EN

MZ-X500
MZ-X300

USER'S GUIDE (Tutorial)

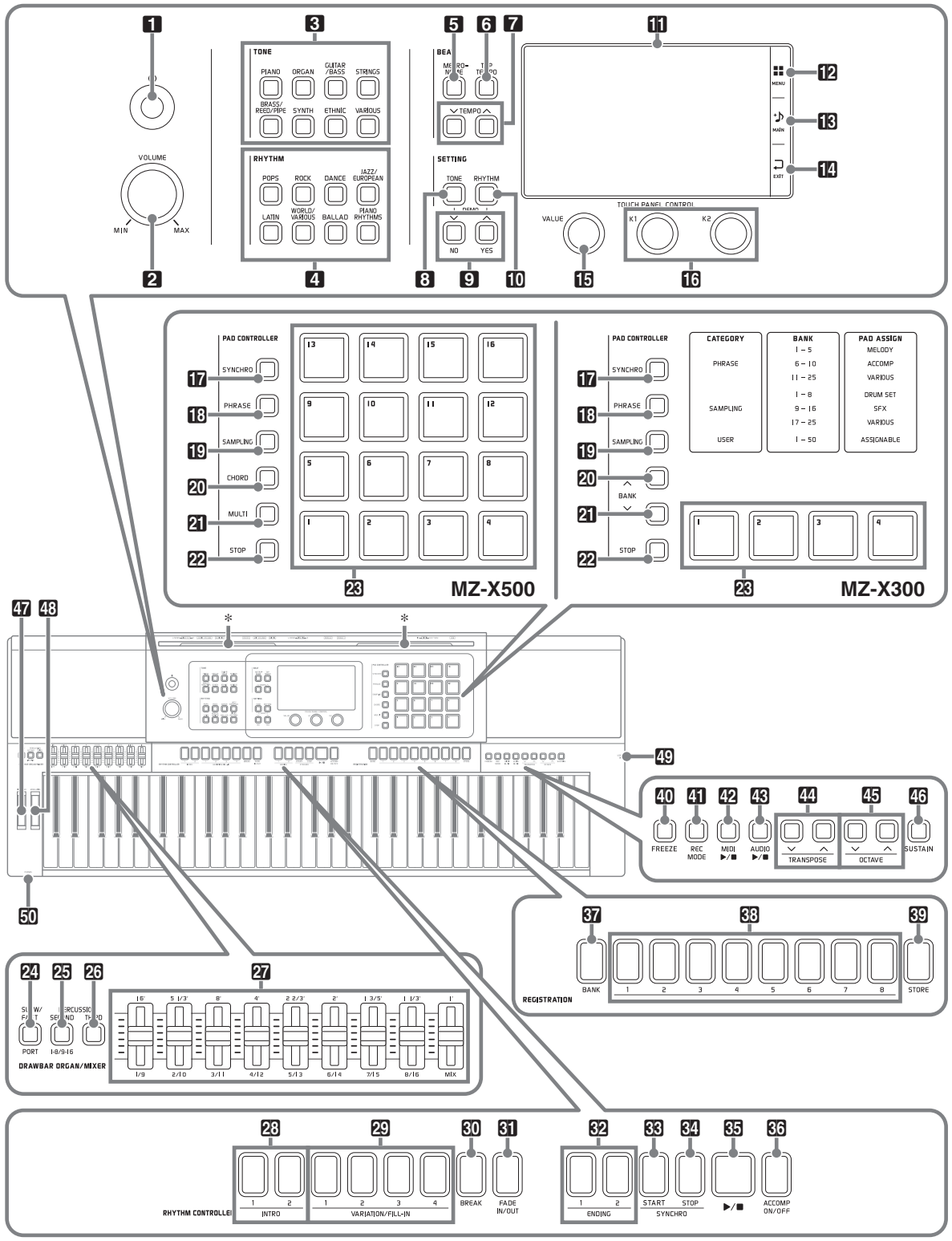
● Before using this Digital Keyboard for the first time, be sure to read the separate USER'S GUIDE (Basics) to familiarize yourself with basic operations.

MZX500/300-E-2A

CASIO

Contents

General Guide



• This manual uses the numbers and names below to refer to buttons and controllers.

1 ⏻ (Power) button
2 **VOLUME** controller
3 **TONE** area
- **PIANO** button
- **ORGAN** button
- **GUITAR/BASS** button
- **STRINGS** button
- **BRASS/REED/PIPE** button
- **SYNTH** button
- **ETHNIC** button
- **VARIOUS** button

4 **RHYTHM** area
- **POPS** button
- **ROCK** button
- **DANCE** button
- **JAZZ/EUROPEAN** button
- **LATIN** button
- **WORLD/VARIOUS** button
- **BALLAD** button
- **PIANO RHYTHMS** button

BEAT area
- 5 **METRONOME** button
- 6 **TAP TEMPO** button
- 7 **TEMPO** ∨, ∧ buttons

SETTING area
- 8 **TONE** button
- 9 ∨/NO, ∧/YES buttons
- 10 **RHYTHM** button

11 Display
12 **MENU**
13 **MAIN**
14 **EXIT**
15 **VALUE** dial
16 **K1**, **K2** knobs

PAD CONTROLLER area (MZ-X500)
- 17 **SYNCHRO** button
- 18 **PHRASE** button
- 19 **SAMPLING** button
- 20 **CHORD** button
- 21 **MULTI** button
- 22 **STOP** button
- 23 Pads **1** to **16**

PAD CONTROLLER area (MZ-X300)
- 17 **SYNCHRO** button
- 18 **PHRASE** button
- 19 **SAMPLING** button
- 20 **BANK**∧ button
- 21 **BANK**∨ button
- 22 **STOP** button
- 23 Pads **1** to **4**

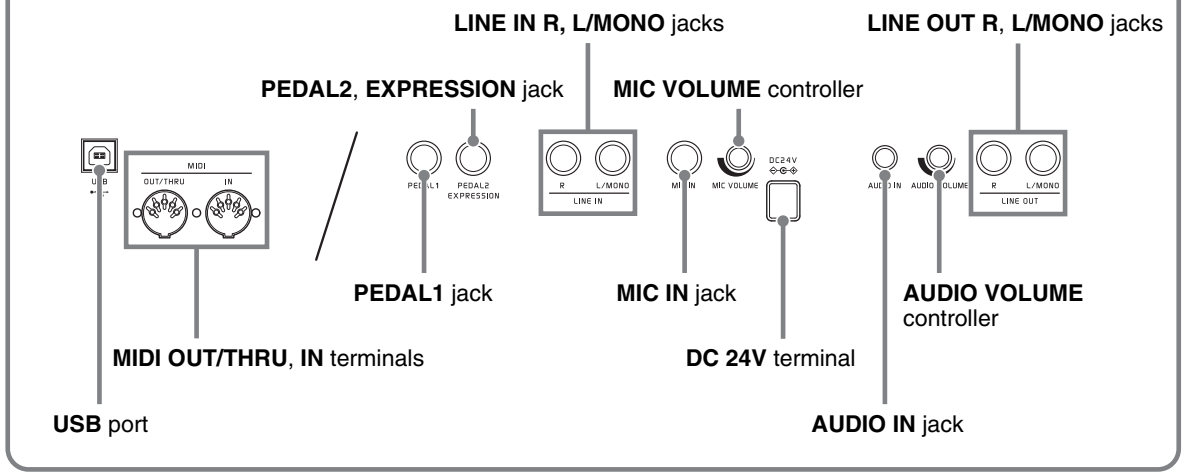
DRAWBAR ORGAN/MIXER area
- 24 **SLOW/FAST**, **PORT** buttons
- 25 **PERCUSSION SECOND**, **1-8/9-16** button
- 26 **PERCUSSION THIRD** button
- 27 Sliders

RHYTHM CONTROLLER area
- 28 **INTRO1**, **2** buttons
- 29 **VARIATION/FILL-IN 1** to **4** buttons
- 30 **BREAK** button
- 31 **FADE IN/OUT** button
- 32 **ENDING1**, **2** buttons
- 33 **SYNCHRO START** button
- 34 **SYNCHRO STOP** button
- 35 ▶/■ (start/stop) button
- 36 **ACCOMP ON/OFF** button

REGISTRATION area
- 37 **BANK** button
- 38 **REGISTRATION 1** to **8** buttons
- 39 **STORE** button

40 **FREEZE** button
41 **REC MODE** button
42 **MIDI** ▶/■ button
43 **AUDIO** ▶/■ button
44 **TRANSPOSE** ∨, ∧ buttons
45 **OCTAVE** ∨, ∧ buttons
46 **SUSTAIN** button
47 **PITCH BEND** wheel
48 **MODULATION** wheel
49 **USB** flash drive port
50 **PHONES** jack

Back


LINE IN R, L/MONO jacks
LINE OUT R, L/MONO jacks
PEDAL2, EXPRESSION jack
MIC VOLUME controller
MIDI
OUT/THRU
IN
PEDAL2
EXPRESSION
R
L/MONO
LINE IN
MIC VOLUME
DC24V
AUDIO VOLUME
LINE OUT
PEDAL1 jack
MIC IN jack
AUDIO VOLUME controller
MIDI OUT/THRU, IN terminals
DC 24V terminal
USB port
AUDIO IN jack

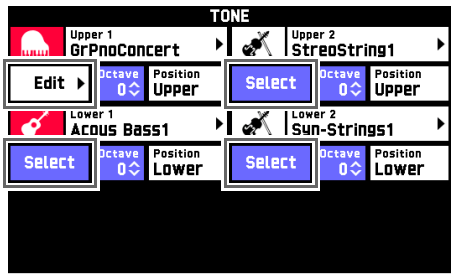
Editing a Tone (User Tones)

Use the procedures in this section to edit the tones of each part (Upper1-2, Lower1-2), and to add effects to suit your needs.

Editing a Tone

1. On the MENU screen, touch “TONE”.
2. Assign the tone you want to edit to one of Digital Keyboard’s parts.
   - For information about how to change the tone assigned to each part, see the Digital Keyboard’s USER’S GUIDE (Basics).
3. Touch the “Edit” button of the part that is assigned the tone you want to edit.

   This displays the editing screen for the tone assigned to the part.
   - If “Edit” is not displayed for the part whose tone you want to edit, touch “Select”. This will cause the button to change to “Edit”.



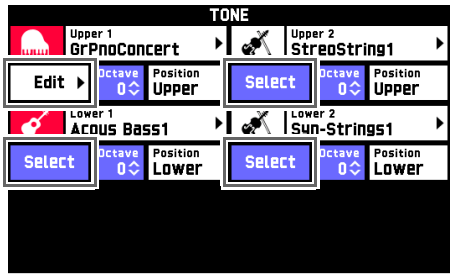
4. Touch the item whose setting you want to change.
   - To configure more advanced settings, touch “Advanced”.
   - The setting items that appear on the editing screen depend on the tone you are editing.
   - For information about editable parameters, see the explanations in the applicable tone category table under “Tone Editing Screen and Editable Parameters” (page EN-6).
5. Change parameter settings as desired.
   - Use the **9** ∨/**NO**, ∧/**YES** buttons to change setting values.
6. After editing everything you want, touch “Write” on the TONE EDIT MENU screen.
7. Touch “Rename”.
8. Touch the keys of the on-screen soft keyboard to input the tone name.
9. After inputting the tone name, touch “Enter”.
10. Touch the destination tone number.
    - If the tone number already has data assigned, there will be an asterisk (*) next to it.
11. Touch “Execute”.

    If the selected preset number does not have any data assigned, the message “Sure?” will appear. If it does have data assigned, the message “Replace?” will appear.
12. Touch “Yes”.

    This stores the data.
    - To return to the screen in step 10 without saving, touch “No”.

To rename a tone

1. On the MENU screen, touch “TONE”.
2. Assign the tone you want to rename to one of Digital Keyboard’s parts.
   - For information about how to change the tone assigned to each part, see the Digital Keyboard’s USER’S GUIDE (Basics).
3. Touch the “Edit” button of the part that is assigned the tone you want to rename.
   - If “Edit” is not displayed for the part whose tone you want to rename, touch “Select”. This will cause the button to change to “Edit”.



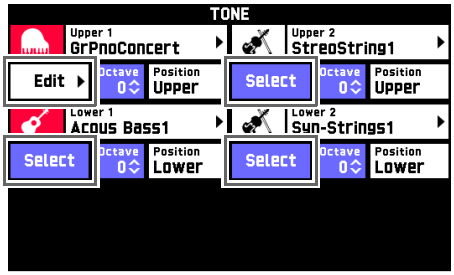
4. Touch “Rename”.
5. Input the new name.
6. After you are finished inputting the name, touch “Enter”.

   This displays the TONE EDIT MENU screen.
7. Touch “Write”.

8. Touch the destination tone number.
   - If the tone number already has data assigned, there will be an asterisk (*) next to it.
9. Touch “Execute”.
10. Touch “Yes”.
    - To cancel the operation, touch “No”.

Deleting a Tone

1. On the MENU screen, touch “TONE”.
2. Assign the tone you want to delete to one of Digital Keyboard’s parts.
   - For information about how to change the tone assigned to each part, see the Digital Keyboard’s USER’S GUIDE (Basics).
3. Touch the “Edit” button of the part that is assigned the tone you want to delete.
   - If “Edit” is not displayed for the part whose tone you want to edit, touch “Select”. This will cause the button to change to “Edit”.



4. Touch “Clear”.
5. Touch the name of the tone you want to delete.
6. Touch “Execute”.
7. Touch “Yes”.
   - To cancel the operation, touch “No”.

Tone Editing Screen and Editable Parameters

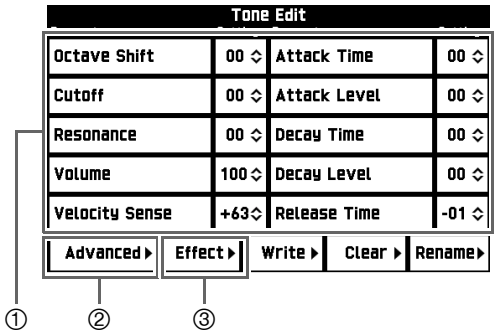
- Shaded cells in the table on pages EN-7 through EN-25 indicate a group made up of multiple setting items. Touching “Enter” displays the setting items of a group.

Editable Melody Tone Parameters

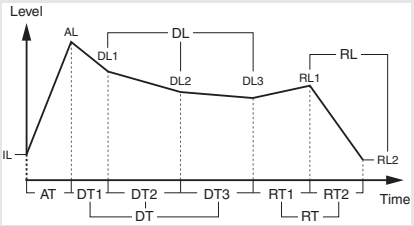
There are three melody tone types, each of which is described below. With this Digital Keyboard, editable parameters are the same, regardless of tone type.

- Normal Tone: This type of tone is best for reproducing the sounds of melody instruments with normal scales.
- Piano Tone: This type of tone is best for realistic reproduction of slight changes in sound due to key touch pressure, as with a piano.
- Versatile Tone: Tone that incorporates various types of sounds. Such a tone makes it possible to exert precise control over various musical expressions for a single instrument in accordance with where on the keyboard notes are played, or how much pressure is applied when pressing keys.

■ Melody Tone Editing Screen



① Parameters frequently used for tone editing
② Advanced settings
③ Effect settings. For more information, see "Editable Effect Parameters" (page EN-18).

Display Text	Description	Settings
Pitch	Pitch envelope. The editable parameters in this group affect the pitch of notes.	
Octave Shift	Octave shift. Changes the tone of notes in octave units.	–2 to 0 to +2
Envelope	• The figure below also applied to filter, amp, and other envelopes. With the pitch envelope, the pitch of the sound corresponds to the vertical (Level) axis. • With a hex layer tone envelope, Decay Time can be divided into three parts and Release Time can be divided into two parts and edited. • When Decay Level 3 is reached during key release note on, an immediate transition is made to Release Level 1 without sustain. • The setting ranges of the parameters below are relative changes (relative to the presets of the tone) in the case of melody tones and drum tones. When editing a hex layer tone, they are absolute changes that have no relation to the presets of the tone. – Time and level of each envelope – Rate, depth, delay, rise, modulation depth of LFO (page EN-8)  IL : Initial Level AT : Attack Time AL : Attack Level DT : Decay Time (DT1: Decay Time 1) (DT2: Decay Time 2) (DT3: Decay Time 3) DL : Decay Level (DL1: Decay Level 1) (DL2: Decay Level 2) (DL3: Decay Level 3) RT : Release Time (RT1: Release Time 1) (RT2: Release Time 2) RL : Release Level (RL1: Release Level 1) (RL2: Release Level 2)	
Initial Level	Initial level. Pitch of the sound at initial note on.	–64 to 0 to +63
Attack Time	Attack time. Time it takes until the attack level is reached from the initial level.	–64 to 0 to +63
Release Time	Release time. Time it takes to reach Release Level after a key is released.	–64 to 0 to +63
Release Level	Release level. Target level reached immediately after a key is released.	–64 to 0 to +63

Display Text	Description	Settings
Stretch Tune	Stretch tuning. Sharpens high notes and flattens low notes to achieve characteristic piano stretch tuning. Turn off this setting to play with normal (non-stretch) tuning.	Off, Piano1, Piano2, Piano3, Piano4, Piano5, E.Piano1, E.Piano2
Filter	Filter. This is a group of editable parameters associated with filters (tones). • With this group, the vertical (Level) axis in the pitch envelope diagram corresponds to how the filter is applied.	
Cutoff	Cutoff frequency. Specifies the filter cutoff frequency.	–64 to 0 to +63
Resonance	Resonance. Specifies the resonance of the tone in the vicinity of the cutoff frequency.	–64 to 0 to +63
Velocity Sense	Velocity sense. Specifies the degree of change in the filter in accordance with change in keyboard playing touch.	–64 to 0 to +63
Envelope	• For details about the parameters below, see “Pitch Envelope”. Initial Level, Attack Time, Release Time, Release Level	
Envelope Depth	Envelope depth. Specifies how the envelope is applied.	0 to 127
Attack Level	Attack level. Target level reached immediately after note on.	–64 to 0 to +63
Decay Time	Decay time. Time it takes for the sound to reach the decay level from the attack level.	–64 to 0 to +63
Decay Level	Decay level. Level the sound is sustained as long as a key or pedal is depressed.	–64 to 0 to +63
Amp	Amp. This is a group of editable parameters associated with the amp (volume).	
Volume	Volume. Specifies the amp volume.	0 to 127
Velocity Sense	Velocity sense. Specifies the degree of change in volume in accordance with change in keyboard playing touch.	–64 to 0 to +63
Envelope	• The vertical (Level) axis in the pitch envelope diagram corresponds to the volume in the case of this group. • For details about the parameters below, see “Pitch Envelope”. Initial Level, Attack Time, Release Time • For details about the setting items below, see “Filter”, above. Attack Level, Decay Time, Decay Level	
LFO	Low Frequency Oscillator. This is a group of editable LFO parameters applied to pitch, filter, and amp.	
Pitch Wave FilterAmpWave	Wave type. Specifies one of the following wave types to be used for LFO. FilterAmpWave is shared by filter and amp. Sin (sine wave)  Puls 1:3 (square wave 1:3)  Tri (triangle wave)  Puls 2:2 (square wave 2:2)  Saw up (sawtooth up wave)  Puls 3:1 (square wave 3:1)  Saw down (sawtooth down wave) 	Refer to the cell to the left.
Pitch Rate FilterAmpRate	Rate. LFO speed (frequency). FilterAmpRate is shared by filter and amp.	–64 to 0 to +63
Pitch Depth Filter Depth Amp Depth	Depth. Specifies how LFO is applied.	–64 to 0 to +63
Pitch Delay Filter Delay Amp Delay	Delay. Specifies the degree of delay in the timing for applying LFO.	–64 to 0 to +63

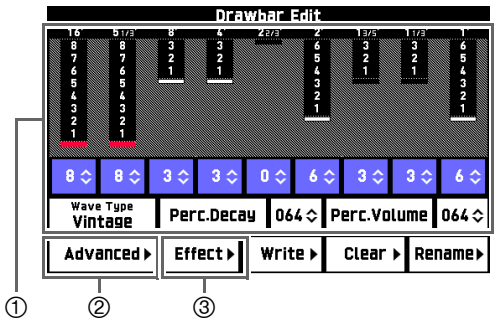
Display Text	Description	Settings
Pitch Rise Filter Rise Amp Rise	Rise. Specifies the time it takes from the start of application of the LFO until the effect reaches the level specified by Depth, above.	–64 to 0 to +63
Pitch Mod.Depth Filter Mod.Depth Amp Mod.Depth	Modulation depth. Specifies how modulation is applied to the LFO.	–64 to 0 to +63
Portamento	Portamento. This is a group of editable portamento parameters.	
Portamento On/Off	Portamento On/Off. Select “On” for a smooth glide from one tone to the next, or “Off” when a smooth glide is not required.	Off, On
Portamento Time	Time. Specify the length of time for the tone change.	0 to 127
Pan	Pan. This is a group of editable parameters associated with pan (sound stereo position) operation.	
Dynamic Panning	Dynamic panning. To reflect changes in part panning in the sound being produced, select “On” for this setting. Select “Off” if you do not want changes reflected.	Off, On
Pan Position	Panning position. Select “PreDSP” to apply panning before the DSP, or “PostDSP” to apply panning after the DSP.	PreDSP, PostDSP

Editable Drawbar Organ Tone Parameters

These are tones of a vintage drawbar organ with nine drawbars and a rotary speaker. The Digital Keyboard's 27 Sliders operate as drawbars with these tones.

- Drawbar organ tone can be assigned to Part 1 (Upper 1) only.
- Drawbar organ tones are not affected by operations that change the pitch of a note over time (such as pitch bend wheel operations), and temperament settings.
- While a drawbar organ tone is selected, distinctive drawbar noise constantly sounds, regardless of whether or not a keyboard key is pressed.
- A drawbar organ tone can be used for a single part only.

■ Drawbar Organ Tone Parameter Editing Screen

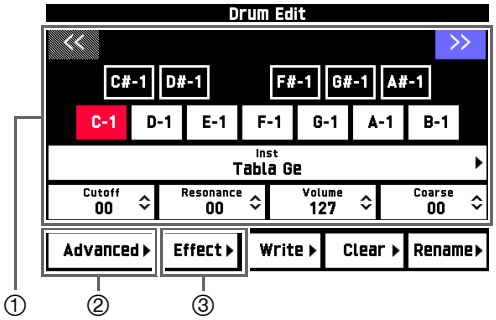


① Parameters frequently used for tone editing
② Advanced settings
③ Effect settings. For more information, see "Editable Effect Parameters" (page EN-18).

Display Name	Description	Settings
16'	16 feet (16'). Specifies the pull out amount of the 16-foot drawbar.	0 to 8
5 1/3'	5 and 1/3 feet (5 1/3'). Specifies the pull out amount of the 5 1/3-foot drawbar.	0 to 8
8'	8 feet (8'). Specifies the pull out amount of the 8-foot drawbar.	0 to 8
4'	4 feet (4'). Specifies the pull out amount of the 4-foot drawbar.	0 to 8
2 2/3'	2 and 2/3 feet (2 2/3'). Specifies the pull out amount of the 2 2/3-foot drawbar.	0 to 8
2'	2 feet (2'). Specifies the pull out amount of the 2-foot drawbar.	0 to 8
1 3/5'	1 and 3/5 feet (1 3/5'). Specifies the pull out amount of the 1 3/5-foot drawbar.	0 to 8
1 1/3'	1 and 1/3 feet (1 1/3'). Specifies the pull out amount of the 1 1/3-foot drawbar.	0 to 8
1'	1 foot (1'). Specifies the pull out amount of the 1-foot drawbar.	0 to 8
Sound Type	Switches the drawbar sound type.	Sin, Synthesis, Vintage
Leakage Level	Adjusts the distinctive level drawbar noise volume.	0 to 15
Percussion 2nd	2nd overtone percussion. Turning on this setting applies a second overtone percussion sound.	Off, On
Percussion 3rd	3rd overtone percussion. Turning on this setting applies a third overtone percussion sound.	Off, On
Percussion Decay Time	Percussion decay time. Specifies the decay time of percussion sound.	0 to 127
Percussion Volume	Adjusts the volume of percussion sounds.	0 to 127
On Click	On click. Turns the click sound when a key is pressed on or off.	Off, On
Off Click	Off click. Turns the click sound when a key is released on or off.	Off, On

Editable Drum Tone Parameters

■ Drum Sound Editable Parameters



① For changing the parameter settings of each keyboard key. Touch the desired keyboard key and then change its parameters. Touch the left (<) or right (>) button to scroll the keyboard on the screen. Parameters can also be accessed from the Advanced ② screen as shown below.
Inst: Inst → Inst Select
Cutoff: Inst → Filter → Cutoff
Resonance: Inst → Filter → Resonance
Volume: Inst → Amp → Volume
Coarse: Inst → Pitch → Coarse Tune
② Advanced settings
③ Effect settings. For more information, see "Editable Effect Parameters" (page EN-18).

