff frequency of LFO.

No.27 to 38 (Freq Fix)

No.	Name	Description
LFO		
27	Freq.FIX 1 Enable (Fixed frequency enabled setting operator 1)	Designates whether fixed frequency of operator 1 is enabled, "*ON*" or disabled, "*OFF*." When OFF, Key and Fine cannot be designated.
28	Freq. FIX 1 Key	Designates key number of fixed frequency of operator 1.

No.	Name	Description
	(Fixed frequency key setting operator 1)	
29	Freq. FIX 1 Fine (Fixed frequency fine setting operator 1)	Designates fine pitch of fixed frequency of operator 1.
30	Freq.FIX 2 Enable (Fixed frequency enabled setting operator 2)	Designates whether fixed frequency of operator 2 is enabled, "*ON*" or disabled, "*OFF*." When OFF, Key and Fine cannot be designated.
31	Freq. FIX 2 Key (Fixed frequency key setting operator 2)	Designates key number of fixed frequency of operator 2.
32	Freq. FIX 2 Fine (Fixed frequency fine setting operator 2)	Designates fine pitch of fixed frequency of operator 2.
33	Freq.FIX 3 Enable (Fixed frequency enabled setting operator 3) display	Designates whether fixed frequency of operator 3 is enabled, "*ON*" or disabled, "*OFF*." When OFF, Key and Fine cannot be designated.
34	Freq. FIX 3 Key (Fixed frequency key setting operator 3)	Designates key number of fixed frequency of operator 3.
35	Freq. FIX 3 Fine (Fixed frequency fine setting operator 3)	Designates fine pitch of fixed frequency of operator 3.
36	Freq.FIX 4 Enable (Fixed frequency enabled setting operator 4)	Designates whether fixed frequency of operator 4 is enabled, "*ON*" or disabled, "O*FF*." When OFF, Key and Fine cannot be designated.
37	Freq. FIX 4 Key (Fixed frequency key setting operator 4)	Designates key number of fixed frequency of operator 4.
38	Freq. FIX 4 Fine (Fixed frequency fine setting operator 4)	Designates fine pitch of fixed frequency of operator 4. The setting value of Freq.FIX is recalculated, when the "OK" button of Voice Edit is pushed, or when it moves to FM Voice Edit tab. Therefore, although some difference will come out of the setting value of Freq. FIX compared with the value set up first when Voice Edit is opened once again, playback sound becomes the same.

No.39 (KeyBoard)

No.	Name	Description
Keyboard		
39	Keyboard	By clicking a keyboard, voices during a editing can be displayed. For details about Keyboard, refer to the "*Keyboard*" in "*FM Voice Edit Parameter.*"

5. Supplemental Information

5.1. Voice List

5.1.1. MA-5 Native Normal Voice Map (FM16 mode 0 to 63)

Bank MSB	124		124		124		124	124		124	
Bank LSB	0		1		2		3〜7	8		9	
	Default		User Assignable								
Pch#	Inst	Typ	Inst	Typ	Inst	Typ		Inst	Typ	Inst	Typ
0	GrandPno	F4	User	A	User	A	· · ·	User	A	User	A
1	BritePno	F4	User	A	User	A	· · ·	User	A	User	A
2	E.GrandP	F4	User	A	User	A	· · ·	User	A	User	A
3	HnkyTonk	F4	User	A	User	A	· · ·	User	A	User	A
4	E.Piano1	F4	User	A	User	A	· · ·	User	A	User	A
5	E.Piano2	F4	User	A	User	A	· · ·	User	A	User	A
6	Harpsi.	F4	User	A	User	A	· · ·	User	A	User	A
7	Clavi.	F4	User	A	User	A	· · ·	User	A	User	A
8	Celesta	F4	User	A	User	A	· · ·	User	A	User	A
9	Glocken	F4	User	A	User	A	· · ·	User	A	User	A
10	MusicBox	F4	User	A	User	A	· · ·	User	A	User	A
11	Vibes	F4	User	A	User	A	· · ·	User	A	User	A
12	Marimba	F4	User	A	User	A	· · ·	User	A	User	A
13	Xylophon	F4	User	A	User	A	· · ·	User	A	User	A
14	TubulBel	F4	User	A	User	A	· · ·	User	A	User	A
15	Dulcimer	F4	User	A	User	A	· · ·	User	A	User	A
16	DrawOrgn	F4	User	A	User	A	· · ·	User	A	User	A
17	PercOrgn	F4	User	A	User	A	· · ·	User	A	User	A
18	RockOrgn	F4	User	A	User	A	· · ·	User	A	User	A
19	ChrchOrg	F4	User	A	User	A	· · ·	User	A	User	A
20	ReedOrgn	F4	User	A	User	A	· · ·	User	A	User	A
21	Acordion	F4	User	A	User	A	· · ·	User	A	User	A
22	Harmnica	F4	User	A	User	A	· · ·	User	A	User	A
23	TangoAcd	F4	User	A	User	A	· · ·	User	A	User	A
24	NylonGtr	F4	User	A	User	A	· · ·	User	A	User	A
25	SteelGtr	F4	User	A	User	A	· · ·	User	A	User	A
26	Jazz Gtr	F4	User	A	User	A	· · ·	User	A	User	A
27	CleanGtr	F4	User	A	User	A	· · ·	User	A	User	A
28	Mute.Gtr	F4	User	A	User	A	· · ·	User	A	User	A
29	Ovrdrive	F4	User	A	User	A	· · ·	User	A	User	A
30	Dist.Gtr	F4	User	A	User	A	· · ·	User	A	User	A
31	GtrHarmo	F4	User	A	User	A	· · ·	User	A	User	A
32	Aco.Bass	F4	User	A	User	A	· · ·	User	A	User	A
33	FngrBass	F4	User	A	User	A	· · ·	User	A	User	A
34	PickBass	F4	User	A	User	A	· · ·	User	A	User	A
35	Fretless	F4	User	A	User	A	· · ·	User	A	User	A
36	SlapBas1	F4	User	A	User	A	· · ·	User	A	User	A
37	SlapBas2	F4	User	A	User	A	· · ·	User	A	User	A
38	SynBass1	F4	User	A	User	A	· · ·	User	A	User	A
39	SynBass2	F4	User	A	User	A	· · ·	User	A	User	A
40	Violin	F4	User	A	User	A	· · ·	User	A	User	A
41	Viola	F4	User	A	User	A	· · ·	User	A	User	A
42	Cello	F4	User	A	User	A	· · ·	User	A	User	A
43	ContraBs	F4	User	A	User	A	· · ·	User	A	User	A
44	Trem.Str	F4	User	A	User	A	· · ·	User	A	User	A
45	Pizz.Str	F4	User	A	User	A	· · ·	User	A	User	A
46	Harp	F4	User	A	User	A	· · ·	User	A	User	A
47	Timpani	F4	User	A	User	A	· · ·	User	A	User	A
48	Strings1	F4	User	A	User	A	· · ·	User	A	User	A
49	Strings2	F4	User	A	User	A	· · ·	User	A	User	A
50	Syn.Str1	F4	User	A	User	A	· · ·	User	A	User	A
51	Syn.Str2	F4	User	A	User	A	· · ·	User	A	User	A
52	ChoirAah	F4	User	A	User	A	· · ·	User	A	User	A
53	VoiceOoh	F4	User	A	User	A	· · ·	User	A	User	A
54	SynVoice	F4	User	A	User	A	· · ·	User	A	User	A
55	Orch.Hit	F4	User	A	User	A	· · ·	User	A	User	A
56	Trumpet	F4	User	A	User	A	· · ·	User	A	User	A
57	Trombone	F4	User	A	User	A	· · ·	User	A	User	A
58	Tuba	F4	User	A	User	A	· · ·	User	A	User	A
59	Mute.Trp	F4	User	A	User	A	· · ·	User	A	User	A
60	Fr.Horn	F4	User	A	User	A	· · ·	User	A	User	A
61	BrasSect	F4	User	A	User	A	· · ·	User	A	User	A
62	SynBras1	F4	User	A	User	A	· · ·	User	A	User	A
63	SynBras2	F4	User	A	User	A	· · ·	User	A	User	A

