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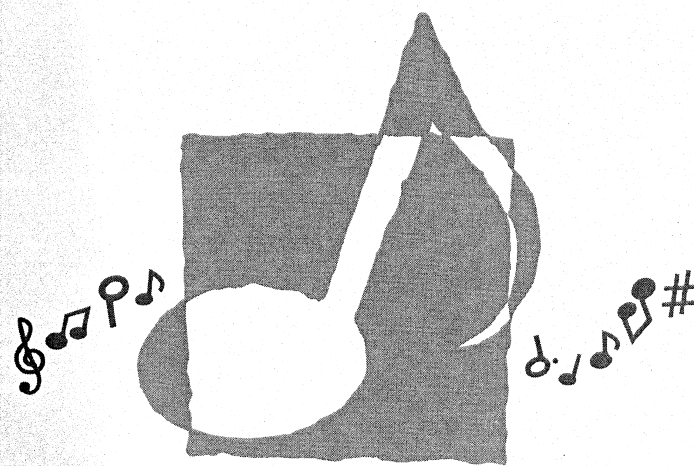
CASIO COMPUTER CO., LTD.
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Shibuya-ku, Tokyo 151-8543, Japan

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AL100R-E-1A

CELVIANO

AL-100R
AL-150R

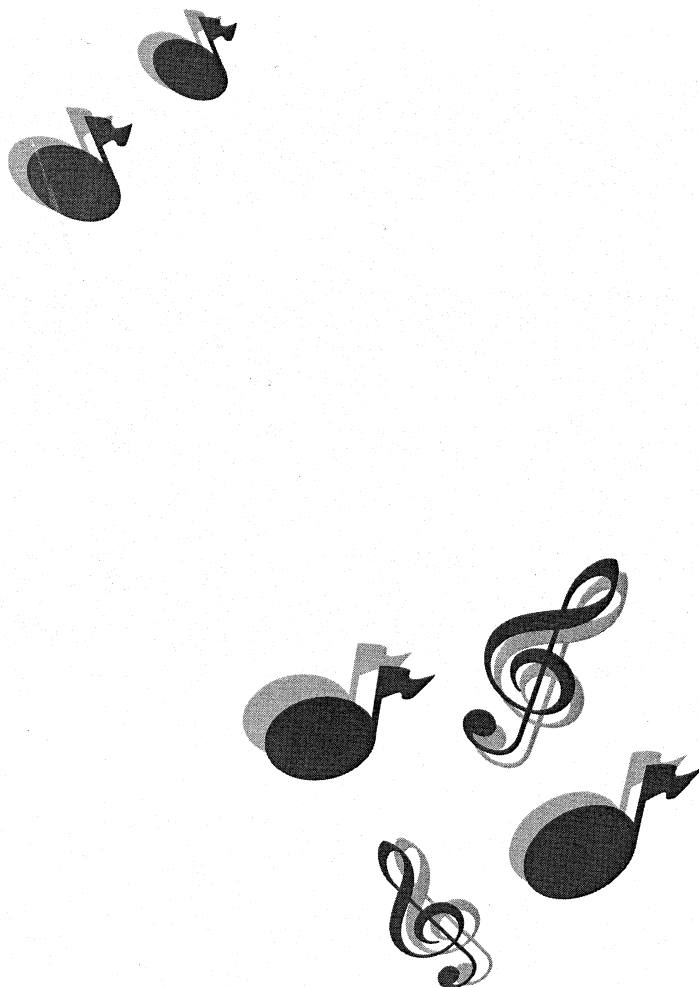
USER'S GUIDE



CASIO.

P

AL100R-E-1



IMPORTANT SAFETY INSTRUCTIONS

"INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS"

WARNING – When using electric products, basic precautions should always be followed, including the following:

1. Read all the instructions before using the product.
2. Heed all warnings.
3. Follow all instructions.
4. To reduce the risk of injury, close supervision is necessary when a product is used near children.
5. Do not use this product near water – for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
6. This product should be used only with a stand that is specified by the manufacturer.
7. This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
8. The product should be located so that its location or position does not interfere with its proper ventilation.
9. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.
10. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
11. Do not defeat the safety purpose of the polarized plug. A polarized plug has two blades with one wider than the other. The wide blade is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
12. Unplug this product during lightning storms or when unused for long periods of time.
13. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
14. The product should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the product; or
 - C. The product has been exposed to rain or moisture; or
 - D. The product does not appear to operate normally or exhibits a marked change in performance; or
 - E. The product has been dropped, or the enclosure damaged.
15. Do not attempt to service the product beyond that described in the user - maintenance instructions. All other servicing should be referred to qualified service personnel.
16. Clean only with dry cloth.
17. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the product.
18. Only use attachments/accessories specified by the manufacturer.

* 10: applies to the AL-100RV/AL-150RV only.
* 11: applies to the AL-100R/AL-150R only.

KEEP THESE INSTRUCTIONS

NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

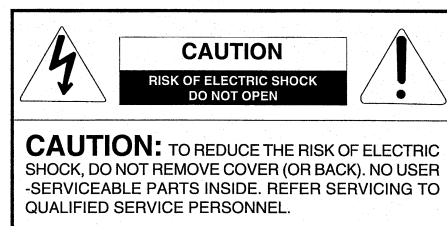
437B-E-004A

Introduction

Congratulations on your selection of the CASIO Digital Piano. This piano is a sophisticated musical instrument that blends the very best of traditional piano feel and sound quality with the latest that modern electronics technology has to offer.

Before using the instrument, be sure to carefully read through the instructions contained in this manual.

Please keep all information for future reference.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.



CASIO ELECTRONICS CO., LTD.
Unit 6, 1000
North Circular Road
London NW2 7JD, U.K.

This mark applies to the AL-100RV/AL-150RV only.
Please keep all information for future reference.

437B-E-005B

E-1

Safety Precautions

Symbols

Various symbols are used in this user's guide and on the product itself to ensure that the product is used safely and correctly, and to prevent injury to the user and other persons as well as damage to property. Those symbols along with their meanings are shown below.

WARNING

This indication stipulates matters that have the risk of causing death or serious injury if the product is operated incorrectly while ignoring this indication.

CAUTION

This indication stipulates matters that have the risk of causing injury as well as matters for which there is the likelihood of occurrence of physical damage only if the product is operated incorrectly while ignoring this indication.

Symbol Examples



This triangle symbol (Δ) means that the user should be careful. (The example at left indicates electrical shock caution.)



This circle with a line through it (\odot) means that the indicated action must not be performed. Indications within or nearby this symbol are specifically prohibited. (The example at left indicates that disassembly is prohibited.)



The black dot (\bullet) means that the indicated action must be performed. Indications within this symbol are actions that are specifically instructed to be performed. (The example at left indicates that the power plug must be unplugged from the electrical socket.)

WARNING

Power Cord

Improper use of the power cord can create the risk of fire and electric shock. Always be sure to observe the following precautions.

- Use only the power cord specified for this piano.
- Make sure that the power source you are using matches the rating marked on the instrument itself.
- Do not use an extension cord to plug multiple devices into the same power outlet.

Power Cord

Improper use of the power cord can create the risk of personal injury, material damage, fire and electric shock. Always be sure to observe the following precautions.

- Do not place heavy objects on the power cord or subject it to heat.
- Never try to modify the power cord or subject it to excessive bending.
- Never twist or pull on the power cord.
- Should the power cord or plug become damaged, contact your original retailer or an authorized CASIO service provider.

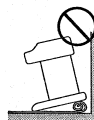
Power Cord

Do not touch the plug with wet hands when it is plugged in. This may cause electrical shock.

Do not locate the piano on an unstable surface.

Never locate the piano on a surface that is wobbly, tilted, or otherwise unstable*. An unstable surface can cause the piano to fall over, creating the risk of personal injury.

* Avoid areas where there are multiple layers of carpeting, and where cables are running under the piano.



Never climb onto the piano or stand.

Never climb onto the piano or hang from its edges. Doing so can cause the piano to fall over, creating the risk of personal injury. Special care concerning this point is required in households where there are small children.



Never dispose of the piano by burning it.

Never dispose of the piano by burning it. Doing so creates the risk of fire and personal injury due to explosion.



Do not place containers containing water or other liquids on the instrument.

Do not place the following objects on the instrument. Placing such objects on the instrument may cause fire or electrical shock if they spill and get inside the instrument.

- Containers filled with water or other liquids (including vases, potted plants, cups, cosmetics and medicines)
- Small metal objects (including hairpins, sewing needles and coins)
- Flammable objects
- Naked flame sources, such as lighted candles



In the event a foreign object should happen to get inside the instrument, please take the following actions:

1. Turn off power.
2. Unplug the power cord from the wall outlet.
3. Consult with the dealer where you purchased the instrument or with an authorized CASIO service provider.

Do not expose this piano to rain or moisture.

To reduce the risk of fire or electric shock, do not expose this piano to rain or moisture.

Never try to take the piano apart or modify it.

Never try to take the piano apart or modify it in any way. Doing so creates the risk of electric shock, burn injury, or other personal injury. Leave all internal inspection, adjustment, and repair up to your original retailer or an authorized CASIO service provider.

Precautions concerning smoke, abnormal odor, and other abnormalities

Continued use of the piano while it is emitting smoke or abnormal odor, or while it is displaying other abnormalities creates the risk of fire and electric shock. Immediately perform the following steps whenever you notice any abnormality.

1. Turn off piano power.
2. Unplug the piano from its power outlet.
3. Contact your original retailer or an authorized CASIO service provider.

Avoid dropping the piano and other strong impact.

Continued use of the piano after it has been damaged by dropping or by other external impact creates the risk of fire and electric shock. Immediately perform the following steps whenever the piano is damaged by impact.

1. Turn off piano power.
2. Unplug the piano from its power outlet.
3. Contact your original retailer or an authorized CASIO service provider.

Do not put plastic bags over your head or in your mouth.

Never allow the plastic bags that the piano and its accessories come in to be placed over the head or swallowed. Doing so creates the risk of suffocation. Special care concerning this point is required in households where there are small children.

Opening and closing the keyboard cover

Make sure that the keyboard cover is completely opened as far as it will go. When closing the keyboard cover, hold the front of the cover and close it slowly. Pinching your fingers between the piano and keyboard cover creates the risk of personal injury.

CAUTION

Power Cord

Improper use of the power cord can create the risk of fire and electric shock. Always be sure to observe the following precautions.

- Never locate the power cord near a stove or other source of heat.
- When unplugging from an outlet, never pull on the cord. (Always grasp the plug when pulling.)
- After use turn off the power switch of the instrument and unplug the power cord from the electrical outlet.

Power Plug

Improper use of the power plug can create the risk of fire and electric shock. Always be sure to observe the following precautions.

- Push the plug fully into the power outlet as far as it will go.
- Unplug from the power outlet during lightening storms, and when you do not plan to use the piano for a long time (such as before a long trip).
- Unplug from the power outlet at least once a year and clean any dust build up between the prongs of the plug.

Moving the piano

Be sure to perform the following steps before moving the piano. Failure to do so can damage the power cord, creating the risk of fire and electric shock.

1. Unplug the piano from its power outlet.
2. Unplug the pedal connecting cord, and all cords and other items connected to the back of the piano.

Cleaning

Before cleaning the piano, unplug it from the power outlet. Failure to do so can damage the power cord, creating the risk of fire and electric shock. It can also cause the piano to fall over, creating the risk of personal injury.

Never climb onto the piano or stand.

Doing so can cause the piano to fall over, creating the risk of personal injury. Special care concerning this item is required in households where there are small children.

Connector

Connect only the specified devices to the piano's connectors. Connecting non-specified items creates the risk of fire and electric shock.

Location

Avoid locating the piano in the following types of areas. Subjecting the piano to the conditions described below creates the risk of fire and electric shock.

- Areas expose to high humidity or large amounts of dust
- Near food preparation areas and other areas where it is exposed to oil smoke
- Near a heater, on a heated carpet, in direct sunlight, inside a closed automobile parked in the sun, and any other area subjected to very high temperature

Never place the piano directly onto furniture or other item that has a finished surface. The rubber feet on the bottom of the piano can react with the paint or other coatings, resulting in soiling of or damage to the finished surface. Be sure to lay felt or some other material on the finished surface before placing the piano on it.

Do not place heavy objects on the piano.
Never place heavy objects on top of the piano. Doing so can cause the stand to tip over and the object to fall, creating the risk of personal injury.



Volume setting

Do not play at very loud volumes for a long time. This precaution is especially important when using the headphones. Long-term exposure to very loud sound can damage your hearing.



Assemble the stand properly.

Failure to do so can cause the stand to fall over and the piano to fall from the stand, creating the risk of personal injury.

Make sure your assemble the stand in accordance with the instructions that come with it, and ensure that all connections are secure. Also make sure that you choose an appropriate location for the stand.

- When placing the piano onto the stand, take care that you do not pinch your fingers between the piano and the stand.



- At least two people should lift the piano when placing it onto the stand or moving it. Trying to move the piano alone can cause the stand to fall over, creating the risk of personal injury.



- Do not drag the stand or tilt it forward or back when placing the piano onto the stand or moving it. Doing so can cause the piano to fall over, creating the risk of personal injury.



- Periodically check the screws that secure the piano to the stand for looseness. If a screw is loose, re-tighten it. Loose screws can cause the stand to tip over and the piano to fall, creating the risk of personal injury.

Liquid Crystal Display (LCD) Precautions

- Avoid subjecting the piano's LCD to strong impact, which can crack or break the LCD's glass creating the danger of personal injury.
- Should the LCD glass ever crack or break, do not allow the liquid inside the LCD to come into contact with your skin, which can cause inflammation and reddening.
 - * Should the LCD liquid get into your mouth, immediately wash out your mouth with water and then consult a physician.
 - * Should the LCD liquid get in your eyes or on your skin, immediately flush with water for at least 15 minutes and then consult a physician.

Operational Precautions

Locating the Unit

Avoid the following locations.

- Areas exposed to direct sunlight and high humidity.
- Areas subjected to very low temperatures.
- Near a radio, TV, video deck, or tuner (unit can cause interference with audio or video signals)

Care of the Unit

- Never use benzene, alcohol, thinner or other such chemicals to clean the exterior of the unit.
- To clean the keyboard, use a soft cloth dampened with a weak solution of a mild neutral detergent and water. Wring out all excess moisture from the cloth before wiping.
- Severe impact can cause problems.
 - When transporting the piano, use soft cloth to pack around the keyboard and buttons to protect them against damage.
- Never try to repair or modify any part of the piano.
 - Any attempt to repair or modify the piano can cause problems with operation.
- Avoid using this piano near televisions, radios, etc.
 - Because this piano uses digital circuitry, it may cause interference with other electronic devices such as televisions, radios, etc.
- In case of a problem, check that buttons and connections are correct, as indicated in this manual. If the piano still does not work properly, contact your retailer or a nearby dealer. Never try to repair the piano yourself.

Lithium Battery

This unit is equipped with a lithium battery to provide power needed to retain memory contents while unit power is turned off. Should the lithium battery go dead, all memory contents will be lost whenever you turn unit power off. The normal life of the lithium battery is five years from the time that the battery was installed. Be sure to periodically contact your retailer or authorized service provider to have the lithium battery replaced. Note that you will be charged separately for lithium battery replacement.

- Note that CASIO COMPUTER CO., LTD. shall not be held liable for any damages or losses or any claims by third parties arising from corruption or loss of data caused by malfunction or repair of the unit, or from battery replacement.

You may notice lines in the finish of the case of this piano. These lines are the result of the molding process used to shape the plastic of the case. They are not cracks or breaks in the plastic, and are no cause for concern.

NOTE

- Unauthorized reproduction of this manual in its entirety or in part is expressly forbidden. All rights reserved.
- CASIO COMPUTER CO., LTD. shall not be held liable for any damages or losses or any claims by third parties arising from use of this product or this manual.
- The contents of this manual are subject to change without notice.

Main Features

❑ Advanced Lesson System (pages E-40, 43)

Choose from among 80 built-in auto accompaniment tunes for your listening pleasure, or turn off the melody or another part and practice by playing along. The lesson function lets you select one of three different arrangement levels to suit your abilities and need. Simply select the part you want to practice, and then follow along on the keyboard as keys light using two different colors. First master the timing. Next, play along at your own pace. Finally, you can try playing along with the accompaniment at normal speed.

❑ Big display with a wealth of musical information (page E-16)

A big, information-packed display shows you which fingers to use, which keys to press, staff notation of the notes being played, and much more.

❑ Sequencer (page E-54)

A 17-track sequencer provides a System Track for recording of the auto accompaniment plus 16 tracks, each of which can be used to record with a different tone.

❑ 100 rhythms (page E-28)

100 preset rhythms including rock, pops, jazz, and much more are at your fingertips.

❑ Auto Accompaniment (page E-29)

Simply play a chord, and the corresponding rhythm, bass, and chords parts play along automatically. One Touch Presets instantly recalls the most suitable tone and tempo settings to match the rhythm you are using.

❑ 271 realistic tones (page E-24)

A simple operation selects one of 271 TONE button tones, including GRAND PIANO, VIBRAPHONE, and much more.

❑ General MIDI compatibility (page E-76)

General MIDI compatible tones let you connect to a personal computer for quick and easy "desktop music" capabilities, which means you can use the piano as a desktop music input device or sound source.

❑ Mixer (page E-50)

You can specify tone, volume, pan position, and other parameters for each built-in Auto Accompaniment part and each track recorded with the Sequencer. You can also control the same parameters for each channel during MIDI input.

❑ Effects (page E-38)

The piano's powerful effector provides three blocks: DSP + Chorus + Reverb. A different effect can be assigned to each block, and blocks can be turned on and off as required.

❑ Built-in floppy disk drive (page E-65)

Save original songs you create with the Sequencer to disk for long-term storage. You can also load a disk with a standard MIDI file (SMF) and play it back on the piano.

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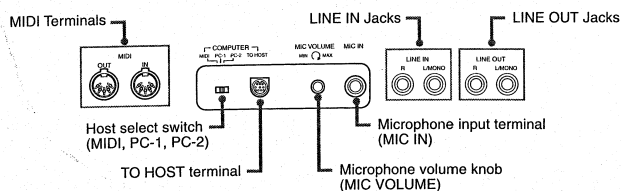
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MIDI Implementation Chart

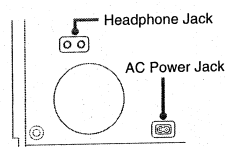
General Guide

- Key, button, and other names are indicated in the text of this manual using bold type.
- See page E-97 for details on the stand.

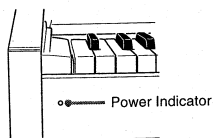
Back Panel



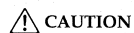
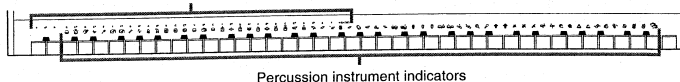
Bottom



Front



CHORD name



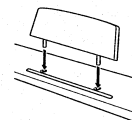
CAUTION Make sure that the cover of the piano is fully open whenever you are playing on the keyboard. A partially open cover can suddenly close unexpectedly and pinch your fingers.

*With the AL-100R and AL-150R, the power cord is hard-wired to the bottom of the instrument.

AL-100R

Attaching of the Score Stand

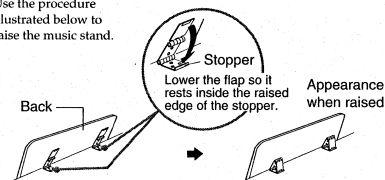
Attach the score stand by inserting its pegs into the holes in the top of the piano.



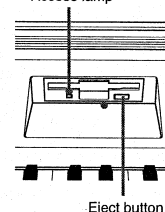
AL-150R

Raising the Score Stand

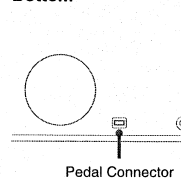
Use the procedure illustrated below to raise the music stand.



Access lamp



Bottom

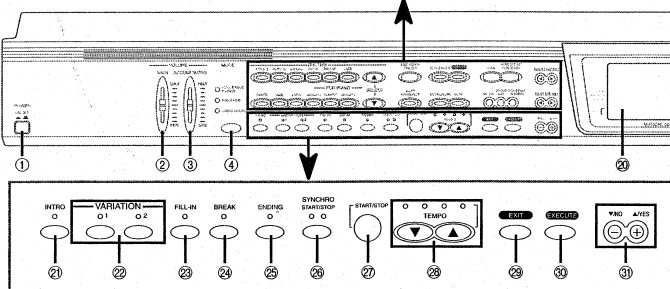
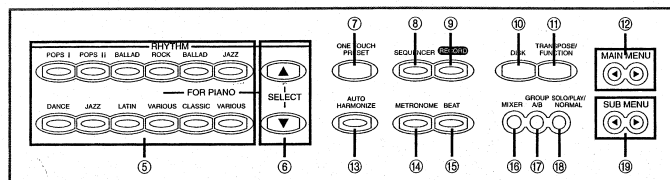


Note Names

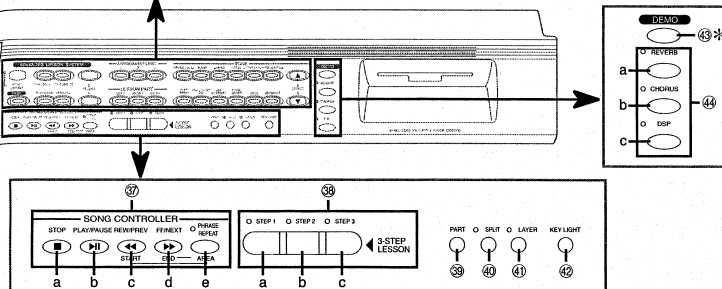
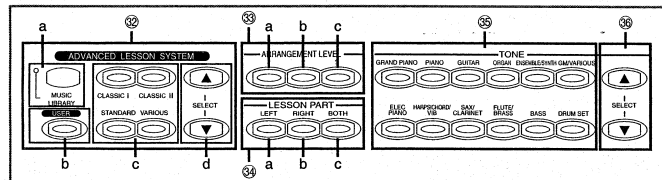


A value next to a note name indicates the relative position of the note on the keyboard as shown below.





- ① POWER button
- ② MAIN VOLUME slider
- ③ ACCOMP/SONG VOLUME slider
- ④ MODE button
- ⑤ RHYTHM buttons
- ⑥ RHYTHM SELECT buttons [▲]/[▼]
- ⑦ ONE TOUCH PRESET button
- ⑧ SEQUENCER button
- ⑨ RECORD button
- ⑩ DISK button
- ⑪ TRANSPOSE/FUNCTION button
- ⑫ MAIN MENU buttons [◀]/[▶]
- ⑬ AUTO HARMONIZE button
- ⑭ METRONOME button
- ⑮ BEAT button
- ⑯ MIXER button
- ⑰ GROUP A/B button
- ⑱ SOLO/PLAY/NORMAL button
- ⑲ SUB MENU buttons [◀]/[▶]
- ⑳ Display
- ㉑ INTRO button
- ㉒ VARIATION 1/VARIATION 2 buttons
- ㉓ FILL-IN button
- ㉔ BREAK button
- ㉕ ENDING button
- ㉖ SYNCHRO START/STOP button
- ㉗ START/STOP button
- ㉘ TEMPO buttons [▲]/[▼]
- ㉙ EXIT button
- ㉚ EXECUTE button
- ㉛ [+]/[-] buttons (▲/YES, ▼/NO buttons)
- ㉜ MUSIC LIBRARY
 - (a) MUSIC LIBRARY button
 - (b) USER button
 - (c) Song buttons
 - (d) Song Select buttons (SELECT)
- ㉝ ARRANGEMENT LEVEL
 - (a) Arrangement level 1 button
 - (b) Arrangement level 2 button
 - (c) Arrangement level 3 button
- ㉞ LESSON PART
 - (a) LEFT button
 - (b) RIGHT button
 - (c) BOTH button



- ㉟ TONE buttons
- ㊱ TONE SELECT buttons [▲]/[▼]
- ㊲ SONG CONTROLLER
 - (a) STOP button
 - (b) PLAY/PAUSE button
 - (c) REW/PREV button (START button)
 - (d) FF/NEXT button (END button)
 - (e) PHRASE REPEAT button (AREA button)
- ㊳ 3-STEP LESSON
 - (a) STEP 1 button
 - (b) STEP 2 button
 - (c) STEP 3 button
- ㊴ PART button
- ㊵ SPLIT button
- ㊶ LAYER button
- ㊷ KEY LIGHT button
- ㊸ DEMO button
- ㊹ Effects
 - (a) REVERB button
 - (b) CHORUS button
 - (c) DSP button

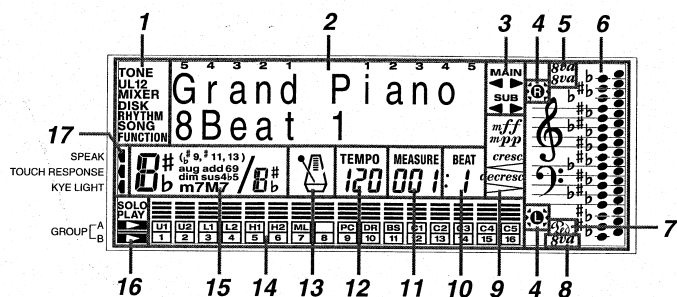
* Playing a Demo Tune

Pressing the DEMO button starts 80 demo tune play. Once you start demo tune play, the tunes play in an endless loop. To stop demo tune play, press either the DEMO button or the START/STOP button.

NOTE

- You can skip to another demo tune during playback by pressing the song button or song SELECT button.
- You can play along with a demo tune on the keyboard using the tone setting of the demo tune.
- MIDI is disabled while a demo tune is playing.

About the Display



1 Operation Indicators

These indicators show what type of settings you are making and the type of information currently displayed in the message area. The applicable indicator appears while you are making tone (TONE), rhythm (RHYTHM), song (SONG), part (U1, U2, L1, L2), mixer (MIXER), disk (DISK), or function (FUNCTION) settings.

2 Message area

This area shows the currently selected tone name and number (when a General MIDI tone is selected), rhythm name, or song number and name. You can determine the type of information currently being displayed by checking which operation indicator is currently on the display. This area is also used to display other types of information, depending on the mode. During lessons and while playing along with built-in tunes, this area shows keyboard fingerings and fingering numbers.

3 MAIN MENU button/SUB MENU button cursor indicators

These indicators show the MAIN MENU or SUB MENU buttons that are applicable to the function you are currently using.

4 Part indicator

During lessons, the "L" and "R" indicators show the currently selected part.

5 Octave symbol 1

One symbol indicates the note being produced by the keyboard is one octave higher than the note shown in the staff notation area 6. Two symbols indicate two octaves higher.

6 Staff notation area

Notes you play on the keyboard, lesson part notes, notes played back from memory, chord forms, and received MIDI data are shown here.

7 Pedal mark

The pedal mark appears when you depress the pedal, and during a lesson to indicate you should press the pedal.

8 Octave symbol 2

One symbol indicates the note being produced by the keyboard is one octave lower than the note shown in the staff notation area 6.

9 Dynamics symbols

These indicators appear during lessons and while playing along with built-in tunes to show the relative strength of a note.

10 Beat number

Shows the beat number during rhythm and Auto Accompaniment play, and while the Advanced Lesson System or Sequencer is turned on.

11 Measure

Shows the measure number from the start of play during rhythm and Auto Accompaniment play, and while the Advanced Lesson System or Sequencer is turned on.

12 Tempo indicator

Shows the tempo as a value indicating the number of beats per minute during rhythm and Auto Accompaniment play, and while the Advanced Lesson System or Sequencer is turned on.

13 Metronome

You can turn on the metronome to provide a reference beat for your keyboard play.

14 Level meter

The numbers 1 through 16 correspond to Mixer channels. This level meter indicates the on/off status of each channel, and other information.

15 Chord name display

Shows chord names while Auto Accompaniment is being used.

16 Mixer mode indicator

Indicates the current Mixer mode (Group A, Group B, solo, Play).

17 Markers

A marker appears next to the applicable function when you have voice fingering guide, touch response, or key lighting turned on.

NOTE

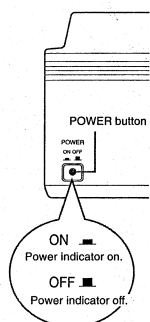
- Display examples shown in this User's Guide are intended for illustrative purposes only. The actual text and values that appear on the display may differ from the examples shown here.

Connecting to a Power Outlet

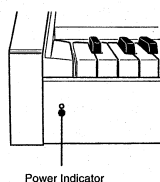
You can power this piano by plugging it into a standard household power outlet. Be sure you turn off power and unplug the power cord from the electrical outlet whenever the piano is not in use.

To connect to a power outlet

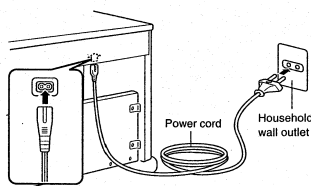
1. Check to make sure that the piano's **POWER** button is in the OFF position. If it is ON, press the **POWER** button to turn it OFF.



Front



2. Attach the power cord that comes with the piano to the bottom of the piano.*



3. Plug the piano's power cord into a wall outlet.
4. Press the **POWER** button to turn on power.

* 2: applies to the AL-100RV and AL-150RV.

IMPORTANT!

- Power should also be turned off before you unplug the piano from the wall outlet.
- The shapes of the piano's power cord and wall outlet should be different according to countries or regions. The illustrations are examples.
- With the AL-100R and AL-150R, the power cord is hard-wired to the bottom of the instrument.

Power On Alert

Keyboard keys light to alert you if you leave power on and do not perform any operation for about 6 minutes. Note that keys light only, and no sound is produced. When this happens, press any button or keyboard key to clear the power on alert.

To disable power on alert

See "Keyboard Settings" on page E-80 for information about disabling power on alert.

- When this function is turned off, the piano does not turn off automatically and no alert is performed no matter how long it is left with no operation being performed.

Settings and Memory Contents

The following describes what happens to settings and memory contents when power is turned off.

Settings

When you turn off the piano by pressing the **POWER** button, it "remembers" the current settings of certain parameters. These settings remain in effect the next time you turn on the piano.

For information on which parameters the piano remembers, see the "Power Backup Items" of the "Parameter List" at the back of this manual.

Memory Contents

In addition to the above settings, Sequencer and memory contents are also retained when power is turned off.

Power Requirements

The piano comes with a built-in lithium battery that supplies power to the memory to retain Sequencer and other data while piano power is turned off. If the power of the lithium battery is low, turning off piano power can result in deletion of all data stored in its memory.

The normal life of the original battery is five years from the time it is loaded at the factory. Due to time spent in transit and storage, the original battery probably will not provide a full five years of service life. It is up to you to contact your nearest CASIO service provider about having the lithium battery replaced periodically.

Note that you will be charged separately for lithium battery replacement.

To protect against loss of valuable memory data, we strongly suggest that you use the following method to back it up.

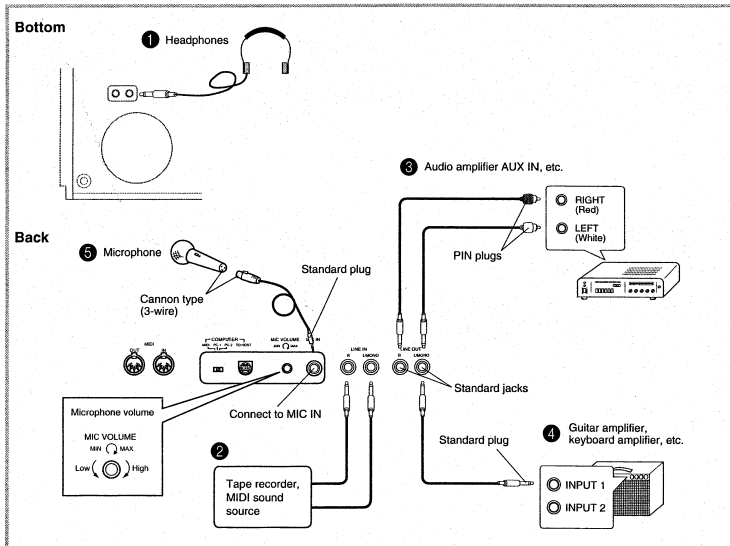
- Save the data to diskette. See "Using the Floppy Disk Drive" on page E-65 for details.

Initializing the Piano

Use the procedure on page E-87 to initialize the piano, which clears all memory data and returns settings to their initial factory defaults.

Connections

Connecting to an audio or musical instrument amplifier provides even clearer, more powerful sound through external speakers.



IMPORTANT!

- Whenever connecting external equipment, first set the MAIN VOLUME slider of the piano and the volume controller of the external equipment to relatively low volume settings. You can later adjust volume to the level you want after connections are complete.
- Be sure also to refer to the documentation that comes with the external equipment for its proper connection procedures.

Connecting Headphones ①

Connect commercially available headphones to the piano's headphones jack. This cuts off the built-in speakers, which means you can practice even late at night without disturbing others. To protect your hearing, make sure that you do not set the volume level too high when using headphones.

Playing Output from External Equipment through the Piano's Speakers ②

R jack input sounds through the piano's right speaker, while L/MONO jack input sounds through the left speaker. Connecting to the L/MONO jack only causes the same output to be produced from both speakers. It is up to you to purchase connecting cables that are compatible with the equipment you are connecting.

Connecting to Audio Equipment ③

Use commercially available cables to connect the external audio equipment to the piano's LINE OUT jacks as shown in Figure ③. R jack output is right channel sound, while L/MONO jack output is left channel sound. It is up to you to purchase connecting cables like the ones shown in the illustration for connection of audio equipment. Normally in this configuration you must set the audio equipment's input selector to the setting that specifies the terminal (such as AUX IN) to which the piano is connected. Use the piano's MAIN VOLUME slider to adjust the volume level.

Connecting to a Musical Instrument Amplifier ④

Use commercially available cables to connect the amplifier to the piano's LINE OUT jacks as shown in Figure ④. R jack output is right channel sound, while L/MONO jack output is left channel sound. It is up to you to purchase connecting cable like the one shown in the illustration for connection of the amplifier. Use the piano's MAIN VOLUME slider to adjust the volume level.

Connecting a Microphone ⑤

You can connect a commercially available microphone and sing along with auto accompaniment or MIDI play. When connecting a microphone, we recommend that you set the MIC VOLUME to a very low level. Set the microphone volume to the level you want after connecting the microphone.

Microphone Specifications

The microphone you connect to the piano should match the following specifications.

- Type: Metal shielded microphone
- Microphone-cord connector: Cannon type (3-wire)
- Piano plug: standard plug (monaural)

IMPORTANT!