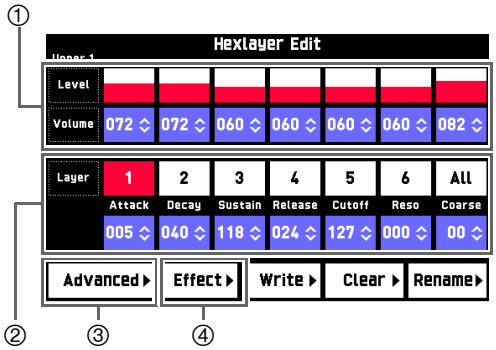
Display Text	Description	Settings
Inst	Instrument edit. This is a group of editable instruments assigned to each keyboard key. • Touch an on-screen keyboard key to specify the key to be edited.	C-1 - G9
Inst Select	Instrument number select. Specifies the number of the drum tone assigned to each key.	See the "Instrument List" in the separate Appendix.
Note Off Mode	Note off mode. Turning on this setting causes note off to be performed when a key is released.	Off, On
Assign Group	Assign group. Specifies as a value from 1 to 15 which group the currently selected key should be placed into. Only one keyboard in a group is sounded at any time (non-polyphonic).	Off, 1 to 15
Pitch	Pitch envelope. • For details and information about the setting items below, see the melody tone "Pitch Envelope (Pitch)" (page EN-7). Initial Level, Attack Time	
Coarse Tune	Coarse tune. Changes the pitch of notes by semitone units.	–24 to 0 to +24
Fine Tune	Fine tune. Fine tunes the pitch of the sound. Lowers the value up to –256 or raises the value up to +255 in semitone steps.	–256 to 0 to +255
Filter	Filter. • For details and information about the setting items below, see the melody tone "Filter" (page EN-8). Cutoff, Resonance, Envelope Depth, Attack Level, Decay Time, Decay Level • For details about the setting items below, see the melody tone "Pitch Envelope" (page EN-7). Initial Level, Attack Time	

Display Text	Description	Settings
Amp	Amp. • For details and information about the setting items below, see the melody tone “Amp” (page EN-8). Volume • For details about the setting items below, see the melody tone “Pitch Envelope” (page EN-7). Initial Level, Attack Time • For details about the setting items below, see the melody tone “Filter” (page EN-8). Attack Level, Decay Time, Decay Level	
Pan	Pan. Controls whether the sound of the part can be heard from the left side or right side.	–64 to +63
Effect	Effect. This is a group of editable effect function parameters.	
Reverb Send	Reverb send. Specifies how reverb (page EN-81) is applied to a tone.	0 to 127
Chorus Send	Chorus send. Specifies how chorus (page EN-81) is applied to a tone.	0 to 127
Delay Send	Delay send. Specifies how delay (page EN-82) is applied to a tone.	0 to 127
DSP On/Off	DSP on/off. Specifies whether or not DSP should be applied to tones.	Off, On
Pan	Pan. This is a group of editable parameters associated with pan (sound stereo position) operation. • For details about the setting items below, see the melody tone “Pan” (page EN-9). Dynamic Panning, Pan Position	

Editable Hex Layer Tone Parameters (MZ-X500 only)

Up to six tones are layered for ensemble sounds with plenty of depth. Each of the layered sounds can be edited individually.

■ Hex Layer Tone Editable Parameters



① Adjusts the volume of each layer. The volume setting can also be accessed from the Advanced ③ screen as shown below.
Volume: Layer → Amp → Volume

② Changes parameters for each layer. Touch the desired layer and then change its parameters. Parameters can also be accessed from the Advanced ③ screen as shown below.
Attack: Layer → Amp → Envelope → Attack1 Time
Decay: Layer → Amp → Envelope → Decay1 Time
Sustain: Layer → Amp → Envelope → Decay 1/2/3 Level
Release: Layer → Amp → Envelope → Release1 Time
Cutoff: Layer → Filter → Cutoff
Reso: Layer → Filter → Resonance
Coarse: Layer → Pitch → Coarse Tune

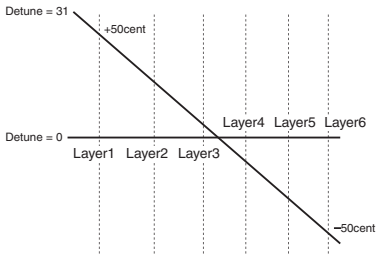
③ Advanced settings

④ Effect settings. For more information, see “Editable Effect Parameters” (page EN-18).

Display Name	Description	Settings
Mode	Mode. Specifies the hex layer mode.	Normal, Mono, Bass Synth
Volume	Volume. Overall hex layer volume.	0 to 127
Keyoff Velocity Mode	Key off velocity mode. Select “KeyOff” to use the key off velocity as the key off velocity, or “KeyOn” to select the key on velocity. Select “Both” to reflect both (key on and key off) velocities.	KeyOff, KeyOn, Both
Legato	Legato. When “On”, notes can be played in a smooth flowing manner in the Mono Mode. (No envelope triggering)	Off, On
Layer	Layer. This is a group of editable parameters for each layer. Touch the layer you want to edit and then modify setting items as required. • When “ALL” (all layers) is selected as the layer number, an x-mark may be displayed on the left side of the display showing the part being edited. This indicates that all of the layers do not have the same setting for the currently selected parameter.	
Layer On/Off	Layer on/off. Selecting off disables layer.	Off, On
Wave Number	Wave number. Selects a wave type.	See “Wave List” in the separate Appendix.
Key Range Low	Key Range Low. Specifies the lower limit of the enabled keyboard range. Nothing sounds when any keyboard key below this range is pressed. • Touch a setting and then use the keyboard keys to change it.	C-1 - G9
Key Range High	Key Range High. Specifies the upper limit of the enabled keyboard range. Nothing sounds when any keyboard key above this range is pressed. • Touch a setting and then use the keyboard keys to change it.	C-1 - G9

Display Name	Description	Settings
Velocity Range Low	Velocity range low. Specifies the minimum value of the effective velocity. No sound is produced when playing at a velocity less than this setting.	0 to 127
Velocity Range High	Velocity range high. Specifies the maximum value of the effective velocity. No sound is produced when playing at a velocity greater than this setting.	0 to 127
Start Trigger	Start trigger. Specifies whether a note is sounded when a keyboard key is pressed (KeyOn) or when a keyboard key is released (KeyOff).	KeyOn, KeyOff
Pitch	Pitch envelope. • For details about the setting items below, see the melody tone "Pitch Envelope" (page EN-7). Octave Shift • For details about the setting items below, see drum tone "Pitch Envelope" (page EN-11). Coarse Tune, Fine Tune	
Envelope	• For details about the setting items below, see the melody tone "Pitch Envelope" (page EN-7). You can input "Initial Level", "Attack Level", and "Release Level" values in the range of –256 to 0 to +255. You can input "Attack Time", "Decay Time", and "Release Time" values in the range of 0 to 127. Initial Level, Attack Time, Release Time, Release Level • For details about the setting items below, see the melody tone "Filter" (page EN-8). You can input "Attack Level" and "Decay Level" values in the range of –256 to 0 to +255. You can input a "Decay Time" in the range of 0 to 127. Attack Level, Decay Time, Decay Level	
Key Follow	Key follow. Adjusts the amount of pitch change between neighboring keyboard keys. A higher value represents greater change.	–128 to 0 to +127
Key Follow Base	Key follow base. Keyboard key that is the center of key follow.	C-1 - G9
Split Shift	Split shift. Counting from the keyboard key that is pressed, the waveform that sounds is the one assigned to the keyboard key that is the specified split shift amount above or below the pressed key. The pitch used is the one that corresponds to the pressed keyboard key.	–12 to 0 to +12
LFO Layer Depth	LFO layer depth. Adjusts how LFO is applied to each layer.	0 to 127
Filter	Filter. • For details and information about the setting items below, see the melody tone "Filter" (page EN-8). You can input a value in the range from 0 to 127. Cutoff, Resonance	
Filter Type	Filter type. Specifies the range cut by the filter. LPF1: 6dB/oct filter for low-frequency band components. No resonance effect. Suitable for acoustic instruments. LPF2: 12dB/oct filter for low-frequency band components. No resonance effect. Suitable for acoustic instruments. LPF3: 12dB/oct filter for low-frequency band components. With resonance effect. Suitable for synthesized tones. BPF: 6dB/oct filter for band components in the vicinity of the cutoff frequency. With resonance effect. HPF: 12dB/oct filter for high-frequency band components. With resonance effect.	Refer to the cell to the left.
Velocity Sense	Velocity sense. Specifies the degree of change in the filter in accordance with keyboard press velocity.	–64 to 0 to +63

Display Name	Description	Settings
Envelope	• For details about the setting items below, see the melody tone “Filter” (page EN-8). You can input a value in the range from 0 to 127. Attack Level, Envelope Depth • For details about the setting items below, see the melody tone “Pitch Envelope” (page EN-7). You can input a value in the range from 0 to 127. Initial Level, Attack Time	
Decay 1 Time	Decay 1 time. Time it takes for the sound to reach the Decay 1 level from the attack level.	0 to 127
Decay 1 Level	Decay 1 level. Target level for change from the attack level up to the Decay 1 level.	0 to 127
Decay 2 Time	Decay 2 time. Time it takes for the sound to reach the Decay 2 level from the Decay 1 level.	0 to 127
Decay 2 Level	Decay 2 level. Second target level for change from Decay 1 level up to the Decay 2 level.	0 to 127
Decay 3 Time	Decay 3 time. Time it takes for the sound to reach the Decay 3 level from the Decay 2 level.	0 to 127
Decay 3 Level	Decay 3 level. Third target level for change from Decay 2 level up to the Decay 3 level.	0 to 127
Release 1 Time	Release 1 time. Time it takes to reach Release Level 1 after a key is released.	0 to 127
Release 1 Level	Release 1 level. Target level reached immediately after a key is released.	0 to 127
Release 2 Time	Release 2 time. Time it takes to reach Release Level 2 from Release Level 1.	0 to 127
Release 2 Level	Release 2 level. Second target level reached after a key is released.	0 to 127
Low Key Follow	Low key follow. Adjusts the amount of filter change between neighboring keyboard keys. A greater value represents greater change. A positive (+) value specifies a lower cut off frequency for the low-range keyboard.	–128 to 0 to +127
Low Key	Low key. Applies the low key follow effect to the keys on the low range (left) side of the key specified by this setting.	C-1 - G9 (Low Key ≦ High Key)
High Key Follow	High key follow. Adjusts the amount of filter change between neighboring keyboard keys. A greater value represents greater change. A positive (+) value specifies a higher cut off frequency for the high-range keyboard.	–128 to 0 to +127
High Key	High key. Applies the high key follow effect to the keys on the high range (right) side of the key specified by this setting.	C-1 - G9 (Low Key ≦ High Key)
LFO Layer Depth	LFO layer depth. Adjusts how LFO is applied to each layer.	0 to 127

Display Name	Description	Settings
Amp	Amp. For details, see the melody tone “Amp” (page EN-8). • For details about the setting items below, see the melody tone “Amp” (page EN-8). Volume, Velocity Sense • For details about the setting items below, see the drum sound “Amp” (page EN-12). Pan	
Envelope	• For details about the setting items below, see the melody tone “Pitch Envelope” (page EN-8). You can input a value in the range from 0 to 127. Initial Level, Attack Time • For details about the setting items below, see the melody tone “Filter” (page EN-8). You can input a value in the range from 0 to 127. Attack Level • For details about the setting items below, see the hex layer “Filter” (page EN-14). Decay 1 Time, Decay 1 Level, Decay 2 Time, Decay 2 Level, Decay 3 Time, Decay 3 Level, Release 1 Time, Release 1 Level, Release 2 Time	
Low Key Follow	Low key follow. Adjusts the amount of volume change between neighboring keyboard keys. A greater value represents greater change. A positive (+) value specifies a lower volume for the low-range keyboard.	–128 to 0 to +127
Low Key	Low key. Applies the low key follow effect to the keys on the low range (left) side of the key specified by this setting.	C-1 - G9 (Low Key ≦ High Key)
High Key Follow	High key follow. Adjusts the amount of volume change between neighboring keyboard keys. A greater value represents greater change. A positive (+) value specifies a greater volume for the high-range keyboard.	–128 to 0 to +127
High Key	High key. Applies the high key follow effect to the keys on the high range (right) side of the key specified by this setting.	C-1 - G9 (Low Key ≦ High Key)
LFO Layer Depth	LFO layer depth. Adjusts how LFO is applied to each layer.	0 to 127
Pitch	Pitch. The editable parameters in this group affect the pitch of notes.	
Detune	Detune. Causes the tuning of Layers 1 through 6 to be slightly different from each other. A larger setting value increases the amount of detuning. The maximum value (31) results in a difference of 100 cents (semitones) between Layer 1 and Layer 6.  	0 to 31
Pitch Lock Layer 1&2 Pitch Lock Layer 3&4 Pitch Lock Layer 5&6	Pitch lock. When this setting is turned on for Layers 1 and 2, the Layer 2 pitch is changed to the same pitch as Layer 1 so both pitches are the same. The same is true for Layers 3 and 4, and Layers 5 and 6.	Off, On
Stretch Tune	For details, see the melody tone “Stretch Tune” (page EN-8).	

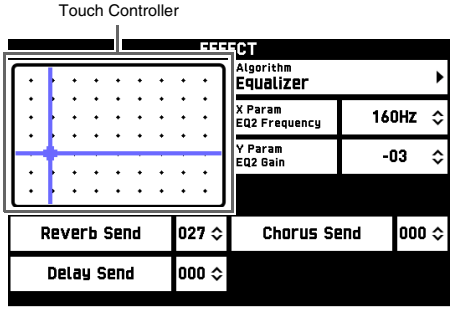
Display Name	Description	Settings
LFO	Low Frequency Oscillator. This is a group of editable LFO parameters applied to the pitch of a layered tone. For details, see the melody tone "LFO" (page EN-8). • For details about the setting items below, see the melody tone "LFO" (page EN-8). You can input a value in the range from 0 to 127. Pitch Rate, Pitch Delay, Pitch Rise, Pitch Mod.Depth, Filter Amp Rate, Filter Delay, Filter Rise, Filter Mod.Depth, Amp Delay, Amp Rise, Amp Mod.Depth • For details about the setting items below, see the melody tone "LFO" (page EN-8). The setting range of each "Depth" is –128 to 0 to +127. Pitch Wave, FilterAmpWave, Pitch Depth, Filter Depth, Amp Depth	
Portamento	Portamento. This is a group of editable portamento parameters. • For details about the setting items below, see the melody tone "Portamento" (page EN-9). Portamento On/Off, Portamento Time	
Chromatic	Chromatic. When "On", passage from one tone to another is in half-tone steps when using Portamento.	Off, On
Pan	Pan. This is a group of editable parameters associated with pan (sound stereo position) operation. For details, see the melody tone "Pan" (page EN-9). • For details about the setting items below, see the melody tone "Pan" (page EN-9). Dynamic Panning, Pan Position	

Editable Effect Parameters

These parameters configure effect settings of each tone.

■ Effect Editing Screen

Touching “Effect” on a tone editing screen (pages EN-6, 10, 11, and 13) displays a screen for advanced effect settings.



Display Name	Description	Settings
Algorithm	For selecting the DSP type and configuring parameter settings. Parameters whose settings can be configured depend on the selected DSP type.	See “Editable DSP Parameters” below.
X Param, Y Param	Show parameters assigned to the X-axis and Y-axis. For information about parameters that can be assigned, see “Editable DSP Parameters” below. X: Parameter assigned to the X-axis Y: Parameter assigned to the Y-axis	–
Touch controller	The “X Param” and “Y Param” settings can be changed simultaneously by touching the screen.	
Reverb Send	Specifies how reverb is applied to a tone.	0 to 127
Chorus Send	Specifies how chorus is applied to a tone.	0 to 127
Delay Send	Specifies how delay is applied to a tone.	0 to 127

■ Editable DSP Parameters

DSP type/Parameter	Description	Settings
Through	Select this option if you do not want to apply a DSP effect. There are no parameters that can be set while this option is selected.	
Equalizer	This is a three-band equalizer.	
EQ1 Frequency	Adjusts the center frequency of Equalizer 1.	100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1.0k, 1.3k, 1.6k, 2.0k, 2.5k, 3.2k, 4.0k, 5.0k, 6.3k, 8.0k [Hz]
EQ1 Gain	Adjusts the gain of Equalizer 1. The Gain value is not a dB value.	–12 to 0 to +12
EQ2 Frequency (X)	Adjusts the center frequency of Equalizer 2.	100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1.0k, 1.3k, 1.6k, 2.0k, 2.5k, 3.2k, 4.0k, 5.0k, 6.3k, 8.0k [Hz]
EQ2 Gain (Y)	Adjusts the gain of Equalizer 2. The Gain value is not a dB value.	–12 to 0 to +12
EQ3 Frequency	Adjusts the center frequency of Equalizer 3.	100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1.0k, 1.3k, 1.6k, 2.0k, 2.5k, 3.2k, 4.0k, 5.0k, 6.3k, 8.0k [Hz]
EQ3 Gain	Adjusts the gain of Equalizer 3. The Gain value is not a dB value.	–12 to 0 to +12
Input Level	Adjusts the input level.	0 to 127
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Compressor	Compresses the input signal, which can have the effect of suppressing level variation and can make it possible to sustain dampened sounds longer.	
Attack	Adjusts the attack amount of the input signal. A smaller value causes prompt compressor operation, which suppresses the attack of the input signal. A larger values delays compressor operation, which causes the attack of the input signal to be output as-is.	0 to 127
Release	Adjusts the time from the point the input signal drops below a certain level until the compression operation is stopped. When an attack feeling is desired (no compression at the onset of sound), set this parameter to as low a value as possible. To have compression applied at all times, set a high value.	0 to 127
Depth (X)	Adjusts compression of the audio signal.	0 to 127
Wet Level (Y)	Adjusts the level of the effect sound. Output volume changes in accordance with the Depth setting and the characteristics of the input tone.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127

DSP type/Parameter	Description	Settings
Limiter	Limits the input signal level so it does not rise above a preset level.	
Limit (X)	Adjusts the volume level of the limit at which limiting is applied.	0 to 127
Attack	Adjusts the attack amount of the input signal.	0 to 127
Release	Adjusts the time from the point the input signal drops below a certain level until the limit operation is stopped.	0 to 127
Wet Level (Y)	Adjusts the level of the effect sound. Output volume changes in accordance with the Limit setting and the characteristics of the input tone. Use this parameter to correct for such changes.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Enhancer	Enhances the profiles of the low range and high range of the input signal.	
Low Frequency	Adjusts the low range enhancer frequency.	0 to 127
Low Gain	Adjusts the low range enhancer gain.	0 to 127
High Frequency (X)	Adjusts the high range enhancer frequency.	0 to 127
High Gain (Y)	Adjusts the high range enhancer gain.	0 to 127
Input Level	Adjusts the input level.	0 to 127
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Early Reflection	An effector that extracts early reflections from reverb. Applies acoustic presence to notes.	
Wet Level (Y)	Adjusts the level of the effect sound.	0 to 127
Feedback (X)	Adjusts the repeat of the reflected sound.	0 to 127
Tone	Adjusts the tone of the reflected sound.	0 to 127
Input Level	Adjusts the input level.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Phaser	Produces a distinctive pulsating, broad sound by using an LFO to change the phase of the input signal and then mixes it with the original input signal.	
Resonance	Adjusts the strength of feedback	0 to 127
Manual	Adjusts the reference phaser shift amount.	–64 to 0 to +63
LFO Rate (X)	Adjusts the LFO rate.	0 to 127
LFO Depth (Y)	Adjusts the LFO depth.	0 to 127
LFO Waveform	Selects the LFO waveform.	Sin, Tri, Random
Input Level	Adjusts the input level.	0 to 127
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127

DSP type/Parameter	Description	Settings
Chorus	Gives notes depth and breadth.	
LFO Rate (X)	Adjusts the LFO rate.	0 to 127
LFO Depth (Y)	Adjusts the LFO depth.	0 to 127
LFO Waveform	Selects the LFO waveform.	Sin, Tri
Feedback	Adjusts the strength of feedback.	–64 to 0 to +63
Wet Level	Adjusts the level of the effect sound.	0 to 127
Polarity	Inverts the LFO of one channel.	–, +
Input Level	Adjusts the input level.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Flanger	Applies wildly pulsating and metallic reverberation to notes. Selects the LFO waveform.	
LFO Rate (X)	Adjusts the LFO rate.	0 to 127
LFO Depth (Y)	Adjusts the LFO depth.	0 to 127
LFO Waveform	Selects the LFO waveform.	Sin, Tri, Random
Feedback	Adjusts the strength of feedback	–64 to 0 to +63
Wet Level	Adjusts the level of the effect sound.	0 to 127
Input Level	Adjusts the input level.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Tremolo	Shifts the volume of the input signal using an LFO.	
LFO Rate (X)	Adjusts the LFO rate.	0 to 127
LFO Depth (Y)	Adjusts the LFO depth.	0 to 127
LFO Waveform	Selects the LFO waveform.	Sin, Tri, Tra
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Auto Pan	Shifts the continual left-right panning of the input signal using an LFO.	
LFO Rate (X)	Adjusts the LFO rate.	0 to 127
LFO Depth (Y)	Adjusts the LFO depth.	0 to 127
LFO Waveform	Selects the LFO waveform.	Sin, Tri, Tra
Manual	Adjusts the pan (stereo position). –64 is full left, 0 is center, and +63 is full right.	–64 to 0 to +63
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127

DSP type/Parameter	Description	Settings
Rotary	This effect is a rotary speaker simulator.	
Speed (X)	Switches the speed mode between fast and slow.	Slow, Fast
Brake	Stops speaker rotation.	Rotate, Stop
Fall Accel	Adjusts acceleration when the speed mode is switched from fast to slow.	0 to 127
Rise Accel	Adjusts acceleration when the speed mode is switched from slow to fast.	0 to 127
Slow Rate	Adjusts the speaker rotation speed in the slow speed mode.	0 to 127
Fast Rate (Y)	Adjusts the speaker rotation speed in the fast speed mode.	0 to 127
Vibrato/Chorus	Selects the vibrato (V) and the chorus (C) type.	Off, V1, C1, V2, C2, V3, C3
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Drive Rotary	This is a rotary speaker simulator that makes overdrive possible.	
Overdrive Gain (Y)	Adjusts overdrive gain.	0 to 127
Overdrive Level	Adjusts the overdrive output level.	0 to 127
Speed (X)	Switches the speed mode between fast and slow.	Slow, Fast
Brake	Stops speaker rotation.	Rotate, Stop
Fall Accel	Adjusts acceleration when the speed mode is switched from fast to slow.	0 to 127
Rise Accel	Adjusts acceleration when the speed mode is switched from slow to fast.	0 to 127
Slow Rate	Adjusts the speaker rotation speed in the slow speed mode.	0 to 127
Fast Rate	Adjusts the speaker rotation speed in the fast speed mode.	0 to 127
Vibrato/Chorus	Selects the vibrato (V) and chorus (C) type.	Off, V1, C1, V2, C2, V3, C3
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
LFO Wah	This is a “wah” effect that can automatically affect the frequency using an LFO.	
Input Level	Adjusts the input level. The input signal can become distorted when the level of the sound being input, the number of chords, or the Resonance value is large. Adjust this parameter to eliminate such distortion.	0 to 127
Resonance	Adjusts the strength of feedback.	0 to 127
Manual	Adjusts the wah filter reference frequency.	0 to 127
LFO Rate (X)	Adjusts the LFO rate.	0 to 127
LFO Depth (Y)	Adjusts the LFO depth.	0 to 127
LFO Waveform	Selects the LFO waveform.	Sin, Tri, Random
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127

