Technics

KEYBOARD

SX-KN3000

ENGLISH

QQTG0373A

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY. (for UNITED KINGDOM)

This appliance is supplied with a moulded three-pin mains plug for your safety and convenience.
A 5 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amps and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark Ⓐ or the BSI mark ⓑ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic/Technics Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT-OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT: —The wires in this mains lead are coloured in accordance with the following code:—

Blue: Neutral
Brown: Live

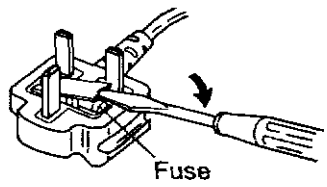
As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows.

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three-pin plug, marked with the letter E or the Earth Symbol ⏚.

How to replace the fuse. Open the fuse compartment with a screwdriver and replace the fuse and fuse cover.



Technics

OWNER'S MANUAL

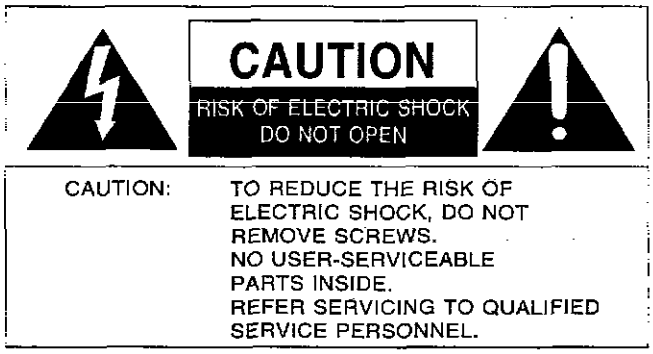
Caution

Voltage (except North America, Mexico, New Zealand and Europe)

Be sure the voltage adjuster located on the rear panel is in accordance with local voltage in your area before using this unit. Use a screwdriver to set the voltage adjuster to the local voltage.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

BEFORE YOU PLAY, PLEASE READ THE CAUTIONARY COPY APPEARING ON PAGE 2.



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 appliance.

Before you play

For long and pleasurable use of this instrument, and to gain a thorough understanding of your KN3000 Keyboard, it is strongly recommended that you read through this Owner's Manual once.

The Owner's Manual is comprised of the following parts.

BASIC FUNCTIONS	This part includes an explanation of basic procedures and points you should be aware of for proper operation of your instrument.
PRACTICAL APPLICATIONS	This part comprises a detailed explanation of sound, effect, rhythm, **SEQUENCER**, **COMPOSER**, Disk Drive and MIDI.
REFERENCE GUIDE (separate booklet)	Reference guide for the contents of the **SOUND GROUP**, **RHYTHM GROUP**, MIDI data, etc.

Cautions for safest use of this unit

Installation location

1. A well-ventilated place.
   Take care not to use this unit in a place where it will not receive sufficient ventilation, and not to permit the ventilation holes to be covered by curtains, or any similar materials.
2. Place away from direct sunlight and excessive heat from heating equipment.
3. A place where humidity, vibration and dust are minimized.

Power source

1. Be sure the line voltage selector is in accordance with local voltage in your area before connecting the plug to the socket.
2. DC power cannot be used.

Handling the power cord

1. Never touch the power cord, or its plug, with wet hands.
2. Don't pull the power cord.

Metal items inside the unit may result in electric shock or damage.

Do not permit metal articles to get inside the unit.

Be especially careful with regard to this point if children are near this unit. They should be warned never to try to put anything inside.

If, nevertheless, some such article does get inside, disconnect the power cord plug from the electrical outlet, and contact the store where the unit was purchased.

If water gets into the unit

Disconnect the power cord plug from the electrical outlet, and contact the store where it was purchased.

As a precaution, it is suggested that flower vases and other containers which hold liquids not be placed on the top of this unit.

If operation seems abnormal

Immediately turn off the power, disconnect the power cord plug from the electrical outlet, and contact the store where it was purchased.

Discontinue using the unit at once. Failure to do so may result in additional damage or some other unexpected damage or accident.

- Because the power source is located inside the unit, it is normal for the cabinet to become warm.

A word about the power cord

If the power cord is scarred, is partially cut or broken, or has a bad contact, it may cause a fire or serious electrical shock if used. NEVER use a damaged power cord for any appliance. Moreover, the power cord should never be forcibly bent.

Don't touch the inside parts of this unit.

Some places inside this unit have high voltage potential. Never try to remove the top or back panels of this unit, or to touch inside parts by hand or with tools.

Contact someone who is qualified in order to inspect the inside, or to replace a fuse, if such becomes necessary. Never attempt to do these things yourself.

Maintenance

The following suggestions will assist you in keeping the unit in top condition.

- Be sure to switch the instrument off after use, and do not switch the unit on and off in quick succession, as this places an undue load on the electronic components.
- To keep the luster of the surface and buttons, simply use a clean, damp cloth; polish with a soft, dry cloth. Polish may be used but do not use thinners or petro-chemical-based polishes.
- A wax-based polish may be used on the cabinet, although you will find that rubbing with a soft cloth will suffice.

SERVICE MUST BE CARRIED OUT BY DEALER OR OTHER QUALIFIED PERSON

Contents

Part IV Sequencer

Part V Composer

Part VI Disk Drive

Part VII Adjusting the sounds

Part VIII Creating sounds

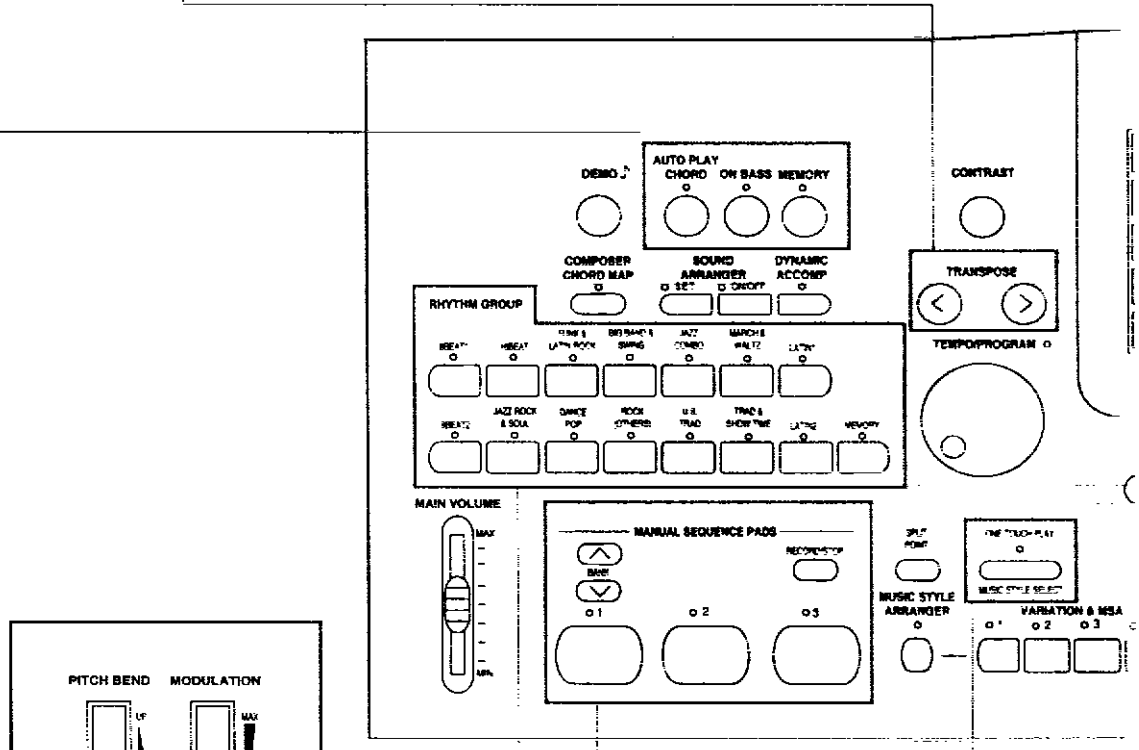
Part IX MIDI

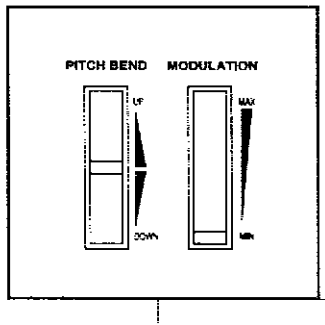
Controls and functions

AUTO PLAY CHORD
Add an automatic accompaniment to your selected rhythm.
(Refer to page 40.)

TRANSPOSE
Raise or lower the key of the entire keyboard.
(Refer to page 33.)

DISPLAY
Displays performance information, function settings and other messages.
(Refer to page 21.)
- Use the **CONTRAST** button to adjust the display so that it is easy to read. (Refer to page 24.)





ONE TOUCH PLAY
Sounds and effects matching the selected rhythm are automatically set.
(Refer to page 45.)

MANUAL SEQUENCE PADS
Add various phrases to your performance with the pad buttons.
(Refer to page 35.)

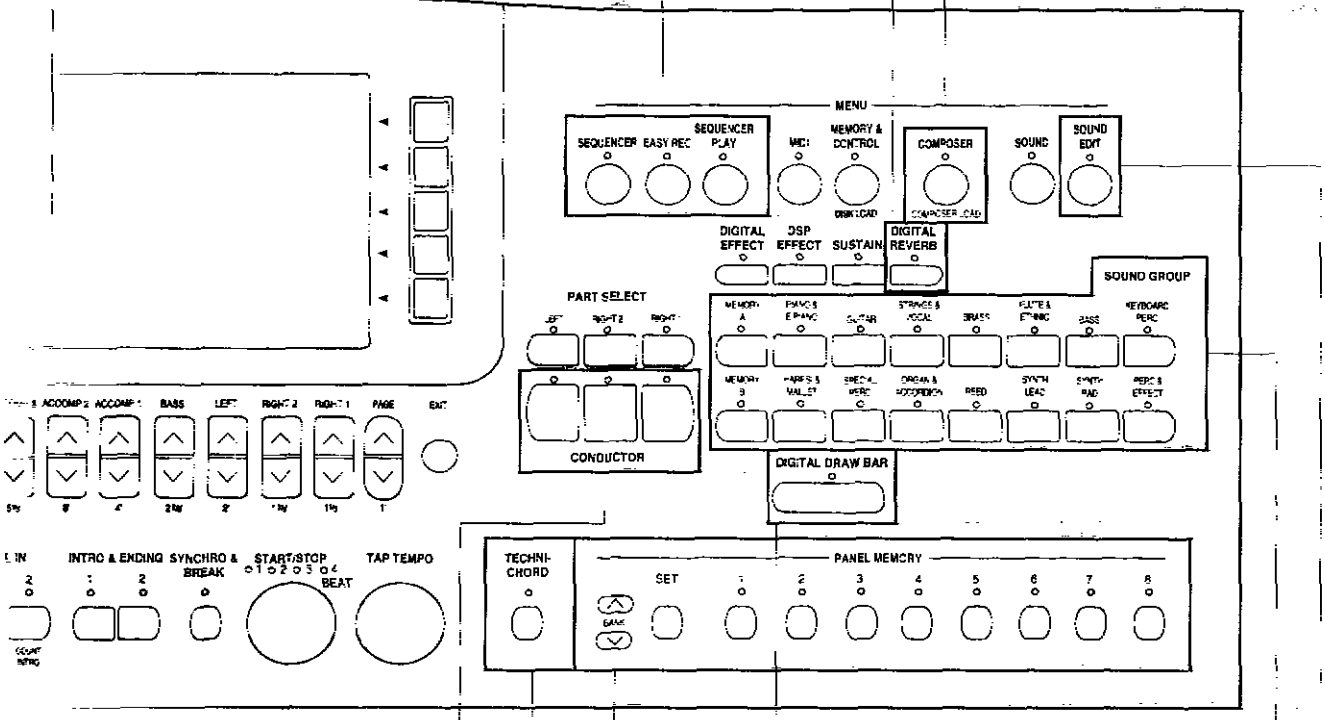
PITCH BEND/MODULATION
The **PITCH BEND** wheel allows a "sliding" change in the pitch. The **MODULATION** wheel is used to add vibrato to the sound.
(Refer to page 32.)

RHYTHM GROUP
Various rhythm patterns are available for each rhythm group.
(Refer to page 37.)

SEQUENCER
Record and play back your performance.
(Refer to page 51.)

DIGITAL REVERB
Add reverberation to the sound.
(Refer to page 32.)

COMPOSER
Create and store original rhythm patterns.
(Refer to page 81.)



CONDUCTOR
Assign a different sound to each part, then assign the desired parts to sections of the keyboard.
(Refer to page 29.)

TECHNI-CHORD
Block chords are automatically added to the melody. (Refer to page 34.)

PANEL MEMORY
Store the panel settings, then recall them instantaneously just by pressing a button or two. (Refer to page 48.)

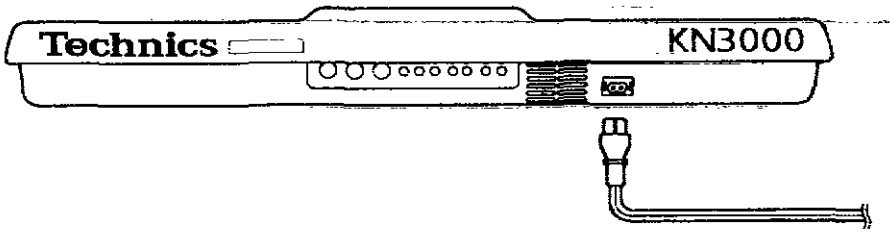
DIGITAL DRAWBAR
Select authentic drawbar organ sounds.
(Refer to page 27)

SOUND GROUP
Various sounds are available for each sound group.
(Refer to page 26.)

SOUND EDIT
Modify preset sounds to create new and unique sounds. (Refer to page 116.)

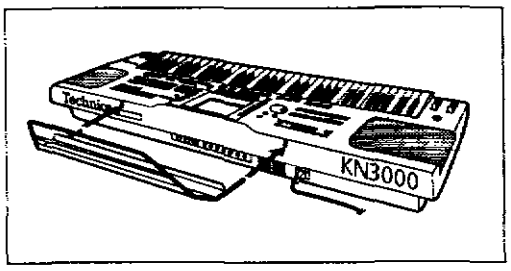
Getting started

Before you play



1 Plug the power cord into an outlet.

2 Affix the music stand as shown.

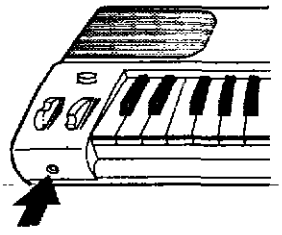


■ **About the backup memory**

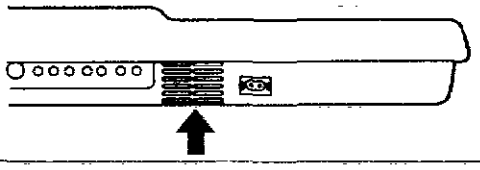
The panel settings, **PANEL MEMORY** and MIDI settings etc. are maintained in the backup memory for about one week after the power to this instrument is turned off. Other stored memories, such as the **SEQUENCER**, **COMPOSER** and **SOUND MEMORY**, are maintained for about 80 minutes. If you wish to keep the memory contents, before you turn off the instrument, use the SAVE procedure to store the desired data on a disk for recall at a later time.

- The backup memory does not function until the power has been on for about 10 minutes.
- When you quit the operating mode, a warning display may appear to remind you to save the data.

- Headphones (sold separately) may be plugged into the headphones terminal. This will automatically switch off the speaker system, and sound is heard only through the headphones.

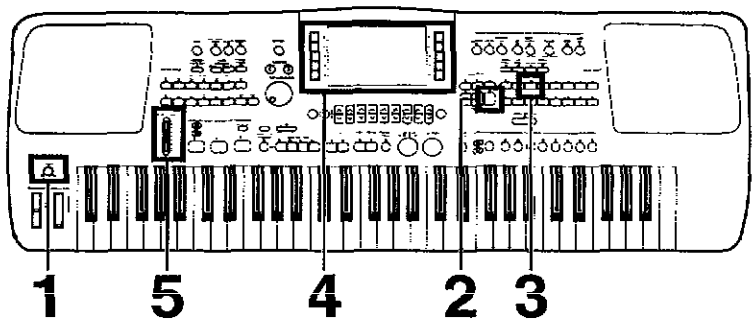


- The pitch of this instrument can be adjusted for when playing with other instruments. (Refer to page 112.)
- Make sure that the ventilation holes, on the rear of the instrument, are unobstructed.

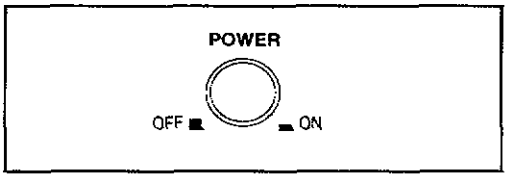


- The cooling fan begins operating only when the internal temperature rises above a given level.

Playing

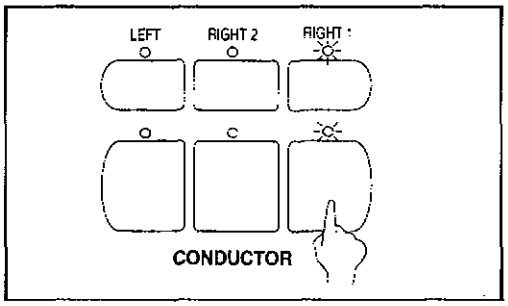


1 Press the **POWER** button to turn it on.

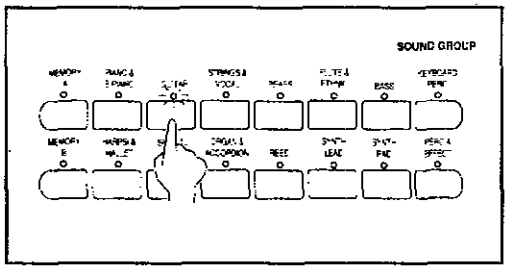


- Under certain conditions, the functions and memories of this instrument may be initialized when the power is turned on. (Refer to page 144.)

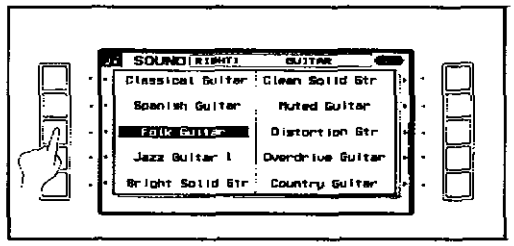
2 In the **CONDUCTOR** section on the panel, press the **RIGHT 1** button to turn it on.



3 In the **SOUND GROUP** section, press the **GUITAR** button.

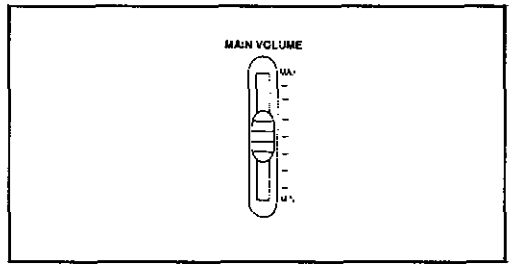


4 Select "Folk Guitar" from the list of sounds shown on the display.



- Touch any note on the keyboard. You will hear the "Folk Guitar" sound.

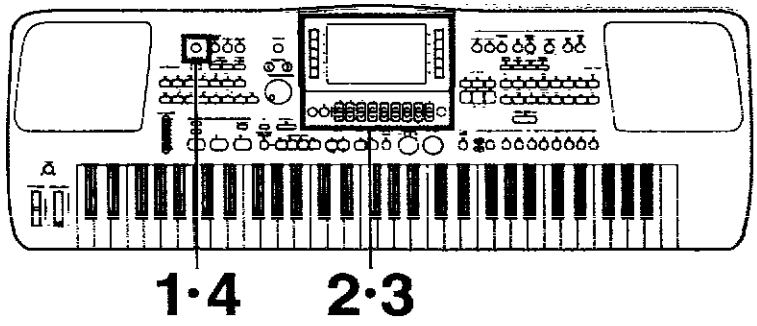
5 Set the **MAIN VOLUME** to an appropriate level with the sliding control.



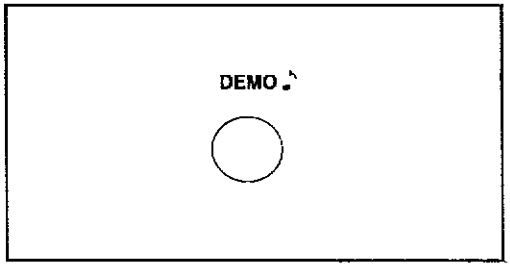
- Your Keyboard features Touch Response. You control the volume by playing the keys harder or softer.

Listen to the demonstration

Listen to a particular sound or rhythm demonstration.

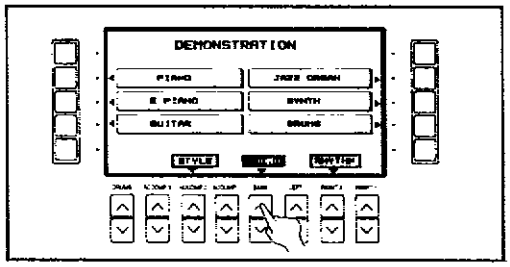


1 Press the **DEMO** button.



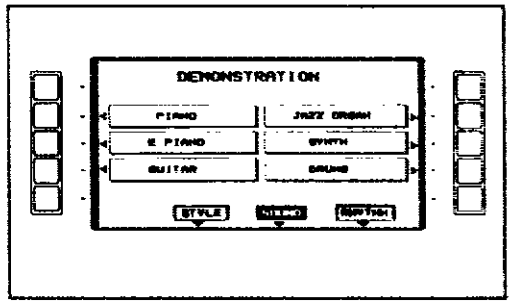
- The display changes to the DEMONSTRATION display.

2 Use the buttons below the display to select SOUND or RHYTHM from the display.



- The display changes.

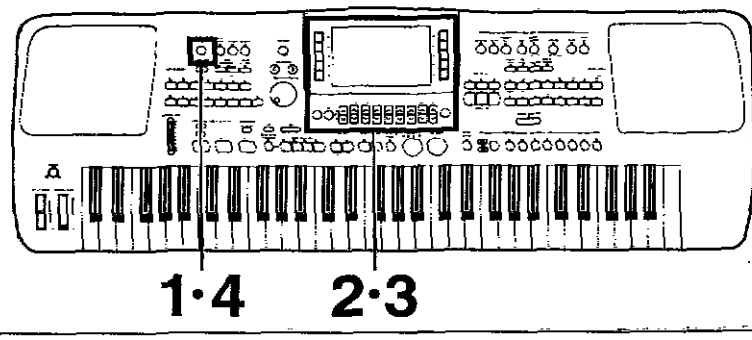
3 Press the button to the right or left of the display for the sound or rhythm demonstration performance you wish to hear.
<Example: SOUND>



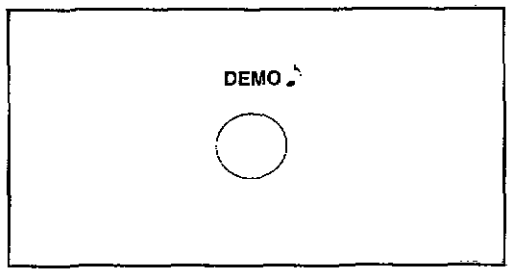
- The demonstration performance corresponding to your selection will begin.
- Repeat this procedure to listen to other sounds and rhythms.
- To end the demonstration before it has finished, again press the button for the selected sound or rhythm.

4 When you are finished listening to the demonstration tunes, press the **DEMO** button again.

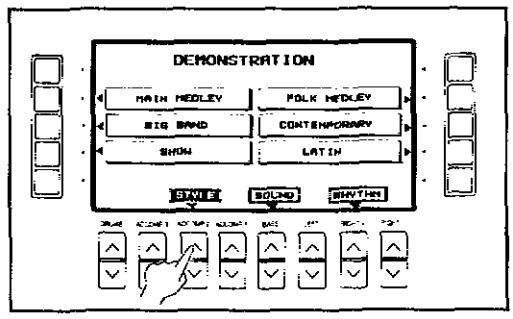
Listen to the style demonstration performance.



1 Press the **DEMO** button.

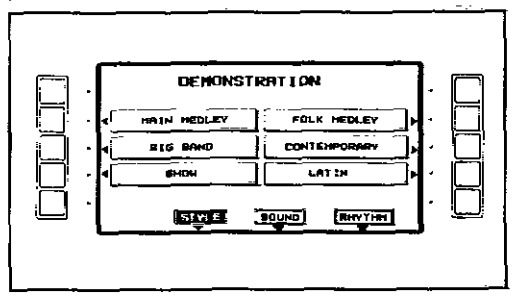


2 Select STYLE from the display.



- The display changes.

3 Press the button to the right or left of the display for the style demonstration performance you wish to hear.

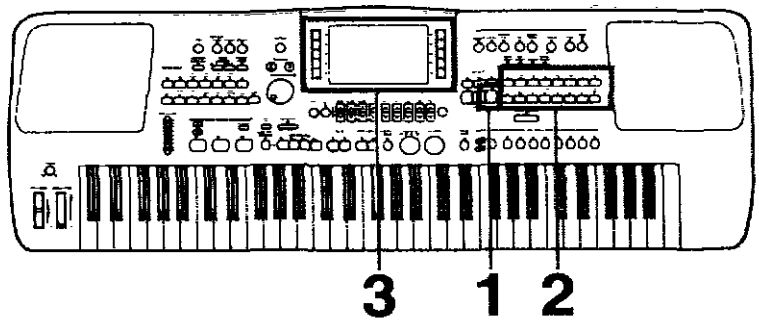


- The demonstration performance corresponding to your selection will begin.
- Repeat this procedure to listen to other styles.

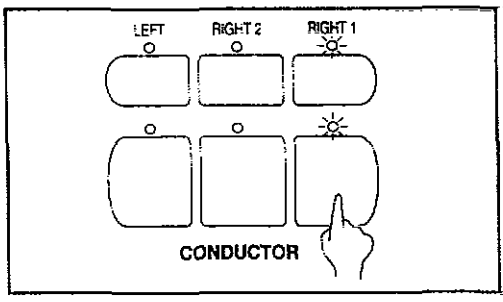
4 When you are finished listening to the demonstration tunes, press the **DEMO** button again.

- If you press and hold the **DEMO** button for a few seconds, or if you press first the **DEMO** button and then the **START/ STOP** button, the rhythms, sounds and styles are demonstrated in order in a medley performance. The medley performance continues until the **START/STOP** button or the **DEMO** button is pressed again.
- Some of the buttons do not function while the demonstration performances are being played.
- The demonstration performance shown on the display may become altered.

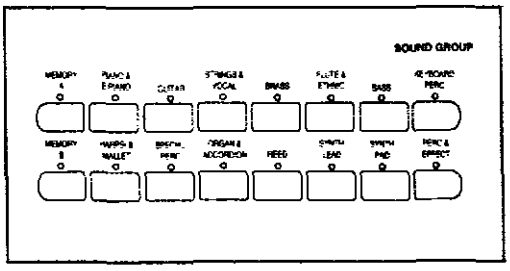
Selecting other sounds



1 In the **CONDUCTOR** section, press the **RIGHT 1** button.

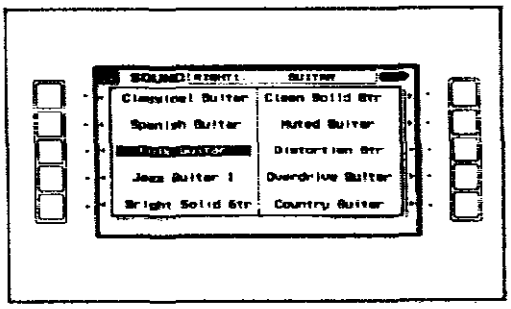


2 In the **SOUND GROUP** section, select a sound group.



- *The display changes.*

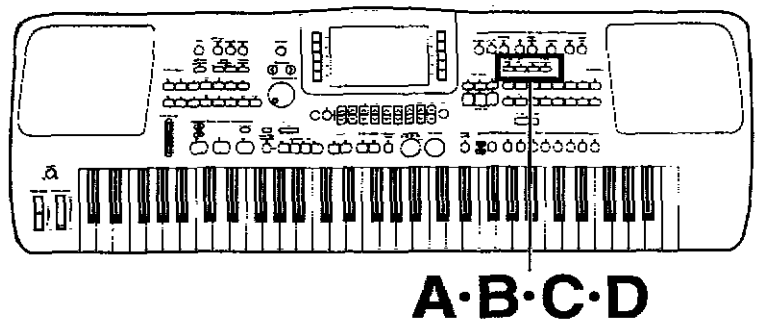
3 Select a sound from the display.
<Example: **GUITAR**>



- To see a different part of the list, press either **PAGE** button.
- The display returns to the previous display after a few seconds.

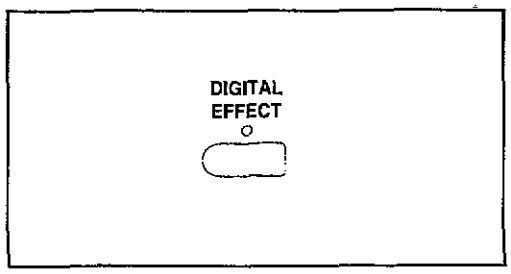
- Other things you can do are mixing sounds and playing different sounds on the left and right areas of the keyboard. (Refer to page 29.)

Add effects



Add a feeling of spaciousness to the sound.

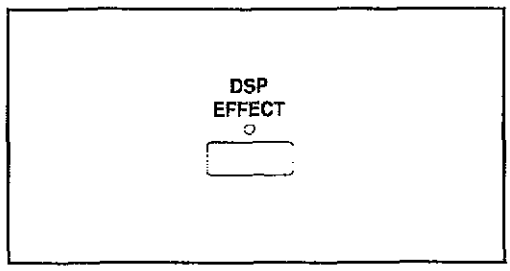
A Press the **DIGITAL EFFECT** button to turn it on.



- The sound is broader and deeper.

Change the quality of the sound.

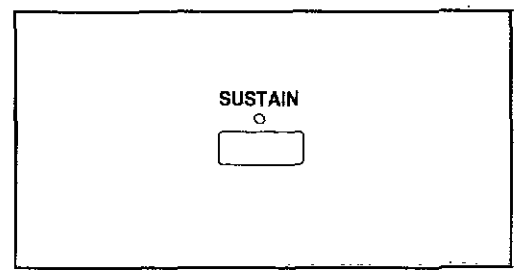
B Press the **DSP EFFECT** button to turn it on.



- Various effects are added to the sounds.

Add sustain.

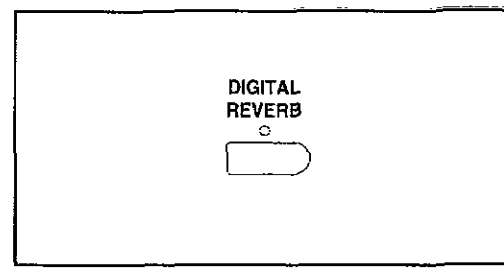
C Press the **SUSTAIN** button to turn it on.



- Play and release a key. The tones fade out gradually after the key is released.

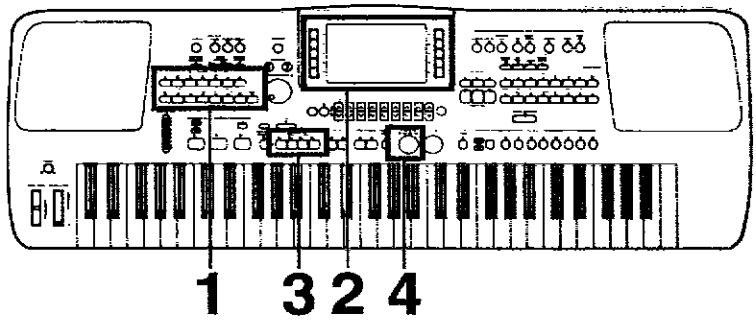
Add reverberation.

D Press the **DIGITAL REVERB** button to turn it on.

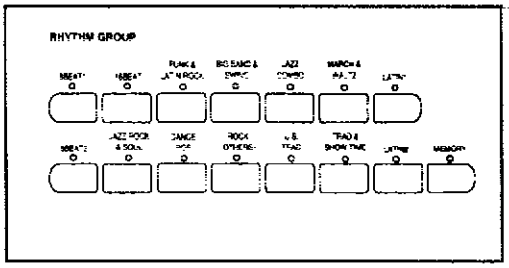


- The reverberation effect is applied to all sounds.

Playing automatic rhythms

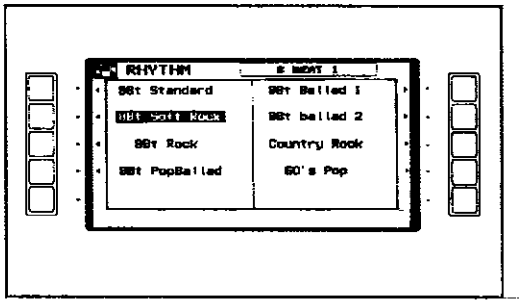


1 In the **RHYTHM GROUP** section, select a rhythm group.



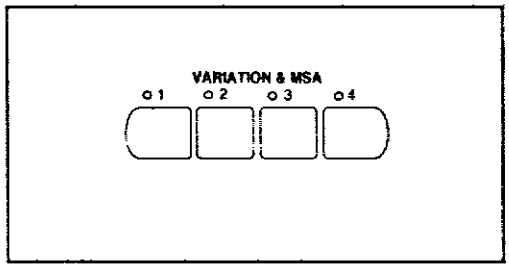
- The display changes.

2 Select a rhythm from the display.
<Example: **8 BEAT 1**>



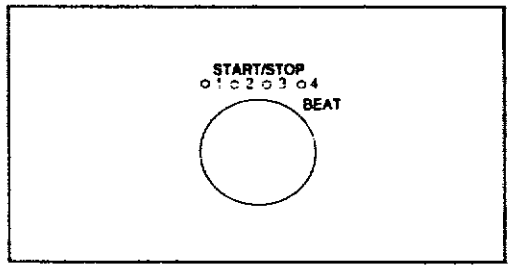
- The display returns to the previous display after a few seconds.

3 Use the **VARIATION** buttons to select the variation number.

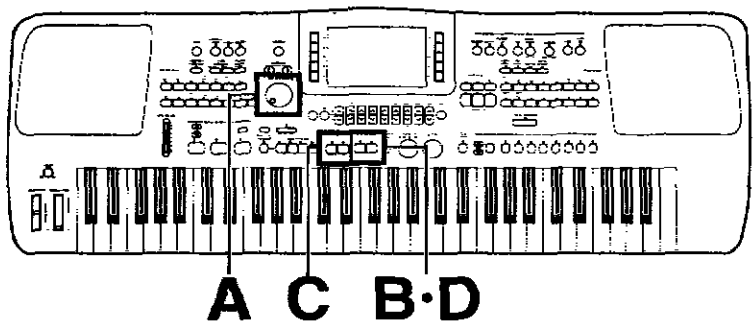


- The nuance of the pattern differs with each variation number.

4 Start the rhythm by pressing the **START/STOP** button.

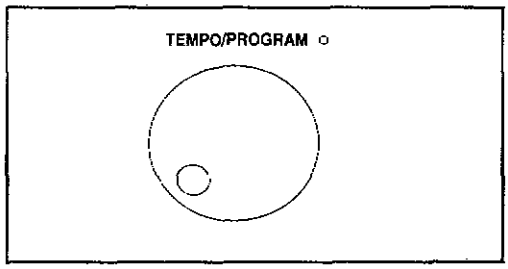


- Stop the rhythm by pressing the **START/STOP** button again.



Adjust the tempo.

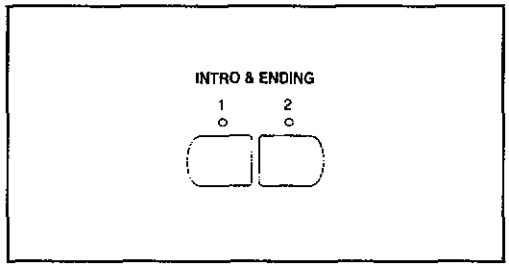
A Adjust the tempo with the **TEMPO/PROGRAM** dial.



- The tempo is shown in the display as "♩ = ".

Insert an intro pattern.

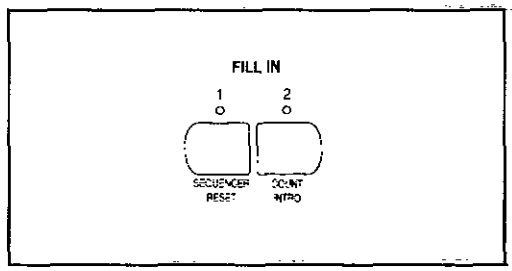
B To start your performance with an introduction, press the **INTRO & ENDING 1** or **INTRO & ENDING 2** button before starting the rhythm.



- An intro is played, after which the regular rhythm starts.

Insert a fill-in pattern.

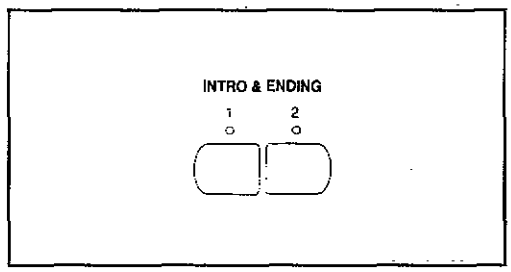
C While the preset rhythm pattern is playing, press either the **FILL IN 1** or **FILL IN 2** button.



- A fill-in pattern immediately starts to play.

Insert an ending pattern.

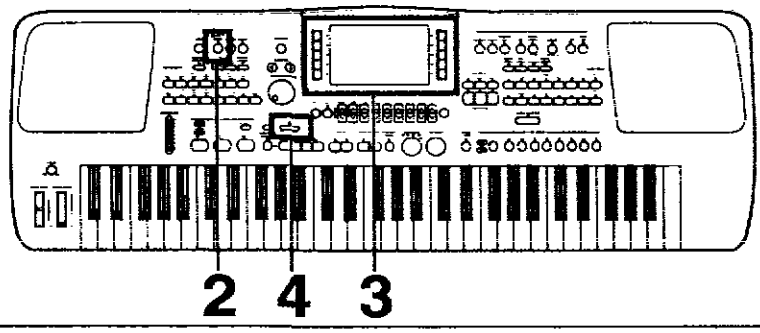
D While the rhythm is playing, press the **INTRO & ENDING 1** or **INTRO & ENDING 2** button.



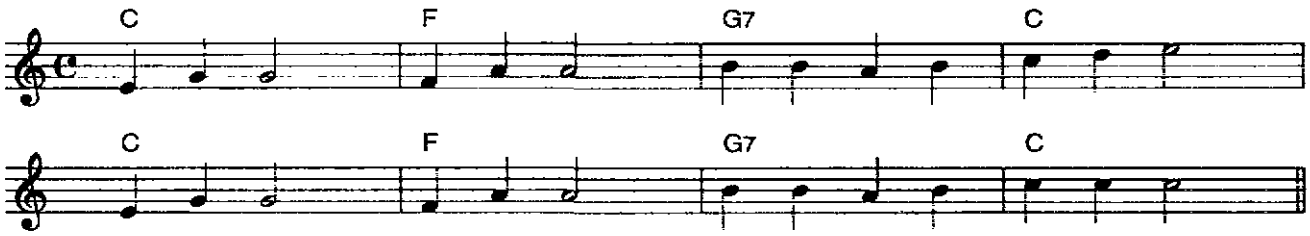
- You will hear an ending pattern, and then the rhythm stops.

Automatic accompaniment

Use the AUTO PLAY CHORD

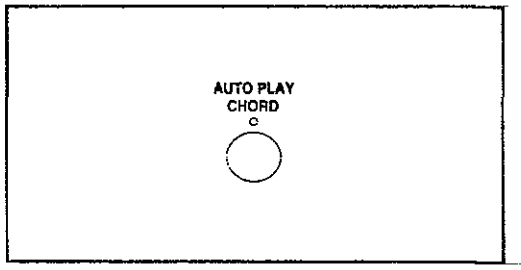


Use the **AUTO PLAY CHORD** with the following tune.

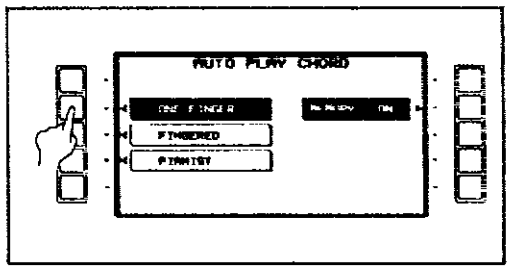


1 Select a rhythm.

2 Press the **AUTO PLAY CHORD** button to turn it on.

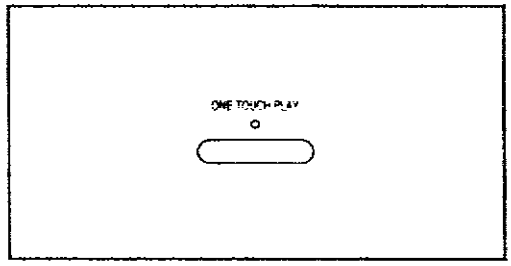


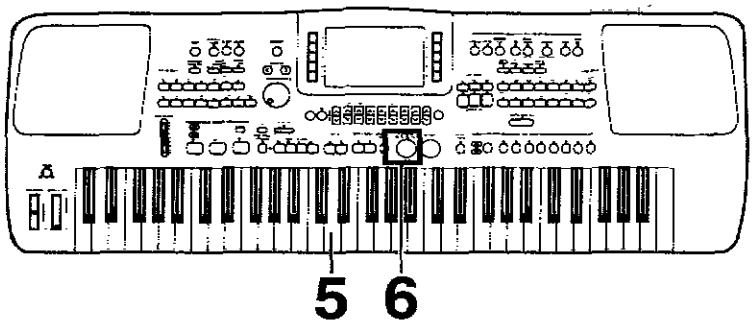
3 Select ONE FINGER on the display.



- After a few seconds, the display returns to the previous display.

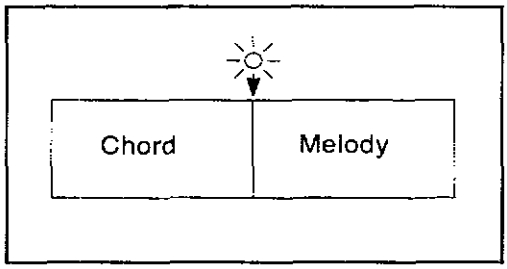
4 Press and hold the **ONE TOUCH PLAY** button until the indicator goes out.





5

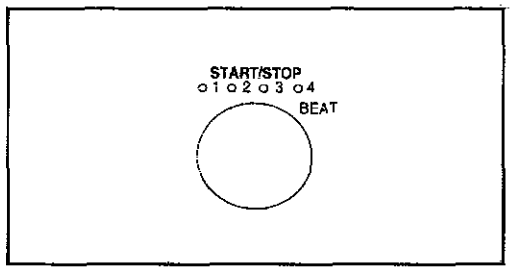
Use your left hand to play the chords and your right hand to play the melody.



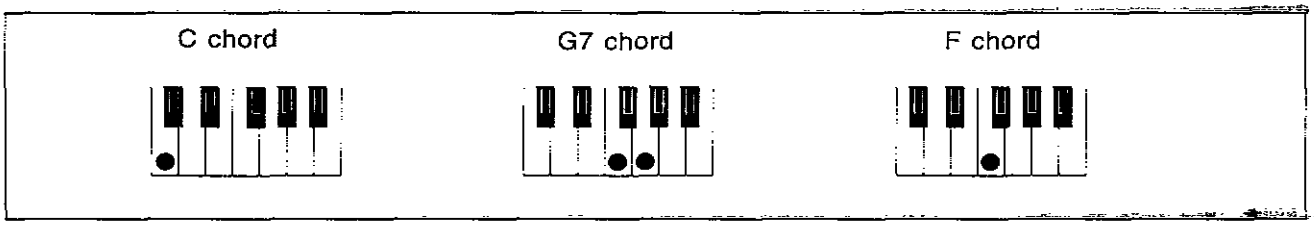
- Pressing a key on the left area of the keyboard will cause the automatic rhythm pattern to start playing (synchro start).
- When the C key is pressed on the left area of the keyboard, an accompaniment begins to play in the C major key.
- Playing the chord key (root note) and the white key to its left will produce a 7th chord.

6

At the end of your performance, press the **START/STOP** button.



- The automatic accompaniment stops.

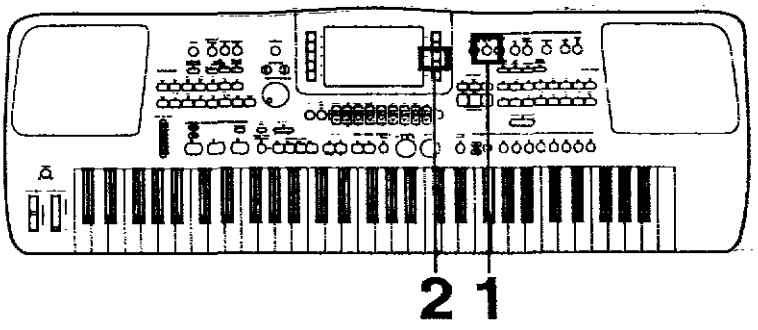


- In this example you played chords by pressing the keys for the "root notes" (ONE FINGER chords). But you can also specify the chord by playing all the notes in the chord. (Refer to page 40.)

You can automatically change the panel settings to those which are ideal for the music style you selected. (Refer to page 46.)

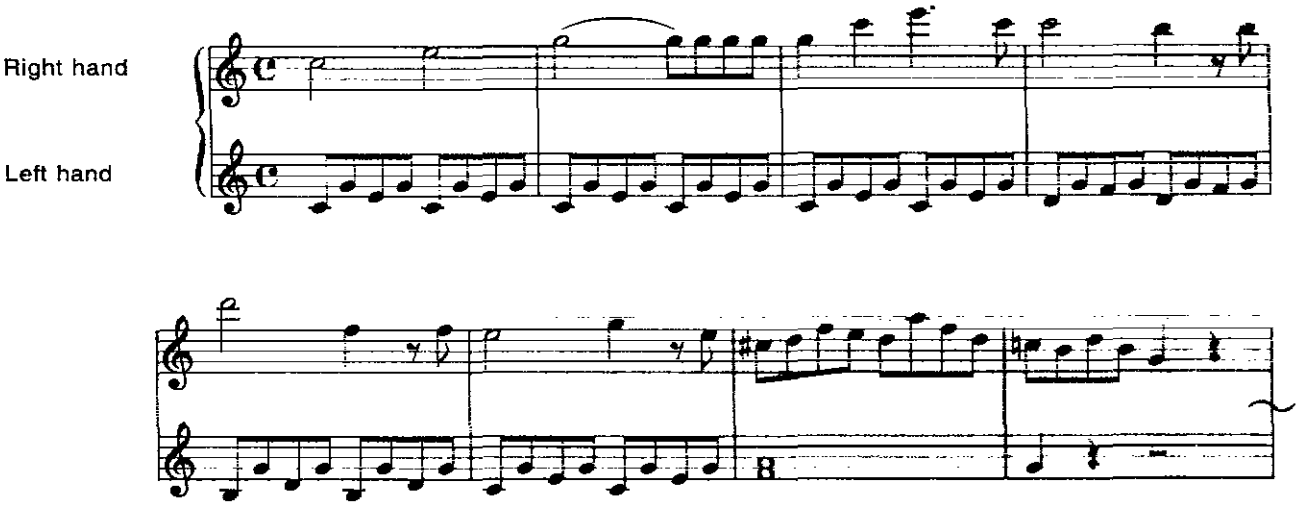
Record your performance

Use the **SEQUENCER** to record your performance.

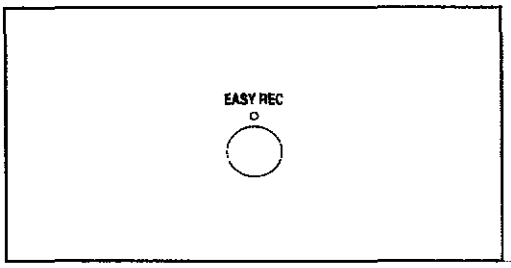


Sonatina

Sound: Piano 1 (**RIGHT 1** part)

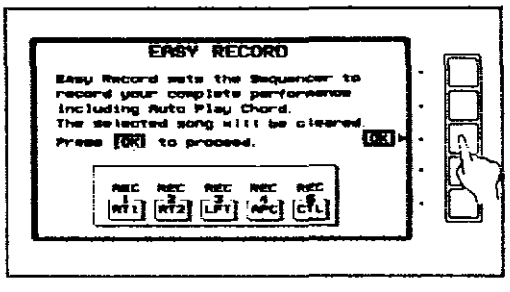


1 Press the **EASY REC** button to turn it on.

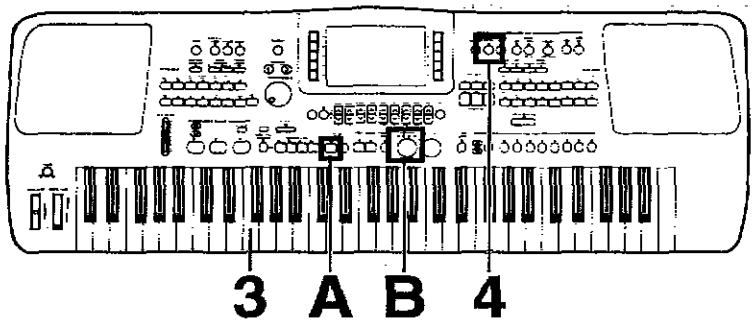


- The display changes to the EASY RECORD display.

2 Press the OK button.

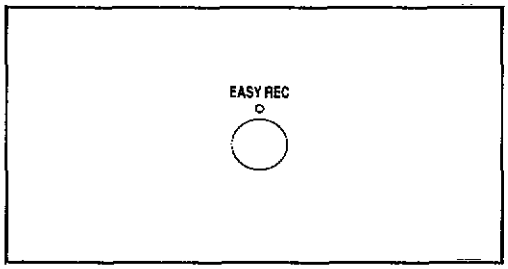


- The display changes to the REALTIME RECORD display.



3 Play the song on the keyboard.

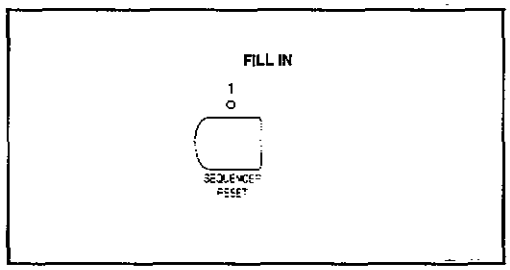
4 When you have finished playing, press the **EASY REC** button again to turn it off.



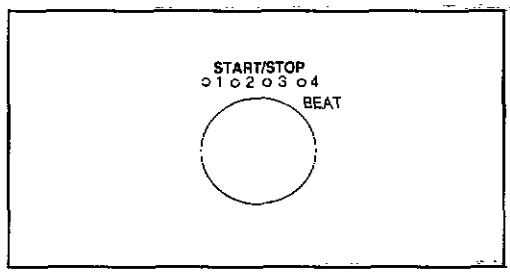
- The display changes to the SEQUENCER PLAY display.

Playing back your recorded performance

A Press the **SEQUENCER RESET (FILL IN 1)** button.



B Press the **START/STOP** button.

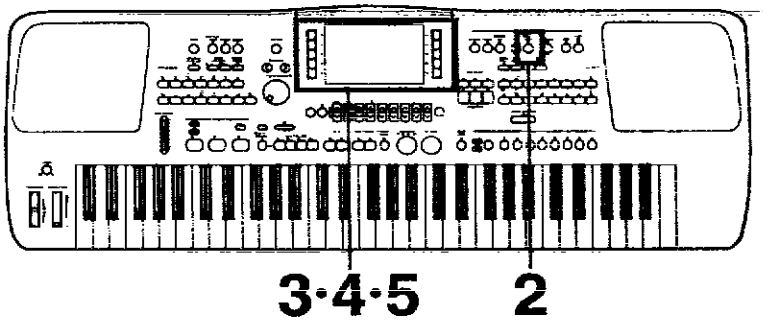


- Your performance is played back just as you recorded it.
- When you are finished playing back your performance, press the **SEQUENCER PLAY** button to turn it off.

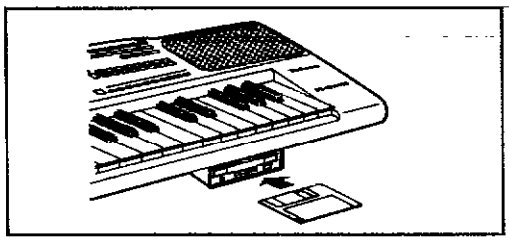
- You can also record several parts individually and then have them played back together for an ensemble performance. (Refer to page 57.)

Playing commercial disks

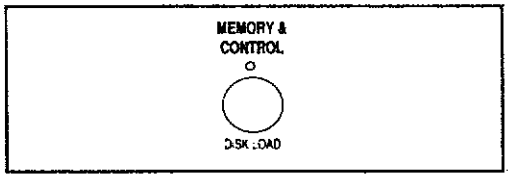
Enjoy playing commercially sold Standard MIDI File (SMF) format song disks (FORMAT 0 only).



1 Insert the song disk into the Disk Drive slot.

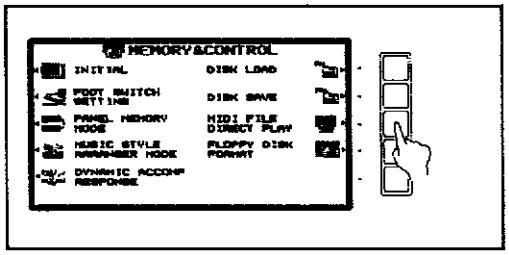


2 Press the **MEMORY & CONTROL** button to turn it on.



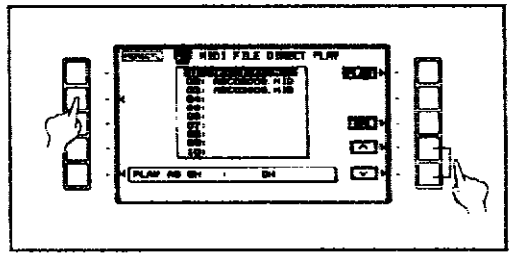
- The display changes to the MEMORY & CONTROL display.

3 Press the button next to the display to select MIDI FILE DIRECT PLAY.



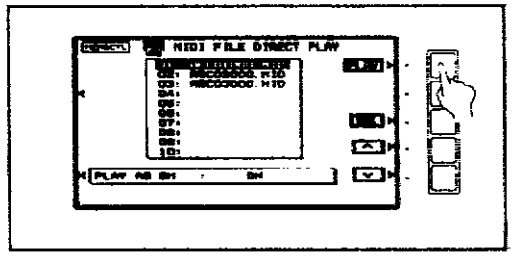
- The display changes to the MIDI FILE DIRECT PLAY display.

4 Select the song list column, and use the ∧ and ∨ buttons to select the song to play back.



- You can select the PLAY AS GM column, and use the ∧ and ∨ buttons to specify whether or not (ON/OFF) the song is played back as GM (General MIDI).

5 Press the PLAY button.



- The selected song is played back.
- To adjust the volume balance, press the BAL button.
- The PLAY button becomes the STOP button. Press this button if you wish to stop playback before it has finished.

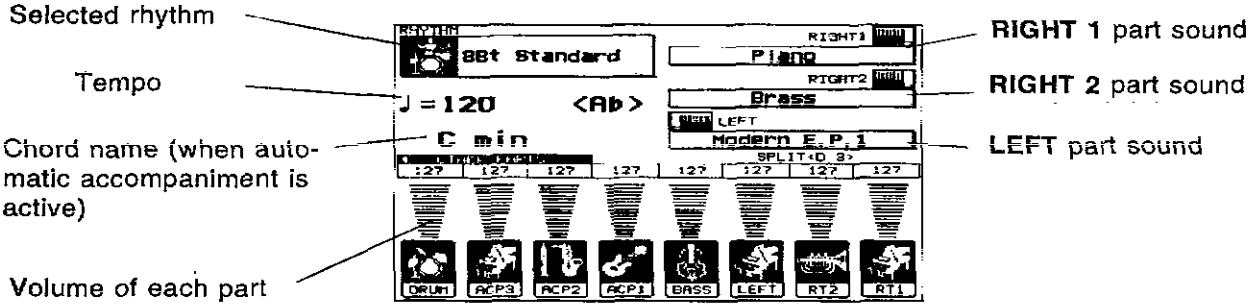
- You can use the same procedure to play back other songs on the disk.
- Direct play from FORMAT 1 disks is not possible. To play FORMAT 1 disks, follow the LOAD procedure (page 98).

About the display

The display shows various information and is used for most of the Keyboard's operations.