5.1.2. MA-5 Native Normal Voice Map (FM16 mode 64 to 127)

Bank MSB	124		124		124		124	124		124	
Bank LSB	0		1		2		3～7	8		9	
	Default		User Assignable								
Pch#	Inst	Typ	Inst	Typ	Inst	Typ		Inst	Typ	Inst	Typ
64	SprnoSax	F4	User	A	User	A	· · ·	User	A	User	A
65	Alto Sax	F4	User	A	User	A	· · ·	User	A	User	A
66	TenorSax	F4	User	A	User	A	· · ·	User	A	User	A
67	Bari.Sax	F4	User	A	User	A	· · ·	User	A	User	A
68	Oboe	F4	User	A	User	A	· · ·	User	A	User	A
69	Eng.Horn	F4	User	A	User	A	· · ·	User	A	User	A
70	Bassoon	F4	User	A	User	A	· · ·	User	A	User	A
71	Clarinet	F4	User	A	User	A	· · ·	User	A	User	A
72	Piccolo	F4	User	A	User	A	· · ·	User	A	User	A
73	Flute	F4	User	A	User	A	· · ·	User	A	User	A
74	Recorder	F4	User	A	User	A	· · ·	User	A	User	A
75	PanFlute	F4	User	A	User	A	· · ·	User	A	User	A
76	Bottle	F4	User	A	User	A	· · ·	User	A	User	A
77	Shakhchi	F4	User	A	User	A	· · ·	User	A	User	A
78	Whistle	F4	User	A	User	A	· · ·	User	A	User	A
79	Ocarina	F4	User	A	User	A	· · ·	User	A	User	A
80	SquareLd	F4	User	A	User	A	· · ·	User	A	User	A
81	Saw.Lead	F4	User	A	User	A	· · ·	User	A	User	A
82	CaliopLd	F4	User	A	User	A	· · ·	User	A	User	A
83	ChiffLd	F4	User	A	User	A	· · ·	User	A	User	A
84	CharanLd	F4	User	A	User	A	· · ·	User	A	User	A
85	Voice Ld	F4	User	A	User	A	· · ·	User	A	User	A
86	Fifth Ld	F4	User	A	User	A	· · ·	User	A	User	A
87	Bass &Ld	F4	User	A	User	A	· · ·	User	A	User	A
88	NewAgePd	F4	User	A	User	A	· · ·	User	A	User	A
89	Warm Pad	F4	User	A	User	A	· · ·	User	A	User	A
90	PolySyPd	F4	User	A	User	A	· · ·	User	A	User	A
91	ChoirPad	F4	User	A	User	A	· · ·	User	A	User	A
92	BowedPad	F4	User	A	User	A	· · ·	User	A	User	A
93	MetalPad	F4	User	A	User	A	· · ·	User	A	User	A
94	Halo Pad	F4	User	A	User	A	· · ·	User	A	User	A
95	SweepPad	F4	User	A	User	A	· · ·	User	A	User	A
96	Rain	F4	User	A	User	A	· · ·	User	A	User	A
97	SoundTrk	F4	User	A	User	A	· · ·	User	A	User	A
98	Crystal	F4	User	A	User	A	· · ·	User	A	User	A
99	Atmosphr	F4	User	A	User	A	· · ·	User	A	User	A
100	Bright	F4	User	A	User	A	· · ·	User	A	User	A
101	Goblins	F4	User	A	User	A	· · ·	User	A	User	A
102	Echoes	F4	User	A	User	A	· · ·	User	A	User	A
103	Sci-Fi	F4	User	A	User	A	· · ·	User	A	User	A
104	Sitar	F4	User	A	User	A	· · ·	User	A	User	A
105	Banjo	F4	User	A	User	A	· · ·	User	A	User	A
106	Shamisen	F4	User	A	User	A	· · ·	User	A	User	A
107	Koto	F4	User	A	User	A	· · ·	User	A	User	A
108	Kalimba	F4	User	A	User	A	· · ·	User	A	User	A
109	Bagpipe	F4	User	A	User	A	· · ·	User	A	User	A
110	Fiddle	F4	User	A	User	A	· · ·	User	A	User	A
111	Shanai	F4	User	A	User	A	· · ·	User	A	User	A
112	TnklBell	F4	User	A	User	A	· · ·	User	A	User	A
113	Agogo	F4	User	A	User	A	· · ·	User	A	User	A
114	SteelDrm	F4	User	A	User	A	· · ·	User	A	User	A
*1 115	WoodBlok	F4	User	A	User	A	· · ·	User	A	User	A
*2 116	TaikoDrm	F4	User	A	User	A	· · ·	User	A	User	A
*3 117	MelodTom	F4	User	A	User	A	· · ·	User	A	User	A
*4 118	Syn.Drum	F4	User	A	User	A	· · ·	User	A	User	A
*4 119	RevCymbl	F4	User	A	User	A	· · ·	User	A	User	A
120	FretNoiz	F4	User	A	User	A	· · ·	User	A	User	A
121	BrthNoiz	F4	User	A	User	A	· · ·	User	A	User	A
*5 122	Seashore	F4	User	A	User	A	· · ·	User	A	User	A
*6 123	Tweet	F4	User	A	User	A	· · ·	User	A	User	A
*7 124	Telphone	F4	User	A	User	A	· · ·	User	A	User	A
*7 125	Helicptr	F4	User	A	User	A	· · ·	User	A	User	A
*6 126	Applause	F4	User	A	User	A	· · ·	User	A	User	A
*5 127	Gunshot	F4	User	A	User	A	· · ·	User	A	User	A

*1 : 50cent/halftone, #69 = F#4
*2 : 50cent/halftone, #69 = A2
*3 : 50cent/halftone, #69 = C#4
*4 : 50cent/halftone
*5 : 20cent/halftone
*6 : 5cent/halftone
*7 : 10cent/halftone
The voice, which is set to Pch# with "*" is treated as drum voice by key control judging. (User Bank is also.)