DSP type/Parameter	Description	Settings
Auto Wah	This is a "wah" effect that can automatically shift the frequency in accordance with the level of the input signal.	
Input Level	Adjusts the input level. The input signal can become distorted when the level of the sound being input, the number of chords, or the Resonance value is large. Adjust this parameter to eliminate such distortion.	0 to 127
Resonance	Adjusts the strength of feedback.	0 to 127
Manual (X)	Adjusts the wah filter reference frequency.	0 to 127
Depth (Y)	Adjusts the depth of the wah in accordance with the level of the input signal. Setting a positive value causes the wah filter to open in direct proportion with the size of the input signal, producing a bright sound. Setting a negative value causes the wah filter to close in direct proportion with the size of the input signal, producing a dark sound.	–64 to 0 to +63
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Distortion	Distortion + Wah + Amp Simulator	
Dist Gain (Y)	Adjusts the distortion input signal gain.	0 to 127
Dist Level	Adjusts the distortion output level.	0 to 127
Dist Low	Adjusts the distortion low-range gain.	0 to 127
Dist High	Adjusts the distortion high-range gain.	0 to 127
Wah Type	Specifies the wah type.	LPF, C-Wah, V-Wah, Fat Wah, Light Wah, Heavy Wah
Wah Depth	Adjusts the depth of the wah in accordance with the level of the input signal.	–64 to 0 to +63
Wah Manual (X)	Adjusts the wah filter reference frequency.	0 to 127
Routing	Specifies the distortion and wah connection.	Dist, Wah, Wah-Dist, Dist-Wah
Amp	Specifies the amp simulation type.	Bypass, PR Combo, RV Combo, JC Combo, TW Combo, DX Combo, AC Combo, MT Combo, BG Combo, MS Stack, TR Stack, SL Stack, RF Stack, EV Stack, Bass Combo1, Bass Combo2, Bass Stack
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127

DSP type/Parameter	Description	Settings
Pitch Shifter	This effect transforms the pitch of the input signal.	
Pitch (X)	Adjusts the pitch shift amount in quarter tone steps.	–24 to 0 to +24
High Damp	Adjusts the high-range damp. A smaller number increases damping.	0 to 127
Feedback	Adjusts the feedback amount.	0 to 127
Input Level	Adjusts the input level.	0 to 127
Wet Level (Y)	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Fine	Adjusts the pitch shift amount. –50 is a quarter note decrease, while +50 is a quarter note increase.	–50 to 0 to +50
Multi Chorus	This is a chorus effect with six different LFO phases.	
LFO Rate (X)	Adjusts the LFO rate.	0 to 127
LFO Depth (Y)	Adjusts the LFO depth.	0 to 127
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Ring Modulator	Multiplies the input signal with an internal oscillator signal to create a metallic sound.	
OSC frequency (X)	Sets the reference frequency of the internal oscillator.	0 to 127
LFO Rate	Adjusts the LFO rate.	0 to 127
LFO Depth (Y)	Adjusts the LFO depth.	0 to 127
Tone	Adjusts the timbre of the ring modulator input sound.	0 to 127
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Delay	Delays the input signal and feeds it back to create a repeating effect.	
Delay Time (X)	Adjusts the total delay time.	0 to 127
Delay Ratio L	Adjusts the ratio of the left channel relative to the total delay time.	0 to 127
Delay Ratio R	Adjusts the ratio of the right channel relative to the total delay time.	0 to 127
Delay Level L	Adjusts the level of the left channel.	0 to 127
Delay Level R	Adjusts the level of the right channel.	0 to 127
Feedback Type	Selects the feedback type. Stereo: Stereo feedback Cross: Cross feedback	Stereo, Cross
Feedback (Y)	Adjusts the feedback amount.	0 to 127
High Damp	Adjusts the high-range damp. A smaller number increases damping.	0 to 127
Delay Tempo Sync	Specifies how the actual total delay time is synced with tempo. • Off: Uses Delay Time value. • 1/4 to 3/4: Uses value in accordance with number of beats.	Off, 1/4, 1/3, 3/8, 1/2, 2/3, 3/4
Input Level	Adjusts the input level.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127
Wet Level	Adjusts the level of the effect sound.	0 to 127

DSP type/Parameter	Description	Settings
Piano Effect	This effect is suited to acoustic piano play.	
Lid Type (Y)	Adjusts how sound resonates in accordance with the opening state of a piano lid.	Closed, Semi Opened, Full Opened
Reflection Level (X)	Adjusts the level of the initial reflection.	0 to 127
Input Level	Adjusts the input level.	0 to 127
Wet Level	Adjusts the level of the effect sound.	0 to 127
Dry Level	Adjusts the level of the direct sound.	0 to 127

Using the Pattern Sequencer

You can use the pattern sequencer to create accompaniment patterns that sound while using the Digital Keyboard's Auto Accompaniment function and store them as user rhythms.

Rhythms, Accompaniment Patterns, and Instrument Parts

Each of the Digital Keyboard's rhythms provides 12 different accompaniment patterns named INTRO 1 and 2, VARIATION 1 through 4, FILL-IN 1 through 4, and ENDING 1 and 2. Each accompaniment pattern can be made up of eight instrument parts (drums, percussion, bass, and chord 1 through chord 5).
The overall configuration of a single rhythm is as shown below.

Rhythms

Intro 1, 2	Variation 1 to 4
Drums	Drums
Percussion	Percussion
Bass	Bass
Chord 1 to Chord 5	Chord 1 to Chord 5

Fill in 1 to 4	Ending 1, 2
Drums	Drums
Percussion	Percussion
Bass	Bass
Chord 1 to Chord 5	Chord 1 to Chord 5

Recordable Data

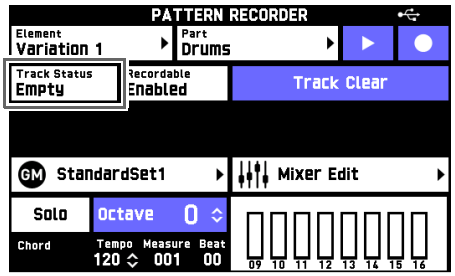
The data listed below can be recorded to each accompaniment part.

- Keyboard play (note data)
- 47 **PITCH BEND** wheel operations (pitch bend data)
- 48 **MODULATION** wheel operations (modulation data)

Instrument Part Editing and User Areas

As a general rule, pattern sequencer editing operations are performed on an instrument part basis. The pattern sequencer maintains special memory areas called "user areas" for each instrument part for the purpose of rhythm editing. These areas are used when recording keyboard play. Note, however, that the user area is not used when using an existing rhythm while retaining part of its existing data (Fixed Data).
You can check the status of a selected instrument part on the PATTERN RECORDER screen.

1. On the MENU screen, touch "RHYTHM".
2. Select the rhythm to be edited.
3. On the RHYTHM screen, touch "Edit".
4. Touch "Pattern Sequencer".
5. Touch "Recorder".



Display Name	It means this:
Fixed (Fixed Data)	Instrument part data recalled from a preset rhythm or user rhythm. The only settings that can be edited for an instrument part with this status are mixer settings. Real-time recording of keyboard notes and event editing are not allowed.
Recorded (Recorded Data)	Instrument part is being edited using a user area, and recorded data is contained in the user area. Mixer settings, real-time recording of keyboard notes, and event editing are allowed for an instrument part with this status.
Empty (No data)	This instrument part is being edited using a user area, but there is no recorded data in the user area (user area empty). Mixer settings, real-time recording of keyboard notes, and event editing are allowed for an instrument part with this status.

User Rhythm Storage

You can store up to 100 user rhythms in Digital Keyboard memory. To recall a stored user rhythm, press one of the rhythm selector buttons in the 4 **RHYTHM** area to display the RHYTHM SELECT screen. Next, touch "User" to display a screen for recalling a user rhythm.

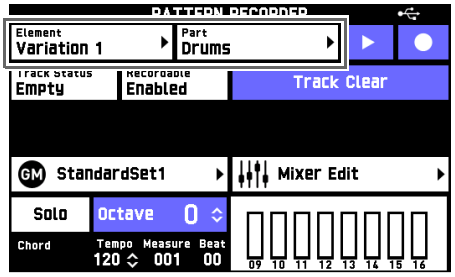
Creating and Editing a User Rhythm

You also can use the pattern sequencer to partially edit an existing rhythm (by, for example, editing only one of the parts of an accompaniment pattern) or simply modify its mixer settings if you want. You can also record each part of all of the accompaniment patterns from scratch to create a completely original new rhythm.

1. On the MENU screen, touch "RHYTHM".
2. Touch the rhythm name.
3. Touch the rhythm you want to edit.
4. Touch 14 **EXIT**.
   This returns to the RHYTHM screen.
5. Touch "Edit".
6. Touch "Pattern Sequencer".
   This displays the PATTERN SEQUENCER screen.
7. Create or edit the rhythm as desired.
   - For information about editable parameters and how to perform edits, see the section of this manual from page EN-27 (To record a rhythm to each part) to page EN-33 (To import MIDI data into Digital Keyboard memory from a USB flash drive).

To record a rhythm to each part

1. On the PATTERN SEQUENCER screen, touch "Recorder".
   This displays the PATTERN RECORDER screen.
2. Touch "Element" or "Part".



3. Select the element (on the ELEMENT screen) or the part (on the PART screen) you want to record.
   - Whether recording can be performed, and the type of recording that is possible depends on the status of the parts (Track Status) of the selected element.

Track Status	Recordable	Description
Fixed	Disabled	Recording is not possible. To record to this part, perform the steps below to delete its data. 1. Touch "Track Clear". 2. Touch "Yes". This deletes the part data and changes its "Track Status" to "Empty", which means that it can be recorded to.
Recorded	Enabled	Overdubbing of recorded data is possible.
Empty	Enabled	Part is empty. New recording is possible.

   - "Recordable" does not become "Enabled" if an intro or ending part is "Fixed". To edit an intro or ending, delete all of the part data.
   - Elements can also be selected by pressing the buttons below. To select a Fill-In (1 through 4), press one of the 29 **VARIATION/FILL-IN** buttons (**1** through **4**) twice.
     – 28 **INTRO 1**, **2** buttons
     – 29 **VARIATION/FILL-IN 1** to **4** buttons
     – 32 **ENDING 1**, **2** buttons

4. Configure the settings below as required.

Item	Description	Setting
Tone name	Changes the tone. Tones that can be selected depend on the part type.	See the separate Appendix.
Mixer Edit	Adjusts the balance between instruments.	See "To adjust the balance between parts" (page EN-33).
Solo	Plays back the currently selected part only.	Off, On
Octave	Changes the pitch of the keyboard in octave units during recording.	–3 to +3
Tempo	Changes the tempo.	20 to 255

5. Touch "●".

- This enters record standby, indicated by "▶" flashing on the screen.
- The settings below can be configured during record standby.

Display: Item name	Description	Setting
Chord: Playback chord	Starting recording of an accompaniment pattern starts repeat playback of all the parts of the pattern, except for the part being recorded. During such repeat playback, you can use this setting to specify the chord type to be used for playback by bass and chord parts. Available settings are "C" (C major), "C7" (C 7th), and "Cm" (C minor). Selecting "Off" turns off bass and chord part notes.	Off, C, C7, Cm
Quantize: Quantize	Specify either recording of notes in the timing they are played on the keyboard (Off) or automatic alignment of notes with a base note (setting other than Off).	Off, ♩, ♪,  , ♪,
Precount: Pre-count	Specifies whether a pre-count should sound before recording starts after "▶" is touched in record standby. Selecting "1" sounds a one-measure pre-count, while "2" sounds a two-measure pre-count. Selecting "Off" turns off the pre-count, so recording starts as soon as "▶" is touched.	Off, 1, 2
Metronome: Metronome	Specifies whether the metronome should sound (On) or not sound (Off) during recording.	Off, On

6. Touch "▶" to start recording.

This causes the on-screen "▶" to change to "■".

- Only the operations below can be perform while recording is in progress.
  Metronome on/off
  Tempo change
  Solo on/off
  Octave change

7. After you are finished recording, touch "■".

8. Repeat steps 2 through 7 as required to record other parts and/or the parts of other elements.

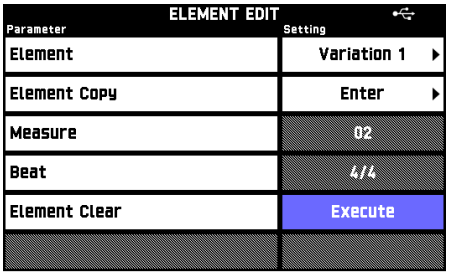
9. Touch **14 EXIT** to return to the RHYTHM EDIT MENU screen.

10. Save the edited rhythm using the procedure under "Saving a User Rhythm" (page EN-34).

To edit an element

1. On the PATTERN SEQUENCER screen, touch “Element Edit”.

This displays the ELEMENT EDIT screen.



2. Configure parameter settings as required.

- Touch a display item and then select from the list that appears. Use the **9** ∨**/NO,** ∧**/YES** buttons to change setting values.

Item	Description	Setting
Element	Selects an element for editing.	Intro 1, Intro 2, Variation 1, Variation 2, Variation 3, Variation 4, Fill-in 1, Fill-in 2, Fill-in 3, Fill-in 4, Ending 1, Ending 2
Element Copy	Copies an element of another rhythm. Touch “Enter” to display the ELEMENT COPY screen. In the “Source” column, specify the element of the rhythm you want to copy. In the “Destination” column, specify the destination element of the copy operation. After configuring copy source and copy destination settings, touch “Execute”. • The source element and destination element must be the same type.	
Measure	Specifies the number of measures. • If you are editing a Digital Keyboard built-in rhythm, you will not be able to change the number of measures. To change the number of measures, first use “Element Clear” to delete the current element data.	Intro, Variation, Ending: 01 to 16 Fill-in: 01 to 02
Beat	Specifies the beat setting. • If you are editing a Digital Keyboard built-in rhythm, you will not be able to change the beat setting. To change the beat setting, first use “Element Clear” to delete the current element data.	2/4, 3/4, 4/4, 2/8, 3/8, etc.
Element Clear	Touching “Execute” and then “Yes” deletes the data of the selected element.	

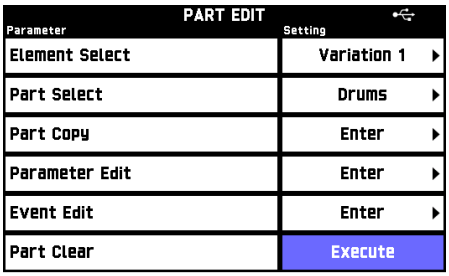
3. Touch **14** **EXIT** to return to the RHYTHM EDIT MENU screen.

4. Save the edited rhythm using the procedure under “Saving a User Rhythm” (page EN-34).

To edit the data of each part

1. On the PATTERN SEQUENCER screen, touch “Part Edit”.

This displays the PART EDIT screen.



2. Configure parameter settings as required.

- Touch a display item and then select from the list that appears. Use the 9 ∨/NO, ∧/YES buttons to change setting values.

Item	Description	Setting
Element Select	Selects an element for editing.	Intro 1, 2 Variation 1 to 4 Fill-in 1 to 4 Ending 1, 2
Part Select	Selects a part for editing.	Drums, Bass, Chord 1 to 5, Percussion
Part Copy	Copies a part of another rhythm. Intros and endings cannot be copied. 1. In the “Source” column, specify the copy source rhythm, element, and part. • To copy an event only, touch “Event Only” so it is “On”. 2. In the “Destination” column, specify the destination element and part of the copy operation. 3. Touch “Execute”. 4. Touch “Yes”. This copies the selected part. • The source element and destination element must be the same type. • Parts that can be copied depend on the type of the copy destination part.	
Parameter Edit	The settings of the part parameters below can be configured. Parameter editing can be performed only when a part is a recordable status (Track Status: Empty or Recorded). For more information, see “Instrument Part Editing and User Areas” (page EN-26).	
Element Select	Selects an element.	Intro 1, 2 Variation 1 to 4 Fill-in 1 to 4 Ending 1, 2
Part Select	Selects a part.	Drums, Bass, Chord 1 to 5, Percussion
Table	See “Table (Chord Conversion Table)” (page EN-32). • Drum and percussion parts cannot be edited.	
Break Point	This parameter specifies a note key, from C to B, as the point at which Auto Accompaniment bass and chord notes drop one octave. For example when F is specified as the break point, a C major chord recorded as C3E3G3 (CEG) becomes D3F♯3A3 (DF♯A raised one note each) when D is fingered on the chord keyboard, E3G♯3B3 (EG♯B raised one note each) when E is fingered, and F2A2C3 (FAC dropped one octave) when F is fingered. • Drum and percussion parts cannot be edited.	C to B

Item	Description	Setting
Inversion	Specifies whether or not chords during Auto Accompaniment play should use inverted forms of the original chord (EGC and GCE for CEG). For example, let's say that the original recorded C major chord is CEG and an F chord is fingered on the chord keyboard. If "Off" is selected for this setting, the chord will be directly converted to FAC. If "On" (or "7th") is selected, the chord will be converted to CFA, which is the inverted form that is nearest to CEG. The transition of chord notes during playback when "On" (or "7th") is selected is smaller, so accompaniment sounds more natural. Note that you should select "7th" in place of "On" only if C7 was specified for the "Chord" setting* when recording the accompaniment pattern and if you selected "Chord 7th" for the chord conversion table. When selecting "On" (or "7th") for this setting, make sure that you select "C" for the "Break Point" setting. • Drum and percussion parts cannot be edited. * "Chord" is a PATTERN RECORDER screen setting item. For details see "To record a rhythm to each part" (page EN-27).	Off, On, 7th
Retrigger	Specifies how accompaniment pattern play is affected by a chord change that occurs part way through a pattern. When "On" is selected, the pattern "retriggers," which causes the currently playing note to change to the corresponding note of the newly fingered chord. When "Off" is selected, a chord change causes the currently sounding note to be cut off, and the next note of the pattern of the newly fingered chord to be played. Retriggering is performed when "On", and not performed when "Off". • Drum and percussion parts cannot be edited.	Off, On
Bend Range	Specifies the bend range for pitch bender operation in semitone steps.	0 to 24
Event Edit	Provides editing in event units. For details about event editing, see "Editing Events" (page EN-62). Event editing can be performed only when a part is a recordable status (Track Status: Empty or Recorded). For more information, see "Instrument Part Editing and User Areas" (page EN-26).	
Part Clear	Touching "Execute" deletes the selected part.	

3. Touch **14 EXIT** to return to the RHYTHM EDIT MENU screen.

4. Save the edited rhythm using the procedure under "Saving a User Rhythm" (page EN-34).

■ Table (Chord Conversion Table)

Recording of each accompaniment pattern is normally performed in C major (root C, major type). When playing an Auto Accompaniment, you can use a root other than C and a chord type other than major. To do this, the Digital Keyboard converts the C major recorded data to another root and/or chord type. The Chord Conversion Table is used during conversion to make corrections based on instrument parts and musical genre in order to ensure natural musicality, regardless of the root and/or type of the chord that is specified.

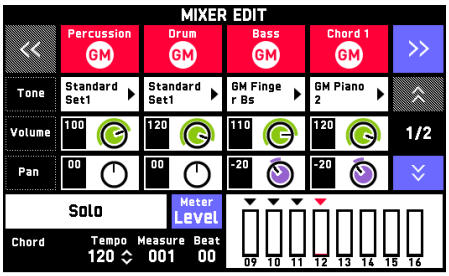
With this parameter, you can select from among the 19 types of chord conversion tables listed below.

Table Name	Accompaniment Pattern	Instrument Part	Description
Bass Basic	Variation 1 to 4, Fill-in 1 to 4	Bass	Normally used for a bass part.
Bass f-root		Bass	Variation of "Bass Basic". Always makes the first note the root note when changing chords.
Bass 7th		Bass	Used for a bass part recorded with a 7th chord.
Bass 7th f-root		Bass	Variation of "Bass 7th". Always makes the first note the root note when changing chords.
Chord Basic		Chord	Normally used for a chord part.
Chord Var2		Chord	Used for a chord part that has a tension chord.
Chord Var3		Chord	When a 7th chord is specified while playing, the 5th note is converted to a 7th note. In the case of C7, for example, G becomes Bb.
Chord Var4		Chord	Variation of "Chord Basic".
Chord 7th		Chord	Used for a chord part recorded with a 7th chord.
Chord Minor		Chord	Used for a chord part recorded with a minor chord.
Phrase		Chord	Used for the chord part to which a phrase (such as a major scale) was recorded.
Bass Minor		Bass	Used for a bass part recorded with a minor chord.
Bass Minor f-root		Bass	Variation of "Bass Minor". Always makes the first note the root note when changing chords.
Penta Phrase		Chord	Used for a chord part recorded with a pentatonic scale phrase.
Intro n-minor	Intro 1, 2, Fill-in 1, 2	Bass/chord	When a minor chord is specified while playing, converts to a natural minor.
Intro m-minor		Bass/chord	When a minor chord is specified while playing, converts to a melodic minor (ascending).
Intro h-minor		Bass/chord	When a minor chord is specified while playing, converts to a harmonic minor.
Intro no Change		Bass/chord	Recording of original as-is, with no minor/major conversion in accordance with chord specified while playing.
Intro dorian		Bass/chord	When a minor chord is specified while playing, converts to a dorian scale.

To adjust the balance between parts

1. On the PATTERN SEQUENCER screen, touch “Mixer Edit”.

   This displays the MIXER EDIT screen.



2. Configure parameter settings as required.

   - Touch a display item and then select from the list that appears. Use the 9 ⌄/NO, ⌃/YES buttons to change setting values.

Item	Description
Part	Switches a part on or off.
Tone	Specifies the tone of each part. Tones that can be selected depend on the part type.
Volume	Adjusts the volume level of each part.
Pan	Adjusts the pan position of each part.
Reverb Send	Specifies how much reverb is applied to each part.
Chorus Send	Specifies how much chorus is applied to each part.
Delay Send	Specifies how much delay is applied to each part.
Solo	Sounds the currently selected parts only. The currently selected parts are indicated in the level meter in the lower right corner of the display. To select a different part, touch the “Volume” or other editable parameter of the desired part.
Level/Param switch	Toggles the level meter display between volume levels and parameter settings.

3. Touch 14 **EXIT** to return to the RHYTHM EDIT MENU screen.

4. Save the edited rhythm using the procedure under “Saving a User Rhythm” (page EN-34).

To import MIDI data into Digital Keyboard memory from a USB flash drive

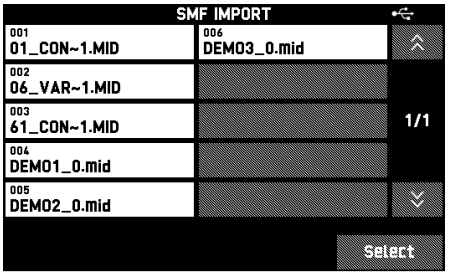
NOTE

- The following procedure imports SMF format MIDI data stored on a USB flash drive into Digital Keyboard memory as a User Rhythm.

1. On the PATTERN SEQUENCER screen, touch “SMF Import”.

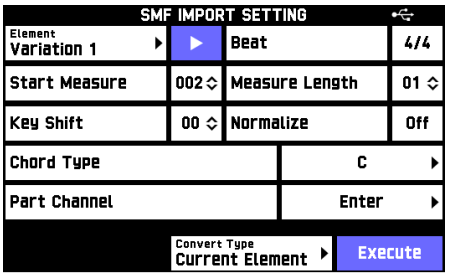
   This displays the SMF IMPORT screen.

   - If there is no file that contains MIDI data, the message “No File!” will appear on the display.



2. Select the data you want to import and then touch “Select”.

   This displays the SMF IMPORT SETTING screen.



3. Configure advanced settings for the data to be imported.

- Touching "▶" plays the data specified by "Start Measure" and "Measure Length". This way you can check the measures to be imported.

Item	Description	Setting
Element	Selects an element.	Intro 1, 2 Variation 1 to 4 Fill-in 1 to 4 Ending 1, 2
Beat	Shows the beat setting of the MIDI data.	–
Start Measure	Specifies the start measure.	–
Measure Length	Specifies the length of the rhythm.	Intro, Variation, Ending: 01 to 16 Fill-in: 01, 02
Key Shift	Changes the key.	–12 to +12
Normalize	When "On", forcibly recalls chord notes and base notes only. This option is available for Variation and Fill-In only.	Off, On
Chord Type	Selects a chord for a specified measure. C or Cm only can be selected for an intro or ending.	C, Cm, C7, CM7
Part Channel	Specifies the MIDI channel of each part.	Each part: 1 to 16
Convert Type	Selects the element to be converted. Current Element: Converts the currently selected element. All Elements: Converts all elements.	Current Element All Elements

4. Touch "Execute".

5. Touch "Yes".

- To cancel the operation, touch "No".