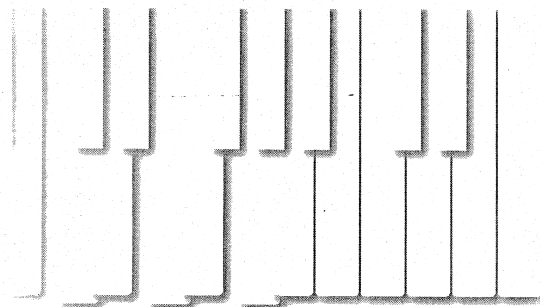
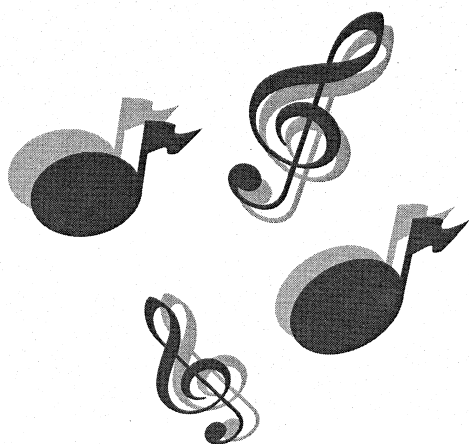
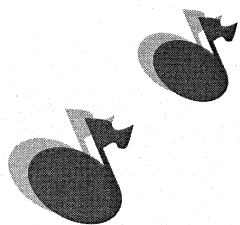
- Be sure to use a metal-shielded cannon type microphone. This type of microphone protects against the effects of noise caused by a computer or other device connected to the piano.
- Unplug the microphone from the piano when you are not using it.

Feedback

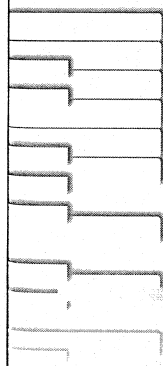
Either of the following conditions can cause feedback (howling).

- Holding the microphone in your hand
- Locating the microphone too close to a speaker

Move the microphone away from the speaker whenever you experience feedback.



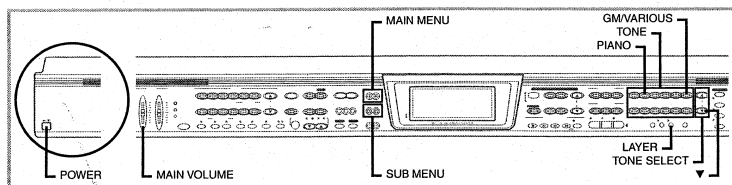
Basic Operations



437B-E-026A

437B-E-027A

Basic Operations



This section provides information on performing basic piano operations.

Getting Started

To play the piano

1. Press the **POWER** button to turn on the piano.
2. Use the **MAIN VOLUME** slider to set the volume to a relatively low level.
3. Play something on the keyboard.

Selecting a Tone

The built-in tones are divided among 12 groups, with each group assigned to a **TONE** button on the control panel.

To select a tone

1. See the "Tone List" at the back of this manual (page A-1) for information about the tone button names for each of the built-in tones.
2. Press the **TONE** button of the tone you want to select.
 - This causes the button's indicator lamp to light, and displays the tone that is currently selected for that button.

Example: To select "Bright Piano", first press the **PIANO** button.

TONE U 1 Grand Piano

3. Use the **TONE SELECT** buttons [▲]/[▼] to select the tone you want.

Example: For this example, press [▼] once.

TONE U 1 Bright Piano

Selecting a GM Tone

1. Press the **GM/VARIOUS** button.
2. Use the **TONE SELECT** buttons, **MAIN MENU** [◀]/[▶], or **SUB MENU** [◀]/[▶] buttons to select the tone you want.

Example: To select "041 Viola"

- First press the [▶] **MAIN MENU** button five times. Next, press the [▶] **SUB MENU** button or the [▼] **TONE SELECT** button once.

TONE U 1 041:Viola

NOTE

- The **GRAND PIANO** tone was recorded using stereo sampling.
- When one of the drum sets is selected (tone numbers 261 through 270), each keyboard key is assigned a different percussion sound. See page A-6 for details.

Polyphony

The term polyphony refers to the maximum number of notes you can play at the same time. This piano has 64-note polyphony, which includes the notes you play as well as the rhythms and auto-accompaniment patterns that are played by the piano. This means that when a rhythm or auto-accompaniment pattern is being played by the piano, the number of notes (polyphony) available for keyboard play is reduced. Also note that some of the tones provide only 32-note polyphony.

Digital Sampling

A number of the tones that are available with this piano have been recorded and processed using a technique called digital sampling. To ensure a high level of tonal quality, samples are taken in the low, mid, and high ranges and then combined to provide you with sounds that are amazingly close to the originals. You may notice very slight differences in volume or sound quality for some tones when you play them at different positions on the keyboard. This is an unavoidable result of multiple sampling, and it is not a sign of malfunction.

Upper1, Upper2, Lower1, Lower2

This piano lets you use up to four parts simultaneously for your performances. The parts are named Upper1, Upper2, Lower1, and Lower2, and the display shows the tone currently assigned to each.

Use the **PART** button to toggle each part on (enabled) and off (disabled).

• Upper1 U 1
• Upper2 U 2
• Lower1 L1
• Lower2 L 2

Using Layer

With layer you can assign two different tones (a main tone and a layered tone) to the keyboard, both of which play whenever you press a key.

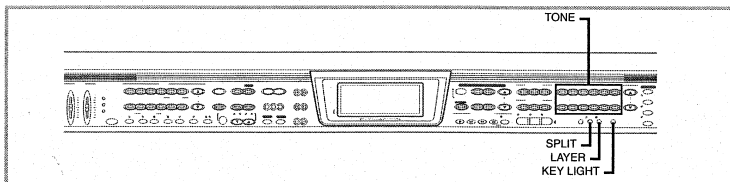


To layer two tones

1. Select the main tone.
2. Press the **LAYER** button to turn on tone layering.
 - This causes the indicator lamp above the button to light.
 - The currently layered tone name appears on the display. You can use the **TONE** buttons to change the layered tone if you want.
3. Select the layered tone.
4. Now try playing something on the keyboard.
 - Both tones are played at the same time.
5. Press the **LAYER** button again to unlayer the tones and return the keyboard to normal.
 - This causes the indicator lamp above the button to go out.

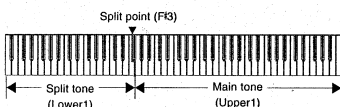
NOTE

- Layering is achieved by sounding Upper1 and Upper2 of Mixer Group A. This means you can use the Mixer to change the volume balance and stereo pan position parameters for both the main tone and layered tone. See "Using the Mixer" on page E-50 for details.



Using Split

With split you can assign two different tones (a main tone and a split tone) to either end of the keyboard, which lets you play one tone with your left hand and another tone with your right hand.



To split the keyboard

1. Select the main tone.
2. Press the **SPLIT** button.
 - This causes the indicator lamp above the button to light.
 - The current split tone name appears on the display. You can use the **TONE** buttons to change the split tone if you want.
3. Select the split tone.
4. Now try playing something on the keyboard.
 - The lower range (left side) of the keyboard is assigned the split tone, while the upper range (right side) is assigned the main tone.
 - The location on the keyboard where the changeover between the two tones occurs is called the split point. See "To change the location of the split point" on this page for details on changing the location of the split point.
5. Press the **SPLIT** button again to unsplit the keyboard and return it to normal.
 - This causes the indicator lamp above the button to go out.

NOTE

- Split is achieved by sounding Upper1 and Upper2 of Mixer Group A. This means you can use the Mixer to change the volume balance and stereo pan position parameters for both the main tone and split tone. See "Using the Mixer" on page E-50 for details.

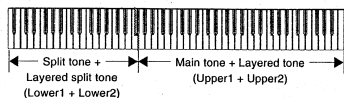
To change the location of the split point

While holding down the **SPLIT** button, press the keyboard key where you want the lowest note (the leftmost key) of the upper range (right side range) to be.

- No sound is produced when the keys are pressed.

Using Layer and Split Together

You can use layer and split together to create a layered split keyboard. When you use layer and split in combination, the high range of the keyboard is assigned two tones (main tone + layered tone), and the low range two tones (split tone + layered split tone).



To layer-split the keyboard

1. Select the main tone, layered tone, split tone, and layered split tone.
 - Use the Mixer to select the tones, following the procedure under "Changing the Parameters of a Channel" on page E-51. The main tone is Upper1, the layered tone is Upper2, the split tone is Lower1, and the layered split tone is Lower2.

2. Turn on both layer and split to layer split the keyboard.
 - Press the **LAYER** button once to turn on layer.
 - Press the **SPLIT** button to turn on split.
 - This causes the indicator lamps above both the buttons to light.
 - The layered split tone name appears on the display. You can change the layered split tone if you want.
3. Now try playing something on the keyboard.
4. Press the **LAYER** button and the **SPLIT** button again to unlayer split the keyboard and return it to normal.

NOTE

- Layer-split is produced by using Mixer Group A Upper1, Upper2, Lower1, and Lower2 at the same time. This means you can use the Mixer to change the volume balance and stereo pan position parameters for each of the tones. See "Using the Mixer" on page E-50 for details.
- You can use the Mixer to turn off individual channels (layer split tones). This means you could turn off Lower2, for example, to sound a single tone in the lower range and two layered tones in the upper range. See page E-50 for details.

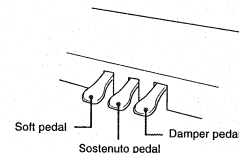
Turning the Key Light System On and Off

Use the following procedure when you want to turn the key light system on or off.

- Press the **KEY LIGHT** button to toggle the key light system on and off.
- The **KEY LIGHT** indicator disappears when the key light system is turned off.

Using the Pedals

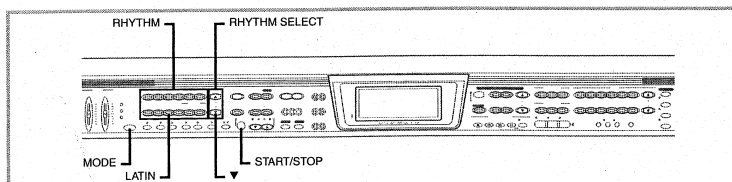
This piano comes equipped with the three pedals shown in the illustration below.



Pedal functions

- **Damper pedal**
Pressing this pedal causes notes to reverberate and to sustain longer. In the case of the PIPE ORGAN and STRINGS tones, pressing this pedal sustains the notes played until you release the pedal.
- **Soft pedal**
Pressing this pedal dampens notes and slightly reduces their volume. Only notes played after the pedal is depressed are affected, and any notes played before the pedal is pressed sound at their normal volume.
- **Sostenuto pedal**
Like the damper pedal, this pedal causes notes to reverberate and to sustain longer. The difference between the two pedals is the timing when they are pressed. With the sostenuto pedal, you press the pedal after depressing the notes you want to sustain. Only the notes whose keyboard keys are depressed when the sostenuto pedal is pressed are affected.

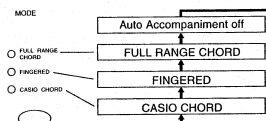
Auto Accompaniment



This piano automatically plays bass and chord parts in accordance with the chords you finger. The bass and chord parts are played using sounds and tones that are automatically selected to match the rhythm you are using. All of this means that you get full, realistic accompaniments for the melody notes you play with your right hand, creating the mood of an one-person ensemble.

About the MODE Button

Use the MODE button to select the accompaniment mode you want to use. Each press of the MODE button cycles through the available accompaniment modes as shown in the illustration below.



- Only rhythm sounds are produced when all accompaniment mode lamps are off.
- The currently selected accompaniment mode is shown by the mode lamps above the MODE button. Information on using each of these modes starts from page E-29.

Selecting a Rhythm

The built-in rhythms are divided among 12 groups, with each group assigned to a RHYTHM button on the control panel.

To select a rhythm

- See the Rhythm Reference at the back of this manual (page A-11) for information about the RHYTHM button names for each of the built-in rhythms.

- Press the RHYTHM button of the rhythm you want to select.

- This causes the button's indicator lamp to light, and displays the rhythm that is currently selected for that button.

Example: To select "Samba 1", first press the LATIN button.

RHYTHM Bossa Nova 1

- Use the RHYTHM SELECT buttons (▼)/(▲) to select the rhythm you want.

Example: For this example, press (▼) once.

RHYTHM Samba 1

NOTE

- Some rhythms consist of chord accompaniments only, without any drums or other percussion instruments. Such rhythms do not sound unless CASIO CHORD, FINGERED, or FULL RANGE CHORD is selected as the accompaniment mode. Make sure the applicable indicator lamp is lit above the MODE button when using these rhythms.

Playing a Rhythm

Press the START/STOP button to start play of the currently selected rhythm. You can then play along with the rhythm on the keyboard.

To stop rhythm play, press the START/STOP button again.

NOTE

- Chords will sound along with the rhythm if any of the three accompaniment mode lamps above the MODE button is lit. If you want to play the rhythm pattern without chords, press the MODE button until all of the accompaniment mode lamps are off.

Using Auto Accompaniment

The following procedure describes how to use the piano's Auto Accompaniment feature. Before starting, you should first select the rhythm you want to use and set its tempo to the value you want.

To use Auto Accompaniment

- Use the MODE button to select FULL RANGE CHORD, FINGERED, or CASIO CHORD as the accompaniment mode.

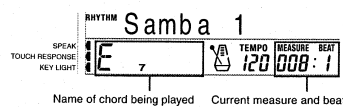
- The currently selected accompaniment mode is the one whose lamp is lit. See "About the MODE Button" on page E-28 for details.

- Press the START/STOP button to start play of the currently selected rhythm.

- Play a chord to start Auto Accompaniment.

- The actual procedure you should use to play a chord depends on the currently selected accompaniment mode. Refer to the following pages for details on chord play.

CASIO CHORD This page
FINGERED Page E-30
FULL RANGE CHORD Page E-31



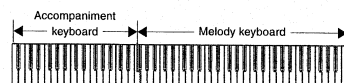
Name of chord being played Current measure and beat

- To stop Auto Accompaniment play, press the START/STOP button again.

CASIO CHORD

This method of chord play makes it possible for anyone to easily play chords, regardless of previous musical knowledge and experience. The following describes the CASIO CHORD "Accompaniment keyboard" and "Melody keyboard", and tells you how to play CASIO CHORDs.

CASIO CHORD Accompaniment Keyboard and Melody Keyboard



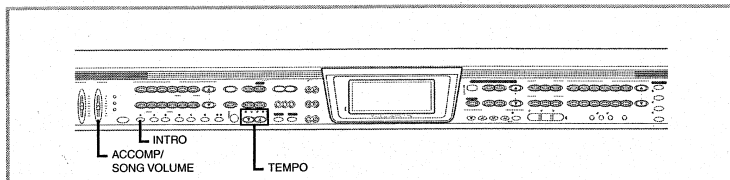
NOTE

- On the keyboard shown above, Lower1 and Lower2 are assigned to the accompaniment keyboard range and Upper1 and Upper2 are assigned to the melody keyboard range.
- When split is turned off (page E-26), the accompaniment keyboard range keys do not sound any melody notes. In this case, they are used to specify chords for the accompaniment pattern.
- You can expand the range of the accompaniment keyboard by moving the keyboard's split point to the right (page E-26).

Chord Types

CASIO CHORD accompaniment lets you play four types of chords with minimal fingering.

Chord Types	Example
Major chords Major chord names are marked above the keys of the accompaniment keyboard. Note that the chord produced when you press an accompaniment keyboard key does not change octave, regardless of which key you use to play it.	C Major (C)
Minor chords (m) To play a minor chord, keep the major chord key depressed and press any other accompaniment keyboard key located to the right of the major chord key.	C minor (Cm)



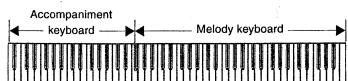
Chord Types	Example
Seventh chords (7) To play a seventh chord, keep the major chord key depressed and press any other two accompaniment keyboard keys located to the right of the major chord key.	C seventh (C7)
Minor seventh chords (m7) To play a minor seventh chord, keep the major chord key depressed and press any other three accompaniment keyboard keys located to the right of the major chord key.	C minor seventh (Cm7)

- NOTE**
- It makes no difference whether you press black or white keys to the right of a major chord key when playing minor and seventh chords.

FINGERED

In this mode, you specify chords by playing them as you would on a piano, inside the accompaniment keyboard range. To specify a C-chord, you would play C-E-G.

FINGERED Accompaniment Keyboard and Melody Keyboard



NOTE

- On the keyboard shown above, Lower1 and Lower2 are assigned to the accompaniment keyboard range and Upper1 and Upper2 are assigned to the melody keyboard range.
- When split is turned off (page E-26), the accompaniment keyboard range keys do not sound any melody notes. In this case, they are used to specify chords for the accompaniment pattern.
- You can expand the range of the accompaniment keyboard by moving the keyboard's split point to the right (page E-26).

See the "Fingered/Full Range Chord Table" at the back of this manual for information about the chords that can be recognized in the Fingered Mode.

- The chords that are recognized by the keyboard in the FINGERED Mode depend on the current "On Bass Chord", "6th Chord", and "Tension Chord" Accom settings. See "Keyboard Settings" on page E-80 for information about Accom settings. Information about how settings affect the type of chords recognized by the keyboard can be found "Fingered/Full Range Chord Table" at the back of this manual.

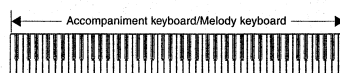
NOTE

- In the FINGERED Mode, you can use standard fingering (C-E-G for a C-chord, for example) or you can use inverted fingerings (G-E-C, for example), as long as you play chords within the accompaniment keyboard range. Note, however, that using an inverted fingering will produce a different chord entirely if the "On Bass Chord" Accom setting is turned on.
- Generally, you must press all of the keys that make up chords. Omitting a note or playing only a single note will not produce a chord.

FULL RANGE CHORD

This mode can be used to play up to 238 different types of chords. Pressing three or more keys in a pattern that is recognized as a chord pattern by the keyboard causes the corresponding chord to be played. Playing chords in a pattern not recognized by the keyboard or pressing two keys or one key causes the corresponding notes to be played as melody notes. This means that the entire range of the keyboard acts as both a melody keyboard and accompaniment keyboard.

FULL RANGE CHORD Accompaniment Keyboard and Melody Keyboard

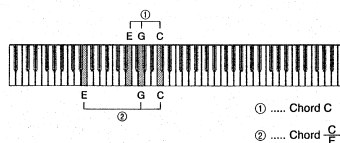


Recognized Chords

See the "Fingered/Full Range Chord Table" at the back of this manual for more information.

Example: To play the chord C major.

Either of the fingerings shown in the illustration below will produce C major.



NOTE

- If there are more than six semitones between the lowest note and the next note to the right, the lowest note is interpreted as a bass note.

Adjusting the Tempo

You can adjust the tempo (number of beats per minute) of rhythm play within a range of 30 to 255.

To adjust the tempo

Press one of the TEMPO buttons to increase [▲] or decrease [▼] the tempo setting.



NOTE

- Pressing both TEMPO buttons [▲] and [▼] at the same time resets the tempo to the default value of the currently selected rhythm.
- The tempo value indicates the number of quarter note beats per minute.

Adjusting the Accompaniment Volume

You can adjust the volume of the accompaniment part separately from the overall volume.

Use the ACCOMP/SONG VOLUME slider to adjust the accompaniment volume.

Using an Intro Pattern

This piano lets you insert a short intro into a rhythm pattern to make startup smoother and more natural.

The following procedure describes how to use the Intro feature. Before starting, you should first select the rhythm you want to use, and set the tempo.

PREPARATION

- Select a rhythm and set its tempo.
- Select the accompaniment mode you want to use.

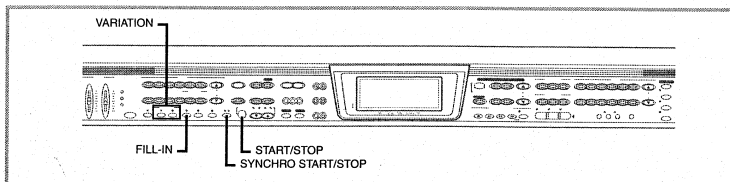
To insert an intro

Press the INTRO button to start the selected rhythm with an intro pattern.

- With the above setup, the intro pattern is played and the auto accompaniment with intro pattern starts as soon as you play chords on the accompaniment keyboard.

NOTE

- The standard rhythm pattern starts to play after the intro pattern is complete.



Using a Fill-in Pattern

Fill-in patterns let you momentarily change the rhythm pattern to add some interesting variation to your performances.

The following procedure describes how to use the Fill-in feature.

To insert a fill-in

1. Press the **START/STOP** button to start rhythm play.
2. Press the **FILL-IN** button to insert a fill-in pattern for the rhythm you are using.

NOTE

- The fill-in pattern does not play if you press the FILL-IN button while an intro pattern is playing.

Using the Variation Patterns

Each rhythm/auto accompaniment pattern has two different variations. You can vary the mood of your music by switching to a different variation while rhythm/auto accompaniment play is in progress.

Getting Ready

- Select a rhythm and adjust its tempo.
- Use the **MODE** button to specify the chord fingering mode you want to use.
- Listen to the two variations available for the rhythm you are using to get some idea of what they sound like.

1. Press the **START/STOP** button to start rhythm play.
 - It does not make any difference which **VARIATION** button (1 or 2) is depressed at first.
2. Press another **VARIATION** button to switch to a different variation of the same rhythm.
 - When you press a **VARIATION** button the change to the new rhythm variation is performed in time with the beat of the rhythm.

Using a Break

A break inserts a moment of silence into a rhythm/auto accompaniment pattern. Pressing the **BREAK** button stops the rhythm/auto accompaniment pattern until the beginning of the next measure, when the pattern starts to play again.

Using Synchro Start

Synchro Start lets you set up the keyboard so rhythm and chord accompaniment starts automatically when you press keys inside the accompaniment keyboard range.

Getting Ready

- Select a rhythm and adjust its tempo.
- Use the **MODE** button to specify the chord fingering mode you want to use.

1. While the rhythm is not playing yet, press the **SYNCHRO START/STOP** button.
 - This causes the left lamp above the button to light, indicating that the keyboard is in synchro start standby.
2. Press one of the **VARIATION** buttons (1 and 2) to select the rhythm variation you want to start with.
3. Play a chord in the accompaniment keyboard range.
 - Both rhythm and chord accompaniment starts at the same time. The lamp above the **SYNCHRO START/STOP** button goes out when the rhythm/auto accompaniment starts.

NOTE

- Only the rhythm sounds if no lamp above the **MODE** button is lit.
- If you press the **INTRO** button before step 2 of the above procedure so the lamp above the button is lit, playing a chord causes accompaniment to start after the corresponding intro pattern is played.
- Pressing the **SYNCHRO START/STOP** button again while the keyboard is in synchro start standby exits synchro start standby, which causes the lamp above the **SYNCHRO START/STOP** button to go out.

Using Synchro Start Stop while Auto Accompaniment is Playing

Synchro stop is the opposite of synchro start. It causes the currently playing auto accompaniment pattern to stop when the keys in the accompaniment keyboard range are released. This feature is more than just a simple way to stop auto accompaniment play. It plays auto accompaniment only when valid chords are played inside the accompaniment keyboard range.

IMPORTANT!

The following functions do not work in the normal Mode, when all lamps above the **MODE** button are turned off.

Using Synchro Stop to stop Auto Accompaniment

Getting Ready

- Select a rhythm and adjust its tempo.
- Use the **MODE** button to specify the chord fingering mode you want to use.

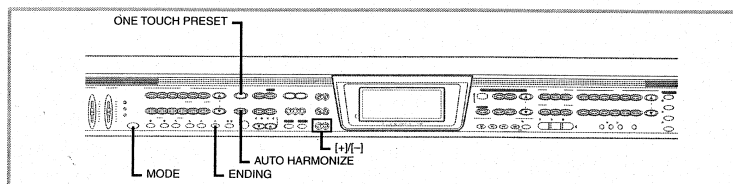
1. Press the **START/STOP** button to start play of the selected rhythm.
2. Press the **SYNCHRO START/STOP** button.
 - This causes the right lamp above the button to light, indicating that the keyboard is in synchro stop standby.
3. Play a chord in the accompaniment keyboard range and then release the keys.
 - This causes the auto accompaniment pattern to stop playing and both lamps above the **SYNCHRO START/STOP** button to light, indicating that the keyboard is in synchro stop.
 - To exit synchro stop, press the **SYNCHRO START/STOP** button twice so the two lamps go out.
 - The section below describes what auto accompaniment operations you can perform while the keyboard is in synchro stop.

Auto Accompaniment in Synchro Stop

The following are the auto accompaniment operations you can perform while the keyboard is in synchro stop (both lamps above the **SYNCHRO START/STOP** button lit).

- Playing a chord in the accompaniment keyboard range causes auto accompaniment to play (only while the chord note keys are depressed). Releasing the keys causes auto accompaniment play to stop, and the keyboard enters synchro stop again.
- Pressing the **SYNCHRO START/STOP** button while playing a chord in the accompaniment keyboard range causes the lamps above the button to go out, indicating that the keyboard is no longer in synchro stop.

With synchro stop, you can easily create a break in auto accompaniment play to allow for ad libbing, and then restart accompaniment when you want.



Finishing with an Ending Pattern

You can end your performances with an ending pattern that brings the rhythm you are using to a natural-sounding conclusion.

To finish with an ending pattern

While the rhythm is playing, press the **ENDING** button.

- This causes the ending pattern to play, which brings rhythm accompaniment to an end.

NOTE

- The timing when the ending pattern starts depends on when you press the **ENDING** button. If you press the button before the second beat of the current measure, the ending pattern starts playing immediately. Pressing the button at any point in the measure after the second beat results in the ending pattern playing from the beginning of the following measure.

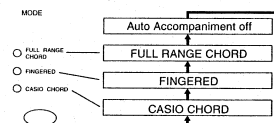
Using Auto Harmonize

When you are using Auto Accompaniment, Auto Harmonize automatically adds an additional note to your melody in accordance with the chord that is being played. The result is a harmony effect that makes your melody line richer and fuller.

To use Auto Harmonize

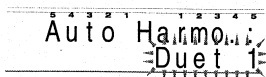
- Use the **MODE** button to select **FINGERED** or **CASIO CHORD** as the accompaniment mode.

- The currently selected accompaniment mode is the one whose lamp is lit. See "About the MODE Button" on page E-28 for details.



- Press the **AUTO HARMONIZE** button to turn on Auto Harmonize.

- This causes the button's indicator lamp to light, indicating that auto harmonize is turned on.
- At this point you could use the **[+]** and **[-]** buttons to select the type of auto harmonize you want to use. See "Auto Harmonize Types" below for more information.



- Start Auto Accompaniment play, and play something on the keyboard.

- Harmonize notes are added automatically to the notes you play in the melody keyboard range.

- To turn off Auto Harmonize, press the **AUTO HARMONIZE** button again.

- This causes the button's indicator lamp to go out, indicating that auto harmonize is turned off.

NOTE

- If you have two tones (Upper1, Upper2) layered on the keyboard, harmonize notes are added to both.
- Auto Harmonize is enabled only when the Auto Accompaniment mode is **FINGERED** or **CASIO CHORD**.

Auto Harmonize Types

You can select from among the 12 different types of auto harmonize listed below.

Type (parameter Name)	Description
Duet1	Adds a 1-part harmony to keyboard play.
Duet2	Adds a 1-part harmony to keyboard play. Duet2 harmony is more open than Duet1.
Country	Adds a country-flavor harmony to keyboard play.
Octave	Adds notes one octave below notes played on the keyboard.
5th	Adds fifth notes above notes played on the keyboard.
3-Way Open	Adds two open harmony parts to notes played on the keyboard (creating three-part harmony).
3-Way Close	Adds two close harmony parts to notes played on the keyboard (creating three-part harmony).
Strings	Adds harmony suitable for strings.
4-Way Open	Adds three open harmony parts to notes played on the keyboard (creating four-part harmony).
4-Way Close	Adds three close harmony parts to notes played on the keyboard (creating four-part harmony).
Block	Adds block chord notes.
Big Band	Adds harmony suitable for big band play.

You can use the following procedure to select an auto harmonize type using the **[+]** and **[-]** buttons, immediately after turning on auto harmonize.

About Auto Harmonize notes and tones

The notes you play on the keyboard are called "melody notes," while the notes added to the melody by Auto Harmonize are called the "harmonize notes." Auto Harmonize normally uses the tone you selected for the melody notes as the tone for the harmonize notes, but you can use the Mixer (page E-50) to specify a different tone for the harmonize notes. Harmonize tones correspond to Mixer Auto Harmonize 1 and 2. This means you can specify the harmonize tones by changing the tones assigned to Auto Harmonize 1 and 2. In addition to the tone, you can also use the Mixer to change a number of other parameters, such as volume balance. See "Changing the Parameters of a Channel" on page E-51 for details on these procedures.

NOTE

- The default harmonize note tone when you first turn on Auto Harmonize is the same tone as the melody note tone.
- Changing the melody tone setting automatically changes the harmonize note tone to the same setting.

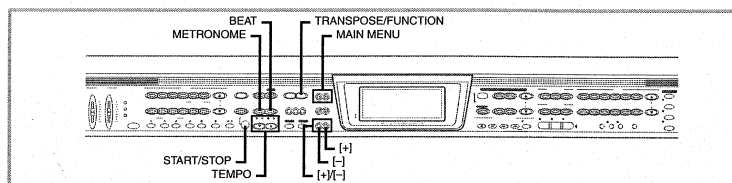
Using One-touch Preset

One-touch preset automatically makes the settings listed below in accordance with the rhythm pattern you are using.

- Keyboard tone and volume
- Layer or Split on/off
- Layered tone and volume (when layer is turned on), or split tone (when split is turned on)
- Tempo
- Effects
- Harmonize (Type, on/off)

To use one-touch preset

- Select the rhythm you want to use.
- Use the **MODE** button to select the accompaniment mode you want to use.
- Press the **ONE TOUCH PRESET** button.
 - This automatically makes the one-touch preset settings in accordance with the rhythm you selected.
- Start rhythm and Auto Accompaniment, and play something on the keyboard.
 - Accompaniment is played using the one touch preset settings.



Using the Metronome

The metronome feature of this piano produces a bell sound for the first beat of each measure, followed by click sounds for each successive beat of the measure. It is the perfect tool for practicing tunes without accompaniment (rhythm).

To start the metronome

1. Press the **BEAT** button and then use the **[+]** and **[-]** to change the meter.

Beat = 4/4

NOTE

- The bell (indicating the first beat of a measure) does not sound while "0" is specified. All beats are indicated by a click sound. This setting lets you practice with a steady beat, without worrying about how many beats there are in each measure.
- Available choices for the meter are 0, 2/4 to 7/4, plus 9/4, 12/4, 3/8, 5/8, 6/8, 7/8, 9/8, or 12/8 time.

2. Press the **METRONOME** button to start sounding the metronome.

- The lamp above the **START/STOP** button flashes in time with the metronome beat.

3. Use the **TEMPO** buttons to set the tempo.

- Press **[▲]** to increase the tempo (make it faster) or **[▼]** to decrease it (make it slower).

TEMPO MEASURE BEAT
110 005:1

Tempo value

4. To turn off the metronome, press the **METRONOME** button.

Transposing the Piano

Transpose lets you raise and lower the overall key of the piano in semitone units. If you want to play accompaniment for a vocalist whose sings in a specific key, for example, you can use transpose to change the key of the piano without having to learn to play the song in another key.

To transpose the piano

1. Press the **TRANSPOSE/FUNCTION** button to display the transpose screen.

2. Use **[+]** and **[-]** to change the transpose setting of the piano.

Example: To transpose the piano five semitones upwards.

Transpose: 5

NOTE

- The piano can be transposed within a range of -12 (one octave downwards) to +12 (one octave upwards).
- To return the transpose setting its initial default of "0", display the transpose screen and press the **[+]** and **[-]** buttons at the same time.
- The transpose setting also affects the sequencer and Auto Accompaniment.

Tuning the Piano

The tuning feature lets you fine tune the piano to match the tuning of another musical instrument.

To tune the piano

1. Press the **TRANSPOSE/FUNCTION** button.
2. Press the **[▶]** **MAIN MENU** button once to display the tuning screen.

Tune: Master
A4 = 440.0Hz

3. Use **[+]** and **[-]** to change the tuning setting of the piano.

Example: To lower the tuning by 10.

Tune: Master
A4 = 430.0Hz

NOTE

- The piano can be tuned within a range of 415.3Hz to 466.2Hz (±100 cents*).
- * 100 cents is equivalent to one semitone.
- To return the tuning setting to its initial default of 440.0Hz, display the tuning screen and press the **[+]** and **[-]** buttons at the same time.
- The tuning setting also affects the sequencer and Auto Accompaniment.
- When you have baroque pitch turned on, the tuning range becomes 390.6Hz to 441.5Hz. In this case, holding down the **[+]** and **[-]** buttons at the same time sets an initial default value of 415.3Hz.

Using Touch Response

Turning on touch response causes the volume and sound quality of piano output to change in accordance with the amount of pressure applied to the keyboard.

To set the touch response sensitivity

1. Press the **TRANSPOSE/FUNCTION** button.
2. Press the **[▶]** **MAIN MENU** button three times to display the touch response screen.

General: Normal

3. Use the **[+]** and **[-]** buttons to scroll through the sensitivity settings in the following sequence.

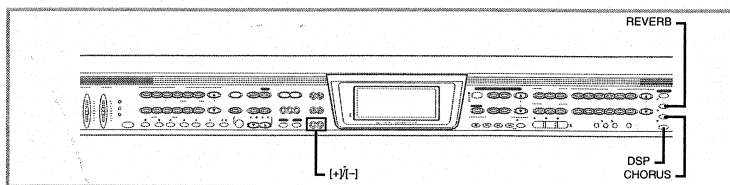
Light Normal Heavy Off

- "Light" outputs powerful sound even with light key pressure, while "Heavy" requires very heavy key pressure to output powerful sound.
- Pressing the **[+]** and **[-]** buttons at the same time returns sensitivity to the "Normal" setting.

NOTE

- Touch response operations affect the piano's internal sound source as well as MIDI OUT data.
- Touch response settings do not affect Sequencer playback, accompaniment, or MIDI note data received from an external source.
- Touch response affects different tones in different ways.

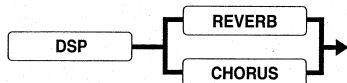
Applying Effects to Tones



This piano provides you with a selection of effects that you can apply to tones.

Effect Blocks

The following shows how the effects of this piano are organized.



DSP

DSP effects are applied to the connection between the sound source and output (PA). You can select distortion and modulation effects. Use the **DSP** button to turn the DSP on and off.

REVERB

Reverb simulates the acoustics of specific types of environments. You can choose from among 8 different reverb effects, including "Room" and "Hall." Press the **REVERB** button to turn reverb on and off.