(*) Type F2: FM 2 Operator, F4: FM 4 Operator, P: PCM, A: F2/F4/P Assignable

5.1.3. MA-5 Native Normal Voice Map (FM32 mode 0 to 63)

Bank MSB	124		124		124		124	124		124	
Bank LSB	0		1		2		3～7	8		9	
	Default		User Assignable								
Pch#	Inst	Typ	Inst	Typ	Inst	Typ		Inst	Typ	Inst	Typ
0	GrandPno	F2	User	A	User	A	・・・	User	A	User	A
1	BritePno	F2	User	A	User	A	・・・	User	A	User	A
2	E.GrandP	F2	User	A	User	A	・・・	User	A	User	A
3	HnkyTonk	F2	User	A	User	A	・・・	User	A	User	A
4	E.Piano1	F2	User	A	User	A	・・・	User	A	User	A
5	E.Piano2	F2	User	A	User	A	・・・	User	A	User	A
6	Harpsi.	F2	User	A	User	A	・・・	User	A	User	A
7	Clavi.	F2	User	A	User	A	・・・	User	A	User	A
8	Celesta	F2	User	A	User	A	・・・	User	A	User	A
9	Glocken	F2	User	A	User	A	・・・	User	A	User	A
10	MusicBox	F2	User	A	User	A	・・・	User	A	User	A
11	Vibes	F2	User	A	User	A	・・・	User	A	User	A
12	Marimba	F2	User	A	User	A	・・・	User	A	User	A
13	Xylophon	F2	User	A	User	A	・・・	User	A	User	A
14	TubulBel	F2	User	A	User	A	・・・	User	A	User	A
15	Dulcimer	F2	User	A	User	A	・・・	User	A	User	A
16	DrawOrgn	F2	User	A	User	A	・・・	User	A	User	A
17	PercOrgn	F2	User	A	User	A	・・・	User	A	User	A
18	RockOrgn	F2	User	A	User	A	・・・	User	A	User	A
19	ChrchOrg	F2	User	A	User	A	・・・	User	A	User	A
20	ReedOrgn	F2	User	A	User	A	・・・	User	A	User	A
21	Acordion	F2	User	A	User	A	・・・	User	A	User	A
22	Harmnica	F2	User	A	User	A	・・・	User	A	User	A
23	TangoAcd	F2	User	A	User	A	・・・	User	A	User	A
24	NylonGtr	F2	User	A	User	A	・・・	User	A	User	A
25	SteelGtr	F2	User	A	User	A	・・・	User	A	User	A
26	Jazz Gtr	F2	User	A	User	A	・・・	User	A	User	A
27	CleanGtr	F2	User	A	User	A	・・・	User	A	User	A
28	Mute.Gtr	F2	User	A	User	A	・・・	User	A	User	A
29	Ovrdrive	F2	User	A	User	A	・・・	User	A	User	A
30	Dist.Gtr	F2	User	A	User	A	・・・	User	A	User	A
31	GtrHarmo	F2	User	A	User	A	・・・	User	A	User	A
32	Aco.Bass	F2	User	A	User	A	・・・	User	A	User	A
33	FngrBass	F2	User	A	User	A	・・・	User	A	User	A
34	PickBass	F2	User	A	User	A	・・・	User	A	User	A
35	Fretless	F2	User	A	User	A	・・・	User	A	User	A
36	SlapBas1	F2	User	A	User	A	・・・	User	A	User	A
37	SlapBas2	F2	User	A	User	A	・・・	User	A	User	A
38	SynBass1	F2	User	A	User	A	・・・	User	A	User	A
39	SynBass2	F2	User	A	User	A	・・・	User	A	User	A
40	Violin	F2	User	A	User	A	・・・	User	A	User	A
41	Viola	F2	User	A	User	A	・・・	User	A	User	A
42	Cello	F2	User	A	User	A	・・・	User	A	User	A
43	ContraBs	F2	User	A	User	A	・・・	User	A	User	A
44	Trem.Str	F2	User	A	User	A	・・・	User	A	User	A
45	Pizz.Str	F2	User	A	User	A	・・・	User	A	User	A
46	Harp	F2	User	A	User	A	・・・	User	A	User	A
47	Timpani	F2	User	A	User	A	・・・	User	A	User	A
48	Strings1	F2	User	A	User	A	・・・	User	A	User	A
49	Strings2	F2	User	A	User	A	・・・	User	A	User	A
50	Syn.Str1	F2	User	A	User	A	・・・	User	A	User	A
51	Syn.Str2	F2	User	A	User	A	・・・	User	A	User	A
52	ChoirAah	F2	User	A	User	A	・・・	User	A	User	A
53	VoiceOoh	F2	User	A	User	A	・・・	User	A	User	A
54	SynVoice	F2	User	A	User	A	・・・	User	A	User	A
55	Orch.Hit	F2	User	A	User	A	・・・	User	A	User	A
56	Trumpet	F2	User	A	User	A	・・・	User	A	User	A
57	Trombone	F2	User	A	User	A	・・・	User	A	User	A
58	Tuba	F2	User	A	User	A	・・・	User	A	User	A
59	Mute.Trp	F2	User	A	User	A	・・・	User	A	User	A
60	Fr.Horn	F2	User	A	User	A	・・・	User	A	User	A
61	BrasSect	F2	User	A	User	A	・・・	User	A	User	A
62	SynBras1	F2	User	A	User	A	・・・	User	A	User	A
63	SynBras2	F2	User	A	User	A	・・・	User	A	User	A