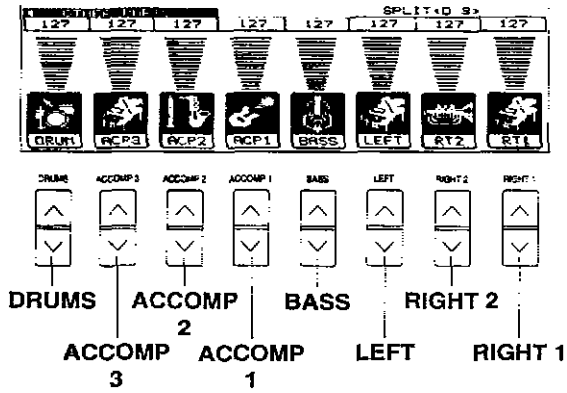
Normal display

This illustration shows the kind of information you see on the display during a normal performance.



Volume balance

At the bottom half of the normal display, the volume balance of each part is shown as a bar graph and a number (0 to 127).



Use the ∧ and ∨ buttons directly below the display to adjust the volume of each part.

- These buttons respond to two ranges of pressure. You can press and hold a button firmly to change the volume quickly.

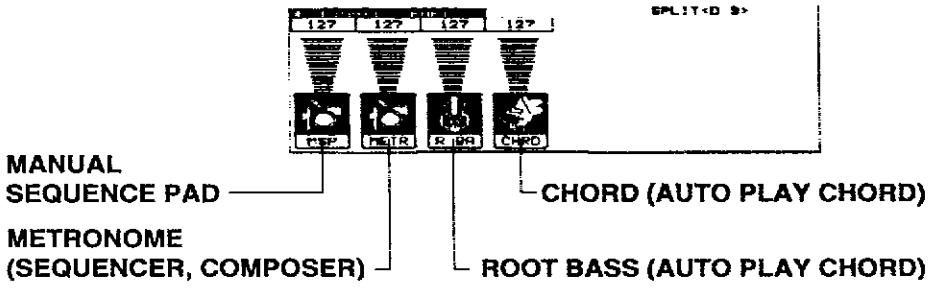
■ MUTE

To mute a part, press both the corresponding ∧ and ∨ buttons at the same time.

- The volume display for a muted part is shown as "MUTE".
- Pressing either balance button for a muted part will cancel the mute function.

■ **OTHER PARTS**

If you press the button for OTHER PARTS, the display changes to show the volumes of other parts.



- Press the **EXIT** button to return to the normal volume display.
- This button is also used to access the RIGHT1-PART8 volume display and the PART9-16 volume display. These parts are used in conjunction with **SEQUENCER** and MIDI functions.

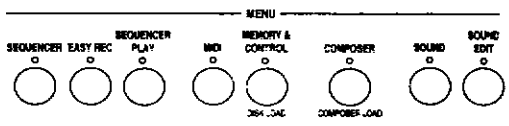
PAGE buttons

When there are additional parts to the current display, a page number indication appears in the upper right corner of the screen. For example, if "PAGE1/2" or "P1/2" is shown, it means that there are two pages of the display, and the current page is page 1. In this case, you can use the **PAGE** ∧ and ∨ buttons to the right of the balance buttons to view different "pages" of the display.

- Press the ∧ button to view the next page of the display, and the ∨ button to view the previous page of the display.

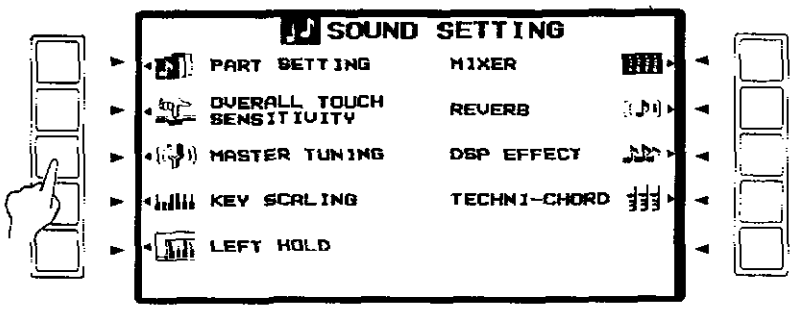
Menu display

The buttons shown in the illustration below control multiple functions. Pressing one of the buttons will access the corresponding menu display.



■ **Example of menu display: SOUND**

Select a function from the menu display by pressing the corresponding button to the left or right of the display indicated by the ◀ and ▶ arrows.

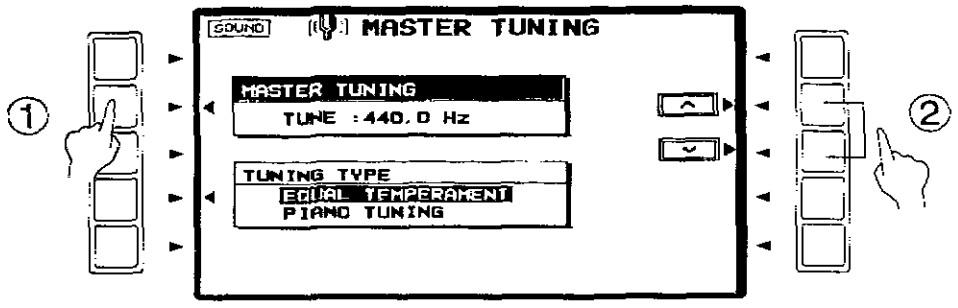


- In this manual, the steps describing how to select a function from a menu display are generally abbreviated as follows, for example: "On the **SOUND** menu display, select MASTER TUNING." (See illustration above.)

Setting display

When setting various functions, the available options are shown on the display. The buttons to the right, left and/or directly below the display are used to select and adjust the settings.

■ **Example of setting display: MASTER TUNING**



<Example of procedure to set a function>

① In the illustration above, two functions are shown on the setting display: MASTER TUNING and TUNING TYPE. First, select one of the functions by pressing the corresponding button indicated by the ◀ arrow. (The currently selected function is highlighted.)

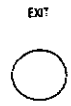
- In this manual, the procedure to indicate that you should press a button to select an item from the display is generally written simply as follows: "Select MASTER TUNING."

② The ∧ and ∨ buttons on the display are operated by pressing the corresponding buttons indicated by the ▶ arrows. These buttons are used, when appropriate, to change the setting for the selected function.

- In this manual, this procedure is written as follows: "Use the ∧ and ∨ buttons to adjust the pitch."

EXIT button

While the setting display is shown, press this button to go back to the previous display.



DISPLAY HOLD button

Press this button to turn it on when you wish to maintain the current display. For example, even during a performance, you can monitor information which is not shown on the normal display.

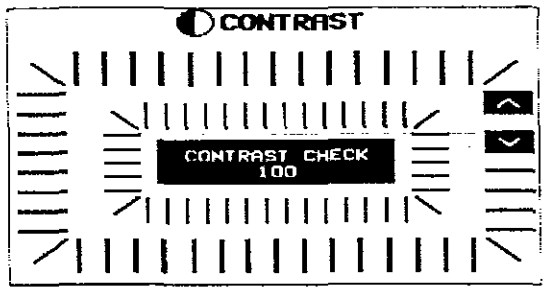
- If any of the **MENU** buttons, for example, is pressed, the **DISPLAY HOLD** mode is canceled.

CONTRAST

Adjust the contrast of the display.

1. Press the **CONTRAST** button.

- The LCD CONTRAST display appears.

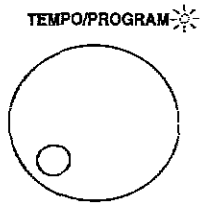


2. Use the ∧ and ∨ buttons to adjust the setting (1 to 100).
- The higher the number the lighter the display characters.
- Each time the **CONTRAST** button is pressed, the number is incremented by 10, allowing you to speedily set the desired contrast.

3. When you have finished making the settings, press the **EXIT** button.

TEMPO/PROGRAM dial

If the **TEMPO/PROGRAM** indicator is lit while you are using the display to adjust a setting, it indicates that the dial may be used to change the displayed value or setting.

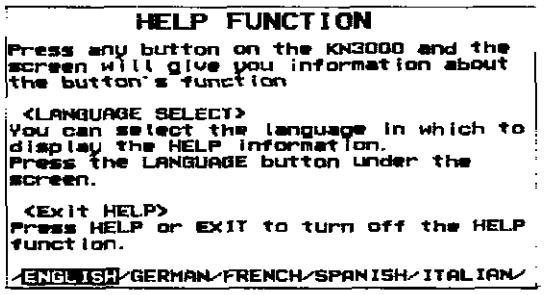


HELP display

You can find an explanation of each button's function on the display.

1. While the normal performance display is shown, press the **HELP** button (at the lower left of the display).

- The following display appears.



2. Press a button on the panel to show an explanation of the button's function on the display.

3. When you have finished reading the message, press the **HELP** button again.

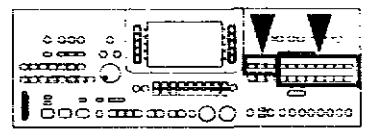
■ **LANGUAGE SELECT**

Use the buttons below the display to select the language in which the messages are displayed.

- The **HELP** display messages and error messages are shown in the selected language.
- The appearance of the display on your instrument and the illustrated display in this manual may differ depending on the region in which your instrument was purchased and the selected display language.

Part I Sounds and effects

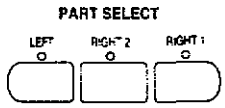
Selecting sounds



Select the sounds for the three parts you can play on the keyboard—**RIGHT 1**, **RIGHT 2** and **LEFT**. After first selecting a part and a **SOUND GROUP**, choose the desired sound from the display.

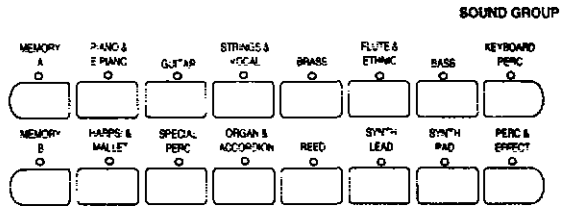
Select a sound

1. In the **PART SELECT** section, choose **RIGHT 1**, **RIGHT 2** or **LEFT**.



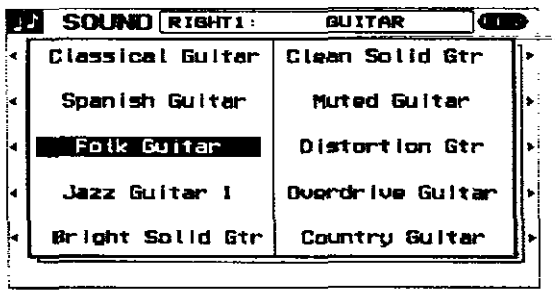
- The **CONDUCTOR** buttons are used to specify which part is heard. (Refer to page 29.)

2. In the **SOUND GROUP** section, select a sound group.



- A list of sounds available for each sound group can be found in the separate "REFERENCE GUIDE" provided.
- **MEMORY A** and **MEMORY B** are reserved for storing sounds you modify. (Refer to page 116.)
- Most of the sounds in the **KEYBOARD PERC** and **PERC & EFFECT** sound groups do not have scaled pitches.

3. Select the desired sound from the list on the display.



- You can use the **PAGE** buttons to view a different part of the list.
- The display returns to the previous display after a few seconds.
- The selected sound is memorized independently for each sound group, so that whenever a **SOUND GROUP** button is pressed, the sound you chose is automatically available.

4. Repeat steps 1 to 3 for each of the other parts.

■ Percussion sounds

You can create a percussion performance on your keyboard.

1. In the **SOUND GROUP** section, press the **KEYBOARD PERC** button.

2. Select the KIT of percussion instrument from the list on the display.

3. Play the keyboard.

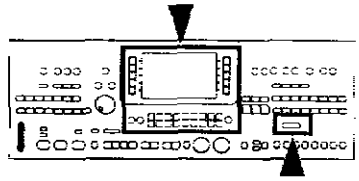
- Percussion instrument sounds are produced by the keyboard keys as indicated by the picture code above each key. (For further explanation, refer to the separate "REFERENCE GUIDE" provided.)
- In the Orchestral KIT and Sound Effect KIT, the arrangement of percussion instruments is different.

- You can store your original drum kit in the USER KIT. (Refer to page 133.)

This instrument features INITIAL TOUCH (the volume, for example, changes depending on how hard the keyboard is played) and AFTER TOUCH (effects are added by pressing the keys harder).

- The keyboard touch response can be adjusted. (Refer to page 111.)
- The AFTER TOUCH can be adjusted. (Refer to pages 110 and 130.)

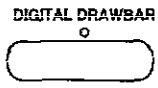
Digital Drawbar



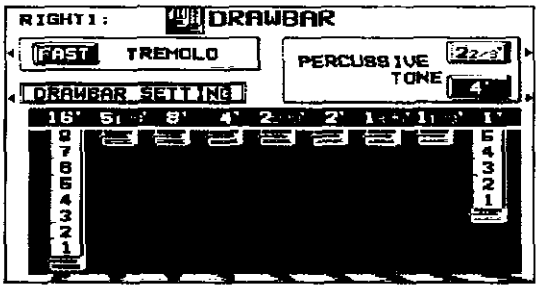
With the **DIGITAL DRAWBAR**, you can play organ sounds.

1. In the **PART SELECT** section, select a part.

2. Press the **DIGITAL DRAWBAR** button to turn it on.



- The display looks similar to the following.



3. Use the balance buttons below the display to adjust the volume of each drawbar.
- Foot marks below each button indicate the pitch of the drawbar. The volume of each drawbar is illustrated on the display and changes when you press the corresponding balance buttons to adjust the volume. The 1' setting is adjusted with the **PAGE** buttons.

- The **DIGITAL DRAWBAR** can be selected only for the **RIGHT 1**, **RIGHT 2** and **LEFT** parts. It can not be selected for other parts, such as the **MANUAL SEQUENCE PADS**, the **ACCOMP 1, 2, 3** and **BASS** parts of the **COMPOSER**, or PART 4 to 16 of the **SEQUENCER**.

■ PERCUSSIVE TONE

PERCUSSIVE TONE adds a tone with a fast initial attack to the drawbar sounds. You can select two pitch levels of attack tones (2 2/3' and 4').

Use the PERCUSSIVE TONE 2 2/3' and 4' buttons to turn the respective tone on or off.
- The tone is on when the respective indication is highlighted.

■ TREMOLO

Tremolo is a rapid oscillation in volume, like the effect of a rotating speaker. The tremolo speed can be changed while you are playing.
- The ROTARY SPEAKER of the **DSP EFFECT** is used for the tremolo effect. (Refer to page 115.)

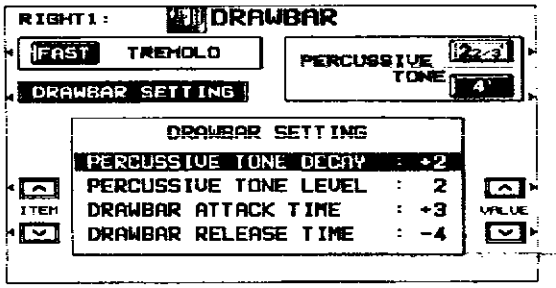
Use the TREMOLO button to switch between the SLOW and FAST rotating speeds.
- This effect does not work if the **DSP EFFECT** button is turned off.

- The TREMOLO setting is effective for the **RIGHT 1**, **RIGHT 2** and **LEFT** parts in common.

■ DRAWBAR SETTING

The drawbar sounds can be adjusted more precisely.

1. Press the DRAWBAR SETTING button to highlight it.
- The display looks similar to the following.



2. Select the drawbar setting you wish to change.
- Use the ITEM ∧ and ∨ buttons to select the item. Use the VALUE ∧ and ∨ buttons buttons to change the setting.

PERCUSSIVE TONE DECAY: Adjust the time it takes for the percussive tone to die out.

PERCUSSIVE TONE LEVEL: Adjust the volume of the percussive tone.

DRAWBAR ATTACK TIME: Adjust the time it takes for the drawbar sound to sound after a key is played.

DRAWBAR RELEASE TIME: Adjust the time it takes for the drawbar sound to die out after the keys are released.

3. When you have finished changing the settings, press the DRAWBAR SETTING button again.

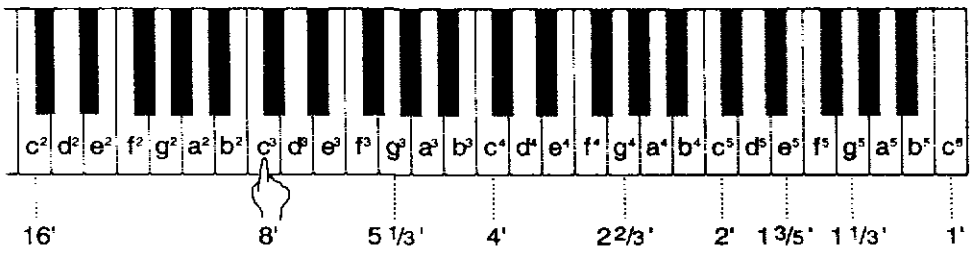
- The DRAWBAR SETTING is effective for the **RIGHT 1**, **RIGHT 2** and **LEFT** parts in common.

The drawbar settings can be stored in the **MEMORY A** or **MEMORY B** button. (Refer to page 134.)

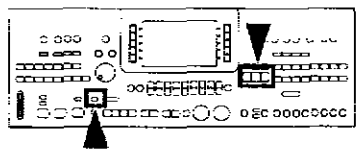
About foot marks

The foot indication on each balance button (for example 8') refers to the pitch of a rank of pipes in a pipe organ. If 8' is used as the standard (the pitch as played on the keyboard), a 16' rank pitch will be one octave below the 8' rank pitch, and a 4' rank pitch one octave above.

When the C^3 key is pressed, the sounds of the different pitch ranks are as follows.

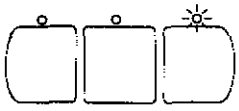
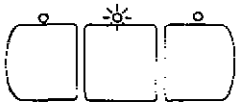
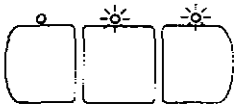
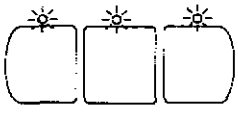
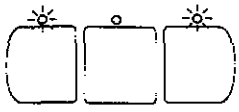
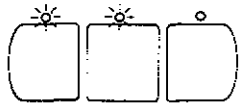


Assigning parts to the keyboard



The **CONDUCTOR** buttons are used to assign sounds to the keyboard in many different ways. For example, you can assign two sounds to the entire keyboard so that playing one key will produce two sounds. You can even split the keyboard into right and left sections (**SPLIT**), and assign a different sound to each section.

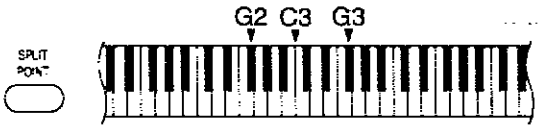
CONDUCTOR

CONDUCTOR settings	How sounds are assigned to the keyboard
 CONDUCTOR	All keys produce the **RIGHT 1** sound. **RIGHT 1**
 CONDUCTOR	All keys produce the **RIGHT 2** sound. **RIGHT 2**
 CONDUCTOR	All keys produce both the **RIGHT 1** sound and the **RIGHT 2** sound. **RIGHT 1 + RIGHT 2**
 CONDUCTOR	The left keys produce the **LEFT** sound and the right keys produce the **RIGHT 1** sound and the **RIGHT 2** sound. **LEFT** / **RIGHT 1 + RIGHT 2**
 CONDUCTOR	The left keys produce the **LEFT** sound and the right keys produce the **RIGHT 1** sound. **LEFT** / **RIGHT 1**
 CONDUCTOR	The left keys produce the **LEFT** sound and the right keys produce the **RIGHT 2** sound. **LEFT** / **RIGHT 2**

- The volume for each part can be adjusted independently. (Refer to page 21.)
- The following conditions are in effect when the **AUTO PLAY CHORD** is used.
  ONE FINGER, FINGERED mode: You cannot assign sounds to all the keys.
  PIANIST mode: The keyboard cannot be split.

SPLIT POINT

When the keyboard is divided into left and right sections, the split point is indicated by the lit indicator. You can change the location of the split point.



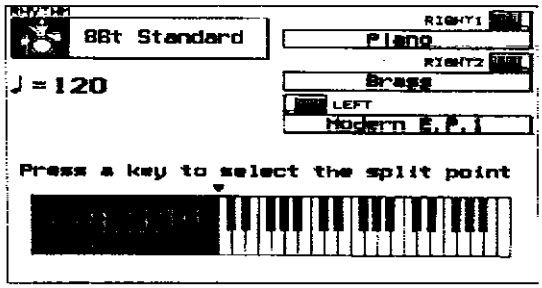
Each time the **SPLIT POINT** button is pressed, the indication moves to the next split point in the following order. G2 → C3 → G3 → customized split point (all indicators off) (see below).

■ Customized split point

Use the following procedure if you wish to store a split point at a location other than G2, C3 or G3.

1. Press and hold the **SPLIT POINT** button for a few seconds.

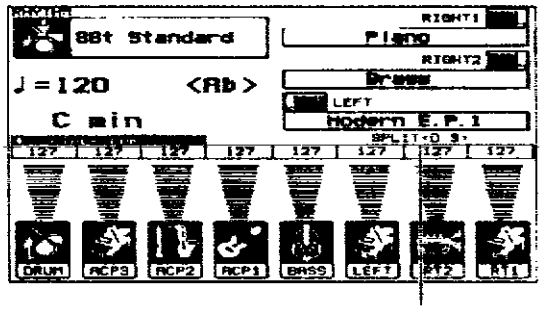
- The following display appears.



2. Press a key on the keyboard to specify the desired split point.

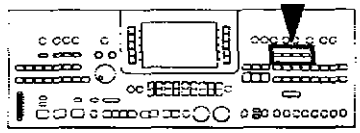
- A split point is set at the location of the pressed key, and is indicated by an arrow on the keyboard illustration on the display.
- The key at the split point is the lowest note of the right keyboard section.
- After a few seconds, the display exits the setting mode.

- Whenever the keyboard is split, you can select your customized split point by pressing the **SPLIT POINT** button until none of the split point indicators is lit. In this case, the customized split point is indicated on the display.



Customized split point

Effects



You can achieve even fuller and stirring sounds by adding various effects.

DIGITAL EFFECT

DIGITAL EFFECT gives the sound richness and enhances your performance.

1. In the **PART SELECT** section, turn on the part to which this effect will be applied.
2. Press the **DIGITAL EFFECT** button to turn it on.

- The on or off status of the **DIGITAL EFFECT** is set automatically for each sound.
- This effect differs depending on the selected sound.
- This effect does not work for the **DIGITAL DRAWBAR** and the sounds in the **KEYBOARD PERC** sound group.
- The display can also be used to set this effect to on or off for each part. (Refer to page 108.)

DSP EFFECT

You can change the quality of the sound.

1. In the **PART SELECT** section, turn on the part to which this effect will be applied.
2. Press the **DSP EFFECT** button to turn it on.

- The **DSP EFFECT** can be set to on or off for each part.
- When the **DIGITAL DRAWBAR** is on, this button turns on the tremolo (ROTARY SPEAKER) effect.
- If you press and hold this button, the display can be used to select the type of **DSP EFFECT** and to make fine adjustments. (Refer to page 115.)

SUSTAIN

SUSTAIN is the gradual fading out of musical tones after the key is released.

1. In the **PART SELECT** section, turn on the part to which this effect will be applied.
2. Press the **SUSTAIN** button to turn it on.

- The **SUSTAIN** can be set to on or off for each part.
- This effect does not work for the sounds in the **KEYBOARD PERC** sound group and for some other sounds.
- The display can also be used to set this effect to on or off for each part and to adjust the length of sustain. (Refer to page 108.)
- The sustain can also be turned on and off with the optional Foot Switch (sold separately). (Refer to pages 50 and 110.)

DIGITAL REVERB

DIGITAL REVERB applies a reverberation effect to the sound.

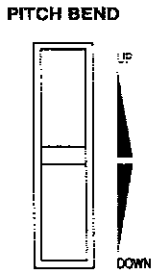
Press the **DIGITAL REVERB** button to turn it on.

- This effect is applied to all the sounds of the keyboard.
- If you press and hold this button, the display can also be used to select the type of **DIGITAL REVERB** and to make related fine adjustments. (Refer to page 115.)
- The display can also be used to set the depth of this effect for each part. (Refer to page 108.)

PITCH BEND

The pitch of the instrument can be continuously changed with the **PITCH BEND** wheel at the left end of the keyboard. Using this control, you can produce the effect of bending the strings on a guitar.

While pressing a key on the keyboard, move the wheel up and down to control the pitch.

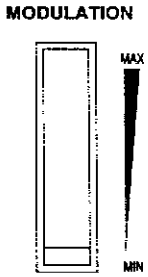


- When you release your hand from the wheel, it returns automatically to the center position and the pitch bend effect is turned off.
- The pitch bend effect does not function for the **AUTO PLAY CHORD** accompaniment pattern and for the sounds of the **LEFT** part.
- The amount of pitch bend can be set. (Refer to page 109.)

MODULATION

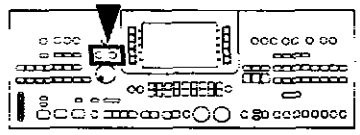
The **MODULATION** wheel is used to apply a vibrato effect, for example, to the sound.

While pressing a key on the keyboard, move the wheel up to add the effect.



- When this effect is not needed, set the **MODULATION** wheel to the **MIN** position.
- This effect differs depending on the selected sound.
- The vibrato effect does not function for the **AUTO PLAY CHORD** accompaniment pattern and for the sounds of the **LEFT** part.

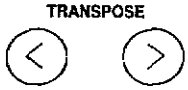
Transpose



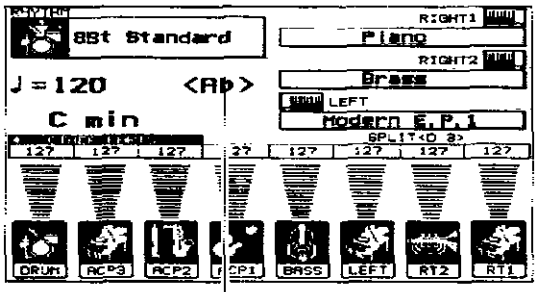
The **TRANSPOSE** buttons are used to change the key of the entire instrument in semi-tone steps across an entire octave.

Suppose you learn to play a song—in the key of C, for example—and decide you want to sing it, only to find that it's either too high or too low for your voice. Your choice is to either learn the song all over again in a different key, or to use the **TRANSPOSE** feature.

Adjust the key with the < and > buttons.

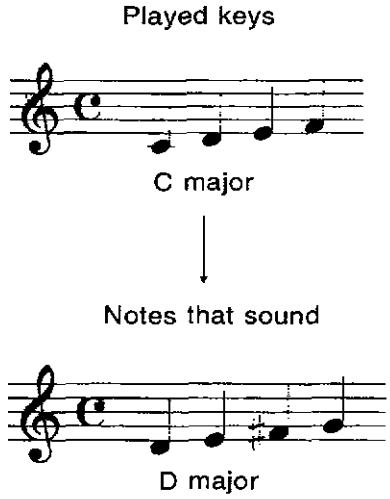


- Each press of the > button changes the key as follows: $D^{\flat} \rightarrow D \rightarrow E^{\flat} \rightarrow E \rightarrow F \rightarrow F^{\sharp}$. Each press of the < button changes the key as follows: $B \rightarrow B^{\flat} \rightarrow A \rightarrow A^{\flat} \rightarrow G$.
- If the two buttons are pressed at the same time, the key returns to C.
- When the **TRANSPOSE** function is active, the transposed key is shown on the display.

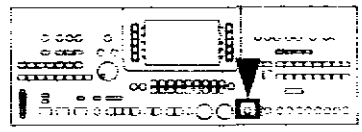


Actual key

<Example: transposed to D>



Techni-chord



TECHNI-CHORD turns your single note melodies into full chords and offers you a choice of 13 different types from a simple duet which adds one harmony note to your melody note, to big band reeds which adds four harmony notes to your melody note. If **TECHNI-CHORD** is part of a **ONE TOUCH PLAY** or **MUSIC STYLE SELECT** registration, a suitable **TECHNI-CHORD** type will be selected automatically.

1. Split the keyboard into left and right sections. (Refer to page 29.)

2. Press the **TECHNI-CHORD** button to turn it on.

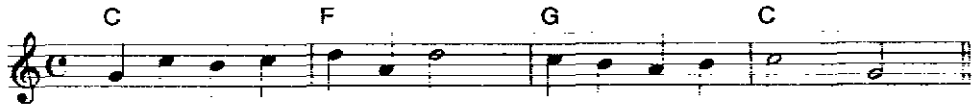
3. Play the keyboard.

- The melody you play with your right hand is automatically played in chords which are based on the chords you play with your left hand.

Example:

Left hand (chord)

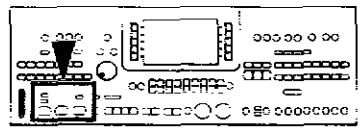
Right hand (melody)



- This feature is very effective when used with the **AUTO PLAY CHORD**.
- If you press and hold this button, the display can be used to select the desired harmony style. (Refer to page 113.)

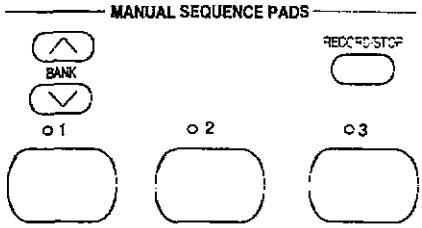
Part II Manual Sequence Pads

Playing phrases

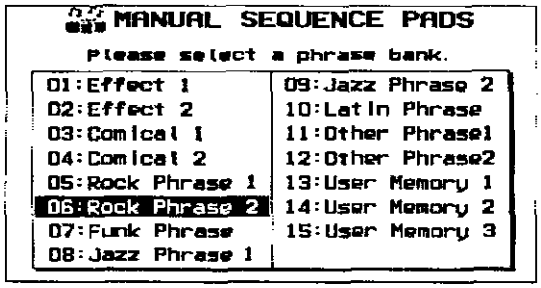


During your performance, you can insert a short recorded phrase or effect sounds by pressing a pad button. Several types of phrases have been prerecorded, but you can also create your own phrases and store them.

1. Use the **BANK** buttons to select the desired phrase bank.



- Banks 13 to 15 are for storing your original phrases. (Refer to page 36.)
- During bank selection, the display changes to the following bank-select display. After a few seconds, the display returns to the previous display.



2. Press pad button **1**, **2** or **3**.

- The selected phrase is played in the current tempo.
- To stop the phrase before it has ended, press the **RECORD/STOP** button.
- Some phrases continue to play until the **RECORD/STOP** button is pressed.
- A different phrase is played by each pad button **1**, **2** and **3**.
- When the automatic accompaniment is on, the phrase is played in the specified chord.
- The volume of the **MANUAL SEQUENCE PADS** can be adjusted. (Refer to page 22.)

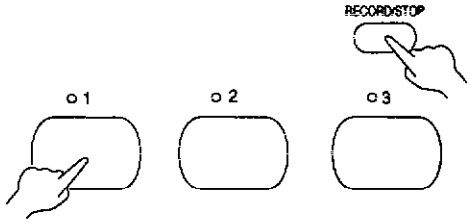
Record a phrase

Banks 13 to 15 are reserved for storing your original phrases.

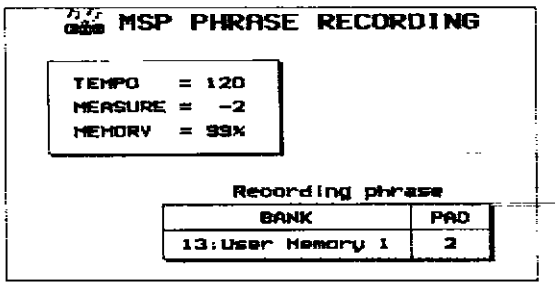
1. Use the **TEMPO/PROGRAM** dial to adjust the recording tempo.

2. Use the **BANK** buttons to select a user bank number (13, 14 or 15).
- Do not select a bank other than these.

3. While pressing the **RECORD/STOP** button, press the pad button in which you wish to record.



- During recording, the indicator for the selected pad button flashes.
- The display looks similar to the following.



4. Select the sounds and effects for the phrase you are going to record.

5. Press the **START/STOP** button.
- After a two-measure count (MEASURE= −2, −1), recording begins.

6. Record the phrase.

7. When you have finished recording the phrase, press the **START/STOP** button.
- You can also stop recording by pressing the **RECORD/STOP** button.

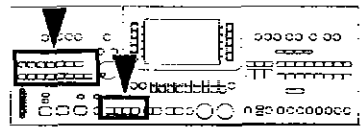
8. Repeat steps 1 to 7 to record phrases in the other pad buttons as desired.
- Follow the same procedure to record phrases in the other user banks.

- The following information is stored.
  — Your keyboard performance
  — Sound settings and changes
  — **SUSTAIN** setting
  — **PITCH BEND, MODULATION** wheel operation, etc.
- The memory capacity of all the **MANUAL SEQUENCE PADS** user banks is approximately 1200 notes. The remaining memory available for recording is shown on the display as a percentage (MEMORY= %). When "Memory full!" appears on the display, no more data can be stored.

Part III Playing the rhythm

The rhythm section enhances the capabilities of your Keyboard with features such as automatic performance of the preset rhythm patterns and accompaniment patterns.

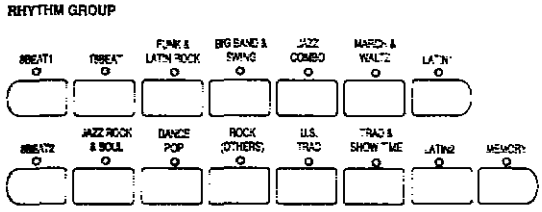
Selecting rhythms



After first selecting a **RHYTHM GROUP**, choose the desired rhythm from the display.

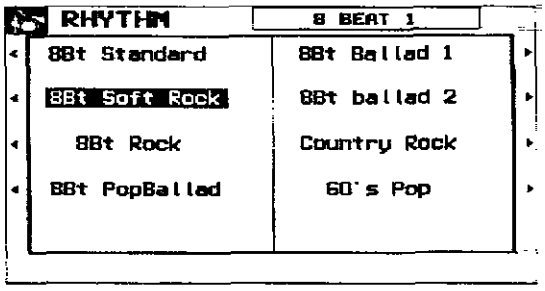
Select a rhythm

1. In the **RHYTHM GROUP** section, select a rhythm group.



- A list of rhythms available for each rhythm group can be found in the separate "REFERENCE GUIDE" provided.
- **MEMORY** is reserved for storing rhythms you create yourself. (Refer to page 81.)
- **A COMPOSER CHORD MAP** can also be selected as a rhythm. (Refer to page 92.)

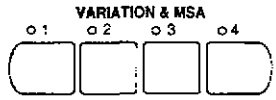
2. Select the desired rhythm from the list on the display.



- The rhythm you selected is shown in the RHYTHM box on the normal performance display.
- The selected rhythm is memorized independently for each rhythm group, so that whenever a **RHYTHM GROUP** button is pressed, the rhythm you chose is automatically available.
- A few seconds after the setting is changed, the display returns to the previous display.

■ VARIATION

There are four variations available for each rhythm. Use the **VARIATION & MSA** buttons to select the desired variation.



- The nuance of the pattern differs with each variation number.
- You can change to a different variation while the rhythm is playing.

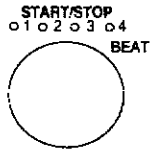
Start the rhythm

There are two ways to start the rhythm.

■ Immediate rhythm start

1. Select a rhythm.

2. Press the **START/STOP** button to turn it on.



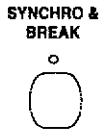
- The selected rhythm pattern immediately begins to play.
- You can stop the rhythm by pressing the **START/STOP** button again to turn it off.
- The **BEAT** indicators above the **START/ STOP** button light to indicate the beat. On the first beat of the measure, the red indicator lights. On the second and succeeding beats of the measure, the green indicators light in order.

■ Synchronized start

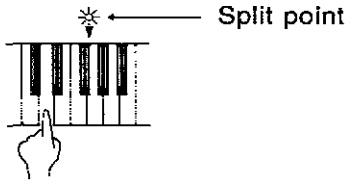
With the synchronized start feature, the rhythm pattern starts when you play a key on the keyboard.

1. Select a rhythm.

2. Press the **SYNCHRO & BREAK** button to turn it on.



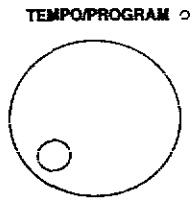
3. Play a key to the left of the keyboard split point.



- The rhythm pattern begins to play.
- You can use the synchronized start feature even when the keyboard is not divided into left and right sections. To start the rhythm, press a key to the left of the specified split point.

■ Adjust the tempo

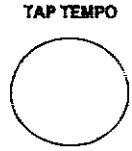
The tempo of the rhythm pattern is adjusted with the **TEMPO/PROGRAM** dial.



- The tempo is shown on the display as a numerical value (♩ = 40 to 300).
- When the **TEMPO/PROGRAM** indicator is lit, the **TEMPO/PROGRAM** dial cannot be used to adjust the tempo.

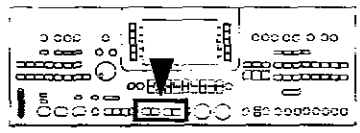
■ TAP TEMPO

You can set the tempo of the rhythm by tapping this button few times with your finger.



- The tempo at which the button is tapped is detected, and the tempo automatically changes correspondingly.

Playing the rhythm

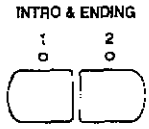


Intro, fill-in and ending patterns fitting each different rhythm pattern are permanently recorded in your Keyboard, thus allowing a versatile rhythm performance.

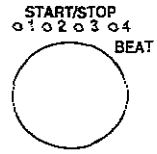
INTRO

Begin the rhythm performance with an intro pattern.

1. Press the **INTRO & ENDING 1** or **INTRO & ENDING 2** button to turn it on.



2. Press the **START/STOP** button to start the rhythm.

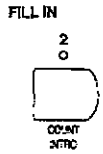


- An intro pattern is played, after which the normal rhythm pattern begins.

COUNT INTRO

You can begin the rhythm performance with a one-measure count.

1. Press the **COUNT INTRO (FILL IN 2)** button to turn it on.



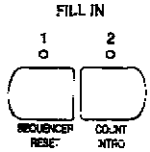
2. Press the **START/STOP** button to start the rhythm.
- A one-measure count is played, after which the normal rhythm pattern begins.

FILL IN

You can insert a fill-in pattern any time during the rhythm performance. Choose from two different fill-in patterns.

1. Select a rhythm and press the **START/STOP** button.

2. Press the **FILL IN 1** or **FILL IN 2** button.

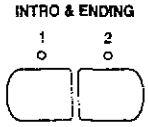


- A fill-in pattern is heard immediately for the remainder of the measure.
- When a **FILL IN** button is pressed on the last beat of the measure, the fill-in pattern continues to the end of the following measure.

ENDING

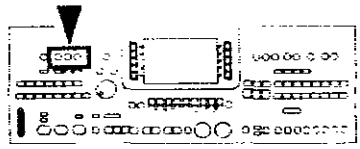
Finish the rhythm performance with an ending pattern.

1. Select a rhythm and press the **START/STOP** button.
2. Press the **INTRO & ENDING 1** or **INTRO & ENDING 2** button to turn it on.



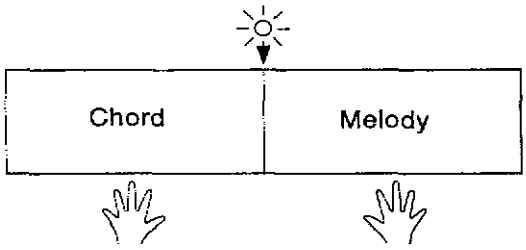
- An ending pattern is produced, and then the rhythm performance stops.
- If you accidentally press the **INTRO & ENDING** button in the middle of the tune, you can press the **FILL IN 1** or **FILL IN 2** button. The ending pattern stops, and a fill-in pattern is *produced, after which the normal rhythm per*formance continues.

Auto Play Chord



Simply by playing a chord on the keyboard, the **AUTO PLAY CHORD** function automatically plays an accompaniment pattern which matches perfectly the selected rhythm. With a real accompaniment as a background, you can concentrate on playing the melody.

How the AUTO PLAY CHORD works

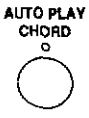


When an **AUTO PLAY CHORD** mode is selected, an automatic accompaniment which matches the rhythm you have chosen is played in the chord which you specify with your left hand. The melody is played with your right hand.

- The accompaniment pattern of the **AUTO PLAY CHORD** is composed of five parts: **DRUMS, BASS, ACCOMP 1, ACCOMP 2** and **ACCOMP 3**.
- The volume of each part can be adjusted with the buttons below the display. (Refer to page 21.)

Playing chords

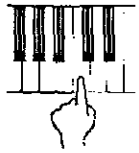
Choose from three ways of playing chords.



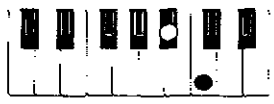
■ ONE FINGER mode

In the ONE FINGER mode, a major chord can be played just by pressing the key for its root note.

Example: C chord

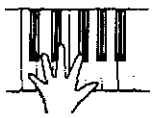


Minor, seventh and minor seventh chords are also easily produced.

minor chord	seventh chord	minor seventh chord
Play the root note plus a black key to the left of it.	Play the root note plus a white key to the left of it.	Play the root note plus a black key and a white key to the left of it.
Example: Cm 	Example: C7 	Example: Cm7 

■ FINGERED mode

In the FINGERED mode, you specify the chord by playing all the notes in the chord.



- The Keyboard can distinguish the following played chords for each key (C is given as an example): C, C7, CM7, Caug, Caug7, Cm, Cm7, Cdim, Cm7♭5, CmM7, Csus4, C7sus4, C♭5, C7♭5, Cm♭5, C6, Cm6, CM7♭5, CM7♯5, CmM7♭5 , etc.

■ PIANIST mode

In the PIANIST mode, the entire keyboard can be used to specify chords (FINGERED mode) for the automatic accompaniment; a **RIGHT** part is assigned to all the keys, and the keyboard does not split. In addition to the chords in the FINGERED mode, the Keyboard also recognizes 9th and 13th chords.

- When specifying chords, if you press a key a perfect 5th or more below the lowest note of the chord, the **BASS** part becomes a pattern based on that note.

■ ON BASS

If the **ON BASS** button is on while the FINGERED or PIANIST mode is selected, the **BASS** part is produced in the key of the lowest note of the played chord, thus making it possible to play chords such as C on G.

- For example, with the **ON BASS** button on, if you play a C chord by pressing the keys G, C and E, the **BASS** part is produced in the key of G.

■ MEMORY

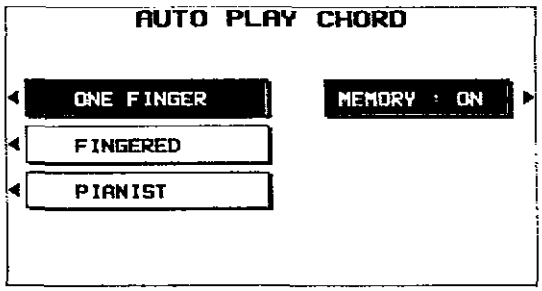
When the **MEMORY** button is on, even when the keys are released, the chord is memorized and the accompaniment continues to play until you specify another chord.

How to use the AUTO PLAY CHORD

1. Select the desired rhythm and sound(s), and set the tempo.

2. Press the **AUTO PLAY CHORD** button to turn it on.

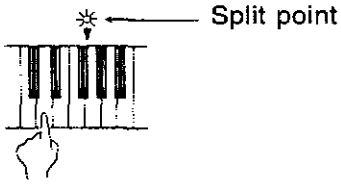
- The display looks similar to the following.



3. Select an **AUTO PLAY CHORD** mode (ONE FINGER, FINGERED or PIANIST).
- After a few seconds, the display returns to the previous display.
- If the ONE FINGER or FINGERED mode was selected, the keyboard automatically splits into right and left sections.
- The on/off status of the **MEMORY** button can also be changed with the MEMORY button on this display.

4. Press the **START/STOP** button to begin the rhythm.
- You can start the rhythm by playing a key on the keyboard. (Refer to page 38.)

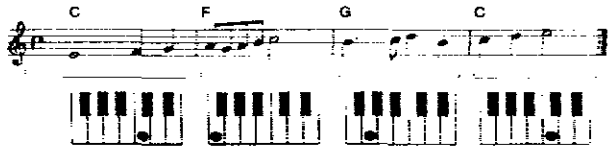
5. Specify a chord.
- If the ONE FINGER or FINGERED mode was selected, specify the chord on the keyboard section to the left of the split point.



- An accompaniment pattern in the specified chord is automatically played. Play the melody with your right hand.

Example of how to play a ONE FINGER accompaniment

Play the melody with your right hand.



Left hand

- When you use **FILL IN**, **INTRO** and **ENDING**, the automatic accompaniment is also used in these patterns.
- In the ONE FINGER mode, the sound assigned to the left section of the keyboard (**LEFT** part) does not sound in the initialized condition.
- You can set the mode which determines how the **LEFT** part sounds during an **AUTO PLAY CHORD** performance. (Refer to page 114.)

6. To stop the automatic accompaniment, press the **START/STOP** button.

- In the initialized condition, when the rhythm is off, if an **AUTO PLAY CHORD** mode is on and a chord is specified, the specified root note (R. BASS part) and chord notes (CHORD part) are produced. The volumes of these notes can be adjusted. (Refer to page 22.)
- The volume for each part can be adjusted. (Refer to page 21.)

DYNAMIC ACCOMP

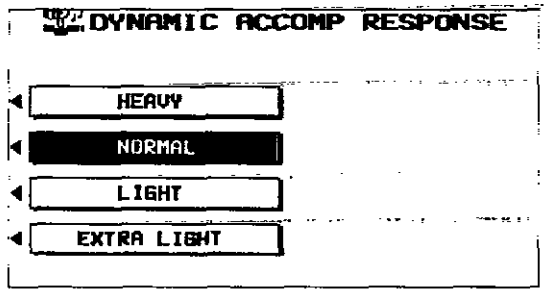
DYNAMIC ACCOMP is a function which changes each accompaniment pattern of the **AUTO PLAY CHORD**.

1. Press the **DYNAMIC ACCOMP** button to turn it on.

2. Play the keyboard in one of the **AUTO PLAY CHORD** modes.
- Depending on the condition of the performance, each **ACCOMP** part changes.

■ **Response adjustment**
You can adjust how the keyboard touch affects the **DYNAMIC ACCOMP** function.

1. Press and hold the **DYNAMIC ACCOMP** button for a few seconds.
- The display looks similar to the following.



2. Select the desired mode.
- After a few seconds, the display returns to the previous display.

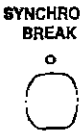
- You can also access this setting display from the **MEMORY & CONTROL** menu display. (Refer to page 95.)

BREAK function

With the break function, the rhythm starts when the left keyboard is played and stops when the fingers are removed from the keys.

1. Select an **AUTO PLAY CHORD** mode.
- At this time, the **MEMORY** button should be off.

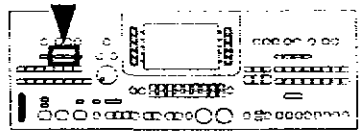
2. Press the **SYNCHRO & BREAK** button to turn it on.



3. Specify a chord.
- The automatic accompaniment begins to play (synchronized start).
- For the PIANIST mode, play the keys to the left of the currently set split point.

4. Release the chord keys.
- The automatic accompaniment stops. When the keys are pressed again, the rhythm starts from the first beat.

Sound Arranger

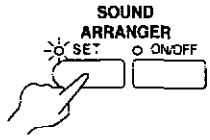


The **SOUND ARRANGER** feature lets you select other sounds for the **AUTO PLAY CHORD** parts of each rhythm.

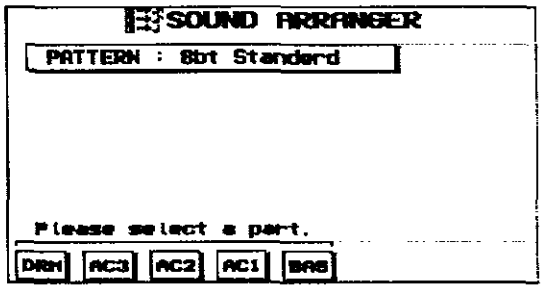
Setting the sounds

1. Select the rhythm whose sound you wish to change.
   - Do not select a **MEMORY** rhythm.

2. In the **SOUND ARRANGER**, press the **SET** button to turn it on.

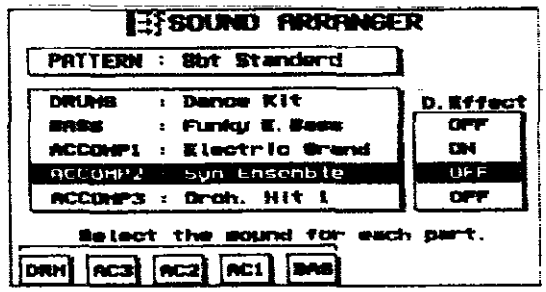


- The display changes to the following.



3. Use the balance buttons below the display to select the part whose sound you wish to change.
   BAS: **BASS**
   AC1: **ACCOMP 1**
   AC2: **ACCOMP 2**
   AC3: **ACCOMP 3**
   DRM: **DRUMS**

- The display changes to the following.



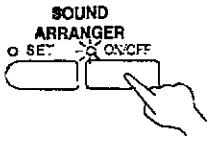
4. Select the desired sound.
   - *The* **DIGITAL EFFECT** *on/off status can also* be specified (except for **DRUMS** part).
   - For the **DRUMS** part, select sounds from the **KEYBOARD PERC** sounds. (These sounds cannot be selected for other parts.)
   - The sound and on/off status of the **DIGITAL EFFECT** are shown on the display.

5. Repeat steps 3 and 4 for the other parts as desired.

6. When you have finished selecting the sounds, press the **SET** button to turn it off.

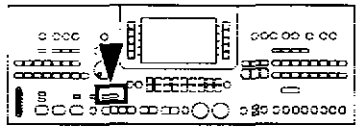
Playing back the sounds

1. In the **SOUND ARRANGER**, press the **ON/OFF** button to turn it on.



2. Start the rhythm (automatic accompaniment).
- When the **ON/OFF** button is off, the factory-preset sounds are produced.

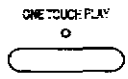
One Touch Play



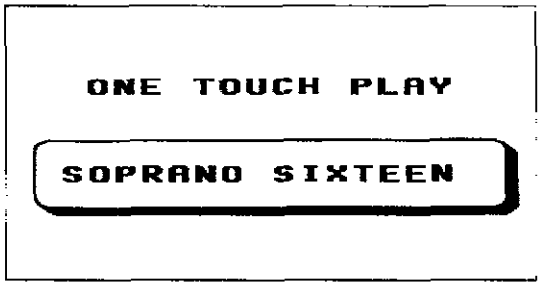
ONE TOUCH PLAY sets up the your instrument with a suitable registration for your chosen rhythm style so that you can make a great sound straight away, even if you are playing this instrument for the first time. Using **ONE TOUCH PLAY** sets a suggested combination of sounds and balances and an appropriate tempo for rhythm style at the push of a button.

1. Select a rhythm pattern.
- Do not select a rhythm from the **MEMORY** group.

2. Press the **ONE TOUCH PLAY** button until its indicator goes out.



- The display looks similar to the following.

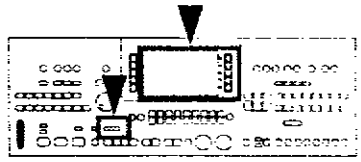


- The **AUTO PLAY CHORD**, the **MEMORY** button and the **SYNCHRO & BREAK** button are automatically turned on. When a key on the left section of the keyboard is pressed, the automatic rhythm begins to play immediately.

Suggestions for using ONE TOUCH PLAY

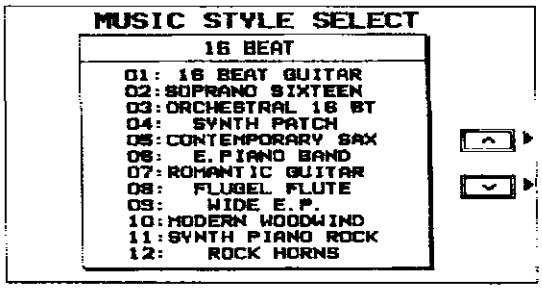
Press the **INTRO & ENDING** button before you play for a professional sounding introduction. Use the **ONE TOUCH PLAY** registration as a starting point for your own registration. Alter the sounds, balance and tempo to your own taste and store your new registration in the **PANEL MEMORY** for future use.

Music Style Select



MUSIC STYLE SELECT sets up your instrument with a suitable registration for a specific style of music. Select from this instrument's list of style names and **MUSIC STYLE SELECT** does the rest for you, setting suitable sounds and volume balances, along with the appropriate rhythm, accompaniment and tempo for your chosen style.

1. Press the **ONE TOUCH PLAY** button momentarily.
- The display looks similar to the following.



- The name of the style shown on the display may become altered.

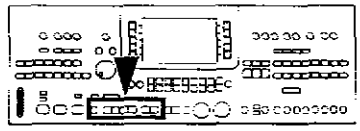
2. In the **RHYTHM GROUP** section, select a rhythm group.

3. Use the ∧ and ∨ buttons to select a music style.
- The **AUTO PLAY CHORD**, the **MEMORY** button and the **SYNCHRO & BREAK** button turn on, and the sounds, effects, rhythm and tempo which are best suited for the selected music style are automatically selected. When a key on the left section of the keyboard is pressed, the automatic rhythm begins to play immediately.

Suggestions for using MUSIC STYLE SELECT

Press the **INTRO & ENDING** button before you play for a professional sounding introduction.
Use the **MUSIC STYLE SELECT** registration as a starting point for your own registration. Alter the sounds, volume balance and tempo to your own taste and store your new registration in the **PANEL MEMORY** for future use.

Music Style Arranger

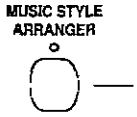


The **MUSIC STYLE ARRANGER** helps you to make professional registration changes during your performance. Select between four contrasting registrations at the push of a button, or let your instrument change the registration automatically for you when you use **FILL IN 1** or **2**. The **MUSIC STYLE ARRANGER** will also alter the accompaniment in character with the registration change creating a polished sounding arrangement.

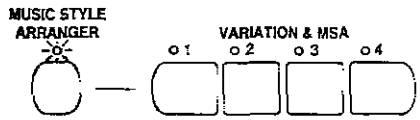
How to use the MUSIC STYLE ARRANGER

1. Select a rhythm pattern.

2. Press the **MUSIC STYLE ARRANGER** button to turn it on.



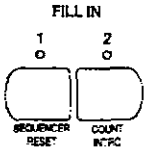
3. Use the **VARIATION & MSA** buttons to select a style (1 to 4).



- The nuance of the pattern differs with each number.
- The panel settings (including the tempo) change according to the selected rhythm and music style. The **AUTO PLAY CHORD**, the **MEMORY** button and the **SYNCHRO & BREAK** button are automatically turned on. When a key on the left section of the keyboard is pressed, the automatic rhythm begins to play immediately.
- During your performance, the style can be changed, but the tempo does not change.

How to change the music style during your performance

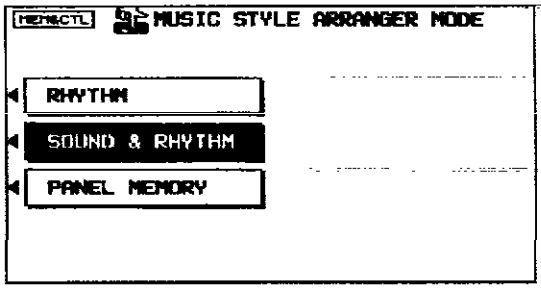
While you are playing the keyboard with the **MUSIC STYLE ARRANGER** on, press the **FILL IN 1** or **FILL IN 2** button.



- Each time the **FILL IN 1** button is pressed, the **FILL IN 1** pattern plays, and then the music style changes in the **4** → **3** → **2** → **1** order. And each time the **FILL IN 2** button is pressed, the **FILL IN 2** pattern plays, and then the style changes in the **1** → **2** → **3** → **4** order.

■ **MUSIC STYLE ARRANGER mode**
You can define which panel settings change by pressing a **FILL IN** button when the **MUSIC STYLE ARRANGER** is used.

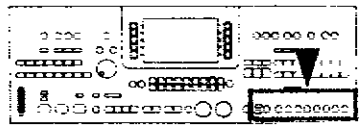
1. Press and hold the **MUSIC STYLE ARRANGER** button for a few seconds.
- The display changes to the following.



2. Select the mode.
RHYTHM: Only the rhythm changes.
SOUND & RHYTHM: Both the sound and rhythm change.
PANEL MEMORY: The **PANEL MEMORY** number (BANK1: 1 to 4) changes.
- After a few seconds, the display exits the setting mode.

- You can also access this setting display from the **MEMORY & CONTROL** menu display. (Refer to page 95.)

Panel Memory

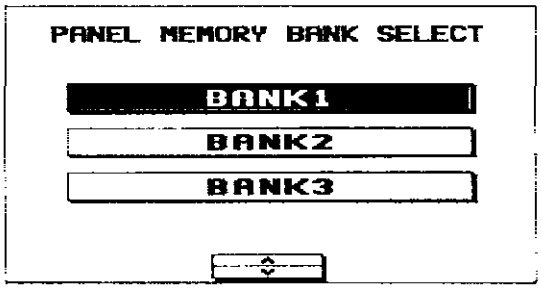


PANEL MEMORY stores the panel set up of this instrument allowing you to make complex changes at the push of a single button.