CHORUS

The chorus effect gives sound greater depth by causing it to vibrate. You can choose from among 8 different chorus effects, including "Chorus" and "Flanger." Press the **CHORUS** button to turn Chorus on and off.

Turning Effects On and Off

To turn this effect on or off: Press this button:

DSP	DSP
Reverb	REVERB
Chorus	CHORUS

- The lamp above the corresponding button is lit when the effect is turned on, and unlit when the effect is turned off.

Whether or not an effect is applied to the parts that are sounding also depends on Mixer Mode Reverb Send, Chorus Send, and DSP on/off settings. See "Using the Mixer" on page E-50 for more information.

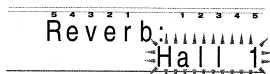
Also, the reverb and chorus of parts whose Mixer Mode DSP setting is turned on is determined by the system setting of the keyboard settings, and not by Mixer Mode settings. See "Keyboard Settings" on page E-80 for more information.

Changing Effect Settings

Selecting an Effect

Use the following procedure to select the effect you want to use.

- Press the button (**DSP**, **REVERB**, or **CHORUS**) associated with the effect you want so the indicator lamp above the button is lit.

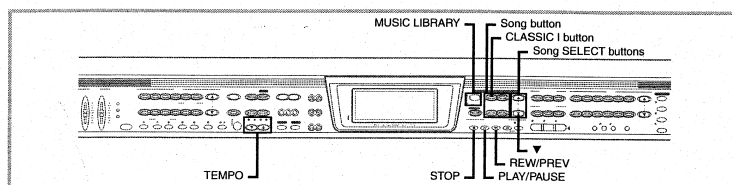


- Use the **[+]** and **[-]** buttons to scroll through the effects, until the one you want is displayed.

NOTE

- Playing a demo tune (page E-15) automatically changes the effect to the one that is assigned to the tune. You cannot change or cancel a demo tune effect.
- Changing the effect setting while sound is being output by the piano causes a slight break in the sound when the effect changes.
- A number of tones, called "DSP tones" include automatic DSP settings to bring out the full effect of the tone. If you assign a DSP tone to a keyboard part (Upper1, Upper2, Lower1, or Lower2), DSP turns on automatically and the DSP selection changes*1 in accordance with the settings of the DSP tone. Also, the Mixer Mode DSP on/off setting for the keyboard part to which the DSP tone is assigned is turned on.*2
- *1: When the Mixer Mode DSP setting is turned on for Upper1, the DSP selection and Mixer Mode DSP on/off setting of Upper2, Lower1, and Lower2 are unchanged, even if you assign a DSP tone to them.
- *2: The Mixer Mode DSP on/off settings for all the other parts are automatically turned off. Because of this, DSP effects previously applied to these parts are cancelled, which can make their tone sound different.

Using the Advanced Lesson System to Play Back a Music Library Tune



Selecting a Tune

The music library contains a wide variety of built-in tunes, ranging from the classics to popular standards.

To select a tune

1. See the Tune Reference at the back of this manual (page A-16) for information about the Song button names and tune numbers for each of the built-in tunes.
2. Press the **MUSIC LIBRARY** button.
 - This causes the indicator lamp next to the button to light.
3. Press the Song button of the tune you want to select.
 - This causes the button's indicator lamp to light, and displays the song that is currently selected for that button.

Example: To select "Nutcracker", first press the CLASSIC I button.

TONE 1 2 3 4 5
 U 1 Stereo Piano
 SONG P. Concerto 1

4. Use the Song **SELECT** buttons [▲]/[▼] to select the song you want.

Example: For this example, press [▼] once.

TONE 1 2 3 4 5
 U 1 Stereo Piano
 SONG Nutcracker

NOTE

- Press the **USER** button in place of the **TONE** button when you want to select a user song area. See "Music Library User Songs" on page E-73 for more information.
- When you press the **MUSIC LIBRARY** button to exit the Music Library Mode, a number of parameters are restored to settings that were in effect when you entered the Music Library Mode. See the "Recall Items" column of the "Parameter List" at the back of this manual for information about which parameter settings are restored.

Playing a Tune

To play a tune

1. Select the tune you want to play.
2. Press the **PLAY/PAUSE** button to start play of the tune.
 - The current measure and beat numbers are shown on the display.

MEASURE BEAT
 001:1
 Measure number Beat number

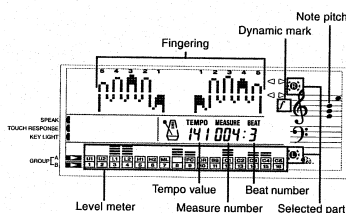
3. To stop play, press the **STOP** button.
 - The tune you select continues to play until you stop it.

NOTE

- While a tune is playing, you can use the Song button or Song **SELECT** buttons to change to another tune. The change is made as soon as you select a different tune, even if the current tune is not finished playing.

Key Lighting System Operation and Display Contents During Music Library Play

Keyboard keys light to show the keys that should be pressed to play along with Music Library tunes as they play back. At the same time, the display shows fingerings, chord forms, notes, tempo and other information.



Key Lighting Precaution

- Avoid using the key lighting system in a dark or dimly lit room. The lighting or flashing of the red and yellow key lights can cause an unpleasant effect in the dark.

Adjusting the Tempo

Each tune has a preset default tempo (beats per minute) that is set automatically whenever you select a tune. While the tune is playing, you can change the tempo setting to a value in the range of 30 to 255.

To set the tempo

Use the **TEMPO** buttons to set the tempo.

- ▲ : Increases the tempo value.
- ▼ : Decreases the tempo value.

NOTE

- Pressing both the [▲] and [▼] **TEMPO** buttons at the same time automatically returns the currently selected rhythm to its default tempo.
- A number of tunes have tempo changes part way through in order to produce specific musical effects.

Pausing Playback

To pause playback

1. Press the **PLAY/PAUSE** button while a tune is playing to pause it.
2. Pressing the **PLAY/PAUSE** button again resumes play from the point where it was paused.

NOTE

- After you press **STOP** to stop playback, pressing **PLAY/PAUSE** restarts play from the beginning of the tune.

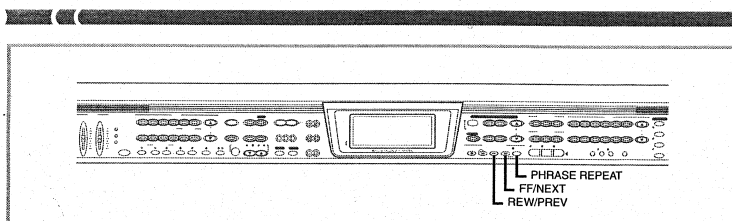
Fast Reverse

To fast reverse

1. While a tune is playing or paused, hold down the **REW/PREV** button to skip in a reverse direction at high speed.
 - The fast reverse operation skips back one measure at a time.
 - The measure and beat numbers on the display change while the fast reverse operation is being performed.
2. Releasing the **REW/PREV** button starts song playback from the measure whose number is shown on the display.

NOTE

- Fast reverse does not work while the tune play is stopped.



Fasting Forward

To fast forward

1. While a tune is playing or paused, hold down the **FF/NEXT** button to skip forward at high speed.
 - The fast forward operation skips forward one measure at a time.
 - The measure and beat numbers on the display change while the fast forward operation is being performed.
2. Releasing the **FF/NEXT** button starts song playback from the measure whose number is shown on the display.

NOTE

- Fast forward does not work while the tune play is stopped.

Looping a Musical Phrase

Each of the built-in tunes is divided into fixed-length phrases. You can select the phrase you want and "loop" it, which means that the phrase plays again and again until you stop it. You can also define your own phrase for looping.

To loop a preset phrase

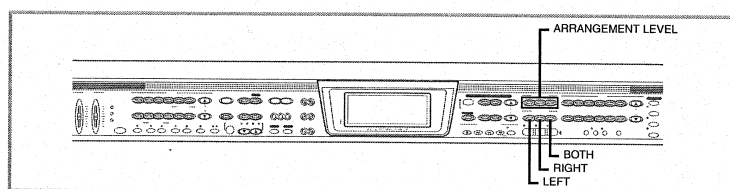
While tune playback is paused or in progress, press the **PHRASE REPEAT** button.

- This causes the indicator lamp above the button to light. After a short beat count*, the first phrase of the current tune starts to loop.
- * Only when Pre Count is turned on. See "Keyboard Settings" on page E-80 for more information.
- To move the phrase before the current one, press the **REW/PREV** button twice. To move the phrase following the current one, press the **FF/NEXT** button.

To create and loop your own phrase

1. While the tune that contains the phrase you want to create is playing, hold down the **PHRASE REPEAT** button and press the **FF/NEXT** button when playback reaches the point you want to define as the beginning of the loop.
2. Next, hold down the **PHRASE REPEAT** button and press the **FF/NEXT** button when playback reaches the point you want to define as the end of the loop.
 - This causes playback to loop between the start point and the end point you defined.

Using the Advanced Lesson System to Practice Along with a Music Library Tune



Arrangement Levels

The built-in tunes have three different arrangements, which differ according to level of difficulty. You can select the arrangement level that suits your particular abilities and needs. The following describes the level of difficulty for each of the arrangement levels.

Arrangement Level 1:

Much easier than the original arrangement of the tune. (1 or 2 notes for left-hand and right-hand parts, 1 or two notes per measure for left hand part)

Arrangement Level 2:

Easier than the original arrangement of the tune. (1 note for left-hand part, rhythm same as original)

Arrangement Level 3:

Same level of difficulty as the original arrangement of the tune.

Press the **ARRANGEMENT LEVEL** button (1, 2, 3) that corresponds to the arrangement level you want.

- This causes the button's indicator lamp to light.

NOTE

- Some tunes have fewer than three arrangements levels. If a tune has only one arrangement level, the arrangement is the same, regardless of which arrangement level is selected. If a tune has only two arrangement levels, the arrangement is the same for Arrangement Level 1 and Arrangement Level 2. For details, see the "Song List" at the back of this manual.

Selecting the Part You Want to Practice

You can set up 3-step lesson for practice or the left-hand or the right-hand part only, or for practice of the parts for both hands at the same time.

To specify the part you want to practice

Press the **LEFT**, **RIGHT**, or **BOTH** button to specify the part you want.

- This causes the button's indicator lamp to light.

Two-hand Practice

Selecting two-hand practice lets you practice the parts for the left hand and the right hand as described below.

- Red lighting indicates the keyboard keys you should press to play the right-hand part.
- Yellow lighting indicates the keyboard keys you should press to play the left-hand part.

3-Step Lesson

The 3-step lesson feature takes you through the three distinct steps described below to help you learn to play tunes on the piano.

Step 1 – Master the timing.

In this step, pressing any key on the keyboard plays the correct note, so you can concentrate on getting the timing right without worrying about playing the right note. The sub-melody (obligato) waits until you press a key before proceeding to the next phrase.

Step 2 – Master the melody.

In this step, you use the display to learn which fingers you should use and how loud or soft to play, and the key light system to learn which keyboard keys to press. The sub-melody (obligato) waits until you play the correct note, so you can learn at your own pace.

Step 3 – Play a normal speed.

This is where you enjoy actually playing the tunes you learn using Step 1 and Step 2. The key light system still shows you which keyboard keys to press, but accompaniment proceeds at normal speed regardless of whether or not you play the correct notes.

Tune Types and Supported Parts

Two-hand Accompaniment Tunes

Piano Right Hand + Piano Left Hand (+ Obbligato)

Auto Accompaniment Tunes

Melody (Right Hand) + Auto Accompaniment (Left Hand) + Obbligato

Key Lighting and Display Indicators During 3-Step Lesson

While you are using 3-step lesson, key lighting is performed using two colors, and the staff notation on the display shows note pitches and lengths. The display also provides advice about how to finger notes in order to play along with the built-in tune.

Note that key lighting operation depends on whether you are using one-hand practice or two-hand practice.

Key Lighting Operation During One-hand Practice

Notes

The keyboard key you should press now lights red, and the pitch of the note appears in the staff notation on the display. The display also shows the fingerings of notes.

Note length

You should keep a keyboard key depressed as long as it remains lit red. The staff notation and fingering indicators also remain on the display as long as the note should be sounded.

NOTE

- With lesson Step 1 and Step 2, keyboard lighting and on-screen keyboard indication is turned off as soon as you press the applicable keyboard key*. For information about note length, check the on-screen staff notation.
- * Any key with Step 1, the indicated key with Step 2

Next note

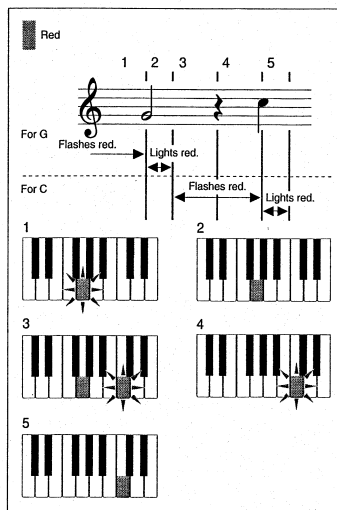
The keyboard key you will need to press next flashes red.

Consecutive play of the same note

After the keyboard key remains lit red for the length of the first note, it immediately starts flashing red to indicate that the same key should be pressed again.

NOTE

- With lesson Step 1 and Step 2, keyboard lighting and on-screen keyboard indication is turned off as soon as you press the applicable keyboard key*. For information about note length, check the on-screen staff notation.
- * Any key with Step 1, the indicated key with Step 2



- Yellow lighting indicates the general position of the hands. See "Hand Position Guide" below for more information.

Key Lighting Operation During Two-hand Practice

Notes

The right-hand part keyboard key you should press now lights red, and the pitch of the note appears in the staff notation on the display. The display also shows the fingerings of notes.

The left-hand part keyboard key you should press now lights yellow, and the pitch of the note appears in the staff notation on the display. The display also shows the fingerings of notes.

Note length

You should keep a keyboard key depressed as long as it remains lit. The staff notation and fingering indicators also remain on the display as long as the note should be sounded.

NOTE

- With lesson Step 1 and Step 2, keyboard lighting and on-screen keyboard indication is turned off as soon as you press the applicable keyboard key*. For information about note length, check the on-screen staff notation.
- * Any key with Step 1, the indicated key with Step 2

Next note

The right-hand part keyboard key you will need to press next flashes red. The fingering display shows fingering numbers for playing the notes.

The left-hand part keyboard key you will need to press next flashes yellow. The fingering display shows the fingering number you should use to play the note.

- The rate a keyboard key is flashing becomes twice as fast, one beat before you need to press it.

Key Lighting Indicating a Hand Change for the Same Key

After the keyboard key remains lit in the color (red, for example) for the length of the first note played with one hand, it immediately starts to flash and then remains lit in the color of the opposite hand (yellow in this example). The applicable fingering also flashes on the display.

NOTE

- With lesson Step 1 and Step 2, keyboard lighting and on-screen keyboard indication is turned off as soon as you press the applicable keyboard key*. For information about note length, check the on-screen staff notation.
- * Any key with Step 1, the indicated key with Step 2

Hand Position Guide

During a one-hand practice lesson, yellow keyboard lighting shows you the position where your hand should be when playing along with a tune. Three keys light to show the approximate positions of the middle fingers of your hand. The approximate hand position is indicated in yellow, and red key lighting indicates the actual notes you should play. This feature helps you provide you with a grasp of general hand movements, even if you are not totally familiar with fingering numbers.

Note that the hand position guide is available only when practicing the left-hand part or right-hand part of a built-in tune. You cannot use it with two-hand practice.

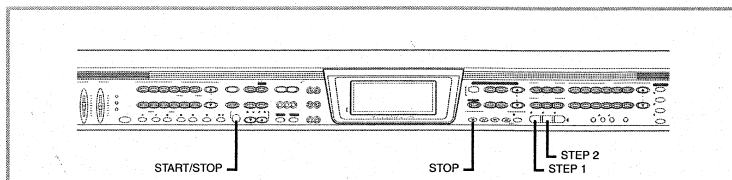


NOTE

- Note that the hand position guide does not work for lesson play using a tune converted from an SMF or other external file and assigned to a USER button.
- Black keyboard keys do not light.

3-Step Lesson Tempo Setting

Use the procedure under "Adjusting the Tempo" on page E-31 to adjust the tempo for 3-step lesson play.



Changing the Lesson Part Tone

You can select from among 271 built-in tones for the lesson part. You can even change the lesson part tone setting while lesson play is in progress. See "Selecting a Tone" on page E-24 for more information.

NOTE

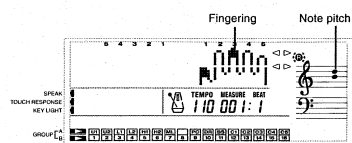
- Specifying the tune number for the same tune that is currently selected returns the tone to the default setting for that tune.

Step 1 – Master the timing.

- Select the Music Library tune you want to use.

- Press the **STEP 1** button to start Step 1 play.

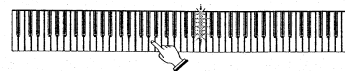
- After a count sounds*, the keyboard stands by and waits for you to play the first note of the tune.
- * Only when Pre Count is turned on. See "Keyboard Settings" on page E-80 for more information.



- The hand you should use is indicated as shown below. This example indicates the right hand.



- Press any keyboard keys to play the melody (right hand part).



- The key for the next note to be played flashes while the keyboard waits for you to play it. When you press any key to play the note, the key remains lit as the note plays.
- Accompaniment (left-hand part) waits until you press any key to play a note.
- If you accidentally press more than one key in succession, accompaniment is played for the corresponding number of notes.
- Pressing more than one key at the same time counts as a single melody note. Pressing a key while another key is held down is counted as two melody notes.

- To stop play at any time, press the **STOP** or **START/STOP** button.

NOTE

- You can also use fast forward and fast reverse operations with Step 1 play.
- You cannot pause Step 1 play.
- You can use phrase repeat with Step 1.

Step 2 – Master the melody.

- Select the Music Library tune you want to use.

- Press the **STEP 2** button to start Step 2 play.

- After a count sounds*, the keyboard stands by and waits for you to play the first note of the tune.
- * Only when Pre Count is turned on. See "Keyboard Settings" on page E-80 for more information.

- Follow the key light system to press the correct keyboard keys and play the melody (right hand part).



- The key for the next note to be played flashes while the keyboard waits for you to play it. When you press any key to play the note, the key remains lit as the note plays.
- If more than one key lights when you are using a two-hand tune, it means that you must press all of the keys that are lit.

- To stop play at any time, press the **STOP** or **START/STOP** button.

NOTE

- You can also use fast forward and fast reverse operations with Step 2 play.
- You cannot pause Step 2 play.

Dynamic Marks

The dynamic marks listed below appear on the display while Music Library tunes are playing. Adjust the pressure you apply to the keyboard in accordance with the mark that is on the display.

pp pianissimo: Very soft

p piano: Soft

mp mezzo piano: Moderately soft

mf mezzo forte: Moderately loud

f forte: Loud

ff fortissimo: Very loud

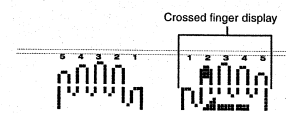
cresc. (<) crescendo: Gradually louder

decresc. (>) decrescendo: Gradually softer

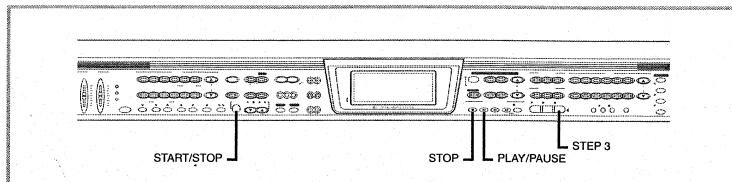
Crossed Finger Indications

The display also shows when you have to cross fingers to play notes, and in which direction your fingers should cross.

Example: Display for playing the notes below with the right hand only

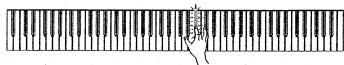


- The display indicates that the index finger should cross over the thumb.



Step 3 – Play at normal speed.

1. Select the Music Library tune you want to play.
2. Press the **STEP 3** button to start Step 3 play.
 - Accompaniment (left hand part) starts to play at normal speed.
3. Follow the key light system to press the correct keyboard keys and play the melody (right hand part).



4. To stop play at any time, press the **STOP** or **START/STOP** button.

NOTE

- You can also use pause, fast forward and fast reverse operations with Step 3 play.
- If you change the step, arrangement level, or lesson part during step lesson playback, the change goes into effect from the currently playing measure.

Things you can do during 3-Step Lesson

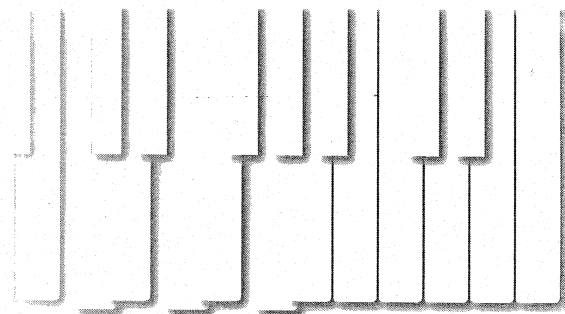
- Pressing the **PLAY/PAUSE** button during Step 1, 2, or 3 play pauses the step lesson. Pressing **PLAY/PAUSE** again resumes normal (non-lesson) playback of the tune from the measure where you paused the step lesson. Pressing a step selector button while the lesson is paused resumes accompaniment for the corresponding step from the measure where the lesson was paused.
- Pressing the step selector button for the same step where you paused the lesson restarts the lesson from the beginning, using the same step.
- During Step Lesson play (1, 2 or 3), pressing the song button for the song whose fingerings are being indicated (the one whose song button indicator lamp is lit) displays the name of the song. Pressing the current song button (the one whose button lamp is lit) again while the song name is displayed restarts playback from the beginning of the current song.
- You can use repeat during a lesson (1, 2, or 3) and during normal playback.
- You can turn on a pre-count to sound at the beginning of the song or at a repeat start point. See "Keyboard Settings" on page E-80 for more information.

Voice Fingering Guide

Voice fingering guide uses a simulated human voice to call out fingering numbers during Step 1 and Step 2 one-hand part practice. If you need to press a key with your thumb, for example, voice fingering guide says, "One!" In the case of a chord to be played with your thumb, middle and little finger, voice fingering guide says, "One, three, five!" Voice Fingering Guide calls out fingerings only when you do not press the proper key when you should.

NOTE

- Use the lesson setting menu to turn voice fingering guide on and off. See "Keyboard Settings" on page E-80 for more information.
- Note that voice fingering guide is available in both English and Japanese. Use the lesson setting menu to select the language you want to use. See "Keyboard Settings" on page E-80 for more information.



Advanced Operations

Using the Mixer

Much like a real band, auto accompaniment patterns and patterns you create with the Sequencer are played using multiple "parts," such as chords, bass, and drum parts. The Mixer provides you with the means to turn individual parts on (so they sound) and off (so they don't), and to change the tone, volume, pan, effect, and other parameters of each part.

Parts

As mentioned above, the word "part" as used in relation to this piano has the same meaning as it does in an orchestra or band. It also refers to the Upper1, Upper2, Lower1, and Lower2 parts of the keyboard that you use when layering or splitting keyboard tones (page E-25).

The following example shows a typical list of parts when you are using auto accompaniment with Upper1 and Upper2 tones layered in the melody keyboard range.

Melody Keyboard	Upper1
	Upper2
Accompaniment	Drum
	Perc. (Percussion)
	Bass
	Chord1
	Chord2
	Chord3
	Chord4
	Chord5

The following is a general overview of the parts described above.

Group Name	Part Type	Part Name	Description
Group A	Melody	Upper1	These parts are used for keyboard play. See "Upper1, Upper2, Lower1, Lower2" on page E-25.
		Upper2	
		Lower1	
		Lower2	
		Harmo1 (Auto Harmonize 1)	Harmonize notes used for auto harmonize. See "Using Auto Harmonize" on page E-34.
		Harmo2 (Auto Harmonize 2)	
	Mc/Ln (MIC IN/LINE IN)	Sound input through the MIC IN and LINE IN terminals.	
	Accompaniment	Drum	Auto accompaniment parts. See "Using Auto Accompaniment" on page E-29.
		Perc. (Percussion)	
Bass			
Chord1 to Chord5			
Group B	—	Pt1 to Pt16 (Part 1 to Part 16)	These parts correspond to external tracks 1 to 16 when recording or playing back with the Sequencer. They are also used when sounding MIDI input from an external source. See "Using MIDI" on page E-76.

Types of Parts

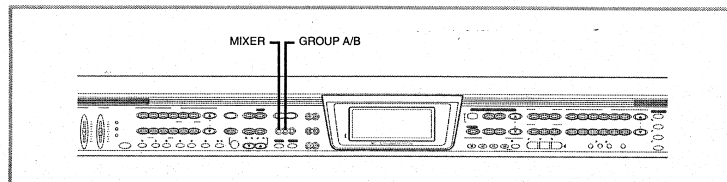
This piano is capable of producing a total of 31 different parts. Parts can be broadly classified as one of two different groups: group A and group B.

Group A

Group A parts are the ones the piano normally uses for auto accompaniments and to produce the notes you play. There are 15 Group A parts, including seven "melody parts" (for keyboard notes, MIC IN, and LINE IN input), and eight "accompaniment parts" (for auto accompaniment).

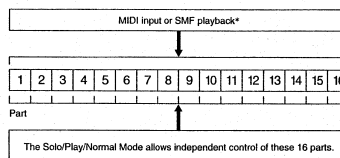
Group B

There are 16 Group B parts that the piano uses for sounding MIDI input from an external source. Each of the Group B parts also corresponds to one of the 16 tracks of the piano's Sequencer (page E-54).



Solo/Play/Normal

The Solo/Play/Normal Mode provides control of each part (group B) when the piano's sound source is under control (MIDI input) of an external device and SMF playback*.



The Solo/Play/Normal Mode has three sub-modes: Normal, Solo and Play.

Solo This mode turns one part on and all other parts off. It is used for playing MIDI input (or SMF playback*) that simultaneously uses multiple channels of the piano's sound source.

Play This mode is a mirror of the Solo Mode. It turns one part off and all other parts on. It comes in handy, for example, when you want to turn off a specific part of SMF playback* and play along on the keyboard.

Normal This is the basic Solo/Play/Normal Mode, which is used for most part parameters.

NOTE

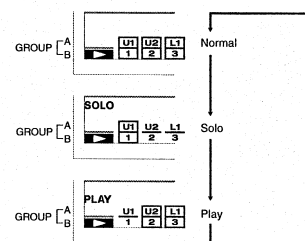
- Use the **SUB MENU** button to change parts in the Solo/Play mode.

* SMF Playback

The built-in disk drive of the piano allows playback of SMF (standard MIDI files) from diskette. See "Using the Floppy Disk Drive" on page E-65 for details.

To select the Solo, Play, or Normal mode

Press the **SOLO/PLAY/NORMAL** button to cycle through the sub-modes as shown in the illustration below. The currently selected mode is indicated on the display.

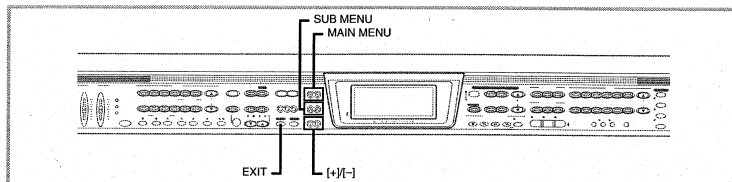


Changing the Parameters of a Channel

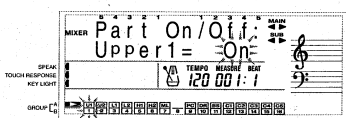
Use the following procedure to change the parameters of each individual channel.

To change channel parameters

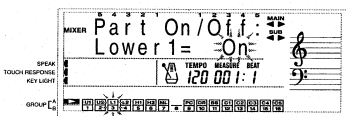
- Press the **MIXER** button.
- Press the **GROUP A/B** button to select the Mixer group you want to use.
 - The indicator for the group you select appears on the display.
 - Select the Group A to make layer, split, or Auto Accompaniment settings.
 - Select the Group B to make MIDI or Sequencer settings.



3. Use the MAIN MENU buttons [◀/▶] to select the parameter whose setting you want to change.
 - See "Mixer Parameters" for information about which parameters can be changed.



4. Set the selected parameter for each of the parts.
 - Use the SUB MENU buttons [◀/▶] to select the part whose parameter settings you want to change.



5. Use the (+) and (-) buttons to change the value.
6. Repeat steps 3 through 5 to change the settings of other parameters if you want.
 - When changing parameter settings, you can play notes on the keyboard as you change parameter settings to see what effect your settings have.
7. After you are finished making the settings you want, press the EXIT button.

Mixer Parameters

This section provides detailed explanations of each of the Mixer parameters, and their setting ranges.

Tone Parameters

Tone: 271

This parameter controls the tones assigned to each part.

NOTE

- You can also change the tone assignment with the TONE buttons. The tone you select is applied to the currently selected part.
- Use DRUM tone group values for the "Drum" and "Percussion" parts.
- You cannot select DRUM tone group values for "Bass", or "Chord" parts.
- You cannot change this setting for the Mc/Ln (MIC IN/LINE IN) part.
- Changing the tone assigned to the Upper1 also changes the tone assigned to Harmo1. Changing the tone assigned to the Upper2 also changes the tone assigned to Harmo2.

Part On/Off: On, Off

This parameter can be used to turn each part on (sounds) and off (does not sound). The current on/off status of each part is indicated on the display as described below.

On Channel is framed.
Off Channel is not framed.

Volume: 0 to 127

This parameter adjusts the overall volume of each part.

Pan: -64 to 63*

Use this parameter to adjust the pan setting (volume balance between the left and right speakers). A value of 0 puts the speakers in balance, so the stereo center is halfway between the two speakers. A smaller value shifts the stereo center left, while a larger value shifts it right.

- When "On" is selected for the DSP you are using, these settings are applied in accordance with each DSP parameter setting.

Effect Parameters

Mixer lets you control the effects applied to each individual part, making it different from the Effect Mode, whose settings are applied to all parts in general.

Reverb Send: 0 to 127

This parameter controls how much reverb is applied to a part. A setting 0 turns reverb off, while a setting of 127 applies maximum reverb.

Chorus Send: 0 to 127

This parameter controls how much chorus send is applied to a part. A setting 0 turns chorus send off, while a setting of 127 applies maximum chorus send.

- "Chorus Send" does not work with drum sounds.

DSP: On, Off

You can use this parameter to turn DSP off for a particular channel, or to turn it on.

Tuning Parameters

You can use these parameters to individually tune each of the parts.

NOTE

- There are no tuning parameters for the Mc/Ln (MIC IN/LINE IN) part.

Coarse Tune: -24 to 24

This parameter tunes individual parts in semitone units, which means that changing the value by 1 changes the tuning by one semitone.

- The setting you make here is added to the transpose setting described in "Transposing the Piano" on page E-36.
- "Coarse Tune" does not work with drum sounds.

Fine Tune: -64 to 63

This parameter allows fine tuning of individual parts. A setting of -64 lowers the tuning by one semitone from normal, while 63 represents a rise of one semitone. This setting is applied by combining it with the "Tune setting" item of the Keyboard Settings.

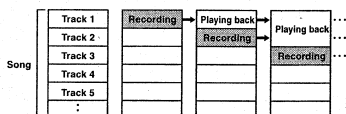
Using the Sequencer

The Sequencer provides you with powerful tools for recording up to 10 songs into piano memory. You can record auto accompaniments and the notes you play with them, or you can build your creation part-by-part using the Sequencer's 17 tracks.

How the Sequencer Works

The Sequencer provides you with capabilities that are similar to a tape recorder. You can record things you play on the keyboard and play them back. There is enough memory to store about 15,500 notes, and this total memory can be divided between up to 10 "songs."

Each song consists of up to 17 tracks, one system track and 16 tracks numbered 1 through 16. You can record tracks one at a time and then play them back at the same time, which layers everything together and give you the potential of becoming a one-person orchestra.



About Tracks

The Sequencer's system track is used for recording auto accompaniments. More precisely, it records the eight parts that make up auto accompaniment, the four melody parts (Upper1, Upper2, Lower1, Lower2), and two parts required for harmony when Auto Harmonize is turned on.

Each of the 16 tracks can be used to record the notes played for one particular musical instrument (tone). This means you can build an orchestra that contains up to 16 different instruments in addition to the parts played on the system track.

NOTE

- Each track is independent of the others. This means that if you make a mistake while recording, you need only to re-record one track.
- You should use Tracks 1 through 9 and Tracks 11 through 16 mainly for non-drum sound tones, and Track 10 mainly for drum sound tones. Otherwise, tones may not be correct during play-back or when saving data to an SMF file.

Recording Techniques

There are two techniques you can use for Sequencer recording: realtime recording and punch in recording.

Realtime Recording

With realtime recording, you record what you play on the keyboard as you play it.

Punch In Recording

This method lets you re-record from a specific section of a song that is already in memory. You can use punch-in recording to correct mistakes you made during real-time recording.

Sequencer Record Data

The following are the three basic types of data recorded by the sequencer.

- The time signature setting (stored in the song header)
- Initial track parameters (stored in the song header)
- Parameter changes and operations performed during recording (stored at the point in the recording where you make them)

You should also note that the data you can record in the system track is different from the data you can record in the 16 tracks.

NOTE

- For more detailed information about the data that can be recorded in each track, see the "Parameter List" at the back of this User's Guide.

Parameters Applied to All Tracks

The settings of the parameters listed below are stored as header data and applied to all tracks. You cannot change these settings part way through a song or for a particular track.

- Time signature (0, 2/4 to 7/4, 9/4, 12/4, 3/8, 5/8, 6/8, 7/8, 9/8, 12/8)
- Effect type
- Tune setting (Master Tune, Baroque Pitch, Temperament)

System Track Data

System Track Initial Parameters

When you start recording of the track, the settings of these system track parameters are stored in the song header. You can change these settings using the procedure under "Changing Song Header Data" on page E-60.

- Rhythm selection
- Tone settings
 - Upper1, Upper2, Lower1, Lower2 tones, on/off status, split point setting
- Tempo
- Transpose
- Mixer settings
 - Settings are recorded for each auto accompaniment and melody part and cannot be changed (except for Mixer volume) once recording starts.
- Auto accompaniment mode
- Auto Harmonize on/off status

Parameter Changes and Operations During System Track Recording

- Notes played on the keyboard (including chords in the accompaniment keyboard range)
- Pedal operations
- Rhythm changes
- Tone changes
- Tempo changes
- Auto accompaniment mode changes
- Auto accompaniment controller operations (except for START/STOP button): INTRO, FILL-IN, BREAK, VARIATION (1, 2), SYNCHRO START/STOP, ENDING.
- Accompaniment keyboard range chords
- Effect on/off status

Track 1 to 16 Data

Initial Track Parameters

When you start recording of the track, the settings of these parameters are stored in the song header. You can change these settings using the procedure under "Changing Song Header Data" on page E-60.