5.1.4. MA-5 Native Normal Voice Map (FM32 mode 64 to 127)

Bank MSB	124		124		124		124	124		124	
Bank LSB	0		1		2		3~7	8		9	
	Default		User Assignable								
Pch#	Inst	Typ	Inst	Typ	Inst	Typ		Inst	Typ	Inst	Typ
64	SprnoSax	F2	User	A	User	A	· ·	User	A	User	A
65	Alto Sax	F2	User	A	User	A	· ·	User	A	User	A
66	TenorSax	F2	User	A	User	A	· ·	User	A	User	A
67	Bari.Sax	F2	User	A	User	A	· ·	User	A	User	A
68	Oboe	F2	User	A	User	A	· ·	User	A	User	A
69	Eng.Horn	F2	User	A	User	A	· ·	User	A	User	A
70	Bassoon	F2	User	A	User	A	· ·	User	A	User	A
71	Clarinet	F2	User	A	User	A	· ·	User	A	User	A
72	Piccolo	F2	User	A	User	A	· ·	User	A	User	A
73	Flute	F2	User	A	User	A	· ·	User	A	User	A
74	Recorder	F2	User	A	User	A	· ·	User	A	User	A
75	PanFlute	F2	User	A	User	A	· ·	User	A	User	A
76	Bottle	F2	User	A	User	A	· ·	User	A	User	A
77	Shakhchi	F2	User	A	User	A	· ·	User	A	User	A
78	Whistle	F2	User	A	User	A	· ·	User	A	User	A
79	Ocarina	F2	User	A	User	A	· ·	User	A	User	A
80	SquareLd	F2	User	A	User	A	· ·	User	A	User	A
81	Saw.Lead	F2	User	A	User	A	· ·	User	A	User	A
82	CaliopLd	F2	User	A	User	A	· ·	User	A	User	A
83	ChiffLd	F2	User	A	User	A	· ·	User	A	User	A
84	CharanLd	F2	User	A	User	A	· ·	User	A	User	A
85	Voice Ld	F2	User	A	User	A	· ·	User	A	User	A
86	Fifth Ld	F2	User	A	User	A	· ·	User	A	User	A
87	Bass &Ld	F2	User	A	User	A	· ·	User	A	User	A
88	NewAgePd	F2	User	A	User	A	· ·	User	A	User	A
89	Warm Pad	F2	User	A	User	A	· ·	User	A	User	A
90	PolySyPd	F2	User	A	User	A	· ·	User	A	User	A
91	ChoirPad	F2	User	A	User	A	· ·	User	A	User	A
92	BowedPad	F2	User	A	User	A	· ·	User	A	User	A
93	MetalPad	F2	User	A	User	A	· ·	User	A	User	A
94	Halo Pad	F2	User	A	User	A	· ·	User	A	User	A
95	SweepPad	F2	User	A	User	A	· ·	User	A	User	A
96	Rain	F2	User	A	User	A	· ·	User	A	User	A
97	SoundTrk	F2	User	A	User	A	· ·	User	A	User	A
98	Crystal	F2	User	A	User	A	· ·	User	A	User	A
99	Atmosphr	F2	User	A	User	A	· ·	User	A	User	A
100	Bright	F2	User	A	User	A	· ·	User	A	User	A
101	Goblins	F2	User	A	User	A	· ·	User	A	User	A
102	Echoes	F2	User	A	User	A	· ·	User	A	User	A
103	Sci-Fi	F2	User	A	User	A	· ·	User	A	User	A
104	Sitar	F2	User	A	User	A	· ·	User	A	User	A
105	Banjo	F2	User	A	User	A	· ·	User	A	User	A
106	Shamisen	F2	User	A	User	A	· ·	User	A	User	A
107	Koto	F2	User	A	User	A	· ·	User	A	User	A
108	Kalimba	F2	User	A	User	A	· ·	User	A	User	A
109	Bagpipe	F2	User	A	User	A	· ·	User	A	User	A
110	Fiddle	F2	User	A	User	A	· ·	User	A	User	A
111	Shanai	F2	User	A	User	A	· ·	User	A	User	A
112	TnklBell	F2	User	A	User	A	· ·	User	A	User	A
113	Agogo	F2	User	A	User	A	· ·	User	A	User	A
114	SteelDrm	F2	User	A	User	A	· ·	User	A	User	A
*1 115	WoodBlok	F2	User	A	User	A	· ·	User	A	User	A
*2 116	TaikoDrm	F2	User	A	User	A	· ·	User	A	User	A
*3 117	MelodTom	F2	User	A	User	A	· ·	User	A	User	A
*4 118	Syn.Drum	F2	User	A	User	A	· ·	User	A	User	A
*4 119	RevCymbl	F2	User	A	User	A	· ·	User	A	User	A
120	FretNoiz	F2	User	A	User	A	· ·	User	A	User	A
121	BrthNoiz	F2	User	A	User	A	· ·	User	A	User	A
*5 122	Seashore	F2	User	A	User	A	· ·	User	A	User	A
*6 123	Tweet	F2	User	A	User	A	· ·	User	A	User	A
*7 124	Telphone	F2	User	A	User	A	· ·	User	A	User	A
*7 125	Helicptr	F2	User	A	User	A	· ·	User	A	User	A
*6 126	Applause	F2	User	A	User	A	· ·	User	A	User	A
*5 127	Gunshot	F2	User	A	User	A	· · ·	User	A	User	A

*1 : 50cent/halftone, #69 = F#4
*2 : 50cent/halftone, #69 = A2
*3 : 50cent/halftone, #69 = C#4
*4 : 50cent/halftone
*5 : 20cent/halftone
*6 : 5cent/halftone
*7 : 10cent/halftone
The voice, which is set to Pcj# with "*", is treated as drum voice by key control judging. (User Bank is also.)