How to store the panel settings

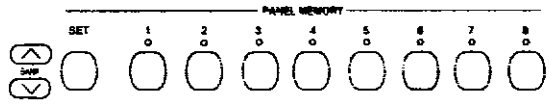
1. Set up the desired panel settings (sounds, volumes, etc.)

2. Press the **BANK** buttons to select a bank (1 to 3).
- The bank number is shown on the display.



- The ∧ and ∨ buttons below the display can also be used to select the bank.
- A few seconds after the setting is changed, the display returns to the previous display.

3. With the **SET** button held down, press one of the numbered buttons of the **PANEL MEMORY** (**1** to **8**).

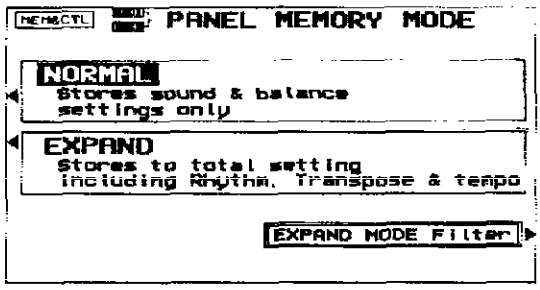


- The panel settings are now stored in the specified bank and number.
- To recall the stored settings, just select the **BANK** and press the desired **PANEL MEMORY** number button. (You can then change the sound settings, etc. manually; however, the memory contents of the **PANEL MEMORY** remain unchanged until you store them again.)
- The **PANEL MEMORY** settings can be saved on a disk for recall at a later time. (Refer to page 101.)

■ PANEL MEMORY mode

You can define which panel settings are stored when the **PANEL MEMORY** is used.

1. Press and hold the **SET** button for a few seconds.
- The display changes to the following.



2. Select the mode.

NORMAL: The sounds and volume balance, effects and **CONDUCTOR** status are stored.

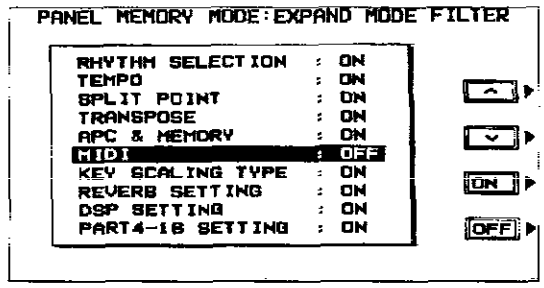
EXPAND: All the instrument's settings are stored, including the rhythm (except for **SOUND ARRANGER** on/off status), **TRANSPOSE**, tempo, etc.

- After a few seconds, the display exits the setting mode.
- You can also access this setting display from the **MEMORY & CONTROL** menu display. (Refer to page 95.)

■ EXPAND MODE FILTER

You can specify which data is stored in the EXPAND mode.

1. On the PANEL MEMORY MODE display, press the EXPAND MODE FILTER button.
- The display looks similar to the following.

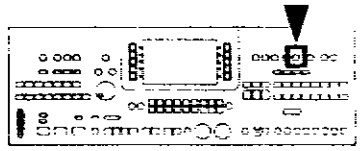


2. Use the ∧ and ∨ buttons to select the item.
3. Use the ON and OFF buttons to store the on or off status for the selected item.
4. Repeat steps 2 and 3 for each item, as desired.

Suggestions for using PANEL MEMORY

The initial factory setting of **PANEL MEMORY** contains professional settings which you may choose to use or to alter to your own taste. These can be restored at any time by initializing the **PANEL MEMORY**. You can change from one **PANEL MEMORY** to another by using a Foot Switch. Press **MEMORY & CONTROL** and select FOOT SWITCH SETTING on the display to assign this function.

Foot switch setting

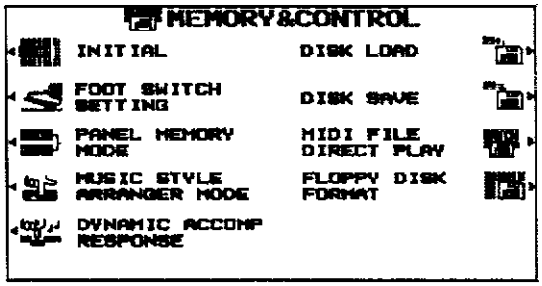


If an optional Foot Switch (sold separately) is connected, you can assign it one of several functions. The assigned function can then be controlled with the Foot Switch.

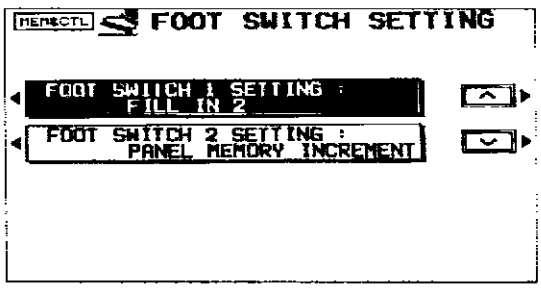
Assigning functions

1. Press the **MEMORY & CONTROL** button to turn it on.

- The display changes to the following.



2. Select FOOT SWITCH SETTING.
- The display changes to the following.



3. Select FOOT SWITCH 1 SETTING or FOOT SWITCH 2 SETTING.

4. Use the ∧ and ∨ buttons to select a desired function.

PANEL MEMORY 1–1 to 3–8: The specified **PANEL MEMORY** bank and number are turned on.
PANEL MEMORY INCREMENT: Increment the **PANEL MEMORY** selection by 1.
START/STOP: **START/STOP** button on/off
RHYTHM VARIATION 1–4: **VARIATION** button on
FILL IN 1: **FILL IN 1** button on
FILL IN 2: **FILL IN 2** button on
INTRO & ENDING 1: **INTRO & ENDING 1** button on
INTRO & ENDING 2: **INTRO & ENDING 2** button on
SUSTAIN: **SUSTAIN** button on/off
PAD 1–3: **MANUAL SEQUENCE PADS** on
DIGITAL EFFECT: **DIGITAL EFFECT** button on/off
DSP EFFECT: **DSP EFFECT** button on/off
GLIDE: Glide on/off (The glide effect "bends" the pitch down by about one semi-tone.)
TECHNI-CHORD: **TECHNI-CHORD** button on/off
PUNCH RECORD: Punch in/punch out (Refer to page 78.)
TREMOLO SLOW/FAST: TREMOLO SLOW/FAST of the **DIGITAL DRAWBAR** (Refer to page 27.)

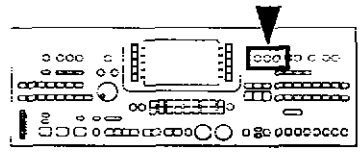
5. Repeat steps 3 and 4 to assign functions to the Foot Switches as desired.

6. When you have completed making the settings, press the **MEMORY & CONTROL** button to turn it off.

- For details about connecting the Foot Switches, please refer to page 145.

Part IV Sequencer

Outline of the Sequencer



A sequencer records your performance in a similar way to a tape recorder. This istrument's **SEQUENCER** allows you to record up to 10 performances in a variety of ways. You may want to record your entire performance in one go (especially if you are using **AUTO PLAY CHORD** to provide the accompaniment), or to build up a complex arrangement with several different parts playing together, like an orchestral score. This istrument's **SEQUENCER** has 16 tracks. This means that you can record 16 different parts. However, you don't have to use all 16 tracks. For some uses you may only need to use one or two tracks. This istrument's **SEQUENCER** enables you to edit your recorded performance. Unlike a tape recorder you can change the sound or the tempo during playback, or correct wrong notes or timing errors.

SEQUENCER features

■ **You can change the tempo without changing the pitch**
When you record your performance at a slow tempo and play it back at a faster tempo, the pitch stays the same.

■ **Consistent sound**
Your performance is reproduced by a sound module as it reads digital data. So, unlike a recorded tape, the sound never deteriorates no matter how many times you play back your performance.

■ **Edit your recorded performance**
Comprehensive editing functions allow you to modify your recorded performance. Data can easily be erased, corrected or copied, providing an especially convenient tool for creating your original tunes.

■ **Instant search**
A recorded tape has to be rewound, but digital action means you can return to the beginning of your performance, or find any measure, instantly.

■ **Save your performances on disks**
All the data of your recorded performances can be stored on disks. The built-in Disk Drive also allows you to play commercially sold disks on your own Keyboard.
- Features and operation of the built-in Disk Drive are explained in Part VI: Disk Drive (page 94).

Popular features

■ **Simplified recording method**
EASY RECORD is a feature that allows you to bypass the more complex recording procedures so you can record and play back your performance quickly and easily.
- You can also record an accompaniment from the **AUTO PLAY CHORD**.

■ **Create a one-man ensemble**
Use the REALTIME RECORD function to record your performance in up to 16 tracks and create your own orchestra or band.

■ **Store individual data to create your song**
For repeating patterns or those especially complicated phrases, the STEP RECORD feature is convenient for recording the notes one-by-one.
- This method can be used to store both the chord progression for the automatic accompaniment and the rhythm changes.

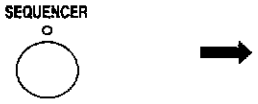
Memory capacity

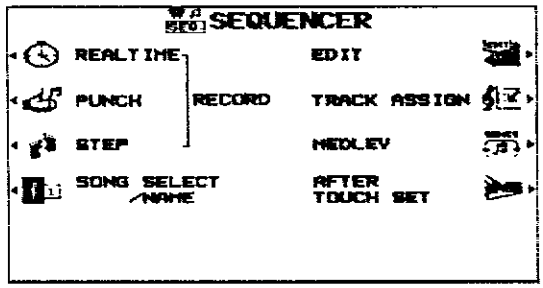
Up to 10 songs can be stored in the **SEQUENCER**. Expressed in terms of notes, the total number of notes which can be stored in all the **SEQUENCER** songs and tracks is about 40,000. The remaining memory available for recording is shown on the display as a percentage (MEMORY= %).
- When "Memory full!" appears on the display, no more data can be stored in the **SEQUENCER**.
- The recorded contents can be saved on a disk for recall at a later time. (Refer to page 102.)

About the measure count
The measure count on the display corresponds to the time signature of the selected rhythm. However, if rhythm data is stored in the RHYTHM part and that part is played back, the measure count on the display corresponds to the stored rhythm data. (Refer to page 58.)
- If you wish to use a time signature not available in the preset rhythms, use the **COMPOSER** to create a new time signature. (Refer to page 85.)

SEQUENCER menu

When you press the **SEQUENCER** button to turn it on, the display changes to the following.





Summary of the SEQUENCER menu items

SONG SELECT/NAME (page 53)
Specify the song number and name of the song to record or play back.

REALTIME RECORD (page 56)
Record your performance just as you play it on the keyboard.

STEP RECORD (page 60)
Store the sounds note-by-note on the display.

TRACK ASSIGN (page 66)
Assign parts to up to 16 different tracks.

EDIT (page 67)
Full-scale editing features are available.

NOTE EDIT: Store and correct performance (NOTE) data on a piano roll display.
DRUM EDIT: Store and correct DRUMS part data on a special display.
QUANTIZE: Correct the timing of the recorded performance.
TRANSPOSE: Change the key of specified performance data.
VELOCITY CHANGE: Modify the recorded velocity (how hard the keyboard was played).
SONG CLEAR: Erase the recorded contents of all tracks.
TRACK CLEAR: Erase the contents of a specific track.
NOTE CHANGE: Change the pitch of specific notes.
ADVANCE/DELAY: Speed up or delay the sound production of performance data.
SONG COPY: Copy specific songs.
TRACK MERGE: Merge the recorded contents of two tracks and store in a third track.
PANEL WRITE: Modify the panel status at the beginning of the song.
MEASURE COPY: Copy the contents of specific measures.
MEASURE ERASE: Erase the contents of specific measures.
MEASURE DELETE: Delete specific measures from the performance.
MEASURE INSERT: Insert additional measures in the performance.

PUNCH RECORD (page 78)
Correct a selected portion of your recorded performance.

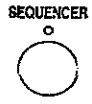
MEDLEY (page 79)
Specify medley playback of songs recorded on a disk.

AFTER TOUCH SET (page 80)
Specify whether or not keyboard after touch is recorded as data.

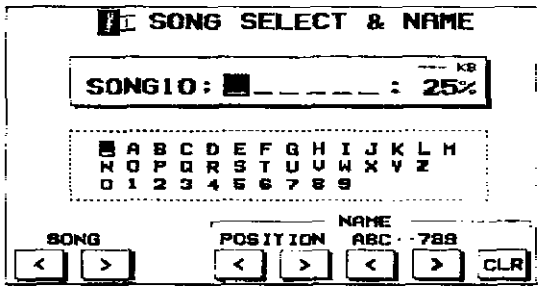
Song Select & Name

Up to 10 songs can be recorded in the **SEQUENCER**. The song number and song name are specified before recording begins.

1. Press the **SEQUENCER** button to turn it on.



2. On the menu display, select SONG SELECT/NAME.
- The display looks similar to the following.



3. Use the SONG < and > buttons to select a song number (1 to 10).

4. Assign a name to the song (up to 6 characters).
- Use the POSITION < and > buttons to highlight the character position. Use the ABC · · 789 < and > buttons to select the alphanumeric character. Repeat these steps to type the whole name.
- To erase the name, press the CLR button.

- The total amount of memory used for the current song is shown as a percentage (%) to the right of the song name.

5. Press the **EXIT** button.

6. Follow the procedures to record the song.

- Until this procedure is repeated, all subsequent recording procedures are associated with the specified song number.
- To optimize memory, songs you do not wish to preserve should be deleted. (Refer to page 72.)

- If you wish to record the tempo for each song, record the desired tempo at the beginning of the CONTROL part. When you play back the song, be sure to also select the CONTROL part for playback.

Easy Record

Suppose you are playing the Keyboard and you wish to record and play back your performance to hear how it sounds. You can bypass the set-up procedures of the full-scale sequencer and begin recording quickly and easily.

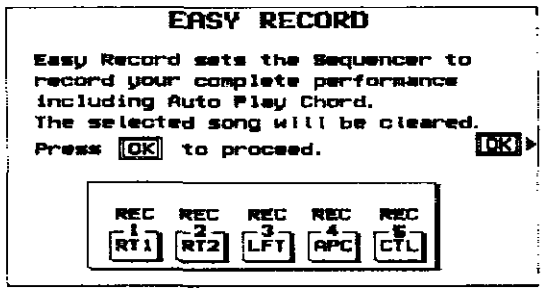
Recording procedure

1. Set the desired sounds, effects, rhythms, etc.

2. Select the song number. (Refer to page 53.)

3. Press the **EASY REC** button to turn it on.

- The display changes to the following.



Here is what happens when you select the EASY RECORD mode.

- The recorded data for the currently selected SONG number is erased (SONG CLEAR).
- Tracks available for recording are selected as follows.
  1: RIGHT 1 part
  2: RIGHT 2 part
  3: LEFT part
  4: APC part
  5: CONTROL part

4. Press the OK button.
- The display changes to the REALTIME RECORD display.

5. Play the keyboard.
- Recording begins as soon as you start the rhythm or play the keyboard.

6. When you have finished recording, press the **EASY REC** button to turn it off.
- The display changes to the SEQUENCER PLAY display.

Playback

1. Press the **SEQUENCER RESET (FILL IN 1)** button.

2. Press the **START/STOP** button.
- Your recorded performance is played back automatically.
- When you are finished playing back your performance, press the **SEQUENCER PLAY** button to turn it off.

Sequencer parts

The following summary explains what is stored in each **SEQUENCER** part.

Part name [name on display]	Used for	Recorded contents
RIGHT1 [RT1] **RIGHT2** [RT2] **LEFT** [LFT] **PART4** [P 4] ⋮ **PART15** [P15]	Recording the performance of each part (REALTIME/STEP)	• Sound and volume settings • **DIGITAL EFFECT, DSP EFFECT, SUSTAIN** on/off • **PITCH BEND** wheel operation • **MODULATION** wheel operation • AFTER TOUCH (REALTIME only) (Refer to page 80.)
DRUMS [DRM] (PART16)	Recording the drums performance with the **KEYBOARD PERC** group sounds (REALTIME/STEP)	• Sound (drum KIT) and volume settings
CONTROL [CTL]	Recording changes in the panel button status (REALTIME/STEP)	• Rhythm setting and selection changes • **DIGITAL REVERB** on/off • **AUTO PLAY CHORD** status • **ON BASS** on/off • **DYNAMIC ACCOMP** on/off • **MUSIC STYLE ARRANGER** status • **FILL IN 1, 2, INTRO & ENDING 1, 2** on • **SPLIT** status • **PANEL MEMORY** selection changes • **TRANSPOSE** status • **START/STOP** on/off • **TEMPO** setting • **CONDUCTOR** status • **MANUAL SEQUENCE PADS** operation • Expression pedal operation (separately sold option)
AUTO PLAY CHORD [APC]	Recording chords for the **AUTO PLAY CHORD** (REALTIME)	• **AUTO PLAY CHORD** status • **ON BASS** on/off
CHORD [CHD]	Recording chord progression for the **AUTO PLAY CHORD** (STEP)	• Chord progression • **FILL IN 1, 2, INTRO & ENDING 1, 2** on
RHYTHM [RHY]	Settings related to rhythm (STEP)	• Rhythm settings and selection changes • **FILL IN 1, 2, INTRO & ENDING 1, 2** on • **START/STOP** on/off • **TEMPO** setting

- You can use the TRACK ASSIGN function to assign parts to tracks as you wish. (Refer to page 66.)

■ Default part settings

1: RIGHT1	5: CONTROL	9: PART5	13: PART9
2: RIGHT2	6: RHYTHM	10: PART6	14: PART10
3: LEFT	7: DRUMS	11: PART7	15: PART11
4: APC/CHORD	8: PART4	12: PART8	16: PART12

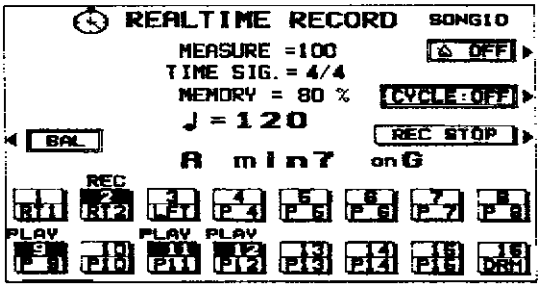
Realtime Record

With REALTIME RECORD, your performance is recorded with the timing exactly as you played it on the keyboard. This mode lets you store a tune with all the subtle nuances just as you play them.

Recording procedure

1. Select the song number. (Refer to page 53.)

2. On the **SEQUENCER** menu display, select REALTIME RECORD.
- The display looks similar to the following.



3. Set the sounds, effects, volumes, etc. for the parts you are going to record.

4. Use the balance buttons below the display to specify the tracks for the part you are going to record.
- Press the buttons to display "REC" above the track numbers you are going to record.
- Use the upper buttons to select tracks 1 to 8, and the lower buttons to select tracks 9 to 16.
- While you are recording, you can play back tracks which are already recorded. Press the corresponding balance buttons to display "PLAY" above the track number you wish to have played back.
- You can select two or more tracks to record at one time. To record a performance part, the corresponding button in the **CONDUCTOR (RIGHT 1, RIGHT 2, LEFT)** must also be on.
- The track for the RHYTHM (RHY) part can be selected for recording only when STEP RECORD is active.
- When you select a track, the panel settings you selected in step 3 are stored.

5. Use the **TEMPO/PROGRAM** dial to adjust the recording tempo.
- The tempo is shown on the display as a numerical value (♩ =).
- If you wish to record the tempo setting and tempo changes, store them in the CONTROL part, or use the STEP RECORD: RHYTHM. (Refer to page 64.)

6. Turn the metronome on or off as desired with the ON or OFF button.
- The metronome selection alternates between ON and OFF each time the button is pressed.
- The metronome sound is not recorded.
- The volume of the metronome can be adjusted. (Refer to page 22.)

7. Play the keyboard.
- Recording begins.
- The current measure number is shown as "MEASURE=" on the display.
- You can also press the **START/STOP** button to start the rhythm and begin recording.
- If the metronome is on, when you press the **START/STOP** button, a two-measure count plays, after which recording automatically begins. In this case, the rhythm does not start.
- Recording does not start until the two-measure count is completed.
- The recording status is continuously updated on the display: "TIME SIG.=" indicates the current time signature; and "MEMORY=" indicates the remaining memory (%) available for recording.
- If you wish to adjust the volume of each track or part during recording, press the BAL button to recall the TRACK BALANCE display. You can then adjust the volumes.
- If you make a mistake in recording, you can correct a specific portion of your performance without having to redo the whole part. (Refer to page 78.)
- If you wish to redo the recording or change the recording track, press the REC STOP button.

8. When you have finished recording, press the **SEQUENCER** button to turn it off.
- When the **SEQUENCER** button is turned off, the ending command (END) is recorded. Note that, as long as the ending command is not recorded, blank recording continues even if you stop playing.
- The display changes to the SEQUENCER PLAY display.

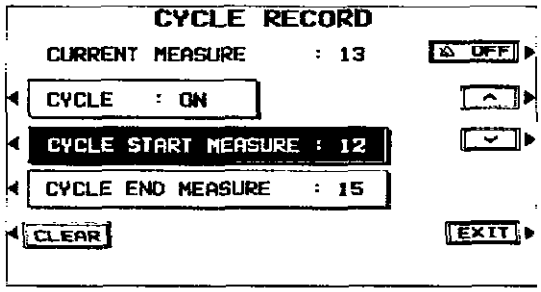
9. If you wish to record other tracks, repeat steps 2 to 8 and continue recording other tracks of the song (multi-track recording).
- For multi-track recording, be sure to press the **START/STOP** button to begin playback of the tracks already recorded.

CYCLE RECORD

This mode allows you to have specified recording measures continuously repeated. Thus you can record measures by adding notes during any cycle.

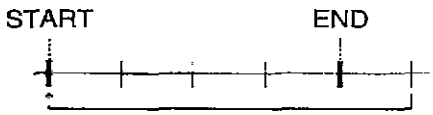
1. On the REALTIME RECORD display, specify "REC" for track numbers you are going to record, and "PLAY" for track numbers you wish to have played back.

2. Press the CYCLE: OFF button.
- The display looks similar to the following.



3. Select CYCLE START MEASURE, and use the ∧ and ∨ buttons to specify the beginning measure number.

4. Select CYCLE END MEASURE, and use the ∧ and ∨ buttons to specify the ending measure number.
- The measure in which the END command has been stored can also be specified.



5. Press the **START/STOP** button.
- If the metronome is on, cycle recording of the specified measures begins after a two-measure count.

6. Play the keyboard.
- The specified measures are repeated, during which time you can record by adding notes little by little at the correct timing (over-dubbing).
- If you wish to erase all the performance data from the specified measures, press the CLEAR button.
- If CYCLE is selected and the ∨ button used to select OFF, cycle recording is not activated. This button does not work during recording.
- To return to the REALTIME RECORD display, press the EXIT button.
- Cycle record can also be started from the REALTIME RECORD display whenever the CYCLE: ON indication is shown.
- The maximum number of notes which can sound simultaneously for a track is 16.

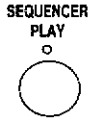
7. When you have finished recording, turn off the **SEQUENCER** button.

Sequencer Play

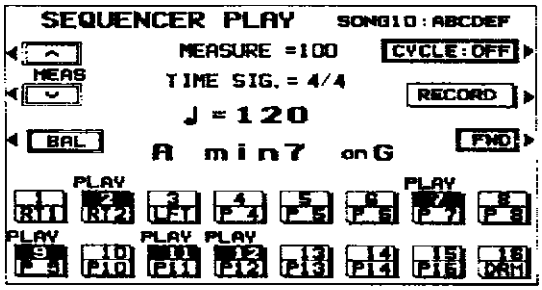
Play back your recorded performance.

1. Select the song number you wish to have played back. (Refer to page 53.)
- If you are playing back a song immediately after recording it, the same song number is already selected, and this step is not necessary.

2. Press the **SEQUENCER PLAY** button to turn it on.



- The display looks similar to the following.



3. Use the balance buttons below the display to show "PLAY" above the track numbers you wish to have played back.
- Use the upper buttons to select tracks 1 to 8, and the lower buttons to select tracks 9 to 16.
- You can select two or more tracks to play back at one time.

4. Use the **TEMPO/PROGRAM** dial to adjust the playback tempo.
- The tempo is shown on the display as "♩ =".

5. Press the **SEQUENCER RESET (FILL IN 1)** button.
- The **SEQUENCER** returns to the beginning of the song and the beginning panel settings are recalled.

6. To begin playback from a measure other than measure 1, use the MEAS ∧ and ∨ buttons to specify the beginning measure.
- "MEASURE=" indicates the current measure number.
- You can quick-search for the desired measure while listening to the recorded performance by holding down the FWD button. (This button does not work during normal playback.)

7. Press the **START/STOP** button.
- The recorded performance is played back from the specified measure.
- When playback is begun from a measure in which an **INTRO**, **COUNT INTRO**, **FILL IN** or **ENDING** is recorded, the corresponding function does not work.
- To adjust the volume of each track or part, press the BAL button and change the setting on the PART BALANCE display.

8. To stop playback, press the **START/STOP** button.
- If the **START/STOP** button is pressed again, playback will continue from the point it was interrupted.
- If the RECORD button is pressed during playback stop, the display changes to the REALTIME RECORD display.

9. When you are finished playing back your performance, press the **SEQUENCER PLAY** button to turn it off.

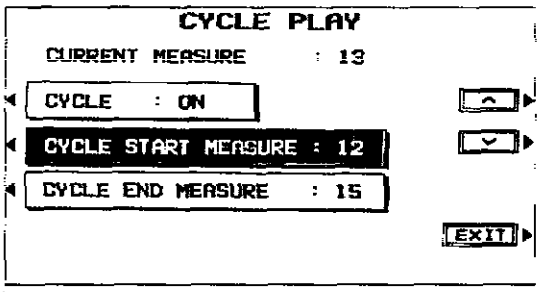
If "PLAY" is specified for the track to which the RHYTHM (RHY) part is assigned, the MEASURE display used in the STEP RECORD and EDIT displays is shown conforming to the time signature data stored in the RHYTHM part.

CYCLE PLAY

You can have specified measures played back repeatedly.

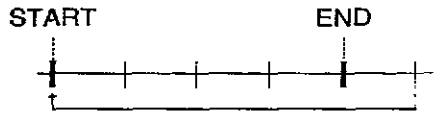
1. On the SEQUENCER PLAY display, specify "PLAY" for track numbers you wish to have played back.

2. Press the CYCLE: OFF button.
- The display looks similar to the following.



3. Select CYCLE START MEASURE, and use the ∧ and ∨ buttons to specify the beginning measure number.

4. Select CYCLE END MEASURE, and use the ∧ and ∨ buttons to specify the ending measure number.
- The measure in which the END command has been stored can also be specified.



5. Press the **START/STOP** button.
- Cycle playback of the specified measures begins.
- The rhythm pattern is not played back.
- If the END command is entered midway through the performance, playback stops at that point. The NOTE EDIT can be used to change the position of the END command. (Refer to page 68.)

6. To stop cycle playback, press the **START/STOP** button again.
- During playback stop, if the **SEQUENCER RESET (FILL IN 1)** button is pressed, the **SEQUENCER** returns to the measure number specified in step 3. If the **SEQUENCER RESET** button is pressed again, the **SEQUENCER** returns to measure 1.
- If CYCLE is selected and the ∨ button is pressed to select OFF, cycle playback is not activated.
- To return to the SEQUENCER PLAY display, press the EXIT button.
- Cycle playback can also be specified on the SEQUENCER PLAY display whenever the CYCLE: ON indication is shown.

Step Record

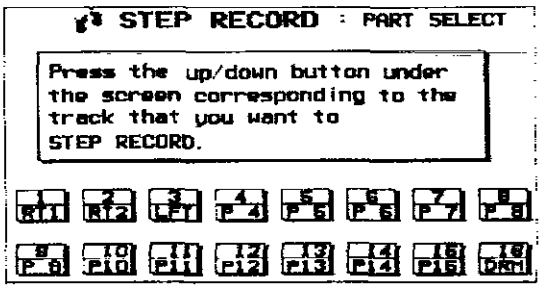
STEP RECORD is simply a method of making a tune by storing the sounds note-by-note on the display. Instead of playing the keyboard directly as in the REALTIME RECORD mode, you can take your time to input each single note. This is an especially effective method for storing complicated passages that are difficult to play or when the exact timing of a part is critical.

Recording procedure

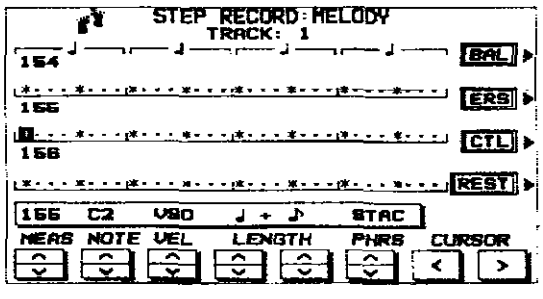
Record the keyboard performance and panel changes.

1. Select the song number. (Refer to page 53.)

2. On the **SEQUENCER** menu display, select STEP RECORD.
- The display changes to the PART SELECT display similar to the following.



3. Use the balance buttons below the display to specify the track for the part you are going to record (only one track can be selected at a time).
- Use the upper buttons to select tracks 1 to 8, and the lower buttons to select tracks 9 to 16.
- The display changes to the STEP RECORD input display similar to the following.



- If you selected the track to which the CHORD part has been assigned, the display changes to the STEP RECORD: CHORD display. (Refer to page 63.)
- If you selected the track to which the RHYTHM part has been assigned, the display changes to the STEP RECORD: RHYTHM display. (Refer to page 64.)

4. Use the MEAS ∧ and ∨ buttons to select the measure.
- This step is not necessary if you are recording from measure 1 of a blank track.

5. Use the CURSOR < and > buttons to move the cursor to the note position (dot) you are going to store.
- Each dot represents one-eighth of a quarter-note (a thirty-second note).
- When storing triplets, it may not be possible to match the timing exactly with the 1/32-note steps. However, if you select triplet-type notes for the note length (LENGTH) in step 6 below, the timing is automatically corrected.

6. Use the left LENGTH ∧ and ∨ buttons to specify the note value. Select from 𝅗𝅥3, 𝅗𝅥., 𝅗𝅥.3, ♪, ♪3, ♪., ♪.3, ♩, ♩3, ♩., ♩.3, 𝅗𝅥, 𝅗𝅥3, 𝅗𝅥., 𝅗𝅥.3, 𝅝 × 2 to 4. (A 3 denotes a triplet-type note.)
- For note values other than these, use the right LENGTH buttons to specify the note value to be added to that which you specified with the left buttons.

  Example: To record a dotted quarter-note (♩.)
  ♩ + ♪

7. Use the PHRS ∧ and ∨ buttons to specify the actual length of the produced sound for the desired legato or staccato effect.

TENU (tenuto): Sound is produced for 95% of the note length.
NORM (normal): 80%
STAC (staccato): 50%
CUTT (cutting): 25%

8. Specify the pitch and velocity of the note by playing the keyboard.
- The dot on the display where the note is stored changes to a * mark.
- When recording chords, you can store multiple notes at one position.
- Any panel setting changes—for example changes in the sound selection, button operation, wheel operation, etc.—are recorded at the cursor position.
- When a wheel or dial is operated, the input value is indicated on the display. Confirm that this is the correct value and press the YES button to record the value or the NO button to cancel it.

REST: To store a rest, after specifying the note LENGTH, press the REST button.
- Positions at which nothing is stored are read as rests.

ERS: If you make a mistake, move the cursor to the error, and after displaying the data you wish to erase, press the ERS button.

BAL: To specify the volume at the cursor position, after pressing the BAL button, use the VALUE buttons to set the volume (0 to 127).

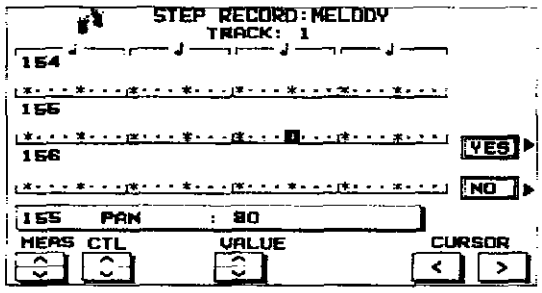
9. Repeat steps 5 through 8 to continue storing notes.
- To input data on another track, press the button for the desired track and repeat the procedure from step 2.

10. When you have finished recording, press the **SEQUENCER** button to turn it off.

■ Storing control data

Various control data can be stored at the cursor position.

1. On the STEP RECORD: MELODY display, press the CTL button.
- The display looks similar to the following.



2. Use the CTL ∧ and ∨ buttons to select the control data you wish to insert.
- Select from PAN, KEY SHIFT (COARSE TUNE), TUNING (FINE TUNE), BEND SENS.

3. Use the VALUE ∧ and ∨ buttons to adjust the numerical value of the setting.

4. Press YES button.

■ **Correcting the data**

1. In the STEP RECORD mode, specify the track you wish to correct.

2. Use the MEAS buttons to go to the measure you wish to modify. Use the CURSOR buttons to move the cursor to the point (*) you wish to edit.
- The data stored at that point is shown on the display.
- When multiple data is stored at one point, different data is displayed in order each time a CURSOR button is pressed. When a chord is recorded, a different note in the chord is displayed each time a CURSOR button is pressed.

3. Correct the data.

There are three types of data:

Performance data
NOTE data (note pitch) and VEL data (how hard the key was played), etc. are displayed. Use the relevant buttons to correct the data as desired.

Sound data
The name of the sound is displayed. Change the sound as desired (the sound setting display is interposed on the current display).

Control data
The name of the function is displayed. Change the data as desired.

- Press the ERS button to erase the data which is displayed.
- You can also correct data which was stored in the REALTIME RECORD mode.
- Performance (NOTE) data can be recorded or edited on a piano roll display, and there is also a specialized display for recording and editing the DRUMS part data. (Refer to page 69.)

Store a chord progression

Store the chord progression for the **AUTO PLAY CHORD** in the track for the CHORD part. Then, when the **AUTO PLAY CHORD** is used during playback, even if you do not specify the chords with your left hand, the chords change automatically.
- The chord length is specified with the **CHORD STEP RECORD** keys on the keyboard.

Note value keys
- Whole note
- Dotted half-note
- Half-note
- Dotted quarter-note
- Quarter-note
- Eighth-note

Reset key
- Press to begin storing from the beginning.

Correction keys
- ◀ Move back one step.
- ▶ Move forward one step.

Repeat key
- Press to end the chord-storing procedure and to specify automatic repeat playback of the stored progression.

End key
- Press after the whole chord progression has been stored.

DELETE key
DELETE Press to erase data.
- To erase all the data from the current track, while pressing the **DELETE** key, press the End key ( ).

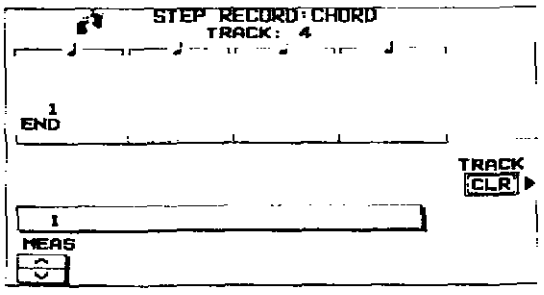
■ **Example of storing a chord progression**

Measure 1	2	3		4	
C	C	F	G7	C	Am
𝅝	𝅝	𝅗𝅥	𝅗𝅥	𝅗𝅥.	𝅗𝅥

1. Select the song number. (Refer to page 53.)

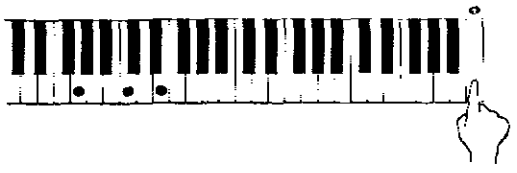
2. On the **SEQUENCER** menu display, select STEP RECORD.
- The display changes to the PART SELECT display.

3. Using the balance buttons below the display, select the track to which the CHORD (CHD) part has been assigned.
- The display changes to the STEP RECORD: CHORD input display similar to the following.



4. Store the chords.

<Measure 1, measure 2>
While playing a C chord with your left hand, press the 𝅝 key one time with your right hand.



- A "beep" tone indicates that the chord has been successfully stored.
- The dot on the display where the chord is stored changes to a * mark and the cursor automatically moves forward, in accordance with the specified note value, to the next unrecorded position. The chord name is shown on the display.

<Measure 3>
(1) While playing an F chord, press the 𝅗𝅥 key one time.

(2) While playing a G7 chord, press the 𝅗𝅥 key one time.

<Measure 4>
(1) While playing a C chord, press the 𝅝 key one time.

(2) While playing an Am chord, press the 𝅝 key one time.

- You can press the **INTRO & ENDING** button or a **FILL IN** button on the panel to store the desired pattern at the cursor position. (An **INTRO** or **COUNT INTRO** can be stored only at the beginning.)
- Store a rest by pressing a note value key without specifying a chord.

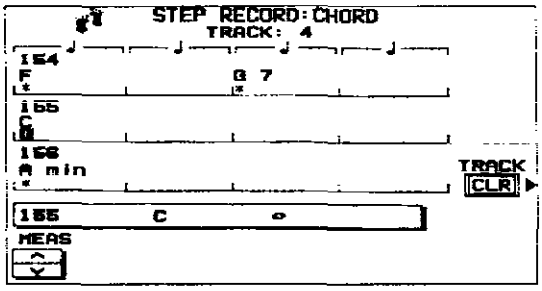
5. At the end of the chord progression, press the End key (⊣).
- The Keyboard exits the recording mode.
- During playback, playback of the recorded chord progression stops at this point. For automatic repeat playback of the chord progression, press the Repeat key (⇄) instead of the End key (⊣).

- When you play back the track for the CHORD part, the chords of the automatic accompaniment change in accordance with the stored chord progression.
- Chords can also be specified in the ONE FINGER mode.
- If the **ON BASS** button is on, chords such as "C on G" can also be specified (except in the ONE FINGER mode).

■ Correct the recorded chord progression

1. Follow the procedure to select the STEP RECORD: CHORD display.

2. Use the MEAS buttons to go to the measure you wish to modify. Use the ◀ and ▶ Correction keys to move the cursor to the point (*) you wish to edit.



- The lengths of rests are indicated by the respective rest value x its multiplier.

  Example:
  - 𝄽 ..... 1-beat rest (quarter rest)
  - 𝄾 ..... 1/2-beat rest (eighth rest)
  - 𝄽 × 1 + 𝄾 .. 1-1/2-beat rest (dotted quarter rest)
  - 𝄽 × 10 .... 10-beat rest

- To go to the end of the chord progression, while pressing the Reset key (|𝄞–), press the ◀ key.

3. Correct the chord data.

Chord data

When the chord name is displayed at the cursor position, you can press the **DELETE** key to erase the data and then store a new chord.

- If you do not erase the displayed data before entering new chord data, the new data is inserted at this point, and the displayed data is merely shifted by the note value of the new chord.
- Rests can also be erased. Each time the **DELETE** key is pressed, the rest is erased in units of 𝄽 × 1. The 𝄾 rest is erased last.

Control data

The name of the stored function (INTRO, FILL, etc.) is displayed. You can press the **DELETE** key to erase the data which is displayed.

■ TRACK CLEAR

To erase all data from the current track, press the CLR button, and then press the YES button on the confirmation display.

- If you wish to cancel the clear procedure, press the NO button.

Store a rhythm progression

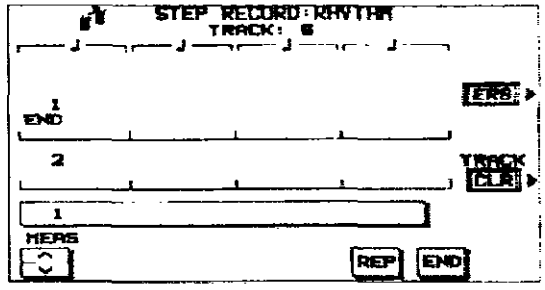
Changes in the rhythm selection and tempo, as well as the intro, fill-ins and the ending, can be stored by measures with the step recording method.

1. *Select the song number. (Refer to page 53.)*

2. On the **SEQUENCER** menu display, select STEP RECORD.
- The display changes to the PART SELECT display.

3. Using the balance buttons below the display, *select the track to which the RHYTHM (RHY) part has been assigned.*

- The display changes to the STEP RECORD: RHYTHM input display similar to the following.



4. Use the MEAS ∧ and ∨ buttons to go to the measure you wish to record.

5. Store the rhythm data.
- Data which can be stored:
  START/STOP
  Changes in the rhythm selection
  COUNT INTRO, INTRO, FILL IN, ENDING
  Tempo changes
- Be sure to store the **START/STOP** data in the measure in which the rhythm starts or stops.
- If you are storing a **COUNT INTRO** or **INTRO**, store this data before the **START/STOP** data.
- If the tempo is changed, the display changes to the confirmation display. After specifying the desired tempo, Press the YES button to store the specified tempo, or press the NO button to cancel the new tempo value.

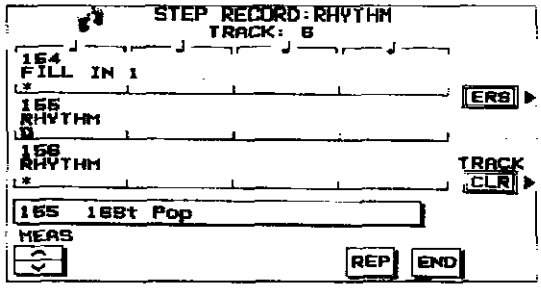
6. Repeat steps 4 and 5 to continue storing the rhythm progression.

7. At the end of the rhythm progression, press the END button.
- If the REP button is pressed instead of the END button, during playback the recorded rhythm progression is repeated.
- The Keyboard exits the recording mode.

■ Correct the recorded rhythm progression

1. Follow the procedure to select the STEP RECORD: RHYTHM display.

2. Use the MEAS buttons to go to the measure you wish to modify. (The * is highlighted.)



3. Correct the rhythm data.
- Press the ERS button to erase data at the cursor position.
- If you select a rhythm with a different time signature, the time signature of all subsequent measures will also change.
- If data has already been recorded in other tracks, you cannot select a rhythm with a different time signature.

■ TRACK CLEAR

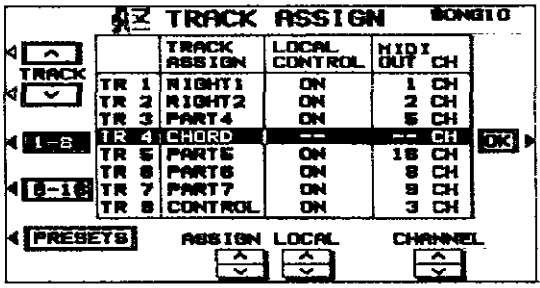
To erase all data from the current track, press the CLR button, and then press the YES button on the confirmation display.
- If you wish to cancel the clear procedure, press the NO button.

Track Assign

Each **SEQUENCER** part is already assigned to a track number. However, you can use the TRACK ASSIGN function to assign parts to tracks as you wish. This function is also used to designate the tracks used for the rhythm data and chord progression data.

1. Select the song number. (Refer to page 53.)

2. On the **SEQUENCER** menu display, select TRACK ASSIGN.
- The display looks similar to the following.



3. Use the TRACK ∧ and ∨ buttons to select the track.
- You can switch between the setting display for tracks 1 to 8 and the display for tracks 9 to 16 with the 1–8 and 9–16 buttons.

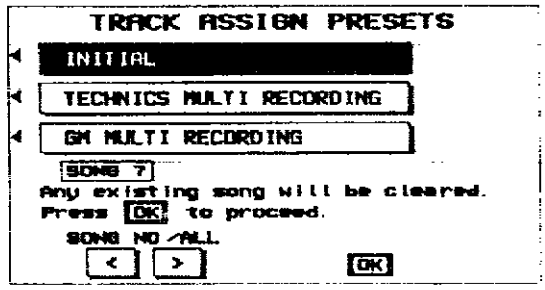
4. Use the ASSIGN ∧ and ∨ buttons to select the part for the specified track.
- Select one of the following parts: RIGHT1, RIGHT2, LEFT, PART4 to PART15, DRUMS, CONTROL, APC, CHORD, RHYTHM. (For an explanation of each **SEQUENCER** part, refer to page 55.)
- When a part other than the CONTROL, APC/CHORD or RHYTHM part is assigned, the track assign procedure is completed at this point.
- Either the CHORD part or APC part can be assigned to a track, but not both.
- The RHYTHM, CONTROL and APC/CHORD parts cannot be assigned to more than one track.
- You can use the LOCAL ∧ and ∨ buttons to turn the LOCAL CONTROL on or off, and the CHANNEL ∧ and ∨ buttons to assign the MIDI-OUT CHANNEL. For a detailed explanation of these MIDI functions, refer to pages 138 and 139.

5. When assigning the CONTROL, APC/CHORD or RHYTHM part, press the OK button.
- The confirmation display appears to warn you that currently stored data in the tracks concerned will be erased. Press the YES button to confirm that you wish to execute the specified track assignment. Or press NO to stop the track assignment.

■ TRACK ASSIGN PRESETS

A preset track assignment can be selected.

1. On the TRACK ASSIGN display, press the PRESET button.
- The display looks similar to the following.



2. Use the SONG NO/ALL < and > buttons to select the song number for which the preset track assignment will be effective.
- If ALL is selected, the track assignment is effective for all the songs.

3. Select the track assign mode.
- Select from the following modes.
  INITIAL: Factory-preset settings.
  TECHNICS MULTI RECORDING: The optimum track assignment for multiplex recording.
  GM MULTI RECORDING: The optimum track assignment for creating General MIDI data.

4. Press the OK button.
- "COMPLETED!" is shown on the display and the selected track assign mode is enabled.
- You can confirm the track assignment settings on the TRACK ASSIGN display.

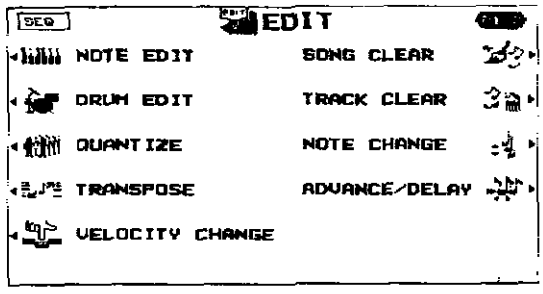
Editing the recorded performance

The edit feature allows you to erase or change portions of your performance after it has been recorded.

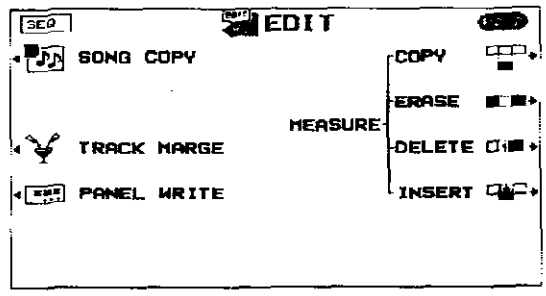
Select the edit function

1. Select the number of the song you wish to edit. (Refer to page 53.)

2. On the **SEQUENCER** menu display, select EDIT.
- The EDIT display appears.



- Use the **PAGE** ∧ and ∨ buttons to view different sections of the menu.



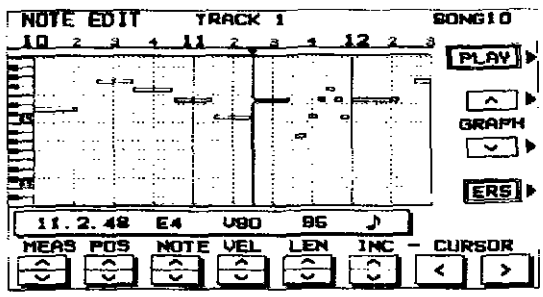
3. Select the edit function.
- The display changes in accordance with your selection.

4. Perform the editing procedures.
- During the editing procedure, you can press the **EXIT** button to go back to the EDIT display.
- During the editing procedure, if the indicator for the **TEMPO/PROGRAM** dial is lit, you can use the dial for the editing function.

NOTE EDIT

You can edit performance (NOTE) data on a piano roll display. This differs from the normal STEP RECORD edit procedure, and is a convenient way to check the data for each note.
- Data other than NOTE data cannot be corrected or recorded. To correct or record other types of data, use the STEP RECORD display. (Refer to page 60.)

1. On the PART SELECT display, select a track.
- The CHORD, RHYTHM and CONTROL tracks cannot be selected.
- The display looks similar to the following.



2. Use the MEAS ∧ and ∨ buttons to select the measure you wish to edit.

3. Use the CURSOR < and > buttons to move the cursor (▼) to the point you wish to edit.
- Recorded performance (NOTE) data is shown as horizontal bars. Data selected for editing is highlighted.
- You can use the INC ∧ and ∨ buttons to change the increment of cursor movement. The resolution can be set at ♩/96. However, if NOTE data is present between increments, the cursor will stop.

- You can press a CURSOR button hard to move the cursor one beat at a time.
- Use the POS ∧ and ∨ buttons to change the value.
  Example: 10.2.48 indicates a point in measure 10, beat 2, point 48 (one point is 1/96 of a quarter note [♩]).
- ⊣ is shown at the point where the END command is stored.

4. Select the data to edit (it changes to a highlighted horizontal bar). Edit the data.
- Use the POS ∧ and ∨ buttons to move the cursor, the NOTE ∧ and ∨ buttons to change the note number, the VEL ∧ and ∨ buttons to change the velocity (how hard the keys are played), and the LEN ∧ and ∨ buttons to change the note length (1 = 1/96 of a quarter note [♩]).
- Use the GRAPH ∧ and ∨ buttons to view a higher or lower section of the keyboard (in one-octave steps).
- If the ERS button is pressed, the selected NOTE data is erased.

5. Repeat steps 2 to 4 to continue editing.

■ Inserting note data

You can also store note data on this display.

1. Specify the point where the new note data will be stored.

2. Use the LEN ∧ and ∨ buttons to specify the note length.
- Examples of note lengths (♩ = 96)
  91: tenuto (95%)
  76: normal (80%)
  48: staccato (50%)
  24: cutting (25%)

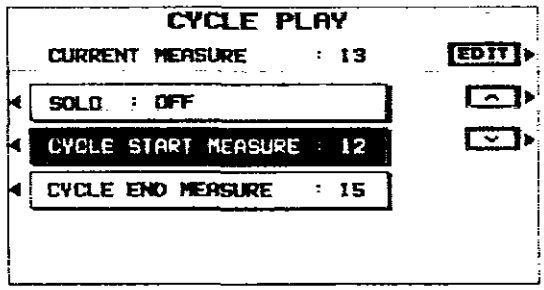
3. Play a key on the keyboard to specify the note pitch (NOTE NUMBER) and velocity (how hard the key is played).

4. Repeat steps 1 to 3 to input more note data.

■ CYCLE PLAY

You can aurally check the data you are editing by accessing the CYCLE PLAY display from the NOTE EDIT display.
- If you wish other tracks to be played back, they should be selected beforehand on the SEQUENCER PLAY display. (Refer to page 58.)

1. On the NOTE EDIT display, press the PLAY button.
- The display looks similar to the following.



2. Select CYCLE START MEASURE, and use the ∧ and ∨ buttons to select the beginning playback measure.

3. Select CYCLE END MEASURE, and use the ∧ and ∨ buttons to select the last playback measure.

4. Press the **START/STOP** button.
- Cycle playback of the specified measures begins.
- If the SOLO button is turned ON, playback changes to that of the recording track only. If it is turned OFF, all the tracks specified on the SEQUENCER PLAY display are played back.

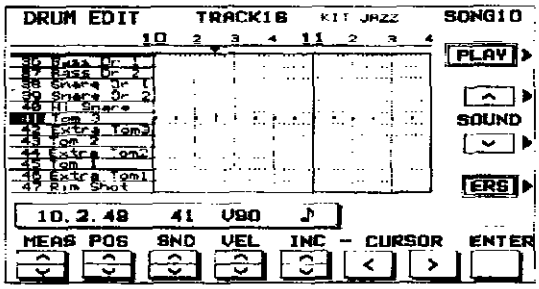
5. To stop cycle playback, press the **START/STOP** button again.

- During playback stop, if the **SEQUENCER RESET (FILL IN 1)** button is pressed, the **SEQUENCER** returns to the measure number specified in step 2. If the **SEQUENCER RESET** button is pressed again, the **SEQUENCER** returns to measure 1.
- During playback stop, if the EDIT button is pressed, the **SEQUENCER** returns to the NOTE EDIT display.

DRUM EDIT

The DRUMS part can be edited on a specialized display. This differs from the normal STEP RECORD edit procedure, and is a convenient way to check the data for each note.

1. On the PART SELECT display, select the track for the DRUMS part.
- The CHORD, RHYTHM and CONTROL tracks cannot be selected.
- The display looks similar to the following.



2. Use the SOUND ∧ and ∨ buttons to select the percussion instrument you wish to edit.
- The number to the left of the instrument name is its corresponding key note number.
- If sounds other than percussion instrument sounds are assigned, they are not displayed.

3. Use the MEAS ∧ and ∨ buttons to select the measure you wish to edit.

4. Use the CURSOR < and > buttons to move the cursor (▼) to the point you wish to edit.
- Recorded performance data is shown as vertical bars. Data selected for editing is shown as a longer vertical bar.
- You can use the INC ∧ and ∨ buttons to change the increment of cursor movement. The resolution can be set at ♩/96. However, if NOTE data is present between increments, the cursor will stop.
- You can press a CURSOR button hard to move the cursor one beat at a time.
- Use the POS ∧ and ∨ buttons to change the value.
  Example: 10.2.48 indicates a point in measure 10, beat 2, point 48 (one point is 1/96 of a quarter note [♩]).
- ⊣ is shown at the point where the END command is stored.

5. Select the data to edit (it changes to a long bar). Edit the data.
- Use the POS ∧ and ∨ buttons to move the cursor, the SND ∧ and ∨ buttons to change the percussion instrument sound, and the VEL ∧ and ∨ buttons to change the velocity (how hard the keys are played).
- If the ERS button is pressed, the selected NOTE data is erased.

6. Repeat steps 2 to 5 to continue editing.

■ Inserting DRUMS data

You can also store DRUMS data on this display.

1. Specify the point where the new note data will be stored.

2. Use the VEL ∧ and ∨ buttons to specify the velocity (how hard the key is played).

3. Press the ENTER button to store the data.
- Instead of the ENTER button, you can store data (including velocity data) by playing the keyboard. In this case, the instrument is that specified on the display, regardless of which key is played.
- The note length is fixed. If you wish to change the note length, use the STEP RECORD function to specify a different note length. The NOTE EDIT display can also be used to change the length (LEN). (Refer to page 68.)

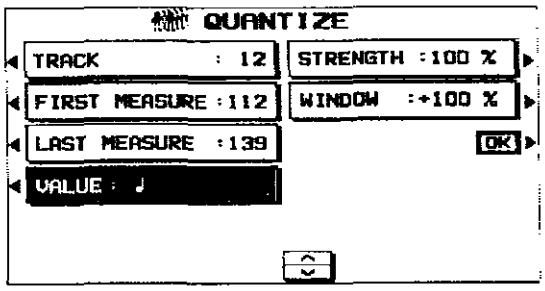
4. Repeat steps 1 to 3 to input more DRUMS data.

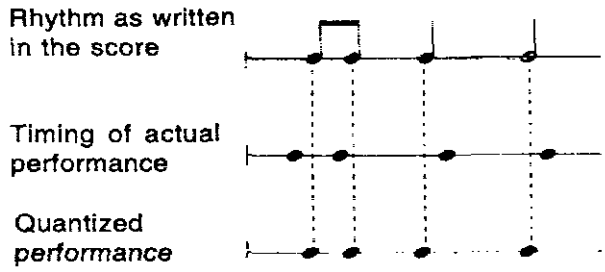
■ CYCLE PLAY

You can aurally check the data you are editing by accessing the CYCLE PLAY display from the DRUM EDIT display.
- The procedure is the same as for NOTE EDIT.
- If you wish other tracks to be played back, they should be selected beforehand on the SEQUENCER PLAY display. (Refer to page 58.)

QUANTIZE

The QUANTIZE function can correct the timing of your performance after it has been recorded. *If the rhythm is slightly out of sync or inexact,* it will automatically be corrected to the specified quantize level.





1. Select TRACK. Use the ∧ and ∨ buttons to specify the track number.
- You cannot select the track for the CONTROL, RHYTHM or CHORD part.
- If ALL is selected, all the tracks are quantized.

2. Select FIRST MEASURE. Use the ∧ and ∨ buttons to specify the start point (measure number).

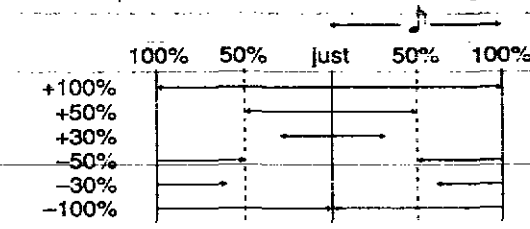
3. Select LAST MEASURE. Use the ∧ and ∨ buttons to specify the end point (measure number).