- Tone assignment
- Mixer settings

Parameter Setting Changes and Operations During Track 1 to 16 Recording

- Melody notes played on the keyboard
- Pedal operations
- Tone changes

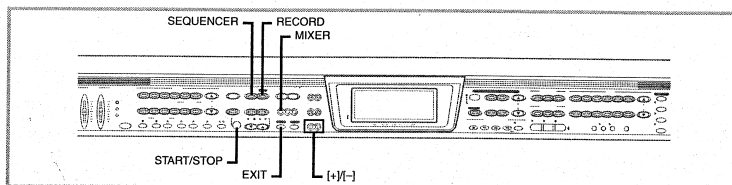
Sequencer Memory Capacity

You can store about 15,500 notes in Sequencer memory, which can be divided among up to 10 songs. You can use all 15,500 notes for a single song, if you want.

- Remaining memory capacity is indicated by a percentage value that appears for a few seconds after you enter record standby.
- Recording stops automatically when memory becomes full. Play of the auto accompaniment or rhythm pattern you are using also stops when memory becomes full.
- You can record up to 1,000 measures per tune.

Memory Data Notes

- Starting a record operation deletes any data currently stored in the selected song area.
- Sequencer memory contents are retained even when you turn off the piano. Power required for memory storage is supplied by a built-in back-up lithium battery. See "Lithium Battery" on page E-7 for important information about the lithium battery.
- Turning off piano power while a record operation is in progress or standing by causes all Sequencer contents to be deleted.
- You can save Sequencer memory contents to a floppy diskette. See "Using the Floppy Disk Drive" on page E-65 for more information.



Sequencer Modes

There are three Sequencer modes: Play, Record and Setting.

Play Mode

This is the mode whose screen first appears whenever you enter the Sequencer Mode. Use this mode to play back Sequencer memory contents.

Record Mode

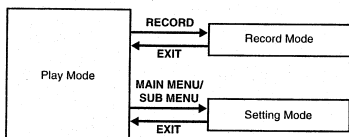
Use this mode for recording of notes you play on the piano as you play them.

Setting Mode

Use this mode to delete a song or to change the name of a song.

Navigating Between Sequencer Modes

Pressing the SEQUENCER button enters the Sequencer Play Mode. You can navigate from the Play Mode to the other Sequencer modes using the button operations shown below.



NOTE

- When you press the SEQUENCER button to exit the Sequencer Mode, a number of parameters are restored to settings that were in effect when you entered the Sequencer Mode. See the "Recall Items" column of the "Parameter List" at the back of this manual for information about which parameter settings are restored.

Realtime Recording

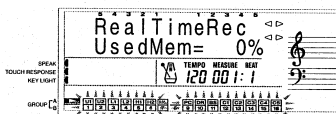
Realtime Recording to the System Track

The following procedure contains only the most basic steps for realtime recording. For other techniques you can use inside this procedures, see "Other System Track Realtime Recording Techniques" on page E-57.

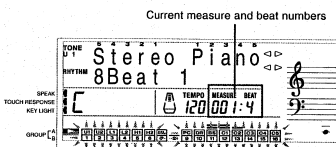
- Press the SEQUENCER button.
 - This causes the button's indicator lamp to light, indicating that Sequencer is turned on.
- Select the song area to which you want to record.
 - Use [+]/[-] buttons to select a song area number in the range of 1 to 10.
- Specify the time signature and make any metronome settings you want to use while recording.
 - Use "Metronome Setting" in the Setting Mode on page E-63 to make metronome settings.
- Make the piano control panel settings you want to use when you start your recording.
 - Select the tone, rhythm, and auto accompaniment mode using the same procedures as those for normal keyboard play. "Other System Track Realtime Recording Techniques" on page E-57 also contains related information about these settings.
 - See "System Track Data" on page E-55 for information about what parameters you can set prior to recording.
- If you want to change Mixer parameter settings, press the MIXER button.
 - You can use the Mixer to change the parameters of auto accompaniment and melody parts.
 - After making the settings you want, press the EXIT button to return to the recording screen.

- Press RECORD button to enter the Realtime Record Mode.

- The button's indicator lamp flashes and the Sequencer goes into system track record standby.



- Play something on the keyboard to start actual recording.



- If you want to input rests (blank spaces) at the beginning of a song, press the START/STOP button to start recording, and then input as many rests as you want. Next, play what you want on the keyboard.
- During recording, the metronome sounds (but is not recorded) according to the settings you made in step 3.

- Play what you want on the keyboard.

- Auto accompaniment chord changes, as well as pedal and other operations are also recorded.
- See "System Track Data" on page E-55 for more information about the type of data that is recorded.

- After you are finished playing what you want, press the START/STOP button to stop recording and change to the Sequencer's playback screen.
 - Pressing the START/STOP button at this time plays back what you just recorded. See "Playing Back from Sequencer Memory" on page E-60 for more information about playback.

NOTE

- Using the Realtime Record Mode to record to a track that already contains data replaces the existing data with the new recording.
- If you make a mistake while recording, you can start over again from step 1 of the above procedure, or you can use punch in recording (page E-59) to make modifications.

Other System Track Realtime Recording Techniques

To record without auto accompaniment

- In step 4 of the above procedure, turn off auto accompaniment (so none of the lamps above the MODE button are lit).
- You can turn auto accompaniment on or off part way through a recording, if you want.

To use synchro start to start recording

At any time before you perform step 4 of the above procedure, press the SYNCHRO START/STOP button.

- Both auto accompaniment and recording will start when you play a chord in the accompaniment keyboard range during record standby prior to step 6.

To insert an intro, fill-in, break, etc.

You can use any of the following buttons during realtime system track recording: INTRO, FILL-IN, BREAK, VARIATION (1, 2), SYNCHRO START/STOP, ENDING.

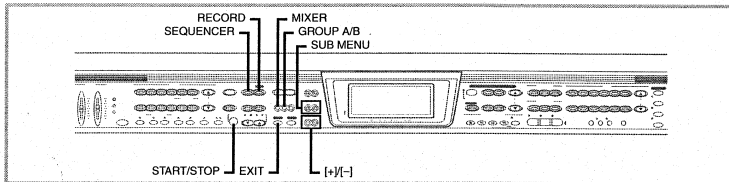
To synchro start recording with an intro pattern

At any time before you perform step 4 of the above procedure, press the SYNCHRO START/STOP button and then press INTRO.

- Recording will start and the intro will play, followed by auto accompaniment when you play a chord in the accompaniment keyboard range during record standby prior to step 6.

To start rhythm pattern play part way through a recording

In step 4 of the above procedure, turn off auto accompaniment (so none of the lamps above the MODE button are lit). After recording is started, press one of the VARIATION buttons (1, 2) to start rhythm play (without chords). Auto accompaniment will start when you play a chord in the accompaniment keyboard range.



Realtime Recording to Tracks 1 to 16

Use Tracks 1 through 16 to add other parts to the accompaniment and keyboard notes you record in the system track. You can then turn tracks on and off during playback to create the arrangement you want.

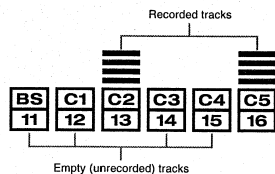
The recording procedure for tracks 1 through 16 is basically the same as that for recording to the system track. Skip the first three steps of the procedure if you go into the recording of other tracks directly after you finish recording the system track.

1. Press the **SEQUENCER** button.
 - This causes the button's indicator lamp to light, indicating that Sequencer is turned on.
2. Select the song area to which you want to record.
 - Use [+]/[-] buttons to select a song area number in the range of 1 to 10.
3. Select the track to which you want to record.
 - First, use the **GROUP A/B** button to select Group B. Next, use the **SUB MENU** buttons [◀]/[▶] to select the track to which you want to record.
4. Specify the time signature and make any metronome settings you want to use while recording.
 - You do not need to specify a time signature here if you already have one recorded in the system track.
 - Press the **EXIT** button once to return to the recording screen.
5. Make the piano control panel settings you want to use when you start your recording.
 - Select the tone, rhythm, and auto accompaniment mode using the same procedures as those for normal keyboard play.
 - The tempo setting you used for the last data recorded in a song is used as that song's initial default playback tempo setting.

6. If you want to change Mixer parameter settings, press the **MIXER** button.
 - After setting the parameters you want, press the **EXIT** button to return to the recording screen.
7. Press the **RECORD** button. This puts the Sequencer into record standby.
 - The frame of the part that corresponds to the currently selected track should be flashing on the display.
 - When you enter record standby, the level meters show which tracks are recorded and which tracks are blank as described below.

Level Meter During Record Operations

- Group B parts 1 through 16 correspond to Tracks 1 through 16. During record standby, the level meter shows which tracks are already recorded. Four level meter segments indicate a channel is already recorded, while no segment indicates that the channel is empty (unrecorded).



NOTE

- When the level meters for Group A Upper1 through Harmo2, and the Accom parts are all displayed, it means that the system track is recorded.

8. Play something on the keyboard to start actual recording.
 - If you want to start recording without playing anything on the keyboard, press the **START/STOP** button. A blank space (a series of rests) is recorded until you play something.
 - During recording, the metronome sounds (but is not recorded) according to current metronome parameter settings.

- Pedal and other operations are also recorded.
- See "Track 1 to 16 Data" on page E-55 for more information about the type of data that is recorded.

9. Play what you want on the keyboard.
 - Pressing the **START/STOP** button at this time plays back what you just recorded. See "Playing Back from Sequencer Memory" on page E-60 for more information about playback.
10. After you are finished playing what you want, press the **START/STOP** button to stop recording and change to the Sequencer's playback screen.
 - Pressing the **START/STOP** button at this time plays back what you just recorded. See "Playing Back from Sequencer Memory" on page E-60 for more information about playback.

NOTE

- Using the Realtime Record Mode to record to a track that already contains data replaces the existing data with the new recording.
- If you make a mistake while recording, you can start over again from step 1 of the above procedure, or use punch in recording to make modifications.

Modifying Recorded Data with Punch In Recording

Use punch in recording to make changes in parts you have already recorded in a track.

With punch in recording, you listen to the playback of previous recording, and start playing on the keyboard from the point where you want to make your modifications. Everything up to the point where you start playing is retained, but everything after that point is replaced with your new input.

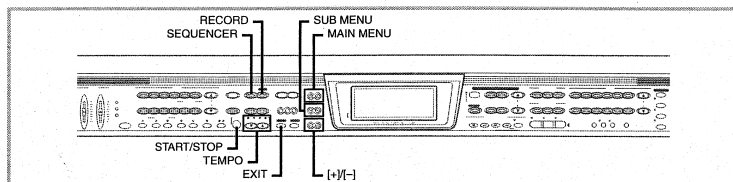
Using Punch In Recording

Note that you should skip the first two steps of the following procedure when you go into punch in recording to modify something you have just recorded.

1. Press the **SEQUENCER** button.
 - This causes the button's indicator lamp to light, indicating that Sequencer is turned on.
2. Select the song area that contains the song whose data you want to modify.
 - Use [+]/[-] buttons to select a song area number in the range of 1 to 10.
3. If you want to use the metronome during recording, make the required metronome settings.
 - Press the **EXIT** button once to return to the recording screen.
4. Select the track whose contents you want to modify.
 - To select the system track, use the **GROUP A/B** button to select Group A.
 - To select a track from 1 through 16, use the **GROUP A/B** button to select Group B. Next, use the **SUB MENU** buttons [◀]/[▶] to select the track to which you want to record.
5. Press the **EXECUTE** button.
 - This enters the punch-in mode and causes the **RECORD** button's indicator lamp to flash.
6. Press the **START/STOP** button to start playback of the selected track.
7. When playback reaches the point from which you want to modify the track contents, start playing the new notes on the keyboard.
 - Recording starts and playback of the track's current contents stops as soon as you play something on the keyboard.
8. After you are finished playing what you want, press the **START/STOP** button to stop recording and change to the Sequencer's playback screen.

NOTE

- You can change the playback tone after starting playback of the track's contents in step 6, but the tone setting you make is not recorded. After you start punch in recording (in step 8), any changes you make in parameter settings are recorded just as they are during normal recording.



Changing Song Header Data

You can use the following procedure to change the initial Mixer, tempo and other settings stored in the song header.

To change the song header data

1. Press the **SEQUENCER** button.
2. Select the song area that contains the song whose header data you want to change.
 - Use the [+]/[-] buttons to select a song area number in the range of 1 to 10.
3. Set the tempo, Mixer, and other song header parameters you want.
4. Press the **RECORD** button.
 - This causes the current panel settings to replace the song header parameter settings of the currently selected song.
5. Press the **EXIT** button.

Playing Back from Sequencer Memory

Use the following procedure when you want to play back the contents of Sequencer memory.

- Skip steps 1 and 2 of the following procedure if you have just finished a real-time recording operation.

To play back from Sequencer memory

1. Press the **SEQUENCER** button.
 - This causes the button's indicator lamp to light, indicating that Sequencer is turned on.
2. Select the user song area that contains the song you want to play back.
 - Use the [+]/[-] buttons to select the song area (Song 1-10).
3. Press the **START/STOP** button to start playback.
 - Use the **TEMPO** buttons to adjust the playback tempo.
 - See the notes below for other operations you can perform during playback.
4. Press the **START/STOP** button again to stop playback.

NOTE

- Pressing the **START/STOP** button starts playback from the beginning of the selected song.
- You can play along on the keyboard during Sequencer playback. You can use layer and split for keyboard play.
- You can use the Mixer to adjust the volume level and stereo points of the playback track. Such settings are output from MIDI OUT when they are made.
- You cannot change the **MODE** button setting during Sequencer playback.

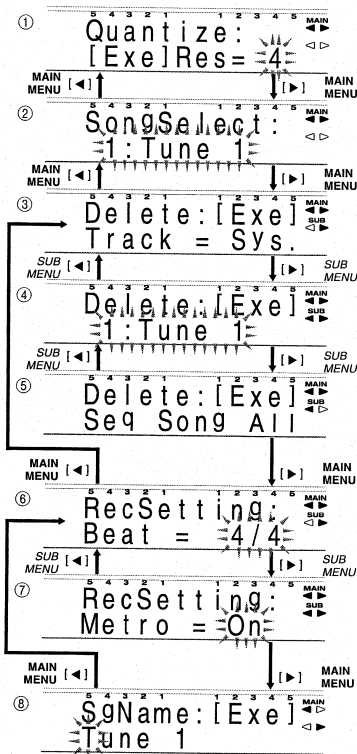
Global Recording Settings

The following are the global settings and operations you can perform for the Sequencer.

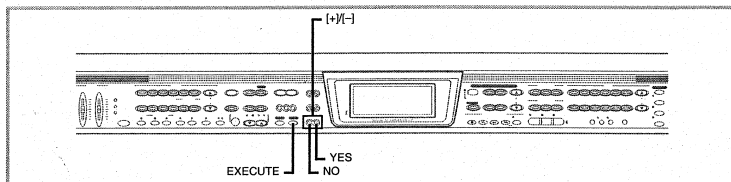
- ① Quantize execute
- ② Song selection
- ③ Track delete
- ④ Song delete
- ⑤ All song delete
- ⑥ Meter
- ⑦ Metronome settings
- ⑧ Song name

To make global settings

1. Press the **SEQUENCER** button once.
 - This causes the button's indicator lamp to light, indicating that Sequencer is turned on.
2. Select the user song area that contains the song whose global settings you want to change.
 - Use the [+]/[-] buttons to select the song area (Song 1-10).
3. Use the **MAIN MENU** buttons [◀/▶] and **SUB MENU** buttons [⏮/⏭] to display the item whose setting you want to change.
 - The numbers to the left of the sample displays below correspond to the following sections that provide details on each setting.



4. When the item you want is on the screen, change it to the setting you want.
 - See the explanations following this procedure for details on making each setting.
5. After the settings are the way you want, press the **EXIT** button.
 - This returns to the Sequencer record standby screen.



Quantize Execute ①

This setting determines the quantize value after recording. After recording, quantize adjusts the timing of notes input to each track on the keyboard to match those selected by the setting you make here.

The track that is affected by the quantize operation is the one that was selected when you displayed the global setting screen.

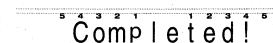


1. Use the [+/-] and [-] buttons to change the setting.

Display Indicator	Meaning
4	Quantize quarter notes (initial value)
4 T	Quantize quarter triplicate notes
8	Quantize 8th notes
8 T	Quantize 8th triplicate notes
16	Quantize 16th notes
16 T	Quantize 16th triplicate notes
32	Quantize 32nd notes
32 T	Quantize 32nd triplicate notes
64	Quantize 64th notes

2. Press the EXECUTE button.

- This performs the quantize operation.
- After the quantize operation is complete, the message shown below appears for about one second, and then the global setting screen appears.



NOTE

- If there is not enough sequencer memory available, the message "Error! Memory Full" appears on the display and the quantize operation is not performed.

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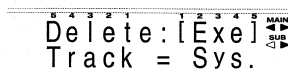
Song Selection ②

You can use this screen to specify a song number from 1 to 10. It comes in handy if you did not have a song selected when you displayed the global parameter screen, or if you want to change the current song setting.



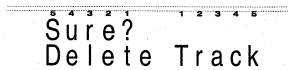
Track Delete ③

Use the following procedure to delete the track associated with the currently selected track.



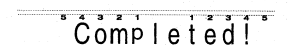
1. Use the [+/-] and [-] buttons to select the track you want to delete, and then press the EXECUTE button.

- This displays a message to confirm whether you really want to delete the track.



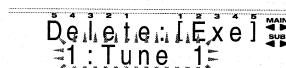
2. Press the YES button to delete the track.

- Pressing the YES button causes the message shown below to appear for about one second. Next, the display returns to the setting screen.



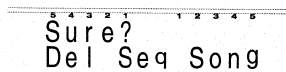
Song Delete ④

Use this operation to delete a song from a specific user song area.



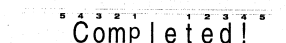
1. Use the [+/-] and [-] buttons to select the song you want to delete, and then press the EXECUTE button.

- A message appears to confirm whether you want to delete the song.



2. Press the YES button to delete the song or the NO button to abort the delete operation without deleting anything.

- Pressing the YES button causes the message shown below to appear for about one second. Next, the display returns to the setting screen.



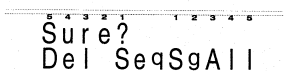
All Song Delete ⑤

Use the following procedure when you want to delete all songs in memory.



1. Press the EXECUTE button.

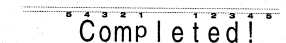
- This displays a message to confirm whether you really want to delete all the songs.



- To exit the procedure without deleting anything, press the NO button here.

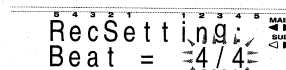
2. Press the YES button to delete all the songs.

- Pressing the YES button causes the message shown below to appear for about one second. Next, the display returns to the setting screen.



Meter ⑥

This setting specifies the meter of the song.



NOTE

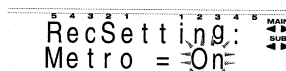
- If a song is already recorded with a rhythm, the meter of the rhythm is set automatically.

Setting	Setting
0	12 / 4
2 / 4	3 / 8
3 / 4	5 / 8
4 / 4 (initial value)	6 / 8
5 / 4	7 / 8
6 / 4	9 / 8
7 / 4	12 / 8
9 / 4	

- Use the [+/-] and [-] buttons to change the setting.

Metronome Setting ⑦

This setting controls whether or not the metronome sounds during Sequencer recording.



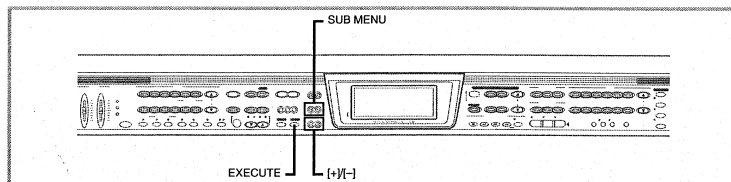
Display Indicator	Meaning
Off	Metronome off
On	Metronome on

Metronome sound: The first beat is a chime, followed by a standard metronome click for the other beats.

- Use the [+/-] and [-] buttons to change the metronome setting.

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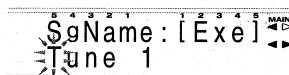
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Song Name Ⓢ

You can use this screen to assign a name to the currently selected song.

1. Use [+] and [-] to scroll through letters at the current cursor location.
 - Use the SUB MENU buttons to move the cursor left and right.



2. After you are finished inputting the name, press the EXECUTE button to save the song under the name you specified.
 - The message "Completed!" appears on the display for about one second, and then the piano returns to the global setting mode.

NOTE

- Though no-English characters contained in imported SMF file data can sometimes be displayed, this piano supports input of English characters only.

Letters and Numerals

The table below shows the letters and numerals that you can input for a song name.

A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z	!	#	\$	%
&	'	()	-	@	^	_	{	}
`	0	1	2	3	4	5	6	7	8
9	a	b	c	d	e	f	g	h	i
j	k	l	m	n	o	p	q	r	s
t	u	v	w	x	y	z	"	'	,
.	:	;	*	+	=	←	→	?	#
b		/	¥	<	>	[]		

Using the Floppy Disk Drive

Floppy Disk Drive Features

The piano comes with a built-in disk drive, which provides you with the capabilities described below.

- You can save sequencer and synthesizer data on a floppy diskette for long-term storage. When you need the data again, simply insert the diskette into the disk drive and load it.
- You can play back SMF (standard MIDI file) data created on a personal computer and saved to diskette.

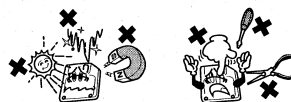
About Floppy Diskettes

This section contains important information about handling diskettes. Be sure to read it before going any further.

Floppy Diskette Precautions

IMPORTANT!

- Avoid the following locations when storing and using diskettes. Any of the conditions noted below can cause data stored on the diskette to become corrupted.
 - Near TVs, on top of audio equipment, or in any area exposed to magnetism. Take special care to keep diskettes away from any source of magnetism.
 - Areas exposed to direct sunlight, or subject to high humidity or temperature extremes.
- Failure to observe any of the following precautions can cause data stored on the diskette to become corrupted.
 - Never try to take a diskette apart.
 - Never open the shutter of the diskette or touch the film inside with your fingers.
 - Never bend a diskette or otherwise subject it to rough handling.
 - Affix labels in the spaces provided only, and do not affix labels on top of previous ones.



- Do not eject the diskette from the drive while the access lamp is lit or flashing or turn off piano power with a diskette in the drive. Doing either can cause data on the diskette to become corrupted and can even cause malfunction of the disk drive.
- Never insert any foreign objects into the disk drive. Doing so can cause it to malfunction.

- The disk drive uses a magnetic head. A dirty head cannot read data from a diskette properly and can corrupt existing data on the diskette. To avoid this, be sure to use a commercially available head cleaning diskette to periodically clean the head.
- Do not use a computer, another electronic musical instrument, or any other device to change a file name or file contents created with this piano. Doing so can make the data unusable by this piano and even cause malfunction of the piano.

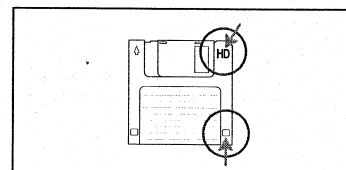
Note that CASIO COMPUTER CO., LTD. shall not be held liable for any loss to you or any third party due to corruption or accidental erasure of data on a diskette.

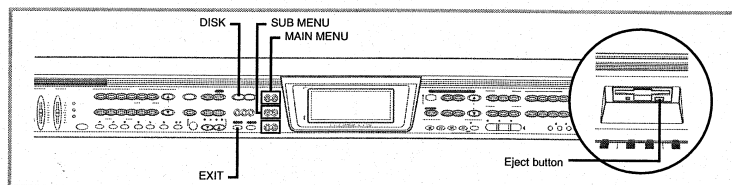
Diskette Types

The piano supports use of both 3.5" 2HD (1.44MB formatted) and 2DD (720KB formatted) diskettes. Use of other disk sizes and capacities is not supported.

Diskette Type Indicators

- 2HD A 2HD diskette is marked with the letters "HD" in the upper right corner of the front side. Also, there is a square hole in the lower right corner.
- 2DD This type of diskette does not have a hole in the lower right corner.

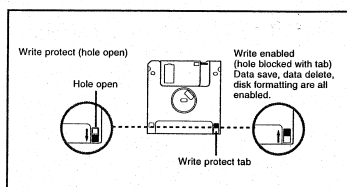




Write Protection

IMPORTANT!

- You can write protect a diskette so data on it cannot be deleted and no new data can be stored on the diskette. Also, a write protected diskette cannot be formatted. You can read data from a diskette regardless of whether or not it is write protected.



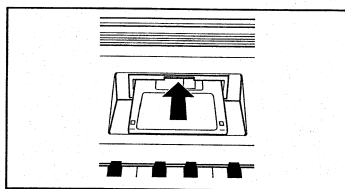
- When the write protect hole is open as shown in the illustration, you can read the contents of the diskette, but you cannot write data to or delete data from the diskette. After saving important data to a diskette, be sure to open its write protect hole to protect the data against accidental changes or deletion.
- The diskette that comes with the piano contains CASIO format Music Library Tunes. It is write protected to avoid accidental erasure or formatting. Make sure you handle this diskette carefully to avoid damaging or erasing its data.

Inserting and Ejecting a Diskette

The following describes how to insert a diskette into the disk drive and how to eject it.

To insert a diskette into the floppy disk drive

- With the label area of the diskette facing up, insert the diskette shutter first into the disk drive, as shown in the illustration.



- Slide the diskette into the drive as far as it will go, until it clicks into place.

To eject a diskette from the floppy disk drive

IMPORTANT!

Before ejecting a diskette, always check to make sure that the access lamp is not lit or flashing. A lit or flashing access lamp means that the piano is performing a data read or write operation. Ejecting a diskette while it is being accessed can cause its data to become corrupted.

- Press the Eject button.
 - This causes the diskette to be partially ejected from the disk drive.
- Remove the diskette from the drive by hand.

Basic Diskette Operation

The following is the basic procedure when using a diskette.

- Insert a diskette into the piano's disk drive.

- Press the DISK button.

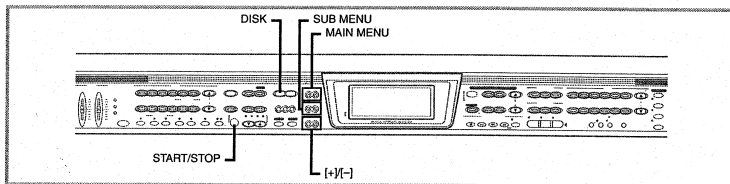
- This causes the message "DISK" to appear on the display, which indicates the SMF Play Mode. See "Playing Back an SMF" on page E-68 for details on using this mode.

- Scroll through the disk operation screens.

- Use the MAIN MENU buttons [◀/▶] to scroll through the six available screens.



- Play Option: Use this screen to set SMF playback options. See "Playing Back an SMF" on page E-68.
 - Load: Use this screen to load a file created with the piano. See "To load piano data from a diskette" on page E-72.
 - Save: Use this screen to save data created with the piano. See "To save piano data to diskette" on page E-70.
 - Rnam (Data Rename): Use this screen to rename data stored on a diskette. See "Renaming Data" on page E-74.
 - Del (Data Delete): Use this screen to delete data from a disk. See "To delete a file from a diskette" on page E-75.
 - Disk Format (Disk Format): See "To format a floppy diskette" on page E-75.
- Perform the operation for the displayed disk operation screen.
 - Use the SUB MENU buttons to make settings.
 - See the sections that follow this procedure for full details on performing disk operations.
 - After you are finished, press the DISK button or EXIT button.
 - This causes the "DISK" message to disappear from the display.



Playing Back an SMF

SMF (standard MIDI file) is a data format that makes it possible to port MIDI data between sequencers and synthesizers of different type and brand. There are actually three different SMF formats, named 0, 1, and 2. This piano supports SMF Format 0, which is the most common. Most synthesizers, sequencers, and commercially available pre-recorded software and MIDI files use SMF Format 0. The built-in disk drive of the piano lets you play back files created with a personal computer or other device and saved to diskette.

To play a specific file from diskette

1. Insert the diskette that contains the file into the piano's disk drive.
2. Press the **DISK** button.
 - This causes the message "DISK" to appear on the display, which indicates the SMF Play Mode.
 - At this time the name of one of the files contained on the diskette appears on the display.
3. Use the **[+]** and **[-]** buttons to select the file you want to play.
4. Press the **START/STOP** button to start play of the file whose name is flashing on the display.



- If a song file you are playing back contains song title text*, the first 12 characters of the title appear on the display. If the file does not contain song title text, the file name (with .MID extension) flashes on the display during playback.
- * SMF meta message sequence name

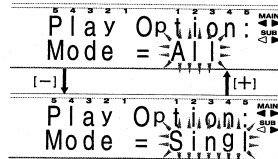
5. To stop file play, press the **START/STOP** button again.

NOTE

- After you stop file play part way through by pressing the **START/STOP** button, you can exit the file play mode by pressing the **DISK** button or **EXIT** button.
- When you press the **DISK** button to exit the Disk Mode, a number of parameters are restored to settings that were in effect when you entered the Disk Mode. See the "Recall Items" column of the "Parameter List" at the back of this manual for information about which parameter settings are restored.

To play back all files on a diskette

1. Insert the diskette that contains the files into the piano's disk drive.
2. Press the **DISK** button.
 - This causes the message "DISK" to appear on the display.
3. Press the **MAIN MENU** button **[▶]** once.
 - This causes the "Option" disk operation screen to appear on the display.
4. Use the **[+]**/**[-]** buttons to select the playback type.



- Singl Plays the currently selected file only.
- All Plays back all files on the diskette.

5. While "All" is on the display, press the **START/STOP** button to start playback.

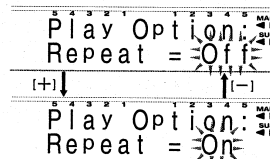
6. To stop SMF play, press the **START/STOP** button again.

NOTE

- After you stop SMF play part way through by pressing the **START/STOP** button, you can exit the disk operation screen by pressing the **DISK** button or **EXIT** button.

To loop SMF files on a floppy diskette

1. Press the **DISK** button.
2. Press the **MAIN MENU** button **[▶]** once.
3. Press the **SUB MENU** button **[▶]** once.
4. Use the **[+]** and **[-]** buttons to select the play method.
 - Each press of the **[+]** or **[-]** button causes the display to change as shown below.



- Off Plays once and then stops.
- On Repeats without stopping.

5. While "On" is on the display, press the **START/STOP** button to start playback.

6. To stop SMF play, press the **START/STOP** button again.

NOTE

- After you stop SMF play part way through by pressing the **START/STOP** button, you can exit the disk operation screen by pressing the **DISK** button or **EXIT** button.

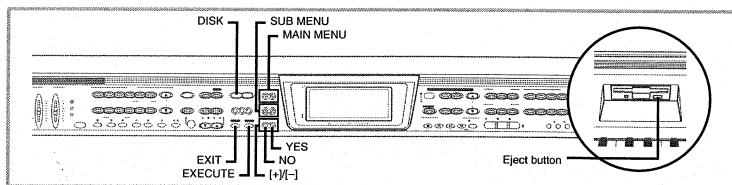
Operations During Playback

You can change the following settings while a file is playing from diskette.

- Mixer settings (See "Using the Mixer" on page E-50.)
- Tempo settings

NOTE

- Even after you make Mixer and tempo settings during SMF playback, they may change to other settings if the data in the file contains such settings.
- Group B parts 1 through 16 sound for SMF playback.



Saving and Recalling Memory Data

The built-in disk drive lets you save sequencer and other data from the piano's memory to diskette for later recall when you need it.

Savable Data

The following is a list of piano data that can be saved to diskette.

- Music Library user song data
This data is saved in CASIO format. SMF data can be saved to the Music Library user area and then recalled as song data.
 - Sequencer data
Though data can be saved in CASIO format or SMF, no system track data is saved in the case of SMF.
 - Registration memory data
All the keyboard setups currently in piano registration memory can be saved as a single file.
 - All data
- Saving song data only causes each song to be saved as a separate file.

File Name Extensions

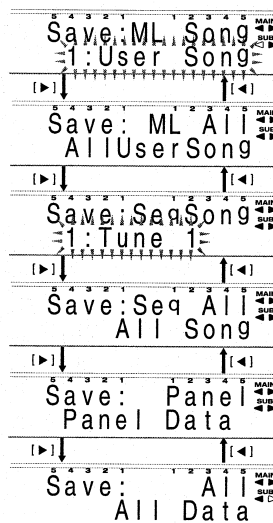
A three-letter extension is automatically added to file names to identify the type of data the file contains. The piano does not display extensions, but they will appear if you view the file names on a computer.

No.	Data Type	Extension	Screen Indication	File Contents
1	Music Library	.CM0	ML Song 1:User Song	Single Music Library user song data
		.CMA	ML All AllUserSong	All Music Library user song data
2	Sequencer	.CSO	SeqSong 1:Tune:1	Single Sequencer data file
		.CSA	Seq All All Song	All Sequencer data files
3	Panel Settings	.CRA	Panel Panel Data	All panel setup data files
4	Save All	.CAA	All All Data	File produced by a save all operation

To save piano data to diskette

1. Check the data you want to save.
 - Make sure that everything is set up and configured the way you want to save it.
2. Insert the diskette to which you want to save the data into the piano's disk drive. At this time close the diskette's write protect tab to enable writing.
3. Press the **DISK** button.
4. Press the **MAIN MENU** button **[▶]** three times to display the "Save:" screen.

5. Use the **SUB MENU** buttons **[◀/▶]** to display the screen for the type of data you want to save, and then press the **EXECUTE** button.



- The remainder of this example is based on selecting "SeqSong" in the above step.

6. Use the **[+]** and **[-]** buttons to select the song area where you want to save the data.
 - Select CASIO format data.
 - After selecting a song area, press the **EXECUTE** button.
7. Use the **[+]** and **[-]** buttons to select the format you want to use when saving the file.

CASIO CASIO original format
Format0 ... SMF Format 0
Format1 ... SMF Format 1

 - Note that system track data is not saved when you select an SMF format. Be sure to select the CASIO format when you want to save all of the data.
 - After selecting the format you want, press the **EXECUTE** button.

8. Input the name of the file.

- Characters are input at the current cursor location.
- Use the **[+]** and **[-]** buttons to scroll through letters at the current cursor location.
- Use the **SUB MENU** buttons **[◀/▶]** to move the cursor left and right.
- You can input uppercase English characters and symbols only.
- See "Letters and Numerals" on page E-72 for information about the characters you can input.