(*) Type F2: FM 2 Operator, F4: FM 4 Operator, P: PCM, A: F2/F4/P Assignable

5.1.5. MA-5 Native Normal Drum Instrument (FM16 mode)

Bank MSB	125		125		125		125	125	
Pch#	0		1		2		3～8	9	
	Default				User Assignable				
Note#	Inst	Typ	Inst	Typ	Inst	Typ		Inst	Typ
24	Seq Click H	F4	Seq Click H	F4	User	A	・・・	User	A
25	Brush Tap	F4	Brush Tap	F4	User	A	・・・	User	A
@ 26	Brush Swirl	F4	Brush Swirl	F4	User	A	・・・	User	A
27	Brush Slap	F4	Brush Slap	F4	User	A	・・・	User	A
@ 28	Brush Tap Swirl	F4	Brush Tap Swirl	F4	User	A	・・・	User	A
@ 29	Snare Roll	F4	Snare Roll	F4	User	A	・・・	User	A
30	Castanet	F4	Castanet	F4	User	A	・・・	User	A
31	Snare L	P	Snare L	F4	User	A	・・・	User	A
32	Sticks	F4	Sticks	F4	User	A	・・・	User	A
33	Bass Drum L	P	Bass Drum L	F4	User	A	・・・	User	A
34	Open Rim Shot	P	Open Rim Shot	F4	User	A	・・・	User	A
35	Bass Drum M	P	Bass Drum M	F4	User	A	・・・	User	A
36	Bass Drum H	P	Bass Drum H	F4	User	A	・・・	User	A
37	Closed Rim Shot	F4	Closed Rim Shot	F4	User	A	・・・	User	A
38	Snare M	P	Snare M	F4	User	A	・・・	User	A
39	Hand Clap	F4	Hand Clap	F4	User	A	・・・	User	A
40	Snare H	P	Snare H	F4	User	A	・・・	User	A
41	Floor Tom L	P	Floor Tom L	F4	User	A	・・・	User	A
42	Hi-Hat Closed	P	Hi-Hat Closed	F4	User	A	・・・	User	A
43	Floor Tom H	P	Floor Tom H	F4	User	A	・・・	User	A
44	Hi-Hat Pedal	P	Hi-Hat Pedal	F4	User	A	・・・	User	A
45	Low Tom	P	Low Tom	F4	User	A	・・・	User	A
46	Hi-Hat Open	P	Hi-Hat Open	F4	User	A	・・・	User	A
47	Mid Tom L	P	Mid Tom L	F4	User	A	・・・	User	A
48	Mid Tom H	P	Mid Tom H	F4	User	A	・・・	User	A
49	Crash Cymbal 1	P	Crash Cymbal 1	F4	User	A	・・・	User	A
50	High Tom	P	High Tom	F4	User	A	・・・	User	A
51	Ride Cymbal 1	P	Ride Cymbal 1	F4	User	A	・・・	User	A
52	Chinese Cymbal	P	Chinese Cymbal	F4	User	A	・・・	User	A
53	Ride Cymbal Cup	F4	Ride Cymbal Cup	F4	User	A	・・・	User	A
54	Tambourine	F4	Tambourine	F4	User	A	・・・	User	A
55	Splash Cymbal	P	Splash Cymbal	F4	User	A	・・・	User	A
56	Cowbell	F4	Cowbell	F4	User	A	・・・	User	A
57	Crash Cymbal 2	P	Crash Cymbal 2	F4	User	A	・・・	User	A
58	Vibraslap	F4	Vibraslap	F4	User	A	・・・	User	A
59	Ride Cymbal 2	P	Ride Cymbal 2	F4	User	A	・・・	User	A
60	Bongo H	F4	Bongo H	F4	User	A	・・・	User	A
61	Bongo L	F4	Bongo L	F4	User	A	・・・	User	A
62	Conga H Mute	F4	Conga H Mute	F4	User	A	・・・	User	A
63	Conga H Open	F4	Conga H Open	F4	User	A	・・・	User	A
64	Conga L	F4	Conga L	F4	User	A	・・・	User	A
65	Timbale H	F4	Timbale H	F4	User	A	・・・	User	A
66	Timbale L	F4	Timbale L	F4	User	A	・・・	User	A
67	Agogo H	F4	Agogo H	F4	User	A	・・・	User	A
68	Agogo L	F4	Agogo L	F4	User	A	・・・	User	A
69	Cabasa	F4	Cabasa	F4	User	A	・・・	User	A
70	Maracas	F4	Maracas	F4	User	A	・・・	User	A
@ 71	Samba Whistle H	F4	Samba Whistle H	F4	User	A	・・・	User	A
@ 72	Samba Whistle L	F4	Samba Whistle L	F4	User	A	・・・	User	A
73	Guiro Short	F4	Guiro Short	F4	User	A	・・・	User	A
74	Guiro Long	F4	Guiro Long	F4	User	A	・・・	User	A
75	Claves	F4	Claves	F4	User	A	・・・	User	A
76	Wood Block H	F4	Wood Block H	F4	User	A	・・・	User	A
77	Wood Block L	F4	Wood Block L	F4	User	A	・・・	User	A
78	Cuica Mute	F4	Cuica Mute	F4	User	A	・・・	User	A
79	Cuica Open	F4	Cuica Open	F4	User	A	・・・	User	A
80	Triangle Mute	F4	Triangle Mute	F4	User	A	・・・	User	A
81	Triangle Open	F4	Triangle Open	F4	User	A	・・・	User	A
82	Shaker	F4	Shaker	F4	User	A	・・・	User	A
83	Jingle Bells	F4	Jingle Bells	F4	User	A	・・・	User	A
84	Bell Tree	F4	Bell Tree	F4	User	A	・・・	User	A

Only the voice attached "@" is react to KeyOff.
Exclusion allotment of Key#42, #44, #46
Exclusion allotment of Key#71, #72
Exclusion allotment of Key#73, #74
Exclusion allotment of Key#78, #79
Exclusion allotment of Key#80, #81
In case also that voice is set to above NoteNo. Of User Bank Exclusion.

(*) Type F2: FM 2 Operator, F4: FM 4 Operator, P: PCM, A: F2/F4/P Assignable

5.1.6. MA-5 Native Normal Drum Instrument (FM32 mode)

Bank MSB	125		125		125	125	125	
Pch#	0		1		2	3〜8	9	
	Default				User Assignable			
Note#	Inst	Typ	Inst	Typ	Inst Typ		Inst	Typ
24	Seq Click H	F2	Seq Click H	F2	User A	· · ·	User	A
25	Brush Tap	F2	Brush Tap	F2	User A	· · ·	User	A
@ 26	Brush Swirl	F2	Brush Swirl	F2	User A	· · ·	User	A
27	Brush Slap	F2	Brush Slap	F2	User A	· · ·	User	A
@ 28	Brush Tap Swirl	F2	Brush Tap Swirl	F2	User A	· · ·	User	A
@ 29	Snare Roll	F2	Snare Roll	F2	User A	· · ·	User	A
30	Castanet	F2	Castanet	F2	User A	· · ·	User	A
31	Snare L	P	Snare L	F2	User A	· · ·	User	A
32	Sticks	F2	Sticks	F2	User A	· · ·	User	A
33	Bass Drum L	P	Bass Drum L	F2	User A	· · ·	User	A
34	Open Rim Shot	F2	Open Rim Shot	F2	User A	· · ·	User	A
35	Bass Drum M	P	Bass Drum M	F2	User A	· · ·	User	A
36	Bass Drum H	P	Bass Drum H	F2	User A	· · ·	User	A
37	Closed Rim	F2	Closed Rim	F2	User A	· · ·	User	A
38	Snare M	P	Snare M	F2	User A	· · ·	User	A
39	Hand Clap	F2	Hand Clap	F2	User A	· · ·	User	A
40	Snare H	P	Snare H	F2	User A	· · ·	User	A
41	Floor Tom L	P	Floor Tom L	F2	User A	· · ·	User	A
42	Hi-Hat Closed	P	Hi-Hat Closed	F2	User A	· · ·	User	A
43	Floor Tom H	P	Floor Tom H	F2	User A	· · ·	User	A
44	Hi-Hat Pedal	P	Hi-Hat Pedal	F2	User A	· · ·	User	A
45	Low Tom	P	Low Tom	F2	User A	· · ·	User	A
46	Hi-Hat Open	P	Hi-Hat Open	F2	User A	· · ·	User	A
47	Mid Tom L	P	Mid Tom L	F2	User A	· · ·	User	A
48	Mid Tom H	P	Mid Tom H	F2	User A	· · ·	User	A
49	Crash Cymbal 1	P	Crash Cymbal 1	F2	User A	· · ·	User	A
50	High Tom	P	High Tom	F2	User A	· · ·	User	A
51	Ride Cymbal 1	P	Ride Cymbal 1	F2	User A	· · ·	User	A
52	Chinese Cymbal	P	Chinese Cymbal	F2	User A	· · ·	User	A
53	Ride Cymbal	F2	Ride Cymbal	F2	User A	· · ·	User	A
54	Tambourine	F2	Tambourine	F2	User A	· · ·	User	A
55	Splash Cymbal	P	Splash Cymbal	F2	User A	· · ·	User	A
56	Cowbell	F2	Cowbell	F2	User A	· · ·	User	A
57	Crash Cymbal 2	P	Crash Cymbal 2	F2	User A	· · ·	User	A
58	Vibraslap	F2	Vibraslap	F2	User A	· · ·	User	A
59	Ride Cymbal 2	P	Ride Cymbal 2	F2	User A	· · ·	User	A
60	Bongo H	F2	Bongo H	F2	User A	· · ·	User	A
61	Bongo L	F2	Bongo L	F2	User A	· · ·	User	A
62	Conga H Mute	F2	Conga H Mute	F2	User A	· · ·	User	A
63	Conga H Open	F2	Conga H Open	F2	User A	· · ·	User	A
64	Conga L	F2	Conga L	F2	User A	· · ·	User	A
65	Timbale H	F2	Timbale H	F2	User A	· · ·	User	A
66	Timbale L	F2	Timbale L	F2	User A	· · ·	User	A
67	Agogo H	F2	Agogo H	F2	User A	· · ·	User	A
68	Agogo L	F2	Agogo L	F2	User A	· · ·	User	A
69	Cabasa	F2	Cabasa	F2	User A	· · ·	User	A
70	Maracas	F2	Maracas	F2	User A	· · ·	User	A
@ 71	Samba Whistle	F2	Samba Whistle	F2	User A	· · ·	User	A
@ 72	Samba Whistle	F2	Samba Whistle	F2	User A	· · ·	User	A
73	Guiro Short	F2	Guiro Short	F2	User A	· · ·	User	A
74	Guiro Long	F2	Guiro Long	F2	User A	· · ·	User	A
75	Claves	F2	Claves	F2	User A	· · ·	User	A
76	Wood Block H	F2	Wood Block H	F2	User A	· · ·	User	A
77	Wood Block L	F2	Wood Block L	F2	User A	· · ·	User	A
78	Cuica Mute	F2	Cuica Mute	F2	User A	· · ·	User	A
79	Cuica Open	F2	Cuica Open	F2	User A	· · ·	User	A
80	Triangle Mute	F2	Triangle Mute	F2	User A	· · ·	User	A
81	Triangle Open	F2	Triangle Open	F2	User A	· · ·	User	A
82	Shaker	F2	Shaker	F2	User A	· · ·	User	A
83	Jingle Bells	F2	Jingle Bells	F2	User A	· · ·	User	A
84	Bell Tree	F2	Bell Tree	F2	User A	· · ·	User	A