4. Select VALUE. Use the ∧ and ∨ buttons to specify the quantize level.
- Select from 𝅝, 𝅗𝅥, 𝅗𝅥3, ♩, ♩3, ♪, ♪3. (A 3 denotes a triplet-type note.)

5. Select STRENGTH. Use the ∧ and ∨ buttons to select the amount of quantize (%).
- 100% is a convenient setting. When set to 100%, the performance data is quantized exactly to the level specified for the VALUE ("just"). For example, at 50%, the data is quantized to a point that is half that of the just level. By this setting, you can attain an effect that is very slightly off-beat from the rhythm.

6. Select WINDOW. Use the ∧ and ∨ buttons to specify the range (%) affected by the quantize setting.
- With the increment set to 100 for the VALUE, at a + setting, data close to the just point is corrected, and at a – setting, data far from the just point is corrected. For example, if set to –30% the quantize function affects data far from the just point, and if set to +30% the quantize function affects data close to the just point. +100% is usually a convenient setting.
- The +100% setting and the –100% setting are the same.

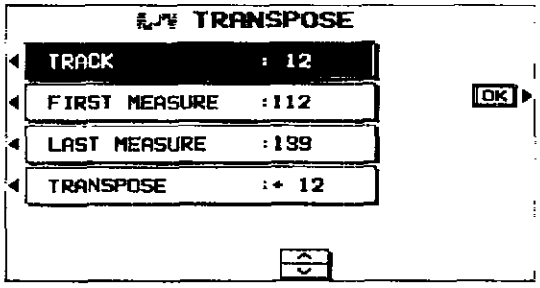
Example: When VALUE is set to ♩



7. Press the OK button.
- The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.

TRANSPOSE

Change of key of specific measures of specific tracks.



1. Select TRACK. Use the ∧ and ∨ buttons to select the track you wish to edit.
- You cannot select the track for the CONTROL, RHYTHM or CHORD part.
- If ALL is selected, all tracks will be edited.

2. Select FIRST MEASURE. Use the ∧ and ∨ buttons to specify the start point (measure number) of the transpose.

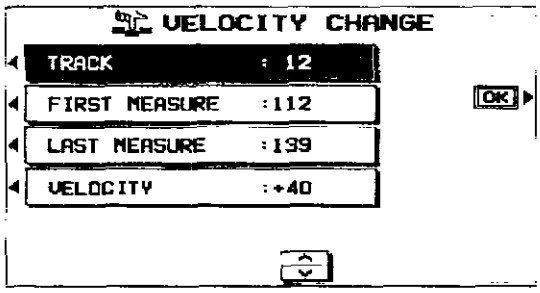
3. Select LAST MEASURE. Use the ∧ and ∨ buttons to specify the end point (measure number) of the transpose.

4. Select TRANSPOSE. Use the ∧ and ∨ buttons to specify the change in pitch.
- Increments are in semitones. A value of 12 is one octave. A – value lowers the pitch, and a + value raises it.

5. Press the OK button.
- The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.

VELOCITY CHANGE

Modify the recorded velocity in specific measures of specific tracks.



1. Select TRACK. Use the ∧ and ∨ buttons to select the track you wish to edit.
- You cannot select the track for the CONTROL, RHYTHM or CHORD part.
- If ALL is selected, all tracks will be edited.

2. Select FIRST MEASURE. Use the ∧ and ∨ buttons to specify the start point (measure number) of the velocity change.

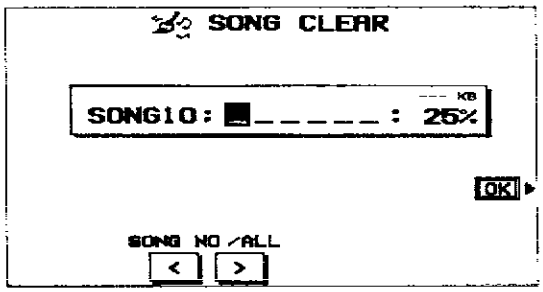
3. Select LAST MEASURE. Use the ∧ and ∨ buttons to specify the end point (measure number) of the velocity change.

4. Select VELOCITY. Use the ∧ and ∨ buttons to specify the change in velocity.
- The value you select will be added to or deleted from the current velocity.

5. Press the OK button.
- The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.

SONG CLEAR

Erase the recorded contents of all tracks.

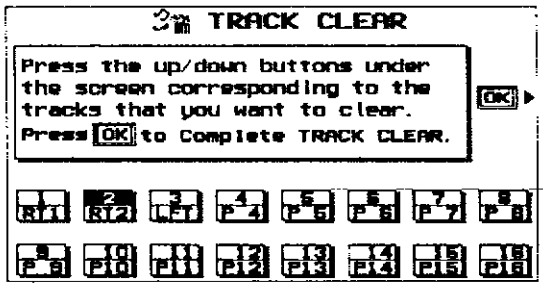


1. Use the SONG NO/ALL < and > buttons to specify the number of the song to erase.
- The total amount of **SEQUENCER** memory or current song memory used is shown as a percentage (%) to the right of the song name.
- If ALL is selected, all the songs recorded in the **SEQUENCER** will be erased.

2. Press the OK button.
- The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.
- If the YES button is pressed, "COMPLETED!" appears on the display, the specified songs are erased, and the instrument returns to the normal performance mode.

TRACK CLEAR

Erase the contents of a specific track.

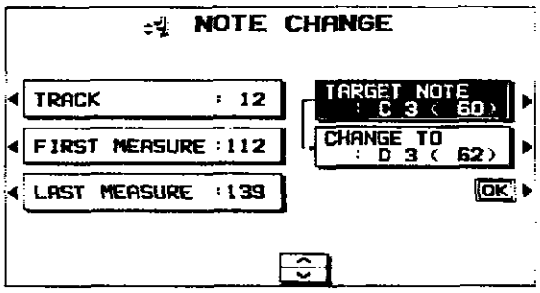


1. Use the balance buttons to select the track or tracks you wish to clear.
- On the display, the selected tracks are highlighted.

2. Press the OK button.
- The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.
- If the YES button is pressed, "COMPLETED!" appears on the display, and the specified tracks are erased.

NOTE CHANGE

Change of pitch of specified notes.



1. Select TRACK. Use the ∧ and ∨ buttons to select the track you wish to edit.
- You cannot select the track for the CONTROL, RHYTHM or CHORD part.
- If ALL is selected, all tracks will be edited.

2. Select FIRST MEASURE. Use the ∧ and ∨ buttons to specify the start point (measure number) of the note change.

3. Select LAST MEASURE. Use the ∧ and ∨ buttons to specify the end point (measure number) of the note change.

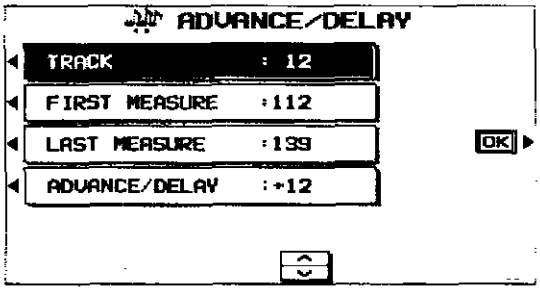
4. Select TARGET NOTE. Use the ∧ and ∨ buttons to specify the pitch of the note you wish to change.
- The number next to the note name is its note number.

5. Select CHANGE TO. Use the ∧ and ∨ buttons to specify the pitch you wish to change to.

6. Press the OK button.
- The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.

ADVANCE/DELAY

Speed up or delay the sound production of specified performance data.



1. Select TRACK. Use the ∧ and ∨ buttons to select the track you wish to edit.
- You cannot select the track for the CONTROL, RHYTHM or CHORD part.
- If ALL is selected, all tracks will be edited.

2. Select FIRST MEASURE. Use the ∧ and ∨ buttons to specify the start point (measure number) of the change.

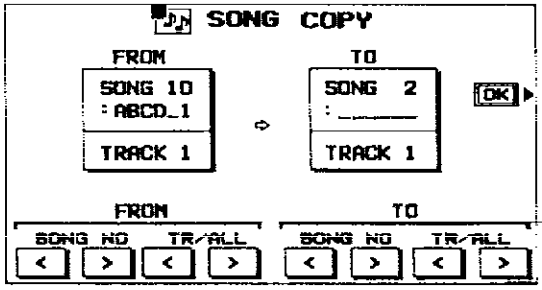
3. Select LAST MEASURE. Use the ∧ and ∨ buttons to specify the end point (measure number) of the change.

4. Select ADVANCE/DELAY. Use the ∧ and ∨ buttons to accelerate or delay the timing of the sound production (–96 to +96).
- A + value causes the notes to sound later, and a – value causes the notes to sound earlier.

5. Press the OK button.
- The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.

SONG COPY

Copy the recorded data from specific tracks of a song.



1. On the FROM side, use the SONG NO < and > buttons to specify the song number to copy from.

2. On the FROM side, use the TR/ALL < and > buttons to specify the number of the track to copy from.
- If ALL is selected, all the tracks of the specified song number will be copied.

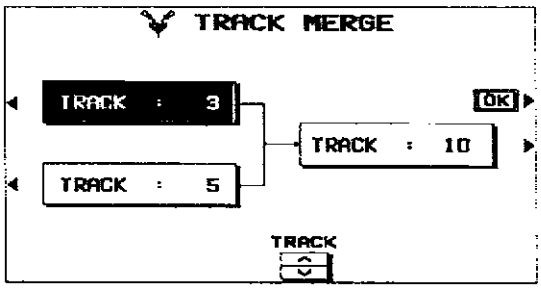
3. On the TO side, use the SONG NO < and > buttons to specify the song number to copy to.

4. On the TO side, use the TR/ALL < and > buttons to specify the number of the track to copy to.
- If ALL is selected, the data will be copied to all the tracks of the specified song number.

5. Press the OK button.
- The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.
- The track assignment settings are also copied. Note that in some cases, the CONTROL, RHYTHM and CHORD part data in the destination tracks may be lost.

TRACK MERGE

Merge the recorded contents of two tracks (source tracks) and store the merged contents in a third track (destination track).
- When the TRACK MERGE function is executed, the data is erased from the two source tracks.



1. Select the two source tracks (left half of the display).
- Use the buttons on the left side of the display to select one of the source tracks, and use the TRACK ∧ and ∨ buttons to specify the track number. Repeat for the other source track.
- You cannot select the track to which the CONTROL, RHYTHM or CHORD part has been assigned.

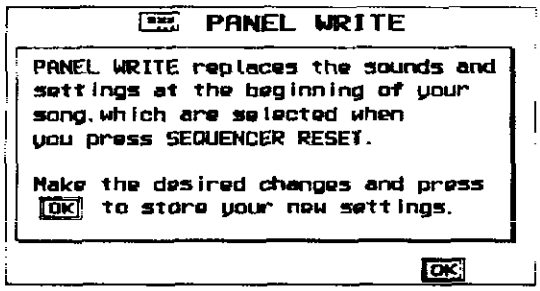
- If the part assigned to the upper source track ("upper" meaning its position on the TRACK MERGE display) is different from the part assigned to the lower source track, when the parts are merged in the destination track, the new track is assigned the same part as the upper track.

2. Select the destination track (right half of the display).
- Press the button on the right side of the display to select the destination track, and use the TRACK ∧ and ∨ buttons to specify the track number.

3. Press the OK button.
- The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.

PANEL WRITE

You can change the panel status which is in effect at the beginning of the song. These are the settings which are recalled when the **SEQUENCER RESET** button is pressed.

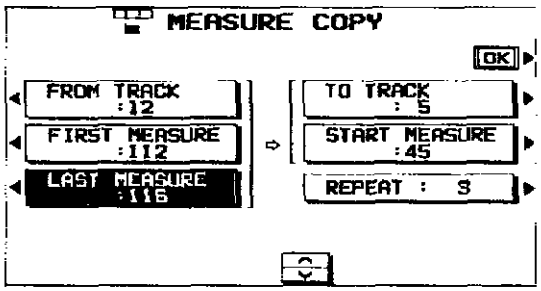


1. Use the panel buttons to change to the desired panel settings.

2. Press the OK button.
- "COMPLETED!" is shown on the display.
- PANEL WRITE is automatically activated at the beginning of the REALTIME RECORD, or when a panel setting is changed during recording stop.

MEASURE COPY

Copy recorded data of specified measures to a specified point.
- On the destination track, the new data replaces the current measure contents.



1. Select FROM TRACK. Use the ∧ and ∨ buttons to specify the source track.
- You cannot select the track for the RHYTHM part or CHORD part in which a repeat command has been stored.
- If ALL is selected, the specified measures are copied to all tracks at the same time.

2. Select FIRST MEASURE. Use the ∧ and ∨ buttons to specify the start point (measure number) on the source track.

3. Select LAST MEASURE. Use the ∧ and ∨ buttons to specify the end point (measure number) on the source track.

4. Select TO TRACK. Use the ∧ and ∨ buttons to specify the destination track.
- Measures in a track for the CONTROL, RHYTHM or CHORD part can be copied only to the same track.

5. Select START MEASURE. Use the ∧ and ∨ buttons to specify the start point (measure number) on the destination track.

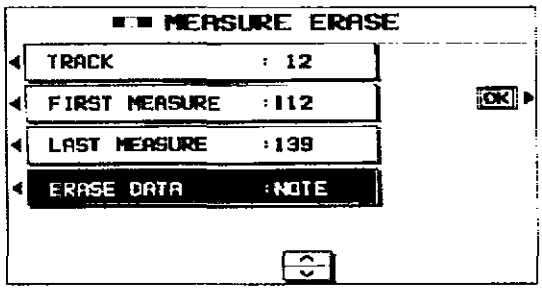
6. Select REPEAT. Use the ∧ and ∨ buttons to specify the number of times the specified measures are to be repeated.
- The measures will be repeated the specified number of times.

7. Press the OK button.
- The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.
- Note that if the END command is included in the source data, it is also copied. Any data following the END command is not copied.

MEASURE ERASE

Erase the recorded contents of specific measures. You can also specify which type of data is to be erased.

- Note that only the contents of the measures are erased, not the measures themselves; the length of the performance remains the same.

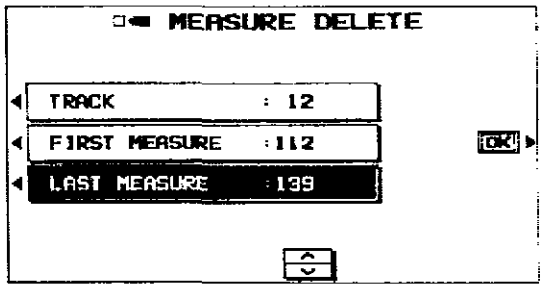


1. Select TRACK. Use the∧ and ∨ buttons to specify the track number.
   - This function does not work for the RHYTHM part or CHORD part in which a repeat command has been stored.
   - If ALL is selected, data is erased from the specified measures of all the tracks at one time.
2. Select FIRST MEASURE. Use the ∧ and ∨ buttons to specify the start point (measure number).
3. Select LAST MEASURE. Use the ∧ and ∨ buttons to specify the end point (measure number).
4. Select ERASE DATA. Use the ∧ and ∨ buttons to specify the type of data to be erased.
   ALL: All data is erased.
   NOTE: Only note data.
   CONTROL: Only control data (volume, effect and other panel settings as well as selection changes) is erased.
5. Press the OK button.
   - The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.

MEASURE DELETE

Delete specified measures from a track.

- The length of the performance accordingly decreases by the number of deleted measures.

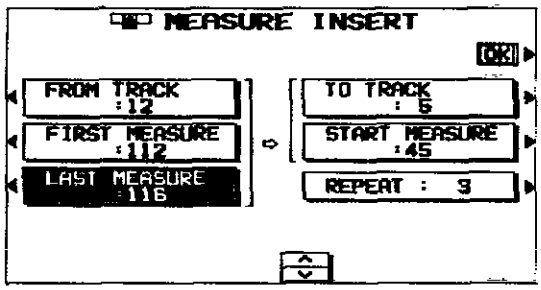


1. Select TRACK. Use the ∧ and ∨ buttons to select the track from which measures are to be deleted.
   - This function does not work for the CHORD or RHYTHM track in which the repeat function has been stored.
   - If ALL is selected, the specified measures are deleted from all the tracks at one time.
2. Select FIRST MEASURE. Use the ∧ and ∨ buttons, to specify the first measure to delete.
3. Select LAST MEASURE. Use the ∧ and ∨ buttons to specify the last measure to delete.
4. Press the OK button.
   - The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.

MEASURE INSERT

Insert specified measures at a specified point.

- The length of the performance accordingly increases by the number of inserted measures.



1. Select FROM TRACK. Use the ∧ and ∨ buttons to select the source track.
   - This function does not work for the CHORD or RHYTHM track in which the repeat function has been stored.
   - If ALL is selected, the measures are inserted in all tracks at the same time.

2. Select FIRST MEASURE. Use the ∧ and ∨ buttons to specify the first measure on the source track from which to copy.

3. Select LAST MEASURE. Use the ∧ and ∨ buttons to specify the last measure on the source track from which to copy.

4. Select TO TRACK. Use the ∧ and ∨ buttons to specify the destination track.
   - Measures from the CHORD, RHYTHM or CONTROL track can only be inserted in the same track.

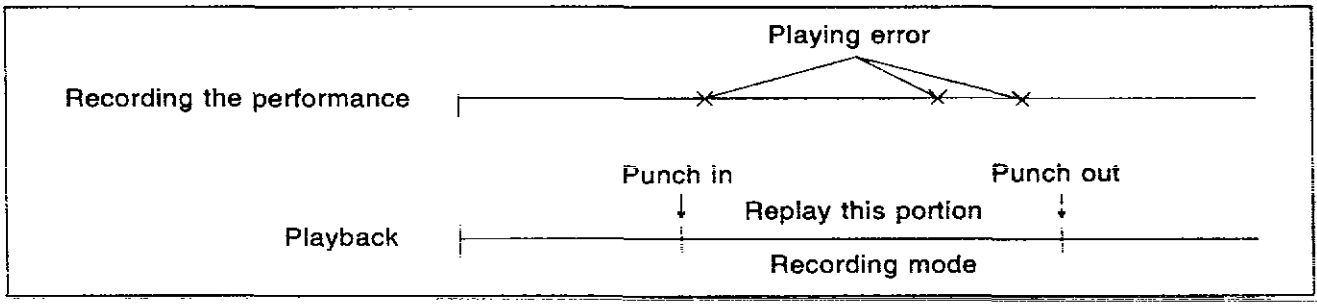
5. Select START MEASURE. Use the ∧ and ∨ buttons to specify the insert point on the destination track.

6. Select REPEAT. Use the ∧ and ∨ buttons to specify the number of times the specified measures are to be inserted.
   - The measures will be inserted the specified number of times.

7. Press the OK button.
   - The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.
   - Note that if the END command is included in the source data, it is also inserted. Any data following the END command is not inserted.

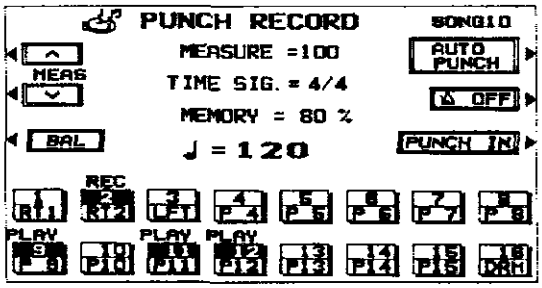
Punch Record

If you make a playing error during REALTIME RECORD *or would like to change the recording for some* other reason, you can use the punch recording feature to correct a selected portion of the performance without having to redo the whole part.



1. Select the song number. (Refer to page 53.)

2. On the **SEQUENCER** menu display, select PUNCH RECORD.
- The display looks similar to the following.



3. Select the track which contains the portion you want to correct.
- On the display "REC" indicates tracks which are being recorded, and "PLAY" indicates tracks which are being played back.

4. Use the MEAS ∧ and ∨ buttons to specify the beginning measure of playback.
- "MEASURE=" indicates the current measure number.

5. Press the **START/STOP** button to begin playback of the specified track.

6. During playback, press the PUNCH IN button at the point you want to begin recording.
- Recording begins as soon as the PUNCH IN button is pressed. Begin playing at this point.
- The PUNCH IN button switches to the PUNCH OUT button.

7. Press the PUNCH OUT button at the point you want to stop recording.
- Recording stops immediately.

8. When you have finished correcting the performance, press the **SEQUENCER** button to turn it off.

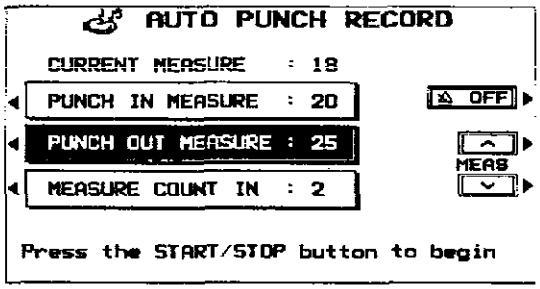
- You can also begin punch-in recording by playing the keyboard.
- You can specify the punch-in/punch-out points with the optional Foot Switch (sold separately). (Refer to page 50.)

■ AUTO PUNCH RECORD

You can also set the punch-in and punch-out points beforehand, so that recording automatically begins and ends at the specified points.

1. On the **SEQUENCER** menu display, select PUNCH RECORD. Specify the track you wish to correct.

2. Press the AUTO PUNCH button.
- The display looks similar to the following.



3. Select PUNCH IN MEASURE. Use the MEAS ∧ and ∨ buttons to specify the number of the punch-in measure.

4. Select PUNCH OUT MEASURE. Use the MEAS ∧ and ∨ buttons to specify the number of the punch-out measure.
- The number of the punch-out measure must be higher than the number of the punch-in measure.
- The specified punch-out measure is not recorded.

5. Select MEASURE COUNT IN. Use the ∧ and ∨ buttons to specify the number of lead-in measures you wish to have played back before the punch-in measure.
- Set the metronome to on or off with the ON or OFF button.

6. Press the **START/STOP** button.
- Playback begins from the measure indicated by CURRENT MEASURE on the display.

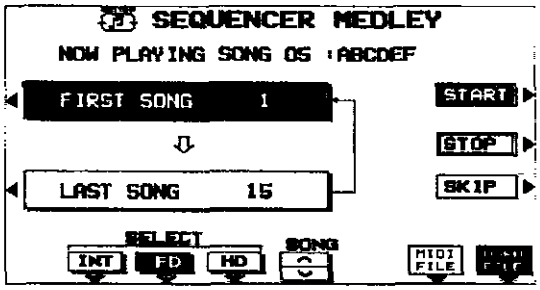
7. Correct the performance.
- The mode changes automatically to the recording mode at the specified punch-in measure. Begin playing at this point. The mode automatically changes back to the playback mode at the specified punch-out measure.
- Punch-in recording also begins if the keyboard is played before the specified PUNCH IN MEASURE.

8. When you have finished correcting the performance, press the **SEQUENCER** button to turn it off.

Sequencer Medley

You can have the songs played back continuously in order. Songs saved on a disk can also be played back in a medley.

1. On the **SEQUENCER** menu, select MEDLEY.
- The display looks similar to the following.



2. Use the SELECT buttons to specify the song you wish to have played.
- Press the INT button to specify medley play of songs in this instrument's **SEQUENCER**, or press the FD button to specify songs on the floppy disk.
- When specifying medley play of songs on a hard disk (separately sold option), press the HD button.
- Note that if FD or HD is selected and medley play is executed, all song data (SONG 1-10) currently stored in the **SEQUENCER** memory is erased. However, if only Standard MIDI File data is selected for medley play, the **SEQUENCER** memory will not be erased.

3. If FD is selected, use the MIDI FILE/NORM FILE button to select the kinds of files for medley play.
- Select MIDI FILE to play Standard MIDI Files (FORMAT 0 only), or select NORM FILE to play Technics files.

4. Select FIRST SONG. Use the SONG ∧ and ∨ buttons to specify the first song you wish to have played.

5. Select LAST SONG. Use the SONG ∧ and ∨ buttons to specify the last song.

6. Press the START button.
- The songs are played back in the specified order.
- You can use the SKIP button to skip to the next song.

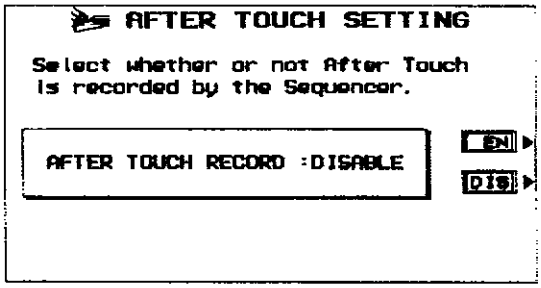
7. To stop medley play, press the STOP button.
- Features and operation of the Disk Drive are explained in "Part VI Disk Drive" (page 94).

After Touch

Specify whether or not AFTER TOUCH data is recorded. The AFTER TOUCH applies a special effect to the sound depending on how hard the keys are being pressed.

1. Select the song number. (Refer to page 53.)

2. On the **SEQUENCER** menu, select AFTER TOUCH SET.
- The display looks similar to the following.

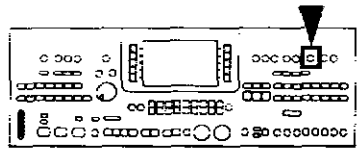


3. Press the EN or DIS button to specify if the aftertouch data is recorded.

ENABLE: Aftertouch data is recorded with the performance.
DISABLE: The data is not recorded (factory-preset setting).

Part V Composer

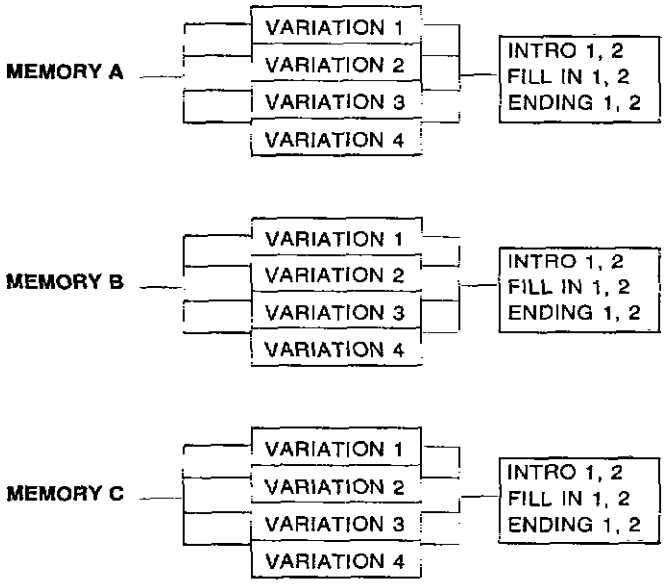
Outline of the Composer



The **COMPOSER** enables you to create your own accompaniment patterns or to edit preset accompaniment patterns. A pattern is comprised of five parts: **DRUMS**, **BASS** and 3 **ACCOMP** parts. These parts would form the backing of a song, for example: Drums, Acoustic Bass, Piano, Jazz Guitar and Vibes. You may find it useful at first to copy and edit a preset pattern.

Rhythm components which can be stored

You can store up to 12 different rhythms (4 in each memory bank **A**, **B**, **C**).



- You can also create **INTRO**, **FILL IN** and **ENDING** patterns for each **MEMORY** (**A**, **B**, **C**). These patterns are played back when the COMPOSER MODE is set to EXPAND. (Refer to page 91.)

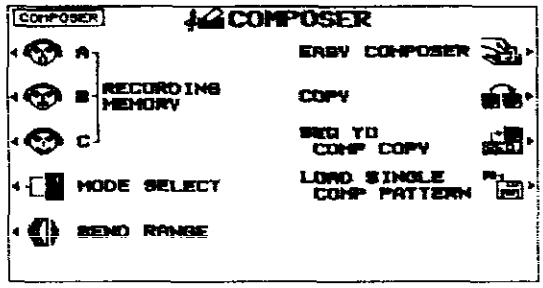
Memory capacity

Expressed in terms of notes, the total number of notes which can be stored in all the **COMPOSER** memories is about 10,000. The remaining memory available for recording is shown on the RECORD display as a percentage (MEMORY= %).

- When "Memory full!" appears on the display no more data can be stored in the **COMPOSER**.
- The recorded **COMPOSER** data can be saved to a disk and later quickly recalled (COMPOSER LOAD). (Refer to page 98.)

COMPOSER menu

When you press the **COMPOSER** button to turn it on, the display changes to the following.



Summary of the COMPOSER menu items

RECORDING MEMORY-A
Create a memory in the **MEMORY A** bank.

RECORDING MEMORY-B
Create a memory in the **MEMORY B** bank.

RECORDING MEMORY-C
Create a memory in the **MEMORY C** bank.

EASY COMPOSER (page 83)
Create a rhythm pattern with a simplified procedure.

MODE SELECT (page 91)
Specify whether or not you are playing back your own **INTRO**, **FILL IN** and **ENDING** patterns.

COPY (page 84)
Copy a preset rhythm pattern into a memory.

SEQ TO COMP COPY (page 87)
Copy recorded data in the **SEQUENCER** to the **COMPOSER**.

BEND RANGE (page 92)
Set the **PITCH BEND** range effective during recording for the **ACCOMP** and **BASS** parts.

LOAD SINGLE COMP PATTERN
Recall the desired **COMPOSER** data from data saved on a disk. The items on this menu are also on the DISK LOAD menu, and the procedures are the same (page 97).

Three ways to record in the COMPOSER

There are three ways to create and record a rhythm.

■ **Simple recording method** (page 83)
Use EASY COMPOSER to quickly create a unique rhythm just by selecting a style and variation for each part.

■ **Edit a preset rhythm** (pages 84 and 88)
Use the COPY function to copy a preset rhythm to a **MEMORY**, change parts of it, and then store it as a new rhythm.

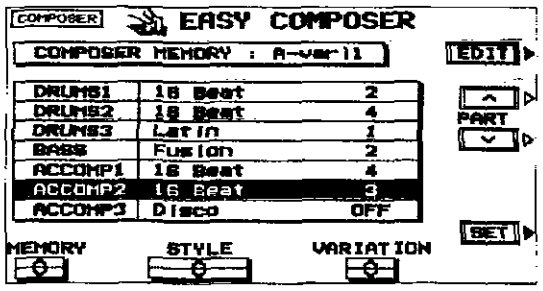
■ **Create a completely new rhythm** (pages 85 and 88)
Clear the memories and compose a completely new rhythm from scratch.

- You can use either or both of two recording methods. Realtime recording allows you to store your rhythm exactly as you play it on the keyboard. But for difficult phrases, you may want to use the STEP RECORD mode to store the notes one by one, just as you might write a music score.

Simple recording method

With EASY COMPOSER you can easily create a unique rhythm pattern by selecting a different style for each part of the rhythm.

1. On the **COMPOSER** menu display, select EASY COMPOSER.
- The display looks similar to the following.



2. Use the MEMORY ∧ and ∨ buttons to select the memory in which to record your rhythm.
- Select from A-vari 1 to 4, B-vari 1 to 4 and C-vari 1 to 4.

3. Use the PART ∧ and ∨ buttons to select the part.
- In the EASY COMPOSER, the new rhythm pattern is divided into 7 parts, to each of which a style and variation is assigned.

4. Use the STYLE ∧ and ∨ buttons to select a style.

5. Use the VARIATION ∧ and ∨ buttons to select the variation number.
- The number of variations differs depending on the selected style.
- A part which is set to OFF does not sound. Note that the DRUMS1 part cannot be set to OFF.

6. Repeat steps 3 to 5 to select styles for the other parts.

7. Press the SET button.
- The rhythm pattern is played back.
- The RHYTHM name changes to "Easy".
- If you are not satisfied with the rhythm pattern, repeat steps 3 to 7.
- If you wish to correct the sounds or phrases in your rhythm pattern, press the EDIT button. The display changes to the recording display. (Refer to page 88.)

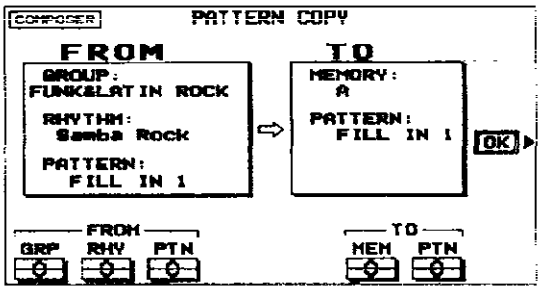
- For playback, refer to page 89.

Edit a preset rhythm pattern: preparation

These are step-by-step instructions for preparing to create a new rhythm pattern by modifying a part of a preset rhythm pattern. First you copy one of the preset **RHYTHM GROUP** rhythm patterns to a location in the specified **MEMORY** bank.

- Data can also be copied from the **SEQUENCER**. (Refer to page 87.)

1. On the **COMPOSER** menu display, select COPY.
- The display looks similar to the following.



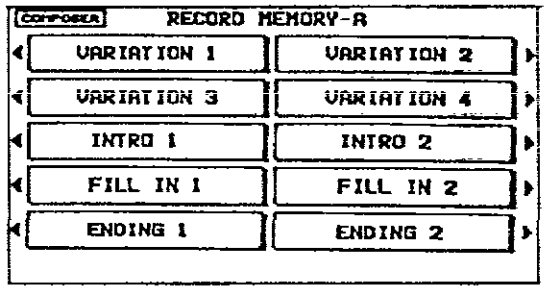
2. Select a rhythm group, name and pattern to copy (FROM).
- Use the GRP ∧ and ∨ buttons to specify the **RHYTHM GROUP**.
- Use the RHY ∧ and ∨ buttons to specify the rhythm name.
- Use the PTN ∧ and ∨ buttons to specify the rhythm pattern.
- You can also select the **RHYTHM GROUP** and rhythm with the panel buttons.

3. Select a memory bank and pattern to copy to (TO).
- Use the MEM ∧ and ∨ buttons to specify the memory bank (A, B or C).
- Use the PTN ∧ and ∨ buttons to specify the pattern.

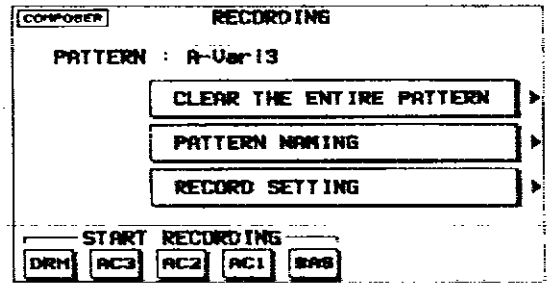
4. Press the OK button.
- When copying has been successfully completed, "COPY COMPLETED!" appears on the display.

5. Press the **EXIT** button.

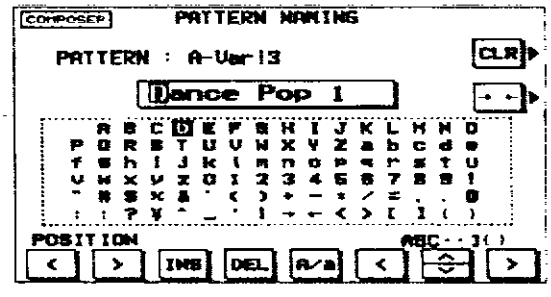
6. On the **COMPOSER** menu display, select the bank to which you copied the rhythm pattern (the memory bank you selected in step 3: RECORDING MEMORY-A, RECORDING MEMORY-B or RECORDING MEMORY-C).
- The display looks similar to the following.



7. Select the pattern name to which you copied the pattern (the pattern name you selected in step 3).
- The display looks similar to the following.



8. If you wish to name your new rhythm pattern (except for FILL IN, INTRO and ENDING), select PATTERN NAMING.
- If you do not input a name for your rhythm pattern, the name becomes the same as the original rhythm from which you copied.
- The display looks similar to the following.



9. Type a new name for your rhythm pattern (up to 13 characters).
- Use the POSITION < and > buttons to highlight the character position in the name box. Use the ABC··]{} buttons to select the alphanumeric character. Repeat these steps to type the whole name.
- Use the INS button to type a space.
- Use the DEL button to erase a character.
- Use the A/a button to switch between upper case and lower case characters.
- To erase all the characters, press the CLR button.
- You can press the → ← button if you wish to have the name centered.

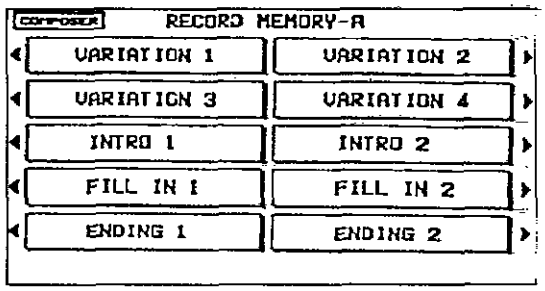
10. Press the **EXIT** button.
- The display returns to the previous display.

11. In the START RECORDING area on the display, select the rhythm part you want to record first.
BAS: **BASS**
AC1: **ACCOMP 1**
AC2: **ACCOMP 2**
AC3: **ACCOMP 3**
DRM: **DRUMS**
- The pattern you copied and the metronome sound start, and recording begins. (Refer to page 88.)

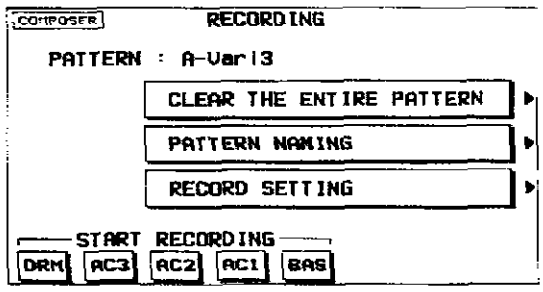
Create a completely new rhythm: preparation

Here are the preparatory steps to compose a completely new rhythm from scratch.

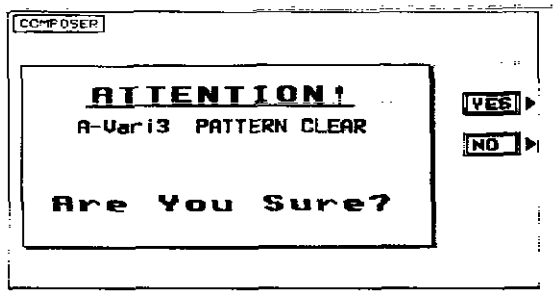
1. On the **COMPOSER** menu display, select a bank in which to record the rhythm (RECORDING MEMORY-A, RECORDING MEMORY-B or RECORDING MEMORY-C).
- The display looks similar to the following.



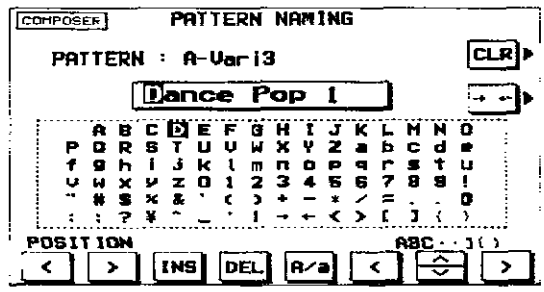
2. Specify the pattern you are going to create.
- The display looks similar to the following.



3. Press the CLEAR THE ENTIRE PATTERN button.
- The following confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.



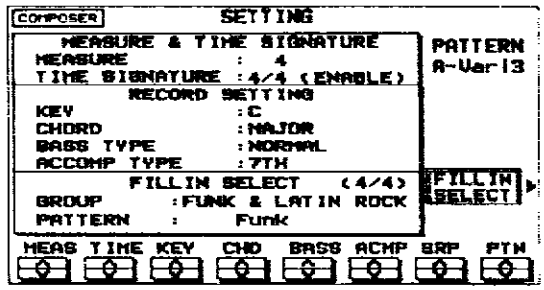
4. Select PATTERN NAMING (except for FILL IN, INTRO and ENDING).
- The display looks similar to the following.



5. Type a name for your rhythm pattern (up to 13 characters).
- Use the POSITION < and > buttons to highlight the character position in the name box. Use the ABC··] { } buttons to select the alphanumeric character. Repeat these steps to type the whole name.
- Use the INS button to type a space.
- Use the DEL button to erase a character.
- Use the A/a button to switch between upper case and lower case characters.
- To erase all the characters, press the CLR button.
- You can press the → ← button if you wish to have the name centered.

6. Press the **EXIT** button.
- The display returns to the previous display.

7. Select RECORD SETTING.
- The display looks similar to the following.



8. Adjust the various recording settings.
- See the "Recording settings" below.

9. When all the settings have been completed, press the **EXIT** button.
- The display returns to the previous display.

10. In the START RECORDING area on the display, select the rhythm part you want to record first.
BAS: **BASS**
AC1: **ACCOMP 1**
AC2: **ACCOMP 2**
AC3: **ACCOMP 3**
DRM: **DRUMS**
- The metronome sound starts and recording begins. (Refer to page 88.)

■ Recording settings

MEASURE & TIME SIGNATURE
These settings can be adjusted only when the pattern has been cleared by the CLEAR THE ENTIRE PATTERN function.

MEASURE: Use the MEAS ∧ and ∨ buttons to specify the number of measures in your repeating rhythm pattern.
TIME SIGNATURE: Use the TIME ∧ and ∨ buttons to specify the time signature.

RECORD SETTING
KEY: Use the KEY ∧ and ∨ buttons to specify the root note of the chords you wish to record.
CHORD: Use the CHD ∧ and ∨ buttons to specify the type of chord you wish to record (MINOR or MAJOR).
BASS TYPE: Use the BASS ∧ and ∨ buttons to specify the type of phrase progression for the **BASS** part (NORMAL or 7TH).
ACCOMP TYPE: Use the ACMP ∧ and ∨ buttons to specify the type of phrase progression for the **ACCOMP** parts (NORMAL or 7TH).

FILL IN SELECT
You can select fill-in, intro and ending patterns from a preset rhythm pattern. These preset patterns are produced when a **FILL IN** button or the **INTRO & ENDING** button is pressed during playback of your new rhythm pattern.
- This setting is effective only when the COMPOSER MODE is set to NORMAL MODE.

GROUP: Use the GRP ∧ and ∨ buttons to specify the **RHYTHM GROUP**.
PATTERN: Use the PTN ∧ and ∨ buttons to specify the rhythm name.

- If you changed the settings in the FILL IN SELECT area on the display, press the FILL IN SELECT button. When the settings have been successfully stored, "COPY COMPLETED!" appears on the display.
- You cannot select a rhythm with a time signature different from that of the time signature you specified.

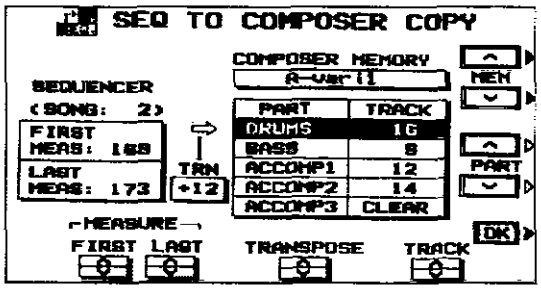
Sequencer to Composer Copy

Data from the **SEQUENCER** can be copied to a **COMPOSER** memory. For example, you can use a rhythm pattern on a song disk as the automatic accompaniment for your own performance.

1. Play back the song you wish to copy from **SEQUENCER** to confirm the tracks, the measures and the time signature you wish to copy.

2. Follow the procedure in "Create a complete new rhythm: preparation" to prepare the **COMPOSER** memory you will be copying to. (Refer to pages 85 and 86).
- Be sure that time signature setting in the **SEQUENCER** data you are copying from and the time signature in the **COMPOSER** memory you are copying to are the same, or the data will not be copied successfully.

3. On the **COMPOSER** menu display, select SEQ TO COMP COPY.
- The display looks similar to the following.



4. Use the MEASURE FIRST ∧ and ∨ buttons to specify the number of the first measure to copy.

5. Use the MEASURE LAST ∧ and ∨ buttons to specify the number of the last measure to copy.
- Up to 8 measures can be copied.

6. Use the TRANSPOSE ∧ and ∨ buttons to change the key of the copied measures (–12 to +12).
- Units are in semitones.

7. Use the MEM ∧ and ∨ buttons to specify the **COMPOSER** memory to copy to.

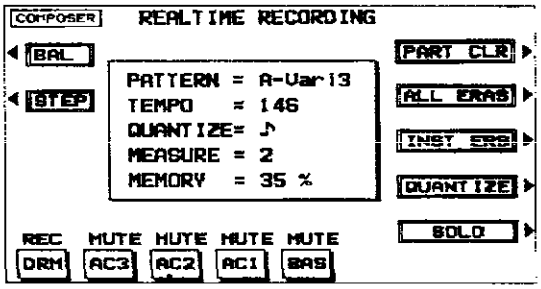
8. For each **COMPOSER** part, specify the **SEQUENCER** track from which to copy data.
- Use the PART ∧ and ∨ buttons to specify the part name, and the TRACK ∧ and ∨ buttons to specify the track number.
- Parts which are set to CLEAR are blank.

9. Press the OK button.
- "COPY COMPLETED!" is shown on the display.
- If you wish to edit the pattern you copied, follow steps 1, 2 and 10 of "Create a completely new rhythm: preparation," and then follow the recording procedure.

Record your rhythm pattern

Store each part of the rhythm pattern as you perform it on the keyboard.

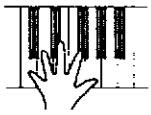
Recording procedure



1. Adjust the tempo.
- The tempo can be freely adjusted when you play back the rhythm pattern, so record at the tempo which is easiest for you to play.

2. Select the sound.
- For the DRM part, select sounds from the **KEYBOARD PERC** sound group.
- For the AC1, AC2, AC3 and BAS parts, select sounds from groups other than the **KEYBOARD PERC** sound group.

3. Record the part.



- The specified number of measures are repeatedly played back, during which time any newly played notes are added to those already recorded. The current measure number is shown on the display as "MEASURE=".
- Record the performance in C major for correct chord progressions during playback. To record the performance in a different scale, follow the RECORD SETTING procedure to specify a KEY and CHORD.
- **PITCH BEND** and **MODULATION** effects and the **DIGITAL EFFECT** and **SUSTAIN** on/off are also recorded (except for the DRM part).
- AFTER TOUCH does not function during recording.
- You can also specify the range of the pitch bend when the **PITCH BEND** wheel is operated during recording. (Refer to page 92.)

4. When you have finished recording one part, use the buttons below the display to select the next part to record.

5. Repeat steps 1 through 4 to record all the parts of the rhythm.

6. When you have finished recording the rhythm, press the **COMPOSER** button to turn it off.
- If you wish to continue creating other patterns, press the **EXIT** button to go back to the pattern selection display.

■ The display during recording

BAL
If you wish to adjust the volume of each part during recording, press the BAL button. The PART BALANCE display appears. Adjust the volume of each part.
- If you press the **EXIT** button, the display returns to the previous display.
- These settings are not stored.

STEP
When you press this button, the display changes to the STEP RECORD display, on which you can store the notes one by one. (Refer to page 89.)

PART CLR
Press this button if you wish to erase all recorded contents of the currently selected part.

ALL ERAS
The performance recorded in the selected part is erased for as long as this button is pressed.

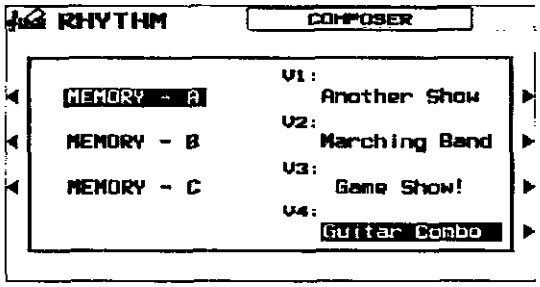
INST ERS
When the DRM part is selected, the DRM part can be cleared instrument by instrument. Hold down this button and specify the instrument sound to be deleted by pressing the corresponding instrument key on the keyboard, after which only the specified instrument will be erased for as long as this button is kept pressed.

QUANTIZE
Set the desired quantize level to smooth out any unevenness in the timing of your performance. Each time this button is pressed, the indicated level changes. The quantize level is shown in the center of the display as "QUANTIZE=". Select from ♪3, ♪, ♪3, OFF, ♪, ♪3, ♪, . (A 3 denotes a triplet-type note.)

SOLO
When you press this button while you are recording, only the part which is currently being recorded is played back. When SOLO is on, a MUTE mark is shown above the other part names on the display.
- To turn off the SOLO function, press this button again.

Playback

1. In the **RHYTHM GROUP** section, press the **MEMORY** button to turn it on.
- The display looks similar to the following.



2. Use the buttons to the left of the display to select the memory (A, B or C) and the buttons to the right of the display to select the variation.
- The **VARIATION & MSA** buttons can also be used to select the variation.

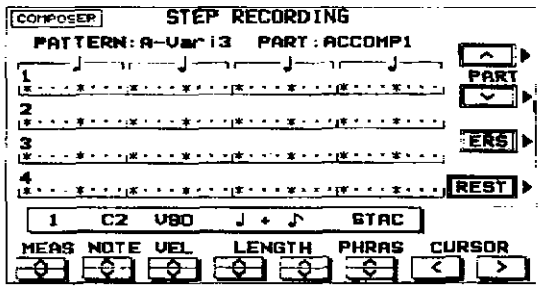
3. Press the **START/STOP** button.
- The **DRUMS** part begins to play back.
- The **BASS** and **ACCOMP** parts are played back when you use the **AUTO PLAY CHORD**.

Step Record

Use STEP RECORD to store the notes one-by-one on the display. This is a convenient way to store complicated patterns that are difficult to play.

Recording procedure

1. While you are recording, press the STEP button.
- The display changes to the STEP RECORD display similar to the following.



2. Use the MEAS buttons to select the measure you wish to record.
- This step is not necessary if you are recording from measure 1 of a blank part.

3. Use the CURSOR < and > buttons to move the cursor to the note position (dot) you are going to store.
- Each dot represents one-eighth of a quarter-note (a thirty-second note).
- When storing triplets, it may not be possible to match the timing exactly with the 1/32-note steps. However, if you select triplet-type notes for the note length (LENGTH) in step 4 below, the timing is automatically corrected.

4. Use the left LENGTH buttons to specify the note value. Select from 𝅗𝅥3, 𝅗𝅥., 𝅗𝅥.3, ♩3, ♩., ♩.3, 𝅗𝅥, ♩, 𝅝, 𝅝 × 2 to 4. (A 3 denotes a triplet-type note.)
- For note values other than these, use the right LENGTH buttons to specify the note value to be added to that which you specified with the left buttons.

Example: To record a dotted quarter-note (♩.)
♩ + 𝅘𝅥𝅯

5. Use the PHRAS ∧ and ∨ buttons to specify the actual length of the produced sound for the desired legato or staccato effect.

TENU (tenuto):	Sound is produced for 95% of the note length.
NORM (normal):	80%
STAC (staccato):	50%
CUTT (cutting):	25%

6. Specify the pitch and velocity of the note by playing the keyboard.
- The dot on the display where the note is stored changes to a * mark.
- When recording chords, you can store multiple notes at one position.

REST: To store a rest, after specifying the note LENGTH, press the REST button.
- Positions at which nothing is stored are read as rests.

ERS: If you make a mistake, move the cursor to the error, and after displaying the data you wish to erase, press the ERS button.

7. Repeat steps 3 through 6 to continue storing notes.
- To record a different part, use the PART ∧ and ∨ buttons to select another part.

- You can easily switch between the REALTIME mode and the STEP mode any time during recording. To return to the realtime recording display during the STEP RECORD mode, press the **EXIT** button.

■ Correcting the data

1. In the STEP RECORD mode, specify the part you wish to correct.

2. Use to MEAS buttons to go to the measure you wish to modify. Use the CURSOR buttons to move the cursor to the point (*) you wish to edit.
- The data stored at that point is shown on the display.
- When a chord is stored at one point, a different note of the chord is displayed in order each time a CURSOR button is pressed.

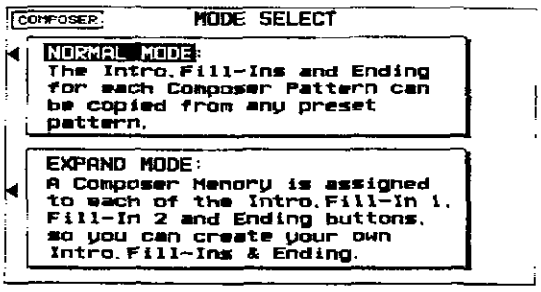
3. Correct the data.
- NOTE data (note pitch) and VEL data (how hard the key was played), etc. are displayed. Use the relevant buttons to correct the data as desired.

- Press the ERS button to erase the data which is displayed.
- You can also correct data which was stored in the REALTIME RECORD mode.

Composer mode

Two playback modes are available for you to choose from. If you wish to use the intro, fill-in and ending patterns from a preset rhythm when you play back your new rhythm pattern, select NORMAL MODE. For creating and playing back your original intro, fill-in and ending patterns, select EXPAND MODE.

1. On the **COMPOSER** menu display, select MODE SELECT.
- The display changes to the following.



2. Select the mode.

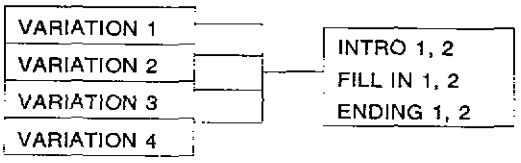
■ NORMAL MODE

When a **FILL IN** button or the **INTRO & ENDING** button is pressed during playback, the corresponding pattern for a preset rhythm is played back. The rhythm which is played back is the one you specified for FILL IN SELECT on the RECORD SETTING display. (Refer to page 86.)

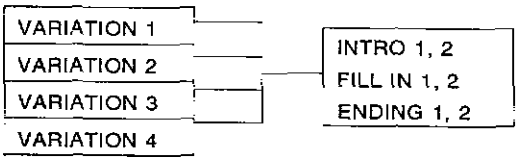
■ EXPAND MODE

When a **FILL IN** button or the **INTRO & ENDING** button is pressed during playback, the corresponding pattern you created is played back.
- Only one each **FILL IN 1**, **FILL IN 2**, **INTRO 1**, **INTRO 2**, **ENDING 1** and **ENDING 2** pattern can be created for each of the three banks (**MEMORY A**, **MEMORY B** or **MEMORY C**). The fill-in patterns, etc. for each bank are used for all the basic rhythms in the same bank.
- Each pattern of a memory should have the same time signature.

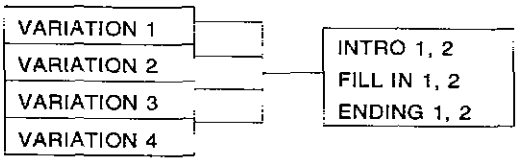
<MEMORY A>



<MEMORY B>



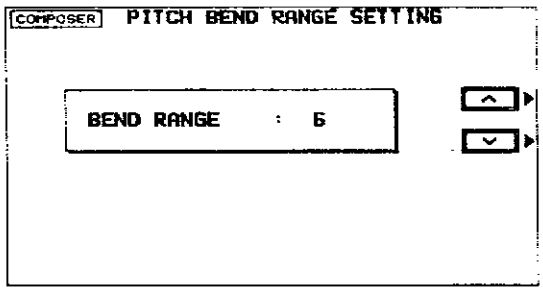
<MEMORY C>



Bend Range

Adjust the amount of pitch change applied to the **ACCOMP** parts and the **BASS** part when the **PITCH BEND** wheel is operated during **COMPOSER** recording.

1. On the **COMPOSER** menu display, select BEND RANGE.
- The display changes to the following.



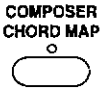
2. Use the ∧ and ∨ buttons to specify the range (0 to 12).
- Increments are in semitones.

Composer Chord Map

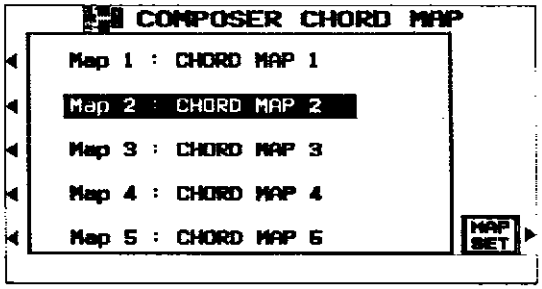
A different accompaniment pattern can be selected for each of the four types of chords (major, minor, seventh and diminished). Then the accompaniment combination can be stored in one of five different maps.

- Store beforehand in a **COMPOSER** memory each accompaniment pattern you are going to perform when a type of chord is selected. When recording a pattern, for the minor type for example, record it in a minor key.

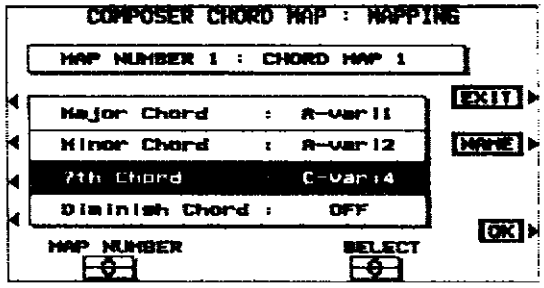
1. Press the **COMPOSER CHORD MAP** button to turn it on.