To initialize data being edited

1. On the RHYTHM EDIT MENU screen, touch "Pattern Sequencer".

2. Touch "All Clear".

3. Touch "Yes".

This initializes the rhythm being edited.

- To cancel the operation, touch "No".

4. Touch **14 EXIT** to return to the RHYTHM EDIT MENU screen.

5. Save the edited rhythm using the procedure under "Saving a User Rhythm" (page EN-34).

Saving a User Rhythm

Use the procedure below to save a user rhythm after editing it. The initial tempo of a saved rhythm is the tempo that is set when you save it.

1. On the RHYTHM EDIT MENU screen, touch "Write".

2. Touch "Rename".

3. Input a name for the user rhythm.

4. After inputting what you want, touch "Enter".

This returns to the RHYTHM EDIT MENU screen.

5. Touch the destination user rhythm number.

If the rhythm number already has data assigned, there will be an asterisk (*) next to it.

6. Touch "Execute".

7. Touch "Yes".

This saves the user rhythm.

- To cancel the operation, touch "No".

Deleting a User Rhythm

1. On the MENU screen, touch “RHYTHM”.
2. Touch “Edit”.
3. Touch “Clear”.
4. Touch the user rhythm you want to delete.
5. Touch “Execute”.
6. Touch “Yes”.

   This deletes the selected user rhythm.
   - To cancel the operation, touch “No”.

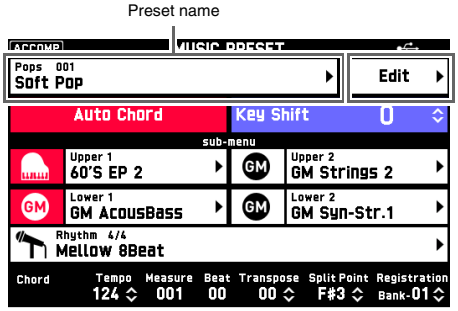
Creating an Original Music Preset (User Preset)

In addition to the Digital Keyboard's built-in Music Presets, you can also create your own original music presets (user presets). You can store up to 100 user presets in the user group.

1. On the MENU screen, touch "MUSIC PRESET".

This displays MUSIC PRESET screen.

2. Touch the preset name.



3. On the MUSIC PRESET SELECT screen, touch the name of the preset you want to edit.

This returns to the MUSIC PRESET screen.

4. Touch "Edit".

5. Edit the music preset parameters.

5-1. To edit the chord progression

Touch "Chord Edit".

Next, perform the editing operation described under "To edit a chord progression" (page EN-37). After you are finished, touch **14 EXIT** to return to the MUSIC PRESET EDIT screen.

5-2. To change how an Auto Accompaniment is played

Touch "Parameter Edit".

Next, perform the editing operation described under "To change how an Auto Accompaniment is played" (page EN-39). Touch **14 EXIT** on the screen to return to the MUSIC PRESET EDIT screen.

6. After editing everything you want, touch "Write".

7. Touch "Rename".

8. Input a name for the preset.

9. After inputting the preset name, touch "Enter".

10. Touch the destination preset number.

- If the preset number already has data assigned to it, there will be an asterisk (*) next to it.

11. Touch "Execute".

If the selected preset number does not have any data assigned to it, the message "Sure?" will appear. If it does have data assigned to it, the message "Replace?" will appear.

12. Touch "Yes".

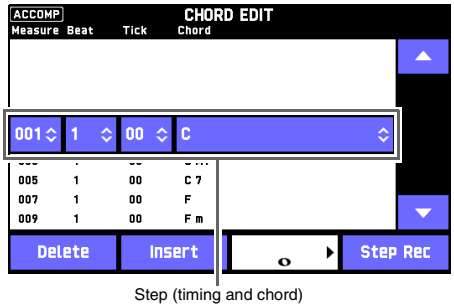
This stores the data.

- To return to the screen in step 10 without saving, touch "No".

To edit a chord progression

1. On the MUSIC PRESET EDIT screen, touch "Chord Edit".

This displays the CHORD EDIT screen.



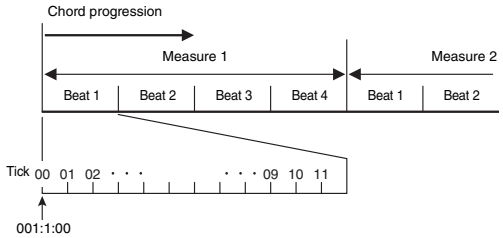
Step (timing and chord)

Step (timing and chord)

The timing of a chord progression is expressed as a series of three values (such as 001:1:00) indicating measure*1 (001), beat (1), and tick (00)*2. This series of three values is referred to collectively as a "step".

*1 Up to 999 measures

*2 There are 12 ticks per beat, as shown below.



2. Edit the step as desired.

- You can playback and check the edited progression by pressing the 35 ▶/■ button. Chord progression editing cannot be performed while chord progression playback is in progress.

3. After you are finished editing, touch **14 EXIT** to return to the MUSIC PRESET EDIT screen.

NOTE

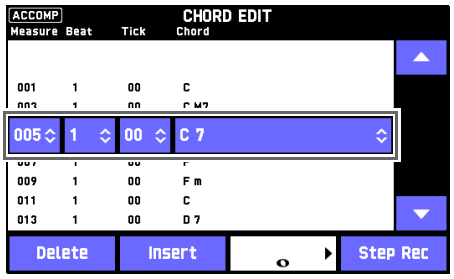
- Up to approximately 999 measures can be contained in a single preset.
  If your edits cause this limit to be exceeded, the message "Measure Limit" will appear on the screen and further editing will become impossible.

■ To edit preset chord information

1. On the CHORD EDIT screen, touch the "▲" and "▼" icons to display the step you want to edit.

2. Input timing information or a chord.

- To change the timing, touch the current "Measure", "Beat", or "Tick" value, and then use the 9 ﹀, ﹀ buttons to change the timing value.
- To change a chord, touch it and then play the desired chord on the keyboard.



- The timing of the first step (001:1:00) is fixed and cannot be changed. Also, the final step is always one measure, regardless of the resolution.

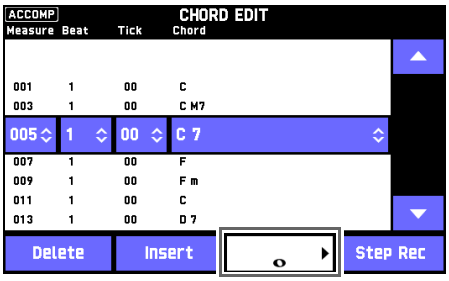
■ To insert a new chord

1. Use the on-screen "▲" and "▼" icons to select the step that comes immediately before the location where you want to insert a new chord.

2. Touch "Insert" and then play the desired chord on the keyboard.

■ To insert a sequential series of steps

1. On the CHORD EDIT screen, touch the "▲" and "▼" icons to select the step that comes immediately before the location where you want to insert the step.
2. Touch "Step Rec".
3. Touch the note icon.



4. Touch the note you want to use.
5. Play a chord on the keyboard.

   This inputs a step of the note length you specified in step 4 above, and then advances to input of the next step.
   - Touching "Tie" without inputting a chord will specify a tie.
   - Touching "Rest" without inputting a chord will result in no chord being played during that step.
6. After you are finished inserting steps, touch "Step Rec" again to exit data editing.

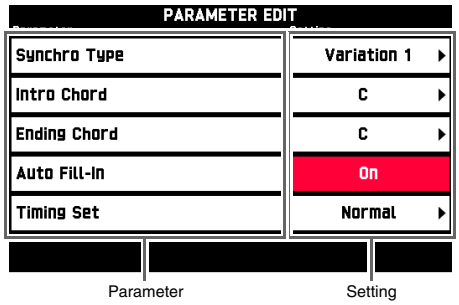
■ To delete a step

1. On the CHORD EDIT screen, touch the "▲" and "▼" icons to display the step you want to delete.
2. Touch "Delete".
   - You cannot delete the first step or the last step.

To change how an Auto Accompaniment is played

1. On the MUSIC PRESET EDIT screen (page EN-36), touch “Parameter Edit”.

This displays the PARAMETER EDIT screen.



2. Touch the parameter whose setting you want to change, and then use the 9 ∨, ∧ buttons to change the setting value.

Parameter	Description	Setting
Synchro Type: Synchro type	Selects the synchro standby status and type when the music preset is selected.	Off (no standby) Variation 1 to 4: Standby synced to Variation 1 to 4 Intro 1, 2: Standby synced to Intro 1 or 2
Intro Chord: Intro chord	Selects from among major (12 keys) and minor (12 keys) for the intro chords.	C to B: Major (C to B) Cm to Bm: Minor (Cm to Bm)
Ending Chord: Ending chord	Selects from among major (12 keys) and minor (12 keys) for the ending chords.	C to B: Major (C to B) Cm to Bm: Minor (Cm to Bm)
Auto Fill-In: Auto fill-in on/off	Specifies whether or not a fill-in should be inserted into the final measure of a chord progression.	Off: Fill-in not inserted On: Fill-in inserted
Timing Set: Chord progression variation	This parameter lets you add different variations to the timing of the chord progression being edited. You can use it to match the chord progression to the beat of a specific rhythm. For information about differences in playback for each setting value, see “Timing Setting and Chord Progression Playback” (page EN-40).	Normal, Half, Double, 3/4, 3/2

3. After you are finished editing, touch 14 **EXIT** to return to the MUSIC PRESET EDIT screen.

■ Timing Setting and Chord Progression Playback

This section explains how chord progressions are played in accordance with the "Timing Set" settings in step 2 under "To change how an Auto Accompaniment is played" (page EN-39). Note that this setting affects playback only. It does not change the chord progression data.

- Normal
  Plays chords at the same timing as the recording.

- Half
  Plays chords measure-by-measure at a timing that is half that of the recording.
  Example:

Measure	1				2				3				4			
Beat	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Chord progression	**Dm**		**A7**		**Dm**		**G7**		**C**		**Em**		**Am**		**C7**	

The following shows what happens when the "Half" setting is used to play back a user preset that was created based on a music preset whose rhythm is a 4/4 time.

Half Playback when a 4/4 time rhythm is assigned to the user preset

Measure	1				2				3				4			
Beat	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Chord progression	**Dm**	**A7**			**Dm**	**G7**			**C**	**Em**			**Am**	**C7**		

Half Playback when a 2/4 time rhythm is assigned to the user preset

Measure	1		2		3		4	
Beat	1	2	1	2	1	2	1	2
Chord progression	**Dm**	**A7**	**Dm**	**G7**	**C**	**Em**	**Am**	**C7**

- Double
  Plays chords measure-by-measure at a timing that is double that of the recording.
  Playing back a chord progression like that shown for "Half" above while "Double" is specified results in the progression shown below.

Double Playback when a 4/4 time rhythm is assigned to the user preset

Measure	1				2				3				4			
Beat	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Chord progression	**Dm**				**Dm**				**C**				**Am**			

Double Playback when an 8/4 time rhythm is assigned to the user preset

Measure	1								2								3	
Beat	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2
Chord progression	**Dm**				**A7**				**Dm**				**G7**				**C**	

● 3/4

Plays chords measure-by-measure at a timing that is 3/4 times that of the recording. This setting is best for use with a 6/8 time rhythm.

Playing back a chord progression like that shown for “Half” above while “3/4” is specified results in the progression shown below.

3/4 Playback when a 4/4 time rhythm is assigned to the user preset

Measure	1				2				3				4			
Beat	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Chord progression	**Dm**		**A7**		**Dm**		**G7**		**C**		**Em**		**Am**		**C7**	

3/4 Playback when a 6/8 time rhythm is assigned to the user preset

Measure	1						2						3						4	
Beat	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2
Chord progression	**Dm**			**A7**			**Dm**			**G7**			**C**			**Em**			**Am**	

● 3/2

Plays chords measure-by-measure at a timing that is 3/2 times that of the recording. This setting is best for use with a 6/4 time rhythm.

Playing back a chord progression like that shown for “Half” above while “3/2” is specified results in the progression shown below.

3/2 Playback when a 4/4 time rhythm is assigned to the user preset

Measure	1				2				3				4			
Beat	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Chord progression	**Dm**			**A7**	**Dm**			**G7**	**C**			**Em**	**Am**			**C7**

3/2 Playback when a 6/4 time rhythm is assigned to the user preset

Measure	1						2						3						4	
Beat	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2
Chord progression	**Dm**			**A7**			**Dm**			**G7**			**C**			**Em**			**Am**	

NOTE

- When “Double” or “3/2” is selected, chord timing is shifted to a later timing. Any chords that do not fit within a measure are not played.

Deleting a User Preset

1. On the MENU screen, touch “MUSIC PRESET”.
2. Touch “Edit”.
3. Touch “Clear”.
4. Touch the user preset you want to delete and then touch “Execute”.
5. Touch “Yes”.

   This deletes the selected user preset.
   - To cancel the delete operation, touch “No”.

Editing an Arpeggio

You can edit a Digital Keyboard built-in arpeggio to create an original arpeggio of your own.
There are two arpeggio types: step type and variation type. Editable parameters depend on the type of arpeggio type you are using. To determine the type of an arpeggio you have selected, refer to the separate "Appendix".

■ Step Type Arpeggio

With a step type arpeggio, you can edit its steps and its parameters. A step type arpeggio can contain up to 16 steps. See the table in step 7 of the procedure below for information about settings that can be configured.

■ Variation Type Arpeggio

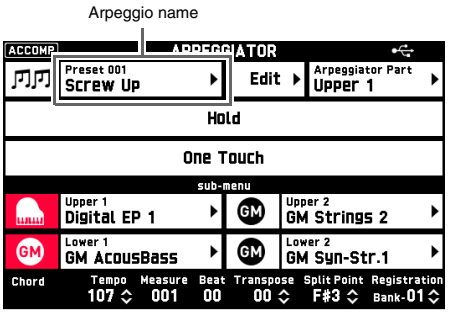
With a variation type arpeggio, you can edit only its parameters.

To edit each step

NOTE

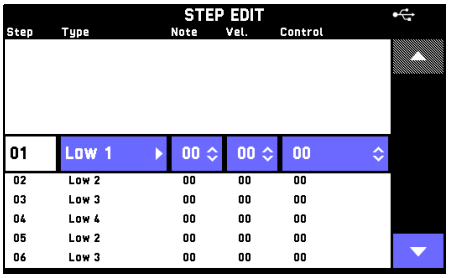
- This editing operation can be performed on a step type arpeggio only.

1. On the MENU screen, touch "ARPEGGIATOR".
2. Touch the arpeggio name.



3. Touch the arpeggio you want to edit.
4. Touch 14 **EXIT**.
   This returns to the ARPEGGIATOR screen.
5. Touch "Edit".
   This displays the ARPEGGIATOR EDIT screen.
6. Touch "Step Edit".

7. You can change the settings below.



- Touch a display item and then select from the list that appears. Use the **9** ∨**/NO**, ∧**/YES** buttons to change setting values.

Item	Description	Setting
Type	Starting from the lowest note of the keyboard keys that are pressed (Low 1) as the basis, specifies which note (1 through 8) should sound. • If the specified value is greater than the number of keyboard keys pressed, the corresponding note is sounded one octave higher. For example, if Low 4 is specified when only three keyboard keys were pressed, the note that is one octave above Low 1 will sound. • After one octave, the corresponding note will return to the original octave.	Low 1 to Low 8
	Starting from the highest note of the keyboard keys that are pressed (High 1) as the basis, specifies which note (1 through 8) should sound. • If the specified value is greater than the number of keyboard keys pressed, the corresponding note is sounded one octave lower. For example, if High 4 is specified when only three keyboard keys were pressed, the note that is one octave below High 1 will sound. • After one octave, the corresponding note will return to the original octave.	High 1 to High 8
	With the number of keyboard keys pressed being maximum polyphony, specifies how many notes can sound simultaneously. • If the number of keys pressed is less than the value specified here, the arpeggio is played only up to the keys pressed.	Poly 2 to Poly 5
	The step will not sound when "Off" is specified.	Off
	Specifying "Tie" extends the duration of the previous step by one step. It can be used to extend the duration of notes. • "Tie" cannot be selected for the first step (Step 01).	Tie
Note	Specifies a shift of the note sounded, in semitone steps, from the notes of the keys played on keyboard.	–24 to +24
Vel.	Changes the velocity (volume level) of the keyboard keys that are pressed.	–64 to +63
Control	Specifies the Pan or Filter value selected by "Control Type" in step 4 under "To change an arpeggio parameter setting" (page EN-44).	Pan: –64 to 63 Filter: 000 to 127

8. After the settings of a particular step are the way you want, touch "▼" in the lower right corner of the screen to advance to the next step.

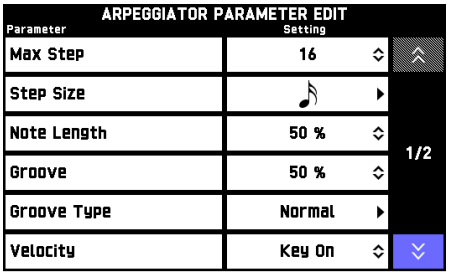
- To return to the previous step, touch "▲".

9. After you are finished editing the arpeggio, touch **14 EXIT** to return to the ARPEGGIATOR EDIT screen.

10. Save the edited arpeggio using the procedure under "To save an edited arpeggio" (page EN-45).

To change an arpeggio parameter setting

1. On the MENU screen, touch “ARPEGGIATOR”.
2. On the ARPEGGIATOR screen, touch “Edit”.
   This displays the ARPEGGIATOR EDIT screen.
3. Touch “Parameter Edit”.



4. Configure parameter settings as required.
   - Touch a display item and then select from the list that appears. Use the **9** ∨**/NO,** ∧**/YES** buttons to change setting values.

Item	Description	Setting
Max Step	Maximum steps.*	1 to 16
Step Size	Step size. Specifies the note length between steps.	♩, ♪, ♬, 𝅘𝅥𝅯, 𝅘𝅥𝅯𝅘𝅥𝅯𝅘𝅥𝅯, 𝅘𝅥𝅰
Note Length	Note length. Specifies the length of the note to be sounded, as a percentage of the step size. 100% specifies the same size as the step size, while 50% specifies half the step size.	1 to 100%
Groove	Groove. Specifies the on note timing of the off-beat step. 50% specifies even, while a larger value increases the first half note length.	10 to 90%
Groove Type	Groove type. Specifies the note length type when anything other than 50% is specified for Groove. Normal: Playback performed with step length based on actual percentage. Short: When step length is changed, adjusts the step to the shorter length.	Normal, Short
Velocity	Velocity. Specifies the velocity value of the arpeggio to be input. Specifying “Key On” inputs a velocity value in accordance with applied key pressure.	Key On, 1 to 127
Hold Pedal	Hold pedal. Turns the hold pedal effect on or off. When on, the hold pedal effect is applied to the arpeggio.*	Off, On
Control Track	Control track. Enables or disables use of control data.*	Off, On
Control Type	Control type. Specifies the control data type.*	Pan, Filter
Smooth	Smooth. Selecting “On” causes control data to be supplemented for playback.*	Off, On

* This editing operation can be performed on a step type arpeggio only.

5. After you are finished editing the arpeggio, touch **14** **EXIT** to return to the ARPEGGIATOR EDIT screen.
6. Save the edited arpeggio using the procedure under “To save an edited arpeggio” (page EN-45).

To save an edited arpeggio

1. On the ARPEGGIATOR EDIT screen, touch “Write”.
2. On the ARPEGGIATOR WRITE screen, touch “Rename”.
   This displays an input screen.
3. Touch an arpeggio name and then touch “Enter”.
   - This returns to the ARPEGGIATOR WRITE screen.
4. Touch the destination arpeggio number.
   - If the arpeggio number already has data assigned, there will be an asterisk (*) next to it.
5. Touch “Execute”.
   If the selected arpeggio number does not have any data assigned, the message “Sure?” will appear. If it does have data assigned, the message “Replace?” will appear.
6. Touch “Yes”.
   - To cancel the operation, touch “No”.

To rename an arpeggio

1. On the MENU screen, touch “ARPEGGIATOR”.
2. On the ARPEGGIATOR screen, touch “Edit”.
   This displays the ARPEGGIATOR EDIT screen.
3. Touch “Rename”.
   This displays an input screen.
4. Input a new arpeggio name and then touch “Enter”.
   This returns to the ARPEGGIATOR EDIT screen.
5. Touch “Write”.
6. Touch the save destination Write Area.
7. Touch “Execute”.
8. Touch “Yes”.
   - To cancel the operation, touch “No”.

To delete an edited arpeggio

1. On the MENU screen, touch “ARPEGGIATOR”.
   This displays the ARPEGGIATOR screen.
2. Touch “Edit”.
3. Touch “Clear”.
4. Touch the number of the arpeggio you want to delete.
5. Touch “Execute”.
6. Touch “Yes”.
   This deletes the arpeggio you selected.
   - To cancel the operation, touch “No”.

Sequentially Recalling Registered Setups (Registration Sequence)

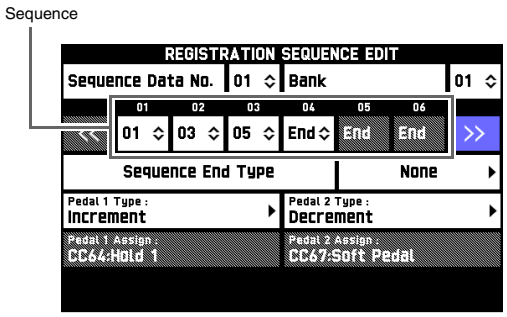
You can configure the Digital Keyboard so its setup changes in a preset sequence each time a specified pedal is pressed. Setups are those registered in areas within a single particular registration bank.

- For information about how to configure registration function setups, see the Digital Keyboard's USER'S GUIDE (Basics).
- For details about settings, see the "Parameter List" in the separate Appendix.

Specifying the Recall Sequence

Use the procedure in this section to specify sequence in which areas are recalled (registration sequence) when the pedal is pressed. You can have up to 12 sequences configured.

1. On the MENU screen, touch "REGISTRATION".
2. Touch "Sequence Edit".
   This displays the REGISTRATION SEQUENCE EDIT screen.
3. Touch the "Sequence Data No." number and then use the 9 ∨/NO, ∧/YES buttons to specify the number of the sequence you want to edit.
4. Touch the "Bank" number and then use the 9 ∨/NO, ∧/YES buttons to specify the bank where the setups you want to use in the sequence are located.
5. Touch sequence step 01 and then use the 9 ∨/NO, ∧/YES buttons to specify the number of the area that includes the first setup you want to recall.



6. Repeat step 5 as required to specify areas for the other steps of the sequence.
   - Select "End" to specify the final step of the sequence.
7. Touch the Sequence End Type name.
8. On the SEQUENCE END SELECT screen that appears, select the operation to be performed when the sequence reaches "End".

   None: Does nothing.

   Repeat:
   Returns to Step 01 of the currently selected sequence.

   Next Seq Data:
   Jumps to Step 01 of the next sequence.

   Sequence Data 1 to 12:
   Jumps to Step 01 of the specified sequence.
9. Touch "Pedal 1 Type" or "Pedal 2 Type" to specify pedal operation.

   Increment:
   Advances to the next sequence step. Pressing the pedal while the current sequence step is "Top*" will jump to Step 1 of the sequence. Pressing the pedal when the destination of the operation is "End", will perform an operation in accordance with the "Sequence End Type" setting. Configuring this setting disables the pedal setting configured on the CONTROLLER screen.

   Decrement:
   Returns to the previous sequence step. Decrement cannot be performed while the current sequence step is "Top*" or Step 01. Configuring this setting disables the pedal setting configured on the CONTROLLER screen.

   Off:
   Disables changing of the sequence step by the pedal. Selecting "Off" for this setting enables the pedal setting configured on the CONTROLLER screen.

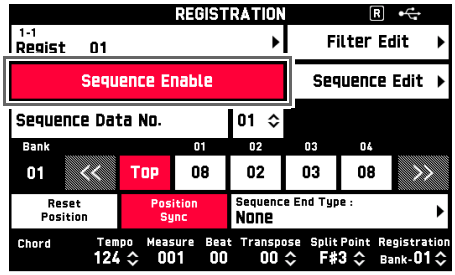
   * Top indicates the beginning of sequence data. Increment recalls Step 01. Moving to Top from another sequence position does not recall anything.

Using a Registration Sequence while Playing

1. On the MENU screen, touch “REGISTRATION”.

   This displays the REGISTRATION screen.