9. After inputting the file name, press the **EXECUTE** button to start the save operation.

- If the diskette already contains a file with the name you specified in step 8, the message "Replace?" appears, asking if you want to replace the existing file with the new one. Press the **YES** button to replace the existing file, or the **NO** button to return to step 8 of this procedure.
- The message "Please Wait!" remains on the display while the file save operation is being performed.

IMPORTANT!

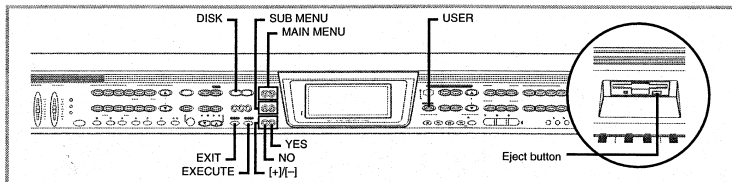
Do not perform any key operation while the message "Please Wait!" is on the display. In particular, never turn off piano power. Doing so can cause all data on the disk to become corrupted and unusable.

10. The message "Completed!" appears on the display for about one second when the data save operation is complete.

- The piano returns to step 5 of this procedure after the "Completed!" message clears from the display.
- Repeat steps 5 through 10 if you want to save more data.
- After you finish disk operations, press the **DISK** button or the **EXIT** button to clear the "DISK" message from the display. Next, press the eject button to eject the diskette, and then remove it by hand.

NOTE

- When saving panel data, all Music Library user data, all Sequencer data, or all data, you do not need to specify a song area, so skip step 6 of the above procedure.
- We recommend that you make a separate record of the names of files and their contents to make it easier to find the data you need when you need it.
- To exit the disk operation screens at any time during the above procedure, press the **DISK** button so the "DISK" message disappears from the display.



Letters and Numerals

A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z	0	1	2	3
4	5	6	7	8	9	!	#	\$	%
&	'	()	-	^	@	-	-	{
}									

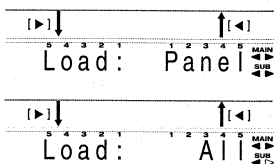
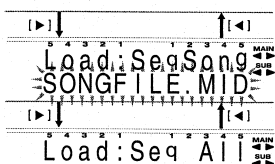
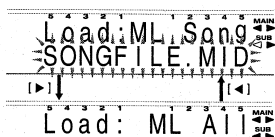
To load piano data from a diskette

NOTE

- The following procedure describes how to load a user tone as an example of the load operation. The procedures for loading other types of data is identical, except where noted.

1. Insert the diskette that contains the data you want to load into the piano's disk drive.
2. Press the DISK button.
3. Press the MAIN MENU button [▶] twice to display the "Load:" screen.

4. Use the SUB MENU buttons [◀]/[▶] to display the screen for the type of data you want to load, and then press the EXECUTE button.



- Pressing the EXECUTE button causes the name of the first file of the type you specify to appear on the display.
- The remainder of this example is based on selecting "SeqSong" in the above step.

5. Use the [+] and [-] buttons to display the name of the file you want to load, and then press the EXECUTE button.

6. Specify the piano song area into which you want to load the data.

- Use the [+] and [-] buttons to increase and decrease the displayed number.

7. Press the EXECUTE button to start the load operation.

- If the tone number you specify already contains data, the message "Replace?" appears, asking if you want to replace the existing data with the loaded data. Press the YES button to replace the existing data, or the NO button to return to step 4 of this procedure.
- The message "Please Wait!" remains on the display while the file save operation is being performed.

IMPORTANT!

Do not perform any key operation while the message "Please Wait!" is on the display. In particular, never turn off piano power. Doing so can cause all data on the disk to become corrupted and unusable.

8. The message "Completed!" appears on the display for about one second when the data load operation is complete.

- The piano returns to step 4 of the above procedure after the "Completed!" message clears from the display.
- Repeat steps 4 through 8 if you want to load more data.
- After you finish disk operations, press the DISK button to clear the "DISK" message from the display. Next, press the eject button to eject the diskette, and then remove it by hand.

NOTE

- When loading panel data, all Music Library user data, all Sequencer data, or all data, you do not need to specify a song area, so skip step 6 of the above procedure.
- To exit the disk operation screens at any time during the above procedure, press the DISK button so the "DISK" message disappears from the display.
- If an error occurs while panel data, all Music Library user data, all Sequencer data, or all data is being loaded back into piano memory from a diskette, all user songs currently stored in piano memory are lost.

Music Library User Songs

You can save commercially available SMF data in the user area of the piano's Music Library, and play back the data for your own enjoyment or play-along practice. You recall user area songs using the USER button.

To store SMF data in the Music Library user area

1. Perform the procedure under "To load piano data from a diskette," (page E-72) and select "SMF" for "Load:ML Song" in step 4. After making your selection, press the EXECUTE button.
2. Specify the location where you want to save the data, and then press the EXECUTE button.
3. Specify the SMF data track that you want to define as the right-hand part, and then press the EXECUTE button.

4. Specify the SMF data track that you want to define as the left-hand part, and then press the EXECUTE button.

- This stores the SMF data in the Music Library user area, and then displays the fingering generation screen. After you save data, you can recall it using the USER button.

AutoFingerin
Part = Both

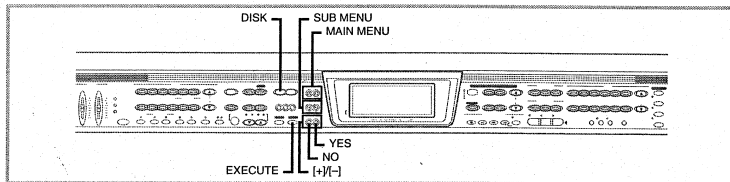
5. Select the part (Both, L, R, or Off) for which you want to generate fingerings, and then press the EXECUTE button.

- This automatically generates fingering data for the song.
- The message "Please Wait!" remains on the display while fingerings are being generated.

IMPORTANT!

Do not perform any operation on the keyboard while the "Please Wait!" message is on the display.

- After fingering generation is complete, the screen shows "Completed!" for a few moments, and then returns to the "Load:ML Song" screen.



NOTE

- Pressing the **EXECUTE** button in step 4 returns to the "Load:ML Song" screen without generating fingerings. In this case, no fingerings are displayed during lesson playback.
- SMF file data stored in the user area does not have multiple arrangements. Also, hand position guide does not work during lesson playback.
- Depending on the song data content, it may take some time to generate fingerings, or an error may occur if generation of fingerings is too difficult. To interrupt a fingering generation operation part way through, press the **EXECUTE** button.

Renaming Data

Use the following procedure to change the name of a data that is stored on a floppy diskette.

PREPARATION

Insert the floppy diskette that contains the file whose name you want to save into the piano's disk drive. Make sure that the diskette's write protect hole is closed, which enables writing.

- Press the **DISK** button.
 - This causes the message "DISK" to appear on the display.
- Press the **MAIN MENU** button **[▶]** four times to display the "Rnam:" item.
- Use the **SUB MENU** buttons **[◀]/[▶]** to display the type of data whose name you want to change.
- Use the **[+]** and **[-]** buttons to display the current name of the file whose name you want to change, and then press the **EXECUTE** button.

- Input the name of the file.
 - Use the **[+]** and **[-]** buttons to scroll through letters at the current cursor location.
 - Use the **SUB MENU** buttons **[◀]/[▶]** to move the cursor left and right.
 - See "Letters and Numerals" on page E-72 for information about the characters you can input.

- After inputting the file name, press the **EXECUTE** button to start the save operation.
 - The message "File Exist! Replace?" appears on the display if a file with the same name already exists on the diskette. Press the **NO** button to cancel the save operation and return to step 4 of this procedure.
 - This changes the name and displays the message "Completed!" for about one second. After that, the current file name in step 3 reappears.

NOTE

- To exit the disk operation screens at any time during the above procedure, press the **DISK** button so the "DISK" message disappears from the display.

To delete a file from a diskette

IMPORTANT!

The file delete operation cannot be undone. Make sure you no longer need a file before you delete it.

- Insert the diskette that contains the file you want to delete into the piano's disk drive. At this time close the diskette's write protect tab to enable writing.
- Press the **DISK** button.
 - This causes the "Option" disk operation screen to appear on the display. This causes the message "DISK" to appear on the display.
- Press the **MAIN MENU** button **[▶]** five times to display the "Del:" screen.
- Use the **SUB MENU** buttons **[◀]/[▶]** to display the type of data you want to delete.
- Use the **[+]** and **[-]** buttons to display the name of the file you want to delete, and then press the **EXECUTE** button.
 - The message "Sure? Delete" appears on the display to confirm whether or not you really want to delete the file.
- Press the **YES** button to delete the file or the **NO** button to abort the operation without deleting anything.
 - After the file is deleted, the message "Completed!" appears on the display for about one second. Then the piano returns to step 4 of the above procedure.

NOTE

- To exit the disk operation screens at any time during the above procedure, press the **DISK** button or **EXECUTE** button so the "DISK" message disappears from the display.

To format a floppy diskette

IMPORTANT!

Formatting a diskette that contains data deletes the data. Make sure you no longer need any data that may be on a diskette before you format it.

- Press the **DISK** button.
 - This causes the message "Error! No Disk" to appear on the display. Press the **EXECUTE** button to return to the menu selection screen.
- Press the **MAIN MENU** button **[▶]** to display the "Disk Format:" menu.
 - This causes the message "Insert FD&Exe" to appear, prompting you to insert the diskette you want to format into the disk drive.
- Insert the floppy diskette you want to format into the floppy disk drive.
- Press the **EXECUTE** button.
 - The message "Sure?" appears on the display to confirm whether or not you really want to format the diskette.
- Press the **YES** button to format the diskette or the **NO** button to abort the operation.
 - The message "Please Wait!" remains on the display while the format operation is being performed.
 - After the diskette is formatted, the message "Completed!" appears on the display for about one second. Then the piano returns to step 2 of the above procedure.

NOTE

- To exit the disk operation screens at any time during the above procedure, press the **DISK** button or **EXECUTE** button so the "DISK" message disappears from the display.
- A diskette formatted by MS-DOS or Windows can be used as it is on this piano. Diskettes formatted for other types of computers are not compatible.

Using MIDI

What is MIDI?

The letters "MIDI" stand for "Musical Instrument Digital Interface," which is the name of a worldwide standard for digital signals and connectors that makes it possible to exchange musical data between musical instruments and computers (devices) produced by different manufacturers. MIDI compatible equipment can exchange keyboard key press, key release, tone change, and other data as "messages."

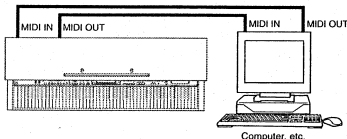
Though you do not need any special knowledge about MIDI to use this piano as a stand-alone unit, MIDI operations require a bit of specialized knowledge. This section provides you with an overview of MIDI that will help to get you going.

MIDI Connections

MIDI messages are sent out through the MIDI OUT terminal of one device to the MIDI IN terminal of another device over a MIDI cable. To send a message from this piano to another device, for example, you must use a MIDI cable to connect the MIDI OUT terminal of this piano to the MIDI IN terminal of the other device. To send MIDI messages back to this piano, you need to use a MIDI cable to connect the other device's MIDI OUT terminal to the MIDI IN terminal of this piano.

To use a computer or other MIDI device to record and playback the MIDI data produced by this piano, you must connect the MIDI IN and MIDI OUT terminals of both devices in order to send and receive data.

There is a third MIDI terminal named MIDI THRU, which passes any MIDI messages received by the MIDI IN terminal on to another device.



NOTE

- This piano also has a TO HOST terminal that can be used to connect to a computer. See "Connecting to a Computer" on page E-79 for more information.

MIDI Channels

MIDI allows you to send the data for multiple parts at the same time, with each part being sent over a separate "MIDI channel." There are 16 MIDI channels, numbered 1 through 16, and MIDI channel data is always included whenever you exchange data (key press, pedal operation, etc.)

This piano is equipped with "multi-timbre" capabilities, which means it can receive messages over all 16 MIDI channels and play up to 16 parts at the same time. Keyboard and pedal operations performed on this piano are sent out by selecting a MIDI channel (1 to 16) and then sending the appropriate message.

General MIDI

Though MIDI makes it possible to exchange musical data between devices produced by different manufacturers, MIDI musical data does not indicate the actual notes themselves, but rather information on whether a keyboard key is pressed or released, and the tone number.

If tone number 1 on a keyboard produced by Company A is PIANO while tone number 1 on a Company B's keyboard is BASS, for example, data that is played using the PIANO tone on Company A's keyboard will be played using the BASS tone on Company B's keyboard. If a computer, sequencer or other device with auto accompaniment capabilities is used to produce music data for the Company A keyboard which has 16 parts (16 channels) and then that data is sent to the Company B keyboard which can receive only 10 parts (10 channels), some of the parts will not sound.

To overcome problems such as these, the industry has come up with standard numbering for tones, pads, and other general factors that determine the sound source configuration. This standard is called "General MIDI."

General MIDI defines the tone numbering sequence, the drum sound numbering sequence, the number of MIDI channels that can be used, and other general factors that determine the sound source configuration. Because of this, musical data produced on a General MIDI sound source can be played back using similar tones and identical nuances as the original, even when played on another manufacturer's sound source.

This piano conforms to General MIDI standards, so it can be connected to a computer or other device and used to play back General MIDI data that has been purchased, downloaded from the Internet, or obtained from any other source.

Sending and Receiving MIDI Messages

This piano can send notes you play on the keyboard, as well as auto accompaniment patterns and Sequencer playback as MIDI messages to another device.

MIDI Send Data

Keyboard Play

Each keyboard part (Upper1, Upper2, Lower1, Lower2) can be sent over its own individual MIDI channel. When Auto Harmonize is turned on, harmonize notes are also sent over each individual MIDI channel.

Auto Accompaniment Play

Each accompaniment part can be sent over its own individual MIDI channel. The "Accomp MIDI Out" parameter (page E-78) is used to specify whether a part is sent.

Sequencer Playback

The following describes how track data can be sent over individual MIDI channels.

- System Track Each part (Group A) that makes up the system track can be sent over its own individual MIDI channel.
- Tracks 1 through 16 ... Tracks 1 through 16 correspond to Group B parts 1 through 16. Each part can be sent over its own individual MIDI channel.

Part Send Channels

Use the procedure on page E-80 and the information on page E-86 to assign a send channel for each part.

MIDI Message Receive

Multi Channel Receive

The 16 external parts can be used to receive data over 16 MIDI message channels at the same time. Receive channel assignments for each part can be made using the "MIDI Receive Channel" parameter (page E-78).

Chord Changes when Using Auto Accompaniment

MIDI messages received from an external device can be interpreted as chord changes as specified by the fingerings supported by the auto accompaniment system of this piano. Use the "MIDI In Chord Judge" parameter (page E-78) to turn this capability on and off.

- See the MIDI Implementation Chart at the back of this User's Guide for more information about each MIDI message.

MIDI Settings

You can change the settings of a number of parameters that control how MIDI messages are sent and received.

MIDI Parameters

You can use the keyboard settings procedure (page E-80) to change the settings of the MIDI parameters described in the table below. See page E-80 for details about the setting procedure. The reference pages in the table show where you should go for more information about each parameter.

Setting/Menu	Description	Reference Page
Navigate Channel (Navi. Ch (Red/Yellow))	Specifies which MIDI channel's Note On message data lights keyboard keys.	E-86
Accomp MIDI Out (Accomp MidiOut)	Specifies whether this piano's accompaniment is sent as MIDI messages.	E-86
MIDI In Chord Judge (MidiIn ChordJdg)	Specifies whether MIDI messages received from an external device should be interpreted as auto accompaniment chord changes.	E-86
Real Time Message Out (RealTim Message)	Specifies whether real-time messages (FA, FC, F8) should be output.	E-86
Device ID	Specifies the MIDI device ID for this piano.	E-86
Local Control	Specifies whether or not this keyboard should sound each part in accordance with the piano's local control* settings. MIDI send/receive is performed regardless of local settings.	E-86
MIDI Transmit Channel (MIDI Tx Ch)	Specifies whether MIDI messages are sent for each part of this piano, and the send channel for each part.	E-86
MIDI Receive Channel (MIDI Rx Ch)	Specifies whether MIDI messages are received for each part of this piano, and the receive channel for each part.	E-86

* The term "local control" as used here refers to keyboard play, playback of song data, and other control operations and functions setting of this piano.

MIDI In Chord Judge

This parameter determines whether note data received from an external device should be interpreted as an auto accompaniment chord fingering. Turn on this parameter when you want to control auto accompaniment chords from a computer or other external device.

- **On** Causes note data input through MIDI IN to be interpreted as auto accompaniment chord fingerings. Note data received over the channel specified as Part 1 by the receive channel setting parameter described on page E-86 is interpreted as auto accompaniment chord fingerings.
- **Off** Turns off "MIDI In Chord Judge".

Accomp MIDI Out (Accompaniment MIDI Out)

Turn on this parameter when you want sound auto accompaniment on an external devices sound source.

- **On** Outputs auto accompaniment as MIDI messages through the piano's MIDI OUT terminal.
- **Off** Does not output auto accompaniment.

Device ID

A device ID is a number used by system exclusive messages to tell one device from another. When you specify a device ID for this piano, it recognizes (receives) only system exclusive messages that include the same device ID number. You should assign device IDs when you are using an external synthesizer to control multiple AL-100R/AL-150R units. Doing so makes it possible to send a system exclusive message to a specific AL-100R/AL-150R unit.

Connecting to a Computer

You can use the piano's TO HOST terminal to connect it to a computer.

To connect to a computer

Be sure to turn off the piano and your computer before connecting them. You should also set the volume controller of the piano to a relatively low volume.

1. Slide the host select switch to the setting that matches the type of computer you are connecting to.



MIDI: MIDI keyboard or other MIDI device (using the MIDI terminals)

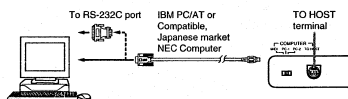
PC-1: Japanese market NEC Computer (31,250 bps)

PC-2: IBM PC/AT or Compatible (38,400 bps)

NOTE

- Be sure to set the host select switch to **MIDI** whenever using the **MIDI** terminals. Signals will not go to the **MIDI** terminals when the selector is in any other position.

2. Connect the piano's **TO HOST** terminal to your computer's serial port.

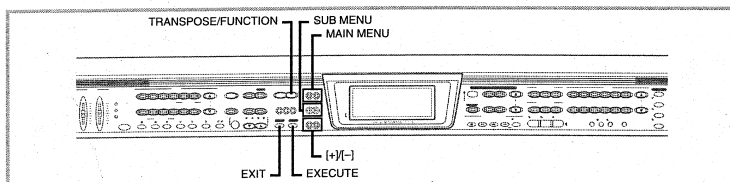


3. Turn on the piano, and then turn on your computer or other connected device.
4. Start up the software you want to use on your computer.

NOTE

- Make sure piano power is turned off before changing the host select switch setting. Any changes made while power is turned on are ignored. Correct operation may not be possible if the host select switch setting does not match the type of computer you are using.
- RS-232C ports come in two types: 25-pin and 9-pin. This piano can be connected to either type of port. Just make sure that the cable you use is one that matches the type of port equipped on your computer.
- The RS-232C interfaces equipped on Japanese market NEC Computer come in two types: 31,250 bps and 38,400 bps. Set the host select switch to either PC-1 (31,250 bps) or PC-2 (38,400 bps) in accordance with the documentation that comes with the music software or serial driver software you are using.

Keyboard Settings



This section provides details of all the settings you can make on this piano.

Using the Keyboard Settings Menu

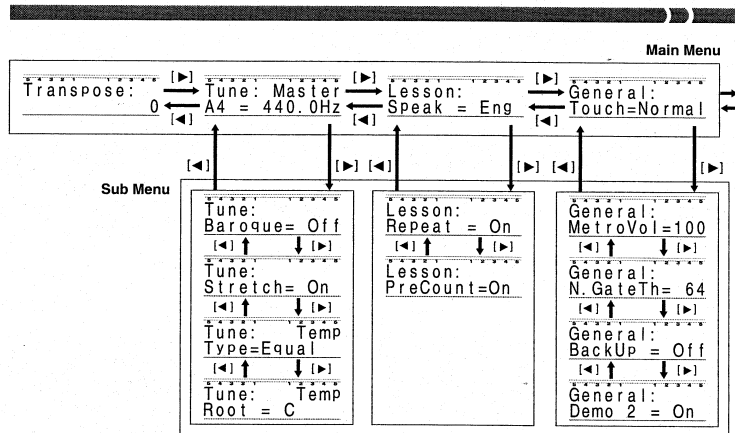
Setting Types

The table below shows the parameters whose settings you can change.

Setting/Menu	Description	Page
Transpose	Adjustment of overall piano tuning by semitone units	E-36, 82
Tune	Fine adjustment of overall piano tuning	E-37, 82
Lesson	Specifies settings related to Music Library play and lessons.	E-83
General	Touch response, metronome volume, memory back up, and other general settings	E-83
Display	Display brightness, language, etc.	E-84
Pedal	Assignment of effects to pedals, and effect settings	E-84
Accomp	Settings for auto accompaniment	E-85
MIDI	MIDI settings	E-86
MIDI Transmit Channel (MIDI Tx Ch)	MIDI send channel setting	E-86
MIDI Receive Channel (MIDI Rx Ch)	MIDI receive channel setting	E-86
System	Piano master volume, effect adjustments, etc.	E-87
Initialize	Reset operations to initialize all settings to initial factory defaults or to reset specific settings	E-87

To use the keyboard settings menu

1. Press the TRANSPOSE/FUNCTION button.
2. Use the MAIN MENU buttons [◀]/[▶] and the SUB MENU buttons [◀]/[▶] to recall the items whose settings you want to change.



3. Use [+] and [-] to change the setting.
 - Settings you make are applied even if you do not press the EXECUTE button.
 - Pressing [+] and [-] at the same time returns the display value to its initial default.
 - See the following section titled "Parameter Setting Items" for details on each setting.
4. After making the settings you want, press the TRANSPOSE/FUNCTION button or EXIT button to clear the setting screen.

Parameter Setting Items

NOTE

- See the "Parameter List" at the back of this manual for initial default settings.

Setting: Transpose

See "Transposing the piano" on page E-36.

Setting: Tune

Main Menu	Sub Menu	Settings	Description
Tune	Master Tune (Master)	415.3 Hz ~ 466.2 Hz	Specifies the frequency of A4. The initial default setting is A4=440.0Hz. See "Tuning the Piano" on page E-37 for more information.
	Baroque Pitch (Baroque)	On (A4=415.3Hz), Off	Turning on Baroque Pitch automatically changes the tuning of the keyboard to Baroque era standard pitch, which is about a semitone lower than modern pitch. The initial default setting is Off.
	Stretch Tune (Stretch)	On, Off	Selecting Off disables the piano tone tuning curve (higher high range, lower low range). The initial default setting is On. The tuning curve is not suitable for classical tuning. Specifying classical tuning as the temperament type causes the Stretch Tune setting to return to Off automatically. Even when Stretch Tune is turned on, the tuning curve is not applied to non-piano tones.
	Temperament Type (Temp Type)		Besides the normally used Equal Temperament, you can select from among six other classical temperaments. The initial default setting is Equal Temperament (Equal).
	Equal Temperament (Equal)		The octave is divided into 12 equal parts and assigned to white and black keys. This is the tuning normally used for today's keyboard musical instruments.
	Just Major Intonation (JustMaj)		Historically, this temperament came into being with the development of triads. Within a single tonality (major key), essential major triads produce perfectly harmonious, beautiful sound. Just Major Intonation also, however, includes dissonant intervals, and its weakness is a lack of modulation freedom, etc.
	Just Minor Intonation (JustMin)		This temperament arranges just major intonation to provide perfect harmony within a single tonality (minor key). Within the 12 notes, 11 of the notes are the same pitch as just major intonation.
	Pythagorean System (Pythago)		This temperament, which uses a 12-note octave, is thought to be the oldest. Of the 12 types of perfect fifths that can be played, 11 are in perfect harmony. Thirds are unharmonious and dissonant, and are appropriate for melody play.
	Mean - Tone System (Mean)		This highly practical temperament provides many of the merits (beautiful triads) of just intonation, plus modulation capabilities. It was used as a keyboard tuning method for a long period following the Renaissance.

Main Menu	Sub Menu	Settings	Description
Tune		Werckmeister (Werck)	This is a kind of unequal temperament that allows play of all tonality. It is believed that Bach's "The Well-Tempered Clavier" was written using this temperament. Using a root of C makes the dominant tonality of the white keys close to mean-tone, and the dominant tonality of the black keys close to Pythagorean System.
		Kirnberger (Kirnber)	This is also a type of unequal temperament, which is also similar to the Werckmeister tuning described above. The chromatic differential of the white key dominant tonality and black key dominant tonality is more pronounced.
	Temperament Root (Temp Root)	C, C#, D, Bb, E, F, F#, G, Ab, A, B, Bb	Specifies the root of a temperament. The initial default setting is C. Selecting a different root for equal temperament does not make a difference in the sound, but a difference can be noted with classical temperaments. For classical temperaments other than Werckmeister and Kirnberger, specify the tonality keynote of the piece you are playing when using a classical temperament.

Setting: Lesson

Main Menu	Sub Menu	Settings	Description
Lesson	Speak	English (Eng), Japanese (Jpn), Off	Controls voice fingering guide.
	Repeat	On, Off	Turns loop play on and off.
	Pre Count	On, Off	Switches the count that sounds before accompaniments or lessons on and off.

Setting: General

Main Menu	Sub Menu	Settings	Description
General	Touch	Light	Relatively light touch
		Normal	Normal touch response
		Heavy	Relatively heavy touch required to increase sound volume.
		Off	Touch response off. Sound output not affected by pressure applied to the keyboard.
	Metronome Volume (MetroVol)	000 to 127	Specifies metronome volume. Also controls voice fingering guide volume.
	N Gate Threshold (N. GateTh)	000 to 127	This setting applies to the Mc/Ln (MIC IN/LINE IN) part only. It sets the noise gate threshold for microphone/line input.
	Memory Back Up (Back Up)	On, Off	Specifies whether settings should be backed up when the piano is turned off. See the "Parameter List" at the back of this manual for information about what items are backed up.
	Demo 2	On, Off	Turns the power off reminder feature on and off.

Setting: Display

Main Menu	Sub Menu	Settings	Description
Display	Contrast	0 to 127	Adjusts screen brightness.
	Display Hold (Hold)	On, Off	Turning on this item leaves the current screen on the display without auto return to the main display.
	Language	English (Eng), Japanese (Jpn)	Specifies Japanese or English as the display language.

Setting: Pedal

Main Menu	Sub Menu	Settings	Description
Pedal	Assign Left (Assign L)	Soft	Soft pedal
		Sostenuto	Sostenuto pedal
		Fill-In	Soft pedal performs same function as the FILL-IN button.
		Break	Soft pedal performs same function as the BREAK button.
		Synchro	Soft pedal performs same function as the SYNCHRO START/STOP button.
		Auto Harmonize (AutoHarmo)	Soft pedal applies "Auto Harmonize".
		On Bass Chord (OnBassChord)	Soft pedal toggles on bass on and off. See page A-13 for more information about "On Bass Chord".
		Chord Judge Available (ChordJudge)	Makes chord judge available in the FULL RANGE CHORD mode, only while the pedal is depressed. This feature makes it possible to momentarily turn FULL RANGE CHORD on and off as required.
		DSP	Soft pedal toggles DSP on and off.
	Assign Middle (Assign M)	Soft	Soft pedal
		Sostenuto	Sostenuto pedal
		Fill-In	Sostenuto pedal performs same function as the FILL-IN button.
		Break	Sostenuto pedal performs same function as the BREAK button.
		Synchro	Sostenuto pedal performs same function as the SYNCHRO START/STOP button.
		Auto Harmonize (AutoHarmo)	Sostenuto pedal applies "Auto Harmonize".
		On Bass Chord (OnBassChord)	Sostenuto pedal toggles on bass on and off. See page A-13 for more information about "On Bass Chord".
		Chord Judge Available (ChordJudge)	Makes chord judge available in the FULL RANGE CHORD mode, only while the pedal is depressed. This feature makes it possible to momentarily turn FULL RANGE CHORD on and off as required.
		DSP	Sostenuto pedal toggles DSP on and off.
	Sustain Length (Sus Length)	1 to 63, Hold	This setting specifies how long the volume of the sound is sustained while the damper pedal is depressed. Hold is the maximum sustain time, and with an organ type tone the sound continues as long as the damper pedal is depressed. A value specifies the sustain time, with sustain being maintained longer as the value becomes greater.

Setting: Accomp

Main Menu	Sub Menu	Settings	Description
Accomp	Chord Hold (Hold Chord)	On, Off	Specifies whether auto accompaniment chords should continue to play after the keys in the accompaniment keyboard range are released. On causes auto accompaniment chords to continue, while Off causes chords to stop, but rhythm continues.
	Lower Hold (Hold Lower)	On, Off	Specifies whether the lower parts (Lower1, Lower2) should continue (On) to play or stop (Off) during auto accompaniment after keys are released. On adds more depth to accompaniments.
	Mixer Hold (Hold Mixer)	On, Off	Specifies whether accompaniment part Mixer settings should be retained. Off causes settings assigned to each rhythm to be applied each time a rhythm is selected. On saves Mixer settings to be retained, even when you change to another rhythm. ^{*1}
	On Bass Chord (Chord OnBass)	On, Off	Specifies whether the lowest note you play when using an inverted fingering of a chord in the accompaniment keyboard range during auto accompaniment should be interpreted as a bass note. On causes the lowest note of an inverted form chord to be interpreted as a bass note, while Off causes the inverted form chord to sound normally. ^{*2}
	Tension Chord (Chord Tension)	On, Off	Enables and disables recognition of tension chords during auto accompaniment play. On enables recognition, while Off disables recognition.
	6th Chord (Chord 6th)	On, Off	Enables and disables recognition of 6th and 6th fingerings during auto accompaniment play. On enables recognition, while Off disables recognition. ^{*3}

*1 Rhythm elements are preset with optimum default Mixer settings, which are normally applied automatically when you use auto accompaniment. Turning on "Mixer Hold" uses your settings instead of the preset defaults.

*2 This setting is mainly used with the FINGERED auto accompaniment mode, and it helps to turn it on when you want to play "on bass chords" within the relatively limited accompaniment keyboard range. You can leave this setting off if you are playing both the bass note and the other notes of the chord in the accompaniment keyboard range. Even when "On Bass Chord" is turned off, a chord in the accompaniment keyboard range with a fingering that separates the lowest note and the next lowest note by five tones or more is always interpreted as an "on bass chord" whose root is the lowest note.

*3 Examples
Off: Interpreted as Am7
On: Interpreted as C6



Setting: MIDI

Main Menu	Sub Menu	Settings	Description
MIDI	Navigate Channel Red (Navi. Ch Red)	1 to 16, Off	Specifies which MIDI channel's Note On message data lights keyboard keys in red.
	Navigate Channel Yellow (Navi. Ch Yellow)	1 to 16, Off	Specifies which MIDI channel's Note On message data lights keyboard keys in yellow.
	Accomp MIDI Out (Accomp MidiOut)	On, Off	Specifies whether this piano's accompaniment is sent as MIDI messages.*
	MIDI In Chord Judge (MidiIn ChordJdg)	On, Off	Specifies whether accompaniment range MIDI Note On messages received from an external device should be interpreted as auto accompaniment chords.
	Real Time Message Out (RealTim Message)	On, Off	Specifies whether real-time messages (FA, FC, F8) should be output.
	Device ID	1 to 32	Specifies the MIDI device ID for this piano.
	Local Control	On, Off	Specifies whether or not this piano should sound each part in accordance with the piano's local control settings.
MIDI Transmit Channel (MIDI Tx Ch)	Group	A, B, Off	Specifies whether this piano's Group A part or Group B part accompaniment should be sent as MIDI channel messages, or whether neither should be sent. When Group A is specified, you can specify send channels for each of the (A) parts (Upper1 to Chord5) noted below. When Group B is specified, you can specify send channels for each of the (B) parts (Part1 to 16) noted below.
	(A)	(Ch)	Specifies whether MIDI messages are sent for Group A parts of this piano, and the send channel for Group A parts.
	Upper1	1 to 16, Off	
	Upper2	:	
	Lower1	:	
	Lower2	:	
	Harmo1	:	
	Harmo2	:	
	Percussion (Perc.)	:	
	Drum	:	
	Bass	:	
	Chord1	:	
	Chord2	:	
	Chord3	:	
	Chord4	:	
	Chord5	:	
	(B)	(Ch)	
	Part1	1 to 16, Off	
	:	:	
	Part16	:	
	(B)	(Ch)	Specifies whether MIDI messages are received for Group B parts of this piano, and the receive channel for Group B parts.
	Part1	1 to 16, Off	
	:	:	
	Part16	:	
MIDI Receive Channel (MIDI Rx Ch)			

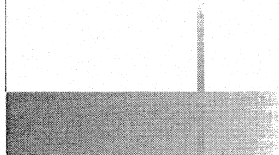
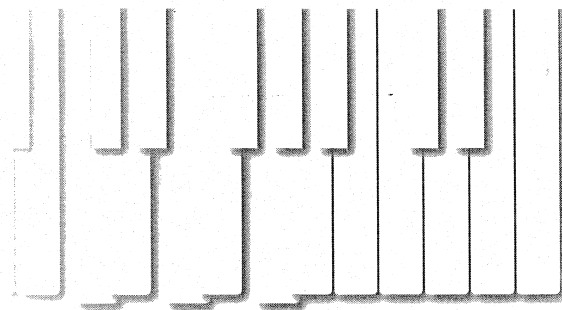
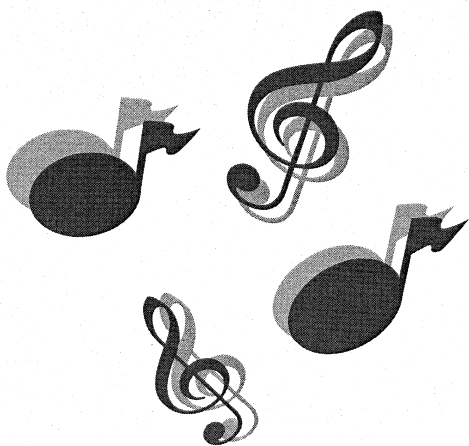
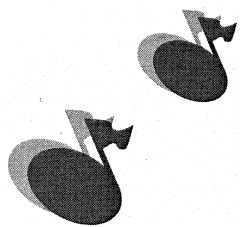
* Whenever you turn on Accomp MIDI Out, the MIDI Tx setting becomes Group A and a message appears asking if you want to make the settings (initial defaults, etc.) required for each part.