- The display looks similar to the following.



2. Press the MAP SET button.
- The display looks similar to the following.

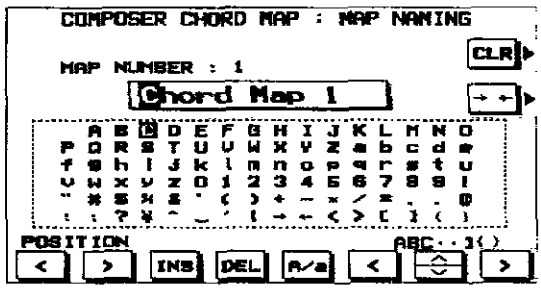


3. Use the MAP NUMBER ∧ and ∨ buttons to select a map number (1 to 5).

4. Use the buttons to the left of the display to select a chord type.

5. Use the SELECT ∧ and ∨ buttons to select a pattern for the chord type.
- Only patterns with the same number of measures and same time signature can be selected.
- The accompaniment pattern for the **INTRO**, **FILL IN** and **ENDING** is the one selected for Major.
- The accompaniment pattern for chords which are set to OFF is the same as the pattern for Major chords.

6. Press the NAME button.
- The display looks similar to the following.



7. Assign a name to the map.
- Use the POSITION < and > buttons to highlight the character position in the name box. Use the ABC··] { } buttons to select the alphanumeric character. Repeat these steps to type the whole name.
- Use the INS button to type a space.
- Use the DEL button to erase a character.
- Use the A/a button to switch between upper case and lower case characters.
- To erase all the characters, press the CLR button.
- You can press the → ← button if you wish to have the name centered.

8. Press the **EXIT** button.
- The display returns to the previous display.

9. Repeat steps 3 to 8 to create other maps, as desired.

10. Press the OK button.

11. When you have finished making the MAP SET settings, press the EXIT button.

Recall chord map

Follow the procedure below to recall a stored chord map and use with your performance.

1. Press the **COMPOSER CHORD MAP** button to turn it on.

2. Use the buttons to the left of the display to select the number of the desired map.
- After a few seconds, the display returns to the previous display.

3. Play the keyboard using the automatic accompaniment.
- The pattern changes according to the type of chord you play.
- If you wish to end a performance which uses a **COMPOSER CHORD MAP**, select a different rhythm from the **RHYTHM GROUP**.

Part VI Disk Drive

Outline of the Disk Drive function

The Disk Drive enables you to store **COMPOSER** memories, **SEQUENCER** data etc. for future use.

Internal memory and Floppy Disk Drive

The storable internal memory is fixed at a limited capacity, but this external memory device expands the storable memory infinitely.

- You can use 3.5 inch 2DD(720 KB) or 2HD (1.44 MB) floppy disks; however, 2HD disks formatted as 2DD cannot be used.
- Specific file formats are handled as follows.

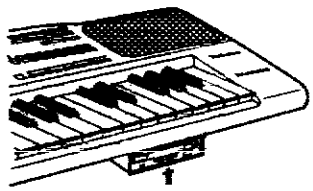
		SAVE	LOAD
TECHNICS File		○	○
Standard MIDI File	FORMAT 0	○	○
	FORMAT 1	×	○

FORMAT 0: There is one track on the disk, and it contains the 16 MIDI channels.

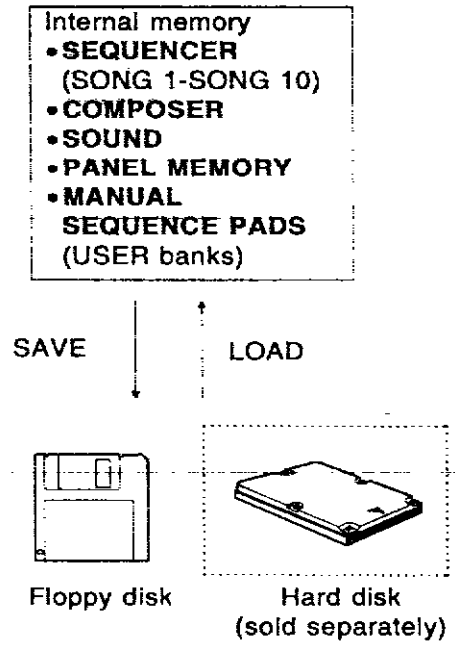
FORMAT 1: There is an unlimited number of tracks on the disk, each of which can contain the 16 MIDI channels.

■ Playback of commercial software

Disks recorded using the Disk Drive of this instrument can, of course, be played back on your Keyboard (TECHNICS file). But this instrument also reads song data from floppy disks recorded in the Standard MIDI File format, enabling you to play commercial song disks on this instrument. In addition, by saving this instrument's **SEQUENCER** data in the Standard MIDI File format, you can play it back on an external sequencer.



Floppy Disk Drive



- **SEQUENCER** data is saved and loaded one song at a time.

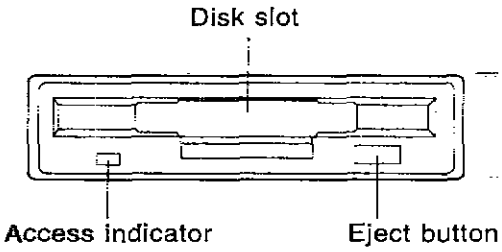
About Standard MIDI Files

"Standard MIDI File" is a standardized data format which makes it possible for music data to be exchanged among different sequencers. Data stored in this format on sequencers of different models can be played back on this Keyboard, and vice versa.

- Only files with the ".MID" extension can be loaded.
- No more than 310 KB of data can be loaded into the Keyboard.

Warning: Standard MIDI Files ensure the compatibility of data such as key on, key off, velocity, program number. It does not guarantee 100% faithful reproduction of recorded music which is replete with such data. For exact playback of music, it may be necessary to perform extensive adjustments of all the sound generator settings. As you the listener are the ultimate judge of what sounds best, you should perform such adjustments to your satisfaction.

Main parts of the Floppy Disk Drive

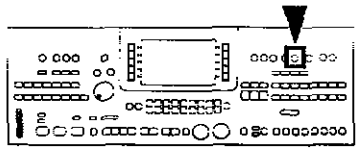


Eject button
Press to remove the disk from the Disk Drive.

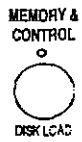
Access Indicator
Lights when data is being loaded from or saved to disk.

- To prevent data loss, do not remove the disk from the Disk Drive or turn off the power when the access indicator is lit.

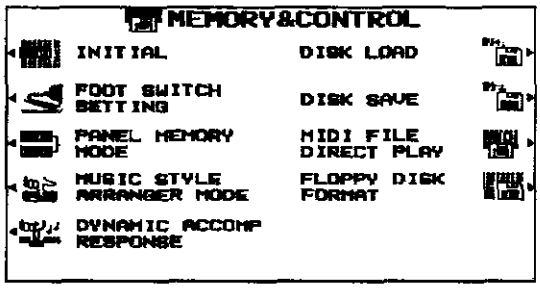
Outline of procedure



1. Press the **MEMORY & CONTROL** button to turn it on.



- The display changes to the following.



DISK LOAD (page 97)
Load data in either the Technics File format or Standard MIDI File format from a disk into the Keyboard memory.

DISK SAVE (page 102)
Save data from the Keyboard memory to a disk, in either the Technics File format or the Standard MIDI File format.

MIDI FILE DIRECT PLAY (page 100)
Immediate playback of disk data which is in the Standard MIDI File format.

FLOPPY DISK FORMAT (page 101)
Format new floppy disks or erase the contents of recorded disks so they can be used by this Keyboard.

- INITIAL is explained on page 144.
- FOOT SWITCH SETTING is explained on page 50.
- PANEL MEMORY MODE is explained on page 49.
- MUSIC STYLE ARRANGER MODE is explained on page 48.
- DYNAMIC ACCOMP RESPONSE is explained on page 43.

2. Select the desired menu and follow the procedures on the corresponding setting display.
- When the **TEMPO/PROGRAM** indicator is lit, it indicates that the dial is available for setting the current function.

3. When you have finished setting the functions, press the **MEMORY & CONTROL** button to turn it off.

Hard Disk (option)

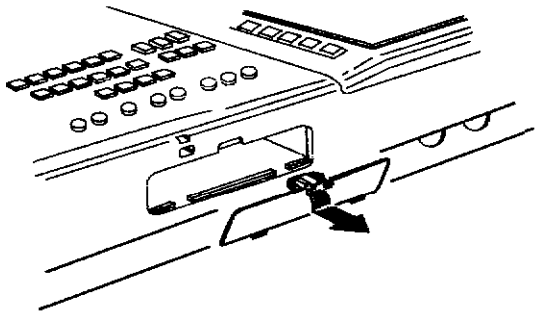
When a hard disk drive (**SY-HD1**) (separately sold option) is connected, the memory capacity for storing your performance data is much larger than that of a floppy disk.

- For specifications of your hard disk drive, please read the **SY-HD1** Owner's Manual.

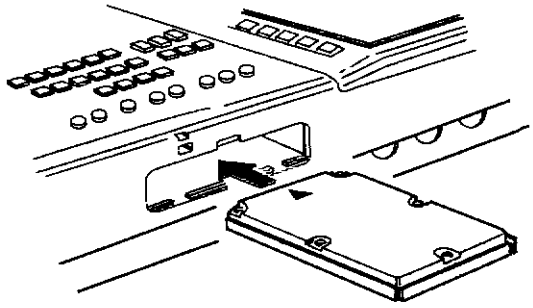
Installing the hard disk drive (HDD)

1. Before beginning installation, be sure that the power to the instrument is turned off.

2. Remove the cover from the HARD DISK slot (rear panel).



3. Fully insert the hard disk drive until it is all the way in to ensure a completed connection.



4. Affix the cover.

- When the hard disk drive is installed, menus and buttons pertaining to hard disk operation are shown on the display during Disk Drive operation.

■ Usage precautions

- Install only the specified hard disk drive in your instrument.
- Avoid using and storing the hard disk drive in the following types of locations:
  - —Locations where static electricity occurs readily
  - —Locations with very high or very low temperatures
  - —Locations with large changes in temperature
  - —In direct sunlight
  - —In very humid or dusty locations
  - —Locations subject to shock or vibration
- Do not disassemble the hard disk drive.
- Do not heat it or place it in fire.
- Do not place heavy objects on top of the hard disk drive.
- To prevent static electricity from being generated, avoid touching the hard disc drive's connector or the instrument's connector.
- When transporting the hard disk drive, do not drop or bump it against the corner of a desk or any other hard object.

- To ensure that the data you save to your hard disk drive is not accidentally lost, it is recommended that you also save your data on floppy disks.
- Be very careful when moving the instrument in which the hard disk drive is installed. Be sure not to subject it to shock or vibration by dropping or when transporting it.

■ FORMAT

The hard disk is specially formatted for TECHNICS instrument use at the time of shipment from the factory. It cannot be formatted by the user.

- If you experience difficulty in saving to or loading from the hard disk, please contact your nearest Technics dealer.
- The user should be aware that in the event that repair is necessary, it may not be possible to prevent data loss.

WARNING:

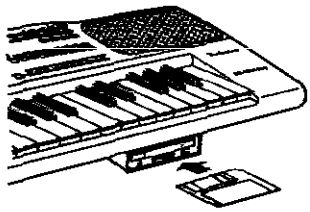
- Failure to turn off the power to your instrument before removing or installing the hard disk drive may result in damage to the instrument and/or the HDD.
- While data is being loaded or saved, never turn off the power to this instrument or jolt it, as to do so will risk losing or destroying data.

Loading data

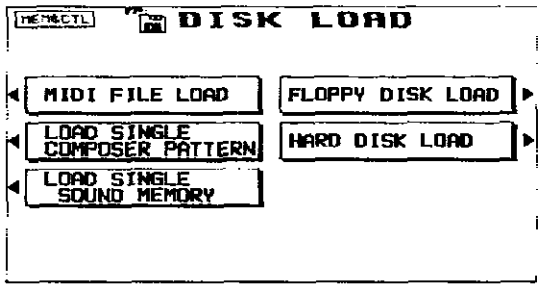
Recall (load) the data from the disk to the Keyboard's memories.
WARNING: The load procedure causes any data which is currently stored in the relevant memories to be erased.

DISK LOAD

1. Insert the disk with the stored data into the Disk Drive.



2. On the **MEMORY & CONTROL** menu display, select DISK LOAD.
- The display looks similar to the following.



3. Select the type of data load you want.

FLOPPY DISK LOAD
Load data which was saved in the Technics File format.

MIDI FILE LOAD
Load data which was saved in the Standard MIDI File format.

HARD DISK LOAD
(when separately sold hard disk is installed)
Load data which was saved to the hard disk in the Technics File format.
- For an explanation of the hard disk, refer to page 96.

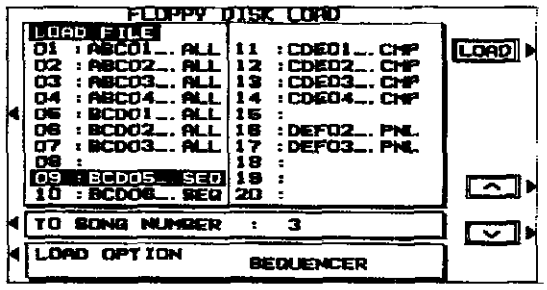
LOAD SINGLE COMPOSER PATTERN
Load **COMPOSER** data from a disk into a specified memory number.

LOAD SINGLE SOUND MEMORY
Load **SOUND** data from a disk into a specified memory number.

4. Perform the selected disk load procedure. (Refer to the following sections.)

■ FLOPPY DISK LOAD

Load data which was saved in the Technics File format.



1. Select the LOAD FILE box. Use the ∧ and ∨ buttons to select the file on the floppy disk you wish to load (copy) to the Keyboard's memories.
- The file name is shown next to each file number.

2. Select the TO SONG NUMBER box. Use the ∧ and ∨ buttons to select the song number in the Keyboard's memories to which you wish to have the file loaded (copied).
- **SEQUENCER** data is loaded one song at a time. However, if you load a file for which the SAVE OPTION was set to ALL, **SEQUENCER** songs 1 to 10 are loaded at once.

3. Select the LOAD OPTION box. Use the ∧ and ∨ buttons to specify the kind of data you wish to load from the disk to your instrument.

ALL: All the following data is loaded.
SEQUENCER: Only **SEQUENCER** data
COMPOSER: Only **COMPOSER** data
SOUND MEMORY: Only **SOUND** data
PANEL MEMORY: Only **PANEL MEMORY** data
MSP: Only **MANUAL SEQUENCE PADS** data

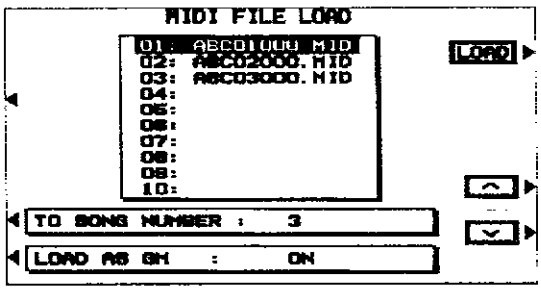
- The option which was specified during the SAVE procedure is automatically selected. Skip this step if you do not wish to change the selection.

4. Press the LOAD button.
- The LOAD operation begins.
- When the operation has been successfully completed, "COMPLETED!" is shown on the display.
- If song data was loaded, you can press the **START/STOP** button to begin playback when the SEQUENCER PLAY display is active.

- You can quickly load just the **COMPOSER** data by pressing and holding the **COMPOSER LOAD (COMPOSER)** button for a few seconds.
- You can also access the DISK LOAD display by pressing the **DISK DRIVE (DISK LOAD)** button for a few seconds.

■ MIDI FILE LOAD

Load data which was saved in the Standard MIDI File (SMF) format.



1. Select the file list box. Use the ∧ and ∨ buttons to select the file.

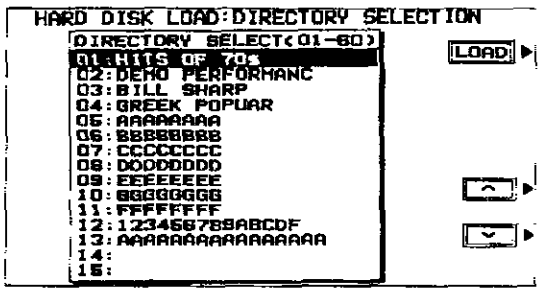
2. Select the TO SONG NUMBER box. Use the ∧ and ∨ buttons to select the song.
- Data is loaded one song at a time.

3. Select the LOAD AS GM box, and use the ∧ and ∨ buttons to specify whether or not to load the song as General MIDI (GM) (ON/OFF).
- If the file contains General MIDI on/off data, that data has priority.
- Information about General MIDI can be found on page 136.
- If playback is executed with the setting set to ON, the functions of this instrument are limited in various ways. For detailed information, please refer to the separate "REFERENCE GUIDE" provided.

4. Press the LOAD button.
- The LOAD operation begins.
- When the operation has been successfully completed, "COMPLETED!" is shown on the display.
- Press the **START/STOP** button to begin playback.

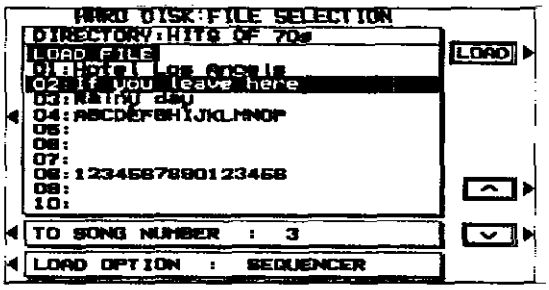
■ HARD DISK LOAD

(when the separately sold hard disk is installed)
Load data from the hard disk.



1. Select the file list box. Use the ∧ and ∨ buttons to select the directory.

2. Press the LOAD button.
- The display looks similar to the following.



3. Select the LOAD FILE box. Use the ∧ and ∨ buttons to select the file on the hard disk you wish to load (copy) to the Keyboard's memories.

4. Select the TO SONG NUMBER box. Use the ∧ and ∨ buttons to select the song number in the Keyboard's memories to which you wish to have the file loaded (copied).
- **SEQUENCER** data is loaded one song at a time. However, if you load a file for which the SAVE OPTION was set to ALL, **SEQUENCER** songs 1 to 10 are loaded at once.

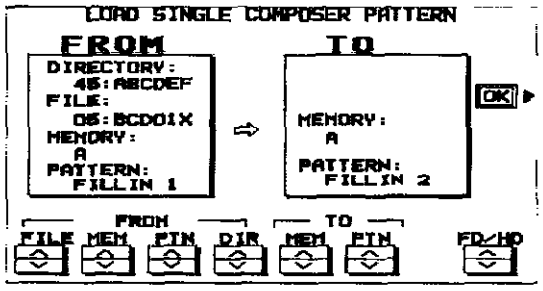
5. Select the LOAD OPTION box. Use the ∧ and ∨ buttons to specify the kind of data you wish to load from the disk to your instrument.

6. Press the LOAD button.
- The LOAD operation begins.
- When the operation has been successfully completed, "COMPLETED!" is shown on the display.
- If song data was loaded, you can press the **START/STOP** button to begin playback when the SEQUENCER PLAY display is active.

- General MIDI is automatically set to ON if data is loaded from a disk for which the GM mode was set to on. (Refer to page 142.) The status of this instrument changes to the GENERAL MIDI status, and the sounds and operations which can be selected are limited.

■ LOAD SINGLE COMPOSER PATTERN

Load the desired **COMPOSER** data from a disk into a specific **COMPOSER** memory.



1. Select the data to load (FROM).

FILE: Specify the file number to load.
MEM: Select the memory bank (A, B or C).
PTN: Select the pattern name.

2. Select the memory bank and pattern to load to (TO).

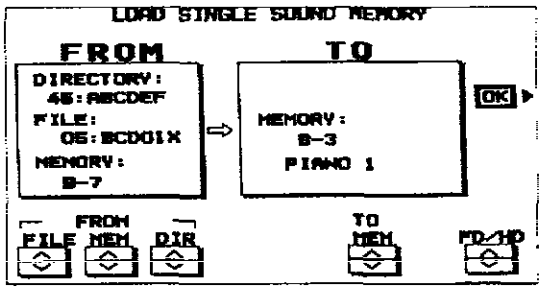
MEM: Select the memory bank (A, B or C).
PTN: Specify the pattern name.

3. Press the OK button.
- The LOAD operation begins.
- When the operation has been successfully completed, "COMPLETED!" is shown on the display.

- When loading data from the hard disk (separately sold option), use the FD/HD button to select HD before following the above procedure. In this case, for the FROM box, first use the DIR button to select the directory number.
- This procedure can also be accessed from the **COMPOSER** menu display. (Refer to page 81.)

■ **LOAD SINGLE SOUND MEMORY**

Load the desired **SOUND** data from a disk into a specific **SOUND** memory.



1. Select the data to load (FROM).

   FILE: Specify the file number to load.
   MEM: Select the memory name.

2. Select the memory to load to (TO).

   TO MEM: Select the memory (A or B).

3. Press the OK button.
- The LOAD operation begins.
- When the operation has been successfully completed, "COMPLETED!" is shown on the display.

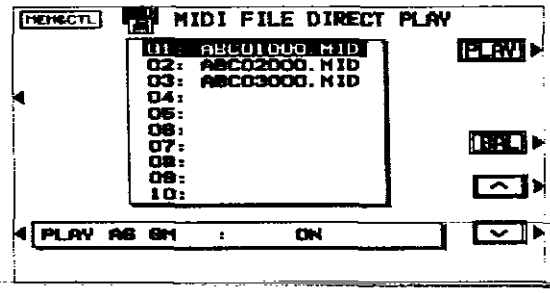
- When loading data from the hard disk (separately sold option), use the FD/HD button to select HD before following the above procedure. In this case, for the FROM box, first use the DIR button to select the directory number.

Playing commercial disks

Standard MIDI File format song data (FORMAT 0 only) can be played back directly from a disk. The usual LOAD operation is not necessary, so playback is quicker.

MIDI FILE DIRECT PLAY

1. On the **MEMORY & CONTROL** menu display, select MIDI FILE DIRECT PLAY.
- The display looks similar to the following.



2. Select the song list box, and use the ∧ and ∨ buttons to select the filename to play back.

3. Select the PLAY AS GM box, and use the ∧ and ∨ buttons to specify whether or not to play the song as General MIDI (GM) (ON/OFF).
- If the file contains General MIDI on/off data, that data has *priority*.
- Information about General MIDI can be found on page 136.
- If playback is executed with the setting set to ON, the functions of this instrument are limited in various ways. For detailed information, please refer to the separate "REFERENCE GUIDE" provided.

4. Press the PLAY button.
- The selected song begins to play.
- To adjust the volume balance, press the BAL button on the display.
- The PLAY button becomes the STOP button. Press this button if you wish to stop playback before it has finished.
- You can use the same procedure to play back other songs on the disk.

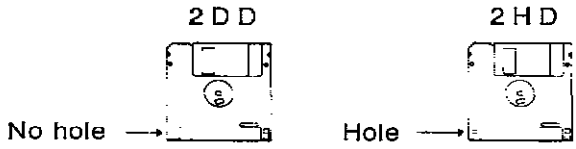
- The song stops if you exit this display during playback.

Formatting a disk

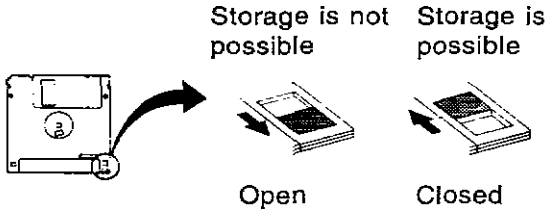
New floppy disks can be used only after they have been formatted. Follow the procedure below to format a new disk or erase the contents of a recorded disk.
- The hard disk (sold separately) cannot be formatted.

FLOPPY DISK FORMAT

- This procedure clears the entire contents of the disk.
- Reformat a disk if it cannot be saved to or loaded from properly because of exposure to a magnetic field.
- You can use 3.5 inch 2DD (720KB) or 2HD (1.44MB) floppy disks.
- Be sure to specify the type of format which is suitable for the disk.
- How to distinguish to two disk types:

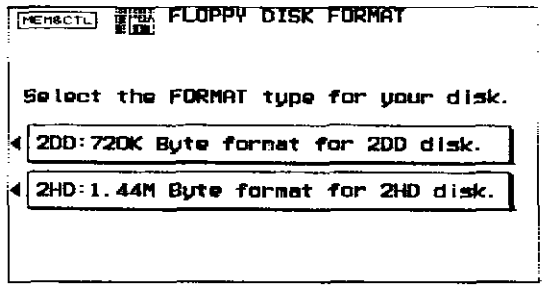


- Although 2HD floppy disks can hold more data and are convenient for quick loading and saving, 2DD disks are generally used for musical instruments. Therefore, you may not be able to use your 2HD disk data with other musical instrument models.
- To format the floppy disk, the write-protect window must be closed, as illustrated.

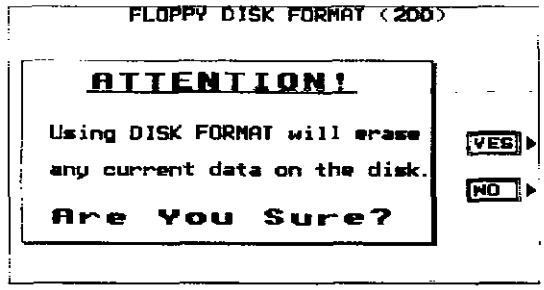


1. Insert the floppy disk into the Disk Drive slot. Push it all the way in until you hear a click.

2. On the **MEMORY & CONTROL** menu display, select FLOPPY DISK FORMAT.
- The display changes to the following.



3. Select the type of format (2DD or 2HD).
- Be sure to select the type which is the same as your disk type.
- The display changes to the following.



4. Press the YES button to format the disk, or press the NO button to cancel the format.
- After about 1–2 minutes, formatting is completed and "FORMAT COMPLETED!" is shown on the display.

Saving data

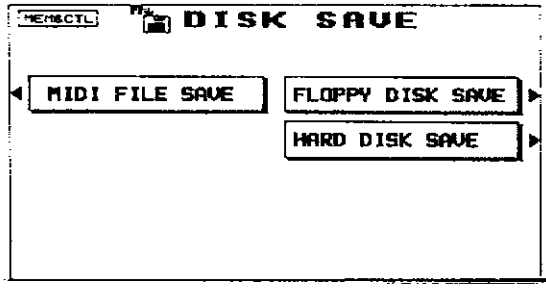
The recorded data and panel settings of this instrument can be saved on a disk.
- It is a good idea to save Technics File format data and Standard MIDI File format data in separate disks.

DISK SAVE

This procedure is used to save the performance data and settings of this instrument to a disk.

1. Insert a formatted disk into the Disk Drive slot. Push it all the way in until you hear a click.

2. On the **MEMORY & CONTROL** menu display, select DISK SAVE.
- The display looks similar to the following.



3. Select the type of data save you want.

FLOPPY DISK SAVE:
Save data in the Technics File format.

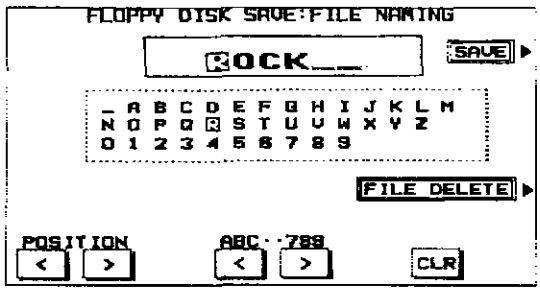
HARD DISK SAVE:
Save data to the hard disk in the Technics File format (when separately sold hard disk is installed).

MIDI FILE SAVE:
Save data in the Standard MIDI File format.

4. Perform the selected disk save procedure. (Refer to the following sections.)

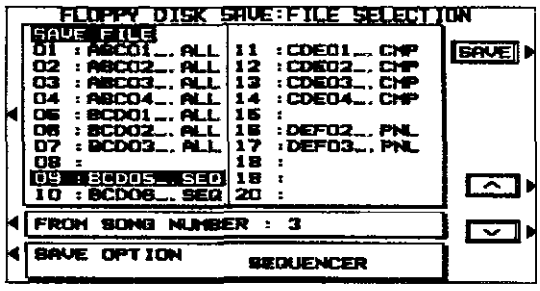
■ FLOPPY DISK SAVE

Save data from this instrument in the Technics File format to a floppy disk.



1. Type a name for the new data file (up to 6 characters).
- Use the POSITION < and > buttons to highlight the character position. Use the ABC • • 789 < and > buttons to select the alphanumeric character. Repeat these steps to type the whole name.
- To erase the name, press the CLR button.

2. Press the SAVE button.
- The display looks similar to the following.



3. Select the SAVE FILE box. Use the ∧ and ∨ buttons to select a file number (01 to 20).
- Files in which data is currently stored are indicated by the file name following the file number.
- The maximum number of files which can be saved may be less than 20 if you are saving many songs which use a lot of memory.
- For effective use of disk memory, if it is not necessary to save the **COMPOSER** data, clear the **COMPOSER** memories before saving to disk.
- More data can be saved using 2HD floppy disk.

4. Select the FROM SONG NUMBER box. Use the ∧ and ∨ buttons to select the song number in the Keyboard's memories you wish to have saved to the floppy disk.
- **SEQUENCER** data is saved one song at a time. However, if ALL is selected for the SAVE OPTION, **SEQUENCER** songs 1 to 10 are saved at once. In this case, you can conserve memory by deleting songs you do not wish to save.

5. Select the SAVE OPTION box. Use the ∧ and ∨ buttons to specify the kind of data you wish to save to the disk.

> ALL: All the following data is saved.
> SEQUENCER: Only **SEQUENCER** data
> COMPOSER: Only **COMPOSER** data
> SOUND MEMORY: Only **SOUND** memory data
> PANEL MEMORY: Only **PANEL MEMORY** data
> MSP: Only **MANUAL SEQUENCE PADS** data

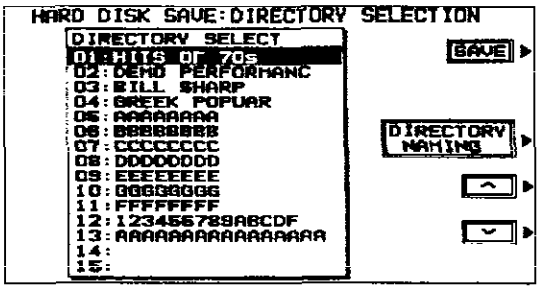
- The MASTER TUNING setting is not saved.

6. Press the SAVE button.
- The SAVE operation begins.
- When the operation has been successfully completed, "COMPLETED!" is shown on the display.
- If you attempt to save data to a file number in which data is currently saved, the display changes to the confirmation display. Press the NO button if you wish to cancel the procedure. When the YES button is pressed, the DISK SAVE operation begins.

FILE delete

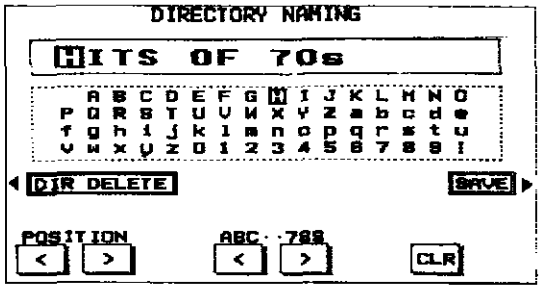
To erase a song from a disk, on the FILE NAMING display, press the FILE DELETE button. Then on the FLOPPY DISK SAVE display, select the number of the song you wish to erase, and press the DEL button. The display changes to the confirmation display. Press the YES button to erase the song, or press the NO button to cancel the procedure.

■ **HARD DISK SAVE** (when separately sold hard disk is installed)
Save data from this instrument to the hard disk in the Technics File format.



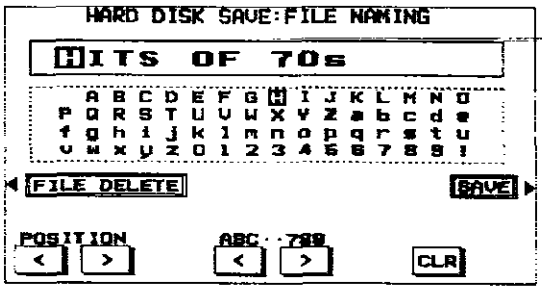
1. Use the ∧ and ∨ buttons to select the number of the directory to save to.

2. Press the DIRECTORY NAMING button.
- For an existing directory which does not need to be renamed, press the SAVE button and skip to step 7.
- The display looks similar to the following.



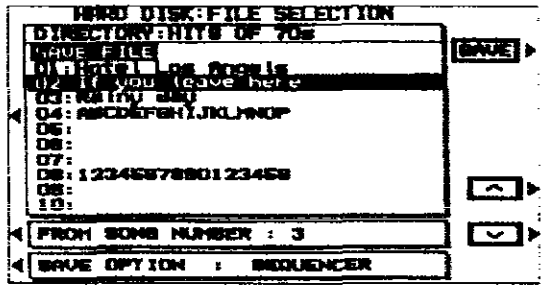
3. Type a name for the directory (up to 16 characters).
- Use the POSITION < and > buttons to highlight the character position. Use the ABC...789 < and > buttons to select the alphanumeric character. Repeat these steps to type the whole name.
- To erase the name, press the CLR button.

4. Press the SAVE button.
- The display looks similar to the following.



5. Type a name for the file (up to 16 characters).

6. Press the SAVE button.
- The display changes to the following.



7. Select the SAVE FILE box. Use the ∧ and ∨ buttons to select the file to save to.
- Files in which data is currently stored are indicated by the file name following the file number.
- For effective use of disk memory, if it is not necessary to save the **COMPOSER** data, clear the **COMPOSER** memories before saving to disk.

8. Select the FROM SONG NUMBER box. Use the ∧ and ∨ buttons to select the song number in the Keyboard's memories you wish to have saved to the hard disk.
- **SEQUENCER** data is saved one song at a time. However, if ALL is selected for the SAVE OPTION, **SEQUENCER** songs 1 to 10 are saved at once. In this case, you can conserve memory by deleting songs you do not wish to save.

9. Select the SAVE OPTION box. Use the ∧ and ∨ buttons to specify the kind of data you wish to save.

10. Press the SAVE button.
- The SAVE operation begins.
- Do not turn off the power to the instrument during the SAVE operation.
- When the operation has been successfully completed, "COMPLETED!" is shown on the display.
- If you attempt to save data to a file number in which data is currently saved, the display changes to the confirmation display. Press the NO button if you wish to cancel the procedure. When the YES button is pressed, the DISK SAVE operation begins.

DIRECTORY delete
To erase data from a directory, on the DIRECTORY NAMING display, press the DIR DELETE button. Then on the DIRECTORY SELECTION display, select the number of the directory you wish to erase, and press the DEL button. The display changes to the confirmation display. Press the YES button to erase the directory, or press the NO button to cancel the procedure.

FILE delete
To erase a song from a disk, on the FILE NAMING display, press the FILE DELETE button. Then on the FILE SELECTION display, select the number of the song you wish to erase, and press the DEL button. The display changes to the confirmation display. Press the YES button to erase the song, or press the NO button to cancel the procedure.

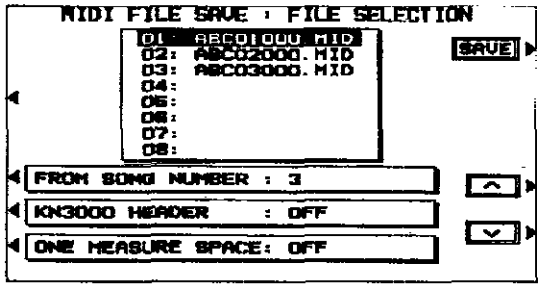
■ MIDI FILE SAVE

The data from this instrument's **SEQUENCER** can be saved to a floppy disk in the Standard MIDI File (SMF) format. (Standard MIDI Files are most commonly saved on 2DD floppy disks.) Data saved on this instrument can then be used on another instrument.

- What you can save in the Standard MIDI File format is ordinary performance data, such as note data. Data such as **SEQUENCER** data for the chord and rhythm parts, **COMPOSER** data, **PANEL MEMORY** data, etc. is not saved. If you wish to also save the special Technics data, first use the DISK SAVE procedure to save the data to a disk, and then follow the MIDI FILE SAVE below.
- Standard MIDI Files are generally saved in the GM mode, but can be saved in the Technics mode.

1. Type a name for the new data file (up to 8 characters).
- Use the POSITION < and > buttons to highlight the character position. Use the ABC • • 789 < and > buttons to select the alphanumeric character. Repeat these steps to type the whole name.
- To erase the name, press the CLR button.
- Avoid using the numbers from 01 to 20 as the first two letters of the name.

2. Press the SAVE button.
- The display looks similar to the following.



3. Select the file list box. Use the ∧ and ∨ buttons to select the name of the file in which to save the data.
- To save in a new file, select a blank line.

4. Select the FROM SONG NUMBER box. Use the ∧ and ∨ buttons to select the song number in the Keyboard's memories you wish to have saved to the floppy disk.
- Data is saved one song at a time.

5. Select the KN3000 HEADER box, and use the ∧ and ∨ buttons to select ON or OFF.
- Select ON to save the sound, volume and other settings for each part as data at the beginning of the file.

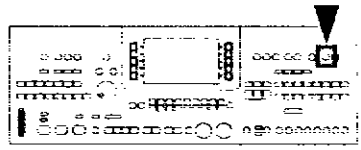
6. Select the ONE MEASURE SPACE box, and use the ∧ and ∨ buttons to select ON or OFF.
- When there is various data other than performance data stored at the beginning of a file, the start of playback may be delayed. This can be avoided by inserting a one-measure space before the beginning of the performance. Select ON to insert a one-measure space. Select OFF if you do not wish to insert the space.
- When set to ON, a space is added each time a file is saved. Therefore, if you have already saved a file once with the ONE MEASURE SPACE set to ON, please set it to OFF each time the file is subsequently saved.

7. Press the SAVE button.
- The SAVE operation begins.
- When the operation has been successfully completed, "COMPLETED!" is shown on the display.
- If you attempt to save data to a file number in which data is currently saved, the display changes to the confirmation display. Press the NO button if you wish to cancel the procedure.

FILE delete
To erase a song from a disk, on the MIDI FILE NAMING display, press the FILE DELETE button. Then on the MIDI FILE SAVE display, select the number of the song you wish to erase, and press the DEL button. The display changes to the confirmation display. Press the YES button to erase the song, or press the NO button to cancel the procedure.

Part VII Adjusting the sounds

Sound mode

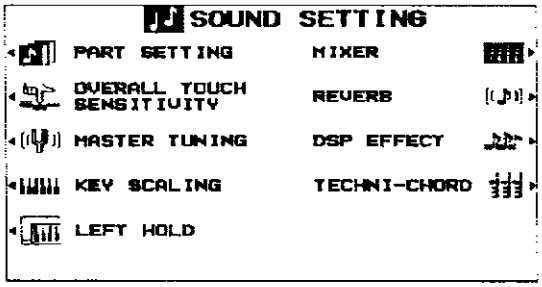


The **SOUND** mode is used for making fine adjustments to the functions related to sound, such as tone, volume and effects.

SOUND menu

1. Press the **SOUND** button to turn it on.

- The display changes to the following.



2. Select the desired menu and follow the procedures on the corresponding setting display.
- When the current display is a setting display, you can press the **EXIT** button to go back to the previous display. To show other menus, use the **EXIT** button to return to the **SOUND** menu display and make another selection.
- When the **TEMPO/PROGRAM** indicator is lit, it indicates that the dial is available for setting the current function.

3. When you have finished setting the functions, press the **SOUND** button to turn it off.

■ A word about parts

The organization of the sound parts is as follows.

Normal parts:
RIGHT 1, RIGHT 2, LEFT, PART 4 to 16 (PART 16 is reserved for the DRUMS part)

AUTO PLAY CHORD parts:
ACCOMP 1, 2, 3, BASS, DRUMS, CHORD, R.BASS.

MANUAL SEQUENCE PADS part:
MSP

Summary of the SOUND menu Items

PART SETTING (page 107)
Set the various sound attributes for each part.
- VOLUME: Adjust the volume for each part.
- PAN: Adjust the stereo balance of each part.
- EFFECT: Adjust the effects for each part.
- SUSTAIN: Turn the sustain on or off for each part.
- KEY SHIFT: Adjust the key of each part in half-tone increments.
- TUNING: Fine-tune the pitch of each part.
- PITCH BEND RANGE: Set the amount of pitch change when the **PITCH BEND** wheel is used.
- OTHER SETTING: Additional settings for each part.

MIXER (page 110)
Use the MIXER display to visually adjust the major settings of each part.

OVERALL TOUCH SENSITIVITY (page 111)
Adjust the amount of keyboard touch response.

MASTER TUNING (page 112)
Select the type of tuning for the instrument.

KEY SCALING (page 112)
Select the type of scaling (tuning).

TECHNI-CHORD TYPE (page 113)
Select the **TECHNI-CHORD** harmony style.

LEFT HOLD (page 114)
Set the mode which determines how the **LEFT** part sounds during an **AUTO PLAY CHORD** performance.

REVERB (page 115)
Select the type and depth of the **DIGITAL REVERB**.

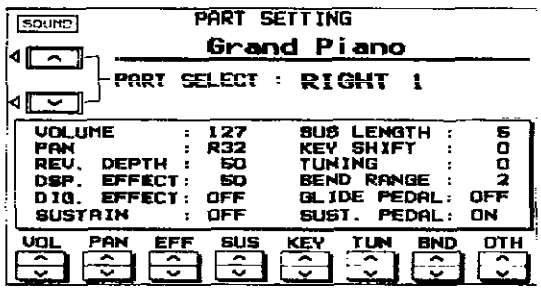
DSP EFFECT (page 115)
Select the type and degree of the **DSP EFFECT**.

Part Setting

Set the various sound attributes for each part.

Selecting an attribute

1. On the **SOUND** menu display, select PART SETTING.
- The display looks similar to the following.



2. Use the ∧ and ∨ buttons to select the part.
- PART 4 to 16 are used in **SEQUENCER** and MIDI functions. PART 16 is reserved for the DRUMS part.
- For information concerning CHORD and R.BASS, refer to the section on the **AUTO PLAY CHORD** (page 42).
- If necessary, assign a sound to the selected part at this time. (Only sounds from the **KEYBOARD PERC** group can be selected for PART 16.)
- The upper portion of the display shows the name of the selected part and the sound assigned to that part. The box in the lower portion of the display shows the status of each attribute for the selected part.

3. Use the buttons along the bottom of the display to select the attribute you wish to adjust.
   VOL: VOLUME
   PAN: PAN
   EFF: EFFECT
   SUS: SUSTAIN
   KEY: KEY SHIFT
   TUN: TUNING
   BND: PITCH BEND RANGE
   OTH: OTHER SETTING
- The display changes to the setting display for the selected attribute.
- The settings which can be adjusted may differ depending on the selected part.

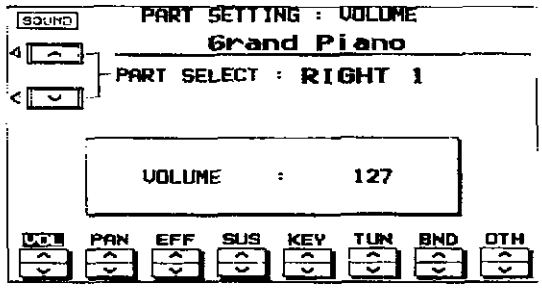
4. Adjust each attribute (explained in detail following).
- When you have completed adjustment of an attribute, use the buttons along the bottom of the display to select the next attribute you wish to adjust.

5. When you have completed adjusting all of the settings for one part, select another part and repeat the adjustment procedure as desired.

- The settings and effects of the PAN, EFFECT etc. may differ depending on the sound.

VOLUME

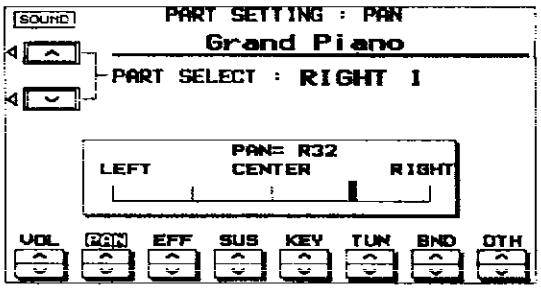
Adjust the volume of each part.



Use the VOL ∧ and ∨ buttons to adjust the volume (0 to 127).
- If you wish to adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

PAN

Adjust the stereo balance of each part.

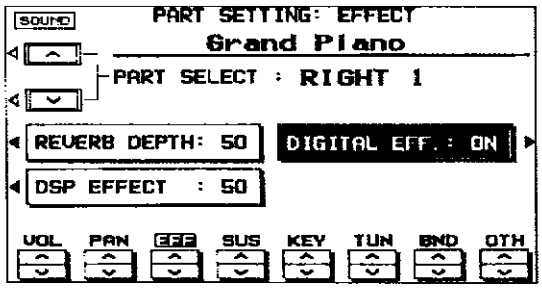


Use the PAN ∧ and ∨ buttons to adjust the stereo balance (L64–CTR–R63).

- At L64, the sound is completely to the left, at R63 completely to the right. At CTR, the sound is at the center. A thick vertical line on the display indicates the selected position.
- If you wish to adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.
- Even at the same numerical value, the stereo balance may differ slightly depending on the sound.

EFFECT

The **DIGITAL REVERB** depth, the **DSP EFFECT** depth, and the **DIGITAL EFFECT** on/off status can be set for each part.



1. Select an effect (REVERB DEPTH, DSP EFFECT or DIGITAL EFF).

2. Use the EFF ∧ and ∨ buttons to change the setting.

- For the REVERB DEPTH and DSP EFFECT, specify the depth (0 to 127). For the DIGITAL EFF, set to ON or OFF.
- If the **DSP EFFECT** button is pressed after the settings have been changed, the DSP EFFECT setting will revert to the preset value. For this reason, it is recommended that you use the **PANEL MEMORY** to store your customized DSP EFFECT setting.

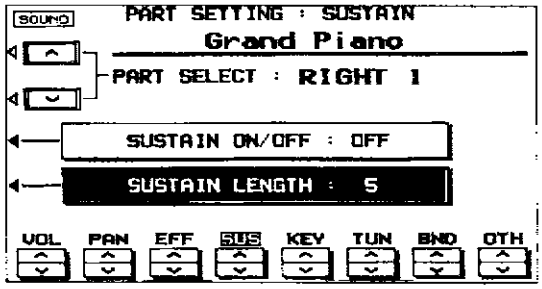
3. Repeat steps 1 and 2 for the other effects, as necessary.

- If you wish to adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

- Even at the same numerical value, the effect may differ depending on the sound.

SUSTAIN

Turn the sustain on or off for each part, and specify the length of the sustain.



■ Sustain on/off

1. Select SUSTAIN ON/OFF.

2. Use the SUS ∧ and ∨ buttons to set the sustain to on or off.

■ Sustain length

1. Select SUSTAIN LENGTH.

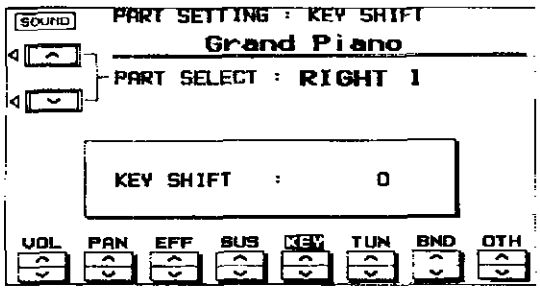
2. Use the SUS ∧ and ∨ buttons to adjust the length of the sustain (1 to 8).

- For some sounds, the length of the sustain does not change even if the number is changed.

- If you wish to adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

KEY SHIFT

The pitch of the part can be shifted up or down.

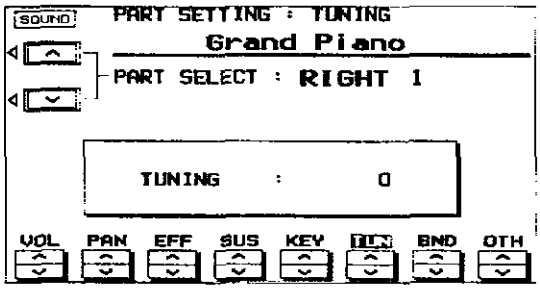


Use the KEY ∧ and ∨ buttons to specify the amount of key shift (–12 to +12).

- A value of 1 means a shift of one semi-tone. To raise (or lower) the pitch one octave, set the value to +12 (or –12).
- The ∨ button is used to lower the pitch, and the ∧ button to raise the pitch.
- If you wish to adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

TUNING

Fine-tune the pitch of each part.

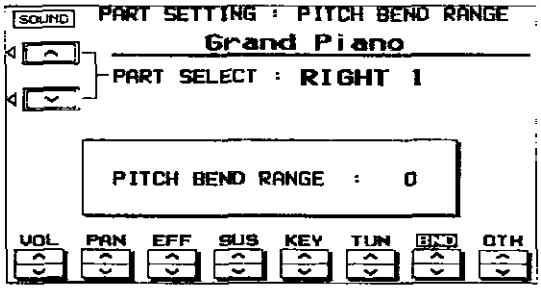


Use the TUN ∧ and ∨ buttons to adjust the tuning (–128 to +127).

- The ∨ button is used to lower the pitch, and the ∧ button to raise the pitch.
- If you wish to adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

PITCH BEND RANGE

Set the pitch range of the **PITCH BEND** wheel.

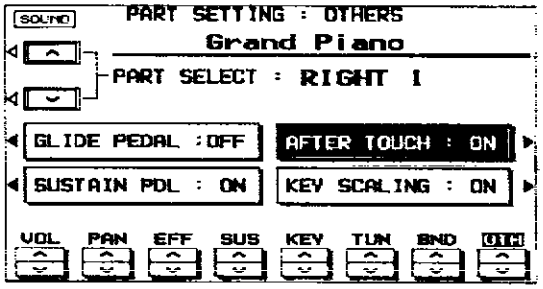


Use the BND ∧ and ∨ buttons to specify the range (0 to 12). Increments are in semi-tones.

- The higher the number, the greater the change in pitch when the **PITCH BEND** wheel is operated.
- If you wish to adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

OTHER SETTING

Modify the Foot Switch setting and other settings.



1. Select the function to adjust.

GLIDE PEDAL:
Enable or disable the glide effect, if it has been assigned to the Foot Switch (sold separately).

SUSTAIN PEDAL:
Enable or disable the sustain effect, if it has been assigned to the Foot Switch (sold separately).

AFTER TOUCH:
Enable or disable the aftertouch effect for the keyboard.

KEY SCALING:
Enable or disable key scaling (page 112).

2. Use the OTH ∧ and ∨ buttons to select ON or OFF for each function.

- For Foot Switch settings, refer to page 50.
- To change the settings for other parts, use the PART SELECT ∧ and ∨ buttons to select a different part.

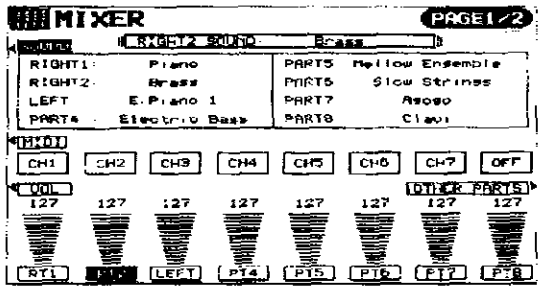
Mixer

Use the MIXER display to visually adjust the major settings of each part. Use this display to make broad, general changes to the settings.

1. On the **SOUND** menu display, select MIXER.

- The MIXER display consists of 2 pages. Use the **PAGE** buttons to switch between the pages.
- On each page you can press the OTHER PARTS button to switch to parts 9 to 16 (PT9–P16).

2. Adjust each parameter.



SOUND: Press the SOUND button. Use the balance buttons below the display to set the sound for the corresponding part.

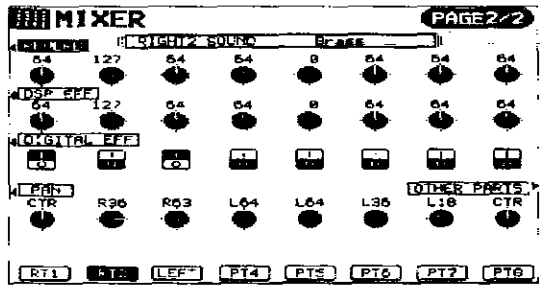
- The buttons in the **SOUND GROUP** can also be used to select the sound.

MIDI: Press the MIDI button. Use the balance buttons below the display to set the MIDI basic channel for each part.

- Information about MIDI basic channels can be found on page 138.

VOLUME: Press the VOL button. Use the balance buttons below the display to adjust the volume of the corresponding part.

- To mute a part, press both the corresponding balance buttons as the same time. To cancel the mute, press either balance button for the part.



REVERB: Press the REVERB button. Use the balance buttons below the display to set the level of the **DIGITAL REVERB** for the corresponding part.

DSP EFFECT: Press the DSP EFF button. Use the balance buttons below the display to adjust the level of the **DSP EFFECT** for the corresponding part.

DIGITAL EFFECT: Press the DIGITAL. EFF button. Use the balance buttons below the display to set the **DIGITAL EFFECT** to on (1) or off (0) for the corresponding part.

PAN: Press the PAN button. Use the balance buttons below the display to adjust the stereo balance of the corresponding part.

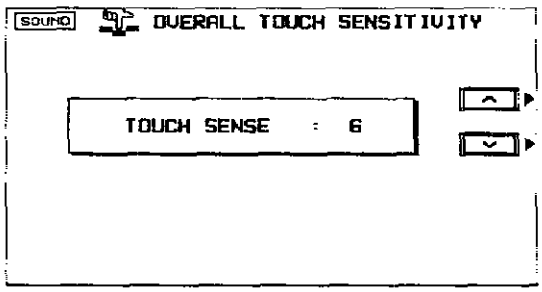
- Even at the same numerical value, the PAN and effects may differ depending on the sound.

Overall Touch Sensitivity

Adjust the amount of keyboard touch response.

1. On the **SOUND** menu display, select OVERALL TOUCH SENSITIVITY.

- The display changes to the following.



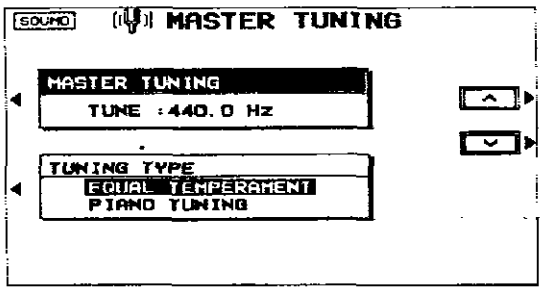
2. Use the ∧ and ∨ buttons to adjust the degree of touch sensitivity (0 to 9).

- The larger the number, the greater the degree of touch sensitivity.
- When set to 0, touch sencitivity is turned off.

Master Tuning

This setting is used to fine-tune the pitch of the entire instrument. This is convenient when the Keyboard is played with other instruments or with a recorded performance. You can also select from two types of tuning.

1. On the **SOUND** menu display, select MASTER TUNING.
- The display changes to the following.



2. Select MASTER TUNING.

3. Use the ∧ and ∨ buttons to adjust the pitch within a range of 427.3 to 453.0 Hz.
- The decimal can be set to 0, 3 or 6.

4. Select TUNING TYPE.

5. Use the ∧ and ∨ buttons to select the type of tuning.

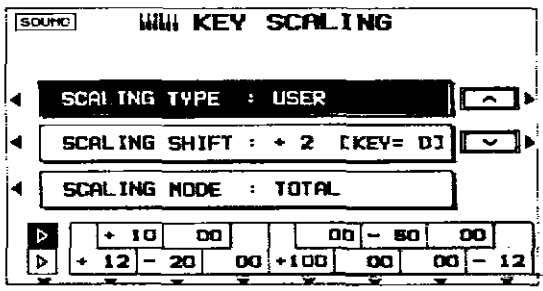
EQUAL TEMPERAMENT: One octave is divided into pitches of 12 equally spaced intervals.

PIANO TUNING: Standard acoustic piano tuning, in which the lower pitches are tuned slightly lower and the higher pitches are tuned slightly higher.

Key Scaling

The temperament (tuning) of this instrument can be adjusted. Various types other than standard temperament are available to choose from.

1. On the **SOUND** menu, select KEY SCALING.
- The display looks similar to the following.



2. Select SCALING TYPE.

3. Use the ∧ and ∨ buttons to select the type.
- Select from OFF, PURE Maj, PURE min, PYTHAGOREAN, WERCKMEISTER, KIRNBERGER, ARABIC 1 to 5, SLENDRO, PELOG, USER.
- Select OFF if you wish to use the type selected for TUNING TYPE. (Refer to the section above on "Master Tuning".)
- Select USER if you wish to use a customized scaling (explained in the following section).

4. Select SCALING SHIFT.

5. Use the ∧ and ∨ buttons to select the key in which you are going to perform.

6. Select SCALING MODE.

7. Use the ∧ and ∨ buttons to select the tuning mode.
   TOTAL:
   The selected KEY SCALING is active for all parts.
   SOUND:
   The KEY SCALING specified for individual sounds has priority.
   - To assign a specific KEY SCALING to a sound, refer to Part VIII: Sound Edit, page 120.