> Only the voice attached "@" is react to KeyOff.
> Exclusion allotment of Key#42, #44, #46
> Exclusion allotment of Key#71, #72
> Exclusion allotment of Key#73, #74
> Exclusion allotment of Key#78, #79
> Exclusion allotment of Key#80, #81
> In case also that voice is set to above NoteNo. Of User Bank Exclusion.

(*) Type F2: FM 2 Operator, F4: FM 4 Operator, P: PCM, A: F2/F4/P Assignable

5.1.7. MA-5 Native Normal Drum Instrument (FM32 mode)

WaveID	Instrument
0	Bass Drum
1	Snare Drum
2	Tom Tom
3	Hi-Hat Closed
4	Hi-Hat Open
5	Ride Cymbal
6	Crash Cymbal

5.2. Error Message

5.2.1. Error Message at Input/Output

Display	Description of error	Cause
Can not open MA1(SMF) file. Illegal file format.	MA1 file cannot be opened. Format of the file is not correct.	Format of MA1 (MA5) is not correct for reading.
Can not import from file. Bank Number is different from selected bank.	File cannot be opened. Type of bank select is wrong.	When importing tones of bank row in VoiceList, the type of bank select is wrong.
Can not open voice file. Illegal file format.	Tone file cannot be opened. Format of the file is not correct.	Tone definition file format error
Can not open MLD file. Can not open MLD Phrase L2 in L1 mode.	Unable to open a MLD file. Phrase L2 can not open by L1 mode.	Tried to open a Phrase L2 file by L1 mode.
Can not save voice file. Illegal bank voice parameter.	Tone file cannot be saved. The bank of voice bank parameter is not correct.	Failed in exporting tones of bank row in VoiceList
Can not open file. Illegal file format.	File cannot be opened. Format of the file is not correct.	An attempt was made to read a file with extension that is not supported.
Can not convert. DLL: Can not create file.	File cannot be converted. File cannot be made.	File cannot be made due to an error.
Can not convert. DLL: Output buffer overflow.	File cannot be converted. It overflows from the buffer.	Converted file overflows from buffer.
Can not convert. DLL: Illegal format type.	File cannot be converted. Format type is not correct.	Invalid format identifier exists.
Can not convert. DLL: Illegal parameter of function.	File cannot be converted. Value of function parameter is not correct.	Value of function parameter is abnormal.
Can not convert. DLL: Illegal event.	File cannot be converted. Even is not correct.	There is an even that is not defined.
Can not convert. DLL: Temporary buffer overflow.	File cannot be converted. File overflows from temporary buffer.	Temporary buffer is full.
Can not convert. File size of MLD is out of range. (256000byte)	Unable to convert a file. File size is over 256000 bytes.	Tried to play a MLD exceeded 256000byte and to save.
Can not save File. - File path exceed 260byte.	Unable to save a file. Path of file name exceeds 260byte.	When the path of file name exceeds 260byte.
Can not assure contents. Max Event Density must be under 1000 byte/s.	The contents cannot be guaranteed. The maximum instantaneous event density exceeds 1000.	In the case of the maximum instantaneous event density exceeds 1000 (Byte/s).
Can not assure contents. Average Event Density must be under 500 byte/s.	The contents cannot be guaranteed. Mean event density exceeds 500.	In the case of mean event density exceeds 500 (Byte/s).
Can not save file. Illegal output stream.	Unable to save MLD file. Output stream is uncorrected.	Document can not be saved into MLD (SMF) file.
Can not open file. Illegal file format.	Unable to open MLD file. File format is uncorrected.	Format is uncorrected at reading of MLD (SMF) file.
Can not open MA1(SMF) file. Illegal file format.	Can not open MA1 file. File format is not correct.	Format is not correct at loading of MA1 (MA5) file.
Can not convert. Dll: Total length is less than 20(msec).	File can not be converted. Total length is 20 or less mesc.	Total length is too short (20 or less mesc) after converted to MFi.
Can not convert. Program Change is specified at the timing of sounding notes.	Unable to file convert. Program change exists during a sound generation.	Program change is performed in a section between NoteOn of an arbitrary Note message and NoteOff.
Can not convert file. PCM voice setting error : Invalid Loop point setting. Bank MSB/LSB: %u / %u Pch: %u Note: %u (Displays Voice Name)	Unable to save a file. The setting of Loop Point is incorrect.	Setting of Loop Point is incorrect.
Can not convert file. PCM voice setting error : Invalid End point setting. Bank MSB/LSB: %u / %u Pch: %u Note: %u (Displays Voice Name)	Unable to save a file. The setting of End Point is incorrect.	End Point is incorrect.