Setting: System

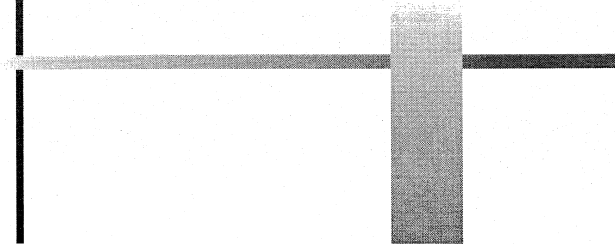
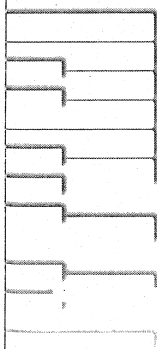
Main Menu	Sub Menu	Settings	Description
System	DSP Volume	0 to 127	Adjusts the volume of the part to which effect DSP is being applied. This volume setting is multiplied by the Mixer Volume setting.
	DSP Pan	-64 to 63	Adjusts the pan (stereo position) of the part to which effect DSP is being applied.
	DSP Reverb Send (DSP RevSend)	0 to 127	Adjusts the reverb send of the part to which effect DSP is being applied. The Mixer Mode reverb send setting is disabled.
	DSP Chorus Send (DSP ChoSend)	0 to 127	Adjusts the chorus send of the part to which effect DSP is being applied. The Mixer Mode chorus send setting is disabled.
	Total Master Volume (Total M.Volume)	0 to 127	Adjusts overall piano volume.
	Total Master Pan (Total M.Pan)	-64 to 63	Adjusts overall piano pan (stereo position).

Setting: Initialize

Main Menu	Sub Menu	Description
Initialize	Group B	Initializes Group B parts when MIDI IN is used.
	Parameter All	Returns all parameters to their initial default settings.
	Music Library User Song (MusicLib Song)	Deletes one Music Library song data.
	Music Library User Song All (MusicLib All)	Deletes all Music Library song data.
	All	Returns the piano to its initial factory defaults. Deletes all data, including Sequencer and Music Library user data.



Reference



437B-E-092A

437B-E-093A

Troubleshooting

Problem	Possible Cause	Action	See page
No sound when keyboard keys are pressed.	<ol style="list-style-type: none"> 1. Power cord is not connected correctly. 2. Power is not turned on. 3. MAIN VOLUME slider setting is too low. 4. Playing in the accompaniment keyboard range while the accompaniment mode is CASIO CHORD or FINGERED. 5. "Local Control" is off. 6. The melody part is off. 7. The melody part volume setting is too low. 8. MIDI IN command has lowered the master volume setting. 9. "DSP Volume" setting is too low. 	<ol style="list-style-type: none"> 1. Check to make sure the power cord is connected correctly. 2. Press the POWER button to turn on power. 3. Use the MAIN VOLUME slider to increase volume. 4. Auto accompaniment is turned off, which is indicated when none of the accompaniment mode indicators are lit. 5. Turn on "Local Control". 6. Use the Mixer to turn on the melody part. 7. Use the Mixer to increase the volume setting for the melody part. 8. Use "System" to raise the "Total M. Volume" setting. 9. Use "System" to raise the "DSP Volume" setting. 	<p>Pages E-18, 99 Page E-18 Page E-24 Page E-28 Page E-86 Page E-52 Page E-87 Page E-87</p>
Auto accompaniment does not sound.	<ol style="list-style-type: none"> 1. ACCOMP/SONG VOLUME slider setting is too low. 2. Auto accompaniment parts are turned off. 3. The volume settings of the auto accompaniment parts are too low. 	<ol style="list-style-type: none"> 1. Use the ACCOMP/SONG VOLUME slider to increase the volume. 2. Use the Mixer to turn on the auto accompaniment parts. 3. Use the Mixer to increase the volume settings of the applicable parts. 	<p>Page E-31 Page E-52 Page E-52</p>
Sound output does not change when key pressure is varied.	Touch response is turned off.	Use the TRANSPOSE/FUNCTION button to select a touch curve.	Page E-83
No sound produced by demo tune play.	<ol style="list-style-type: none"> 1. MAIN VOLUME slider set to MIN. 2. Headphones connected to the piano. 	<ol style="list-style-type: none"> 1. Move MAIN VOLUME slider more towards the MAX side. 2. Disconnect the headphones from the piano. 	<p>Page E-24 Page E-20</p>
Memory contents deleted.	Lithium battery is dead.	Contact your CASIO Service Provider for replacement of the lithium battery.	Page E-7
Nothing happens when the LAYER or SPLIT button is pressed.	<ol style="list-style-type: none"> 1. Upper2, Lower1, or Lower2 is off. 2. Upper2, Lower1, or Lower2 volume is too low. 	<ol style="list-style-type: none"> 1. Use the Mixer Mode to turn on the part on/off setting. 2. Use the Mixer Mode to raise the part volume. 	<p>Page E-52 Page E-52</p>
Some parts don't play at all during Sequencer playback.	<ol style="list-style-type: none"> 1. Mixer Mode part on/off setting is off. 2. Mixer Mode part volume setting is 0. 3. Song volume setting is too low. 4. "DSP Volume" setting is too low. 	<ol style="list-style-type: none"> 1. Use the Mixer to make sure that parts are turned on. 2. Use the Mixer to check the volume setting. 3. Use the ACCOMP/SONG VOLUME slider to raise the song volume. 4. Use "System" to raise the "DSP Volume" setting. 	<p>Page E-52 Page E-52 Page E-31 Page E-87</p>
Some parts stop playing at some point during Sequencer playback.	Playback exceeds the maximum polyphony of the piano.	Use the Mixer Mode to turn off some tracks (parts) to reduce the number of playback tracks.	Pages E-52, 60
Cannot record auto accompaniment rhythm.	Trying to record auto accompaniment to a non-system track (non-system tracks: Tracks 1 to 16).	Return to the playback mode, select the system track, and try recording again.	Page E-56

Problem	Possible Cause	Action	See page
No sound is produced when playing MIDI data from a computer.	<ol style="list-style-type: none"> 1. MIDI cables are not connected properly. 2. The part is turned off or its volume setting is too low. 3. Receive channels are turned off. 4. MIDI IN command has lowered the master volume setting. 5. The host select setting is wrong. 	<ol style="list-style-type: none"> 1. Connect MIDI cables properly. 2. Use the Mixer to turn on the part or increase its volume. 3. Specify the channel using the receive channel setting. 4. Use "System" to raise the "Total M. Volume" setting. 5. Set host select to the correct setting for the computer to which you are connected. 	<p>Page E-76 Pages E-52, 53 Page E-86 Page E-87 Page E-79</p>
Playing on the keyboard produces strange sound when connected to a computer.	The computer's MIDI THRU function is turned on.	Turn off the computer's MIDI THRU function or turn off "Local Control" on the piano.	Pages E-78, 86
Cannot record data played on the piano to a computer.	<ol style="list-style-type: none"> 1. "Accomp MIDI Out" is turned off. 2. Receive channels are turned off. 3. The host select setting is wrong. 4. "Real Time Message Out" is turned off. 	<ol style="list-style-type: none"> 1. Turn on "Accomp MIDI Out". 2. Specify the channel using the receive channel setting. 3. Set host select to the correct setting for the computer to which you are connected. 4. Turn on "Real Time Message Out." 	<p>Page E-86 Page E-86 Page E-79 Page E-86</p>
Piano cannot receive exclusive messages over MIDI IN.	The exclusive message device ID does not match the piano's device ID.	Make sure the exclusive message device ID matches the piano's device ID.	Page E-86
No sound produced by microphone/line input.	<ol style="list-style-type: none"> 1. The line cables are not connected properly. 2. The Mixer volume setting is 0. 3. The microphone volume setting is too low. 	<ol style="list-style-type: none"> 1. Check the line cables for proper connection. 2. Check the Mixer volume setting. 3. Check the MIC VOLUME knob setting. 	<p>Page E-20 Page E-52 Page E-21</p>
No sound from the left speaker or right speaker.	<ol style="list-style-type: none"> 1. The Mixer pan setting is at either extreme. 2. MIDI IN command has shifted master pan to either side. 3. The left or right LINE IN cable is not connected correctly. 4. DSP Pan setting is shifted to either side. 	<ol style="list-style-type: none"> 1. Check the Mixer pan setting. 2. Use "System" to adjust the "Total M. Pan" setting. 3. Check the LINE IN cables for proper connection. 4. Use "System" to adjust the "DSP Pan" setting. 	<p>Page E-52 Page E-87 Page E-20 Page E-87</p>
DSP effects are not applied even when they are turned on.	<ol style="list-style-type: none"> 1. The Mixer DSP setting is turned off for the part to which you are trying to apply an effect. 2. The Mixer reverb send and chorus send settings are 0. 3. DSP reverb send and chorus send are 0. 	<ol style="list-style-type: none"> 1. Turn on the Mixer DSP setting. 2. Use the Mixer to change the reverb send and chorus send settings. 3. Change the DSP reverb send and chorus send setting. 	<p>Page E-53 Page E-53 Page E-87</p>
The Mixer Mode pan effect is not being applied.	DSP is turned on for the part.	Change the DSP pan setting.	Page E-87
Auto Harmonize effect does not work.	The current accompaniment mode is normal or FULL RANGE CHORD .	Change the accompaniment mode to CASIO CHORD or FINGERED .	Page E-28
Keyboard keys do not light.	Key Lighting is turned off.	Turn on Key Lighting.	Page E-27
Keyboard keys do not light during Sequencer playback.	<ol style="list-style-type: none"> 1. The selected track does not have any data recorded in it. 2. Key Lighting is turned off. 	<ol style="list-style-type: none"> 1. Select the track that contains the data you want to control the key lighting. 2. Turn on Key Lighting. 	<p>Page E-60 Page E-27</p>

Problem	Possible Cause	Action	See page
Keyboard keys do not light during MIDI data play.	1. The data channel and navigate channel are different.	1. Make the tune's channel whose notes you want to light the same as the navigate channel.	Page E-86
	2. Key Lighting is turned off.	2. Turn on Key Lighting.	Page E-27
No sound when playing back from the Music Library.	Song volume setting is too low.	Use the ACCOMP/SONG VOLUME slider to raise the song volume.	Page E-31
No sound when playing back directly from an SMF.	Song volume setting is too low.	Use the ACCOMP/SONG VOLUME slider to raise the song volume.	Page E-31

Disk Drive Error Messages

Display	Meaning
Error! No Disk	There is no disk in the drive.
Error! Disk Format	This piano does not support the format of the disk in the drive.
Error! Bad Disk?	An error occurred while accessing the disk.
Error! CannotAccess	An error occurred while processing data.
Error! SMF 0 Only!	The selected file cannot be played because it is the wrong format. Use a Format 0 SMF file.
Error! Wrong Data	The selected file cannot be played because it contains unreadable data.
Error! Memory Full	There is not enough memory.
Error! File Format	The selected file cannot be imported because it is the wrong format or contains the wrong type of data.
Error! SMF Only!	The selected file cannot be imported. Select an SMF file.
Error! SMF 0/1only!	The selected file cannot be imported. Select a Format 0/1 SMF file.
Error! No File	There are no supported files on this disk.
Error! File Name	The file name is not correct.
Error! Disk Full	The disk is full. Delete some files you no longer need or use a different disk.
Error! Disk Protect	This disk is write protected. Unprotect the disk or use a different disk.
Error! ReadOnlyFile	The files on this disk are read only. Save the data under a different name.
Error! Fingering	An error occurred while generating fingerings.

Specifications

All of the items in these specifications apply to both the AL-100R, AL-100RV, AL-150R, and AL-150RV, unless specifically noted otherwise.

Models:	AL-100R / AL-100RV / AL-150R / AL-150RV
Keyboard	
• Type:	Piano
• Number of Keys:	88 (A0 to C8)
• Touch Response:	Three sensitivity levels; on/off
• Key Light System:	Can be turned on and off, 2-color lighting (red, yellow)
• Key Lighting Polyphony:	20
Tones	
• Number of Tones:	271 (63 panel tones + 128 GM tones + 70 variation tones + 10 drum sounds)
• Maximum Polyphony:	64
• Layering:	on/off
• Split:	on/off (variable split point)
Effects	
• Number of Effects:	0
• Type:	3-channel
• Other:	Reverb (8 types) + Chorus (8 types) + DSP (16 types) DSP settings (volume, pan, reverb send, chorus send)
Metronome	
• Time Signatures:	0, 2/4 to 7/4, 9/4, 12/4, 3/8, 5/8, 6/8, 7/8, 9/8, 12/8
• Tempo Range:	30 to 255
• Metronome Volume:	0 to 127
Auto Accompaniment	
• Number of Rhythms:	100 (normal + piano)
• Number of Rhythm Sound Sources:	65
• Tempo Range:	30 to 255
• Controllers:	INTRO, FILL-IN, BREAK, VARIATION 1-2, SYNCHRO START/STOP, ENDING, START/STOP
• Modes:	Normal; CASIO CHORD; FINGERED; FULL RANGE CHORD
• Parts:	Drum; Percussion; Bass; Chord 1 to Chord 5
• Accompaniment/Song Volume:	0 slider
• Accomp Settings:	Chord Hold on/off, Lower Hold on/off, Mixer Hold on/off, On Bass Chord on/off, Tension Chord on/off, 6th Chord on/off
Auto Harmonize:	12 types; adds harmony notes to melody in accordance with auto accompaniment chord fingerings.
One Touch Presets	
• Number of Presets:	100 (1 set per rhythm)
• Setting Data:	Tone, tempo, other

Mixer	
• Number of Channels:	31 (Group A: 15, Group B: 16)
• Modes:	Solo/Play/Normal
• Parameters:	Tone, part on/off, volume, pan, effect send, fine tune, coarse tune
Sequencer	
• Number of Songs:	10
• Number of Tracks:	System Track + 16 Tracks
• Type:	Real-time memory
• Capacity:	15,500 notes
• Editing:	Punch-in
• Other Functions:	Quantize, delete, time signature, metronome on/off
Music Library	
• Number of Tunes:	80 preset + 10 user
• Arrangement Levels:	3
• Tempo:	30 to 255
• Controller:	Stop, Play/Pause, Fast Reverse/Back, Fast Forward/Next, Phrase Repeat
• Repeat Function:	Phrase repeat, section repeat
• Demo:	Sequential looping of all 80 preset tunes
Lesson Function	
• Step Lesson:	3-Step Lesson
• Lesson Part:	Left hand, right hand, both hands
• Voice Fingering Guide:	Selectable language (English, Japanese), on/off
• Other:	Repeat on/off, pre-count on/off
Other	
• Transpose:	±12 semitones, 25 steps
• Master Tuning:	A4 = 415.3Hz to 440.0Hz to 466.2Hz (Initial Default: 440.0Hz) Unit: 0.1 cent 510 levels
• Baroque Pitch:	0 on/off
• Stretch Tune:	0 on/off
• Temperament Settings:	7 types (equal temperament, just major intonation, just minor intonation, Pythagorean system, mean-tone system, Werckmeister, Kimberger); selectable root
• System:	Total (master) volume, total (master) pan
Display	
• Backlight:	0
• Contrast Adjustment:	0
• Other:	Selectable language (English, Japanese), Hold on/off
MIDI	
• System:	16-channel multi-timbre receive; GM Level 1 compliant
• Setting:	GM ON command Rx/Tx channel setting; navigate channel setting MIDI In-chord Judge on/off Local on/off, realtime message on/off, device ID Accomp MIDI out on/off

Pedals	
• Number of Pedals:	3
• Types:	Damper; sostenuto; soft
FDD	
• Type:	3.5" FDD (1 inch high)
• Format:	2DD 720KB MS-DOS format; 2HD 1.44MB MS-DOS format
• Functions:	Direct play (SMF 0); load (auto fingering generation); save; disk format; data delete; data rename
Input/Output	
• Headphones:	Standard stereo jacks × 2
• LINE OUT (R)(L/MONO):	Standard monaural jacks × 2 Output impedance: 1.1kΩ Output voltage: 2V (RMS) MAX
• LINE IN (R)(L/MONO):	Standard monaural jacks × 2 Input impedance: 24.0kΩ Input voltage: 250mV
• MIDI (OUT) (IN)	Mini DIN jack (selectable)
• TO HOST:	Standard jack (with microphone volume knob)
• Microphone In:	Input impedance: 3.3kΩ Input sensitivity: 10mV
Speakers:	Ø 16.0cm × 2, Ø 5.0cm × 2 (Output: 30.0W + 30.0W)
Power Supply:	AL-100R/AL-150R: 120V AL-100RV/AL-150RV: 220 - 240V
Power Consumption:	AL-100R/AL-150R: 78.0W AL-100RV/AL-150RV: 78.0W
Dimensions:	CELVIANO (without stand): 141.5 × 51.4 × 23.3 cm (55 3/4" × 20 1/4" × 9 3/16") CELVIANO: 141.5 × 53.8 × 86.4 cm (55 3/4" × 21 3/16" × 34 1/16")
Weight:	CELVIANO (without stand): approximately 45.0 kg (99.0 lbs) CELVIANO: approximately 62.0 kg (136.0 lbs)

- Design and specifications are subject to change without notice.
- AL-100R and AL-150R have hardwired power cords.
- AL-100RV and AL-150RV have detachable power cords.

Assembly Instructions

Caution

- Take particular care to avoid injury when installing legs and pedals, and when mounting the keyboard onto the stand.
- When assembling, make sure that the sliding keyboard cover of the piano body is completely closed. If the cover is left open during assembly, it may close suddenly causing the fingers to be pinched between the piano body and cover.

Assembling the stand

Refer to Figures 3, 4 and 5 as you assemble the stand according to the following procedure.

Figure 3

Figure 1

Figure 2

IMPORTANT!

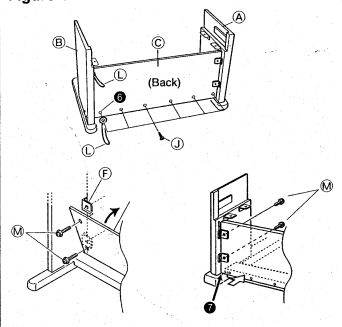
- Be sure to assemble the stand on a flat surface.
- This stand does not include any of the tools required to assemble it. You should have a large Phillips head (+) screwdriver on hand for assembly.

• Check the items that come with the unit to make sure that everything shown in Figure 1 (A through M) is included. All screws are in a plastic bag inside of the packing cardboard.

• Before starting actual assembly of the stand, undo the clip at location 1 (Figure 2) where the pedal cable comes out the back of crosspiece D.

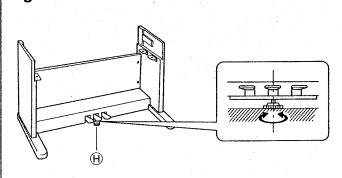
- Attach E and F brackets to side uprights A and B using the G screws (Figure 3).
- When attaching the E bracket to the side upright B, slip a H clip onto the I screw before screwing the I screw into the upright at point J.
- Attach angle brackets C to side uprights A and B using the eight G screws (Figure 3).
- Install height adjustment screw H into hole 1 located in the center of the back of crosspiece D (Figure 3).
- Attach side uprights A and B to crosspiece D using the four G screws (Figure 3).
- When joining the two pieces marked 1, the metal pieces on the insides of side uprights A and B should fit into the slots at the ends of crosspiece D. Make sure the metal pieces enter into the slots as far as they will go. If the pieces are not positioned correctly, the nuts built into crosspiece D will not seat properly with the G screws. This can result in stripping of the threads and free turning of nuts.

Figure 4



5. Attach back panel (C) to the (F) brackets and crosspiece (D). Note that the back panel (C) should be installed so it is in front of the (F) brackets (Figure 4). Use the four (J) screws, six (J) screws to secure the back panel in place (Figures 3 and 4). Note that you must also install the second (K) clip at this time as shown in the illustration.
- First, install the topmost (J) screws on the left and right sides of the back panel (C). Note that you should slip the other (K) clip onto the (J) screw at point (E) before you screw in the (J) screw.
 - The back panel (C) should rest on the feet of side uprights (A) and (B) as indicated by (H) in the illustration. Press the back panel (C) against crosspiece (D) while installing the (J) screws.

Figure 5



6. Rotate height adjustment screw (H) until it supports crosspiece (D), preventing the crosspiece from bending when you press the pedals (Figure 5).

IMPORTANT!

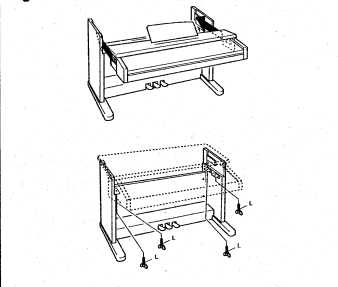
Be sure to install adjustment screw (H) and perform the adjustment procedure described above before depressing the pedals. Failure to do so can result in damage to crosspiece (D).

2 Installing the Keyboard onto the Stand



Caution
Take care that you do not pinch your fingers between the keyboard and stand!

Figure 6

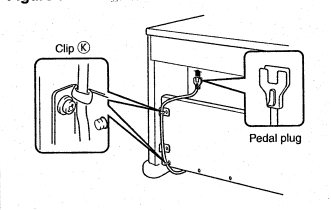


When mounting the keyboard on the stand, slide it in from the front of the stand so the sides of the keyboard enter into the grooves provided on the insides of the stand uprights. Be sure that you securely anchor the keyboard to the stand using the (L) butterfly bolts (Figure 6).

- The butterfly bolts keep the keyboard from falling from the stand. Be sure that you always secure the keyboard with the butterfly bolts.

3 Connecting the Pedal

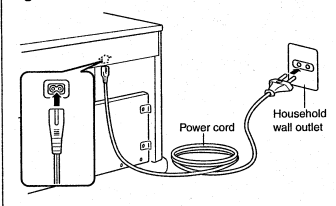
Figure 7



Position the pedal plug as shown in Figure 7 and insert it into the pedal connector on the bottom of the piano. Secure the pedal cable to the upright of the stand using the (K) clips that you installed when assembling the stand (Figure 7).

4 Connecting to a Power Supply

Figure 8



1. Check to make sure that the piano's POWER button is in the OFF position. If it is ON, press the button to switch it OFF.
 2. Attach the power cord that comes with the piano to the bottom of the piano.*
 3. Plug the piano's power cord into a wall outlet (Figure 8).
- * 2: applies to the AL-100RV and AL-150RV.

IMPORTANT!

- The shapes of the piano's power cord and wall outlet should be different according to countries or regions. The illustrations are examples.
- With the AL-100R and AL-150R, the power cord is hard-wired to the bottom of the instrument.



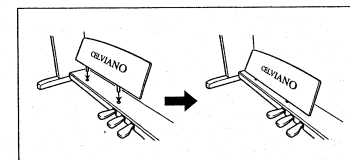
Caution
The screws that you use to assemble the stand may become loose after a long period due to changes in temperature and humidity, or vibration caused by normal use, etc. Periodically check the screws used to fasten the stand and the butterfly bolts used to fasten the stand and the piano, and tighten them whenever necessary.

Storing the Music Score Stand (AL-100R Only)

Be sure to remove the music score stand from the top of the piano and store in the location provided on the crosspiece (D) at the base of the piano stand. With the CELVIANO logo facing towards the front of the piano, insert pegs in the bottom of the music score stand into the holes provided in the crosspiece.

IMPORTANT!

Always make sure the CELVIANO logo is facing towards the front of the piano whenever you attach the music score stand on the crosspiece. Orienting the music score stand so the CELVIANO logo is facing towards the back can damage the music stand or its pegs.



Appendix

Tone List

No.	Tone Group	On-screen Tone Name	Program Change	Bank Select MSB	DCO channels Used	Maximum Polyphony	Legato	DSP	Tones without scale
0	Grand Piano	Stereo Piano	000	2	2	32			
1	Grand Piano	St Br Piano	001	2	2	32			
2	Grand Piano	St Med Piano	000	3	2	32			
3	Piano	Grand Piano	000	0	1	64		1	
4	Piano	St Br Piano	001	1	1	64			
5	Piano	St Med Piano	002	16	1	64			
6	Piano	Harpsichord	003	0	2	32			
7	Piano	Electric Piano	000	30	2	32			
8	Piano	Electric Piano	000	29	2	32			
9	Piano	Electric Piano	001	16	2	32		1	
10	Piano	Electric Piano	000	24	2	32		1	
11	Electric Piano	Modern Electric Piano	004	16	2	32		3	
12	Electric Piano	Electric Piano 1	004	0	1	64		3	
13	Electric Piano	Electric Piano 2	005	0	2	32		4	
14	Electric Piano	Electric Piano 2	004	1	1	64		3	
15	Electric Piano	60's Electric Piano	004	24	1	64		10	
16	Electric Piano	Electric Piano	002	0	1	64		1	
17	Electric Piano	Synth-Str EP	004	30	2	32		1	
18	Harpsichord	Harpsichord	005	0	2	32			
19	Harpsichord	Coupled Hps	005	8	2	32			
20	Harpsichord	Harpsichord	011	0	1	64		10	
21	Harpsichord	Harpsichord	012	0	1	64			
22	Harpsichord	Church Organ	007	0	1	64		7	
23	Organ	Church Organ	019	0	1	64			
24	Organ	Church Organ	019	1	1	64			
25	Organ	Perc Organ 1	017	1	2	32		12	
26	Organ	Perc Organ 2	017	2	1	64		12	
27	Organ	Tremolo Org	016	8	1	64		12	
28	Organ	Even Bar	016	33	1	64		12	
29	Organ	Full Organ	016	2	1	64		12	
30	Organ	70's Organ	016	32	1	64		12	
31	Guitar	MyonStr Gtr	024	0	1	64			
32	Guitar	SteelStr Gtr	025	0	1	64			
33	Guitar	Jazz Guitar	026	0	1	64			
34	Guitar	Clean Guitar	027	1	1	64		3	
35	Bass	Acoustic Bass	032	0	1	64			
36	Bass	Electric Bass	032	32	2	32			
37	Bass	Electric Bass	032	0	1	64			
38	Bass	Picked Bass	034	0	1	64			
39	Bass	Fretless Bass	035	0	1	64			
40	Bass	Slap Bass	037	0	1	64			
41	Bass	Synth-Bass	038	0	2	32			
42	Ensemble&Synth	Strings 1	048	0	1	64	○	1	
43	Ensemble&Synth	Strings 2	049	0	1	64			

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No.	Tone Group	On-screen Tone Name	Program Change	Bank Select MSB	DCO channels Used	Maximum Polyphony	Legato	DSP	Tones without scale
44	Ensemble&Synth	SynthString	050	0	2	32			
45	Ensemble&Synth	SymphoSynthr	050	24	2	32		4	
46	Ensemble&Synth	Choir Aahs	052	0	1	64			
47	Ensemble&Synth	Synth-Voice	054	0	1	64			
48	Ensemble&Synth	Warm Pad	089	0	1	64			
49	Ensemble&Synth	Square Wave	080	0	2	32		5	
50	Ensemble&Synth	SawtoothWave	081	0	2	32		5	
51	Sax/Clarnet	Breathy Sax	065	16	1	64	○		
52	Sax/Clarnet	Alto Sax	065	0	1	64	○		
53	Sax/Clarnet	Soprano Sax	065	0	1	64	○		
54	Sax/Clarnet	Clarin	074	0	1	64	○		
55	Sax/Clarnet	Obob	068	0	1	64	○		
56	Flute/Brass	Flute	073	0	1	64	○		
57	Flute/Brass	Trumpet	056	2	1	64	○		
58	Flute/Brass	Mute Trumpet	059	0	1	64	○		
59	Flute/Brass	Trombone	057	0	1	64	○		
60	Flute/Brass	Brass	061	0	1	64			
61	Flute/Brass	AnalogueSynth	062	1	2	32			
62	Flute/Brass	000GrandPho	000	0	1	64			
63	GM/Various	000GrandPho	000	2	2	32			
64	GM/Various	000SinePho	000	3	2	32			
65	GM/Various	000G ProWid	000	8	1	64			
66	GM/Various	000MeowPho	000	16	1	64			
67	GM/Various	000StringPho	000	2	2	32			
68	GM/Various	000Oct Ph	000	29	2	32			
69	GM/Various	000Oct Ph	000	30	2	32			
70	GM/Various	000SinePho	001	2	2	32			
71	GM/Various	001SinePho	001	8	1	64			
72	GM/Various	001BPhPho	001	16	2	32			
73	GM/Various	001DancePho	001	0	1	64			
74	GM/Various	002E Grand	002	0	2	32			
75	GM/Various	003HkyTnk	003	0	2	32			
76	GM/Various	004E Piano1	004	0	1	64			
77	GM/Various	004E Piano2	004	1	1	64		3	
78	GM/Various	004SisotEP	004	8	2	32			
79	GM/Various	004ModernEP	004	16	2	32			
80	GM/Various	00460t EP	004	24	1	64			
81	GM/Various	004SynStrEP	004	30	2	32			
82	GM/Various	005FM EP	005	0	2	32			
83	GM/Various	006Harpe	006	0	2	32			
84	GM/Various	007Cowbys	006	8	2	32			
85	GM/Various	008Celesta	008	0	1	64			

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No.	Tone Group	On-screen Tone Name	Program Change	Bank Select MSB	DCO channels Used	Maximum Polyphony	Legato	DSP	Tones without scale
88	GM/Various	008* Glocken	009	0	1	64			
89	GM/Various	010* MusicBox	010	0	1	64			
90	GM/Various	011* Vices	011	0	1	64			
91	GM/Various	012* Marimba	012	0	1	64			
92	GM/Various	013* Xylophon	013	0	1	64			
93	GM/Various	014* TubaBsl	014	0	1	64			
94	GM/Various	015* Dulcimer	015	0	1	64			
95	GM/Various	016* DmbrOrg	016	0	1	64			
96	GM/Various	016* Full Org	016	2	1	64		12	
97	GM/Various	016* Trem. Org	016	8	1	64			
98	GM/Various	016* 70% Org	016	32	1	64		12	
99	GM/Various	016* Even Barr	016	33	1	64		12	
100	GM/Various	017* PercOrg1	017	0	2	32			
101	GM/Various	017* PercOrg2	017	2	1	64			
102	GM/Various	017* PercOrg3	017	32	2	32		12	
103	GM/Various	018* Rock Org	018	0	2	32			
104	GM/Various	018* Rotary S	018	16	2	32			
105	GM/Various	018* Rotary F	018	24	1	64			
106	GM/Various	019* ChurchOrg	019	1	1	64			
107	GM/Various	019* ChapOrg	019	1	1	64			
108	GM/Various	020* Reed Org	020	0	1	64			
109	GM/Various	021* Accordion	021	0	1	64			
110	GM/Various	022* Harmonica	022	0	1	64			
111	GM/Various	023* Bandoneon	023	0	2	32			
112	GM/Various	024* NylonGtr	024	0	1	64			
113	GM/Various	024* Ny GLOff	024	16	2	32			
114	GM/Various	025* SteelGtr	025	0	1	64			
115	GM/Various	025* 12Str Gtr	025	8	2	32			
116	GM/Various	026* JazzGtr1	026	0	1	64			
117	GM/Various	026* JazzGtr2	026	1	1	64		9	
118	GM/Various	026* RockGtr	026	8	2	32			
119	GM/Various	027* CleanGtr	027	1	1	64		5	
120	GM/Various	027* CleanGtr2	027	5	1	64		5	
121	GM/Various	027* ChorusEG	027	8	2	32			
122	GM/Various	027* ElecGtr1	027	16	1	64			
123	GM/Various	027* ElecGtr2	027	17	1	64		13	
124	GM/Various	028* Mute Gtr	028	0	1	64			
125	GM/Various	028* FunkGtr1	028	8	1	64			
126	GM/Various	028* FunkGtr2	028	16	1	64			
127	GM/Various	029* Overdrvr1	029	0	1	64		8	
128	GM/Various	029* Overdrvr2	029	1	2	32		13	
129	GM/Various	030* Dist Gtr1	030	0	1	64			
130	GM/Various	030* Dist Gtr2	030	1	2	32		9	

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No.	Tone Group	On-screen Tone Name	Program Change	Bank Select MSB	DCO channels Used	Maximum Polyphony	Legato	DSP	Tones without scale
132	GM/Various	030* Dist Gtr3	030	3	1	64		13	
133	GM/Various	030* Dist Gtr4	030	4	1	64		13	
134	GM/Various	030* Dist Gtr5	030	5	1	64			
135	GM/Various	030* Feedback	030	8	2	32			
136	GM/Various	031* GtrHrnc	031	0	2	32			
137	GM/Various	032* Acc Bass	032	0	1	64			
138	GM/Various	032* HdrBass	032	32	2	32			
139	GM/Various	033* FlngBass	033	0	1	64			
140	GM/Various	034* FlngBass	034	0	1	64			
141	GM/Various	035* FlngBass	035	0	1	64			
142	GM/Various	036* Slap Bsl	036	0	1	64			
143	GM/Various	037* Slap Bsl2	037	0	1	64			
144	GM/Various	038* SynBass1	038	0	2	32			
145	GM/Various	038* An. SynBs	038	1	1	64			
146	GM/Various	038* AcidBass	038	8	1	64			
147	GM/Various	039* SynBass2	039	0	1	64			
148	GM/Various	039* BeatFMBs	039	8	2	32			
149	GM/Various	040* Violin	040	0	1	64			
150	GM/Various	041* Viola	041	0	1	64			
151	GM/Various	042* Cello	042	0	1	64			
152	GM/Various	043* Contrab	043	0	1	64			
153	GM/Various	044* Trem. Str	044	0	1	64			
154	GM/Various	045* Pizz Str	045	0	1	64			
155	GM/Various	046* Harp	046	0	1	32			
156	GM/Various	047* Trngl	047	0	2	32			
157	GM/Various	048* SynStr1	048	0	1	64			
158	GM/Various	048* SynStr2	049	0	1	64			
159	GM/Various	048* SynStr3	049	1	1	64			
160	GM/Various	050* Syn-Srt1	050	0	2	32		1	
161	GM/Various	050* MetSynSt	050	2	1	64		4	
162	GM/Various	050* SynSynSt	050	24	2	32		1	
163	GM/Various	051* Syn-Srt2	051	0	2	32			
164	GM/Various	052* ChoirAsh	052	0	1	64			
165	GM/Various	053* VoiceDoo	053	0	1	64			
166	GM/Various	054* Voice	054	0	1	64			
167	GM/Various	055* Orch Hit	055	0	2	32			
168	GM/Various	056* Trumpet1	056	0	1	64			
169	GM/Various	056* Trumpet2	056	1	1	64			
170	GM/Various	056* Trumpet3	056	2	1	64			
171	GM/Various	057* Trombon	057	0	1	64			
172	GM/Various	058* Trombon2	057	1	2	32			
173	GM/Various	058* Tuba	058	0	1	64			
174	GM/Various	059* Mute Trp	059	0	1	64			
175	GM/Various	060* Fr Horn1	060	0	1	64			