2. Touch “Sequence Enable” to turn it on.



3. Touch the “Sequence Data No.” number and then use the 9 ∨/NO, ∧/YES buttons to specify the number of the sequence you want to use.

4. Any time while playing, press the pedal to change the Digital Keyboard setup in accordance with the sequence you configured.

   - You can move a particular step to the center of the screen by touching its step number.

NOTE

- The “Reset Position” and “Position Sync” buttons on the REGISTRATION screen work as described below.

  Reset Position:
  Makes “Top” the current sequence step. Even though the current sequence step becomes “Top”, tone and rhythm settings are unchanged.

  Position Sync:
  Displays the currently selected number in the center of the screen.

Using Pads (Tutorial)

Use the procedures in this section to change advanced pad settings, and to record by overdubbing phrases. You can also edit pad data for each event (event edit). For information about event editing, see "Editing Events" (page EN-62).

Modifying Playback Settings

Use the procedure below to adjust key, volume level, and other settings to be applied to sound produced when a pad is tapped. Editable parameters depend on the type of data assigned to the pad.

1. On the MENU screen, touch "PAD".
   This displays the PAD screen.
2. On the PAD screen, touch the pad whose setting you want to configure.
3. Touch "Setting".
   This displays the editing screen.
4. Touch the item whose setting you want to configure, and then change the parameter.
   - For details about editable parameters, see the "Setting Item List" (page EN-48).
5. Touch **14 EXIT**.
   This returns to the PAD screen.

NOTE

- Pad playback settings are stored in pad banks. To save the settings, save the pad bank where they are located. For information about pad bank storage, see "Saving a User Bank" (page EN-52).

Setting Item List

■ Phrase Setting Items

Item	Description	Setting Item
Part	Selects the part to play back the phrase. Multiple parts can be selected for this setting.	Part 1 to Part 16
Key Shift	Changes the key during playback. A lower setting value lowers the playback key, while a higher setting raises the key.	–24 to 24
Timing Sync	Syncs phrase playback started by tapping the pad to MIDI recorder and/or auto Accompaniment playback timing. Off: No syncing Beat: Forces correction of deviation in beat units. Measure: Forces correction of deviation in measure units.	Off, Beat, Measure
Chord Sync	Corrects the key of the phrase in accordance with the Auto Accompaniment chord. All of the phrases in the preset "Accomp" sub-category are chord synced. Chord Sync will not work correctly whenever the phrase data is assumed to be something other than C chord data. **Important!** • Chord Sync may not work correctly for data other than that of the preset Accomp sub-category. • To make phrase data compatible with Chord Synch, create the data that is assumed to be C chord data when recording or editing it.	Off, On
Break Point	This parameter specifies a note key, from C to B, as the point at which Auto Accompaniment bass and chord notes drop one octave.	C to B
Velocity Control (MZ-X500 only)	When "On", velocity changes in accordance with how hard the pad is tapped. When "Off", velocity is fixed.	Off, On

■ Sampling Setting Items

Item	Description	Setting Item
Key Shift	Changes the key during playback. A lower setting value lowers the key, while a higher setting raises the key.	–24 to 24
Volume	Specifies the playback volume level. A larger value specifies a louder volume.	0 to 127
Loop Timing Unit	Specifies the timing unit when a sampled sound is looped.	𝅝, 𝅗𝅥𝅝, 𝅗𝅥, 𝅗𝅥𝅝, 𝅗𝅥, 𝅗𝅥𝅝, ♪, ♪, ♪, ♪, ♪
Loop Timing	Specifies the timing when a sampled sound is looped as a multiple of the unit specified by Loop Timing Unit.	Unit × 1 to Unit × 9
Touch Sense (MZ-X500 only)	When "On", the volume of the sound produced is varied in accordance with how hard you tap the pad. When "Off", volume is fixed.	Off, On

NOTE

- Playback settings, and/or loop and hold settings cannot be configured immediately after a sample is recorded. These settings can be configured after saving the sample as user data.

■ Chord Progression Setting Items (MZ-X500 only)

Item	Description	Setting Item
Root	Specifies the root note of the chord during playback.	C to B
Timing Sync	Syncs chord playback started by tapping the pad to MIDI recorder and/or auto Accompaniment playback timing. Off: No syncing Beat: Forces correction of deviation in beat units. Measure: Forces correction of deviation in measure units.	Off, Beat, Measure

Precautions when Recording

- If you change the pad number, or if you perform an operation that exits the pad screen or pad setting screen before saving the data you recorded to the pad as user data, the recorded data will be discarded and the pad data will return to what it was before you recorded new data.
- If a MIDI recorder or audio recorder recording operation is in progress, stop it before performing a pad recording operation.
- An operation that exits the pad screen cannot be performed during pad recording standby or while pad recording is in progress.
- If you record to a pad and then save the pad bank before saving the recorded data as user data, the recorded data will be discarded and the pad bank will be save with the unsaved pad returned to the data assigned to it prior to the recording.

Modifying Recording Settings

Use the procedure below to configure advanced settings for when recording to a pad. Editable parameters depend on the type of data assigned to the pad.

1. On the MENU screen, touch "PAD".
2. Select the pad whose settings you want to configure.
3. Touch "●".
   This displays the PAD RECORD SELECT screen.
4. Select the type of the pad you want to record.
   This displays the PAD RECORD WAIT screen.
5. Touch "Rec Setting".
   This displays the PAD REC SETTING screen.
6. Touch the item whose setting you want to configure, and then change the parameter.
   - For details about editable parameters, see the "Setting Item List" (page EN-50).
7. Touch 14 **EXIT**.
   This returns to the PAD RECORD WAIT screen.

Setting Item List

■ Phrase and Chord Progression Setting Items

Item	Description	Setting Item
Length	Specifies the length of the phrase to be recorded. When "Auto", recording continues until the measure where you touch "■" to stop it.	Auto, 1 Measure to 16 Measures
Precount	Specifies whether or not to sound a pre-count when recording.	Off, 1 Measure, 2 Measures
Beat	Specifies the beat setting for recording.	2/4 to 8/4, 2/8 to 16/8
Metronome	Specifies whether or not the metronome should sound during recording.	Off, On

NOTE

- The "Length" and "Beat" settings cannot be changed when overdubbing phrases. The settings of the first phrase recorded are used.

■ Sampling Setting Items

Item	Description	Setting Item
Length	Specifies the length of the sample. Allowable number of samples: 4 (Long), 32 (Short)	Short (approximately 3 seconds), Long (approximately 9 seconds)
Auto Start	Specifies whether or not recording should start automatically upon input of sound. When "Off", you need to touch "▶" to start recording.	Off, On
Threshold	When "On" is selected for "Auto Start", recording will start automatically when the sound from the external sound source being sampled is equal to or greater than the threshold setting. A smaller setting value causes recording to start with a smaller input sound. • The initial default "Threshold" value for each recording session is "20".	0 to 120

Overdubbing Phrase Recordings

Use the procedure below to record a phrase onto an existing phrase and create a phrase that is a combination of both.

1. On the MENU screen, touch "PAD".

This displays the PAD screen.

2. Touch the number of the pad to which the phrase you want to overdub is recorded (original phrase).

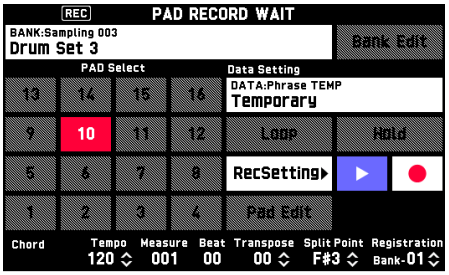
A pad assigned data that is not a phrase cannot be overdubbed.

3. Touch the "●" icon.

This displays the PAD RECORD SELECT screen.

4. Touch "Phrase Overdub".

This displays the PAD RECORD WAIT screen.



5. Play the overdub phrase using the keyboard, pads, wheel, etc.

- This starts recording of the overdub phrase along with playback of the original phrase you selected for overdubbing. Phrase playback repeats, sounding both the original phrase and anything you recorded during the current overdubbing session. You can overdub as many times as you like as the playback repeats.

6. After you are finished recording, touch "■".

7. Save the overdub recording using the procedure under "Saving Pad Data" (page EN-51).

NOTE

- The phrase length and beat setting of an overdub recording operation are those of the original phrase.
- If the original phrase is less than one beat long, recording will cause it to be extended to a length of one beat.

Changing the Start Point of Sampled Data

Use the procedure below to change the playback start point of a sample.

1. On the PAD screen, record the sample to one of the pads.
   - For information about how to record a sample, see the Digital Keyboard's USER'S GUIDE (Basics).
2. Touch "Pad Edit".
3. On the PAD DATA EDIT screen, touch "Sample Edit".
4. Touch "Start Position" and then use the 9 ﹀/NO, ﹀/YES buttons to change the start position.
   - Tapping the recorded pad or touching "▶" on the screen starts playback from the specified point.
5. Save the sample using the procedure under "Saving Pad Data" (page EN-51).

NOTE

- The start point of sample playback can be changed only during the period from when the sample is recorded up to the point it is saved as user data. The playback start point of a preset or a saved sample cannot be changed.
- Setting a playback start point value of 44100 causes playback to start after one second (44,100Hz sampling frequency).

Saving Pad Data

Use the procedure below to save data and/or setting recorded to a pad.

1. While the data you want to save is recorded to a pad, touch "Pad Edit" on the PAD screen.
   This displays the PAD DATA EDIT screen.
2. On the PAD DATA EDIT screen, touch "Write".
3. After inputting the data name, touch "Enter".
4. Touch the save destination user data and then touch "Execute".
5. Touch "Yes".
   - To cancel the save operation, touch "No".

Deleting Pad Data

Use the procedure below to delete pad data you previously created.

1. On the PAD screen, touch "Pad Edit".
2. On the PAD DATA EDIT screen, touch "Clear".
3. Touch the data you want to delete.
4. Touch "Execute".
5. Touch "Yes".
   This deletes the data you selected.
   - To cancel the delete operation, touch "No".

Renaming Pad Data

Use the procedure below to rename pad data that you recorded or edited.

1. While there is a recording and/or data within a pad, touch “Pad Edit” on the PAD screen.
2. Touch “Rename”.
   This switches to an input screen.
3. Input the new name for the new pad data.
4. After inputting what you want, touch “Enter”.

NOTE

- You can continue editing pad data even after renaming the data. To save the changed data name, save the pad data. See “Saving Pad Data” (page EN-51).

Saving a User Bank

A bank whose pad functions have been changed is saved as a user bank.

1. On the MENU screen, touch “PAD”.
2. Touch “Bank Edit”.
   This displays the PAD BANK EDIT screen.
3. Touch “Write”.
4. On the PAD BANK WRITE screen, touch “Rename”.
   This displays an input screen.
5. Input the bank name and then touch “Enter”.
   This returns to the PAD BANK WRITE screen.
6. Touch the destination user bank.
   If the user bank has data stored, there will be an asterisk (*) next to it.
7. Touch “Execute”.
   If the selected bank does not have any data stored to it, the message “Sure?” will appear. If it does have data stored to it, the message “Replace?” will appear.
8. Touch “Yes”.
   If the selected bank has data stored to it, existing data will be overwritten with the new data.

Deleting a User Bank

Use the procedure below to delete a user bank that you previously created.

1. On the MENU screen, touch “PAD”.
2. Touch “Bank Edit”.
3. Touch “Clear”.
4. Touch the number of the bank you want to delete.
5. Touch “Execute”.
6. Touch “Yes”.
   This deletes the data you selected.
   - To cancel the delete operation, touch “No”.

Copying Pad Data

While editing a bank, you can use the procedure below to copy data from one pad to another pad within the same bank.

1. On the MENU screen, touch “PAD”.
2. Touch “Bank Edit”.
3. Touch “Pad Copy”.
4. Touch the number of the copy source pad (Source) and the number of the destination pad (Destination).
5. Touch “Execute”.
6. Touch “Yes”.
   - To cancel the copy operation, touch “No”.

Renaming a User Bank

Use the procedure below to rename a user bank that you edited.

1. On the MENU screen, touch “PAD”.
2. Select the bank you want to rename.
   - For information about how to select a bank, see the Digital Keyboard’s USER’S GUIDE (Basics).
3. Touch “Bank Edit”.
4. Touch “Rename”.
   This switches to an input screen.
5. Input the name for the new bank.
6. After inputting what you want, touch “Enter”.

NOTE

- You can continue editing pad bank data even after renaming the bank. To save the changed bank name, save the user bank. See “Saving a User Bank” (page EN-52).

MIDI Recorder (Tutorial)

Recording to a Specific Song Performance Part (Track Recording)

You can record specific instruments, the left hand and right hand, or other parts of a song individually, and then combine them into a final song.

■ What is a track?

A "track" is a separate recorded part of a song. The MIDI Recorder of this Digital Keyboard has a total of 17 tracks, one of which is a system track as described below.

- **System Track**
  In addition to notes you play on the keyboard and other performance operation data, the system track also includes a wide range of setup information for the song, including layer on/off, split on/off, tempo, Auto Accompaniment settings, reverb type, etc. Recording to the system track is performed using the recording method described in the Digital Keyboard's USER'S GUIDE (Basics).
- **Tracks 01 through 16**
  These tracks can be used to record notes, as well as pitch bend wheel and pedal operations, and the keyboard tone setting. These tracks can be combined with the system track and each other to create the final song.

■ Supported Track Data

The following describes the data that can be recorded to each type of track.

System Track, Tracks 01 through 16

Keyboard performance*1, the keyboard tone setting*1, pedal and pitch bend wheel operation, mixer settings (except for part on/off), part manipulation by a controller, DSP operation*2

System Track only

Rhythm, balance setting, effect setting (reverb, chorus, delay, bypass), tempo, Auto Accompaniment performance/setting, one-touch preset, music preset performance*3, registration*3, 4, system manipulation by a controller*5, pad play

*1 Upper 1 only for Tracks 1 through 16
*2 Only DSP Line 1 or DSP Line 2 can be recorded for the DSP operation. In the case of a new recording ("New" selected for the "Rec Type" setting), DSP Line 1 operation is recorded. In other recording types, DSP Line 2 operation is recorded.
*3 Recall only
*4 The transpose setting of the recalled data cannot be included in the recording.
*5 However, the settings of functions such as Master Comp and Master EQ are not recorded.

NOTE

- Play that uses tone and other data not stored in Digital Keyboard memory (indicated by an exclamation mark next to the data name) may not be recorded by the MIDI recorder. Save the data before using the MIDI recorder.

1. Use the MIDI recorder to record the first performance part to the system track.

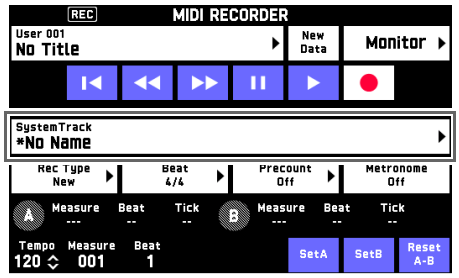
For information about how to record, see the Digital Keyboard's USER'S GUIDE (Basics).

2. Next, select the tone of the part you want to play and record.

3. On the MENU screen, touch "MIDI RECORDER".

4. Touch "●" to enter the recording mode.

5. Touch the track name.



6. Touch the track (Solo Track 1 through Solo Track 16) you want to record.

7. Start playing something on the keyboard.

This starts recording along with playback of what you recorded to the system track, so you can play along with system track.

8. After you are finished playing, touch "■".

This enters the playback mode. Touch "▶"to play back what you recorded up to this point. To stop playback, touch "■".

- You can use the following procedure to turn specific tracks on (play enabled) and off (play disabled). This allows you to listen only to the track(s) you want when recording a new track.

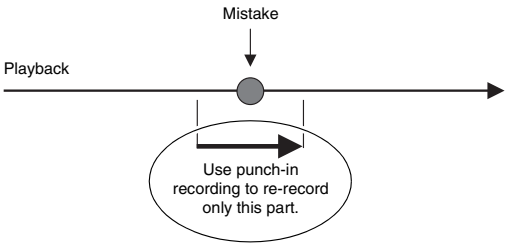
  (1) Touch "Monitor".
  This displays the MIDI Recorder playback properties screen.
  (2) You can select "Mute" or "Solo" for each of the tracks.
  Mute: Track is not played.
  Solo: Selected track is played alone.

You can mute specific recorded tracks so they do not play as you record a new track.

9. Repeat steps 2 through 8 above as required to record all of the parts you need to complete your song.

Re-recording Part of a Recorder Song (Punch-in Recording)

You can use punch-in recording to re-record a specific part of recorder song that you want to improve or correct.



1. Enter the MIDI recorder recording mode and then select the track where you want to perform punch-in recording.

- For information about how to select a track, see steps 4 and 5 under "Recording to a Specific Song Performance Part (Track Recording)" (page EN-54).

2. Touch "Rec Type".

3. Touch "Punch In Sync".

- If you want to delete all of the data in the track following the section you recorded with punch-in recording, touch "Punch Out Erase".

4. Touch "▶".

This will start playback of the selected track.

5. When playback reaches the point you want to re-record, play the desired note(s) on the keyboard.

This starts punch-in recording, so continue to play.

- Performing a pedal or pitch bend wheel operation also will start punch-in recording.
- Besides keyboard play, you can also start punch-in recording by performing the operation below. Touch "Punch In"*1, change the tone, change the rhythm*2, change the tempo*2.
  *1 Used when you want to start punch-in recording without modifying play or settings.
  *2 System track only
- During punch-in playback, you can touch "◀◀" to skip back or "▶▶" to skip forward. This lets you jump more quickly to the location you want to record. You can also pause playback by touching "▮▮".

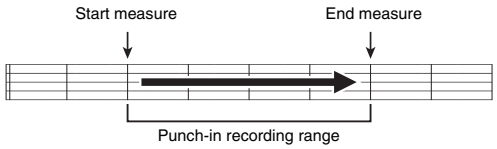
6. After you are finished punch-in recording, touch "■".

Anything in the track following the point where you touched "■" will be retained as-is.

- If you want to cancel punch-in recording part way through and retain the original track data, touch "Cancel Punch".

Specifying the Punch-in Recording Location (Auto Punch-in Recording)

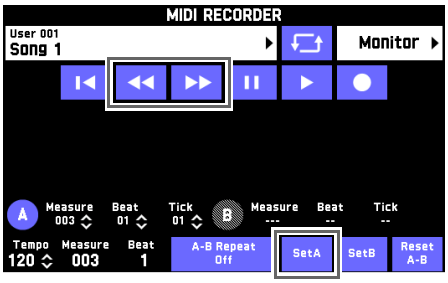
You can use the following procedure to specify a particular range for punch-in recording.



1. Enter the MIDI recorder recording mode and then select the track where you want to perform punch-in recording.

- For information about how to select a track, see steps 4 and 5 under "Recording to a Specific Song Performance Part (Track Recording)" (page EN-54).

2. Use "◀◀" and "▶▶" to display the first measure of the section you want to record and then touch "Set A".



3. Use "◀◀" and "▶▶" to display the last measure and then touch "Set B".

4. Touch "▮◀" to return to the beginning of the song, or use "◀◀" and "▶▶" to adjust the position to start playback.

5. Touch "Rec Type".

6. Touch "Punch In A-B".

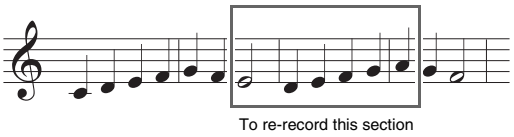
7. Touch "▶".

- Punch-in recording automatically starts when playback reaches the start point and ends when it reaches the end point you specified in step 3.

To re-record an area smaller than one measure

Use the procedure below to specify a punch-in recording area that includes a part of a measure.

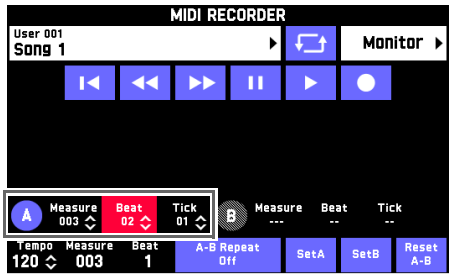
Example: To re-record from beat 3 of measure 2 up to beat 1 of measure 4



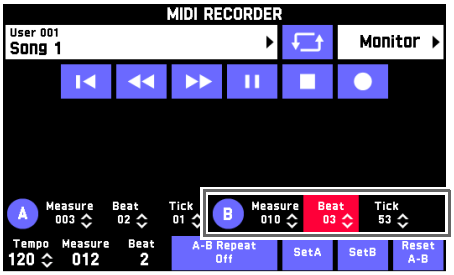
1. Use the MIDI Recorder to start playback of the song that contains the section you want to re-record.

2. When playback reaches the point where you want to start punch-in recording, touch "Set A".

- After touching "Measure", "Beat", or "Tick" for Point A, you can then use the 9 ∨, ∧ buttons to make fine adjustments to the start point.



3. When playback reaches the point where you want to end punch-in recording, touch "Set B".
   - After touching "Measure", "Beat", or "Tick" for Point B, you can then use the 9 ∨, ∧ buttons to make fine adjustments to the end point.



4. Touch "■" to stop play back.
5. Touch "⏮" to return to the beginning of the song, or use "◀◀" and "▶▶" to adjust the position to start playback.
6. Touch "●" to enter the recording mode and select the track where you want to perform punch-in recording.
   - For information about how to select a track, see steps 4 and 5 under "Recording to a Specific Song Performance Part (Track Recording)" (page EN-54).
7. Touch "Rec Type".
8. Touch "Punch In A-B".
9. Touch "▶".
   - Punch-in recording automatically starts when playback reaches the start point and ends when it reaches the end point you specified in step 3.

Overdubbing a Recorded Track

Use the procedure below to record a new performance into a track that already contains recorded data and combine the new and old data.

1. Enter the MIDI recorder record mode, and select the recorded track you want to overdub.
   - For information about selecting a track, see steps 4 and 5 under "Recording to a Specific Song Performance Part (Track Recording)" (page EN-54).
2. Touch "Rec Type".
3. Touch "Over Dubbing".
4. Touch "▶".

   This starts recording along with playback of what is recorded to the track, so you can play along.
   - Pressing keyboard keys or a pedal without touching "▶" will also start recording automatically.
   - To stop the overdub operation, touch "Cancel OVDB".
5. After you are finished playing, touch "■".

Editing MIDI Data

Use the procedures in this section to rename, copy, and delete recorded MIDI data.

To rename recorded MIDI data

1. On the MENU screen, touch “MIDI RECORDER”.
2. Touch the data name.
3. Touch “User Data Edit”.
4. Touch “Rename”.
5. Touch the data you want to rename.
6. Input the new name.
7. After you are finished inputting the name, touch “Enter”.
8. Touch “Yes”.
   - To cancel the rename operation, touch “No”.

To copy recorded MIDI data

1. On the MENU screen, touch “MIDI RECORDER”.
2. Touch the data name.
3. Touch “User Data Edit”.
4. Touch “Copy”.
5. Touch the data you want to copy.
6. Touch “Execute”.
7. Touch “Yes”.
   - To cancel the copy operation, touch “No”.

To delete recorded MIDI data

1. On the MENU screen, touch “MIDI RECORDER”.
2. Touch the data name.
3. Touch “User Data Edit”.
4. Touch “Delete”.
5. Touch the data you want to delete.
6. Touch “Execute”.
7. Touch “Yes”.
   This deletes the MIDI data you selected.
   - To cancel the delete operation, touch “No”.

Editing a Track

Use the procedures in this section to rename and copy recorded tracks, and to perform a variety of editing operations.

To rename a track

1. On the MENU screen, touch “MIDI RECORDER”.
2. Touch “Monitor”.
3. Touch “Edit”.
4. Touch “Track Edit”.
5. Touch “Rename”.
6. Touch the track you want to rename.
7. Input the new name.
8. After you are finished inputting the name, touch “Enter”.
9. Touch “Yes”.
   - To cancel the rename operation, touch “No”.

To copy one track to another

1. On the MENU screen, touch “MIDI RECORDER”.
2. Touch “Monitor”.
3. Touch “Edit”.
4. Touch “Track Edit”.
5. Touch “Copy”.
6. In the “Source” list, touch the track you want to copy.
7. In the “Destination” list, touch the destination track.
8. Touch “Execute”.
9. Touch “Yes”.
   - To cancel the copy operation, touch “No”.