Display	Description of error	Cause
Can not convert file. PCM voice setting error : SR <= 1 and XOF is checked. Bank MSB/LSB: %u / %u Pch: %u Note: %u (Displays Voice Name)	Unable to save a file. XOF check is on SR <= 1.	XOF check is on SR <= 1.
Can not convert file. PCM voice setting error : DR = 0, SL != 0 and XOF is checked. Bank MSB/LSB: %u / %u Pch: %u Note: %u (Displays Voice Name)	Unable to save a file. Checks is on DR = 0, SL != 0 and XOF.	Checks is on DR = 0, SL != 0 and XOF.
Can not convert file. PCM voice setting error: RR <= 1 and XOF is not checked. Bank MSB/LSB: %u / %u Pch: %u Note: %u (Displays Voice Name)	Unable to save a file. Check is not on RR <= 1 and XOF	Check is not on RR <= 1 and XOF

5.2.2. Error Message for Start-up

Display	Description of error	Cause
Can not open application. Application is already running.	The application has already been started.	An attempt was made to start MA-5 Authoring Tool that has already been started.
Can not open application. MA5_AT.ini (initial) file not found.	The application cannot be started. The ini file of MA-5 Authoring Tool does not exist.	MA5_AT.ini does not exist.
Can not open application. Illegal parameter of MA-5_AT.ini (initial) file.	The application cannot be started. The parameter of ini file of MA-5 Authoring Tool is not correct.	The setting of parameter of MA-5_AT.ini is not correct.

5.2.3. Error Message for Internal Input/Output

Display	Description of error	Cause
Can not export to M5N Unexpected problem is occurred.	M3N cannot be made. An unexpected problem has occurred.	It was impossible to make M3N due to an unknown problem.
Can not export to M5N RAM size overflow.	M3N cannot be made. MA-5 RAM capacity is exceeded.	RAM capacity is exceeded.

5.2.4. Error Message for MIDI

Display	Description of error	Cause
Can not assign sound file. RAM size overflow. (total %u byte)	A sound file is un-assignable. RAM size is exceeded.	When RAM size is exceeded.

5.2.5. Error Message for Wave Data

Display	Description of error	Cause
Can not open sound file. Stereo sound file is not supported.	Sound file cannot be opened. This is not compatible with stereophonic sound file.	Conversion processing was stopped because WaveFile is stereophonic.
Can not convert sound file. Unexpected problem is occurred.	Sound file cannot be converted.	Processing was stopped due to an unknown problem during WaveFile conversion.
Can not assign sound file. Numbers of Wave Exceed 128.	Sound file cannot be assigned.	Because of no space WaveID on Voice List, process is interrupted.
Can not assign sound file. Number of Wave exceed 32.	Sound file cannot be assigned.	Because of no space WaveID on VoiceAssignMap, process is interrupted.
Can not convert sound file. Sampling Frequency is not supported. (Must be over 4k Hz)	Sound file cannot be assigned.	With Stream PCM Assign MAP When WaveFile of 8 bit PCM is read Sampling Frequency is under 4000Hz.
Can not convert sound file. Sampling Frequency is not supported. (Must be under 16k Hz)	Sound file cannot be converted.	Sampling Frequency is over 16000Hz when WaveFile of Mono 4 bit ADPCM is read at Stream PCM Assign MAP
Can not convert sound file. Sampling Frequency is not supported. (Must be 4k Hz)	Unable to convert a sound file.	When Wave File of Stereo 8bit PCM was read by Stream PCM Assign Map, Sampling Frequency was except 4000.
Can not convert sound file. Sampling Frequency is not supported. (Must be under 48k Hz)	Sound file cannot be converted.	Sampling Frequency is over 48000Hz when WaveFile is read at Voice Edit/PCM.
Can not convert sound file. Sampling Frequency is not supported. (Must be over 4k Hz)	Can not convert sound file. Sampling Frequency is not supported. (Must be over 4k Hz)	Since Sampling Frequency of Wave File read by Voice Edit or PCM is less than 4000, either of reservation and/or playback cannot be performed.
Can not assign stereo sound file. Sound file is already assigned.	Unable to assign a sound file. Other sound files are already assigned.	By two continuations, it cannot register with Stream PCM Assign MAP.
Can not assign stereo sound file. Over Wave ID. (ID 1-31)	A sound file is un-assignable. Wave ID. (ID 1-32) is exceeded.	Tried to register the Stream PCM of Stereo into Wave ID 32.
Can not assign stereo sound file. Sound file is already assigned.	Can not assign stereo sound file. Other sound file may be assigned already.	Two files cannot be continuously registered into StreamPCMAssignMap.
Sampling Frequency is not supported. –Delete sound file.	Can not assign a sound file. Wave ID is overflowed (ID 1-31).	Try to register Stream PCM of Stereo into Wave ID 32.

5.2.6. Error Message for User's Operation

Display	Description of error	Cause
Can not paste voice parameter. Can not assign 4 operator on GM1 mode.	Unable to paste a voice parameter.	4 operators are pasted from VoiceList to VAM.
Can not play. Illegal output stream.	Unable to playback.	The playback is un-normal.
Can not close Voice Edit. Please load wave file or check 'RM'.	Unable to close a Voice Edit. Be sure to check RM, or load a Wave file.	In state, either the voice wave load completed or RM unchecked, O.K button is selected.
Can not close Voice Edit. Please load basic waveform.	Unable to close Voice Edit. Please load a basic-waveform.	When "O.K" is pressed in FM Voice Edit; in the condition of which one of WS15, 23, or 31 is selected and when one of operator 1 or 4 is selected;
Can not close clear. This basic waveform is used.	Unable to clear. This basic waveform is used.	When the correspond FM basic waveform is used by other operators (include others voice)
Can not close Voice Edit. Invalid Loop point setting.	Unable to close a Voice Edit. Loop Point setting is illegal.	In case of the LP check shows an error.
Can not close Voice Edit. Invalid End point setting.	Unable to close a Voice Edit. End Point setting is illegal.	In case of the EP check shows an error.
Can not close Voice Edit. Setting Error : SR <= 1 and XOF is checked.	Unable to close a Voice Edit. Setting is error: SR <= 1 and XOF is not checked.	EG in case of LP=EP, or check boxes of LPL, and EPL show an error
Can not close Voice Edit. Setting Error : DR = 0, SL != 0 and XOF is checked.	Unable to close a Voice Edit. Setting is error: DR = 0, SL != 0 and XOF is checked.	EG in case of LP=EP, or check boxes of LPL and EPL show an error
Can not close Voice Edit. Setting Error : RR <= 1 and XOF is not checked.	Unable to close a Voice Edit. Setting is error: RR <= 1 and XOF is not checked.	EG in case of LP=EP, or check boxes of LPL and EPL show an error
Can not check AL enable. Number of AL voice exceed16.	Unable to check the AL Enable.	Al voice numbers exceeds 16.
Can not open help. Unexpected problem is occurred.	Unable to open "Help". The unexpected problem is occurred.	A help is not opened on a certain problem.
Can not open help. Help file doesn't exist.	Unable to open "Help". There is no help file.	Since there is no help file, a help is not opened.
Can not reload SMF file. SMF file doesn't exist.	Unable to reload an SMF. There is no SMF.	Since there is no SMF, an SMF is not reloaded.