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A-3

No.	Tone Group	On-screen Tone Name	Program Change	Bank Select MSB	DCO channels Used	Maximum Polyphony	Legato	DSP	Tones without scale
176	GM/Various	060*Fl.Horn2	060	1	2	32			
177	GM/Various	061*Brass 1	061	0	1	64			
178	GM/Various	061*Brass 2	061	8	2	32			
179	GM/Various	062*Syn-Bst1	062	0	2	32			
180	GM/Various	062*AnSynBrs	062	1	2	32		1	
181	GM/Various	062*OcSynBr	062	16	2	32			
182	GM/Various	063*Syn-Bst2	063	0	1	64			
183	GM/Various	064*Supr.Sax	064	0	1	64			
184	GM/Various	065*Alt Sax	065	0	1	64			
185	GM/Various	065*Vtr ASax	065	8	1	64			
186	GM/Various	065*Vtr LSax	065	9	1	64			
187	GM/Various	065*Brn ASax	065	16	1	64			
188	GM/Various	066*TenSax1	066	1	2	32			
189	GM/Various	066*TenSax2	066	1	2	32			
190	GM/Various	066*BrnT Sax	066	8	1	64			
191	GM/Various	066*BrnT Sax	066	16	1	64			
192	GM/Various	066*VelT Sax	066	24	2	32			
193	GM/Various	067*BarT Sax	067	0	1	64			
194	GM/Various	068*Oboe 1	068	0	1	64			
195	GM/Various	068*VeloOboe	068	8	1	64			
196	GM/Various	068*Oboe 2	068	9	1	64			
197	GM/Various	069*Eng Horn	069	0	1	64			
198	GM/Various	070 Bassoon	070	0	1	64			
199	GM/Various	071 Clarinet	071	0	1	64			
200	GM/Various	072 Piccolo	072	0	1	64			
201	GM/Various	073 Flute	073	0	1	64			
202	GM/Various	074 Piccolo	073	1	2	32			
203	GM/Various	074 Piccolo	074	0	1	64			
204	GM/Various	075 Pan Flute	075	0	2	32			
205	GM/Various	076 Bodiblow	076	0	1	64			
206	GM/Various	077 Shakachi	077	0	2	32			
207	GM/Various	078 Whistle	078	0	1	64			
208	GM/Various	079 Ocarina	079	0	2	32			
209	GM/Various	080 Squat War	080	0	2	32			
210	GM/Various	080* Sine	080	8	1	64			
211	GM/Various	081 Saw Wave	081	0	2	32			
212	GM/Various	081 Sawtooth	081	1	1	64			
213	GM/Various	081* Saw+Syn	081	8	2	32			
214	GM/Various	082 Calliope	082	0	2	32			
215	GM/Various	083 Chir Ld	083	0	2	32			
216	GM/Various	084 Charming	084	0	2	32			
217	GM/Various	085 Picca Ld	085	0	2	32			
218	GM/Various	086 Picca Ld	086	0	2	32			
219	GM/Various	087 Bass+Ld	087	0	2	32			

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No.	Tone Group	On-screen Tone Name	Program Change	Bank Select MSB	DCO channels Used	Maximum Polyphony	Legato	DSP	Tones without scale
220	GM/Various	088 Fantasy	088	0	2	32			
221	GM/Various	089 Warm Pad1	089	0	1	64			
222	GM/Various	089 Warm Pad2	089	1	1	64		1	
223	GM/Various	090 Polysyn	090	0	2	32			
224	GM/Various	091 SpaceChr	091	0	2	32			
225	GM/Various	092 BowGlass	092	0	2	32		1	
226	GM/Various	093 Metal Pad	093	0	2	32			
227	GM/Various	094 Radio Pad	094	0	2	32			
228	GM/Various	095 Sound Pad	095	0	2	32			
229	GM/Various	096 Reverb Pad	096	0	2	32			
230	GM/Various	097 SoundBk	097	0	2	32			
231	GM/Various	098 Crystal	098	0	2	32			
232	GM/Various	099 Atmosphere	099	0	2	32			
233	GM/Various	100 Britenes	100	0	2	32			
234	GM/Various	101 Gobins	101	0	2	32			
235	GM/Various	102 Echoes	102	0	2	64			
236	GM/Various	103 SF	103	0	1	32			
237	GM/Various	104 Star	104	0	1	64			
238	GM/Various	105 Banjo	105	0	1	64			
239	GM/Various	106 Shamisen	106	0	1	64			
240	GM/Various	107 Koto	107	0	1	64			
241	GM/Various	108 Kaimba	108	0	1	64			
242	GM/Various	109 Bag Pipe	109	0	2	32			
243	GM/Various	110 Zither	110	0	2	32			
244	GM/Various	111 Shaker	111	0	2	32			
245	GM/Various	112 Tambal	112	0	2	32			
246	GM/Various	113 Anagog	113	0	2	32			
247	GM/Various	114 SteelDr	114	0	1	64			
248	GM/Various	115 WoodBlock	115	0	1	64			
249	GM/Various	116 Taiko	116	0	1	64			
250	GM/Various	117 Maro Tom	117	0	1	64			
251	GM/Various	118 Syn Drum	118	0	1	64			
252	GM/Various	119 Rev Cymb	119	0	1	64			
253	GM/Various	120 Fret Noz	120	0	1	64			
254	GM/Various	121 Brn Noz	121	0	1	64			
255	GM/Various	122 Seashore	122	0	1	64			
256	GM/Various	123 Bird	123	0	2	32			
257	GM/Various	124 Telephone	124	0	1	64			
258	GM/Various	125 Heligat	125	0	1	64			
259	GM/Various	126 Whistle	126	0	2	32			
260	GM/Various	127 Guita	127	0	1	64			
261	Drum Set	StandardSet1	000	0	-	-	-	-	-
262	Drum Set	StandardSet2	001	0	-	-	-	-	-
263	Drum Set	Room Set	008	0	-	-	-	-	-

437B E-108A

A-6

No.	Tone Group	On-screen Tone Name	Program Change	Bank Select MSB	DCO channels Used	Maximum Polyphony	Legato	DSP	Tones without scale
264	Drum Set	Power Set	016	0	-	-	-	-	-
265	Drum Set	Elec. Set	024	0	-	-	-	-	-
266	Drum Set	Synth-Set 1	025	0	-	-	-	-	-
267	Drum Set	Synth-Set 2	030	0	-	-	-	1	-
268	Drum Set	Jazz Set	032	0	-	-	-	-	-
269	Drum Set	Brush Set	040	0	-	-	-	-	-
270	Drum Set	Orch. Set	048	0	-	-	-	-	-

- NOTE**
- When the "GM/Various" tones "031:GtrHrnc", "047:Timpant", or "113:Apogo" tone is selected, notes in the range starting with C7 are always sounded one octave lower in the range starting from C6. Transposing the keyboard causes the start points to be raised or lowered accordingly.
 - After you use transpose, notes outside the normal A0 to C8 keyboard range may be difficult to hear.
 - Legato O: Tones that change during legato play

Drum Assignment List

Key/Note Number	00:StandardSet 1	01:StandardSet 2	08:Room Set	16:Power Set	24:Elec. Set	25:Synth-Set 1	30:Synth-Set 2	32:Jazz Set	40:Brush Set	48:Orch. Set
C1 0	Concert SD	Concert SD	Concert SD	Concert SD	Concert SD	Concert SD	Concert SD	Concert SD	Concert SD	Concert SD
D1 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
E1 3	Finger Snap 2	Finger Snap 2	Finger Snap 2	Finger Snap 2	Finger Snap 2	Finger Snap 2	Finger Snap 2	Finger Snap 2	Finger Snap 2	Finger Snap 2
F1 4	High Q	High Q	High Q	High Q	High Q	High Q	High Q	High Q	High Q	High Q
G1 5	Slap	Slap	Slap	Slap	Slap	Slap	Slap	Slap	Slap	Slap
A1 6	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
B1 7	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
C1 8	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
D1 9	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
E1 10	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
F1 11	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
G1 12	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
A1 13	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
B1 14	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
C1 15	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
D1 16	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
E1 17	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
F1 18	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
G1 19	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
A1 20	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
B1 21	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
C1 22	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
D1 23	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
E1 24	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
F1 25	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
G1 26	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
A1 27	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
B1 28	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
C1 29	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
D1 30	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
E1 31	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
F1 32	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
G1 33	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
A1 34	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
B1 35	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
C1 36	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
D1 37	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
E1 38	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
F1 39	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
G1 40	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
A1 41	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
B1 42	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
C1 43	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
D1 44	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
E1 45	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
F1 46	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1
G1 47	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1	Scratch Pull 1

[illegible]

Rhythm List

Rhythm Group	No.	Rhythm Name
POPS I	1	8Beat 1
	2	8Beat 2
	3	8Beat Guitar
	4	8Beat Dance
	5	Pop Rock 1
	6	Pop Rock 2
	7	16Beat 1
	8	16Beat 2
	9	Funk
	10	Fusion
POPS II	11	Euro Pop
	12	Soul
	13	Oldies Shuffle
	14	60's Pop
	15	R&B
	16	Dance Soul
	17	Shuffle Pop 1
	18	Shuffle Pop 2
	19	Pop Waltz
BALLAD	20	8Beat Ballad 1
	21	8Beat Ballad 2
	22	8Beat Ballad 3
	23	16Beat Ballad 1
	24	16Beat Ballad 2
	25	16Beat Ballad 3
	26	ShuffleBallad 1
	27	6/8 Ballad
	28	ShuffleBallad 2
ROCK	29	Rock 1
	30	60's Rock
	31	70's Rock
	32	Shuffle Rock
	33	Rock 2
	34	Blues
	35	Shuffle Boogie
	36	Twist
DANCE	37	Dance 1
	38	Dance 2
	39	Dance 3
	40	Disco Soul
	41	70's Disco
	42	90's Dance
	43	Techno
	44	Electric Pop
JAZZ	45	Big Band
	46	Fox Trot
	47	Swing 1
	48	Swing 2
	49	Jazz Combo 1
	50	Slow Swing
	51	Modern Jazz

NOTE

- Rhythms whose names are shaded in the "Rhythm Name" column of the above table are piano-only accompaniment rhythms. These rhythms are made up of chord accompaniments only, without drum or other rhythm sounds. Because of this, these rhythms do not sound while auto accompaniment is turned off (all the indicator lamps above the MODE button are off). You can specify chords by using these rhythms while auto accompaniment is turned on (indicated when one of the indicator lamps above the MODE button is lit).

Effect Table

DSP EFFECT List

No.	Type Name
1	Reflection
2	Gate Reverb
3	Chorus
4	Ensemble
5	Delay
6	Cross Delay
7	Phaser
8	Flanger
9	Loudness
10	Tremolo
11	Auto Pan
12	Rotary
13	Distortion
14	Auto Wah
15	Ring Mod.
16	Lo-Fi

REVERB EFFECT List

No.	Type Name
1	Room 1
2	Room 2
3	Room 3
4	Stage
5	Hall 1
6	Hall 2
7	Delay
8	Pan Delay

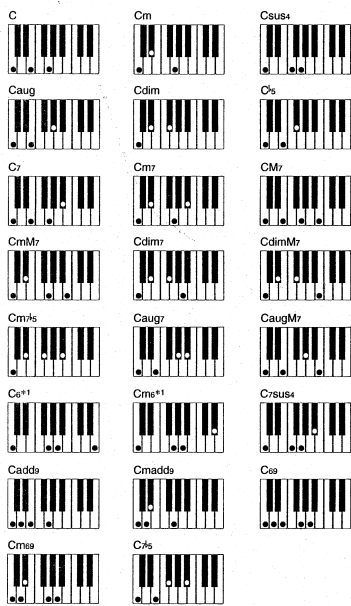
CHORUS EFFECT List

No.	Type Name
1	Chorus 1
2	Chorus 2
3	Chorus 3
4	Chorus 4
5	F-backChorus
6	Flanger
7	Short Delay
8	ShortDelayFB

Fingered/Full Range Chord Table

Example: Root C

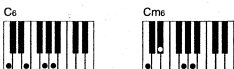
Root Position Chords (23 types)



*1 6th, m6th Chords

When the "6th chord" option is turned off, there must be at least five intervals separating the bass note and second note, as shown above.

When the "6th chord" option is turned on, you can specify a 6th chord by fingering the root position chord plus the 6th note, as shown below.



On Bass Chords: When the bass note is a chord component (32 types)

In either of the following cases, the lowest note is interpreted as the bass note, and the chord is interpreted as one of the chords shown below.

- When the lowest note is more than five intervals from the second note
- When the "On Bass Chord" setting is turned on

3-Note Chords

F/C	A ^b /C	Fm/C
Am/C	Fsus4/C	Gsus4/C
Adim/C	F ^b dim/C	A ^b 5/C
F#5/C		

Example F/C



4-Note Chords

F7/C	A7/C	Fm7/C	Am7/C*
Fm7/C	A ^b M7/C	FmM7/C	AmM7/C
F ^b dimM7/C	AdimM7/C	F ^b m ^b 5/C	
Eaug7/C	A ^b aug7/C	EaugM7/C	A ^b augM7/C
F7sus4/C	G7sus4/C		
Fadd9/C	A ^b add9/C	Fmadd9/C	Amadd9/C
A ^b 75/C			

*2 A fingering that includes the 5th (E) is interpreted as Am7/C, while a fingering that does not include the 5th is interpreted as C6.

On Bass Chords: When the bass note is not a chord component (120 types)

In either of the following cases, the lowest note is interpreted as the bass note, and the chord is interpreted as one of the chords shown below.

- When the lowest note is more than five intervals from the second note
- When the "On Bass Chord" setting is turned on

major chord type

F/C	G/C	A/C	B ^b /C	C/C	D/C
-----	-----	-----	-------------------	-----	-----

minor chord type

Fm/C	Gm/C	A ^b m/C	B ^b m/C
Bm/C	Cm/C	Dm/C	

7sus4 type

C7sus4/C	D7sus4/C	F7sus4/C	A7sus4/C
Asus4/C	Bsus4/C		

dim type

Fdim/C	Gdim/C	A ^b dim/C	Bdim/C
C ^b dim/C	Ddim/C		

aug type

Caug/C	Daug/C
--------	--------

major 5 type

C ^b 5/C	F5/C	G5/C	A5/C
--------------------	------	------	------

7th type

C7/C	B7/C	E7/C	F7/C
G7/C	A7/C	B7/C	

m7th type

C ^b m7/C	B ^b m7/C	F ^b m7/C	Gm7/C
A ^b m7/C	Bm7/C	Bm7/C	

M7th type

DM7/C	EM7/C	F ^b M7/C	GM7/C
AM7/C	B ^b M7/C	BM7/C	

mM7th type

DmM7/C	EmM7/C	F ^b mM7/C	GmM7/C
A ^b mM7/C	B ^b mM7/C	BmM7/C	

dim7 type

Ddim7/C

dimM7 type

DdimM7/C	FdimM7/C	GdimM7/C
A ^b dimM7/C	B ^b dimM7/C	BdimM7/C

m75 type

C ^b m75/C	B ^b m75/C	Fm75/C	Gm75/C
A ^b m75/C	Bm75/C	Bm75/C	

aug7 type

Caug7/C	B ^b aug7/C	Faug7/C	F ^b aug7/C
Aaug7/C	B ^b aug7/C		

augM7 type

DaugM7/C	FaugM7/C	F ^b augM7/C	GaugM7/C
AaugM7/C	B ^b augM7/C	BaugM7/C	

7sus4 type

C7sus4/C	E7sus4/C	F7sus4/C	F ^b 7sus4/C
A7sus4/C	B7sus4/C	B7sus4/C	

add9 type

Eadd9/C	F ^b add9/C	Gadd9/C	Aadd9/C
Badd9/C			

m add9 type

Dm add9/C	F ^b m add9/C	Gm add9/C	A ^b m add9/C
Bm add9/C			

69 type

C69/C	D69/C	E69/C	F ^b 69/C
G69/C	A69/C	B69/C	

m69 type

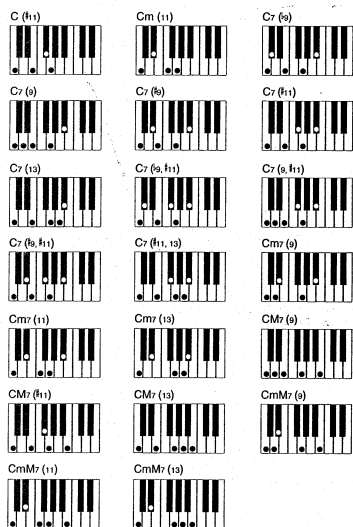
C ^b m69/C	Dm69/C	Em69/C	F ^b m69/C
Bm69/C			

75 type

C75/C	A75/C	B ^b 75/C	B75/C
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Tension Chords (20 Types)

Tension chords are recognized only while the "Tension Chord" setting is turned on.



Tension Chord On Bass Chords (40 Types)

In either of the following cases, the lowest note is interpreted as the bass note, and the chord is interpreted as one of the chords shown below only when the "Tension Chord" setting is turned on.

- When the lowest note is more than five intervals from the second note
- When the "On Bass Chord" setting is turned on

A [♭] (f11)/C	D(f11)/C	Fm(f11)/C
D [♭] (f11)/C		
D7(f9)/C	D7(9)/C	D7(f9)/C
F7(f9)/C	F7(f9)/C	F7(f13)/C
A [♭] 7(f9)/C	A [♭] 7(9)/C	A [♭] 7(f11)/C
A [♭] 7(f13)/C		
D7(9, f11)/C	D7(f9, f11)/C	
F7(f9, f11)/C	F7(9, f11)/C	F7(f9, f11)/C
F7(f11, 13)/C	A [♭] 7(f9, f11)/C	
A [♭] 7(9, f11)/C	A [♭] 7(f9, f11)/C	A [♭] 7(f11, 13)/C
C [♭] m(f11)/C	Dm(f11)/C	Fm7(9)/C
Fm7(f13)/C	Am7(9)/C*	Am7(f13)/C*
C [♭] M7(9)/C	C [♭] (f11)/C	Fm7(9)/C
Fm7(f11)/C	A [♭] M7(9)/C	A [♭] M7(f11)/C
FmM7(9)/C	FmM7(f11)/C	AmM7(9)/C
AmM7(f11)/C		

*3 A fingering that includes the 5th (E) is interpreted as Am7(9)/C, while a fingering that does not include the 5th is interpreted as CM7(f13).

*4 A fingering that includes the 5th (E) is interpreted as Am7(f13)/C, and a fingering that does not include the 5th is not recognized.

Song List

	Title	Number of Arrangement Levels	Auto Accompaniment Tune
CLASSIC 1			
1	Piano Concerto No.1 Op.23 1st Mov.	3	
2	March From "The Nutcracker"	3	
3	Etude Op.10 No.3 "Chanson de l'adieu"	3	
4	Fantaisie-Improptu Op.66	3	
5	Nocturne Op.9 No.2	3	
6	Prelude Op.28 No.7	3	
7	Hungarian Dances No.5	3	
8	Rhapsodie No.2	3	
9	La Fille aux Cheveux de Lin	3	
10	Arabesque No.1	3	
11	Promenade From "Tableaux d'une Exposition"	3	
12	Fröhlicher Landmann	3	
13	Träumerei	3	
14	La Prière d'une Vierge	3	
15	Gymnopédies No.1	3	
16	Gnossiennes No.1	3	
17	Liebesträume No.3	3	
18	Moments Musicaux Op.94 No.3	3	
19	Impromptu Op.142 No.3 "Thema"	3	
20	Arabesque	3	
21	La Chevaleresque	3	
22	Bridal March From "Lohengrin"	3	
23	Wedding March From "Midsummer Night's Dream"	3	
CLASSIC 2			
24	Canon in D Major	3	
25	Tambourin	3	
26	Klavierbüchlein für Anna Magdalena Bach "Menuet"	2	
27	Inventionen No.1	3	
28	Inventionen No.13	3	
29	Goldberg-Variationen Var.30	3	
30	Jesus Bleibet Meine Freude	3	
31	Serenade From "Eine Kleine Nachtmusik"	3	
32	Sonata K.545 1st Mov.	3	
33	Sonata K.331 1st Mov. Theme	3	
34	Sonata K.331 1st Mov. Var.I	3	
35	Sonata K.331 1st Mov. Var.II	3	
36	Sonata K.331 1st Mov. Var.III	3	
37	Sonata K.331 1st Mov. Var.IV	3	
38	Sonata K.331 1st Mov. Var.V	3	
39	Sonata K.331 1st Mov. Var.VI	3	
40	Sonata K.331 2nd Mov.	3	
41	Sonata K.331 3rd Mov. "Turkish March"	3	
42	Sonatina Op.36 No.1 1st Mov.	2	
43	Sonatina Op.20 No.1 1st Mov.	3	
44	Sonata Op.13 "Pathétique" 1st Mov.	3	
45	Sonata Op.13 "Pathétique" 2nd Mov.	3	
46	Sonata Op.13 "Pathétique" 3rd Mov.	3	

	Title	Number of Arrangement Levels	Auto Accompaniment Tune
47	Sonata Op.27 No.2 "Moonlight" 1st Mov.	3	
48	Für Elise	3	
STANDARD			
49	Waltz For Debby	3	
50	Someday My Prince Will Come	3	
51	Fly Me To The Moon	3	
52	Autumn Leaves	3	
53	My Favorite Things	3	
54	Do-Re-Mi	2	
55	Moon River	2	
56	Princess Mononoke	2	
57	Stroll	2	
58	Merry Christmas Mr. Lawrence	3	
59	energy flow	3	
60	Ballade Pour Adeline	3	
61	Ellie My Love	2	
62	Garota De Ipanema	1	★
63	The Entertainer	3	
64	Maple Leaf Rag	3	
VARIOUS			
65	Happy Birthday To You	1	★
66	Jingle Bells	1	★
67	Silent Night	1	★
68	We Wish You A Merry Christmas	1	★
69	Joy To The World	2	
70	Auld Lang Syne	1	★
71	Greensleeves	2	
72	Chopsticks	2	
73	Neko Funjatta	2	
74	Sippin' Cider Through A Straw	1	★
75	Grandfather's Clock	1	★
76	Yankee Doodle	1	★
77	Turkey In The Straw	1	★
78	Le Pianiste-Virtuose No.1	1	
79	Le Pianiste-Virtuose No.39	1	
80	Le Pianiste-Virtuose No.60	1	

Parameter List

Item	Setting Range		Initial Default	Power Backup Items		Recall Items	Sequencer Recorded Item			One Touch Preset Recall Item
	MIN.	MAX.		(Backup Off)	(Backup On)		Header Panel Record	System Track Recording	Group B Track 1 to 16 Recording	
Key	Off	On (Velocity 1-127)	Off							
Damper	Light On/Off	Off	On							
Pedal	Sostenute On/Off	Off	On							
Soft On/Off	Off	On	Off							
Upper1	Stereo Piano	Orch Ser	Stereo Piano							
Upper2	Stereo Piano	Orch Ser	Strings							
Lower1	Stereo Piano	Orch Ser	Strings							
Lower2	Stereo Piano	Orch Ser	SynthString							
Tone Display Part	Upper1	Lower2	Upper1							
Layer Split	Off	On	Off							
Split On/Off	Off	On	Off							
Auto Harmonize	Off	On	Off							
Type	Duet 1	Big Band	Duet 1							
Rhythm	8Beat 1	8Beat 2	8Beat 1							
Variation 1/2 Select	VARIATION 1	Chs-Cha 2	VARIATION 1							
Syncho On/Off	Off	On	Off							
Accompaniment controller	-	-	-							
Operation	-	-	-							
Chord On/Off	-	-	-							
One Touch Preset Call	-	-	-							
Tempo	30	255	120							
Split Point	As	F#	F#							
Mode	(Normal, CASIO CHORD, FINGERED, FULL RANGE CHORD)	Normal	Normal							
AccompSong Volume	0	127	-							
Metronome	Off	On	Off							
Beat	0	128	4/4							
Reverb On/Off	Off	On	On							
Chorus On/Off	Off	On	On							
DSP On/Off	Off	On	On							
Reverb Type	Room 1	Pan Delay	Hall 1							
Chorus Type	Chorus 1	Short Delay FB	Chorus 3							
DSP Type	Reflection	Lo-Fi	Reflection							
Transpose Function	-12	+12	0							
Transpose Tune	415.3	466.2	440.0							
Baroque Pitch	Off	On	On							
Stretch Tune	Off	On	On							
Temperament Type	Equal	Kimberling	Equal							

Item	Setting Range		Initial Default	Power Backup Items		Recall Items*	Sequencer Recorded Item			One Touch Preset Recall Item
	MIN.	MAX.		(Backup Off)	(Backup On)		Header Panel (Panel Record)	System Track Recording	Group B Track 1 to 16 Recording	
Tune										
Lesson										
Temperament Root	C	B	C							
Speak (Off, English, Japanese)	Off	Jpn	Eng							
Repeat	Off	On	On							
Pre Count	Off	On	On							
General										
Touch (Off, Light, Normal, Heavy)	Off	Heavy	Normal							
Master Volume	0	127	100							
MIDI Channel	0	127	04							
MIDI Bank	0	127	04							
MIDI Bank Up	Off	On	On							
Demo 2	Off	On	On							
Contrast	0	127	88							
Display										
Display Hold	Off	On	Off							
Language	Eng	Jpn	Eng							
Pedal										
Assign Left	Soft	DSP	Soft							
Assign Middle	Soft	DSP	Sostenuto							
Sustain Length	1	Hold	Hold							
Accomp										
Chord Hold	Off	On	On							
Lower Hold	Off	On	On							
Upper Hold	Off	On	On							
MIDI Chord	Off	On	On							
MIDI Chord	Off	On	On							
MIDI Chord	Off	On	On							
6th Chord	Off	On	On							
Navigate Channel Red	Off	16	4							
Navigate Channel Yellow	Off	16	3							
Accomp MIDI Out	Off	On	Off							
MIDI in Chord Judge	Off	On	Off							
Real Time Message Out	Off	On	Off							
Device ID	1	32	17							
Local Control	Off	On	On							
Group (Off, A, B)	Off	B	A							
Channel A (Upper 1-Chords)	Ch.1	Ch.16	Depends on part							
Channel B (Part 1-16)	Ch.1	Ch.16	Depends on part							
MIDI Receive Channel	Off	Ch.16	Depends on part							
System										
DSP Volume	0	127	127							
DSP Pan	-64	63	0							
DSP Reverb Send	0	127	40							
DSP Chorus Send	0	127	0							
Total Master Volume	0	127	127							
Total Master Pan	-64	63	0							
Initialize										
Group B, Parameter All, Music Library, User Song, Music Library, User Song All, All (M.L. User/Song No.)	-	-	-							
1	1	10	1							

Item	Setting Range		Initial Default	Power Backup Items		Recall Items*	Sequencer Recorded Item			One Touch Preset Recall Item
	MIN.	MAX.		(Backup Off)	(Backup On)		Header Panel (Panel Record)	System Track Recording	Group B Track 1 to 16 Recording	
Solo/Play										
Normal/Solo/Play Mode Select	Normal	Play	Normal							
Solo/Play Part Select	Part 1	Part 16	Part 1							
Mixer										
Group A Part Select	Upper1	Chord 5	Upper1							
Group B Part Select	Part 1	Part 16	Part 1							
Group A/B Switch	A	B	A							
Tone	Stereo Piano	Orch Set	See previous "Tone" item.							
Part On/Off	Off	On	On							
Volume	0	127	0							
Reverb Send	-64	63	0							
Chorus Send	0	127	40							
DSP On/Off	Off	On	Off (U2, On)							
DSP On/Off	Off	On	Off (U2, On)							
Coarse Tune	-24	24	0							
Fine Tune	-64	63	0							
Harmo 1/2										
Tone	Stereo Piano	Orch Set	Same as U1/2							
Part On/Off	Off	On	On							
Volume	0	127	95							
Pan	-64	63	0							
Reverb Send	-64	63	0							
Chorus Send	0	127	40							
DSP On/Off	Off	On	H1 Off, H2 On							
Coarse Tune	-24	24	0							
Fine Tune	-64	63	0							
Part On/Off	Off	On	On							
Volume	0	127	100							
Pan	-64	63	0							
Reverb Send	-64	63	0							
Chorus Send	0	127	40							
DSP On/Off	Off	On	Off							
Coarse Tune	-24	24	0							
Fine Tune	-64	63	0							
Mic/Line										
Part On/Off	Off	On	On							
Volume	0	127	100							
Pan	-64	63	0							
Reverb Send	-64	63	0							
Chorus Send	0	127	40							
DSP On/Off	Off	On	Off							
Coarse Tune	-24	24	0							
Fine Tune	-64	63	0							
Accomp										
Tone	Stereo Piano	Orch Set	Default parts of Beat 1							
Part On/Off	Off	On	On							
Volume	0	127	100							
Pan	-64	63	0							
Reverb Send	-64	63	0							
Chorus Send	0	127	40							
DSP On/Off	Off	On	Off							
Coarse Tune	-24	24	0							
Fine Tune	-64	63	0							

Item	Setting Range		Initial Default	Power Backup Items		Recall Items*	Sequencer Recorded Item			One Touch Preset Recall Item
	MIN.	MAX.		(BackUp Off)	(BackUp On)		Header Item (Panel Record)	System Track Recording	Group B Item 1 to 16 Recording	
Group B (1-16)	Tone	Stereo Piano (Part 10 Standard 1)	Orch.Sat	On	On	0	0	0	0	
	Part On/Off	Off	On			0	0	0	0	
	Volume	0	127	100	0	0	0	0	0	
	Pan	-64	63	0	0	0	0	0	0	
	Reverb Send	0	127	40	0	0	0	0	0	
	Chorus Send	0	127	0	0	0	0	0	0	
	DSP On/Off	Off	On	0	0	0	0	0	0	
	Coarse Tune	-24	24	0	0	0	0	0	0	
	Fine Tune	-64	63	0	0	0	0	0	0	
	Mode On/Off	Off	On	0	0	0	0	0	0	
Sequencer	Song No.	1	10	Track 1	0					
	Record track	Track 1	Track 16	Quarter Note	0					
Music Library	Quantize Resolution	Off	On	Off	0					
	Mode on/off	Off	On	Off	0					
Song Repeat	Song Select	P.Concerto 1	User Song 10	P.Concerto 1	0					
	Repeat Mode (Off/Phrase/Section)	Off	Section	Off	0					
Lesson	Repeat Phrase Number	First phrase of tune	Last phrase of tune	1	0					
	Section Repeat Start Point	First measure of tune	Last measure of tune	1	0					
Lesson	Section Repeat End Point	First measure of tune	Last measure of tune	3	0					
	Arrange Level (1, 2, 3)	Left	Both	Both	0					
DISK	Part Select (Left, Right, Both)	1	3	-	0					
	3Step Lesson Step No.	1	3	-	0					
Play Option	Select	Single	All	All	0					
	Repeat	Off	On	Off	0					

* Recall Items
When you exit the Sequencer, Disk, or Music Library Mode, settings of items marked with a 0 in this column are restored to the settings that were in effect when you entered one of the above modes.

MIDI Data Format

Channel Messages

- The channel numbers used for channel messages received for each part are in accordance with the receive channel settings for each part made using the instrument's "MIDI Rx Ch" parameter. Channel messages are not received for parts that are turned off using "MIDI Rx Ch".
- When the instrument's "MIDI In-chord Judge" setting is turned on, the instrument's auto accompaniment chord can be specified by a note message in the accompaniment keyboard range received over the channel specified by the receive channel setting for Part 1.

Note Messages

Note Off

Recognition Format

Byte 1	Byte 2	Byte 3
8nH	kkH	vvH
9nH	kkH	00H

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
kk Note Number = 00H to 7FH
vv Note Off Velocity = 00H to 7FH

Remarks

Note Off Velocity value is ignored.

Send Format

Byte 1	Byte 2	Byte 3
8nH	kkH	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
kk Note Number = 15H to 6CH
vv Note Off Velocity = 40H

Note On

Recognition Format

Byte 1	Byte 2	Byte 3
9nH	kkH	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
kk Note Number = 15H to 6CH
vv Note On Velocity = 00H to 7FH

Remarks

Normally, the range of the Note Number is 00H to 7FH.

Send Format

Byte 1	Byte 2	Byte 3
9nH	kkH	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
kk Note Number = 00H to 7FH
vv Note Off Velocity = 01 to 7FH

Polyphonic Key Pressure

Format

Byte 1	Byte 2	Byte 3
AnH	kkH	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
kk Note Number = 00H to 7FH
vv Pressure Value = 00H to 7FH

Recognition

The effect is configured in accordance with a received system exclusive message.

Send

Polyphonic Key Pressure messages cannot be sent.

Control Change

Bank Select

Format

Byte 1	Byte 2	Byte 3
BnH	00H	mmH (Bank Select MSB)
BnH	20H	llH (Bank Select LSB)

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
mm .. Bank Number MSB = 00H to 7FH
ll Bank Number LSB = 00H to 7FH

Recognition

The ll value is ignored.

Send

A Bank Select message is sent at the same time when you select a tone on the instrument.

Modulation Wheel

Format

Byte 1	Byte 2	Byte 3
BnH	01H	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Modulation Depth = 00H to 7FH

Recognition

Use System Exclusive messages to select a type of modulation.

Send

This message cannot be sent.

Portamento Time

Format

Byte 1	Byte 2	Byte 3
BnH	05H	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Portamento Time = 00H to 7FH

Data Entry

Format

Byte 1	Byte 2	Byte 3
BnH	06H	mmH (Data Entry MSB)
BnH	26H	llH (Data Entry LSB)

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
mm .. Data entry MSB value for the parameter that is selected by RPN and NRPN
ll Data entry LSB value for the parameter that is selected by RPN and NRPN

Channel Volume

Format

Byte 1	Byte 2	Byte 3
BnH	07H	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Volume = 00H to 7FH

Send

Channel Volume messages are sent when you change mixer volume.

Pan

Format

Byte 1	Byte 2	Byte 3
BnH	0AH	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Pan = 00H (left) to 40H (center) to 7FH (right)

Recognition

When a Pan message is received on the drum part, the Pan setting changes relatively to the Pan setting of each drum sound on the drum part.

Send

Pan messages are sent when you change the pan setting using the Mixer.

Expression Controller

Format

Byte 1	Byte 2	Byte 3
BnH	0BH	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Expression = 00H to 7FH

Send

This message cannot be sent.