- The ON/OFF status of KEY SCALING for each part is set on the PART SETTING display. (Refer to page 110.)

■ **User type scaling**
You can adjust the instrument to a customized scaling.
- In KEY SCALING, the pitch of each note of the octave is slightly shifted up or down from the standard (equal temperament) tuning.

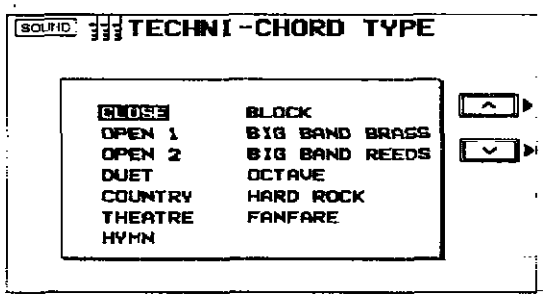
1. Select USER for the SCALING TYPE.

2. Adjust the key scaling.
- Use the balance buttons below the display to adjust the pitch of the corresponding key shown on the display.
- Use the leftmost balance buttons below the display to switch between white keys and black keys.
- Increments are in cents (one hundredth of an equal-tempered semitone). A + value raises the pitch and a – value lowers the pitch in relation to standard tuning (equal temperament).

Techni-chord Type

Select the desired harmony style for the **TECHNI-CHORD**.

1. On the **SOUND** menu display, select TECHNI-CHORD.
- The display changes to the following.



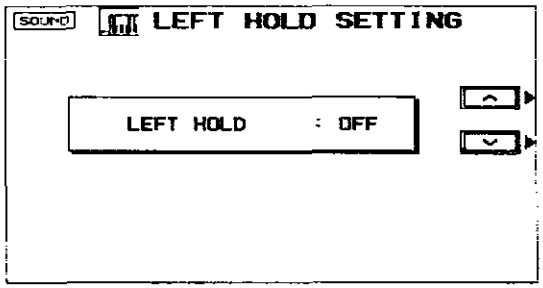
2. Use the ∧ and ∨ buttons to select the harmony style.
- When the OCTAVE, HARD ROCK or FANFARE style is selected, the **TECHNI-CHORD** functions even when the keyboard is not split.
- For a detailed explanation of the different harmony styles, refer to the separate "REFERENCE GUIDE" provided.

You can also access this display by pressing and holding the **TECHNI-CHORD** button.
- In this case, the display exits the setting mode a few seconds after you make the setting.

Left Hold

Select the mode to specify how the left section of the keyboard sounds during an **AUTO PLAY CHORD** performance.

1. On the **SOUND** menu display, select LEFT HOLD.
- The display changes to the following.



2. Use the ON and OFF buttons to set the mode to on or off.

■ **OFF**

	ONE FINGER	FINGERED	PIANIST
When rhythm is off	The chord note specified by the pressed key is heard (CHORD part).	The **LEFT** part sound and chord note specified by the pressed keys are heard.	The **LEFT** part notes and the chord note are not heard (the **RIGHT** part sound is heard for the entire keyboard).
When rhythm is on	The **LEFT** part notes and the chord note are not heard.	The **LEFT** part sound of the pressed keys is heard.	

- The **LEFT** part can be heard only when the **LEFT** button in the **CONDUCTOR** section is on.
- When you select the ONE FINGER mode, the **LEFT** button in the **CONDUCTOR** section turns off automatically.

■ **ON**

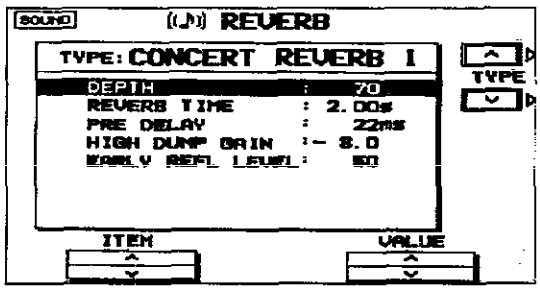
	ONE FINGER	FINGERED	PIANIST
When rhythm is on/off	The specified chord note is produced in the **LEFT** part sound.	The **LEFT** part sound of the pressed keys is heard.	The **LEFT** part notes and the chord note are not heard (the **RIGHT** part sound is heard for the entire keyboard).

- The **LEFT** part can be heard only when the **LEFT** button in the **CONDUCTOR** section is on.
- When the **MEMORY** button is on, even when the keys are released, the **LEFT** part sound continues to play.

Reverb

Select the type and depth of the **DIGITAL REVERB**.

1. On the **SOUND** menu display, select REVERB.
- The display changes to the following.



2. Use the TYPE ∧ and ∨ buttons to select the type.
- Details about each type and its parameters can be found in the separate "REFERENCE GUIDE" provided.

3. Use the ITEM ∧ and ∨ buttons to select the parameter to adjust.

4. Use the VALUE ∧ and ∨ buttons to change the setting.

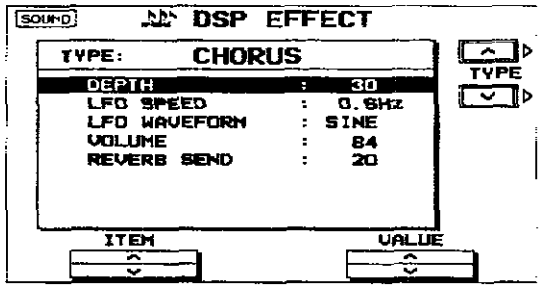
5. Repeat steps 3 and 4 for the other parameters, as desired.

You can also access this display by pressing and holding the **DIGITAL REVERB** button.
- In this case, the display exits the setting mode a few seconds after you make the setting.

DSP Effect

Select the type of **DSP EFFECT** and make fine adjustments.

1. On the **SOUND** menu display, select DSP EFFECT.
- The display changes to the following.



2. Use the TYPE ∧ and ∨ buttons to select the type of effect.
- Details about the parameters or each type can be found in the separate "REFERENCE GUIDE" provided.

3. Use the ITEM ∧ and ∨ buttons to select the parameter.

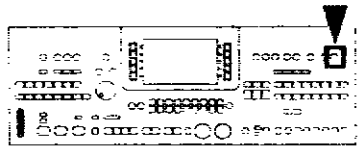
4. Use the VALUE ∧ and ∨ buttons to adjust the setting.

5. Repeat steps 3 and 4 for each parameter as necessary.
- When a type of effect is selected, the parameters automatically revert to the factory defaults.

You can also access this display by pressing and holding the **DSP EFFECT** button.
- In this case, the display exits the setting mode a few seconds after you make the setting.

Part VIII Creating sounds

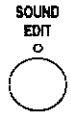
Outline of the Sound Edit



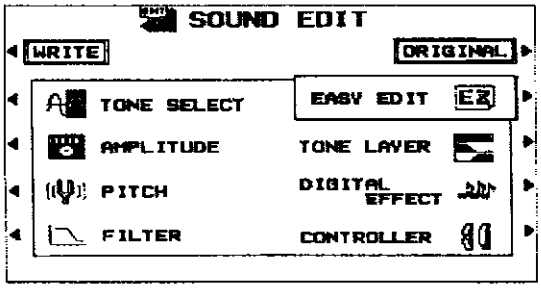
SOUND EDIT enables you to create your own new sound by altering one of the this instrument's preset sounds. Your new sound can be stored in one of the sound memory locations. **SOUND EDIT** has two methods of use. You can edit in detail using functions more commonly associated with a synthesizer, or you can use EASY EDIT which allows you to change some basic parameters on one page.

1. Select a preset sound on which to build your new sound.
- To edit sounds in the **KEYBOARD PERC** sound group, please refer to page 133.
- To edit the **DIGITAL DRAWBAR**, please refer to page 134.

2. Press the **SOUND EDIT** button to turn it on.



- The display changes to the following.



3. Select the desired menu and follow the procedures on the corresponding setting display.
- To check the sound of a single tone, press the SOLO button to highlight the SOLO indication. Only the currently selected tone sounds when a key is played.
- When the **TEMPO/PROGRAM** indicator is lit, it indicates that the dial is available for setting the current function.
- The sounds created with the **SOUND EDIT** are also affected by the settings adjusted in the **SOUND** mode (refer to "Part VII: Adjusting the sounds").

4. When the sound is just the way you like it, press the **EXIT** button to return to the menu display, and press the WRITE button to store your new sound.

- Press the EDITED (or ORIGINAL) button to switch between the modified sound (EDITED) and the original sound (ORIGINAL). This allows you to compare the edited sound to the original sound as you are modifying it.

Summary of the SOUND EDIT menu items

EASY EDIT (page 117)
The most often used edit functions—such as brightness and attack speed—are assembled on one display for easy sound modification.

TONE SELECT (page 118)
Modify the tones which make up the sound.

TONE LAYER (page 119)
Specify how the tones are assigned to the keyboard keys.

PITCH (page 120)
Adjust the settings related to the pitch of the sound.

FILTER (page 123)
Adjust the amount of frequency cut in specific frequency ranges.

AMPLITUDE (page 126)
Volume settings, such as the sound envelope.

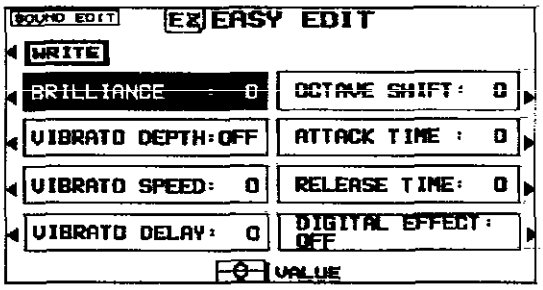
DIGITAL EFFECT (page 129)
Select the type and degree of effects applied to the sound.

CONTROLLER (page 130)
Specify how wheel operation etc. affects the sound.

Easy Edit

The most commonly used edit functions are consolidated on one display, providing convenient and quick editing operation.

1. On the **SOUND EDIT** menu display, select EASY EDIT.
- The display changes to the following.



2. Select a sound attribute to modify.

3. Use the VALUE ∧ and ∨ buttons to specify the value of the attribute.
- Selecting the type of **DIGITAL EFFECT** is explained in the section on EFFECT EDIT (page 129).
- An effect may remain unchanged when EASY EDIT is used to set the value, if another EDIT function was first used to set the value to its upper or lower limit.

4. Repeat steps 2 and 3 to modify other sound attributes as desired.

5. Press the WRITE button to store your new sound.
- Storing your new sound is explained on page 131.
- If a sound is stored in the EASY EDIT mode, and is later selected in the EASY EDIT mode, the displayed value of an attribute may be different from the value when it was stored. The sound itself, however, is exactly as it was stored.

Easy Edit Items

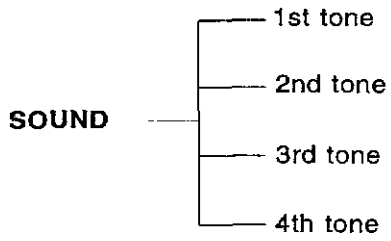
BRILLIANCE: Adjust the brightness of the sound.
VIBRATO DEPTH: Set vibrato depth.
VIBRATO SPEED: Set vibrato speed.
VIBRATO DELAY: Set time delay between key played and vibrato start.
OCTAVE SHIFT: Shift the octave range.
ATTACK TIME: Adjust attack time.
RELEASE TIME: Adjust time of sound fade-out after key is released.
DIGITAL EFFECT: Select type of effect.

Tone Edit

Modify the separate tones which comprise the sound.

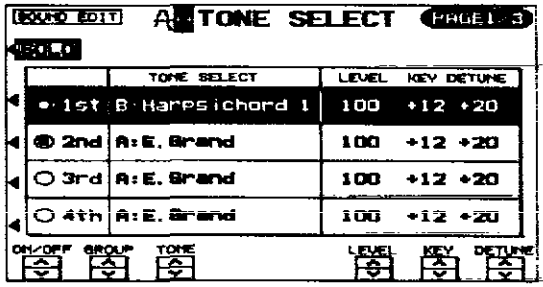
About tones

A sound may be made up of at most four tones.



TONE SELECT

1. On the **SOUND EDIT** menu, select TONE SELECT.
- The display looks similar to the following.



2. Use the buttons to the left of the display to select the tone you wish to edit (1st, 2nd, 3rd, 4th).

3. Use the ON/OFF ∧ and ∨ buttons to select ON or OFF.
- ◉ indicates that the tone is on, and ○ indicates that it is off.
- Tones which are set to OFF are not produced.

4. Select a sound for the tone.
- Use the GROUP ∧ and ∨ buttons to select the group, and the TONE ∧ and ∨ buttons to select the sound.
- A list of tone sounds can be found in the separate "REFERENCE GUIDE" provided.

5. Use the LEVEL ∧ and ∨ buttons to adjust the volume.

6. Use the KEY ∧ and ∨ buttons to set the output pitch.
- Increments are in semitones.

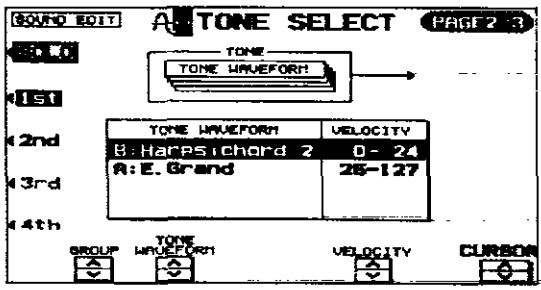
7. Use the DETUNE ∧ and ∨ buttons to make fine adjustments to the pitch.

8. Repeat steps 2 to 7 for the other tones, as desired.

■ TONE WAVEFORM

One tone may consist of up to four TONE WAVEFORMs. You can adjust the settings so that a different sound (tone waveform) is output for each tone depending on the velocity (how hard the keys are played).

1. Use the **PAGE** buttons to view the 2/3 display.
- The display looks similar to the following.



2. Use the buttons to the left of the display to select a tone.

3. Use the CURSOR ∧ and ∨ buttons to select the column for the function you wish to adjust.

4. Select the tone waveform.
- Use the GROUP ∧ and ∨ buttons to select the sound group. Use the TONE WAVEFORM ∧ and ∨ buttons to select the waveform.

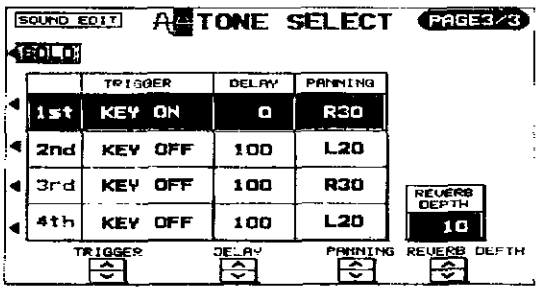
5. Use the VELOCITY ∧ and ∨ buttons to specify the velocity range.
- When the upper limit of a waveform is set to 127, no more waveforms can be added.

6. Repeat steps 3 to 5 to edit the other waveforms, as desired.
- Up to four waveforms can be set, with a different sound for each velocity range.

7. Repeat steps 2 to 6 for the other tones, as desired.

■ **Other settings**

1. Use the **PAGE** buttons to view the 3/3 display.
- The display looks similar to the following.



2. Use the buttons to the left of the display to select a tone.

3. Use the TRIGGER ∧ and ∨ buttons to select a trigger mode.

   KEY ON: The normal mode, in which sound is emitted when the key is played.
   KEY OFF: Sound is emitted when the key is released (like plucked strings, for example).
   CHORD: The sound is emphasized when chords are played (like the cutting sound of a guitar, for example).

4. Use the DELAY ∧ and ∨ buttons to adjust the delay time of the sound.
- The higher the number, the longer the delay before sound output.

5. Use the PANNING ∧ and ∨ buttons to adjust the stereo balance (L64–CTR–R63).
- CTR is the center point. At L64, the sound is all the way to the left, at R63 all the way to the right.

6. Use the REVERB DEPTH ∧ and ∨ buttons to adjust the depth of the reverb.

7. Repeat steps 2 to 6 for the other tones, as desired.

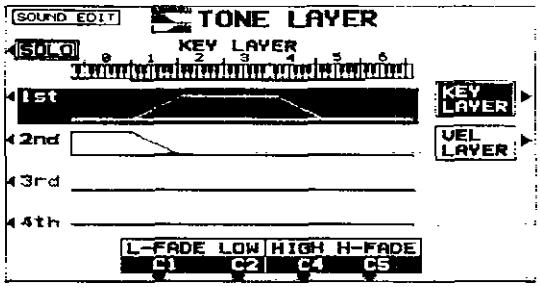
TONE LAYER

On the **SOUND EDIT** menu display, select TONE LAYER.

■ **KEY LAYER**

Adjust the relation of tone output to keyboard location.

1. Press the KEY LAYER button.
- The display looks similar to the following.



2. Use the buttons to the left of the display to select a tone (1st, 2nd, 3rd or 4th).

3. Use the L-FADE ∧ and ∨ buttons and the LOW ∧ and ∨ buttons to define the curve for the lower range of tone output.
- By entering different values for the L-FADE and LOW setting, you can define a sloping volume increase to the peak output volume which corresponds to the note pitch.

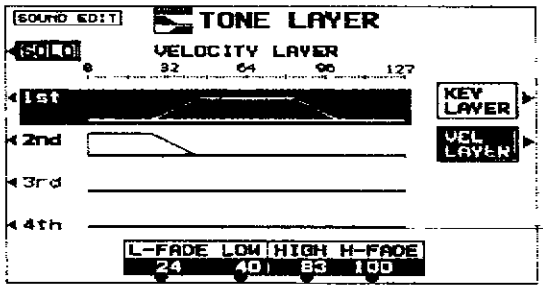
4. Use the HIGH ∧ and ∨ buttons and the H-FADE ∧ and ∨ buttons to define the curve for the higher range of tone output.
- By entering different values for the H-FADE and HIGH settings, you can define a sloping volume decrease from the peak output which corresponds to the note pitch.
- By overlapping the L-FADE and H-FADE curves of each different tone, you can achieve a cross-fade effect, where the sound gradually changes in relation to pitch.

5. Repeat steps 2 to 4 for the other tones, as desired.

■ VELOCITY LAYER

Adjust these settings to regulate the tone output relative to the velocity.

1. Press the VEL LAYER button.
- The display looks similar to the following.



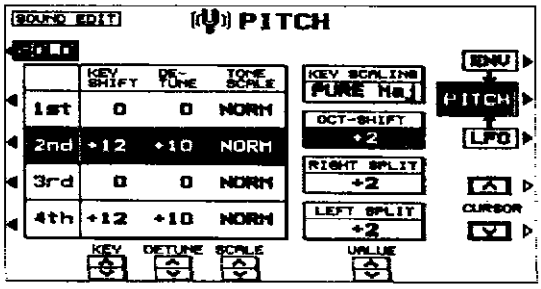
2. Use the buttons to the left of the display to select a tone (1st, 2nd, 3rd or 4th).
3. Use the L-FADE ∧ and ∨ buttons and the LOW ∧ and ∨ buttons to define the velocity curve for the lower range.
4. Use the HIGH ∧ and ∨ buttons and the H-FADE ∧ and ∨ buttons to define the velocity curve for the higher range.
- By overlapping the L-FADE and H-FADE curves of each different tone, you can change the way the tone sounds relative to how hard or softly the keyboard is played.
5. Repeat steps 2 to 4 for the other tones, as desired.

Pitch Edit

Adjust the settings related to the pitch of the sound.

PITCH

1. On the **SOUND EDIT** menu display, select PITCH.
- The display looks similar to the following.



2. Use the buttons to the left of the display to select a tone (1st, 2nd, 3rd or 4th).
3. Use the KEY ∧ and ∨ buttons to specify the output pitch.
- Units are in semitones.
4. Use the DETUNE ∧ and ∨ buttons to fine-adjust the pitch.
- Slight differences in the DETUNE values between the tones add fullness to the sound.
5. Use the SCALE ∧ and ∨ buttons to select the type of scale (NORM, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, FIX).
- NORM is the normal scale type. For example, when 1/2 is selected, a difference in pitch between one key and the adjacent key becomes half the normal pitch difference. When FIX is selected, the pitch is the same regardless of which key is played.
6. Select the type of scaling (tuning).
- Use the CURSOR ∧ and ∨ buttons to select KEY SCALING. Use the VALUE ∧ and ∨ buttons to change the setting.
- Key scaling is explained on page 112.
7. Set the octave of the sound.
- Use the CURSOR ∧ and ∨ buttons to select OCT-SHIFT. Use the VALUE ∧ and ∨ buttons to change the setting.
8. Set the octave of the right part when the keyboard is split.
- Use the CURSOR ∧ and ∨ buttons to select RIGHT SPLIT. Use the VALUE ∧ and ∨ buttons to change the setting.

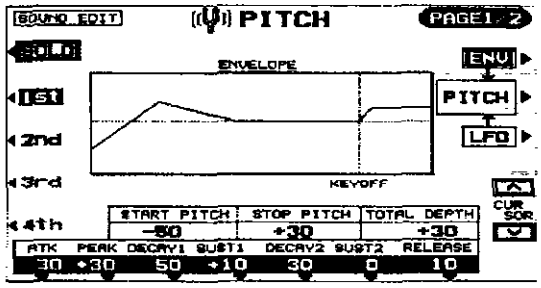
9. Set the octave of the left part when the keyboard is split.
- Use the CURSOR ∧ and ∨ buttons to select LEFT SPLIT. Use the VALUE ∧ and ∨ buttons to change the setting.

10. Repeat steps 2 to 9 for the other tones, as desired.

■ ENVELOPE

Specify how the pitch changes over time, from the time the key is played to the time the sound dies out.

1. Press the ENV button.
- The display looks similar to the following.



2. Use the buttons to the left of the display to select a tone.

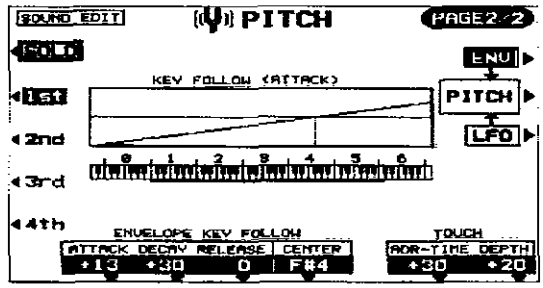
3. Adjust the settings for the pitch change envelope.
- Use the buttons below the display to set the corresponding values. The envelope is created on the display as you input the settings.
- Use the CURSOR ∧ and ∨ buttons switch between the upper row and lower row items.
- Use the TOTAL DEPTH ∧ and ∨ buttons to specify the maximum level.

4. Repeat steps 2 and 3 for the other tones, as desired.

<ENVELOPE KEY FOLLOW>

Specify how the pitch envelope changes in relation to note pitch.

1. Use the **PAGE** buttons to view the 2/2 display.



2. Use the buttons to the left of the display to select a tone.

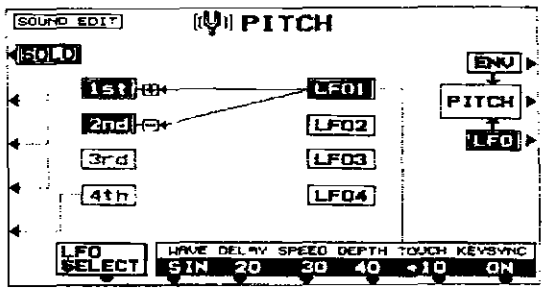
3. Change the key follow settings for the ATTACK, DECAY and RELEASE.
- Use the ∧ and ∨ buttons corresponding to the ENVELOPE KEY FOLLOW attributes to adjust the settings. Use the CENTER ∧ and ∨ buttons to select the center of the bend direction.

4. Change the touch settings.
- Use the ADR-TIME ∧ and ∨ buttons to specify the time change depending on touch. Use the DEPTH ∧ and ∨ buttons to specify the pitch change level depending on touch.
- At a – setting, the softer the keys are pressed, the greater the change. At a + setting, the harder the keys are pressed, the greater the change.

■ LFO

Adjust the pitch LFO (cyclic modulation) settings. There are four types of LFO.

1. Press the LFO button.
- The display looks similar to the following.



2. Use the LFO SELECT ∧ and ∨ buttons to select an LFO (1–4).

3. Use the buttons below the display to adjust the settings.

WAVE
Modulate the waveform.
SIN: Sine wave
TRI: Triangle wave
SQR: Square wave
SAW: Saw tooth wave

DELAY
Delay time is the time elapsed from when the keyboard key is pressed until the modulation begins.

SPEED
Modulation speed

DEPTH
Modulation depth

TOUCH
Degree of modulation change in relation to touch.

KEYSYNC
When playing more than one note, specify whether the LFO starts or not each time a key is pressed (ON/OFF).
- When KEYSYNC is set to ON: if, while playing one note, you play a second note, the LFO is applied to the second note as well.

4. Use the buttons to the left of the display to specify for each tone whether or not the specified LFO is applied.
- The LFO can be applied to multiple tones.
- A + indicates that the LFO is on for the tone, a – indicates that the inverted-phase LFO is applied to the tone.

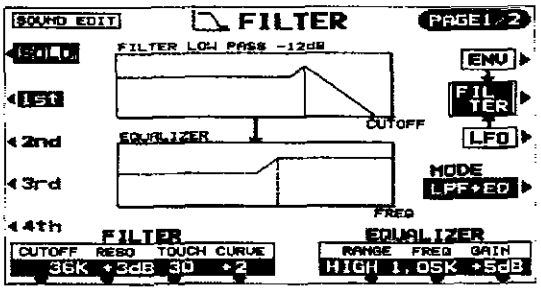
5. Repeat steps 2 to 4 for the other LFO types, as desired.

Filter Edit

Make major changes to the sound by eliminating specific frequency ranges.

FILTER

1. On the **SOUND EDIT** menu, select FILTER.
- The display looks similar to the following.



2. Use the buttons to the left of the display to select a tone.

3. Use the MODE button to select the filter mode.

LPF+EQ (low-pass filter + equalizer)
Signals higher than the cut-off frequency are cut. Normal sounds are softened.

HPF+EQ (high-pass filter + equalizer)
Signals lower than the cut-off frequency are cut. Normal sounds are sharpened.

LPF24 (low-pass filter 24)
A stronger low-pass filter than LPF+EQ.

HPF24 (high-pass filter 24)
A stronger high-pass filter than HPF+EQ.

BPF (band-pass filter)
Cuts all signals which are not in the range close to the cut-off frequency. The sound has a distinctive character.

THRU
No filter effect is applied.

4. Use the buttons below the display to adjust the filter attributes.

CUTOFF
Set the frequency range which is cut by the filter.
- The cut-off frequency is the standard frequency which is cut by the filter.

RESO
Specify the resonance value (dB).
- Resonance is effect which adds character to the sound by emphasizing the harmonic components of frequencies close to the cut-off frequency.

TOUCH
Specify the degree of change relative to keyboard touch.

CURVE
Specify the type of curve relative to keyboard touch.

<Equalizer>
For LPF+EQ/HPF+EQ filters, the sound quality can be modified by the EQUALIZER.

RANGE
Select the setting range (HIGH or LOW).

FREQ
Set the standard frequency.

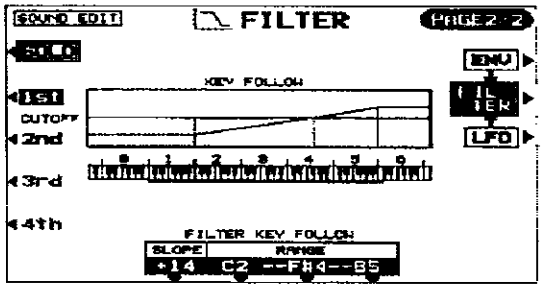
GAIN
Set the level increase or decrease from the value set for FREQ (dB).

5. Repeat steps 2 to 4 for each tone, as desired.

■ FILTER KEY FOLLOW

Specify how the filter changes in relation to note pitch.

1. Use the **PAGE** buttons to view the 2/2 display.



2. Use the buttons to the left of the display to select a tone.

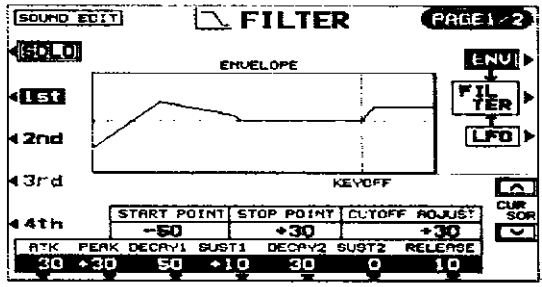
3. Change the key follow settings.
- Use the SLOPE ∧ and ∨ buttons to adjust the bend slope. Use the RANGE ∧ and ∨ buttons to specify the pitch range by note name. The center setting defines the bend direction.

4. Repeat steps 2 and 3 for the other tones, as desired.

■ ENVELOPE

Specify how the filter changes over time, from the time the key is played to the time the sound dies out.

1. Press the ENV button.
- The display looks similar to the following.



2. Use the buttons to the left of the display to select a tone.

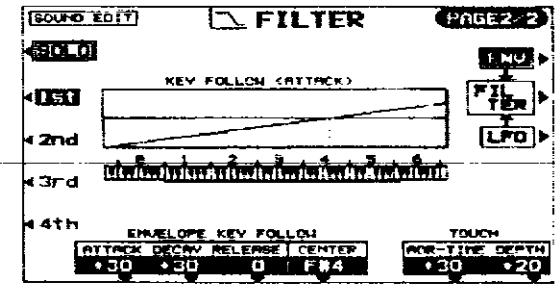
3. Adjust the settings for the filter envelope.
- Use the buttons below the display to set the corresponding values. The envelope is created on the display as you input the settings.
- Use the CURSOR ∧ and ∨ buttons switch between the upper row and lower row items.
- Use the CUTOFF ADJUST ∧ and ∨ buttons to move the entire graph up or down to change the amount of filter effect.

4. Repeat steps 2 and 3 for the other tones, as desired.

<ENVELOPE KEY FOLLOW>

Specify how the filter changes relative to note pitch over time.

1. Use the **PAGE** buttons to view the KEY FOLLOW display.



2. Use the buttons to the left of the display to select a tone.

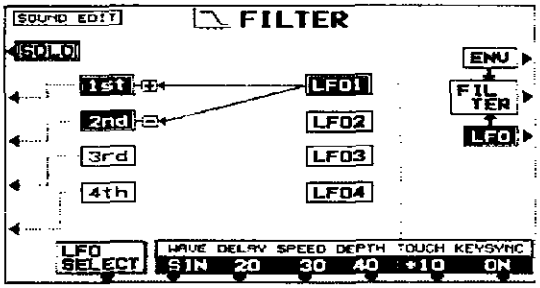
3. Change the key follow settings for the ATTACK, DECAY and RELEASE.
- Use the ∧ and ∨ buttons corresponding to the ENVELOPE KEY FOLLOW attributes to adjust the settings. Use the CENTER ∧ and ∨ buttons to select the center of the bend direction.

4. Change the touch settings.
- Use the ADR-TIME ∧ and ∨ buttons to specify the time change depending on touch. Use the DEPTH ∧ and ∨ buttons to specify the pitch change level depending on touch.
- At a – setting, the softer the keys are pressed, the greater the change. At a + setting, the harder the keys are pressed, the greater the change.

■ LFO

Adjust the LFO (cyclic modulation) settings applied to the filter. There are four types of LFO.

1. Press the LFO button.
- The display looks similar to the following.



2. Use the LFO SELECT ∧ and ∨ buttons to select an LFO (1–4).

3. Use the buttons below the display to adjust the settings.

WAVE
Modulate the waveform.
SIN: Sine wave
TRI: Triangle wave
SQR: Square wave
SAW: Saw tooth wave

DELAY
Delay time is the time elapsed from when the keyboard key is pressed until the modulation begins.

SPEED
Modulation speed.

DEPTH
Modulation depth.

TOUCH
Degree of modulation change in relation to touch.

KEYSYNC
When playing more than one note, specify whether the LFO starts or not each time a key is pressed (ON/OFF).
- When KEYSYNC is set to ON: if, while playing one note, you play a second note, the LFO is applied to the second note as well.

4. Use the buttons to the left of the display to specify for each tone whether or not the specified LFO is applied.
- The LFO can be applied to multiple tones.
- A + indicates that the LFO is on for the tone, a – indicates that the inverted-phase LFO is applied to the tone.

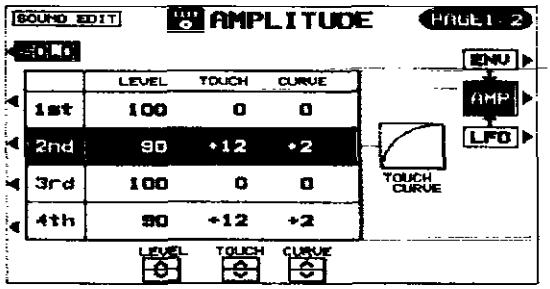
5. Repeat steps 2 to 4 for the other LFO types, as desired.

Amplitude Edit

Adjust the settings related to the volume of the sound.

AMPLITUDE

1. On the **SOUND EDIT** menu, select AMPLITUDE.
- The display looks similar to the following.



2. Use the buttons to the left of the display to select a tone.

3. Use the LEVEL ∧ and ∨ buttons to select the volume.

4. Use the TOUCH ∧ and ∨ buttons to set the amount of volume change in relation to how hard the keyboard is played.
- At a – value, the softer the keyboard is played, the louder the sound. At a + value, the harder the keyboard is played, the louder the sound.

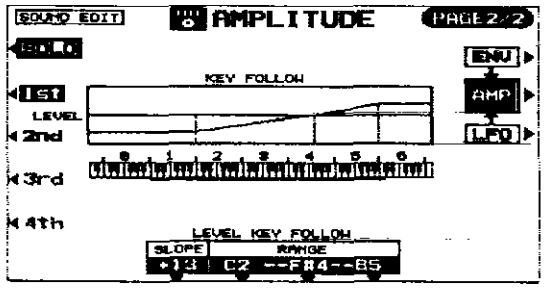
5. Use the CURVE ∧ and ∨ buttons to select the type of volume curve depending on touch.

6. Repeat steps 2 to 5 for the other tones, as desired.

■ AMPLITUDE KEY FOLLOW

Specify how the volume changes in relation to note pitch.

1. Use the **PAGE** buttons to view the 2/2 display.



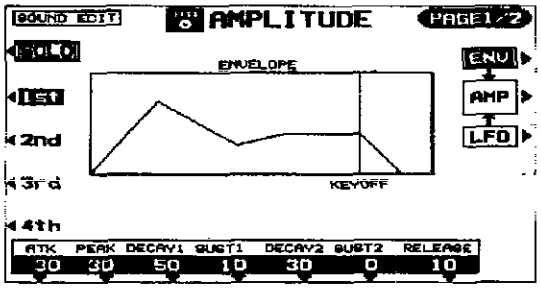
2. Use the buttons to the left of the display to select a tone.

3. Change the key follow settings.
- Use the SLOPE ∧ and ∨ buttons to adjust the bend slope. Use the RANGE ∧ and ∨ buttons to specify the pitch range by note name. The center setting defines the bend direction.

■ ENVELOPE

Specify how the volume changes over time, from the time the key is played to the time the sound dies out.

1. Press the ENV button.
- The display looks similar to the following.



2. Use the buttons to the left of the display to select a tone.

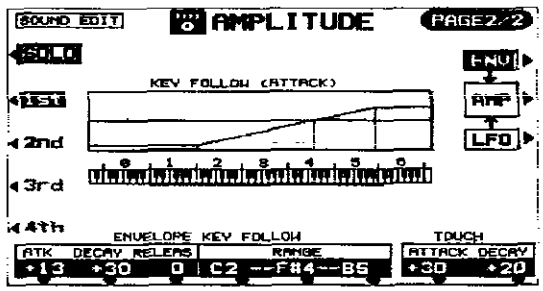
3. Adjust the settings for the volume envelope.
- Use the buttons below the display to set the corresponding values. The envelope is created on the display as you input the settings.

4. Repeat steps 2 and 3 for the other tones, as desired.

<ENVELOPE KEY FOLLOW>

Specify how the volume changes relative to note pitch over time.

1. Use the **PAGE** buttons to view the 2/2 display.



2. Use the buttons to the left of the display to select a tone.

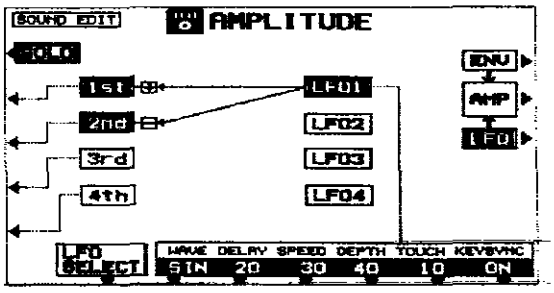
3. Change the key follow settings for the ATTACK, DECAY and RELEASE.
- Use the ∧ and ∨ buttons corresponding to the ENVELOPE KEY FOLLOW attributes to adjust the settings. Use the RANGE buttons to specify the keyboard range.

4. Change the touch settings.
- Use the ATTACK ∧ and ∨ buttons to specify the ATTACK time change depending on touch. Use the DECAY ∧ and ∨ buttons to specify the DECAY time change depending on touch.
- At a – setting, the softer the keys are pressed, the greater the change. At a + setting, the harder the keys are pressed, the greater the change.

■ LFO

Adjust the LFO (cyclic modulation) settings applied to the amplitude. There are four types of LFO.

1. Press the LFO button.
- The display looks similar to the following.



2. Use the LFO SELECT ∧ and ∨ buttons to select an LFO (1–4).

3. Use the buttons below the display to adjust the settings.

WAVE
Modulate the waveform.
SIN: Sine wave
TRI: Triangle wave
SQR: Square wave
SAW: Saw tooth wave

DELAY
Delay time is the time elapsed from when the keyboard key is pressed until the modulation begins.

SEEPD
Modulation speed

DEPTH
Modulation depth

TOUCH
Degree of modulation change in relation to touch

KEYSYNC
When playing more than one note, specify whether the LFO starts or not each time a key is pressed (ON/OFF).
- When KEYSYNC is set to ON: if, while playing one note, you play a second note, the LFO is applied to the second note as well.

4. Use the buttons to the left of the display to specify for each tone whether or not the specified LFO is applied.
- The LFO can be applied to multiple tones.
- A + indicates that the LFO is on for the tone, a – indicates that the inverted-phase LFO is applied to the tone.

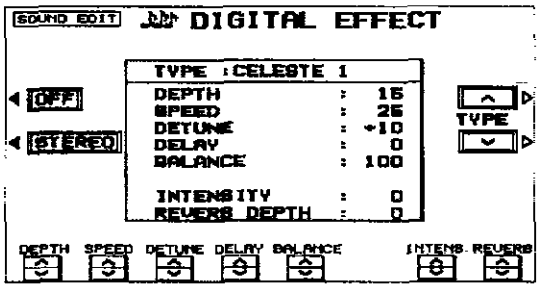
5. Repeat steps 2 to 4 for the other LFO types, as desired.

Effect Edit

Select the type of effect which is applied to your new sound when the **DIGITAL EFFECT** button is on, and modify the effect.

DIGITAL EFFECT

1. On the **SOUND EDIT** menu, select DIGITAL EFFECT.
- The display looks similar to the following.
- The display for the effect type which is best-suited for the sound currently being edited is selected.



2. Use the TYPE ∧ and ∨ buttons to select the type of effect.
- Select from the following types: CELESTE 1, 2, CHORUS 1, 2, ENSEMBLE 1, 2, TREMOLO, ORGAN TREMOLO, SINGLE DELAY, REPEAT DELAY, SOLO EFFECT 1, 2.

<ON/OFF button>
Specify whether the **DIGITAL EFFECT** button turns on or off when the sound is selected. When set to ON, the **DIGITAL EFFECT** button turns on automatically when the sound is selected. The button alternates between ON and OFF each time it is pressed.

<STEREO/MONO button>
Select stereo (STEREO) or monaural (MONO) output of the effect. The button alternates between STEREO and MONO each time it is pressed.

3. Use the buttons along the bottom of the display to select the attribute you wish to adjust.

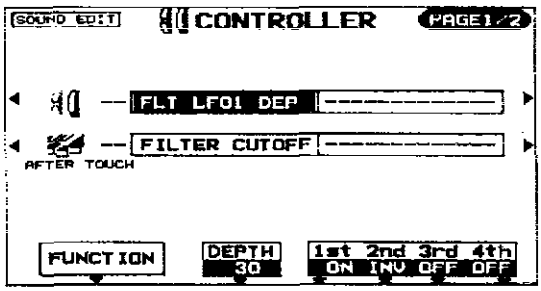
- When the type is changed, the parameters revert to the factory defaults.
- For a detailed explanation of the parameters of each type of effect, refer to the separate "REFERENCE GUIDE" provided.

Controller Edit

Specify how operation of the controllers, such as the wheels, etc., affects the sound.

CONTROLLER

1. On the SOUND EDIT menu display, select CONTROLLER.
- The display looks similar to the following.



2. Use the buttons to the left and right of the display to select a controller.
- The controllers are in order from the top: MODULATION WHEEL, AFTER TOUCH.
- Two functions can be assigned to each controller.

3. Use the FUNCTION button to select a function for the controller.

4. Use the DEPTH ∧ and ∨ buttons to set the depth of the function applied by the controller.

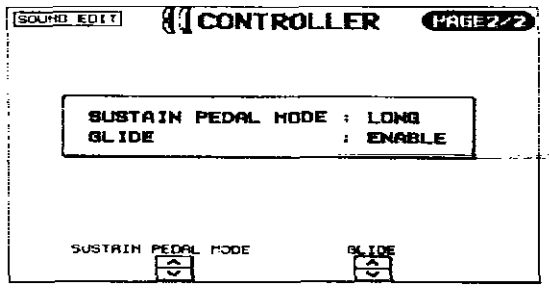
5. Use the 1st, 2nd, 3rd and 4th ∧ and ∨ buttons to set the controller to on or off for each tone.
- When set to INV, the function is inverted for the tone.

6. Repeat steps 2 to 5 for the other controllers, as desired.

■ SUSTAIN PEDAL MODE, GLIDE

This setting is for when the sustain function or glide function has been assigned to the foot switch.

1. Use the **PAGE** buttons to view the 2/2 display.



2. Use the SUSTAIN PEDAL MODE ∧ and ∨ buttons to select the type of sustain.

   LONG: The release time of the sound is lengthened.

   HOLD: The sustain is continuous until the foot switch is released.

3. Use the GLIDE ∧ and ∨ buttons to select whether or not the glide effect is active.

   ENABLE: The glide effect is enabled.

   DISABLE: The glide effect is disabled.

- To assigning a function to the foot switch, refer to page 50.

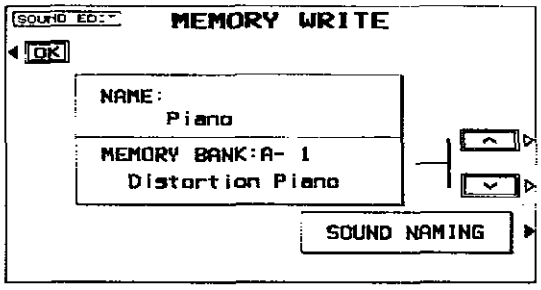
Store the new sound

The **MEMORY A** and **MEMORY B** buttons in the **SOUND GROUP** section are memory banks reserved for the sounds you create with the **SOUND EDIT**. You can store up to 40 original sounds—20 in each bank—then select the sounds just like the other sounds in the **SOUND GROUP**.

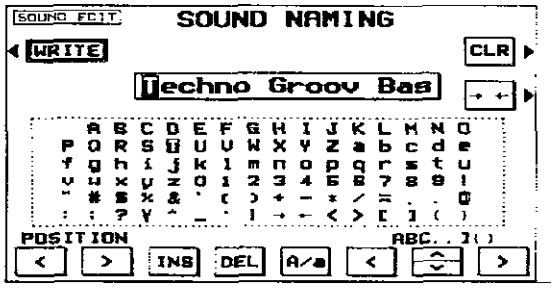
WARNING: Your new sound will be erased if you exit the **SOUND EDIT** mode without first storing it in a memory.

Procedure

1. When you have edited the sound to just the way you like it, on the **SOUND EDIT** menu display, press the WRITE button.
- The display changes to the MEMORY WRITE display.



2. To assign a name to your new sound, press the SOUND NAMING button.
- If you do not assign a name to your sound, the name becomes the same as the original sound from which you started. In this case, skip to step 5.
- The display changes to the SOUND NAMING display.



3. Type a new name for your sound (up to 16 characters).
- Use the POSITION < and > buttons to highlight the character position in the name box. Use the ABC··]{} buttons to select the alphanumeric character. Repeat these steps to type the whole name.
- Use the INS button to type a space.
- Use the DEL button to erase a character.
- Use the A/a button to switch between upper case and lower case characters.
- To erase all the characters, press the CLR button.
- You can press the → ← button if you wish to have the name centered.

4. When you have finished typing the name, press the WRITE button.
- The display returns to the MEMORY WRITE display.

5. Use the ∧ and ∨ buttons to select the MEMORY number in which to store the new sound.
- Select BANK A or BANK B, and number 1 through 20.

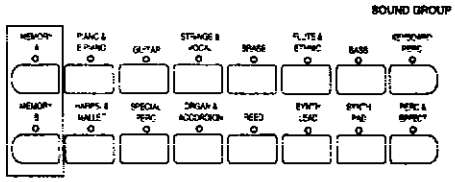
6. Press the OK button.
- The new sound is stored, and "WRITE COMPLETED!" is shown on the display.
- The **SOUND EDIT** mode is turned off.

- The stored sound memories can be saved on a disk for recall at a later time. (Refer to page 102.)

Select a new sound

You can select your original sound just like the other sounds in the **SOUND GROUP**.

1. In the **SOUND GROUP** section, press the **MEMORY A** or **MEMORY B** button.



- Select the bank (A/B) in which you stored the sound during the MEMORY WRITE procedure.
- The list of sounds in the selected bank is shown on the display.

2. Select the desired sound from the list on the display.

Drum Kit Edit

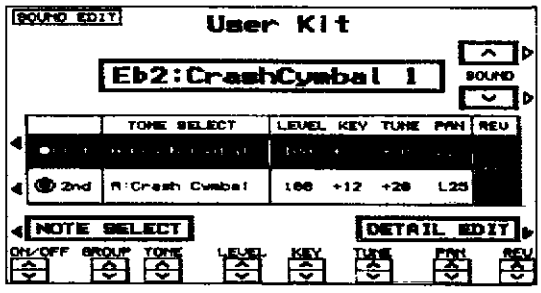
You can create your original drum kit.

DRUM SOUND EDIT

By editing each percussion instrument sound in the drum kit, you can create your original drum kit.

1. From the **KEYBOARD PERC** sound group, select a drum kit to use as the foundation of your new drum kit.
- Do not select "Orchestral Kit" or "Sound Effect Kit."

2. Press the **SOUND EDIT** button to turn it on.
- The confirmation display appears. Press the YES button.
- The display looks similar to the following.



3. While pressing the key for the percussion instrument sound you wish to edit, press the NOTE SELECT button.

4. Use the SOUND ∧ and ∨ buttons to select the percussion instrument sound to assign.

5. Use the buttons below the display to select the tone.
- Percussion sounds are composed of two tones (1st and 2nd).
- The name of the currently selected percussion instrument and the note name assigned to it are shown in the upper part of the display.

6. Edit the setting.

ON/OFF: Use the ON/OFF ∧ and ∨ buttons to specify whether or not the selected tone is output.

TONE SELECT: Use the GROUP ∧ and ∨ buttons and the TONE ∧ and ∨ buttons to change the tone.

LEVEL: Use the LEVEL ∧ and ∨ buttons to adjust the volume.

KEY: Use the KEY ∧ and ∨ buttons to adjust the pitch.

TUNE: Use the TUNE ∧ and ∨ buttons to make fine adjustments to the pitch.

PAN: Use the PAN ∧ and ∨ buttons to adjust the stereo balance.

REV: Use the REV ∧ and ∨ buttons to specify the amount of output to the REVERB.
- This setting is effective for both the 1st and 2nd tones in common.

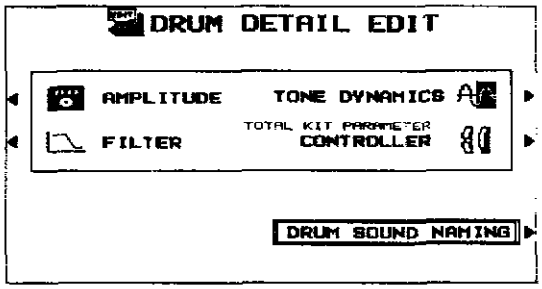
7. Repeat steps 3 to 6 for the other keyboard keys.

- Your original drum kit is stored in the USER KIT of the **KEYBOARD PERC** sounds in the **SOUND GROUP**.

■ DRUM DETAIL EDIT

Follow this procedure when you wish to make more precise adjustments to each tone.

1. Press the DETAIL EDIT button.
- The display looks similar to the following.



2. Select the item to edit.
- The editing procedure is basically the same as the **SOUND EDIT** procedure for other sounds.

AMPLITUDE (page 126)
FILTER (page 123)
TONE DYNAMICS (page 118)
CONTROLLER (page 130)

- For drum kits, the number of items that can be edited it limited.
- You can press the DRUM SOUND NAMING button to assign a name to your percussion instrument sound while you are editing it.

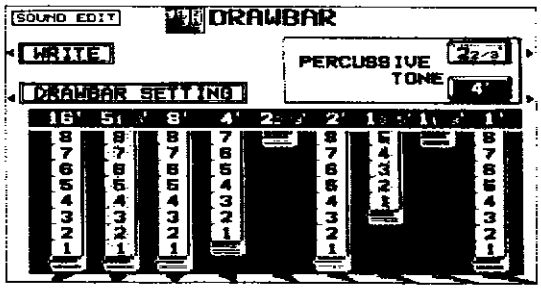
Recording Digital Drawbar sounds

You can save your customized drawbar settings.

DIGITAL DRAWBAR EDIT

1. Follow the procedure to adjust the **DIGITAL DRAWBAR** sound. (Refer to page 27.)

2. Press the **SOUND EDIT** button to turn it on.
- The display looks similar to the following.



3. Press the WRITE button.
- The display changes to the MEMORY WRITE display. Follow the procedure to store the new sound. (Refer to page 131.)

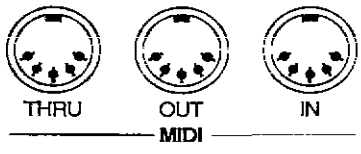
Part IX MIDI

What is MIDI?

MIDI (Musical Instrument Digital Interface) is the international standard for digital communication of electronic musical instrument data. This means that any equipment which has a MIDI terminal—such as electronic musical instruments and personal computers—can easily exchange digital data with other MIDI equipment without resorting to complicated conversions or connections.

MIDI terminals

(On the rear panel)

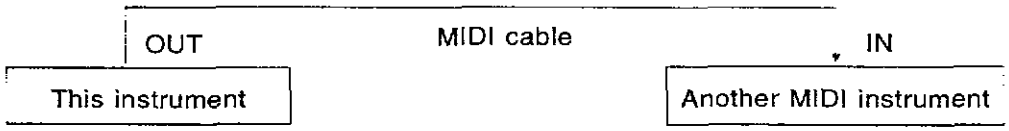


IN: The terminal by which this instrument receives data from other equipment.
OUT: The terminal that transmits data from this instrument to other equipment.
THRU: The terminal that transfers data from the **IN** terminal directly.

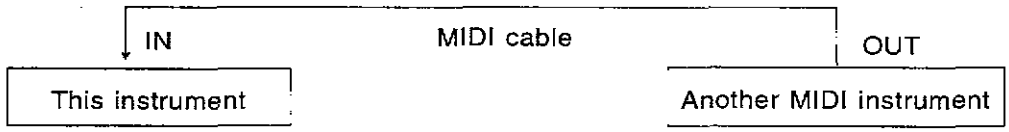
- For these connections, use a commercially available MIDI cable.

Connection examples

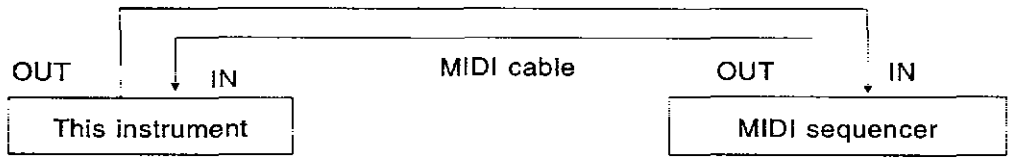
■ **To generate sound from a connected instrument by playing this instrument**



■ **To generate sound from this instrument by operating a connected instrument**

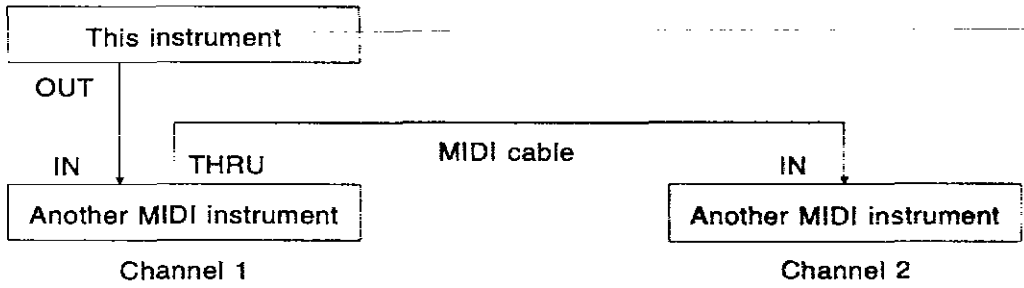


■ **To connect with a MIDI sequencer or a personal computer**



MIDI channels

Many different kinds of performance data are sent using just one MIDI cable. This is possible because MIDI signals are sent and received through 16 different "basic channels" (numbered 1 to 16). In order for the exchange of data to take place, the channels on the transmission side must match the channels on the receiving side. This characteristic also makes it possible to link multiple sound generators and to control each by matching specific channels.



The following kinds of data can be transmitted/received.

■ NOTE data
This is the most basic kind of MIDI data which is exchanged, and is used to specify which keys are played and how hard they are played.

NOTE NUMBER: Number specifying which key is played.
NOTE ON: Specifies that a key is played.
NOTE OFF: Specifies that a key is released.
VELOCITY: Specifies how hard a key is struck.

- MIDI notes are assigned numbers from 0 to 127, with middle C (C3) as 60. Note pitches are in semitone increments, with the higher numbers assigned to the higher pitches.

■ PROGRAM CHANGE
This is sound change data. When a different sound is selected on the transmitting instrument, the sound on the receiving instrument also changes.

■ CONTROL CHANGE
These are volume, sustain, effect, etc. data used to enhance performance expression. Each function is distinguished by its control number, and the function which can be changed by the control differs depending on the instrument.

■ EXCLUSIVE data
This is sound data, etc. particular to a specific instrument model. This data can also be transmitted and received by the DUMP function.

- For details, refer to the separate "REFERENCE GUIDE" provided.

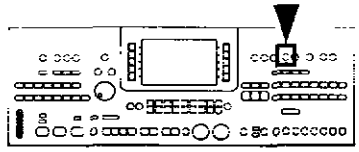
GENERAL MIDI

GENERAL MIDI (GM) is the standard which enables MIDI data exchange between different models or equipment of different manufacture. Program change numbers and their corresponding sounds, percussion instrument sounds, note numbers, etc. are data-compatible between equipment using this standard. Song data created on the equipment of one manufacturer can be played back on the equipment of a different manufacturer, as long as both conform to the GENERAL MIDI standard. This instrument conforms to this standard and can be used as a GENERAL MIDI sound generator.

Equipment which conforms to GENERAL MIDI standards is indicated by the following logo.

GENERAL MIDI

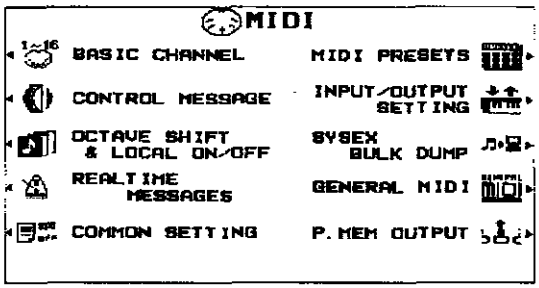
Outline of MIDI functions



Select the various settings which are used for MIDI operation of this instrument.

1. Press the **MIDI** button to turn it on.

- The display changes to the following.



2. Select the desired menu and follow the procedures on the corresponding setting display.
- During the setting display, you can press the **EXIT** button to go back to the previous display. To show other menus, use the **EXIT** button to return to the **MIDI** menu display and make another selection.
- When the **TEMPO/PROGRAM** indicator is lit, it indicates that the dial is available for setting the current function.

3. When you have finished setting the functions, press the **MIDI** button to turn it off.

Summary of the MIDI menu items

BASIC CHANNEL (page 138)
Assign a MIDI channel to each part.

CONTROL MESSAGE (page 138)
Enable or disable the exchange of various control data.

OCTAVE SHIFT & LOCAL ON/OFF (page 139)
Make the OCTAVE and LOCAL CONTROL settings for each part.