5.2.7. Other Error Message

Display	Description of error	Cause
Exit application. Unexpected problem is occurred.	Application is ended because of an unexpected problem.	Application is ended because of an unexpected problem.

5.3. Warning Message

5.3.1. Warning Message at Input/Output

Display	Display Timing
Note Number (115-127) in MLD is not supported. DLL: Note Message (#115-127) is ignored.	Since the note message of 115 to 127 exists, output of note number is controlled.
Can not convert. RAM size overflow.	Make a trial calculation of RAM size consumption from all voice registered in VoiceAssginMap and the setting of Stream PCM Reserved in Preference; if the sum total of calculation is over 8176 (Byte).
More than one Note messages found on the same duration in a mono mode channel. Only the last Note message will be accepted.	When two or more note messages exist in dulation: 0 in a mono-mode specification channel at the time of a MLD output. * Only the thing of last note-message is output (it is a filter at DLL).
Can not convert. Max Event Density must be under 1000 byte/s.	The maximum event density at the moment is over 100 (Byte/s) at the time of SMF Import.
Can not convert. Average Event Density must be under 500 byte/s.	When average event density is over 500 (Byte/s) at the time of SMF Import.
Can not output Information to SMF. Invalid Information.	Since the contents of Information are inaccurate, Information cannot be output to SMF.
FM voice setting error: Invalid wave style Setting. - Set wave style '0' automatically.	When opening MLD or a voice file, an unjust Wave style setting is found and it corrects to '0' automatically.
Phrase L1 voice file. Can not import BankM:125 Pch#1 bank voice	When the voice file for Phrase L1 is loaded in the Phrase L2 mode and the voice set of BM:125/Pch#:1 is read and thrown away.
Number of assigned voices is exceed128. Can not output excess voices.	When a 128 or more-tone is assigned to Voice Assign Map.
Cue Point is adjusted automatically.	When incorrect Start/StopPoint position and phrase mark was automatically adjusted.

5.3.2. Warning Message for Start up

Display	Display Timing
Automatically operated. System has been changed to use COM%d	When a connection port is changed into the thing different from a setup.

5.3.3. Warning Message for Wave Data

Display	Display Timing
Size of the Stream Data exceed the limit.	When the data size of StreamPCM is too big.
Sampling fq exceed the limit.	When sampling frequency of StreamPCM exceeds the range.

5.3.4. Warning Message at User's Operation

Display	Display Timing
Exist editing document. Save the document?	When it is going to cancel the application in the state where the voice under edit exists.
Exist editing parameter. Save the voice parameter?	When it is going to cancel the application in the state where the voice under edit exists.
Loop/End Point is adjusted automatically.	When LP/EP automatic control function starts to the timing which opens PCM Voice Edit.
Can not export to Voice List. -Normal Voice=BankMSB:124 /BankLSB:0 /Pch#:0-127 -Drum Voice=Bank MSB:125 /Pch#:0-1/Note#:13-91	When default voices were exported from Voice Assign Map to Voice List.

5.4. Verification Message

5.4.1. Verification Message for MIDI

Display	Display Timing
Confirm operation. Send Bank Voice Message? (total 128 voice) Bank MSB/LSB: %u/%u	At the time of voice transmission of the bank sequence in Voice List (Normal)
Confirm operation. Send Bank Voice Message? (total 79 voice) Bank MSB/LSB: %u/%u Pch: %u Note: 13-91	At the time of voice transmission of the bank sequence in Voice List (Drum)

5.4.2. Verification Message at User's Operation

Display	Display Timing
Confirm operation. Send MA-5 Native Reset Message?	When Reset in the option menu was clicked.
Confirm operation. Sound file will be detached automatically.	An attempt was made to check RM (ON) when a sound file is being loaded into the PCM Voice Edit dialog.
Overwriting Voice List. Save the changed voice parameters?	When Open Voice File in the File menu was selected.
Overwriting Voice List. Save the changed data of Voice List?	When the Import from Bank Voice in the VoiceList was selected.
Overwriting Voice List. Save the changed voice parameters?	When Preference in the Option menu was selected.
Overwriting Stream PCM Assign Map. Export to Stream PCM File?	When the Import from Stream PCM File In the Stream PCM Assign Map was selected.
Loop / End Point is adjusted automatically.	When rounding was made because of incorrect both Loop Point and End Point.
Confirm Operation. Send all parameters of AT?	When performing Send All Parameter.
Do you want to delete this file?	When file is deleted from File List Window.
Sampling Frequency and Loop / End Point is adjusted automatically.	Fs and LP/EP were automatically adjusted when a file of extended voice list file format (.vm3) is saved in MA-5.
AL Noise Voice is changed into Preset Voice.	AL Noise is changed to default voice when a file of extended voice list file format (.vm3) is saved in MA-5.

5.5. Shortcut Key

In MA-5 Authoring Tool, the following shortcut keys can be used.

> Sign "+" means "with". For example, "[CTRL] + [F4]" means that "Push [F4] key with pushing the [Ctrl]

5.5.1. Shortcut Key for Common to Each Window

Key	Operation
[ESC]	Cancels an editing operation.
[DEL]	Deletes the event chosen.
[CTRL]+ [F4]	Closes an active editing window.
[CTRL]+ [F6](or Tab)	Changes an active window in the editing window opened on the application window.
[Alt](or GRPH)+[Tab]	Opens an application window, while minimizing MA-5 authoring tool.
[Alt](or GRPH)+[Space key]	Opens an icon popup menu from the title bar of an application window.
[Alt](or GRPH)+[-](Hyphen)	Opens an icon popup menu from the title bar of an active editing window.
[Alt](or GRPH)+ [F4]	Closes application.

5.5.2. Shortcut Key for Menu Bar

Key	Operation
[Alt](or [GRPH])+ Letter key	Executes the menu item corresponding to each letter key. For example, when pushes [E] key with pushing [Alt] (or [GRPH]), the pull-down menu of [Edit] menu will open. In addition, copy will be chosen when [C] key is pushed on it.
[Alt](or [GRPH])	Moves cursor to [File] of menu bar. In this status, it is possible to move cursor to right and left by pushing the cursor key of computer keyboard, and move to up and down on the opened menu.

5.5.3. Shortcut Key for Control Button

Key	Operation
Start/Stop button	[Space]

5.5.4. Shortcut Key for File Menu

Key	Operation
Open	[Ctrl]+[O]
Save	[Ctrl]+[S]
Import from SMF	[Ctrl]+[L]
Reload from SMF	[Ctrl]+[R]

5.5.5. Shortcut Key for Edit Menu

Key	Operation
Copy	[Ctrl]+[C]
Paste	[Ctrl]+[V]
Undo	[Ctrl]+[Z]
Redo	[Ctrl]+[Y]