To combine two tracks into a single track

1. On the MENU screen, touch “MIDI RECORDER”.
2. Touch “Monitor”.
3. Touch “Edit”.
4. Touch “Track Edit”.
5. Touch “Merge”.
6. Select the tracks you want to merge.
   Source A: Touch the track you want to come first.
   Source B: Touch the track you want to come after the Source A track.
7. In “Destination”, touch the destination track.
8. Touch “Execute”.
9. Touch “Yes”.
   - To cancel the merge operation, touch “No”.

To clear a track

1. On the MENU screen, touch “MIDI RECORDER”.
2. Touch “Monitor”.
3. Touch “Edit”.
4. Touch “Track Edit”.
5. Touch “Clear”.
6. Touch the track you want to clear.
7. Touch “Execute”.
8. Touch “Yes”.
   - To cancel the delete operation, touch “No”.

To insert a blank measure at a specific position in a specific track

1. On the MENU screen, touch “MIDI RECORDER”.
2. Touch “Monitor”.
3. Touch “Edit”.
4. Touch “Track Edit”.
5. Touch “Insert Measure”.
6. Touch the track into which you want to insert a blank measure.
7. Touch the item whose setting you want to change, and then use the 9 ∨, ∧ buttons to change it.
   Measure: Specifies the measure number from which insertion starts.
   Size: Specifies the number of measures to be inserted.
8. After you are finished configuring settings, touch “Execute”.
9. Touch “Yes”.
   - To cancel the insert operation, touch “No”.

NOTE

- If a Point A and Point B are specified using the procedure under “Specifying the Punch-in Recording Location (Auto Punch-in Recording)” (page EN-56) before performing this operation “Measure” and “Size” settings will be configured automatically.

To delete a specific measure from a specific track

1. On the MENU screen, touch “MIDI RECORDER”.
2. Touch “Monitor”.
3. Touch “Edit”.
4. Touch “Track Edit”.
5. Touch “Delete Measure”.
6. Touch the track that contains the measure you want to delete.
7. Touch the item whose setting you want to change, and then use the 9 ∨, ∧ buttons to change it.
   - Measure: Specifies the measure number from which delete starts.
   - Size: Specifies the number of measures to be deleted.
8. After you are finished configuring settings, touch “Execute”.
9. Touch “Yes”.
   - To cancel the delete operation, touch “No”.

NOTE

- If a Point A and Point B are specified using the procedure under “Specifying the Punch-in Recording Location (Auto Punch-in Recording)” (page EN-56) before performing this operation “Measure” and “Size” settings will be configured automatically.

To quantize a specific step*

* Quantize is an operation that automatically adjusts the timing of the note on operation of each step to match a reference note.

1. On the MENU screen, touch “MIDI RECORDER”.
2. Touch “Monitor”.
3. Touch “Edit”.
4. Touch “Track Edit”.
5. Touch “Quantize”.
6. Touch the track you want to quantize.
7. Touch the note icon.
8. Touch the note you want to use as the quantize reference note.
9. Touch the item whose setting you want to change, and then use the 9 ∨, ∧ buttons to change it.
   - Measure: Specifies the measure number from which quantize starts.
   - Size: Specifies the number of measures to be quantized.
10. Touch “Execute”.
11. Touch “Yes”.
    - To cancel the quantize operation, touch “No”.

NOTE

- If a Point A and Point B are specified using the procedure under “Specifying the Punch-in Recording Location (Auto Punch-in Recording)” (page EN-56) before performing this operation “Measure” and “Size” settings will be configured automatically.

To key shift a specific measure from a specific track

1. On the MENU screen, touch “MIDI RECORDER”.
2. Touch “Monitor”.
3. Touch “Edit”.
4. Touch “Track Edit”.
5. Touch “Key Shift”.
6. Touch the track you want to key shift.
7. Touch the item whose setting you want to change, and then use the 9 ∨, ∧ buttons to change it.

   Measure: Specifies the measure number from which key shift starts.

   Size: Specifies the number of measures to be key shifted.

   Shift: Specifies how many semitones to shift the key. You can specify a value in the range of –24 to +24.
8. After you are finished configuring settings, touch “Execute”.
9. Touch “Yes”.
   - To cancel the key shift operation, touch “No”.

NOTE

- If a Point A and Point B are specified using the procedure under “Specifying the Punch-in Recording Location (Auto Punch-in Recording)” (page EN-56) before performing this operation “Measure” and “Size” settings will be configured automatically.

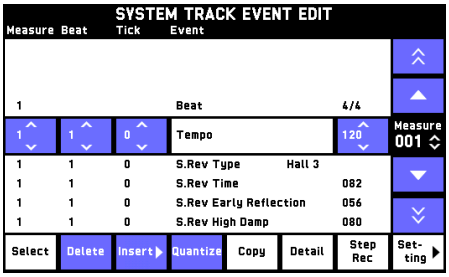
Editing Events

Pattern sequencer data, pad phrases and chord progressions, and MIDI recorder data are recorded as series of “events”. An event is the smallest component unit of data. For example, values for the following performance operations are recorded as events when you press a keyboard key: note start measure, beat, and track, note pitch, note length, and note intensity. Recorded events can be edited, and new events can be inserted into an event series.

Displaying the EVENT EDIT Screen

The method you need to perform to display the EVENT EDIT screen depends on the Digital Keyboard function you are currently using.

Example: MIDI recorder EVENT EDIT screen



To display the pattern sequencer EVENT EDIT screen

1. On the MENU screen, touch “RHYTHM”.
2. Select the rhythm you want to edit.
   - For information about how to select a rhythm, see the Digital Keyboard’s USER’S GUIDE (Basics).
3. Touch “Edit”.
4. Touch “Pattern Sequencer”.
5. Touch “Part Edit”.
6. Touch “Event Edit”.

   This displays the EVENT EDIT screen of the currently selected pattern sequencer.

IMPORTANT!

- Pattern sequencer event editing can be performed while the instrument status (page EN-26) is either “Recorded” or “Empty”. Pattern sequencer event editing is not possible when the instrument status is “Fixed”.
- Though you cannot perform event editing directly on an instrument part whose status is “Fixed”, you can copy such an instrument part to a user area and then edit the copied data. For details about the copy operation, see “To edit the data of each part” (page EN-30).

To display the pad EVENT EDIT screen

1. On the MENU screen, touch “PAD”.
2. Assign or newly record the data to be edited to any pad.
   - For information about pad operations, see the Digital Keyboard’s USER’S GUIDE (Basics).
3. Touch “Pad Edit”.

   This displays the PAD DATA EDIT screen.
4. Touch “Event Edit”.

   This displays the EVENT EDIT screen of data assigned to the selected pad.

NOTE

- Event editing can be performed only when the pad data is a phrase or chord progression.
- Pads do not include beat data. Because of this, event positions (timing) are displayed based on a 4/4 beat.
- Up to 32 measures can be edited.

To display the MIDI recorder EVENT EDIT screen

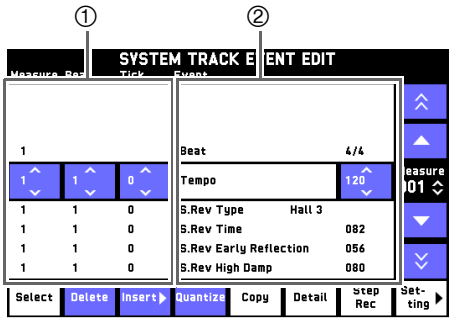
1. On the MENU screen, touch “MIDI RECORDER”.
2. Touch “Monitor”.
3. Touch the track you want to edit and then touch “Edit”.
4. Touch “Event Edit”.

   This displays the EVENT EDIT screen of the selected track.

Using the EVENT EDIT Screen

EVENT EDIT Screen

The EVENT EDIT screen shows the individual events that make up the data.



① Event locations (timing) are displayed as measures, beats, and ticks. A "tick" is a unit of time that is shorter than one beat.
There are 96 ticks per beat in the case of 2/4 to 8/4, and 48 ticks per beat in the case of 2/8 to 16/8.
② Shows the event type and its parameter setting values. The displayed parameter depends on the event type.

Event List

The table below shows event edit parameters and setting values.

- A left arrow (←) in the "Parameter Name" column indicates that the parameter name is the same as the event name.
- A circle (○) in a function column (MIDI Recorder, etc.) indicates that an event can be edited using that function.
- Parameters that are displayed for a note event of a part event can be hidden if desired. For details, see "To change the parameters displayed for a note event" (page EN-72).

■ Part Events

Event Name	Parameter Name	Settings	MIDI Recorder		Pattern Sequencer	Pads	
			System Track	Tracks 01 through 16		Phrase	Chord
Note (Display example: C4)	Velocity	V 000 to V 127	○	○	○	○	
	Beat	B 000 to B 999					
	Tick	T 00 to 95 Unit depends on the data being edited. 4/4: 1 beat = 95 ticks 2/2: 1 beat = 47 ticks					
	Off Velocity	Off V 000 to Off V 127	○	○		○	
Pitch Bend	←	–8192 to 0000 to +8191	○	○	○	○	
Modulation	←	000 to 127	○	○	○	○	
Damper	←	000 to 127	○	○		○	
Soft	←	000 to 127	○	○		○	
Sostenuto	←	000 to 127	○	○		○	
Expression	←	000 to 127	○	○		○	
Channel Pressure	←	000 to 127	○	○		○	

Event Name	Parameter Name	Settings	MIDI Recorder		Pattern Sequencer	Pads	
			System Track	Tracks 01 through 16		Phrase	Chord
Tone	←	See the "Tone List" in the separate Appendix.	○	○		○	
Part Volume	←	000 to 127	○	○		○	
Pan	←	–64 to 0 to +63	○	○		○	
Part Coarse Tune	←	–24 to 0 to +24	○	○		○	
Part Fine Tune	←	–99 to 0 to +99	○	○		○	
Bend Range	←	00 to 24	○	○		○	
Reverb Send	←	000 to 127	○	○		○	
Chorus Send	←	000 to 127	○	○		○	
Delay Send	←	000 to 127	○	○		○	
DSP Line	←	Off, 1, 2	○	○		○	
Portamento Time	←	000 to 127	○	○		○	
Portamento	←	Off, On	○	○		○	
Resonance	←	–64 to 0 to +63	○	○		○	
Release Time	←	–64 to 0 to +63	○	○		○	
Attack Time	←	–64 to 0 to +63	○	○		○	
Cutoff	←	–64 to 0 to +63	○	○		○	
Vibrate Rate	←	–64 to 0 to +63	○	○		○	
Vibrate Depth	←	–64 to 0 to +63	○	○		○	
Vibrate Delay	←	–64 to 0 to +63	○	○		○	
Portamento Control	←	000 to 127	○	○		○	
Mod Depth Range	Modulation Depth Range	000 to 127	○	○		○	
Sampled Pitch Form (The method of pitch change of the instrument being reproduced.)	←	See the "Sampled Pitch Form List" in the separate Appendix.	○	○		○	
Sampled Pitch Depth (The depth of pitch change of the instrument being reproduced.)	←	000 to 127	○	○		○	
HL Detune (MZ-X500 only)	Hex Layer Detune	00 to 31	○	○		○	
HL All Volume (MZ-X500 only)	Hex Layer All Volume	000 to 127	○	○		○	
HL On Off (MZ-X500 only)	Hex Layer On Off Layer	Layer1 to Layer6	○	○		○	
	Hex Layer On/Off	Off, On					
HL Volume (MZ-X500 only)	Hex Layer Volume Layer	Layer1 to Layer6	○	○		○	
	Hex Layer Volume	000 to 127					
HL Pan (MZ-X500 only)	Hex Layer Pan Layer	Layer1 to Layer6	○	○		○	
	Hex Layer Pan	–64 to 0 to +63					
HL Oct Shift (MZ-X500 only)	Hex Layer Octave Shift Layer	Layer1 to Layer6	○	○		○	
	Hex Layer Octave Shift	–2 to 0 to +2					
HL DSP On Off (MZ-X500 only)	Hex Layer DSP On Off Layer	Layer1 to Layer6	○	○		○	
	Hex Layer DSP On/Off	Off, On					
HL P.L. Depth (MZ-X500 only)	Hex Layer Pitch LFO Depth Layer	Layer1 to Layer6	○	○		○	
	Hex Layer Pitch LFO Depth	000 to 127					

Event Name	Parameter Name	Settings	MIDI Recorder		Pattern Sequencer	Pads	
			System Track	Tracks 01 through 16		Phrase	Chord
HL F.L. Depth (MZ-X500 only)	Hex Layer Filter LFO Depth Layer	Layer1 to Layer6	○	○		○	
	Hex Layer Filter LFO Depth	000 to 127					
HL A.L. Depth (MZ-X500 only)	Hex Layer Amp LFO Depth Layer	Layer1 to Layer6	○	○		○	
	Hex Layer Amp LFO Depth	000 to 127					
VTW Org Pos	Virtual Wheel Organ Position Feet	16', 5 1/3', 8', 4', 2 2/3', 2', 1 3/5', 1 1/3', 1'	○	○		○	
	Virtual Wheel Organ Position	0 to 8					
VTW Org Perc	Virtual Wheel Organ Percussion Type	2nd, 3rd	○	○		○	
	Virtual Wheel Organ Percussion On/Off	Off, On					
D.EQ Eq1 Frequency	DSP Equalizer EQ1 Frequency	100Hz, 160Hz, 200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1.0kHz, 1.3kHz, 1.6kHz, 2.0kHz, 2.5kHz, 3.2kHz, 4.0kHz, 5.0kHz, 6.3kHz, 8.0kHz	○	○		○	
D.EQ Eq1 Gain	DSP Equalizer EQ1 Gain	–12 to +12	○	○		○	
D.EQ Eq2 Frequency	DSP Equalizer EQ2 Frequency	100Hz, 160Hz, 200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1.0kHz, 1.3kHz, 1.6kHz, 2.0kHz, 2.5kHz, 3.2kHz, 4.0kHz, 5.0kHz, 6.3kHz, 8.0kHz	○	○		○	
D.EQ Eq2 Gain	DSP Equalizer EQ2 Gain	–12 to +12	○	○		○	
D.EQ Eq3 Frequency	DSP Equalizer EQ3 Frequency	100Hz, 160Hz, 200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1.0kHz, 1.3kHz, 1.6kHz, 2.0kHz, 2.5kHz, 3.2kHz, 4.0kHz, 5.0kHz, 6.3kHz, 8.0kHz	○	○		○	
D.EQ Eq3 Gain	DSP Equalizer EQ3 Gain	–12 to +12	○	○		○	
D.EQ Input Level	DSP Equalizer Input Level	000 to 127	○	○		○	
D.EQ Wet Level	DSP Equalizer Wet Level	000 to 127	○	○		○	
D.EQ Dry LEVEL	DSP Equalizer Dry Level	000 to 127	○	○		○	
D.Cmp Attack	DSP Compressor Attack	000 to 127	○	○		○	
D.Cmp Release	DSP Compressor Release	000 to 127	○	○		○	
D.Cmp Depth	DSP Compressor Depth	000 to 127	○	○		○	
D.Cmp Wet Level	DSP Compressor Wet Level	000 to 127	○	○		○	
D.Cmp Dry Level	DSP Compressor Dry Level	000 to 127	○	○		○	
D.Lmt Limit	DSP Limiter Limit	000 to 127	○	○		○	
D.Lmt Attack	DSP Limiter Attack	000 to 127	○	○		○	
D.Lmt Release	DSP Limiter Release	000 to 127	○	○		○	
D.Lmt Wet Level	DSP Limiter Wet Level	000 to 127	○	○		○	
D.Lmt Dry Level	DSP Limiter Dry Level	000 to 127	○	○		○	

Event Name	Parameter Name	Settings	MIDI Recorder		Pattern Sequencer	Pads	
			System Track	Tracks 01 through 16		Phrase	Chord
D.Enh Low Frequency	DSP Enhancer Low Frequency	000 to 127	○	○		○	
D.Enh Low Gain	DSP Enhancer Low Gain	000 to 127	○	○		○	
D.Enh High Frequency	DSP Enhancer High Frequency	000 to 127	○	○		○	
D.Enh High Gain	DSP Enhancer High Gain	000 to 127	○	○		○	
D.Enh Input Level	DSP Enhancer Input Level	000 to 127	○	○		○	
D.Enh Wet Level	DSP Enhancer Wet Level	000 to 127	○	○		○	
D.Enh Dry Level	DSP Enhancer Dry Level	000 to 127	○	○		○	
D.Ref Wet Level	Early Reflection Wet Level	000 to 127	○	○		○	
D.Ref Feedback	Early Reflection Feedback	000 to 127	○	○		○	
D.Ref Tone	Early Reflection Tone	000 to 127	○	○		○	
D.Ref Input Level	Early Reflection Input Level	000 to 127	○	○		○	
D.Ref Dry Level	Early Reflection Dry Level	000 to 127	○	○		○	
D.Phr Resonance	DSP Phaser Resonance	000 to 127	○	○		○	
D.Phr Manual	DSP Phaser Manual	–64 to +63	○	○		○	
D.Phr LFO Rate	DSP Phaser LFO Rate	000 to 127	○	○		○	
D.Phr LFO Depth	DSP Phaser LFO Depth	000 to 127	○	○		○	
D.Phr LFO Wave Form	DSP Phaser LFO Wave Form	Sin, Tri, Random	○	○		○	
D.Phr Input Level	DSP Phaser Input Level	000 to 127	○	○		○	
D.Phr Wet Level	DSP Phaser Wet Level	000 to 127	○	○		○	
D.Phr Dry Level	DSP Phaser Dry Level	000 to 127	○	○		○	
D.Cho LFO Rate	DSP Chorus LFO Rate	000 to 127	○	○		○	
D.Cho LFO Depth	DSP Chorus LFO Depth	000 to 127	○	○		○	
D.Cho LFO Wave Form	DSP Chorus Wave Form	Sin, Tri	○	○		○	
D.Cho Feedback	DSP Chorus Feedback	–64 to +63	○	○		○	
D.Cho Wet LEVEL	DSP Chorus Wet Level	000 to 127	○	○		○	
D.Cho Polarity	DSP Chorus Polarity	–, +	○	○		○	
D.Cho Input LEVEL	DSP Chorus Input Level	000 to 127	○	○		○	
D.Cho Dry LEVEL	DSP Chorus Dry Level	000 to 127	○	○		○	
D.Fln LFO Rate	DSP Flanger LFO Rate	000 to 127	○	○		○	
D.Fln LFO Depth	DSP Flanger LFO Depth	000 to 127	○	○		○	
D.Fln LFO Wave Form	DSP Flanger Wave Form	Sin, Tri, Random	○	○		○	
D.Fln Feedback	DSP Flanger Feedback	000 to 127	○	○		○	
D.Fln Wet Level	DSP Flanger Wet Level	000 to 127	○	○		○	
D.Fln Input Level	DSP Flanger Input Level	000 to 127	○	○		○	
D.Fln Dry Level	DSP Flanger Dry Level	000 to 127	○	○		○	
D.Tre Rate	DSP Tremolo Rate	000 to 127	○	○		○	
D.Tre Depth	DSP Tremolo Depth	000 to 127	○	○		○	
D.Tre LFO Wave Form	DSP Tremolo LFO Wave Form	Sin, Tri, Tra	○	○		○	
D.Tre Wet Level	DSP Tremolo Wet Level	000 to 127	○	○		○	
D.Tre Dry Level	DSP Tremolo Dry Level	000 to 127	○	○		○	
D.Pan Rate	DSP Auto Pan Rate	000 to 127	○	○		○	
D.Pan Depth	DSP Auto Pan Depth	000 to 127	○	○		○	
D.Pan LFO Wave Form	DSP Auto Pan LFO Wave Form	Sin, Tri, Tra	○	○		○	
D.Pan Manual	DSP Auto Pan Manual	–64 to +63	○	○		○	
D.Pan Wet Level	DSP Auto Pan Wet Level	000 to 127	○	○		○	
D.Pan Dry Level	DSP Auto Pan Dry Level	000 to 127	○	○		○	

Event Name	Parameter Name	Settings	MIDI Recorder		Pattern Sequencer	Pads	
			System Track	Tracks 01 through 16		Phrase	Chord
D.Rot Speed	DSP Rotary Speed	Slow, Fast	○	○		○	
D.Rot Brake	DSP Rotary Brake	Rotate, Stop	○	○		○	
D.Rot Fall Accel	DSP Rotary Fall Accel	000 to 127	○	○		○	
D.Rot Rise Accel	DSP Rotary Rise Accel	000 to 127	○	○		○	
D.Rot Slow Rate	DSP Rotary Slow Rate	000 to 127	○	○		○	
D.Rot Fast Rate	DSP Rotary Fast Rate	000 to 127	○	○		○	
D.Rot Vib Cho	DSP Rotary Vibrato/Chorus	Off, V1, C1, V2, C2, V3, C3	○	○		○	
D.Rot Wet Level	DSP Rotary Wet Level	000 to 127	○	○		○	
D.Rot Dry Level	DSP Rotary Dry Level	000 to 127	○	○		○	
D.DRt Over Drive Gain	DSP Drive Rotary Over Drive Gain	000 to 127	○	○		○	
D.DRt Over Drive Level	DSP Drive Rotary Over Drive Level	000 to 127	○	○		○	
D.DRt Speed	DSP Drive Rotary Speed	Slow, Fast	○	○		○	
D.DRt Brake	DSP Drive Rotary Brake	Rotate, Stop	○	○		○	
D.DRt Fall ACCEL	DSP Drive Rotary Fall Accel	000 to 127	○	○		○	
D.DRt Rise Accel	DSP Drive Rotary Rise Accel	000 to 127	○	○		○	
D.DRt Slow Rate	DSP Drive Rotary Slow Rate	000 to 127	○	○		○	
D.DRt Fast Rate	DSP Drive Rotary Fast Rate	000 to 127	○	○		○	
D.DRt Vib Cho	DSP Drive Rotary Vibrato/Chorus	Off, V1, C1, V2, C2, V3, C3	○	○		○	
D.DRt Wet Level	DSP Drive Rotary Wet Level	000 to 127	○	○		○	
D.DRt Dry Level	DSP Drive Rotary Dry Level	000 to 127	○	○		○	
D.LWh Input Level	DSP LFO Wah Input Level	000 to 127	○	○		○	
D.LWh Resonance	DSP LFO Wah Resonance	000 to 127	○	○		○	
D.LWh Manual	DSP LFO Wah Manual	000 to 127	○	○		○	
D.LWh LFO Rate	DSP LFO Wah LFO Rate	000 to 127	○	○		○	
D.LWh LFO Depth	DSP LFO Wah LFO Depth	000 to 127	○	○		○	
D.LWh LFO Wave Form	DSP LFO Wah LFO Wave Form	Sin, Tri, Random	○	○		○	
D.LWh Wet Level	DSP LFO Wah Wet Level	000 to 127	○	○		○	
D.LWh Dry Level	DSP LFO Wah Dry Level	000 to 127	○	○		○	
D.AWh Input Level	DSP Auto Wah Input Level	000 to 127	○	○		○	
D.AWh Resonance	DSP Auto Wah Resonance	000 to 127	○	○		○	
D.AWh Manual	DSP Auto Wah Manual	000 to 127	○	○		○	
D.AWh Depth	DSP Auto Wah Depth	–64 to +63	○	○		○	
D.AWh Wet Level	DSP Auto Wah Wet Level	000 to 127	○	○		○	
D.AWh Dry Level	DSP Auto Wah Dry Level	000 to 127	○	○		○	
D.Dst Gain	DSP Distortion Gain	000 to 127	○	○		○	
D.Dst Level	DSP Distortion Level	000 to 127	○	○		○	
D.Dst Low	DSP Distortion Low	000 to 127	○	○		○	
D.Dst High	DSP Distortion High	000 to 127	○	○		○	
D.Dst Wah Type	DSP Distortion Wah Type	StdWh (LPF), C-Wah, V-Wah, FatWh, L.Wh (Light Wah), H.Wh (Heavy Wah)	○	○		○	
D.Dst Wah Depth	DSP Distortion Wah Depth	–64 to +63	○	○		○	
D.Dst Wah Manual	DSP Distortion Wah Manual	000 to 127	○	○		○	