REALTIME MESSAGES (page 139)
Make the REALTIME COMMANDS and CLOCK settings.

COMMON SETTING (page 140)
Set the following functions which are common to all parts.
NOTE ONLY
PROG. CHANGE TO P. MEM
REALTIME SYSEX
INTRO, FILL-IN, ENDING
APC CONTROL
TRANSPOSE
PROGRAM CHANGE MODE
DRUMS TYPE
SONG SELECT
MIDI SETUP LOAD

MIDI PRESETS (page 141)
Optimum MIDI settings according to the connected equipment

INPUT/OUTPUT SETTING (page 141)
Various settings related to transmission and reception of data

SYSEX BULK DUMP (page 142)
Settings related to SYSTEM EXCLUSIVE data exchange

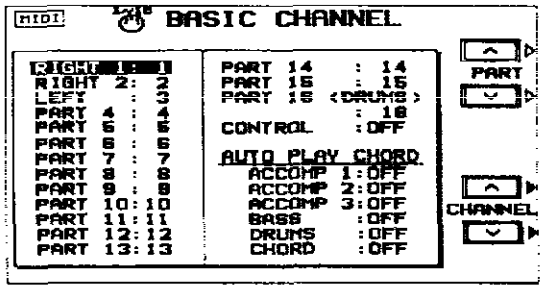
GENERAL MIDI (page 142)
General MIDI settings

P. MEM OUTPUT (page 143)
Settings related to the transmission data when the **PANEL MEMORY** buttons are operated.

Setting the functions

BASIC CHANNEL

MIDI Basic Channel numbers have already been assigned to parts (default settings) but you can reassign channel number to parts as follows.



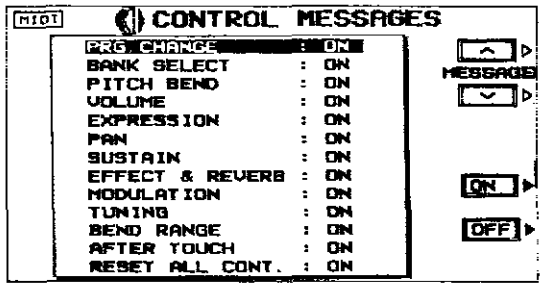
1. Use the PART ∧ and ∨ buttons to select the part.

2. Use the CHANNEL ∧ and ∨ buttons to select a basic channel for the part (OFF, 1 to 16).
- A part which has been set to OFF cannot be used to transmit or receive MIDI data.

3. Repeat steps 1 and 2 for each part as desired.
- The illustrated display shows the initialized settings.

CONTROL MESSAGE

Enable or disable the exchange of various control data.



1. Use the MESSAGE ∧ and ∨ buttons to select the control message.

2. Use the ON and OFF buttons to specify on or off for the control message.

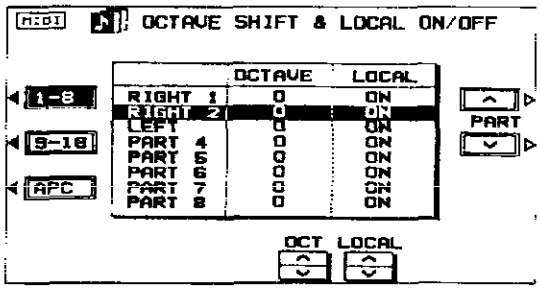
   ON:Data for the control operation is exchanged.
   OFF:Data for the control operation is not exchanged.

- The BANK SELECT setting is effective only when PRG. CHANGE is set to ON.
- The EFFECT & REVERB setting controls the **DIGITAL EFFECT**, **DSP EFFECT** and **DIGITAL REVERB** on/off.
- The TUNING setting is the on/off setting for the TUNING and KEY SHIFT settings.

3. Repeat steps 1 and 2 for each control as desired.

OCTAVE SHIFT & LOCAL ON/OFF

Set the octave shift value for key notes transmitted from this instrument (OCTAVE), and specify whether this instrument's sound generator is enabled when MIDI data is transmitted (LOCAL CONTROL).



1. Use the buttons on the left side of the display to select the corresponding group of the part you wish to set.

   1–8: RIGHT 1, RIGHT 2, LEFT, PART 4 to PART 8 group
   9–16: PART 9 to PART 16 group
   APC: ACCOMP 1 to 3, BASS, DRUMS, CHORD group

2. Use the PART ∧ and ∨ buttons to select the part.

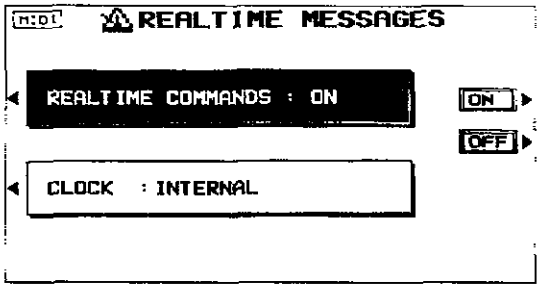
   OCTAVE: Use the OCT ∧ and ∨ buttons to set the octave shift value (–3 to 3).
   - Octave shift is set for transmitted data only; however the transmitted and received octave shifts are linked. For example, if the transmitted octave shift is set to 1, the received octave shift is automatically set to –1.

   LOCAL: Use the LOCAL ∧ and ∨ buttons to enable or disable this instrument's sound generator.
   - When set to ON, the performance from this instrument is transmitted as MIDI data and also sounds from this instrument. When set to OFF, the performance from this instrument is transmitted as MIDI data but does not sound from this instrument.

3. Repeat steps 1 and 2 for each part as desired.

REALTIME MESSAGES

Enable or disable the exchange of **START/STOP** data (REALTIME COMMANDS), and select the CLOCK mode.



1. Use the buttons on the left side of the display to select a function.

2. Use the ∧ and ∨ buttons, or the ON and OFF buttons, to change the setting.

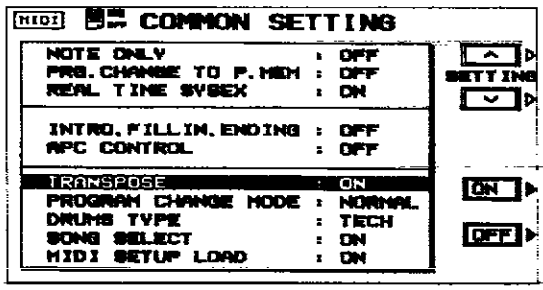
   REALTIME COMMANDS
   ON: Rhythm and **SEQUENCER** start/ stop, continue, and song position pointer data can be transmitted/received.
   OFF: This data cannot be transmitted/received.

   CLOCK
   INTERNAL: This instrument's internal clock is used to control the performance. The clock of the connected equipment is disabled.
   MIDI: The clock of the connected equipment is used to control the performance. This instrument's clock is disabled. (The tempo is displayed as "♩ = – – –.")
   - The CLOCK is set to INTERNAL when the power to this instrument is turned on.

3. Repeat steps 1 and 2 for the other function if desired.

COMMON SETTING

Set the functions which are common to all parts.



1. Use SETTING ∧ and ∨ buttons to select the item.

NOTE ONLY: Of the performance data, specify whether or not only note data is exchanged.

PROG. CHANGE TO P. MEM: Enable or disable the exchange of program change numbers for the **RIGHT 1** part by operation of the **PANEL MEMORY** buttons.

- For this setting, the **PANEL MEMORY 1** to **8** program change numbers correspond to the bank numbers as follows:
  BANK 1 = 0 to 7
  BANK 2 = 8 to 15
  BANK 3 = 16 to 23

REALTIME SYSEX: Specify whether or not MIDI data is exchanged as system exclusive data during the performance.

- For details about REALTIME SYSEX, refer to the pages on MIDI in the separate "REFERENCE GUIDE" provided.

INTRO, FILL-IN, ENDING: Enable or disable the exchange of intro, fill-in and ending data.

- Data is exchanged on the channel for the **DRUMS** part.

APC CONTROL: Enable the exchange of data for the on/off status of the **AUTO PLAY CHORD**'s ONE FINGER, FINGERED and PIANIST modes.

- Data is exchanged on the channel for the **ACCOMP 1** part.

TRANSPOSE
ON: The note number of the transposed note is transmitted/received.
OFF: The note number of the played key is transmitted/received.

PROGRAM CHANGE MODE
NORMAL: The program change numbers are as indicated in the "REFERENCE GUIDE."
TECH: Program change numbers are standardized among all Technics models which are set to this mode. The program change number assigned to a given sound on one model is assigned to the same sound on all models which are set to the same mode.
GM: Program change numbers follow the GM standard.

- The program change numbers for each mode can be found in the separate "REFERENCE GUIDE" provided.

DRUM TYPE
NORMAL: Keyboard percussion instrument sounds correspond to this instrument's key note numbers
TECH: Keyboard percussion instrument sounds correspond to the same key note numbers for connect Technics models set to this type.
GM: Keyboard percussion instrument sounds follow the GM standard.

SONG SELECT
ON: Song number data can be exchanged.
OFF: Song number data cannot be exchanged.

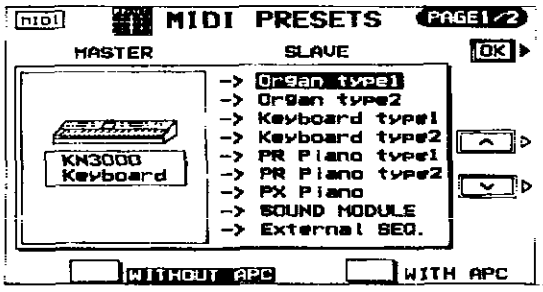
MIDI SETUP LOAD
ON: When disk data is loaded, the MIDI settings stored on the disk are automatically recalled.
OFF: MIDI settings stored on the disk are not recalled.

2. Use ∧ and ∨ buttons or ON and OFF buttons to change the setting.
   ON: Data exchange is enabled.
   OFF: Data exchange is disabled.

3. Repeat steps 1 and 2 for the other settings as desired.

MIDI PRESETS

Establish the optimum settings depending on how this Keyboard is connected to other equipment, and on whether this Keyboard is used as the master or the slave.



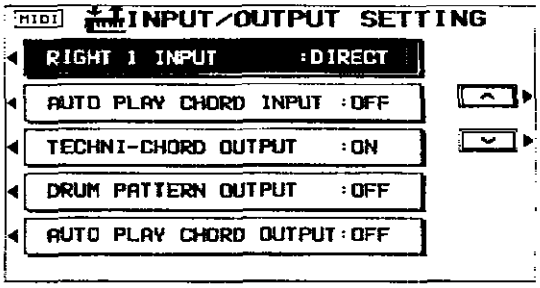
1. Use the ∧ and ∨ buttons to select the connection setup.

- The PAGE 1/2 display shows connection setups with this instrument as the MASTER. And the PAGE 2/2 display shows connection setups with this instrument as the SLAVE.
- The MASTER is the instrument used to transmit data, and the SLAVE is the instrument used to receive the data.
- Use the buttons below the display to select WITHOUT APC (the **AUTO PLAY CHORD** is not used) or WITH APC (the performance includes **AUTO PLAY CHORD**).

2. Press the OK button.
- When the settings have been successfully stored, "COMPLETED!" appears on the display.
- Detailed information about the MIDI PRESETS can be found in the separate "REFERENCE GUIDE" provided.

INPUT/OUTPUT SETTING

Make the settings which determine how various performance data is treated during data transmission and reception.



1. Use the buttons on the left side of the display to select the item.

RIGHT 1 INPUT
CONDUCTOR: When data for the **RIGHT 1** part is received, the **CONDUCTOR** determines which part it is used for.
DIRECT: When data for the **RIGHT 1** part is received, it is treated as **RIGHT 1** data, and performance data for all parts is received on their respective basic channels.

AUTO PLAY CHORD INPUT
ON: Input data for the **ACCOMP 1, 2, 3, BASS, DRUMS** and **CHORD** parts is received.
OFF: Data for the above parts is not received.
- Basic channels should be assigned to the above parts before exchanging data.

TECHNI-CHORD OUTPUT
ON: Keyboard notes generated by the **TECHNI-CHORD** function are also transmitted.
OFF: Only key note data of the pressed keys is transmitted.

DRUM PATTERN OUTPUT
ON: Data from the **DRUMS** part is transmitted.
OFF: Data from the **DRUMS** part is not transmitted.

AUTO PLAY CHORD OUTPUT
ON: The data for the **ACCOMP 1, 2, 3, BASS** and **CHORD** parts is transmitted.
OFF: The data for the above parts is not transmitted.
- Basic channels should be assigned to the above parts before exchanging data.

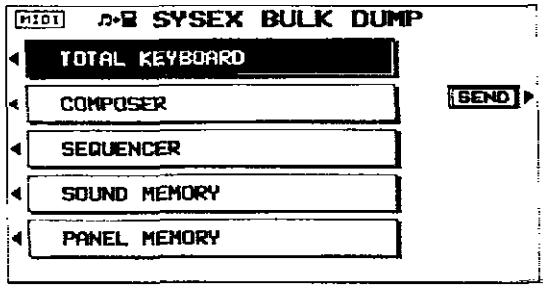
2. Use the ∧ and ∨ buttons, or the ON and OFF buttons, to select the setting.

3. Repeat steps 1 and 2 for each item as desired.

SYSEX BULK DUMP

This instrument's internal data such as panel settings, performance data, etc. can be transmitted to and received from another KN3000 or other MIDI equipment with BULK DUMP capability as SYSTEM EXCLUSIVE data.

- Sound is not generated from this instrument during this procedure.
- The operations on this display are executed, even if REALTIME SYSEX is set to off on the COMMON SETTING display.



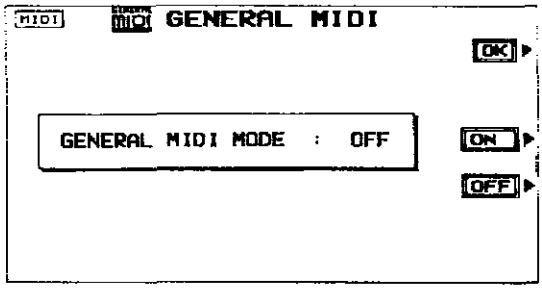
■ Transmitting

1. Follow the procedure necessary to prepare the receiving instrument for data reception.
2. Use the buttons on the left side of the display to select the type of data to transmit (TOTAL KEYBOARD, COMPOSER, SEQUENCER, SOUND MEMORY or PANEL MEMORY).
   - The **SEQUENCER** data for all 10 songs are transmitted at once. You can decrease the time it takes to transmit by deleting beforehand any songs you do not wish to transmit.
3. Press the SEND button.
   - During transmission, the transmitting status is shown on the display.

- You can also receive data with this instrument. After accessing this display on this keyboard, follow the transmission procedure on the transmission side. During reception, the receiving status is shown on the display.
- If data transmission/reception is unsuccessful, an error message appears on the display. In this case, repeat the procedure from the beginning.

GENERAL MIDI

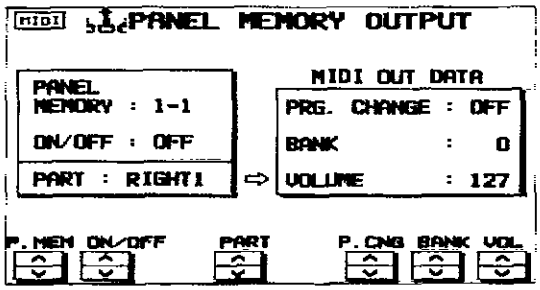
GENERAL MIDI (GM) is the standard which enables MIDI data exchange between different models or equipment of different manufacture. Program change numbers and their corresponding sounds, percussion instrument sounds, note numbers, etc. are data compatible between equipment using this standard.



1. Use the ON and OFF buttons to specify whether or not this Keyboard should be compatible with GENERAL MIDI standard instruments.
   - This setting is automatically set to OFF when the power is turned on.
   - If ON is selected, the status of this Keyboard changes to the GENERAL MIDI status, and the sounds and operations which can be selected are limited. In addition, the arrangement of percussion sounds on the keyboard changes. (Refer to the separate "REFERENCE GUIDE" provided.)
   - If GENERAL MIDI on/off data is received from connected MIDI instrument, the received data has priority.
   - This setting is automatically set to ON if disk data other than Technics data is loaded.
2. Press the OK button.
   - The confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.
   - If ON was selected, GENERAL MIDI is shown on the normal performance display.
   - When this function is executed, the **SEQUENCER** memory is cleared and the panel settings are reset.
   - If ON is selected, this setting is automatically set to OFF when the power is turned off, and the **SEQUENCER** memory is cleared.

PANEL MEMORY OUTPUT

These are settings affect the transmission data when the **PANEL MEMORY** buttons are operated.



1. Use the P.MEM ∧ and ∨ buttons to select a **PANEL MEMORY** number.

2. Use the ON/OFF ∧ and ∨ buttons to specify whether the data in the selected **PANEL MEMORY** number is transmitted or not.

3. Use the PART ∧ and ∨ buttons to select a part (RIGHT 1, RIGHT 2 or LEFT).

4. Use the P.CNG ∧ and ∨ buttons to specify a program change number (0 to 127, or OFF).

5. Use the BANK ∧ and ∨ buttons to specify a bank select number (0 to 255).

6. Use the VOL ∧ and ∨ buttons to specify the volume (0 to 127, or OFF).

7. Repeat steps 3 to 6 for each part, as necessary.

8. Repeat steps 1 to 7 for each **PANEL MEMORY** number, as necessary.

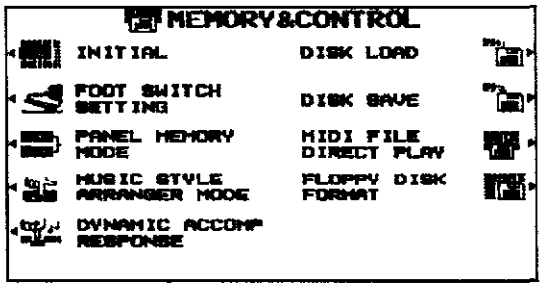
Initialize

This Keyboard has many settable functions and storable memories. However, you can return the settings and memory to the factory-preset status.

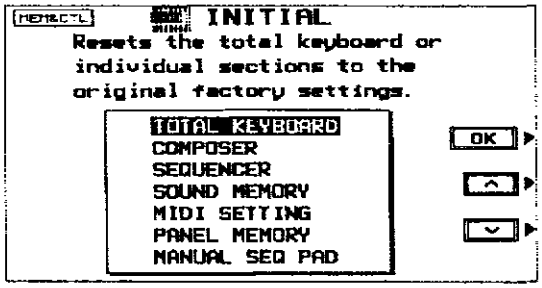
INITIAL

1. Press the **MEMORY & CONTROL** button to turn it on.

- The display changes to the following.

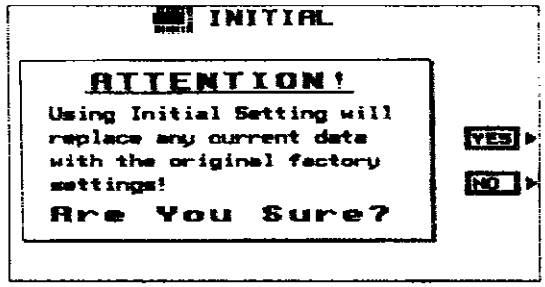


2. Select INITIAL.
- This display changes to the following.



3. Use the ∧ and ∨ buttons to select the desired type of initialization (TOTAL KEYBOARD, COMPOSER, SEQUENCER, SOUND MEMORY, MIDI SETTING, PANEL MEMORY or MANUAL SEQ PAD).

4. Press the OK button.
- The display changes to the confirmation display. Press the YES button if you wish to execute the initialization. Press the NO button if you wish to cancel the procedure.



- When you press the YES button, initialization begins. When initialization is completed, "COMPLETED!" is shown on the display and the Keyboard returns to the normal performance mode.

- You can also reset all the Keyboard settings with the following procedure: Turn off the **POWER** button once. Then, while pressing the three lower left buttons in the **RHYTHM GROUP** section (**8 BEAT 2**, **JAZZ ROCK & SOUL** and **DANCE POP**) at the same time, turn the **POWER** button on again.
- All the instrument settings may be initialized when the power is turn on, for example, if the effective time of the backup memory has been exceeded.

■ About the backup memory

The panel settings, **PANEL MEMORY** and MIDI settings etc. are maintained in the backup memory for about one week after the power to this instrument is turned off. Other stored memories, such as the **SEQUENCER**, **COMPOSER** and **SOUND MEMORY**, are maintained for about 80 minutes. If you wish to keep the memory contents, before you turn off the instrument, use the SAVE procedure to store the desired data on a disk for recall at a later time.

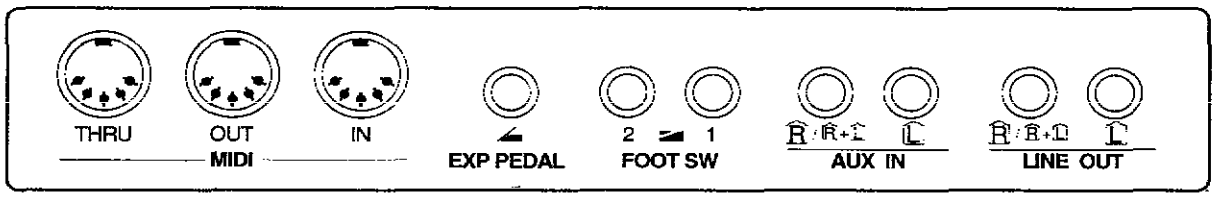
- The backup memory does not function until the power has been on for about 10 minutes.
- When you quit the operating mode, a warning display may appear to remind you to save the data.

Options and connections

This page shows the optional accessories that are available for your Technics Keyboard. These can make your instrument more versatile and fun to play than it already is.
Also indicated are the many possible connections to the rear accessory panel.

Connections

(on the rear panel)



EXP PEDAL
The optional SZ-E2 Expression Pedal (sold separately) can be connected to this terminal to control the volume.

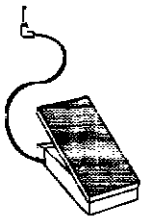
FOOT SW 1, 2
An optional SZ-P1 Foot Switch (sold separately) can be connected to each terminal to control various functions. (Refer to page 50.)

AUX IN (input level 0.5 Vrms, 6 kΩ)
Other instruments such as a sound generator can be connected to this terminal, and the sound will be output from the Keyboard's speakers. To receive monaural sound, connect the other instrument to the **R/R+L** terminal. (Do not connect the **L** terminal.)

LINE OUT (output level 1.5 Vrms, 600 Ω)
By connecting an external high-power amplifier, the sound can be reproduced at a high volume. To output monaural sound, connect the external equipment to the **R/R+L** terminal. (Do not connect the **L** terminal.)

MIDI
These terminals are for connection to another MIDI instrument. (Refer to page 135.)

Separately sold options



SZ-E2
Expression Pedal

SZ-P1
Foot Switch

SY-HD1
Hard Disk Drive

Symptoms which appear to be signs of trouble

The following changes in performance may occur in the Technics Keyboard but do not indicate trouble.

	Phenomenon	Remedy
Sounds and effects	The buttons, keys, etc. malfunction.	• Turn off the **POWER** button once, then turn it on again. If this procedure is not successful, turn off the **POWER** button once. Then, while pressing the three lower left buttons in the **RHYTHM GROUP** section (**8 BEAT 2**, **JAZZ ROCK & SOUL** and **DANCE POP**) at the same time, turn the **POWER** button on again. (Note that, in this case, all programmable settings, functions and memories return to their factory-preset status.)
	No sound is produced when the keys are pressed.	• The **MAIN VOLUME** is at the minimum setting. Adjust the volume with the **MAIN VOLUME** control. • The volumes for the selected parts are set to the minimum levels. Use the balance buttons to set the volumes of the relevant parts to appropriate levels. (Refer to page 21.) • The part is muted. (Refer to page 21.) • The local control for a part performed on the keyboard is set to OFF. Set the local control to ON. (Refer to page 139.)
	Only percussive instrument sounds are produced when the keyboard is played.	• In the **SOUND GROUP** section, the **KEYBOARD PERC** button is on.
	The volume is very low when the keyboard is played.	• The volume setting in the **SEQUENCER** contents is very low. Follow the INITIAL procedure to reset the settings. (Refer to page 144.)
	Some sounds cannot be selected.	• When the GENERAL MIDI status is set to on, The sounds which can be selected and operation which can be executed are limited. Turn the GENERAL MIDI status off to return the instrument to its normal operation. (Refer to page 142.)
	The sound you hear is different from the sound you selected.	• This sometimes occurs when you play back **SEQUENCER** or **COMPOSER** data which was created on a different model, or when MIDI data is received from a connected instrument. Select the desired sounds again.
Rhythm	The rhythm does not start.	• The **DRUMS** volume is set to the minimum level. Use the balance buttons to set the **DRUMS** volume to an appropriate level. • In the **RHYTHM GROUP** section, a rhythm in **MEMORY** with no stored pattern was selected. Select a different rhythm. • **A SEQUENCER PLAY** button is on. When you are not playing back the **SEQUENCER** performance, turn off the **SEQUENCER PLAY** button. • CLOCK is set to MIDI. Set CLOCK to INTERNAL. (Refer to page 139.) • The rhythm does not work when the GENERAL MIDI mode is set to ON. Turn the GENERAL MIDI status off to return the instrument to its normal operation. (Refer to page 142.)

	Phenomenon	Remedy
AUTO PLAY CHORD	No sound is produced for the automatic accompaniment.	• In the **RHYTHM GROUP** section, a rhythm in **MEMORY** with no stored pattern was selected. Select a different rhythm.
	No sound is produced for the automatic accompaniment, or only the sounds of some parts are produced.	• An **ACCOMP** part does not sound if its corresponding volume is set to the minimum level. Use the respective balance buttons to set the **ACCOMP 1, 2** and **3** volumes to appropriate levels.
SEQUENCER	Storage is not possible.	• The remaining memory capacity of the **SEQUENCER** is 0. Follow the SONG CLEAR or TRACK CLEAR procedure to erase the memory. (Refer to page 72.)
	Multi-track storage is not possible.	• The playback track has been selected, but the **START/STOP** button has not been pressed. A flashing track indicator shows the track which is ready for recording, and a lit track indicator shows a track which is ready for playback. To record one track while listening to another (playback) track, press the **START/STOP** button to begin playback.
	The playback measure indication is different from when the performance was recorded.	• The number of measures corresponds to the time signature of the rhythm selected at the start of recording. To change the rhythm in the middle of the song, record the rhythm change in the RHYTHM part. (Refer to page 64.)
COMPOSER	Storage is not possible.	• The remaining memory capacity of the **COMPOSER** is 0.
	Setting the time signature and number of measures is not possible.	• The time signature and number of measures cannot be changed for a pattern which is currently recorded in the **COMPOSER**. If you wish to change the time signature and/or measure data, first follow the procedure to clear the memory. (Refer to page 85.)
	The playback timing of the rhythm pattern is different from the timing with which it was recorded.	• The QUANTIZE function was on when the pattern was recorded and the timing was automatically corrected. Set the quantize level to a smaller note unit or to OFF when recording. (Refer to page 89.)
Disk Drive	The Disk Drive produces a noise during recording or playback.	• This occurs when the Disk Drive is reading a disk. It does not indicate a problem.
	When the procedure to load from a disk is performed, the contents of the keyboard memory are erased.	• When performing the load operation from a disk, the keyboard memory changes to that of the data loaded from the disk. If you wish to preserve a song which is stored in the keyboard memory, save it on a disk before performing the load procedure. (Refer to page 102.)
Other	Noise from a radio or TV can be heard.	• This sometimes occurs when electrical equipment such as a radio or TV is used near the instrument. Try moving such electrical equipment further away from the instrument. • The sound may be coming from a nearby broadcast station or amateur radio station. If the sound is bothersome, consult your dealer or service center.
	The cabinet becomes warm during use.	• This instrument has a built-in power source that heats the cabinet to some degree. This is not an indication of trouble.

Error messages

No.	Contents
00	The data on the disk that you are using is for a different product.
01	An error has occurred while the disk was loading. Please try again!
02	There is no disk in the Disk Drive.
03	The file that you tried to load is empty.
05	An error has occurred while the disk was saving. Please try again!
06	The disk that you are using is write protected. Please remove the write protection and try again.
07	The disk that you are using is full. Please use another disk.
08	An error has occurred while the disk was formatting. The disk that you are using may be faulty. Please try formatting another disk.
10	The data is already copy protected.
20	A problem has occurred with your **SEQUENCER** Data. This might be due to a damaged or faulty disk.
21	Memory full
22	It is necessary to press PUNCH OUT to complete this procedure.
23	It is impossible to change the time signature because it has already been set in the existing tracks.
24	A rhythm track already exists. It is impossible to assign two tracks to rhythm.
25	It is only possible to change the velocity on a melody track.
26	It is only possible to merge melody tracks. Tracks such as rhythm, chord and control cannot be merged.
27	It is only possible to copy melody tracks. Tracks such as rhythm, chord and control cannot be copied.
28	This song is too long to be saved as a MIDI file.
29	The MIDI file that you have tried to load exceeds the memory capacity of the KN3000 and cannot be played. The **SEQUENCER** memory has been cleared.
30	It is not possible to change the time signature or measure length of a **COMPOSER** pattern after it has been recorded. If you want to proceed, you must first clear the entire **COMPOSER** pattern.

No.	Contents
31	The time signature of the pattern from which you are copying is different from the **COMPOSER** memory that you are using. Either: Change the time signature of the **COMPOSER** memory or: Copy from a pattern that has the same time signature
32	Memory full
40	The Identification (ID) code of the system exclusive data received by the KN3000 is for a different product.
41	An error has occurred during system exclusive data reception. The data from the transmitting device may be incomplete. Please try again.
42	An error has occurred during system exclusive transmission. The data has not been received correctly. Please try again.
43	The file that you are trying to load was saved on a previous KN keyboard. It is only possible to load using the "ALL" option.
47	Please select a preset pattern.
54	Please select a USER bank (13 to 15).
55	Special tracks such as CHORD (APC), RHY and CTL exist in the song from which you are copying and are incompatible with the destination song because it is in the GM mode.
56	AUTO PUNCH recording has been unsuccessful because **SEQUENCER** operation was interrupted before the PUNCH OUT measure was reached.
57	The **COMPOSER** pattern you have chosen has a different time signature or number of measures from the other patterns in this COMPOSER CHORD MAP. All of the **COMPOSER** patterns used in a COMPOSER CHORD MAP must have the same time signature and number of measures.
58	The song that you have tried to load exceeds the KN3000's available memory and cannot be loaded. The selected song memory has been cleared. Please clear existing songs in the instrument's memory using SONG CLEAR to make more memory available, and try again.

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Specifications

	SX-KN3000
KEYBOARD	61 KEYS (WITH INITIAL/AFTER TOUCH)
SOUND GENERATOR	PCM
MAXIMUM NUMBER OF NOTES PRODUCED SIMULTANEOUSLY	64 NOTES
SOUNDS	260 SOUNDS + 16 DRUM KITS (KEYBOARD PERC) GROUP: PIANO & E PIANO, HARPSI & MALLET, GUITAR, SPECIAL PERC, STRINGS & VOCAL, ORGAN & ACCORDION, BRASS, REED, FLUTE & ETHNIC, SYNTH LEAD, BASS, SYNTH PAD, KEYBOARD PERC, PERC & EFFECT DIGITAL DRAWBAR (16', 5-1/3', 8', 4', 2-2/3', 2', 1-3/5', 1-1/3', 1')
EFFECTS	DIGITAL EFFECT, DSP EFFECT, SUSTAIN, DIGITAL REVERB
PART SELECT	RIGHT 1, RIGHT 2, LEFT
TRANSPOSE	G–C–F♯
RHYTHM	100 RHYTHMS×4 VARIATIONS GROUP: 8 BEAT 1, 8 BEAT 2, 16 BEAT, JAZZ ROCK & SOUL, FUNK & LATIN ROCK, DANCE POP, BIG BAND & SWING, ROCK (OTHERS), JAZZ COMBO, U.S. TRAD, MARCH & WALTZ, TRAD & SHOW TIME, LATIN 1, LATIN 2
CONTROLS	MAIN VOLUME, BALANCE, MUTE, CONDUCTOR, START/STOP, INTRO & ENDING 1, INTRO & ENDING 2, FILL IN 1, FILL IN 2, COUNT INTRO, SYNCHRO & BREAK, TEMPO/PROGRAM, TAP TEMPO, SPLIT POINT
MANUAL SEQUENCE PADS	15 BANKS × 3 (MEMORY: 3 BANKS × 3, STORAGE CAPACITY: APPROX. 1200 NOTES) RECORD/STOP
AUTO PLAY CHORD	ONE FINGER, FINGERED, PIANIST, MEMORY, ON BASS, DYNAMIC ACCOMP, MUSIC STYLE ARRANGER, SOUND ARRANGER
ONE TOUCH PLAY	○ (ONE TOUCH PLAY/MUSIC STYLE SELECT)
TECHNI-CHORD	○
PANEL MEMORY	3 BANKS × 8, SET
SEQUENCER	16 TRACKS RESOLUTION: 96 PULSES PER QUARTER-NOTE STORAGE CAPACITY: APPROX. 40000 NOTES (10 SONGS MAX.) INPUT MODES: EASY RECORD, REALTIME RECORD, STEP RECORD FUNCTIONS: TRACK ASSIGN, EDIT, PUNCH RECORD, SONG SELECT/NAME, MEDLEY, AFTER TOUCH SET
COMPOSER	5 PARTS: BASS, ACCOMP 1, ACCOMP 2, ACCOMP 3, DRUMS STORAGE CAPACITY: APPROX. 10000 NOTES INPUT MODES: EASY COMPOSER, REALTIME RECORD, STEP RECORD FUNCTIONS: COMPOSER CHORD MAP, MODE SELECT, COPY, LOAD SINGLE COMPOSER PATTERN, BEND RANGE, SEQ TO COMP COPY, COMPOSER LOAD MEMORY: 3 BANKS × 10 (VARIATION 1-4, INTRO 1, 2, FILL IN 1, 2, ENDING 1, 2)
MEMORY & CONTROL	INITIAL, DISK LOAD, DISK SAVE, MIDI FILE DIRECT PLAY, FOOT SWITCH SETTING, FLOPPY DISK FORMAT, PANEL MEMORY MODE, MUSIC STYLE ARRANGER MODE, DYNAMIC ACCOMP RESPONSE
SOUND SETTING	PART SETTING (VOLUME, SUSTAIN, EFFECT, PAN, KEY SHIFT, TUNING, PITCH BEND RANGE, OTHERS), MIXER, OVERALL TOUCH SENSITIVITY, MASTER TUNING, TECHNI-CHORD TYPE, LEFT HOLD, REVERB SETTING, DSP EFFECT, KEY SCALING
SOUND EDIT	EASY EDIT, TONE SELECT, TONE LAYER, PITCH, FILTER, AMPLITUDE, DIGITAL EFFECT, CONTROLLER MEMORY: 2 BANKS × 20
MIDI	BASIC CHANNEL, CONTROL MESSAGE, OCTAVE SHIFT & LOCAL ON/OFF, REALTIME MESSAGES, COMMON SETTING, P.MEM OUTPUT, MIDI PRESETS, INPUT/OUTPUT SETTING, SYSEX BULK DUMP, GENERAL MIDI

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KN3000 REFERENCE GUIDE

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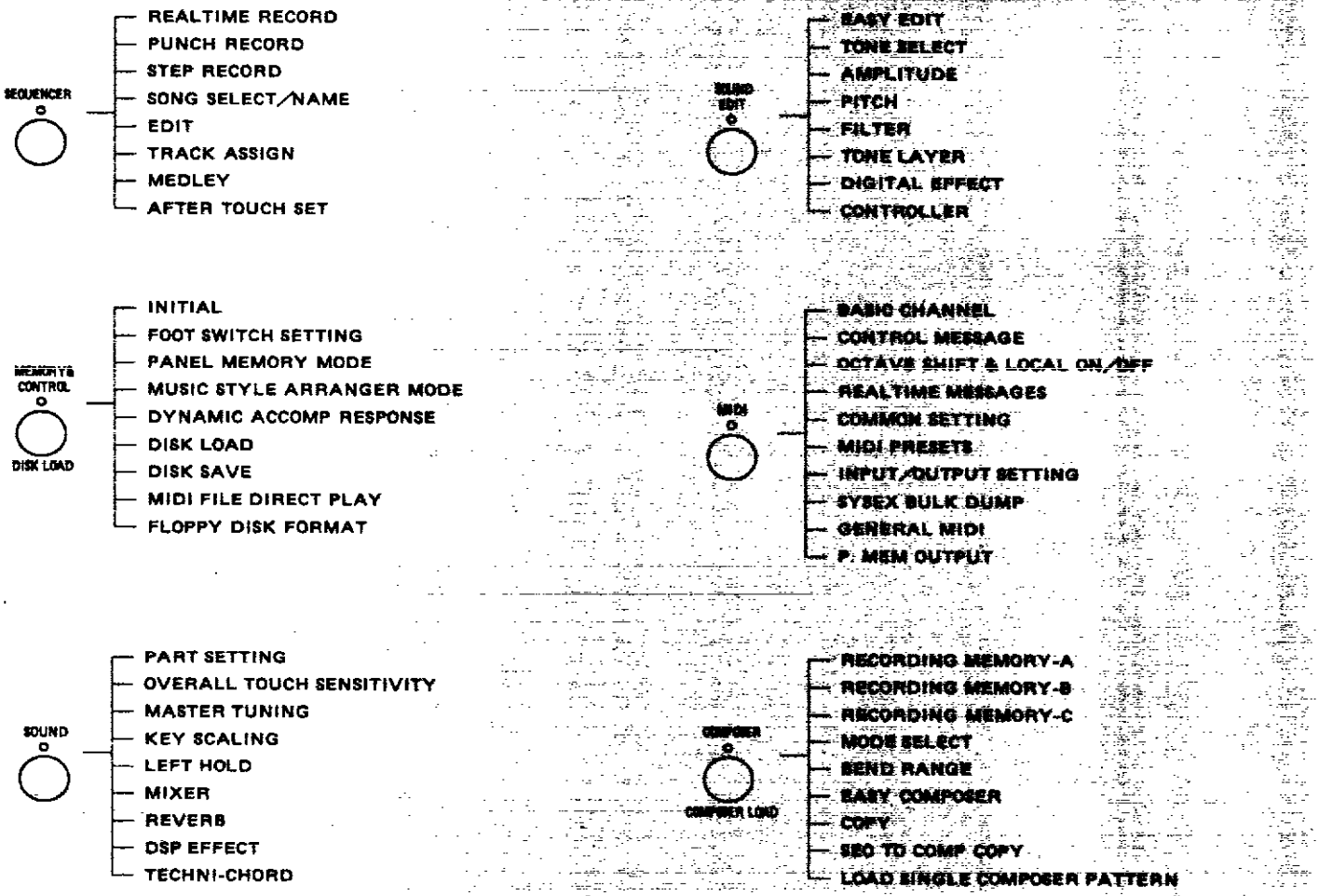
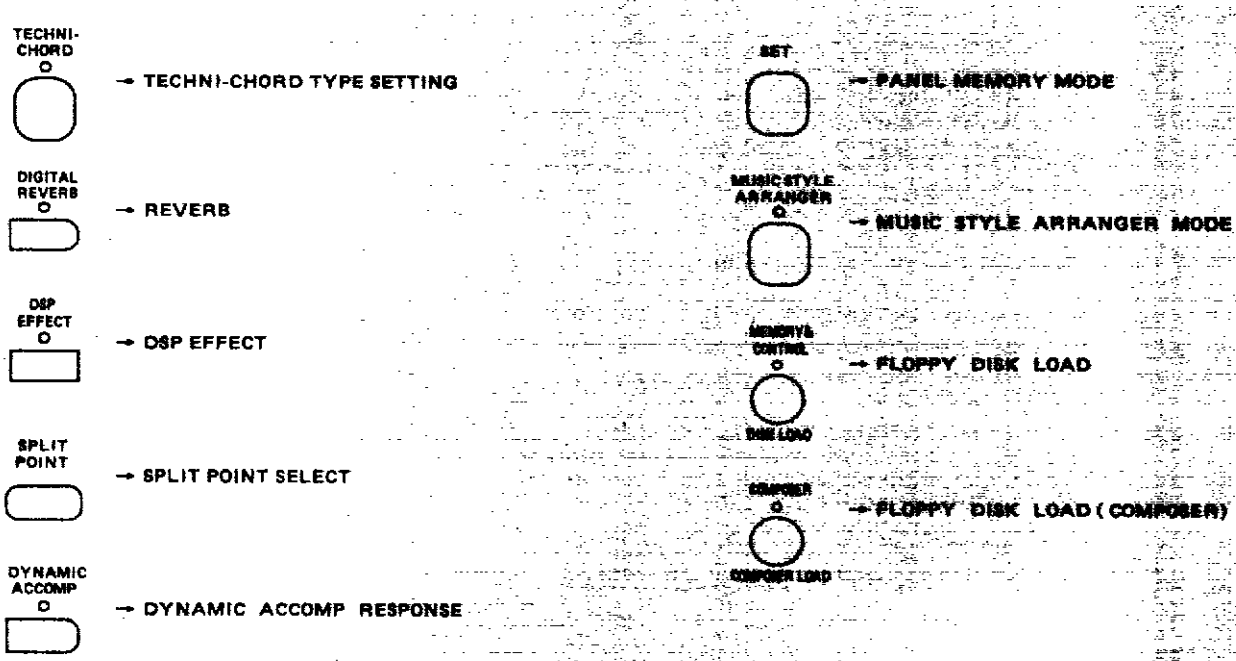
DISPLAY GUIDE



EASY SETTING (Press and hold)



Sound	MIDI Program change data				
	Normal		Technics		GM
	No.	Bank	Data	Bank	
PIANO & E.PIANO					
[illegible]	9	0	0	0	1
[illegible] 1 Octave	9	1	0	16	
	9	2	2	16	
[illegible] Piano	9	3	1	16	4
[illegible]ectric Grand	9	4	3	0	3
Mid Grand 1	9	5	0	32	
E. Piano 1	9	6	5	0	5
[illegible] E.P.	9	7	4	32	
Modern E.P.1	9	8	6	0	6
Modern E.P.2	9	9	4	0	
[illegible]	9	10	2	0	
[illegible]	9	11	0	48	
[illegible] Piano	9	12	3	32	2
Mid Grand 2	9	13	0	64	
[illegible]	9	14	1	48	
[illegible]	9	15	5	32	
[illegible] E. Piano	9	16	4	64	
[illegible] E.P.	9	17	4	80	
[illegible]	9	18	6	48	
Piano	9	19	116	16	
GUITAR					
[illegible] Guitar	10	0	20	0	
[illegible]	10	1	20	16	
[illegible]	10	2	22	0	26
[illegible] Guitar 1	10	3	25	0	27
Bright Solid Gtr	10	4	26	0	28
[illegible]	10	5	26	16	
[illegible]	10	6	29	0	29
[illegible] Gtr	10	7	30	0	31
[illegible]	10	8	27	32	30
[illegible]	10	9	31	16	
[illegible]	10	10	21	0	25
[illegible] Harmonics	10	11	27	64	
[illegible] Solid Guitar	10	12	25	0	
Electro Ac. Guitar	10	13	25	32	
[illegible]	10	14	24	0	
[illegible]	10	15	28	0	
[illegible]	10	16	28	32	
[illegible] Mute Guitar	10	17	29	48	
[illegible] Harmonics	10	18	27	16	32
[illegible] Guitar	10	19	26	48	

Sound	MIDI Program change data				
	Normal		Technics		GM
	No.	Bank	Data	Bank	
HARPSI & MALLET					
Harpsichord	1	0	16	0	7
Clavi	1	1	17	0	8
Synth Clavi	1	2	115	0	
Glockenspiel	1	3	9	0	10
Vibraphone	1	4	8	0	12
Marimba	1	5	10	0	13
Xylophone	1	6	11	0	14
Steel Drum	1	7	15	0	115
Celeste	1	8	12	0	9
Bottle Marimba	1	9	13	0	
Cembalo	1	10	18	0	
Harpsi. Octave	1	11	16	16	
Vibes & Jazz Guitar	1	12	8	64	
Power Steel Drum	1	13	15	16	
Tubular Bells	1	14	14	0	15
Wind Chime	1	15	14	16	
Tinkle Bell	1	16	14	32	113
African Mallet	1	17	113	0	
Caribbean Mallet	1	18	11	16	
Synth Glocken	1	19	9	32	99
SPECIAL PERC					
Hawaiian Guitar 1	2	0	31	48	
Hawaiian Guitar 2	2	1	31	0	
Banjo	2	2	33	0	106
Mandolin	2	3	35	0	
Harp	2	4	32	0	47
Orchestra Hit 1	2	5	127	16	56
Timpani	2	6	126	0	48
Koto	2	7	37	0	108
Kalimba	2	8	39	0	109
Metal Kalimba	2	9	39	16	
Orchestra Hit 2	2	10	127	32	
Music Box	2	11	7	0	11
Christmas Piano	2	12	7	32	
Shamisen	2	13	36	0	107
Sitar	2	14	38	0	105
Gamelan 1	2	15	14	48	
Gamelan 2	2	16	14	112	
Dulcimer	2	17	38	16	16
Kanun	2	18	38	32	
Cumbus	2	19	38	48	

SOUND

Sound	MIDI Program change data				
	Normal		Technics		GM
	No.	Bank	Data	Bank	
STRINGS & VOCAL					
Symphonic Strings	11	0	100	48	
Classical Strings	11	1	100	0	49
Slow Strings	11	2	101	0	50
Pizzicato Str.	11	3	99	0	46
Synth Strings 1	11	4	103	0	51
Violin	11	5	96	0	41
Cello	11	6	97	0	43
Vocal Ah	11	7	104	48	53
Vocal Ooh	11	8	104	32	
Vocal Doo	11	9	109	0	54
Marcato Strings	11	10	100	64	
Octave Strings	11	11	102	0	
Bass Strings	11	12	98	16	
Tremolo Strings	11	13	100	32	45
Synth Strings 2	11	14	103	16	52
Jazz Violin	11	15	96	16	
Fiddle	11	16	96	32	111
Viola	11	17	97	32	42
Bowed Bass	11	18	98	0	44
Humming	11	19	105	0	
BRASS					
Brass	12	0	56	0	62
Brass & Synth	12	1	56	48	
Trumpet 1	12	2	48	0	57
Harmon Mute Tpt	12	3	50	0	60
Flugel Horn	12	4	51	0	
Bright Trombone	12	5	52	0	58
Cup Mute Trombone	12	6	52	48	
Closed Fr. Horn	12	7	54	0	
Open Fr. Horn	12	8	54	16	61
Synth Brass 1	12	9	60	0	63
Octave Brass	12	10	56	16	
Mute Brass Ens.	12	11	56	32	
Trumpet 2	12	12	48	64	
Orchest. Trumpet	12	13	48	32	
Straight Mute Tpt	12	14	50	16	
Cornet	12	15	49	16	
Mellow Trombone	12	16	53	0	
Orchestral Tuba	12	17	55	0	59
Marching Tuba	12	18	55	16	
Synth Brass 2	12	19	63	48	

Sound	MIDI Program change data				
	Normal		Technics		GM
	No.	Bank	Data	Bank	
ORGAN & ACCORDION					
Jazz Organ	3	0	88	0	18
Full Drawbars	3	1	89	0	17
Jazz Drawbars	3	2	93	0	
16' & 1'	3	3	91	0	
Pop Organ 1	3	4	90	0	
Pipe Organ 1	3	5	84	0	20
Theatre Organ 1	3	6	87	32	
Bright Accordion	3	7	82	0	22
Mellow Accordion	3	8	81	0	
Musette	3	9	82	0	
Mellow Drawbars	3	10	91	32	
Pop Organ 2	3	11	89	32	
Rock Organ	3	12	92	32	19
Organ Bass	3	13	94	16	
Pipe Organ 2	3	14	85	0	
Theatre Organ 2	3	15	87	48	
Theatre Organ 3	3	16	87	64	
Theatre Organ 4	3	17	87	80	
Harmonium	3	18	86	32	21
Bandoneon	3	19	80	16	24
REED					
Soprano Sax	4	0	76	0	65
Alto Sax	4	1	77	0	66
Mellow Alto Sax	4	2	77	16	
Tenor Sax	4	3	78	48	67
Breathy Tenor	4	4	78	16	
Baritone Sax	4	5	79	16	68
Jazz Clarinet 1	4	6	68	0	72
Oboe	4	7	66	0	69
Harmonica	4	8	83	0	
Blues Harmonica	4	9	83	16	23
Rock Tenor Sax	4	10	79	0	
Distortion Sax	4	11	78	32	
Synth Sax	4	12	79	48	
Jazz Clarinet 2	4	13	68	32	
Mellow Clarinet	4	14	68	16	
Classic Clarinet	4	15	69	0	
Bass Clarinet	4	16	69	16	
English Horn	4	17	67	0	70
Bassoon	4	18	70	0	71
Bagpipe	4	19	75	0	110

Program change number = Program change data + 1 / Bank number = Bank data + 1

Sound	MIDI Program change data					Sound	MIDI Program change data				
	Normal		Technics		GM		Normal		Technics		GM
	No.	Bank	Data	Bank			No.	Bank	Data	Bank	
FLUTE & ETHNIC						**SYNTH LEAD**					
[illegible]	13	0	64	0	73	Square Lead	5	0	117	0	81
[illegible]ute	13	1	65	0	74	Saw Lead	5	1	118	16	82
[illegible] Flute	13	2	65	16		Sine Lead	5	2	94	0	
[illegible] Flute	13	3	64	16		Air Vox	5	3	106	16	86
[illegible] Flute 1	13	4	72	0	76	Chiffer Lead	5	4	117	32	84
Recorder	13	5	74	0	75	Charang	5	5	27	48	85
[illegible]	13	6	74	16	80	Metallica Solo	5	6	115	96	
[illegible]	13	7	111	0	79	Talking Lead	5	7	117	80	
[illegible]hachi	13	8	75	0	78	Digi Stack	5	8	116	96	
[illegible]na	13	9	75	16		80's Solo	5	9	121	80	
[illegible] Ensemble	13	10	64	48		Steamy Keys	5	10	106	80	
[illegible] Flute 2	13	11	72	16		Olymp Synth	5	11	60	64	
[illegible]wn Bottle	13	12	72	32	77	Voco Synth	5	12	118	32	
[illegible]	13	13	73	32		5th Wave	5	13	119	0	87
[illegible]ental	13	14	73	16	112	Bass & Lead	5	14	46	32	88
[illegible] Recorder	13	15	74	32		Sleigh Synth	5	15	61	64	
[illegible] Calliope	13	16	72	48	83	Talking Synth	5	16	60	80	
[illegible] Whistle	13	17	112	48		Synth Harp	5	17	32	64	
[illegible]sty Flute	13	18	75	64		Afro Dance	5	18	11	80	
[illegible] Flutter Flute	13	19	75	80		Digi Bells	5	19	14	96	
						SYNTH PAD					
[illegible] Bass	14	0	43	0	33	Mellow Ensemble	6	0	107	16	90
[illegible]w Ac. Bass	14	1	43	16		Warm Synth Pad	6	1	62	80	
Electric Bass	14	2	40	0		Synth Vocal	6	2	107	0	55
[illegible] E. Bass	14	3	40	16	34	Spacy Pad	6	3	107	32	92
Funk E. Bass	14	4	40	48		Metal Pad	6	4	106	32	94
[illegible]	14	5	40	32	36	Star Theme	6	5	120	16	104
Picked E. Bass	14	6	42	0	35	Bowed Glass	6	6	120	0	93
[illegible] Bass 1	14	7	41	0	37	Atmosphere	6	7	21	48	100
[illegible]ded Bass	14	8	46	16		Fantasia	6	8	116	48	89
[illegible]	14	9	46	0	39	Bell Pad	6	9	116	32	
Fusion E. Bass	14	10	40	64		Dream	6	10	108	32	
[illegible]mute Bass	14	11	47	0		Mist	6	11	108	48	101
[illegible] Bass 2	14	12	41	16	38	Sweep Pad	6	12	62	32	96
[illegible] Bass	14	13	42	16		Halo Pad	6	13	107	48	95
Synth Chopper	14	14	45	0	40	Echo Drops	6	14	106	48	103
[illegible] Bass 2	14	15	46	64		Polysynth	6	15	102	32	91
[illegible] Bass	14	16	47	48		Mellow Synth Brass	6	16	62	64	64
[illegible]ise Bass	14	17	47	32		Voxmosphere	6	17	61	96	
[illegible] Bass	14	18	46	80		Wide Window	6	18	61	112	
[illegible] Bass	14	19	46	96		Dark Universe	6	19	106	64	

SOUND

Sound	MIDI Program change data				
	Normal		Technics		GM
	No.	Bank	Data	Bank	
KEYBOARD PERC					
Jazz Kit	15	0	113	128	
Brush Kit	15	1	117	128	
Trad Kit	15	2	118	128	
Standard Kit	15	3	112	128	GM
Room Kit	15	4	115	128	
Light Rock Kit	15	5	126	128	
Power Kit	15	6	119	128	
Funk Kit	15	7	120	128	
Soul Kit	15	8	121	128	
Electric Kit	15	9	114	128	
Dance Kit	15	10	122	128	
House Kit	15	11	123	128	
Synth Kit	15	12	116	128	
Orchestral Kit	15	13	124	128	
Sound Effect Kit	15	14	125	128	
User Kit	15	15	112	224	
MEMORY A					
MEMORY A - 1	8	0	0	128	
MEMORY A - 2	8	1	1	128	
MEMORY A - 3	8	2	2	128	
MEMORY A - 4	8	3	3	128	
MEMORY A - 5	8	4	4	128	
MEMORY A - 6	8	5	5	128	
MEMORY A - 7	8	6	6	128	
MEMORY A - 8	8	7	7	128	
MEMORY A - 9	8	8	8	128	
MEMORY A - 10	8	9	9	128	
MEMORY A - 11	8	10	10	128	
MEMORY A - 12	8	11	11	128	
MEMORY A - 13	8	12	12	128	
MEMORY A - 14	8	13	13	128	
MEMORY A - 15	8	14	14	128	
MEMORY A - 16	8	15	15	128	
MEMORY A - 17	8	16	16	128	
MEMORY A - 18	8	17	17	128	
MEMORY A - 19	8	18	18	128	
MEMORY A - 20	8	19	19	128	

Sound	MIDI Program change data				
	Normal		Technics		GM
	No.	Bank	Data	Bank	
PERC & EFFECT					
Agogo	7	0	122	0	114
Wood Block	7	1	122	16	116
Taiko Drum	7	2	123	48	117
Melodic Tom	7	3	122	32	118
Synth Drum	7	4	124	0	119
Reverse Cymbal	7	5	122	48	120
Ice Rain	7	6	121	88	97
Soundtrack	7	7	119	16	98
Goblins	7	8	106	0	102
Windy Sweep	7	9	106	96	
Sleigh Bell	7	10	125	0	
Talking Drum	7	11	123	64	
Fret Noise	7	12	124	16	121
Breath Noise	7	13	124	32	122
Seashore	7	14	124	48	123
Bird Tweet	7	15	125	32	124
Telephone	7	16	123	0	125
Helicopter	7	17	125	16	126
Applause	7	18	125	48	127
Gun Shot	7	19	123	32	128
MEMORY B					
MEMORY B - 1	0	0	20	128	
MEMORY B - 2	0	1	21	128	
MEMORY B - 3	0	2	22	128	
MEMORY B - 4	0	3	23	128	
MEMORY B - 5	0	4	24	128	
MEMORY B - 6	0	5	25	128	
MEMORY B - 7	0	6	26	128	
MEMORY B - 8	0	7	27	128	
MEMORY B - 9	0	8	28	128	
MEMORY B - 10	0	9	29	128	
MEMORY B - 11	0	10	30	128	
MEMORY B - 12	0	11	31	128	
MEMORY B - 13	0	12	32	128	
MEMORY B - 14	0	13	33	128	
MEMORY B - 15	0	14	34	128	
MEMORY B - 16	0	15	35	128	
MEMORY B - 17	0	16	36	128	
MEMORY B - 18	0	17	37	128	
MEMORY B - 19	0	18	38	128	
MEMORY B - 20	0	19	39	128	