Hold 1 (Damper Pedal)

Format

Byte 1	Byte 2	Byte 3
BnH	40H	vvH

Recognition

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Hold 1 = 00H to 7FH (00H:OFF, 40H to 7FH:ON)

Send

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Hold 1 = 00H, 7FH (00H:OFF, 7FH:ON)

Hold 1 messages are sent when you operate the damper pedal on the instrument.

Portamento

Format

Byte 1	Byte 2	Byte 3
BnH	41H	vvH

Recognition

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Portamento = 00H to 7FH (00H to 7EH:OFF, 7FH:ON)

Send

This message cannot be sent.

Sostenuto

Format

Byte 1	Byte 2	Byte 3
BnH	42H	vvH

Recognition

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Sostenuto = 00H to 7FH (00H to 3FH:OFF, 40H to 7FH:ON)

Send

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Sostenuto = 00H, 7FH (00H:OFF, 7FH:ON)

Sostenuto messages are sent when you operate the sostenuto pedal on the instrument.

Soft

Format

Byte 1	Byte 2	Byte 3
BnH	43H	vvH

Recognition

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Soft = 00H to 7FH (00H to 3FH:OFF, 40H to 7FH:ON)

Send

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Soft = 00H, 7FH (00H:OFF, 7FH:ON)

Soft messages are sent when you operate the soft pedal on the instrument.

Sound Controller 2 (Resonance)

Format

Byte 1	Byte 2	Byte 3
BnH	47H	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Filter Resonance = 00H to 7FH

Send

This message cannot be sent.

Sound Controller 3 (Release Time)

Format

Byte 1	Byte 2	Byte 3
BnH	48H	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv AMP Release Time = 00H to 7FH

Send

This message cannot be sent.

Sound Controller 4 (Attack Time)

Format

Byte 1	Byte 2	Byte 3
BnH	49H	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv AMP Attack Time = 00H to 7FH

Send

This message cannot be sent.

Sound Controller 5 (Brightness)

Format

Byte 1	Byte 2	Byte 3
BnH	4AH	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Filter Cutoff Frequency = 00H to 7FH

Send

This message cannot be sent.

Portamento Control

Format

Byte 1	Byte 2	Byte 3
BnH	5AH	kkH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
kk Source Note Number = 00H to 7FH

Send

This message cannot be sent.

Effect 1 (Reverb Send Level)

Format

Byte 1	Byte 2	Byte 3
BnH	5BH	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Reverb Send Level = 00H to 7FH

Send

Effect 1 messages are sent when you change mixer reverb send.

Effect 3 (Chorus Send Level)

Format

Byte 1	Byte 2	Byte 3
BnH	5DH	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Chorus Send Level = 00H to 7FH

Send

Effect 3 messages are sent when you change mixer chorus send.

NRPN (Non-Registered Parameter Numbers)

With the instrument, NRPN are defined as tone editing parameters. The MSB and LSB of an NRPN specify the parameter being controlled, while the specified parameter's value is set in accordance with the subsequent data entry. The following table shows the relationship between parameters and NRPN as defined by the instrument.

NRPN MSB	NRPN LSB	Parameter
01H	08H	Vibrato Rate
01H	09H	Vibrato Depth
01H	0AH	Vibrato Delay
01H	20H	Filter Cut Off Frequency
01H	21H	Filter Resonance
01H	63H	Filter/AMP Envelope Attack Time
01H	64H	Filter/AMP Envelope Decay Time
01H	66H	Filter/AMP Envelope Release Time

See "Vibrato Rate" through "Filter/AMP Envelope Release Time" for the data entry MSB value range and other details.

Format

Byte 1	Byte 2	Byte 3
BnH	63H	pmH (MSB)
BnH	62H	plH (LSB)

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
pm ... MSB of NRPN
pl LSB of NRPN

Recognition

- NRPN messages not defined by the instrument can also be received, but subsequent data entry values after undefined NRPN messages are ignored.
- After the NRPN MSB and LSB are received and the applicable control parameters settings are made, the value is set by receipt of the MSB of the subsequent data entry. The data entry LSB is ignored.

Send

An NRPN and data entry are sent whenever an operation that changes the parameter assigned to the NRPN (such as Vibrato Rate).

Vibrato Rate

NRPN MSB = 01H
NRPN LSB = 08H
Data Entry MSB = mmH

mm .. Vibrato Rate = 00H to 40H to 7FH (-64 to 0 to +63)

Recognition

When the instrument receives this message, the preset Vibrato Rate value for the tone is changed to the Vibrato Rate value that corresponds to the data entry MSB of the received message. There is no change when the value of the data entry MSB is 40H(0).

Send

This message cannot be sent.

Vibrato Depth

NRPN MSB = 01H
NRPN LSB = 0AH
Data Entry MSB = mmH

mm .. Vibrato Depth = 00H to 40H to 7FH (-64 to 0 to +63)

Recognition

When the instrument receives this message, the preset Vibrato Depth value for the tone is changed to the value that corresponds to the data entry MSB of the received message. There is no change when the value of the data entry MSB is 40H(0).

Send

This message cannot be sent.

Vibrato Delay

NRPN MSB = 01H
NRPN LSB = 0AH
Data Entry MSB = mmH

mm .. Vibrato Delay = 00H to 40H to 7FH (-64 to 0 to +63)

Recognition

When the instrument receives this message, the preset Vibrato Delay value for the tone is changed to the value that corresponds to the data entry MSB of the received message. There is no change when the value of the data entry MSB is 40H(0).

Send

This message cannot be sent.

Filter Cut Off Frequency

NRPN MSB = 01H
NRPN LSB = 20H
Data Entry MSB = mmH

mm .. Cut Off Frequency = 00H to 40H to 7FH (-64 to 0 to +63)

Recognition

When the instrument receives this message, the preset Filter Cut off Frequency value for the tone is changed to the value that corresponds to the data entry MSB of the received message. There is no change when the value of the data entry MSB is 40H(0).

Send

This message cannot be sent.

Filter Resonance

NRPN MSB = 01H
NRPN LSB = 21H
Data Entry MSB = mmH

mm .. Filter Resonance = 00H to 40H to 7FH (-64 to 0 to +63)

Recognition

When the instrument receives this message, the preset Filter Resonance value for the tone is changed to the value that corresponds to the data entry MSB of the received message. There is no change when the value of the data entry MSB is 40H(0).

Send

This message cannot be sent.

Filter/AMP Envelope Attack Time

NRPN MSB = 01H
NRPN LSB = 63H
Data Entry MSB = mmH

mm .. Filter/AMP Envelope Attack Time = 00H to 40H to 7FH (-64 to 0 to +63)

Recognition

When the instrument receives this message, the preset Filter/AMP Envelope Attack Time value for the tone is changed to the value that corresponds to the data entry MSB of the received message. There is no change when the value of the data entry MSB is 40H(0).

Send

This message cannot be sent.

Filter/AMP Envelope Decay Time

NRPN MSB = 01H
NRPN LSB = 64H
Data Entry MSB = mmH

mm .. Filter/AMP Envelope Decay Time = 00H to 40H to 7FH (-64 to 0 to +63)

Recognition

When the instrument receives this message, the preset Filter/AMP Envelope Decay Time value for the tone is changed to the value that corresponds to the data entry MSB of the received message. There is no change when the value of the data entry MSB is 40H(0).

Send

This message cannot be sent.

Filter/AMP Envelope Release Time

NRPN MSB = 01H
NRPN LSB = 66H
Data Entry MSB = mmH

mm .. Filter/AMP Envelope Release Time = 00H to 40H to 7FH (-64 to 0 to +63)

Recognition

When the instrument receives this message, the preset Filter/AMP Envelope Release Time value for the tone is changed to the value that corresponds to the data entry MSB of the received message. There is no change when the value of the data entry MSB is 40H(0).

Send

This message cannot be sent.

RPN (Registered Parameter Numbers)

On the instrument, RPNs are defined as settings for the following parameters.

NRPN MSB	NRPN LSB	Parameter
00H	00H	Pitch Bend Sensitivity
00H	01H	Master Fine Tuning
00H	02H	Master Coarse Tuning
7FH	7FH	RPN Null

The MSB and LSB of an RPN specify the parameter being controlled, while the specified parameter's value is set in accordance with the MSB of the subsequent data entry.

See "Pitch Bend Sensitivity" through "RPN Null" for the data entry MSB value range and other details.

Format

Byte 1	Byte 2	Byte 3
BnH	65H	qmH (MSB)
BnH	64H	qlH (LSB)

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
qm MSB of RPN
ql LSB of RPN

Recognition

- RPN messages not defined by the instrument can also be received, but subsequent data entry values after undefined RPN messages are ignored.
- After the MSB and LSB of an RPN are received and the applicable control parameters settings are made, the value is set by receipt of the MSB of the subsequent data entry. The data entry LSB is ignored.

Send

An RPN is sent whenever an operation that changes the parameter assigned to the RPN is performed.

Pitch Bend Sensitivity

RPN MSB = 00H
RPN LSB = 00H
Data Entry MSB = mmH

mm .. Pitch Bend Sensitivity = 00H to 18H (0 to 24 semitones)

Recognition

The data entry LSB is always ignored.

Send

When accompaniment data MIDI OUT is turned on, the Pitch Bend Sensitivity value is sent when accompaniment starts.

Master Fine Tuning

RPN MSB = 00H
RPN LSB = 01H
Data Entry MSB = mmH
Data Entry LSB = llH

mm ll Master Fine Tuning = 00 00H to 40H 00H to 7FH 7FH (-100 to 0 to +99.99 cents)

Send

The RPN message for Master Fine Tuning is sent when you change the Fine Tune parameter in the Mixer Mode.

Master Coarse Tuning

RPN MSB = 00H
RPN LSB = 02H
Data Entry MSB = mmH

mm .. Master Coarse Tuning = 28H to 40H to 58H (-24 to 0 to +24 semitones)

Recognition

The data entry LSB is always ignored.

Send

The RPN message for Master Coarse Tuning is sent when you change the Coarse Tune parameter in the Mixer Mode.

RPN Null

RPN MSB = 7FH
RPN LSB = 7FH

Recognition

Once an RPN Null is sent, all received data entry MSBs and LSBs are ignored until another RPN message other than RPN Null or an NRPN message is received.

Send

This message cannot be sent.

Program Change

Format

Byte 1	Byte 2
CnH	ppH

pp Program Number = 00H to 7FH

Recognition

When a Bank Select MSB value other than 00H is received by the drum part at the same time as the program change message, that value is ignored and program change is performed as if the value were 00H.

Send

Program Change messages are sent when you select a tone on the instrument.

Channel Pressure

Format

Byte 1	Byte 2
DnH	vvH

vv Pressure Value = 00H to 7FH

Recognition

Use System Exclusive messages to select a type of channel pressure.

Send

This message cannot be sent.

Pitch Bend Change

Format

Byte 1	Byte 2	Byte 3
EnH	llH	mmH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
ll Pitch Bend Change LSB = 00H to 7FH
mm .. Pitch Bend Change MSB = 00H to 7FH

Recognition

- The value llH mmH is 00H 00H at the lowest pitch, 00H 40H at mid-pitch, and 7FH 7FH at the highest pitch.
- You have to set both the LSB and MSB together to form a 14-bit value and make a Pitch Bend Change message recognized by the instrument.

Send

This message cannot be sent.

Channel Mode Message

All Sound Off

Format

Byte 1	Byte 2	Byte 3
BnH	78H	00H

n Voice Channel Number = 0H to FH (Ch1 to Ch16)

Recognition

Receipt of this message immediately mutes all tones playing over the MIDI channels.

Send

This message cannot be sent.

Reset All Controller

Format

Byte 1	Byte 2	Byte 3
BnH	79H	00H

n Voice Channel Number = 0H to FH (Ch1 to Ch16)

Recognition

Receipt of the Reset All Controller message causes the following controllers to be reset.

Controller Name	Reset Value
Polyphonic Key Pressure	vvH = 00H
Modulation Wheel	vvH = 00H
Expression Controller	vvH = 7FH
Hold 1	vvH = 00H
Portamento	vvH = 00H
Sostenuto	vvH = 00H
Soft	vvH = 00H
NRPN	msb = 7FH, lsb = 7FH
RPN	msb = 7FH, lsb = 7FH
Channel Pressure	vvH = 00H
Pitch Bend Change	llH mmH = 00H 40H

Send

The Reset All Controller message is sent whenever you change modes on the instrument (such as switching from the Combination Mode to the Mixer Mode).

All Note Off

Format

Byte 1	Byte 2	Byte 3
BnH	7BH	00H

n Voice Channel Number = 0H to FH (Ch1 to Ch16)

Recognition

Receipt of the All Note Off message mutes all tones being played by data received over the MIDI channels (note off).
If Hold 1 or Sostenuto is turned on when the All Note Off message is received, notes are sustained in accordance with the corresponding pedal operation.

Send

This message cannot be sent.

Omni Mode Off

Format

Byte 1	Byte 2	Byte 3
BnH	7CH	00H

n Voice Channel Number = 0H to FH (Ch1 to Ch16)

Recognition

Receipt of an Omni Mode Off message does not turn off the instrument Omni Mode. Receipt of an Omni Mode Off message is treated as an All Note Off message.

Send

This message cannot be sent.

Omni Mode On

Format

Byte 1	Byte 2	Byte 3
BnH	7DH	00H

n Voice Channel Number = 0H to FH (Ch1 to Ch16)

Recognition

Receipt of an Omni Mode On message does not turn on the instrument Omni Mode. Receipt of an Omni Mode On message is treated as an All Note Off message.

Send

This message cannot be sent.

Mono Mode On

Format

Byte 1	Byte 2	Byte 3
BnH	7EH	vvH

n Voice Channel Number = 0H to FH (Ch1 to Ch16)
vv Number of Mono Mode Channels = 00H to 10H

Recognition

Receipt of a Mono Mode On message does not turn on the instrument Mono Mode. Receipt of a Mono Mode On message is treated as an All Sound Off message.

Send

This message cannot be sent.

Poly Mode On

Format

Byte 1	Byte 2	Byte 3
BnH	7FH	00H

n Voice Channel Number = 0H to FH (Ch1 to Ch16)

Receive

Receipt of a Poly Mode On message by the instrument sets Channel n to Mode 3 and is processed as if an All Sound Off message and All Note Off message were received.

Send

This message cannot be sent.

System Messages

System Real Time Message

Active Sensing

Format

Byte 1
FEH

Receive

If no message is received within 400msec after the Active Sensing message is received, the All Sound Off, All Note Off, and Reset Controller procedures are performed.

Send

This message cannot be sent.

Timing Clock

Format

Byte 1
F8H

Recognition

This message cannot be received.

Send

This message is sent during auto accompaniment and song playback while the instrument's "Real Time Message Out" is turned on.

Start

Format

Byte 1
FAH

Recognition

This message cannot be received.

Send

This message is sent when auto accompaniment and song playback starts while the instrument's "Real Time Message Out" is turned on.

Stop

Format

Byte 1
FCH

Recognition

This message cannot be received.

Send

This message is sent when auto accompaniment and song playback ends while the instrument's "Real Time Message Out" is turned on.

System Common Message

The instrument does not send/recognizes System Common messages.

Universal System Exclusive Message

GM System On

Format

F0H 7EH 7FH 09H 01H F7H

Send

This message cannot be sent.

Reverb Parameters (Reverb Type Setting)

Format

F0 7F 7F 04 05 01 01 01 01 01 pp vv F7

Reverb Type

pp = 0;
vv = 0: Room1
= 1: Room2
= 2: Room3
= 3: Hall1
= 4: Hall2
= 6: Delay
= 7: Pan Delay
= 8: Stage

Send

This message is sent when a reverb switch operation or other reverb type setting operation is performed.

Receive

Receipt of this message sets the reverb type.

Chorus Parameters (Chorus Type Setting)

Format

F0 7F 7F 04 05 01 01 01 01 02 pp vv F7

Chorus Type

pp = 0;
vv = 0: Chorus1
= 1: Chorus2
= 2: Chorus3
= 3: Chorus4
= 4: F-backChorus
= 5: Flanger
= 6: Short Delay
= 7: ShortDelayFB

Send

This message is sent when a chorus switch operation or other chorus type setting operation is performed.

Receive

Receipt of this message sets the chorus type.

Other

The following shows MIDI send/receive conditions for each part.

Mode	IN	OUT
Initial screen	○	○
Music Library	×	×
Sequencer	○ ^{*1}	○
Disk	○ ^{*2}	○
Demo	×	×
Demo 2	×	×

*1: Cannot be recorded.

*2: Sounds only (cannot be saved, loaded, etc.)

Master Volume

Format

F0H 7FH 7FH 04H 01H 01H mmH F7H

ll Master Volume LSB
mm .. Master Volume MSB

Recognition

The instrument always receives this message.

Send

This message cannot be sent.

System Exclusive Message

F0 44 7E 02 00 [SysExDevID] 40 20 05 0D 00 00 2F 00 00 00 00 00 00 07 v1 vh F7

[SysExDevID]: System Exclusive Device ID: 00H to 1FH, 7FH

The system exclusive device ID is used to identify devices. A message is ignored if the device ID being sent does not match the ID of the receiving device. 7FH is a universal device ID, and messages with this ID are accepted unconditionally by all devices.

The explanations for this device are all presented using the default system exclusive device ID of 10H or the universal device ID of 7FH.

il : Parameter ID Low
ih : Parameter ID High
pp : Parameters required for part settings
v1 : 7bit Low Data :
vh : 7bit High Data : Data lengths up to 14 bits are supported.

DSP Type

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 01 00 04 00 00 07 v1 00 F7

v1 = 00 : Reflection
v1 = 01 : Gate Reverb
v1 = 02 : Chorus
v1 = 03 : Ensemble
v1 = 04 : Delay
v1 = 05 : Cross Delay
v1 = 06 : Phaser
v1 = 07 : Flanger
v1 = 08 : Loudness
v1 = 09 : Tremolo
v1 = 0A : AutoPan
v1 = 0B : Rotary
v1 = 0C : Distortion
v1 = 0D : Auto Wah
v1 = 0E : Ring Mod.
v1 = 0F : Lo-Fi

Send

This message is sent when a DSP switch operation or other DSP type switching operation is performed.

Receive

Receipt of this message switches the DSP type.

DSP On/Off

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 02 00 04 00 00 07 v1 00 F7

v1 = 0 : Off
v1 = 1 : On

Send

This message is sent when a DSP switch operation or other DSP function on/off operation is performed.

Receive

Receipt of this message turns DSP on or off.

DSP Volume

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 03 00 04 00 00 07 v1 00 F7

v1 = 0 to 7F :

Send

This message is sent when a function switch operation or other DSP volume setting operation is performed.

Receive

Receipt of this message changes the DSP volume setting.

DSP Pan

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 04 00 04 00 00 07 v1 00 F7

Insertion Pan Right Level: Insertion effect pan-pot
v1 = 0 to 7F : Value is offset by 40.

Send

This message is sent when a function switch operation or other DSP pan setting operation is performed.

Receive

Receipt of this message changes the DSP pan setting.

DSP Chorus Send Level

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 05 00 04 00 00 07 v1 00 F7

v1 = 0 to 7F :

Send

This message is sent when a function switch operation or other DSP chorus send level setting operation is performed.

Receive

Receipt of this message changes the DSP chorus send level setting.

DSP Reverb Send Level

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 06 00 04 00 00 07 v1 00 F7

v1 = 0 to 7F :

Send

This message is sent when a function switch operation or other DSP reverb send level setting operation is performed.

Receive
Receipt of this message changes the DSP reverb send level setting.

Mic/Line Chorus Send Level

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 07 00 04
00 00 07 v1 00 F7

v1 = 0 to 7F :

Send
This message is sent when a Mixer or other Mic/Line chorus level setting operation is performed.

Receive
Receipt of this message changes the Mic/Line chorus level setting.

Mic/Line Reverb Send Level

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 08 00 04
00 00 07 v1 00 F7

v1 = 0 to 7F :

Send
This message is sent when a Mixer operation or other Mic/Line reverb level setting operation is performed.

Receive
Receipt of this message changes the Mic/Line reverb level setting.

Mic/Line DSP Send Level

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 09 00 04
00 00 07 v1 00 F7

v1 = 0 to 7F :

Send
This message is sent when a Mixer Mc/Ln part DSP menu operation or other Mic/Line DSP send level setting operation is performed.

Receive
Receipt of this message changes the Mic/Line DSP level setting.

Mic/Line Input Level

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 0A 00 04
00 00 07 v1 00 F7

v1 = 0 to 7F :

Send
This message is sent when a Mixer Mc/Ln part on/off or volume setting operation, or other Mic/Line input level setting operation is performed.

Receive
Receipt of this message changes the Mic/Line input level setting.

Mic/Line Pan

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 0B 00 04
00 00 07 v1 00 F7

v1 = 0 to 7F : Value is offset by 40.

Send
This message is sent when a Mixer Mc/Ln part pan setting operation or other Mic/Line pan setting operation is performed.

Receive
Receipt of this message changes the Mic/Line pan setting.

Mic/Line Noise Gate Threshold

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 0C 00 04
00 00 07 v1 00 F7

v1 = 0 to 7F :

Send
This message is sent when a function switch operation or other Mic/Line noise gate threshold setting operation is performed.

Receive
Receipt of this message changes the Mic/Line noise gate threshold setting.

Keyboard/Song Volume

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 0D 00 04
00 00 07 v1 00 F7

v1 = 0 to 7F :

Send
This message is sent when a keyboard/song volume slider operation or other keyboard/song volume setting operation is performed.

Receive
Receipt of this message changes the keyboard/song volume setting.

Part DSP On/Off

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 10 00 04
00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H to 0FH, Group B : 10H to 1FH)

v1 = 0 : Off

v1 = 1 : On

Send
This message is sent when a Mixer or other part DSP on/off operation is performed.

Receive
Receipt of this message changes the part DSP on/off setting.

Master Tune

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 10 00 08
00 00 00 0F v1 vh 00 F7

Range
0018H: -100.0[cent]: Lower Limit: Reference Setting Values: A4 = 415.3Hz
0400H: 0.0[cent]: Center Value: Reference Setting Values v1 = 00H, vh = 08H: A4 = 440Hz
07E8H: +100.0[cent]: Upper Limit: Reference Setting Values v1 = 68H, vh = 0FH: A4 = 466.2Hz

Send
This message is sent when a function switch operation or other master tune setting operation is performed.

Receive
Receipt of this message changes the master tune setting.

Master Key Shift (Transpose)

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 11 00 08
00 00 00 07 v1 00 F7

Range
28H: -24[semitones]: Lower limit
40H: 0[semitones]: Center value
58H: +24[semitones]: Upper limit

Send
This message is sent when a transpose operation or other master key shift setting operation is performed. The value is offset by -1 when baroque pitch is turned on.

Receive
Receipt of this message sets the master key shift.

A transpose switch operation on this device sends a value in the range of 34H to 4CH.

Master Pan

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 13 00 08
00 00 00 07 v1 00 F7

Range
00H: -64 (left)
40H: 0 (center)
7FH: +64 (right)

Send
This message is sent when a function switch operation or other master pan setting operation is performed.

Receive
Receipt of this message sets the master pan.

Note that 00H = 01H.

Stretch Tune (Tune Function)

F0 44 7E 02 00 10 40 20 05 0D 00 00 2F 00 00 00 00 00 00 04
00 00 07 v1 00 F7

v1 = 00H : Off

v1 = 01H : On

Send
This message is sent when a function switch operation or other stretch tune setting operation is performed.

Receive
Receipt of this message changes the stretch tune setting.

Scale Tune

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 77 00 48
00 00 pp 00 00 0C 07

V00V00 00 V01V01 00 V02V02 00 V03V03 00 V04V04 00 V05V05 00
V06V06 00 V07V07 00 V08V08 00 V09V09 00
V10V10 00 V11V11 00 F7

pp = Part : 0 to 1F (Group A : 00H to 0FH, Group B : 10H to 1FH)

Range
V00V00 - V11V11 = 00H : -64 (cents)
V00V00 - V11V11 = 40H : 0 (cents)
V00V00 - V11V11 = 7FH : +63 (cents)

This message performs fine-tuning of each of the 12 notes making up the scale.
This function can be used for tuning of equal temperament and just major intonation.

key | C | C# | D | D# | E | F | F# | G | G# | A | B | B# |
ScaleNum | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |

Tuning settings can be performed using scale number 00 through 11.
The center value is 40H.

Send
This message is sent when a scale setting operation or other scale tune operation is performed.

Receive
Receipt of this message changes the scale tune setting.

The following are the messages sent by this device for each temperament.

Equal
F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 77 00 48
00 00 10 00 00 0C 07
40 00 40 00 40 00 40 00 40 00 40 00 40 00 40 00 40 00 40 00 40 00 40 00 F7

JustMaj
F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 77 00 48
00 00 10 00 00 0C 07
50 00 33 00 54 00 60 00 42 00 4E 00 31 00 52 00 35 00 40 00 62 00 44 00 F7

JustMin
F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 77 00 48
00 00 10 00 00 0C 07
50 00 33 00 3E 00 60 00 42 00 4E 00 31 00 52 00 35 00 40 00
62 00 44 00 F7

Pythago
F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 77 00 48
00 00 10 00 00 0C 07
3A 00 48 00 3E 00 34 00 42 00 38 00 46 00 3C 00 4A 00 40 00
36 00 44 00 F7

Mean
F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 77 00 48
00 00 10 00 00 0C 07
4A 00 32 00 43 00 54 00 3C 00 4D 00 35 00 47 00 2F 00 40 00
51 00 39 00 F7

Werk
F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 77 00 48
00 00 10 00 00 0C 07
4C 00 42 00 40 46 00 42 00 4A 00 40 00 48 00 44 00 40 00
48 00 44 00 F7

Kirnber
F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 77 00 48
00 00 10 00 00 0C 07
4A 00 40 00 43 00 44 00 3C 00 48 00 40 00 47 00 42 00 40 00
46 00 3E 00 F7

Reverb Level

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 03 00 08
00 00 00 07 v1 00 F7

This message sets the reverb tone return (output) level.

value	level
00H	0 (%)
40H	100 (%)
7FH	200 (%)

Send
This message is sent when a reverb switch or other reverb level setting operation is performed.

Receive
Receipt of this message changes the reverb level setting.

The following are messages sent by this device for reverb switch operations.

v1 = 00H : Off
v1 = 40H : On

Chorus Level

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 09 00 08
00 00 00 07 v1 00 F7

This message sets the chorus tone return (output) level.

value	level
00H	0 (%)
40H	100 (%)
7FH	200 (%)

Send
This message is sent when a chorus switch or other chorus level setting operation is performed.

Receive
Receipt of this message changes the chorus level setting.

The following are messages sent by this device for chorus switch operations.

v1 = 00H : Off
v1 = 40H : On

Part On/Off (Note Message Receive On/Off Setting)

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 20 00 08
00 00 pp 00 v1 F7

0H : OFF
1H : ON

pp = Part : 0 to 1F (Group A : 00H - 0FH , Group B : 10H - 1FH)

v1 = 00H : Off
v1 = 01H : On

Send
This message is sent when a Mixer operation or other part on/off setting operation is performed.

Receive
This message makes part on/off settings.

When a Mixer operation is performed on this device, only the PartB: 10H - 1FH message is sent, regardless of the A/B Group selection.

Channel, Polyphonic After Touch Receive Operation

This message is not sent by this device. This device is capable of receiving this message only.

NOTE

Rx.Caf and Tx.Paf are turned on by default the first time you turn on device power after initializing it. This means that Tx.Caf and Rx.Paf can be turned off only by receipt of the prescribed messages.

Channel After Touch Receive On/Off

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 1C 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H - 0FH , Group B : 10H - 1FH)

v1 = 00H : Off
v1 = 01H : On

Polyphonic After Touch Receive On/Off

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 1F 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H - 0FH , Group B : 10H - 1FH)

v1 = 00H : Off
v1 = 01H : On

Channel After Touch Effect

Channel After Touch Dependent Pitch Variation Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 47 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H - 0FH , Group B : 10H - 1FH)

Range
v1 = 28H : -24 (semitones)
v1 = 40H : 0 (semitones)
v1 = 58H : +24 (semitones)

Channel After Touch Dependent Filter Cutoff Variation Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 48 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H - 0FH , Group B : 10H - 1FH)

Range
v1 = 00H : -9600 (cents)
v1 = 40H : 0 (cents)
v1 = 7FH : +9600 (cents)

Channel After Touch Dependent Amp Variation Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 49 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H - 0FH , Group B : 10H - 1FH)

Range
v1 = 00H : -100.0 (%)
v1 = 40H : 0.0 (%)
v1 = 7FH : +100.0 (%)

Channel After Touch Dependent Lfo1 Frequency Variation Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 4A 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H - 0FH , Group B : 10H - 1FH)

Range
v1 = 00H : -10.0 (Hz)
v1 = 40H : 0.0 (Hz)
v1 = 7FH : +10.0 (Hz)

Channel After Touch Dependent Lfo1 Pitch Modulation Depth Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 4B 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H - 0FH , Group B : 10H - 1FH)

Range
v1 = 00H : 0 (cents)
v1 = 7FH : 600 (cents)

Channel After Touch Dependent Lfo1 Filter Cutoff Modulation Depth Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 4C 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H - 0FH , Group B : 10H - 1FH)

Range
v1 = 00H : 0 (cents)
v1 = 7FH : 2400 (cents)

Channel After Touch Dependent Lfo1 Amplifier Amplitude Modulation Depth Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 4D 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H - 0FH , Group B : 10H - 1FH)

Range
vl = 00H : 0 (%)
vl = 7FH : 100 (%)

Channel After Touch Dependent Lfo2 Frequency Variation Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 4E 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : -10.0 (Hz)
vl = 40H : 0.0 (Hz)
vl = 7FH : +10.0 (Hz)

Channel After Touch Dependent Lfo2 Pitch Modulation Depth Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 4F 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : 0 (cents)
vl = 7FH : 600 (cents)

Channel After Touch Dependent Lfo2 Filter Cutoff Modulation Depth Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 50 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : 0 (cents)
vl = 7FH : 2400 (cents)

Channel After Touch Dependent Lfo1 Amp Amplitude Modulation Depth Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 51 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : 0 (%)
vl = 7FH : 100 (%)

■ Polyphonic After Touch Effect

Polyphonic After Touch Dependent Pitch Variation Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 53 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 28H : -24 (semitones)
vl = 40H : 0 (semitones)
vl = 58H : +24 (semitones)

Polyphonic After Touch Dependent Filter Cutoff Variation Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 54 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : -9600 (cents)
vl = 40H : 0 (cents)
vl = 7FH : +9600 (cents)

Polyphonic After Touch Dependent Amp Variation Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 55 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : -100.0 (%)
vl = 40H : 0.0 (%)
vl = 7FH : +100.0 (%)

Polyphonic After Touch Dependent Lfo1 Frequency Variation Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 56 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : -10.0 (Hz)
vl = 40H : 0.0 (Hz)
vl = 7FH : +10.0 (Hz)

Polyphonic After Touch Dependent Lfo1 Pitch Modulation Depth Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 57 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : 0 (cents)
vl = 7FH : 600 (cents)

Polyphonic After Touch Dependent Lfo1 Filter Cutoff Modulation Depth Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 58 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : 0 (cents)
vl = 7FH : 2400 (cents)

Polyphonic After Touch Dependent Lfo1 Amp Amplitude Modulation Differential Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 59 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : 0 (%)
vl = 7FH : 100 (%)

Polyphonic After Touch Dependent Lfo2 Frequency Variation Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 5A 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : -10.0 (Hz)
vl = 40H : 0.0 (Hz)
vl = 7FH : +10.0 (Hz)

Polyphonic After Touch Dependent Lfo2 Pitch Modulation Depth Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 5B 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : 0 (cents)
vl = 7FH : 600 (cents)

Polyphonic After Touch Dependent Lfo2 Filter Cutoff Modulation Depth Setting

F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 5C 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : 0 (cents)
vl = 7FH : 2400 (cents)

Polyphonic After Touch Dependent Lfo1 Amp Amplitude Modulation Depth Setting

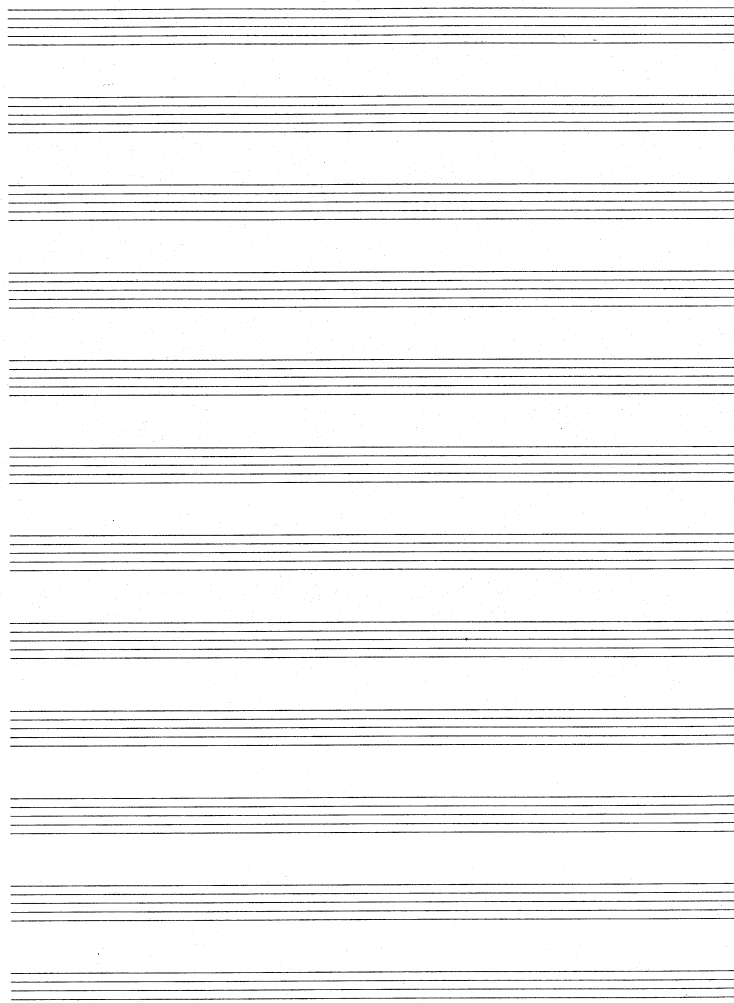
F0 44 7E 02 00 10 40 20 01 00 00 00 2F 00 00 00 00 5D 00 08
00 00 pp 07 v1 00 F7

pp = Part : 0 to 1F (Group A : 00H – 0FH , Group B : 10H – 1FH)

Range
vl = 00H : 0 (%)
vl = 7FH : 100 (%)

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O : Yes
X : No