Event Name	Parameter Name	Settings	MIDI Recorder		Pattern Sequencer	Pads	
			System Track	Tracks 01 through 16		Phrase	Chord
D.Dst Routing	DSP Distortion Routing	Dist, Wah, Wh-Dst (Wah-Dist), Dst-Wh (Dist-Wah)	○	○		○	
D.Dst Speaker	DSP Distortion Speaker	Bypass, PR Cmb (PR Combo), RV Cmb (RV Combo), JC Cmb (JC Combo), TW Cmb (TW Combo), DX Cmb (DX Combo), AC Cmb (AC Combo), MT Cmb (MT Combo), BG Cmb (BG Combo), MS Stc (MS Stack), TR Stc (TR Stack), SL Stc (SL Stack), RF Stc (RF Stack), EV Stc (EV Stack), B Cmb1 (Bass Combo1), B Cmb2 (Bass Combo2) B Stc (Bass Stack)	○	○		○	
D.Dst Wet Level	DSP Distortion Wet Level	000 to 127	○	○		○	
D.Dst Dry Level	DSP Distortion Dry Level	000 to 127	○	○		○	
D.PSh Pitch	DSP Pitch Shifter Pitch	–24 to +24	○	○		○	
D.PSh High Damp	DSP Pitch Shifter High Damp	000 to 127	○	○		○	
D.PSh Feedback	DSP Pitch Shifter Feedback	000 to 127	○	○		○	
D.PSh Input Level	DSP Pitch Shifter Input Level	000 to 127	○	○		○	
D.PSh Wet Level	DSP Pitch Shifter Wet Level	000 to 127	○	○		○	
D.PSh Dry Level	DSP Pitch Shifter Dry Level	000 to 127	○	○		○	
D.PSh Fine	DSP Pitch Shifter Fine	–50 to +50	○	○		○	
D.MCh LFO Rate	DSP Multi Chorus LFO Rate	000 to 127	○	○		○	
D.MCh LFO Depth	DSP Multi Chorus LFO Depth	000 to 127	○	○		○	
D.MCh Wet Level	DSP Multi Chorus Wet Level	000 to 127	○	○		○	
D.MCh Dry Level	DSP Multi Chorus Dry Level	000 to 127	○	○		○	
D.RMd Osc Frequency	DSP Ring Modulator Osc Frequency	000 to 127	○	○		○	
D.RMd LFO Rate	DSP Ring Modulator LFO Rate	000 to 127	○	○		○	
D.RMd LFO Depth	DSP Ring Modulator LFO Depth	000 to 127	○	○		○	
D.RMd Tone	DSP Ring Modulator Tone	000 to 127	○	○		○	
D.RMd Wet Level	DSP Ring Modulator Wet Level	000 to 127	○	○		○	
D.RMd Dry Level	DSP Ring Modulator Dry Level	000 to 127	○	○		○	
D.Dly Delay Time	DSP Delay Delay Time	000 to 127	○	○		○	
D.Dly Delay Ratio L	DSP Delay Delay Ratio L	000 to 127	○	○		○	
D.Dly Delay Ratio R	DSP Delay Delay Ratio R	000 to 127	○	○		○	
D.Dly Delay Level L	DSP Delay Delay Level L	000 to 127	○	○		○	
D.Dly Delay Level R	DSP Delay Delay Level R	000 to 127	○	○		○	

Event Name	Parameter Name	Settings	MIDI Recorder		Pattern Sequencer	Pads	
			System Track	Tracks 01 through 16		Phrase	Chord
D.Dly Feedback Type	DSP Delay Feedback Type	Streo (Stereo Feedback), Cross (Cross Feedback)	○	○		○	
D.Dly Feedback	DSP Delay Feedback	000 to 127	○	○		○	
D.Dly High Damp	DSP Delay High Damp	000 to 127	○	○		○	
D.Dly Tempo Sync	DSP Delay Tempo Sync	Off, 1/4, 1/3, 3/8, 1/2, 2/3, 3/4, 1, 4/3, 3/2, 2	○	○		○	
D.Dly Input Level	DSP Delay Input Level	000 to 127	○	○		○	
D.Dly Dry Level	DSP Delay Dry Level	000 to 127	○	○		○	
D.Dly Wet Level	DSP Delay Wet Level	000 to 127	○	○		○	
D.PFx Lid Type	DSP Piano Effect Lid Type	Closed, SemiOp (Semi Opened), FullOp (Full Opened)	○	○		○	
D.PFx Reflection Level	DSP Piano Effect Reflection Level	000 to 127	○	○		○	
D.PFx Input Level	DSP Piano Effect Input Level	000 to 127	○	○		○	
D.PFx Wet Level	DSP Piano Effect Wet Level	000 to 127	○	○		○	
D.PFx Dry Level	DSP Piano Effect Dry Level	000 to 127	○	○		○	

NOTE

- After SMF format MIDI data is imported, there may be events displayed whose Master Volume, Master Fine Tune, Master Coarse Tune, or other settings cannot be changed.

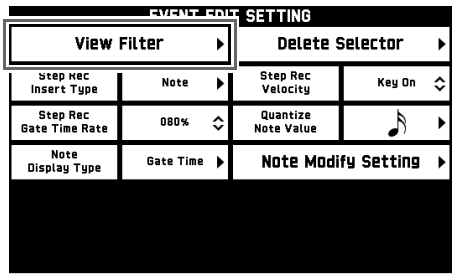
■ System Events

Event Name	Parameter Name	Setting	MIDI Recorder		Pattern Sequencer	Pads	
			System Track	Tracks 01 through 16		Phrase	Chord
Keyboard Volume	←	000 to 127	○				
Accomp Volume	←	000 to 127	○				
Pad Bank	←	See the "Pad Bank List" in the separate Appendix.	○				
Pad	Pad Number	MZ-X500 : 01 to 16 MZ-X300 : 01 to 04	○				
	Pad Velocity	000 (Off) to 127					
Pad Hold	Pad Hold Number	MZ-X500 : 01 to 16 MZ-X300 : 01 to 04	○				
	Pad Hold On Off	Off, On					
Pad Loop	Pad Loop Number	MZ-X500 : 01 to 16 MZ-X300 : 01 to 04	○				
	Pad Loop On Off	Off, On					
Beat	←	2/4, 3/4, 4/4, 5/4, 6/4, 7/4, 8/4, 2/8, 3/8, 4/8, 5/8, 6/8, 7/8, 8/8, 9/8, 10/8, 11/8, 12/8, 13/8, 14/8, 15/8, 16/8	○				
Tempo	←	020 to 255	○				
Chord (Display example: C)	←	See the "Chord Example List" in the separate USER'S GUIDE (Basics).	○				○
Rhythm	←	See the "Rhythm List" in the separate Appendix.	○				
Rhythm Ctrl	←	Intro1/2, Variation1/2/3/4, Fill1/2/3/4, Ending1/2, Break, Stop	○				
Accomp Part	←	P: Percussion, D: Drum, B: Bass, C: Chord (12345) • Shows the on part.	○				
Accomp Fade Volume	←	000 to 127	○				
Master Fx Bypass	←	Off, On	○				
S.Rev Type	System Reverb Type	See the "Parameter List" in the separate Appendix.	○				
S.Rev Time	System Reverb Time	000 to 127	○				
S.Rev Early Reflection	System Reverb Early Reflection	000 to 127	○				
S.Rev High Damp	System Reverb High Damp	000 to 127	○				
S.Rev Tone	System Reverb Tone	000 to 127	○				
S.Rev Return	System Reverb Return	000 to 127	○				
S.Cho Type	System Chorus Type	See the "Parameter List" in the separate Appendix.	○				
S.Cho Rate	System Chorus Rate	000 to 127	○				
S.Cho Depth	System Chorus Depth	000 to 127	○				
S.Cho Feedback	System Chorus Feedback	000 to 127	○				
S.Cho Send To Reverb	System Chorus Send To Reverb	000 to 127	○				
S.Cho Tone	System Chorus Tone	000 to 127	○				
S.Cho Delay Time	System Chorus Delay Time	000 to 127	○				
S.Cho Delay Send	System Chorus Delay Send	000 to 127	○				

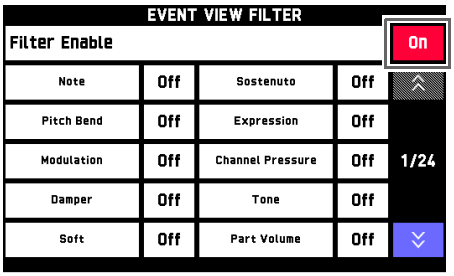
Event Name	Parameter Name	Setting	MIDI Recorder		Pattern Sequencer	Pads	
			System Track	Tracks 01 through 16		Phrase	Chord
S.Cho Return	System Chorus Return	000 to 127	○				
S.Dly Type	System Delay Type	See the "Parameter List" in the separate Appendix.	○				
S.Dly Time	System Delay Time	000 to 127	○				
S.Dly Feedback	System Delay Feedback	000 to 127	○				
S.Dly High Damp	System Delay High Damp	000 to 127	○				
S.Dly Ratio L	System Delay Ratio L	000 to 127	○				
S.Dly Ratio C	System Delay Ratio C	000 to 127	○				
S.Dly Ratio R	System Delay Ratio R	000 to 127	○				
S.Dly Level L	System Delay Level L	000 to 127	○				
S.Dly Level C	System Delay Level C	000 to 127	○				
S.Dly Level R	System Delay Level R	000 to 127	○				
S.Dly Tempo Sync	System Delay Tempo Sync	000 to 127	○				
S.Dly Reverb Send	System Delay Reverb Send	000 to 127	○				
S.Dly Return	System Delay Return	000 to 127	○				
Sys Fx Bypass	System Effect Bypass	Off, On	○				
DSP Bypass	DSP Bypass Line	1, 2	○				
	DSP Bypass On Off	Off, On					

To hide a particular event type

1. Display the EVENT EDIT screen.
2. Touch “Setting”.
3. Touch “View Filter”.



4. Touch “Filter Enable” so it is “On”.



5. Touch the event type you want to hide on the EVENT EDIT screen so it is “On”.

   On: Not displayed on the EVENT EDIT screen.
   Off: Displayed on the EVENT EDIT screen.

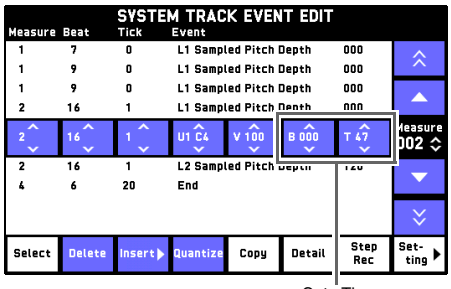
6. Touch **14 EXIT** to return to the EVENT EDIT screen.

   This hides the event types whose setting you changed to “On” in step 5.

To change the parameters displayed for a note event

NOTE

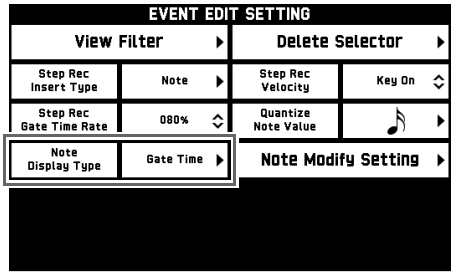
- Use the procedure below to change gate time value of a note event displayed on the pad and MIDI recorder EVENT EDIT screen to an off velocity value.



Gate Time
B: Beat, T: Tick

Off V: Off Velocity

1. On the EVENT EDIT screen, touch “Setting”.
2. Touch “Note Display Type”.

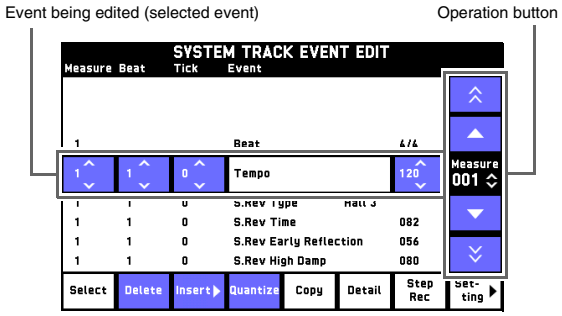


3. On the EVENT EDIT screen, touch the parameter you want to display.
4. Touch **14 EXIT** to return to the EVENT EDIT screen.

   The values of the parameters you selected will be displayed.

To select an event for editing

1. Display the EVENT EDIT screen.



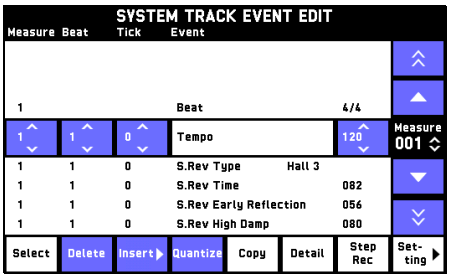
2. Touch an operation button to select an event.

Operation Button	Description
▲ ▼	Scroll events one-by-one.
⏫ ⏬	Scroll events page-by-page.
Measure 001	Touch this button and then use the 9 ∨/NO, ∧/YES buttons to scroll through events measure-by-measure.

To select multiple events

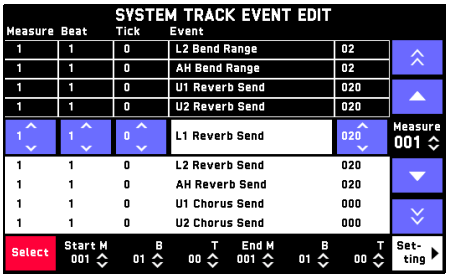
1. Display the EVENT EDIT screen.

2. Use the operation buttons to select the first event.



3. Touch “Select”.

4. Use the operation buttons to highlight the other events you want to select.



5. Touch “Select”.

This selects the events.

- Touch “Select” again to deselect.

NOTE

- After selecting events, you can copy them, change their parameter settings, etc.

Editing an Existing Event

Use the procedures in this section to change the value of a parameter or to copy a parameter.

To change event settings

1. On the EVENT EDIT screen, select the event whose settings you want to change.
   - For information about how to select an event, see "To select an event for editing" (page EN-73).
2. Touch the parameter you want to change.
   - Up and down arrows (⇕) indicate that a parameter can be configured.
3. Use the 9 ∨/NO, ∧/YES buttons to change parameter values as desired.
   - To change a setting value in increments of 10, hold down the 9 ∨/NO or ∧/YES button as you rotate the 15 VALUE dial.
   - During note event editing, you can change the pitch of a note by pressing a keyboard key.
   - If velocity is selected, the velocity value is changed along with the note pitch.

NOTE

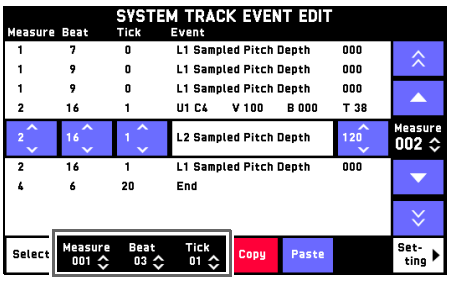
- With the pattern sequencer, the final event (End) cannot be changed.

To insert an event

1. On the EVENT EDIT screen, select the event immediately after the location where you want to insert an event.
   - For information about how to select an event, see "To select an event for editing" (page EN-73).
2. Touch "Insert".
   - Touching "Insert" while editing an event of a pad that is assigned chords causes a chord event to be inserted. Proceed to step 4.
3. Touch the event type you want to insert.
   This inserts the selected event.
4. Touch a parameter and then use the 9 ∨/NO, ∧/YES buttons to change its value.

To copy an event

1. On the EVENT EDIT screen, select the event you want to copy.
   - For information about how to select an event, see "To select an event for editing" (page EN-73) or "To select multiple events" (page EN-73).
2. Touch "Copy".
   - To cancel the copy operation, touch "Copy" again.
3. Use the operation buttons to select the event that comes immediately after the position where you want to insert the copied event.
   - You can also touch "Measure", "Beat" or "Tick" at the bottom of the screen, and then use the 9 ∨/NO, ∧/YES buttons to specify the insert position.



4. Touch "Paste".
   This pastes a copy of the event.

To quantize an event*

* Quantize is an operation that automatically adjusts the note on timing of a note event to match a reference note.

1. On the EVENT EDIT screen, touch “Setting”.
2. Touch the note to the right of “Quantize”.
3. Touch the note you want to use as the quantize reference note.
4. Touch **14 EXIT** to return to the EVENT EDIT screen.
5. On the EVENT EDIT screen, select the event you want to quantize.
   - For information about how to select an event, see “To select an event for editing” (page EN-73) or “To select multiple events” (page EN-73).
6. Touch “Quantize”.

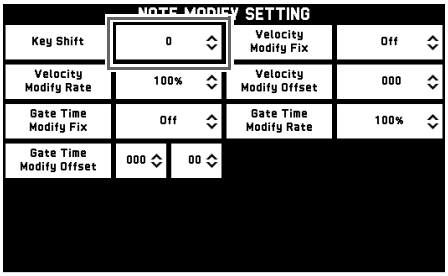
   This performs quantization on the selected event.

To adjust the key of an event

NOTE

- You can adjust the key of the events below.
  Note, Portamento Control

1. On the EVENT EDIT screen, touch “Setting”.
2. Touch “Note Modify Setting”.
3. Touch the “Key Shift” value and then use the **9 ∨/NO, ∧/YES** buttons to specify by how many semitones you want to shift the key.

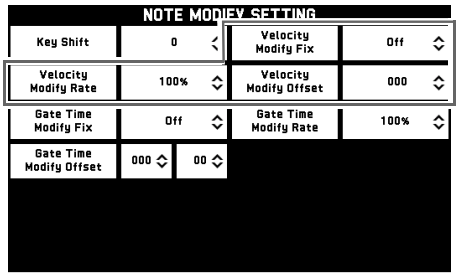


4. Touch **14 EXIT** to return to the EVENT EDIT screen.
5. On the EVENT EDIT screen, select the event whose key you want to adjust.
   - For information about how to select an event, see “To select an event for editing” (page EN-73) or “To select multiple events” (page EN-73).
6. Touch “Detail”.
7. Touch “Key Shift”.

   Each time you touch “Key Shift”, the key of the selected event will be shifted by the amount specified in step 3.

To adjust the velocity value of a note event

1. On the EVENT EDIT screen, touch “Setting”.
2. Touch “Note Modify Setting”.
3. Touch one of the items below and then use the **9** ∨**/NO,** ∧**/YES** buttons to change the setting.
   - To change a setting value in increments of 10, hold down the **9** ∨**/NO** or ∧**/YES** button as you rotate the **15 VALUE** dial.



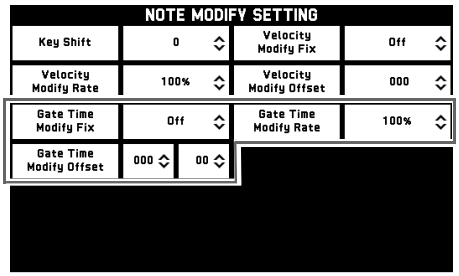
Item	Description	Setting
Velocity Modify Fix (Fixed value)	Specifies a fixed value as the velocity value. Select “Off” for this setting to adjust based on the current velocity value of each note event.	Off, 0 to 127
Velocity Modify Rate (Velocity rate)	These settings are enabled only when “Off” is selected for the “Velocity Modify Fix” setting item. They change the velocity value of each note event according to the mathematical expression shown below. (Current Velocity) × (Rate Setting) + (Offset Setting)	000% to 100% to 200%
Velocity Modify Offset (Velocity offset)		–126 to 000 to +126

4. Touch **14 EXIT** to return to the EVENT EDIT screen.
5. On the EVENT EDIT screen, select the event whose velocity you want to adjust.
   - For information about how to select an event, see “To select an event for editing” (page EN-73) or “To select multiple events” (page EN-73).
6. Touch “Detail”.
7. Touch “Velocity Modify”.

   This adjusts the velocity value of the note event you selected in step 5.

To adjust the gate time value of a note event

1. On the EVENT EDIT screen, touch “Setting”.
2. Touch “Note Modify Setting”.
3. Touch one of the items below and then use the **9** ∨**/NO,** ∧**/YES** buttons to change the setting.
   - To change a setting value in increments of 10, hold down the **9** ∨**/NO** or ∧**/YES** button as you rotate the **15 VALUE** dial.



Item	Description	Setting
Gate Time Modify Fix (Fixed value)	Specifies a fixed value as the gate time value. B99T95 stands for quarter note 99 beats, 95 ticks. Select “Off” for this setting to adjust based on the current gate time value of each note event.	Off, B000T000 to B999T999
Gate Time Modify Rate (Gate time rate)	These settings are enabled only when “Off” is selected for the “Gate Time Modify Fix” setting item. They change the gate time value of each note event according to the mathematical expression shown below. (Current Gate Time) × (Rate Setting) + (Offset Setting)	000% to 100% to 200%
Gate Time Modify Offset (Gate time offset)		–126 to 000 to +126

4. Touch **14 EXIT** to return to the EVENT EDIT screen.
5. On the EVENT EDIT screen, select the event whose gate time you want to adjust.
   - For information about how to select an event, see “To select an event for editing” (page EN-73) or “To select multiple events” (page EN-73).
6. Touch “Detail”.
7. Touch “Gate Time Modify”.

   This adjusts the gate time value of the note event you selected in step 5.

Deleting an Event

Use the procedures in this section to delete an event or events of particular types only.

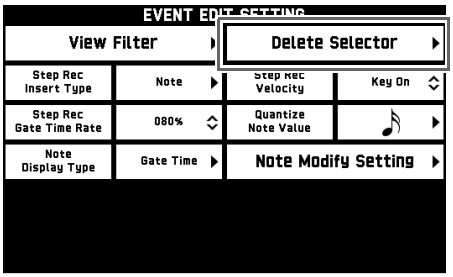
To delete an event

1. On the EVENT EDIT screen, select the event you want to delete.
   - For information about how to select an event, see "To select an event for editing" (page EN-73) or "To select multiple events" (page EN-73).
2. Touch "Delete".

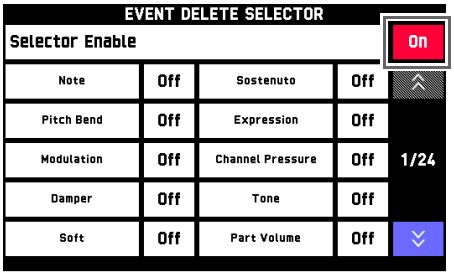
   This deletes the selected event.

To delete events of specific types

1. On the EVENT EDIT screen, touch "Setting".
2. Touch "Delete Selector".



3. Touch "Selector Enable" so it is "On".



4. Touch the event types you want to delete so they are "On".
5. Touch **14 EXIT** to return to the EVENT EDIT screen.
6. Perform the procedure under "To delete an event" (page EN-78) to delete the events.

   This deletes only the events for which you selected "On" in step 4.

Directly Inputting Note Events (Step Input)

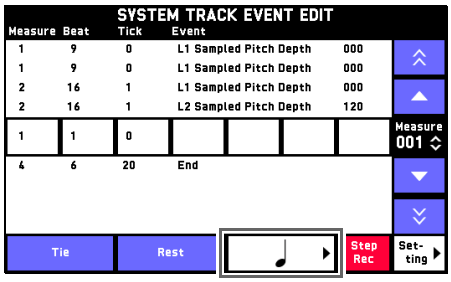
Step input is an event editor function. You can use step input to specify the length and pitch of each individual note (note event). You can also step input Auto Accompaniment chords (chord events) into the MIDI recorder system track.
In the case of the MZ-X500, you can also input chord event steps into a pad that is assigned a chord progression.

NOTE

- Performing step input into a track that already contains recorded data will not delete the existing data. This means you can use step input to add to existing recorded data.

To perform step input

1. On the EVENT EDIT screen, select the event that includes the measure where you want input to start.
   - For information about how to select an event, see "To select an event for editing" (page EN-73).
2. Touch "Step Rec".
   - This starts step input from the beginning of the measure of the selected event.
3. Touch the note icon.



4. Touch the note you want to use.
5. Play the note you want to input on the keyboard.

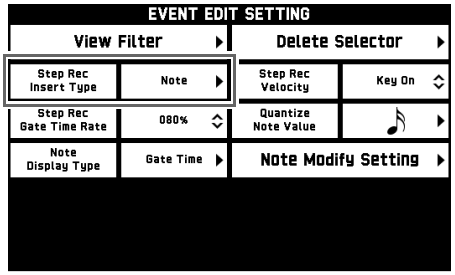
   Note events are input during the note interval you selected in step 4.
   - Touching "Tie" without pressing a keyboard key inputs a tie.
   - Touching "Rest" without pressing a keyboard key inputs a rest.
6. After you are finished inserting notes, touch "Step Rec" again to exit the editing operation.

To insert a chord event

NOTE

- Chord events can be input to the MIDI recorder system track only.
- In the case of the MZ-X500, you can also input chord event steps into a pad that is assigned a chord progression.

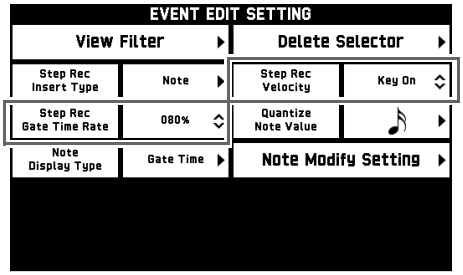
1. On the EVENT EDIT screen, touch “Setting”.
2. Touch “Step Rec Insert Type”.



3. Touch “Chord”.
4. Touch **14 EXIT** to return to the EVENT EDIT screen.
5. Input chords using the procedure under “Directly Inputting Note Events (Step Input)” (page EN-78).

To adjust input event parameters

1. On the EVENT EDIT screen, touch “Setting”.
2. Touch one of the items below and then use the **9 ∨/NO, ∧/YES** buttons to change the setting.
   - To change a setting value in increments of 10, hold down the **9 ∨/NO** or **∧/YES** button as you rotate the **15 VALUE** dial.



Item	Description	Setting
Step Rec Velocity (Velocity)	Specifies the velocity value of an input note event or chord event. Specifying “KeyOn” inputs a velocity value in accordance with applied key pressure.	KeyOn, 0 to 127
Step Rec Gate Time Rate (Gate time rate)	Specifies, as a percent value, the length that a note is actually sounded (gate length) for a note event, based on a specified note.	1% to 100%

3. Touch **14 EXIT** to return to the EVENT EDIT screen.

Configuring Settings (Tutorial)

Configuring Digital Keyboard Advanced Settings

This section explains general Digital Keyboard advanced settings. For information about other settings, see the Digital Keyboard's USER'S GUIDE (Basics).

1. On the MENU screen, touch "SYSTEM SETTING".
2. Use the "⩔" button on the right side of the screen to display page 3/3.
3. Touch "Advanced".
4. Advanced settings are described below.

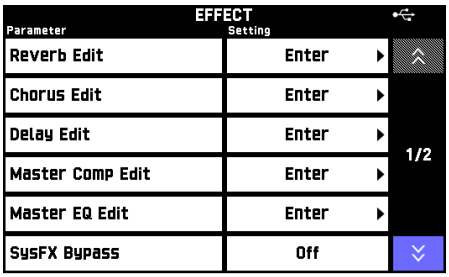
Item	Description	Setting
Octave Button Target	Use the 45 **OCTAVE** ⌄, ⌃ buttons to select the part whose octave you want to change.	Upper All, Upper 1, Upper 2, Lower All, Lower 1, Lower 2
Sustain Button Target	Use the 46 **SUSTAIN** button to select the layer you want to change.	Upper All, Upper 1, Upper 2, Lower All, Lower 1, Lower 2
Sustain Button Upper1	Specifies how the sustain effect is applied to Upper 1 when the 46 **SUSTAIN** button is pressed.	0 to 127
Sustain Button Upper2	Specifies how the sustain effect is applied to Upper 2 when the 46 **SUSTAIN** button is pressed.	0 to 127
Sustain Button Lower1	Specifies how the sustain effect is applied to Lower 1 when the 46 **SUSTAIN** button is pressed.	0 to 127
Sustain Button Lower2	Specifies how the sustain effect is applied to Lower 2 when the 46 **SUSTAIN** button is pressed.	0 to 127
N. Gate Thresh	Specifies the noise gate threshold value. Cuts low-volume input sounds, which decreases noise. Allows a signal input from the **LINE IN** terminal to pass through if it is above the set threshold (gate open). Does not allow a signal to pass if it is below the threshold (gate closed).	0 to 127
Init By Wave (MZ-X500 only)	Parameter initialization by wave selection. Select "On" to link the envelope and other parameters when a wave is selected or select "Off" not to link.	Off, On
Exp. Pedal Calibration	Performs an expression pedal calibration operation. Before performing this operation, select "Exp. Pedal" (expression pedal) for the "Pedal 2 Type" setting on the CONTROLLER screen. 1. When the message "Move the expression pedal to the highest position and Press "OK"" appears, keep the pedal depressed as your touch "OK". 2. When the message "Move the expression pedal to the lowest position and Press "OK"" appears, keep the pedal released (pedal open) as you touch "OK". The message "Complete!" will appear on the display when the operation is complete. • Touch 14 **EXIT** to exit the calibration operation.	
Menu Setting	Changes the arrangement of the icons on the MENU screen. On the Menu Setting screen, use the "▲" and "▼" buttons to move each item upwards or downwards. This will change the order of the icons on the MENU screen.	

EFFECT Screen Reverb Effect Settings

This section explains reverb type, chorus type, and delay time settings. For information about other effect settings, see the Digital Keyboard's USER'S GUIDE (Basics).

1. On the MENU screen, touch "EFFECT".

This displays the EFFECT screen.



2. Touch a setting item and then configure the settings described below.

Item	Description	Setting
Reverb Edit		
Reverb Type	Selects the reverb type.	Small Room, Room 1, Room 2, Room 3, Large Room 1, Large Room 2, Hall 1, Hall 2, Hall 3, Stadium 1, Stadium 2, Plate 1, Plate 2, Plate 3, Short Delay, Delay, Long Delay 1, Long Delay 2, Pan Delay, Long Pan Delay
Time	Adjusts the reverb time.	0 to 127
Early Reflection	Adjusts the level of the initial reflection.	0 to 127
High Damp	Adjusts the high-range damp. A smaller number increases damping.	0 to 127
Tone	Adjusts the tone.	0 to 127
Return	Adjusts the return level.	0 to 127
Chorus Edit		
Chorus Type	Selects the chorus type. Parameters whose settings can be configured depend on the selected chorus type.	**Chorus types** Chorus 1, Chorus 2, Chorus 3, Chorus 4, FB Chorus, Flanger 1, Flanger 2, Flanger 3, Flanger 4, Short Delay 1, Short Delay 2, Short Delay 3, Short Delay 4, Soft Chorus, Bright Chorus, Deep Chorus **Phaser Types** Phaser 1, Phaser 2, Slight Phaser, Deep Phaser, Slow Phaser, Fast Phaser, Reso Phaser, Random Phaser 1, Random Phaser 2
LFO Rate	Adjusts the LFO rate.*1	0 to 127
LFO Depth	Adjusts the LFO depth.*1	0 to 127
Feedback	Adjusts the feedback amount.*1	0 to 127
Tone	Adjusts the tone.*1	0 to 127
Delay Time	Adjusts the delay time.*1	0 to 127
Resonance	Adjusts the strength of resonance.*2	0 to 127

Item		Description	Setting
	Manual	Adjusts the reference phaser shift amount.*2	–64 to +63
	LFO Rate	Adjusts the LFO rate.*2	0 to 127
	LFO Depth	Adjusts the LFO depth.*2	0 to 127
	LFO Waveform	Selects the LFO waveform.*2	Sin, Tri, Random
	Delay Send	Adjusts the send level to system delay.	0 to 127
	Reverb Send	Adjusts the send level to system reverb.	0 to 127
	Return	Adjusts the return level.	0 to 127
Delay Edit			
	Delay Type	Selects the delay type.	Ambience, Short 1, Short 2, Echo, Mid 1, Mid 2, Long 1, Long 2, Short Single, Mid Single, Long Single, Long Double, Long Triple, Mid Pan, Long Pan 1, Long Pan 2, Long Pan 3, Short Tempo, Mid Tempo, Long Tempo
	Time	Adjusts the total delay time.	0 to 127
	Feedback	Adjusts the feedback amount of the center channel.	0 to 127
	High Damp	Adjusts the high-range damp. A smaller number increases damping.	0 to 127
	Ratio L	Adjusts the ratio of the left channel relative to the total delay time.	0 to 127
	Ratio C	Adjusts the ratio of the center channel relative to the total delay time.	0 to 127
	Ratio R	Adjusts the ratio of the right channel relative to the total delay time.	0 to 127
	Level L	Adjusts the level of the left channel.	0 to 127
	Level C	Adjusts the level of the center channel.	0 to 127
	Level R	Adjusts the level of the right channel.	0 to 127
	Tempo Sync	Specifies how the actual total delay time is synced with tempo. Off: Uses Delay Time value. 1/4 to 2: Uses value in accordance with number of beats.	Off, 1/4, 1/3, 3/8, 1/2, 2/3, 3/4, 1, 4/3, 3/2, 2
	Reverb Send	Adjust the send level to system reverb.	0 to 127
	Return	Adjusts the return level.	0 to 127
DSP1 Select/DSP2 Select		Selects the DSP Line 1/DSP Line 2 DSP type. • To apply the effect of the selected algorithm, select DSP1 or DSP2 for the MIXER Line Select setting.	See pages EN-19 to EN-25.

*1 This setting can be configured when a chorus type is specified by the “Chorus Type” setting.
*2 This setting can be configured when a phaser type is specified by the “Chorus Type” setting.

Configuring the Function Performed by Controllers

A variety of different functions can be assigned to the 16 **K1**, **K2** knobs, the MODULATION wheel, Pedal1, and Pedal2.

1. On the MENU screen, touch "CONTROLLER".

This displays the CONTROLLER screen.

2. Touch "Enter" for the controller whose setting you want to configure.

This displays the Edit screen of the selected controller.

3. In the "Parameter" column, touch "1" or "2".

- You can assign two functions to a single controller.

4. Touch "Target".

This displays the Target screen.

5. Touch the function you want to assign to the selected controller.

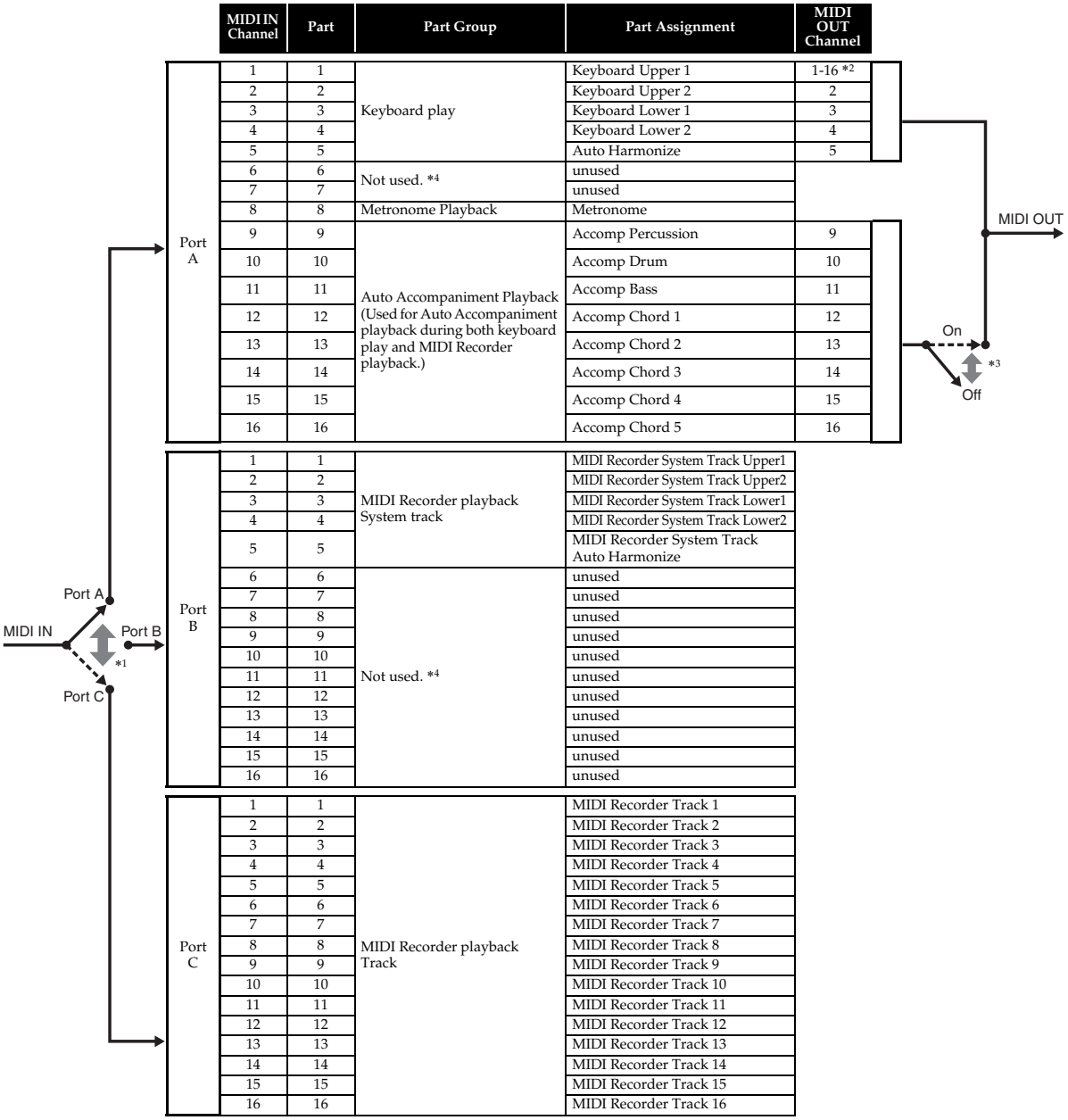
Setting	Description
No Assign	No function assigned.
CC00 to CC97	MIDI control change*
NRPN, RPN	MIDI NRPN and RPN parameters* After selecting these parameters, adjust the settings below. MSB: CC99 for NRPN, CC101 for RPN (Setting range: 000 to 127) LSB: CC98 for NRPN, CC100 for RPN (Setting range: 000 to 127) Data Entry MSB/LSB: Specifies which Data Entry (MSB (CC06) or LSB (CC38)) is controlled by a controller operation. (Settings: MSB, LSB)
Ch.Pressure	MIDI channel pressure*
Tempo	Tempo setting
EQ Low Gain - EQ High Gain	Master EQ > Low Gain - High Gain
Upper 1 On/Off to Lower 2 On/Off	Part On/Off
Upper 1 Volume to Metronome Volume	Balance adjustment of keyboard, Auto Accompaniment, and other volume levels
Layer Detune	Layer detune
Layer 1 to Layer 6	Tone parameter settings of each layer • The following can be assigned: On/Off, Volume (Volume), Pan (panning), OctShift (octave shift), DspOnOff (DSP1, 2 On/Off), LfoPitch (LFO pitch), LfoFiltr (LFO filter), LfoAmp (LFO amp). For details about each setting, see the editable parameter list under "Editing a Tone (User Tones)" (page EN-5).
DSP 1 Bypass, DSP 2 Bypass	Temporarily bypasses the DSP.
DSP 1 Param, DSP 2 Param	DSP Parameters
SysFX Bypass	Temporarily bypasses system effects.
MasFX Bypass	Temporarily bypasses master effects.
<Pedal only> Rhythm S/S	Starts/stops Auto Accompaniment.
<Pedal only> Pad 1 to Pad 16 (MZ-X500) Pad 1 to Pad 4 (MZ-X300)	Plays the assigned pad.

* For details about each setting, see the MIDI Implementation Chart at the back of this manual and/or MIDI documentation at http://world.casio.com/.

Part and MIDI Channel Assignments and Diagram

Though this Digital Keyboard has a sound source that supports simultaneous play of 48 parts, the MIDI standard supports handling of information for up to a maximum of 16 parts. As a result, the 48 parts of the Digital Keyboard are divided among three 16-part ports, resulting in the equivalent of three built-in 16-part MIDI sound sources. The MIDI sound source to which MIDI data that is input into the MIDI IN of the Digital Keyboard is sent is specified by the setting (Port A, B, or C) of the MIDI In Port setting.

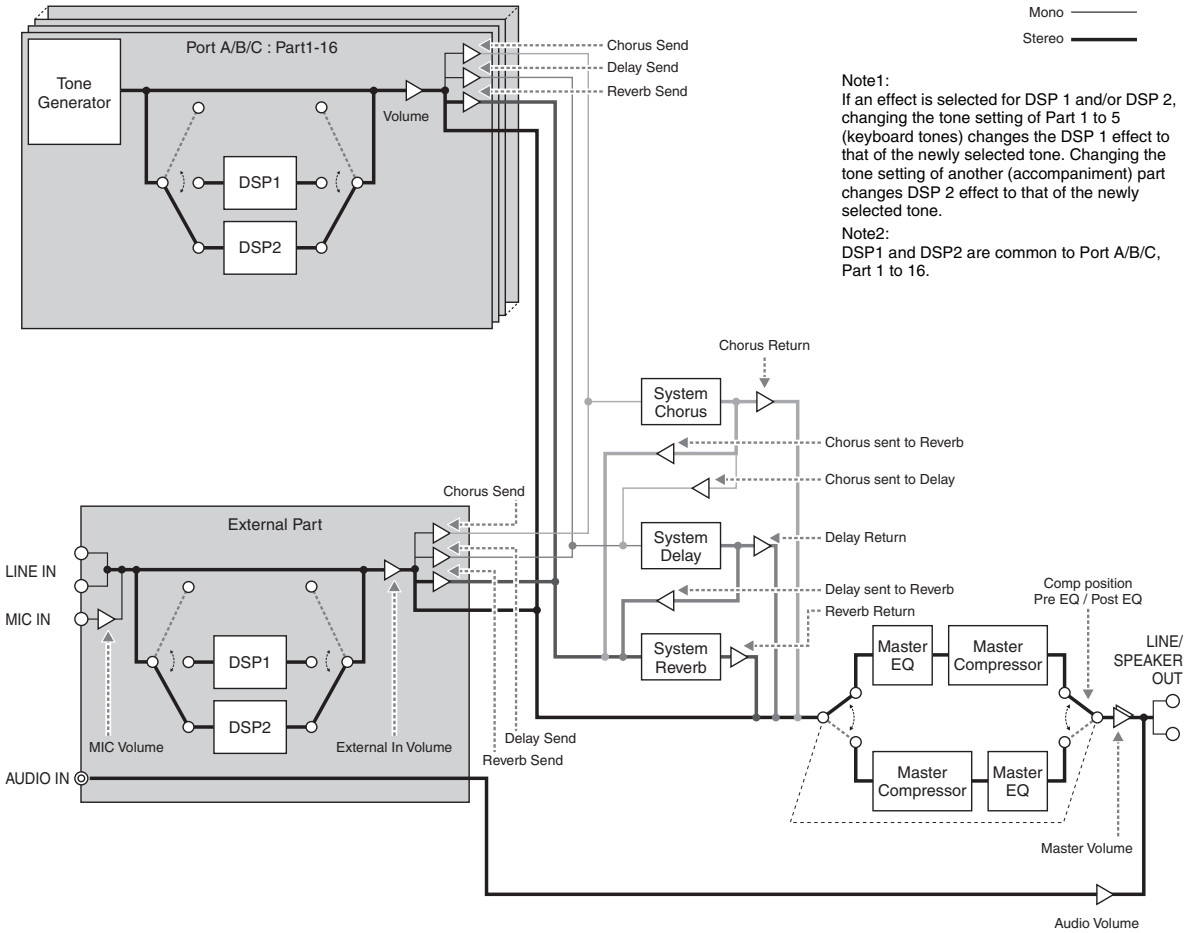
■ Port and MIDI Channel Part Assignments



	MIDI IN Channel	Part	Part Group	Part Assignment	MIDI OUT Channel
Port A	1	1	Keyboard play	Keyboard Upper 1	1-16 *2
	2	2		Keyboard Upper 2	2
	3	3		Keyboard Lower 1	3
	4	4		Keyboard Lower 2	4
	5	5		Auto Harmonize	5
	6	6	Not used. *4	unused	
	7	7		unused	
	8	8	Metronome Playback	Metronome	
	9	9	Auto Accompaniment Playback (Used for Auto Accompaniment playback during both keyboard play and MIDI Recorder playback.)	Accomp Percussion	9
	10	10		Accomp Drum	10
	11	11		Accomp Bass	11
	12	12		Accomp Chord 1	12
	13	13		Accomp Chord 2	13
	14	14		Accomp Chord 3	14
	15	15		Accomp Chord 4	15
	16	16		Accomp Chord 5	16
Port B	1	1	MIDI Recorder playback System track	MIDI Recorder System Track Upper1	
	2	2		MIDI Recorder System Track Upper2	
	3	3		MIDI Recorder System Track Lower1	
	4	4		MIDI Recorder System Track Lower2	
	5	5		MIDI Recorder System Track Auto Harmonize	
	6	6	Not used. *4	unused	
	7	7		unused	
	8	8		unused	
	9	9		unused	
	10	10		unused	
	11	11		unused	
	12	12		unused	
	13	13		unused	
	14	14		unused	
	15	15		unused	
	16	16		unused	
Port C	1	1	MIDI Recorder playback Track	MIDI Recorder Track 1	
	2	2		MIDI Recorder Track 2	
	3	3		MIDI Recorder Track 3	
	4	4		MIDI Recorder Track 4	
	5	5		MIDI Recorder Track 5	
	6	6		MIDI Recorder Track 6	
	7	7		MIDI Recorder Track 7	
	8	8		MIDI Recorder Track 8	
	9	9		MIDI Recorder Track 9	
	10	10		MIDI Recorder Track 10	
	11	11		MIDI Recorder Track 11	
	12	12		MIDI Recorder Track 12	
	13	13		MIDI Recorder Track 13	
	14	14		MIDI Recorder Track 14	
	15	15		MIDI Recorder Track 15	
	16	16		MIDI Recorder Track 16	

*1 The port that accepts MIDI In messages is specified by the "MIDI In Port" setting of the MIDI screen.
*2 The MIDI Out channel is specified by the "Keyboard Channel" setting of the MIDI screen.
*3 Auto Accompaniment MIDI data settings are configured by the "Accomp Out" setting of the MIDI screen.
*4 Use "Not used." parts when inputting performance information from an external source via MIDI In.

Block Diagram



STLport

Models MZ-X500/MZ-X300

Version : 1.0

MIDI Implementation Chart

Function		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1 - 16 1 - 16	1 - 16 1 - 16	
Mode	Default Messages Altered	Mode 3 X ＊＊＊＊＊＊＊	Mode 3 X ＊＊＊＊＊＊＊	
Note Number	True voice	0 - 127 ＊＊＊＊＊＊＊	0 - 127 0 - 127*1	
Velocity*4	Note ON Note OFF	O 9nH v = 1 - 127 O 8nH v = 0 - 127	O 9nH v = 1 - 127 O 8nH v = 0 - 127, 9nH v = 0	
After Touch*4	Key's Ch's	X X	X O	
Pitch Bender*4		O	O	
Control Change*2*4	0 1 5 6, 38 7 10 11 16, 48 17 64 65 66 67 71	O O X O*3 O O O X X O O O O X	O O O O*3 O O O O O O O O O O	Bank select Modulation Portamento Time Data entry LSB, MSB Volume Pan Expression Sampled pitch form MSB, LSB*3 Sampled pitch depth*3 Hold1 Portamento Switch Sostenuto Soft pedal Filter resonance

	72	X	O	Release time
	73	X	O	Attack time
	74	X	O	Filter cutoff
	76	X	O	Vibrato rate
	77	X	O	Vibrato depth
	78	X	O	Vibrato delay
	84	X	O	Portamento Control
	88	O	O	High resolution velocity prefix
	91	O	O	Reverb send level
	93	O	O	Chorus send level
	94	O	O	Delay send level
	98, 99	O*3	O*3	NRPN LSB, MSB
	100, 101	O*3	O*3	RPN LSB, MSB
Program Change	True #	O ✻ ✻ ✻ ✻ ✻ ✻ ✻	O 0 - 127	
System Exclusive		O *3	O *3	
System Common	Song Pos	X	X	
	Song Sel	X	X	
	Tune	X	X	
System Real Time	Clock	X	X	
	Commands	X	X	
Aux Messages	All sound off	X *5	O	
	Reset all controller	X *5	O	
	Local ON/OFF	X	X	
	All notes OFF	X	O	
	Active Sense	O	O	
	System Reset	X	X	
Remarks	*1 : Depends on tone *2 : Any control change from 0 to 101 can be assigned to the controller and sent. *3 : For details, see MIDI Implementation at http://world.casio.com/. *4 : For detailed information required when selecting drawbar organ tones, refer to the MIDI Implementation Chart (http://world.casio.com/). *5 : Output along with certain operations.			

Mode 1 : OMNI ON, POLY
Mode 2 : OMNI ON, MONO
O : Yes
Mode 3 : OMNI OFF, POLY
Mode 4 : OMNI OFF, MONO
X : No

CASIO

MA1601-A

MZX500/300-E-2A

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