Program change number = Program change data + 1 / Bank number = Bank data + 1

PROGRAM CHANGE DATA					RHYTHM	MIDI PROGRAM CHANGE DATA			
					DANCE POP				
	7	(0)	80	(96)	Disco 1	2	(0)	124	(80)
	7	(1)	88	(64)	Disco 2	2	(1)	123	(64)
	7	(2)	90	(112)	Rap	2	(2)	127	(96)
	7	(3)	91	(64)	Hip Hop	2	(3)	127	(80)
	7	(4)	91	(48)	Dance	2	(4)	124	(96)
	7	(5)	91	(32)	House	2	(5)	126	(32)
	7	(6)	88	(32)	Garage	2	(6)	125	(48)
	7	(7)	86	(32)					
					BIG BAND & SWING				
	8	(0)	80	(80)	Big Band 1	10	(0)	36	(64)
	8	(1)	80	(64)	Big Band 2	10	(1)	38	(80)
	8	(2)	84	(72)	B. Band Ballad	10	(2)	39	(32)
	8	(3)	97	(77)	Standard Swing	10	(3)	25	(32)
	8	(4)	97	(32)	Orch. Swing	10	(4)	37	(32)
	8	(5)	97	(16)	Jazz Waltz	10	(5)	48	(48)
	8	(6)	84	(64)					
					ROCK (OTHERS)				
	8	(0)	95	(96)	Shuffle R&R 1	3	(0)	76	(112)
	8	(1)	95	(64)	Shuffle R&R 2	3	(1)	76	(16)
	8	(2)	100	(32)	Shuffle Boogie	3	(2)	76	(0)
	8	(3)	101	(72)	Shuffle H.Rock	3	(3)	79	(16)
	8	(4)	90	(16)	Rock Ballad	3	(4)	74	(80)
	8	(5)	86	(112)	Slow Soul Ballad	3	(5)	75	(32)
	8	(6)	107	(80)	Swing Rock	3	(6)	72	(64)
					Shuffle Ballad	3	(7)	79	(32)
					JAZZ COMBO				
	1	(0)	113	(96)	Jazz Combo	11	(0)	34	(80)
	1	(1)	113	(80)	Euro Combo	11	(1)	34	(64)
	1	(2)	112	(64)	Jazz Quartet	11	(2)	32	(64)
	1	(3)	112	(48)	Jazz Ballad	11	(3)	44	(16)
	1	(4)	113	(64)	Modern Jazz	11	(4)	40	(80)
	1	(5)	109	(32)	Organ Blues	11	(5)	39	(96)
					Fusion	11	(6)	74	(96)
					COUNTRY				
	9	(0)	110	(48)	Country 2 Step	4	(0)	17	(112)
	9	(1)	95	(32)	Country Swing	4	(1)	17	(80)
	9	(2)	96	(64)	Bluegrass	4	(2)	20	(48)
	9	(3)	117	(16)	Hawaiian	4	(3)	22	(16)
	9	(4)	119	(16)	R&B Soul	4	(4)	123	(80)
	9	(5)	118	(48)	R&B Ballad	4	(5)	75	(64)
					Shuffle	4	(6)	77	(64)

RHYTHM

RHYTHM	MIDI PROGRAM CHANGE DATA NORM	MIDI PROGRAM CHANGE DATA TECH
MARCH & WALTZ		
U.S.March 2/4	12 (0)	0 (80)
GermanMrch 2/4	12 (1)	1 (48)
U.S.March 6/8	12 (2)	2 (16)
Pop March	12 (3)	4 (64)
Polka 2/4	12 (4)	4 (32)
Stand. Waltz	12 (5)	8 (96)
Vienna Waltz	12 (6)	9 (32)
Chanson Waltz	12 (7)	11 (32)
Swingy Waltz	12 (8)	12 (16)
Polka 6/8	12 (9)	5 (32)
TRAD & SHOWTIME		
Foxtrot	5 (0)	29 (96)
Chanson Fox.	5 (1)	29 (64)
Jive	5 (2)	29 (0)
Quickstep	5 (3)	26 (16)
Soft shoe	5 (4)	24 (80)
Broadway Show	5 (5)	15 (32)
Hollywood	5 (6)	30 (16)
Cabaret	5 (7)	15 (48)
Paris.Ballad	5 (8)	74 (96)
MEMORY		
MEMORY A V1	14 (0)	0 (128)
MEMORY A V2	14 (1)	1 (128)
MEMORY A V3	14 (2)	2 (128)
MEMORY A V4	14 (3)	3 (128)
MEMORY B V1	14 (4)	4 (128)
MEMORY B V2	14 (5)	5 (128)
MEMORY B V3	14 (6)	6 (128)
MEMORY B V4	14 (7)	7 (128)
MEMORY C V1	14 (8)	8 (128)
MEMORY C V2	14 (9)	9 (128)
MEMORY C V3	14 (10)	10 (128)
MEMORY C V4	14 (11)	11 (128)

RHYTHM	MIDI PROGRAM CHANGE DATA NORM	MIDI PROGRAM CHANGE DATA TECH
LATIN 1		
Rhumba	13 (0)	58 (64)
Beguine	13 (1)	59 (32)
Cha Cha	13 (2)	57 (48)
Mambo	13 (3)	56 (32)
Swingy Reggae	13 (4)	71 (32)
Modern Reggae	13 (5)	71 (48)
LATIN 2		
Bossanova 1	6 (0)	48 (112)
Bossanova 2	6 (1)	48 (96)
Samba	6 (2)	51 (96)
Tango Argent.	6 (3)	53 (48)
Tango Conti.	6 (4)	53 (64)
Arabian	6 (5)	80 (0)
COMPOSER CHORD MAP		
MAP 1	15 (0)	112 (128)
MAP 2	15 (1)	113 (128)
MAP 3	15 (2)	114 (128)
MAP 4	15 (3)	115 (128)
MAP 5	15 (4)	116 (128)

•The numbers in parentheses ( ) are bank data.
Program change number = Program change data+1 / Bank number = Bank data+1

BOARD PERCUSSION

Other kits	MIDI NOTE NUMBER		Orchestral kit	MIDI NOTE NUMBER	
	NORM	TECH		NORM	TECH
[illegible] Drum	[illegible]	[illegible]	Orchestral Bass Drum	36	36
Rim Shot	37	47	Rim Shot	37	47
Snare Drum 1	38	38	Orchestral Snare Drum 1	38	38
Special Snare Drum	39	31	Castanets	39	55
Snare Drum 2	40	32	Orchestral Snare Drum 2	40	32
Floor Tom	41	95	Triangle	41	57
Splash Cymbal	42	24	Cymbal Soft Mallet	42	24
Tom Low	43	41	Ohchestral Tambourine	43	21
Crash Cymbal Low	44	51	Orchestral Cymbal 1	44	51
Tom Mid	45	43	Tam-Tam	45	30
Crash Cymbal High	46	25	Orchestral Cymbal 2	46	25
Tom High	47	45	Rattle	47	58
Hi Hat Close 1	48	48	Tublar Bells C	48	84
Hi Hat Close 2	49	49	Tublar Bells C'	49	85
Hi Hat Open	50	50	Tublar Bells D	50	86
Ride Bell	51	28	Tublar Bells D'	51	87
Ride Cymbal	52	52	Tublar Bells E	52	88
Conga Low	53	53	Tublar Bells F	53	89
Small Conga Low	54	54	Tublar Bells F'	54	90
Conga High	55	55	Tublar Bells G	55	91
Small Conga High	56	56	Tublar Bells G'	56	92
Conga Crash	57	57	Tublar Bells A	57	93
Metal Cabasa	58	58	Tublar Bells A'	58	94
Timbales Low	59	99	Tublar Bells B	59	95
Timbales High	60	100	Tublar Bells c	60	96
Cowbell Low	61	66	Tublar Bells c'	61	97
Cowbell High	62	62	Tublar Bells d	62	98
Agogo Low	63	102	Tublar Bells d'	63	99
[illegible] High	64	101	Timpani E	64	64
[illegible] Whistle Low	65	65	Timpani F	65	65
[illegible] Whistle High	66	66	Timpani F'	66	66
[illegible]	67	67	Timpani G	67	67
Slap	68	68	Timpani G'	68	68
Hand Claps	69	69	Timpani A	69	69
Tambourine	70	74	Timpani A'	70	70
[illegible]	71	96	Timpani B	71	71
Triangle Mute	72	108	Timpani c	72	72
Maracas	73	105	Timpani c'	73	73
Triangle Open	74	107	Timpani d	74	74
[illegible] Short	75	77	Timpani d'	75	75
Guiro Long	76	76	Timpani e	76	76
Orchestral Bass Drum	77	85	Timpani f	77	77
[illegible] Snare Drum	78	86	Wood Block Low	78	115
[illegible] Cymbal	79	87	Wood Block Mid	79	116
Wind Chime	80	29	Wood Block High	80	117
[illegible]	81	118	Hi Hat Close 1	81	48
[illegible]	82	111	Hi Hat Close 2	82	49
[illegible]	83	119	Hi Hat Open	83	50

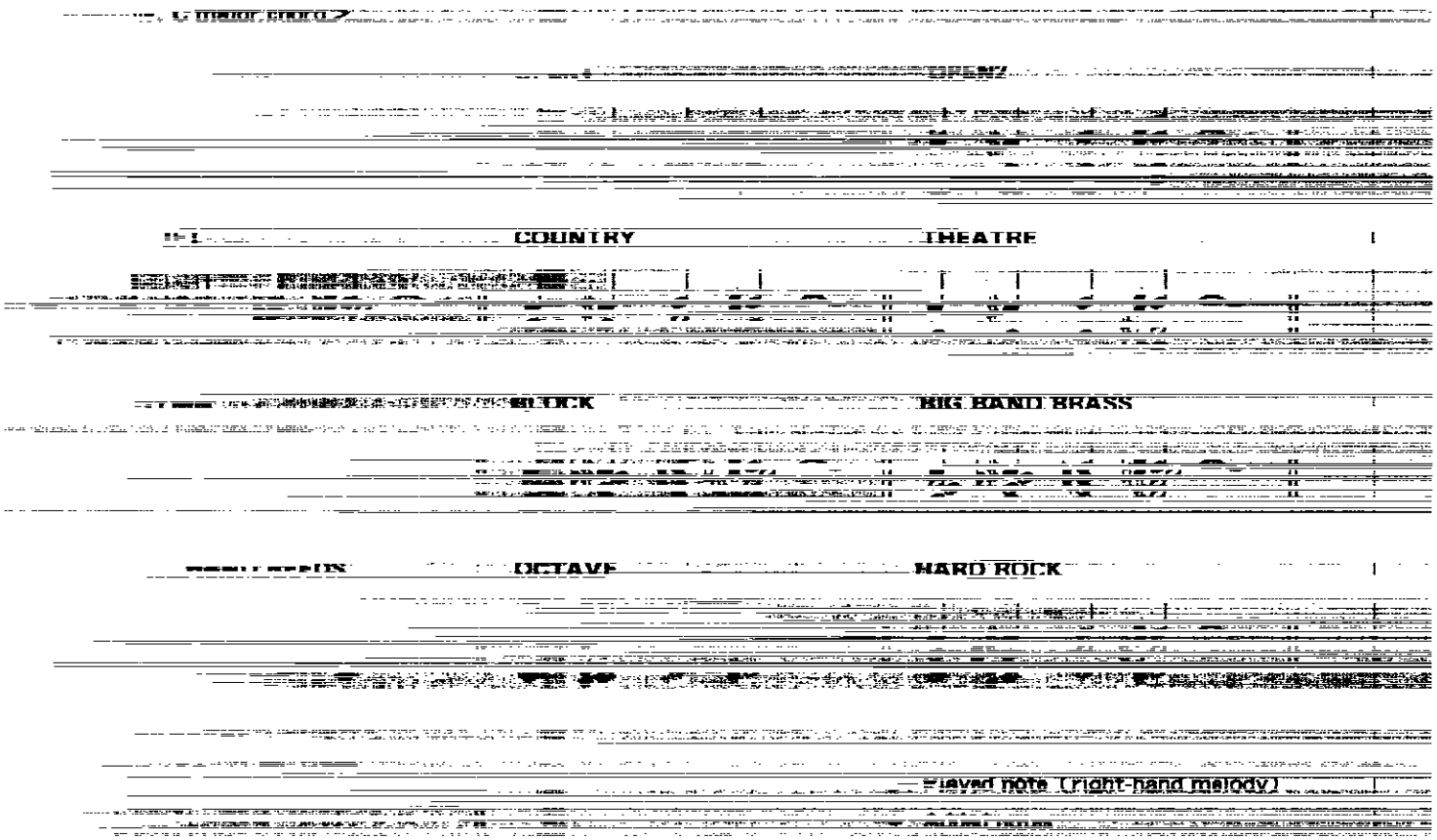
[illegible] and MIDI function

KEYBOARD PERCUSSION

		Sound Effect kit	MIDI NOTE NUMBER		General MIDI	MIDI NOTE NUMBER
			NORM	TECH		
		–	–	–	Bass Drum 2*	35
		Fret Noise	36	36	Bass Drum 1	36
		Picked Noise 1	37	47	Rim Shot	37
		Picked Noise 2	38	38	Snare Drum 1	38
		Picked Noise 3	39	31	Hand Claps	39
		Picked Noise 4	40	32	Snare Drum 2	40
		Sax Breath Noise	41	96	Floor Tom Low	41
		Flute Breath Noise	42	24	HI Hat Close	42
		Slap Shot	43	28	Floor Tom High	43
		Scratch 1	44	51	HI Hat Pedal	44
		Scratch 2	45	43	Tom Low	45
		Slap	46	25	HI Hat Open	46
		Hand Claps	47	45	Tom Mid	47
		Applause 1	48	48	Tom High 1	48
		Applause 2	49	49	Crash Cymbal 1	49
		Whistle	50	50	Tom High 2	50
		Orchestra Hit Low	51	28	Ride Cymbal 1	51
		Orchestra Hit High	52	52	China Cymbal	52
		Metal Hit Low	53	53	Ride Bell	53
		Metal Hit High	54	54	Tambourine	54
		Temple Block	55	55	Splash Cymbal	55
		Small Bell	56	56	Cowbell	56
		Sleigh Bell	57	57	Crash Cymbal 2	57
		Wind Chime	58	27	Vibraslap	58
		Tam-Tam	59	59	Ride Cymbal 2	59
		Gun Shot	60	100	Bongo High	60
		Explosion	61	86	Bongo Low	61
		Helicopter	62	62	Conga Mute Crash	62
		Train	63	102	Conga High	63
		Steam Whistle	64	101	Conga Low	64
		Telephone	65	65	Timbales High	65
		Wave 1	66	66	Timbales Low	66
		Wave 2	67	67	Agogo High	67
		Wind	68	96	Agogo Low	68
		Heart Beat	69	35	Cabasa	69
		Voice Ah	70	33	Maracas	70
		Voice Yeh	71	34	Samba Whistle Short	71
		Bird 1	72	108	Samba Whistle Long	72
		Bird 2	73	106	Guiro Short	73
		Bird 3	74	107	Guiro Long	74
		Bird 4	76	77	Claves	75
		Bird 5	76	76	Wood Block Mid	76
		Bird 6	77	85	Wood Block Low	77
		Bird 7	78	85	Cuica High	78
		Bullfrog	79	87	Cuica Low	79
		Little Dog	80	29	Triangle Mute	80
		Metronome Click	81	16	Triangle Open	81
		Metronome Bell	82	17	Shaker	82
		Square Click	83	15	Sleigh Bell	83

* Sounds in SEQUENCER and MIDI function.

ACCOMPANIMENT TYPE



PANEL MEMORY INITIAL SETTING

	BANK 2		BANK 3
1	Piano Combo	1	Theatre Flutes
2	Country & Western	2	Bossanova Drawbars
3	Gentle Rossa	3	Samba Drawbars
4	Heimatklange	4	Standard Combo
5	Mountain Flutes	5	Jazz Club
6	Last Night of the Proms !	6	Gospel Tonewheels
7	Dreamy Ballad	7	Rock Drawbars
8	Modern Guitar	8	Picture Palace

...the EXPAND mode of PANEL MEMORY will allow you to make full use of the initial factory settings.

...is very effective when used with the AUTO PLAY CHORD. When you select the BANK 3, the SYNCHRO&BREAK

REVERB

SINGLE DELAY	An echo effect, in which the original sound is repeated after a delay.	DELAY L DELAY R FEEDBACK L FEEDBACK R HIGH DUMP GAIN VOLUME	0 – 380 ms 0 – 380 ms –99 – 99 –99 – 99 –24 – 0 dB 0 – 99

DELAY : Time difference between original sound and the repeat (ms).
FEEDBACK : Feedback volume (inverted when a minus level).
HIGH DUMP GAIN : Adjusts the degree of damping in the treble range.
VOLUME : Adjusts the volume of the sound to which the effect is applied.

MULTI TAP DELAY	An echo effect in which the length of the delay can be set to vary depending upon pan position.	DELAY 1 DELAY 2 DELAY 3 DELAY 4 PAN 1 PAN 2 PAN 3 PAN 4 FEED BACK HIGH DUMP GAIN VOLUME	0 – 700 ms 0 – 700 ms 0 – 700 ms 0 – 700 ms –99 – 99 –99 – 99 –99 – 99 –99 – 99 –99 – 99 –24 – 0 dB 0 – 99

PAN : penning setting.

ROOM REVERB 1,2	Reverberations sound as if produced in a room (indoors).	DEPTH REVERB TIME PRE DELAY HIGH DUMP GAIN EARLY REFL LEVEL	0 – 99 0.1 – 10 S 0 – 200 ms –24 – 0 dB 0 – 99

DEPTH : Depth of the reverb.
REVERB TIME : The time it takes for the reverb effect to fade out.
PRE DELAY : The time elapsed between the beginning of the reverb effect.
EARLY REFL LEVEL : Adjusts the early-reflection level.

PLATE REVERB 1,2	A type of reverberation obtained from a reverb unit which utilizes the vibrations of a metal plate.	DEPTH REVERB TIME PRE DELAY HIGH DUMP GAIN EARLY REFL LEVEL	0 – 99 0.1 – 10 S 0 – 200 ms –24 – 0 dB 0 – 99
CONCERT REVERB 1,2	Reverberations sound as if produced in a concert hall.	DEPTH REVERB TIME PRE DELAY HIGH DUMP GAIN EARLY REFL LEVEL	0 – 99 0.4 – 30 S 0 – 200 ms –24 – 0 dB 0 – 99
DARK REVERB 1,2	Reverberations evoke images of darkness.	DEPTH REVERB TIME PRE DELAY HIGH DUMP GAIN EARLY REFL LEVEL	0 – 99 0.4 – 30 S 0 – 200 ms –24 – 0 dB 0 – 99

REVERB

	DEPTH	0 — 99
	REVERB TIME	0.4 — 30 S
BRIGHT	PRE DELAY	0 — 200 ms
	HIGH DUMP GAIN	−24 — 0 dB
	EARLY REFL LEVEL	0 — 99

	DEPTH	0 — 99
	REVERB TIME	0.4 — 30 S
	PRE DELAY	0 — 200 ms
	HIGH DUMP GAIN	−24 — 0 dB
	EARLY REFL LEVEL	0 — 99

EFFECT

	DEPTH	0 — 99
	LFO SPEED	0 — 40.2 Hz
	LFO WAVEFORM	sin,tri,square
	VOLUME	0 — 99
	REVERB SEND	0 — 99

- DEPTH: Depth of the effect
- LFO SPEED: Transmission frequency of the LFO (low frequency oscillator) modulator
- LFO WAVEFORM: Waveform of the LFO (low frequency oscillator) modulator
- VOLUME: Volume of the sound to the effect is applied
- REVERB SEND: The volume sent to DIGITAL REVERB

	DEPTH	0 — 99
	LFO SPEED	0 — 40.2 Hz
	LFO SPEED	0 — 40.2 Hz
	LFO BALANCE	0 — 99
	LFO WAVEFORM	sin,tri,square
	DELAY TIME	0 — 99
	REVERB SEND	0 — 99

- MODULATED: A differently modulated chorus in which the swell is
- LFO BALANCE: The degree to which the fast LFO is applied

	MANUAL	0 — 99
	LOW MIX	0 — 99
	HIGH MIX	0 — 99
	DELAY TIME L	0 — 350 ms
	DELAY TIME R	0 — 350 ms
	VOLUME	0 — 99
	REVERB SEND	0 — 99

- Emphasizes a specific frequency by shifting the
- Modifies sound profile.
- Center frequency to which the effect is applied.
- Balance the mix of the original sound and the harmonic
- DELAY TIME: Delay time

DSP EFFECT

FLANGER	An undulation is added,giving an intensity to sound s having many overtones (harmonics) .	DEPTH	0 – 99
		LFO SPEED	0 – 40.2 Hz
		RESONANCE	–99 – 99
		MANUAL	0 – 99
		PHASE	0 – 180 degree
		LFO WAVEFORM	sin,tri,square
		VOLUME	0 – 99
		REVERB SEND	0 – 99

RESONANCE : Feedback volume (inverted when a minus value).
PHASE : Phase difference between left and right modulation.

PHASER	A more distinct undulation effect than FLANGER. Ideal for electric piano type sounds.	DEPTH	0 – 99
		LFO SPEED	0 – 40.2 Hz
		RESONANCE	–99 – 99
		MANUAL	0 – 99
		PHASE	0 – 180 degree
		LFO WAVEFORM	sin,tri,square
		VOLUME	0 – 99
		REVERB SEND	0 – 99

ENSEMBLE	Produces the effect of many musical instruments being played together.	DEPTH	0 – 99
		LFO SPEED	0 – 40.2 Hz
		LFO WAVEFORM	sin,tri,square
		VOLUME	0 – 99
		REVERB SEND	0 – 99

GATED REVERB	Reverberation is applied for a limited time. An interesting effect can be obtained by muting a reverberation in the middle.	GATE TIME	10 – 2900 ms
		HIGH DUMP GAIN	–24 – 0 dB
		THRESHOLD	0 – 99
		MASK TIME	10 – 2900 ms
		VOLUME	0 – 99
		REVERB SEND	0 – 99

GATE TIME : The time period during which the effect is applied.
THRESHOLD : The boundary point at which the effect is applied.
MASK TIME : The time period during the effect is masked.

SINGLE DELAY	An echo effect,in which the original sound is repeated after a delay.	DELAY L	0 – 350 ms
		DELAY R	0 – 350 ms
		FEEDBACK L	–99 – 99
		FEEDBACK R	–99 – 99
		HIGH DUMP GAIN	–24 – 0 dB
		VOLUME	0 – 99
		REVERB SEND	0 – 99

DELAY : Time difference between original sound and the repeat (ms).
FEEDBACK : Feedback volume (inverted when a minus level).
HIGH DUMP GAIN : Adjusts the degree of damping in the treble range.
VOLUME : Adjusts the volume of the sound to which the effect is applied.

[illegible] DELAY	[illegible] effect in which the length of the delay can be set to vary depending upon pan position.	DELAY 1	0	—	700 ms
		DELAY 2	0	—	700 ms
		DELAY 3	0	—	700 ms
		DELAY 4	0	—	700 ms
		PAN 1	0	—	99
		PAN 2	0	—	99
		PAN 3	0	—	99
		[illegible]	[illegible]	—	99
		FEED BACK	−99	—	99
		HIGH DUMP GAIN	−24	—	0 dB
		VOLUME	0	—	99
		REVERB SEND	0	—	99

PAN · panning setting

DISTORTION	The sound is very distorted. A powerful effect when applied to a sound which is played solo.	DRIVE	0	—	99
		ADJUST	0	—	99
		VOLUME	0	—	99
		REVERB SEND	0	—	99

DRIVE · Degree of distortion

ADJUST · The manner in which the effect is applied.

OVERDRIVE	[illegible] natural distortion than the above effect, similar to that achieved with a vacuum tube [illegible]	DRIVE	0	—	99
		ADJUST	0	—	99
		VOLUME	0	—	99
		REVERB SEND	0	—	99

FUZZ	[illegible] distortion effect ideal for electric guitar [illegible]	DRIVE	0	—	99
		ADJUST	0	—	99
		VOLUME	0	—	99
		REVERB SEND	0	—	99

[illegible]	[illegible] sounds, clarifies sound profile, and [illegible]	DRIVE	0	—	99
		ADJUST	0	—	99
		EMPHASIS Fc	50 Hz	—	16kHz
		EMPHASIS GAIN	0	—	99
		VOLUME	0	—	99
		REVERB SEND	0	—	99

EMPHASIS Fc · The frequency of the emphasis

EMPHASIS GAIN · The volume of the emphasis.

COMPRESSOR	Compresses the dynamic range	THRESHOLD	0	—	99
		RATIO	[illegible]	—	[illegible]
		ATTACK SENSITIVITY	0.001	—	0.1 S
		RELEASE SENSITIVITY	0.001	—	0.1 S
		VOLUME	0	—	99
		REVERB SEND	0	—	99

RATIO · The ratio of the effect

ATTACK SENSITIVITY · Sensitivity of the effect at the time of attack (reaction speed)

RELEASE SENSITIVITY · Sensitivity of the effect at the time of release (reaction speed)

DSP EFFECT

SLOW ATTACKER	Slows down the attack.	THRESHOLD	0 – 99
		ATTACK RATE	0.2 – 20.0 S
		RELEASE RATE	0.01 – 1.0 S
		VOLUME	0 – 99
		REVERB SEND	0 – 99

ATTACK RATE : Attack rate (slope) .
RELEASE RATE : Release rate (slope) .

PARAMETRIC EQ	An equalizer which sets sound quality for a precise frequency point.	BAND EMPHASIS 1 Fc	50 Hz – 16kHz
		BAND EMPHASIS 1 Q	0.1 – 20
		BAND EMPHASIS 1 G	–12 – 12 dB
		BAND EMPHASIS 2 Fc	50 Hz – 16kHz
		BAND EMPHASIS 2 Q	0.1 – 20
		BAND EMPHASIS 2 G	–12 – 12 dB
		BAND EMPHASIS 3 Fc	50 Hz – 16kHz
		BAND EMPHASIS 3 Q	0.1 – 20
		BAND EMPHASIS 3 G	–12 – 12 dB
		BAND EMPHASIS 4 Fc	50 Hz – 16kHz
		BAND EMPHASIS 4 Q	0.1 – 20
		BAND EMPHASIS 4 G	–12 – 12 dB
		BAND EMPHASIS 5 Fc	50 Hz – 16kHz
		BAND EMPHASIS 5 Q	0.1 – 20
		BAND EMPHASIS 5 G	–12 – 12 dB
		VOLUME	0 – 99
		REVERB SEND	0 – 99

BAND EMPHASIS Fc : *Center frequency of the modified band.*
BAND EMPHASIS Q : Sharpness of the curve of the frequency characteristic of the modified band.
BAND EMPHASIS G : Volume of emphasis/damping in the modified band.

AUTO PAN	Periodically shifts the sound's pan position.	DEPTH	0 – 99
		LFO SPEED	0 – 40.2 Hz
		PHASE	0 – 180 degree
		LFO WAVEFORM	sin,tri,square
		VOLUME	0 – 99
		REVERB SEND	0 – 99
VIBRATO	Modulates frequency in a vibrato pattern.	DEPTH	0 – 99
		LFO SPEED	0 – 40.2 Hz
		PHASE	0 – 180 degree
		LFO WAVEFORM	sin,tri,square
		VOLUME	0 – 99
		REVERB SEND	0 – 99
AUTO WAH	A filter effect which automatically changes peak frequency in response to an increase in the volume of the input.	RESONANCE	wide,middle,narrow
		MANUAL	0 – 99
		SWEEP RANGE	0 – 99
		VOLUME	0 – 99
		REVERB SEND	0 – 99

SWEEP RANGE : The range of frequencies to be changed.

EFFECT

	DRIVE	0	– 99
	VOLUME ADJUST	0	– 99
	TREBLE DEPTH	0	– 99
	SLOW	0	– 34.95 Hz
	SPEED UP	1.0	– 61.0 S
	SPEED DOWN	1.0	– 61.0 S
	BASS DEPTH	0	– 99
	SLOW	0	– 34.95 Hz
	SPEED UP	1.0	– 61.0 S
	SPEED DOWN	1.0	– 61.0 S
	VOLUME	0	– 99
	SLOW/FAST	slow,fast	
	REVERB SEND	0	– 99

ROTARY : Produces sounds that seem to be emitted from rotary speakers. Ideal for organ type sounds.

SPEED UP : The time it takes to reach the (TREBLE/BASS) FAST speed when the speed is changed from slow to fast.

SPEED DOWN : The time it takes to reach the (TREBLE/BASS) SLOW speed when the speed is changed from fast to slow.

SLOW/FAST : Switches speaker rotation speed between SLOW and FAST.

	OSC-SPEED	0	– 19.6 kHz
	PHASE	0	– 180 degree
	OSC WAVEFORM	sin,tri,square	
	VOLUME	0	– 99
	REVERB SEND	0	– 99

RING MODULATOR : Produces a metallic sound. Tends to sound off key.

WAVEFORM : Oscillator wavaform

OSC-FREQ : Oscillator frequency.

	DEPTH	0	– 99
	SLOW LFO SPEED	0	– 40.2 Hz
	FAST LFO SPEED L	0	– 40.2 Hz
	FAST LFO SPEED R	0	– 40.2 Hz
	PHASE	0	– 180 degree
	LFO WAVEFORM	sin,tri,square	
	VOLUME	0	– 99
	REVERB SEND	0	– 99

CHORUS : Mixes in LFO modulation.

	DELAY DRY/WET	0	– 99
	DELAY L	0	– 300 ms
	DELAY R	0	– 300 ms
	FEEDBACK L	–99	– 99
	FEEDBACK R	–99	– 99
	CHORUS DRY/WET	0	– 99
	DEPTH	0	– 99
	LFO SPEED	0	– 40.2 Hz
	LFO WAVEFORM	sin,tri,square	
	VOLUME	0	– 99
	REVERB SEND	0	– 99

DELAY : Stereo delay with chorus

	DELAY1 DRY/WET	0	– 99
	DELAY L	0	– 180 degree
	DELAY R	0	– 180 degree
	FEEDBACK L	–99	– 99
	FEEDBACK R	–99	– 99
	DELAY2 DRY/WET	0	– 99
	DELAY L	0	– 180 degree
	DELAY R	0	– 180 degree
	FEEDBACK L	–99	– 99
	FEEDBACK R	–99	– 99
	TIME	0	– 99
	REVERB SEND	0	– 99

SINGLE DELAY

+

SINGLE DELAY : Combines two types of delay.

DSP EFFECT

SINGLE DELAY + FLANGER	Combines delay with flanger.	DELAY DRY/WET	0 — 99
		DELAY L	0 — 300 ms
		DELAY R	0 — 300 ms
		FEEDBACK L	−99 — 99
		FEEDBACK R	−99 — 99
		FLANGER DRY/WET	0 — 99
		DEPTH	0 — 99
		LFO SPEED	0 — 40.2 Hz
		RESONANCE	−99 — 99
		MANUAL	0 — 99
		PHASE	0 — 180 degree
		LFO WAVEFORM	sin,tri,square
		VOLUME	0 — 99
		REVERB SEND	0 — 99
SINGLE DELAY + VIBRATO	Combines delay with vibrato.	DELAY DRY/WET	0 — 99
		DELAY L	0 — 300 ms
		DELAY R	0 — 300 ms
		FEEDBACK L	−99 — 99
		FEEDBACK R	−99 — 99
		DEPTH	0 — 99
		LFO SPEED	0 — 40.2 Hz
		PHASE	0 — 180 degree
		LFO WAVEFORM	sin,tri,square
		VOLUME	0 — 99
		REVERB SEND	0 — 99
SINGLE DELAY + PHASER	Combines delay with phaser.	DELAY DRY/WET	0 — 99
		DELAY L	0 — 300 ms
		DELAY R	0 — 300 ms
		FEEDBACK L	−99 — 99
		FEEDBACK R	−99 — 99
		PHASER DRY/WET	0 — 99
		DEPTH	0 — 99
		LFO SPEED	0 — 40.2 Hz
		RESONANCE	−99 — 99
		MANUAL	0 — 99
		PHASE	0 — 180 degree
		LFO WAVEFORM	sin,tri,square
		VOLUME	0 — 99
		REVERB SEND	0 — 99
AUTO WAH + SINGLE DELAY	Combines auto wah with delay.	RESONANCE	wide,middle,narrow
		MANUAL	0 — 99
		SWEEP RANGE	0 — 99
		DELAY DRY/WET	0 — 99
		DELAY L	0 — 300 ms
		DELAY R	0 — 300 ms
		FEEDBACK L	−99 — 99
		FEEDBACK R	−99 — 99
		VOLUME	0 — 99
		REVERB SEND	0 — 99

EFFECT

	BAND EMPHASIS 1 Fc	50 Hz	– 16kHz
	BAND EMPHASIS 1 Q	0.1	– 20
	BAND EMPHASIS 1 G	–12	– 12 dB
parametric equalizer with chorus.	CHORUS DRY/WET	0	– 99
	DEPTH	0	– 99
	LFO SPEED	0	– 40.2 Hz
	LFO WAVEFORM	sin,tri,square	
	VOLUME	0	– 99
	REVERB SEND	0	– 99

	BAND EMPHASIS 1 Fc	50 Hz	– 16kHz
	BAND EMPHASIS 1 Q	0.1	– 20
	BAND EMPHASIS 1 G	–12	– 12 dB
	CHORUS DRY/WET	0	– 99
EQ + DELAY	DELAY L	0	– 300 ms
Combines parametric equalizer with delay.	DELAY R	0	– 300 ms
	FEEDBACK L	–99	– 99
	FEEDBACK R	–99	– 99
	VOLUME	0	– 99
	REVERB SEND	0	– 99

	BAND EMPHASIS 1 Fc	50 Hz	– 16kHz
	BAND EMPHASIS 1 Q	0.1	– 20
	BAND EMPHASIS 1 G	–12	– 12 dB
	FLANGER DRY/WET	0	– 99
	DEPTH	0	– 99
	LFO SPEED	0	– 40.2 Hz
parametric equalizer with flanger.	RESONANCE	–99	– 99
FLANGER	[illegible]	0	– 99
	PHASE	0	– 180 degree
	LFO WAVEFORM	sin,tri,square	
	[illegible]	0	– 99
	REVERB SEND	0	– 99

	BAND EMPHASIS 1 Fc	50 Hz	– 16kHz
	BAND EMPHASIS 1 Q	0.1	– 20
	BAND EMPHASIS 1 G	–12	– 12 dB
	DEPTH	0	– 99
parametric equalizer with vibrato.	LFO SPEED	0	– 40.2 Hz
VIBRATO	PHASE	0	– 180 degree
	LFO WAVEFORM	sin,tri,square	
	[illegible]	0	– 99
	REVERB SEND	0	– 99

	BAND EMPHASIS 1 Fc	50 Hz	– 16kHz
	BAND EMPHASIS 1 Q	0.1	– 20
	BAND EMPHASIS 1 G	–12	– 12 dB
	THRESHOLD	0	– 99
parametric equalizer with compressor.	RATIO	0	– 99
COMPRESSOR	ATTACK SENSITIVITY	0.001	– 0.1 S
	RELEASE SENSITIVITY	0.001	– 0.1 S
	VOLUME	0	– 99
	REVERB SEND	0	– 99

DSP EFFECT

PEQ + COMPR + DIST	Combines parametric equalizer,compressor,and distortion.	BAND EMPHASIS 1 Fc	50 Hz – 16kHz
		BAND EMPHASIS 1 Q	0.1 – 20
		BAND EMPHASIS 1 G	–12 – 12 dB
		THRESHOLD	0 – 99
		RATIO	0 – 99
		ATTACK SENSITIVITY	0.001 – 0.1 S
		RELEASE SENSITIVITY	0.001 – 0.1 S
		DRIVE	0 – 99
		ADJUST	0 – 99
		VOLUME	0 – 99
		REVERB SEND	0 – 99
PEQ + COMPR + OVERDR	Combines parametric equalizer,compressor,and overdrive.	BAND EMPHASIS 1 Fc	50 Hz – 16kHz
		BAND EMPHASIS 1 Q	0.1 – 20
		BAND EMPHASIS 1 G	–12 – 12 dB
		THRESHOLD	0 – 99
		RATIO	0 – 99
		ATTACK SENSITIVITY	0.001 – 0.1 S
		RELEASE SENSITIVITY	0.001 – 0.1 S
		DRIVE	0 – 99
		ADJUST	0 – 99
		VOLUME	0 – 99
		REVERB SEND	0 – 99
PEQ + DIST + DELAY	Combines parametric equalizer,distortion,and delay.	BAND EMPHASIS 1 Fc	50 Hz – 16kHz
		BAND EMPHASIS 1 Q	0.1 – 20
		BAND EMPHASIS 1 G	–12 – 12 dB
		DRIVE	0 – 99
		ADJUST	0 – 99
		DELAY DRY/WET	0 – 99
		DELAY L	0 – 300 ms
		DELAY R	0 – 300 ms
		FEEDBACK L	–99 – 99
		FEEDBACK R	–99 – 99
		VOLUME	0 – 99
		REVERB SEND	0 – 99
PEQ + OVERDR + DELAY	Combines parametric equalizer,overdrive,and delay.	BAND EMPHASIS 1 Fc	50 Hz – 16kHz
		BAND EMPHASIS 1 Q	0.1 – 20
		BAND EMPHASIS 1 G	–12 – 12 dB
		DRIVE	0 – 99
		ADJUST	0 – 99
		DELAY DRY/WET	0 – 99
		DELAY L	0 – 300 ms
		DELAY R	0 – 300 ms
		FEEDBACK L	–99 – 99
		FEEDBACK R	–99 – 99
		VOLUME	0 – 99
		REVERB SEND	0 – 99

[illegible]

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- Modern E.P.1
- Modern E.P.2
- [illegible] Piano

B [illegible]

- [illegible]
- [illegible]
- [illegible]
- Glockenspiel
- [illegible]
- [illegible]
- [illegible] Bells
- [illegible]
- [illegible] Drum
- Xylophone
- Marimba
- [illegible] Marimba
- African Mallet

C GUITAR

- [illegible]ical Gtr.
- [illegible] Gtr.
- [illegible] Gtr.
- Harmonics
- Folk Guitar
- Electro Ac.Gtr.
- [illegible] Guitar
- Bright Solid
- Mellow Solid
- Clean Solid
- Fusion Solid
- [illegible]
- [illegible] Mute Gtr.
- [illegible] Gtr.
- [illegible] Gtr.
- [illegible] Harmonics
- [illegible] Gtr.
- Hawaiian Gtr.1
- Hawaiian Gtr.2

D SPECIAL PERCUSSION

- [illegible]
- Mandolin
- Harp
- Orchestra Hit
- Timpani
- Music Box
- Koto
- Shamisen
- Kalimba
- Sitar
- Dulcimer
- [illegible]

E STRINGS & VOCAL

- [illegible] Strings 1
- Clas. Strings 2
- Marcato Str. 1
- Marcato Str. 2
- Pizzicato
- Violin
- Jazz Violin
- Viola
- Cello
- [illegible] Bass
- Vocal [illegible]
- Vocal Ooh 1
- Vocal Ooh 2
- Vocal Doo

F ORGAN & ACCORDION

- Jazz Organ
- Full Drawbars
- Jazz Drawbars
- [illegible]
- 16' & 8'
- 16'
- Pipe Organ 1
- Pipe Organ 2
- *Brt.Accordion*
- Mel.Accordion
- Musette

G BRASS

- Brass 1
- Brass 2
- Trumpet 1
- Trumpet 2
- Orch.Trumpet
- *Mute Trumpet 1*
- Mute Trumpet 2
- Flugel Horn
- Cornet
- Brt.Trombone
- Mel.Trombone
- Mute Trombone
- [illegible] Fr.Horn
- Open Fr.Horn
- Tuba
- Analog Brass
- Saw Brass

H REED

- Soprano Sax
- Alto Sax
- Mel.Alto Sax
- Tenor Sax 1
- Tenor Sax 2
- Rock Tenor Sax
- Baritone Sax
- Jazz Clarinet 1
- Jazz Clarinet 2
- Clas.Clarinet
- Mel.Clarinet
- Bass Clarinet
- [illegible]
- English Horn
- [illegible]
- [illegible]
- [illegible] Harm.
- [illegible]

I FLUTE

- Piccolo
- Jazz Flute
- Classic Flute
- Alto Flute
- Pan Flute
- Recorder
- Ocarina
- Whistle
- Shakuhachi

J BASS

- Acoustic Bass
- Mellow Ac.Bass
- Electric Bass
- Bright E.Bass
- Fusion E.Bass
- Funky E.Bass
- Fretless Bass 1
- Fretless Bass 2
- Picked E.Bass
- Mute Bass
- Slap Bass 1
- Pull Bass 1
- Slap Bass 2
- *Pull Bass 2*
- Analog Bass
- Soul Bass
- Synth Chopper
- Click Bass
- Dance Bass
- House Bass
- Plastic Bass

K SYNTH BASICS

- *Click Sine*
- Sine Wave
- Triangle Wave
- Sawtooth Wave
- Square Wave
- Pulse Wave 1
- Pulse Wave 2
- Pulse Wave 3
- Pulse Wave 4
- Pulse Mod.
- Organ Bell
- Bright Bell
- Digi Lead
- Digi Wire
- Crystal Wave
- Bell Pad
- Fog Vox
- Mellow Ens.

L VARIOUS NOISE

- White Noise
- HiPass Noise
- Sax Breath 1
- Sax Breath 2
- Flute Breath 1
- Flute Breath 2
- Flute Breath 3
- Harpsi.key Off
- Clavi. key Off
- Organ Click
- Slap Shot
- Pick Noise 1
- Pick Noise 2
- Pick Noise 3
- Fret Noise
- Gtr.Resonanse 1
- Gtr.Resonanse 2
- Ambient Hammer
- Hammer

M SOUND EFFECTS

- Scratch 1
- Scratch 2
- Voice Ah
- *Voice Yeh*
- Bird 1
- Bird 2
- Bird 3
- Bird 4
- Gun Shot
- Helicopter
- Telephone
- Applause
- Seashore

N DRUMS & PERCUSSION

- Rock Bass Dr.
- Elect. Bass Dr.
- Dance Bass Dr.
- House Bass Dr.
- Soul Bass Dr.
- Orch.Bass Dr.
- Rock Snare
- Soul Snare
- House Snare
- Analog Snare
- Piccolo Snare
- Orch.Snare
- Reverse Snare
- Melodic Tom
- Electric Tom
- Elect.Bass Tom
- Analog Tom
- Brush Short
- Brush Long
- Rim 1
- Rim 2
- Rim 3
- HiHat Closed 1
- HiHat Closed 2
- HiHat Open 1
- *HiHat Open 2*
- Crash Cymbal
- Splash Cymbal
- China Cymbal
- Orch.Cymbal
- Ride Cymbal 1
- Ride Cymbal 2
- Ride Bell
- Reverse Cymbl 1
- Reverse Cymbl 2
- Conga 1
- *Conga 2*
- Bongo
- Timbales 1
- Timbales 2
- Samba Drum
- Samba Drum Mute
- Wood Block
- Claves
- Castanets
- Slap
- Hand Claps
- Maracas
- Cabasa
- Shaker
- Guiro Short
- Guiro long
- Cuica 1
- Cuica 2
- Triangle Mute
- Triangle Open
- Agogo
- Cowbell
- Sleigh Bell
- Tambourine 1
- Tambourine 2
- Orch.Tamb.
- Crickets
- Vibraslap
- Samba Whistle
- Wind Chime

DIGITAL EFFECT

EFFECT	PARAMETER	RANGE
CELESTE1·2	DEPTH	0 – 50
	SPEED	0 – 50
	DETUNE	−50 – +50
	DELAY	0 – 50
	BALANCE	0 – 100
	INTENSITY	−50 – +50
	REVERB DEPTH	−5 – +5
CHORUS1·2	DEPTH	0 – 50
	SPEED	0 – 50
	DETUNE	−50 – +50
	DELAY	0 – 50
	BALANCE	0 – 100
	INTENSITY	−50 – +50
	REVERB DEPTH	−5 – +5
ENSEMBLE1·2	DEPTH1	0 – 50
	SPEED1	0 – 50
	DEPTH2	0 – 50
	SPEED2	0 – 50
	DETUNE	−50 – +50
	DELAY	0 – 50
	INTENSITY	−50 – +50
	REVERB DEPTH	−5 – +5
TREMOLO	DEPTH	0 – 50
	SPEED	0 – 50
	WAVE	SIN/TRI/SQR/SAW
	BALANCE	0 – 100
	INTENSITY	−50 – +50
	REVERB DEPTH	−5 – +5

EFFECT	PARAMETER	RANGE
ORGAN TREMOLO	DEPTH1	0 – 50
	SPEED1	0 – 50
	DEPTH2	0 – 50
	SPEED2	0 – 50
	INTENSITY	−50 – +50
	REVERB DEPTH	−5 – +5
SINGLE DELAY	DELAY	0 – 50
	DETUNE	−50 – +50
	KEY SHIFT	−24 – +24
	BALANCE	0 – 100
	INTENSITY	−50 – +50
	REVERB DEPTH	−5 – +5
REPEAT DELAY	SPEED	0 – 30
	DECAY	0 – 30
	SUSTAIN	0 – 30
	RELEASE	0 – 30
	INTENSITY	−50 – +50
	REVERB DEPTH	−5 – +5
SOLO EFFECT1	DISTORTION	ON / OFF
	TOUCH DEPTH	0 – 50
	DEPTH	0 – 100
	REVERB DEPTH	−5 – +5
SOLO EFFECT2	DISTORTION	ON / OFF
	TOUCH DEPTH	0 – 50
	DEPTH	0 – 100
	INTENSITY	−50 – +50
	REVERB DEPTH	−5 – +5

MIDI Implementation Chart

(Transmitted)

PARTS	ACMP1	ACMP2,3	BASS	DRUMS	CHORD	CONTROL	Remarks
1-16	1-16	1-16	1-16	1-16	1-16	1-16	memorized
3	3	3	3	3	3	3	OMNI OFF,POLY MODE
—	×	×	×	×	×	×	
—	—	—	—	—	—	—	
0-119	0-119	0-119	0-119	0-119	0-119	—	Changes depending on the position of the transpose control,octave shift,and drums type.
—	—	—	—	—	—	—	
			×	×	×		
×	×	×	×	×	×	—	
○×	×	○×	○×	○×	×	○×	×	
	○×	○×	○×	○×	○×	×	bank select MSB, LSB
			○×	×	○×	×	modulation
							data entry MSB, LSB
		○×	○×	○×	○×	×	volume
×	○×	○×	○×	×	×	×	panpot
○×	○×	○×	○×	○×	×	○×	expression
○×	×	○×	○×	×	×	×	sustain
×	○×	×	×	×	×	×	auto play chord
	×	×	×	○×	×	×	intro, fill in, ending
	○×	○×	○×	○×	○×	○×	reverb
	×	×	×	×	×	×	DSP effect
	○×	○×	○×	×	○×	×	digital effect
	×	×	×	×	×	×	RPN LSB, MSB
○	×	×	×	×	×	×	all sound off
○×	○×	×	×	×	×	×	reset all cotrollers
○×	○×	○×	○×	○×	○×	×	Changes depending on program change mode
							and prog.chg to p.mem.
		○× (0-19)					
		×					
		○					
		○×					START / STOP,continue
×	×	×	×	×	×		
×	×	×	×	×	×		

Whether or not the data for each of these items is transmitted can be set.

Mode 2: OMNI ON, MONO

Mode 4: OMNI OFF, MONO

○:Yes

×:No

MIDI Implementation Chart

Keyboard [SX－KN3000] (Recognized)

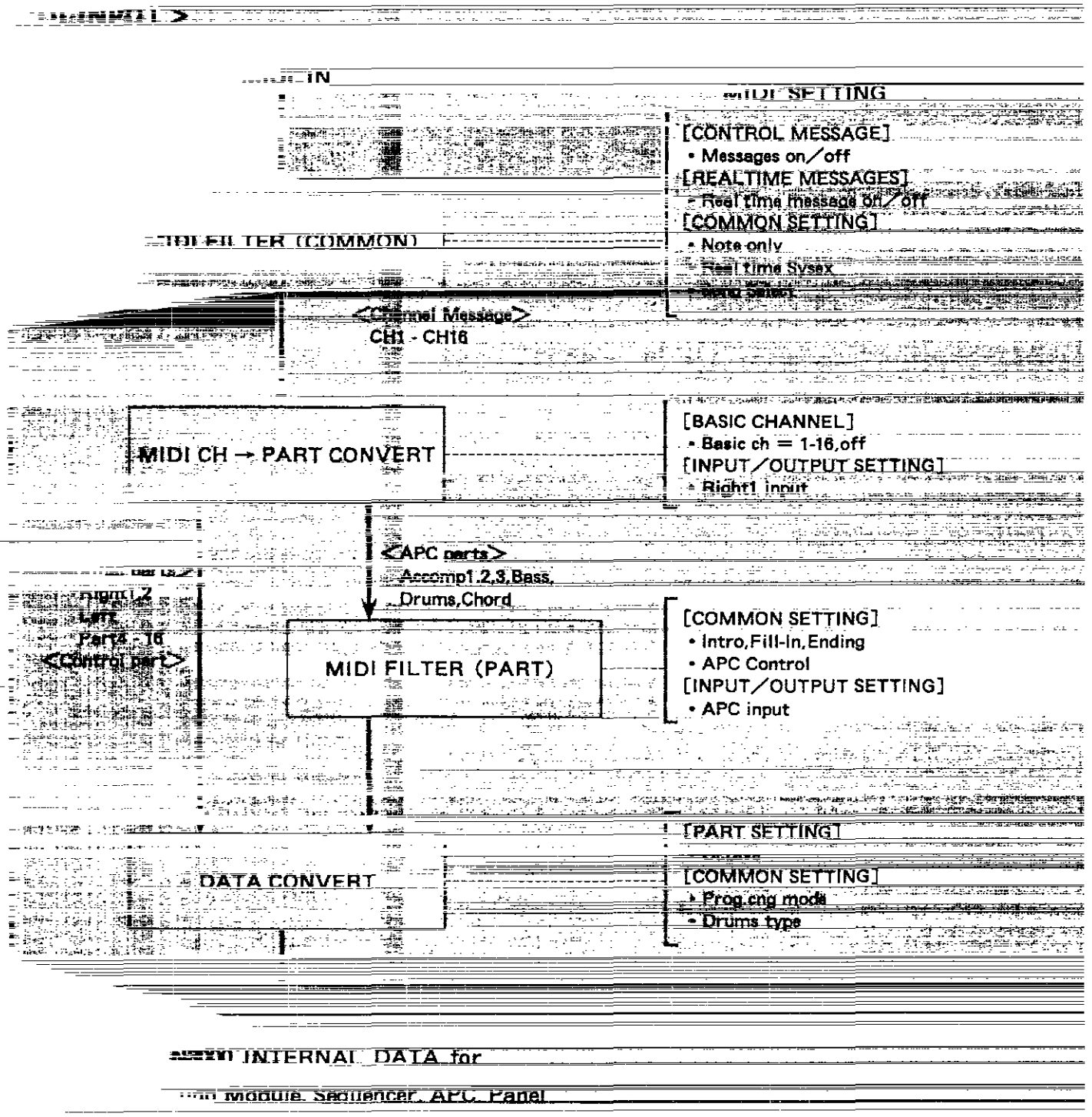
Function		RIGHT1,2,LEFT, PART4～15	PART16	ACMP1	ACMP2,3	BASS	DRUMS	CHORD	CONTROL	Remarks
Basic Channel	Default	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	memorized
	Changed	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	
Mode	Default	3	3	3	3	3	3	3	3	OMNI OFF,POLY MODE
	Messages	×	×	×	×	×	×	×	×	
	Altered	–	–	–	–	–	–	–	–	
Note Number		0-127	0-127	0-127	0-127	0-127	0-127	0-127	–	Changes depending on the position of the transpose control,octave shift, and drums type.
	True voice	0-127	0-127	0-127	0-127	0-127	0-127	0-127	–	
Velocity	Note ON	○	○	○	○	○	○	○	–	
	Note OFF	×	×	×	×	×	×	×	–	
After Touch	Key's	×	×	×	×	×	×	×	–	
	Ch's	○×*	×	×	×	×	×	×	–	
Pitch Bend		○×*	×	○×*	○×*	○×*	×	○×*	×	
Control Change	0,32	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	bank select MSB, LSB
	1	○×*	×	○×*	○×*	○×*	×	○×*	×	modulation
	6,38	○×*	×	×	×	×	×	×	×	data entry MSB, LSB
	7	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	volume
	10	○×*	×	○×*	○×*	○×*	×	×	×	panpot
	11	○×*	○×*	○×*	○×*	○×*	○×*	×	○×*	expression
	64	○×*	×	○×*	○×*	○×*	×	×	×	sustain
	80	×	×	○×*	×	×	×	×	×	auto play chord
	82	×	×	×	×	×	○×*	×	×	intro, fill in, ending
	91	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	reverb
	93	○×*	○×*	×	×	×	×	×	×	DSP effect
	94	○×*	×	○×*	○×*	○×*	×	○×*	×	digital effect
	100,101	○×*	×	×	×	×	×	×	×	RPN LSB, MSB
	120	○	○	○	○	○	○	○	×	all sound off
	121	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	reset all controllers
Prog Change		○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	Changes depending on program change mode and prog.chg to p.mem.
	True #	0-127	0-127	0-127	0-127	0-127	0-127	0-127	–	
System exclusive		○								
System common	Song Pos	○×*								
	Song Sel	○×* (0-19)								
	Tune	×								
System Real Time	Clock	○								
	Commands	○×*								start/stop,continue
Aux Messages	Local ON/ OFF	×	×	×	×	×	×	×	–	
	All notes OFF	○	○	○	○	○	○	○	–	
	Active Sense	○								
	Reset	×								
Notes		○×*.....Whether or not the data for each of these items is received can be set.								

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO ○:Yes

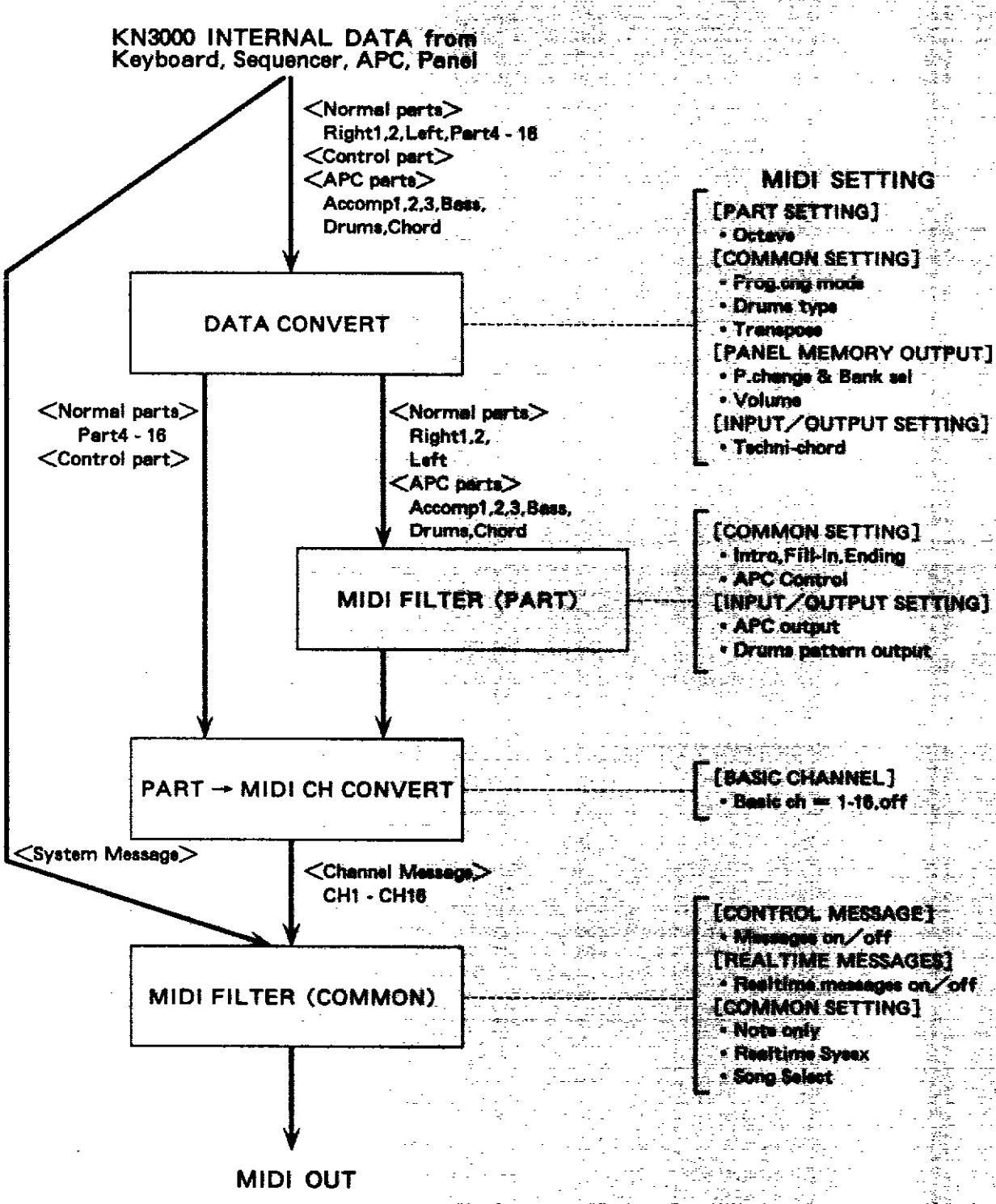
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO ×:No

MIDI DATA FORMAT

MIDI DATA FLOWCHART



<MIDI OUTPUT>


KN3000 INTERNAL DATA from
Keyboard, Sequencer, APC, Panel
<Normal parts>
Right1,2,Left,Part4 - 16
<Control part>
<APC parts>
Accomp1,2,3,Bass,
Drums,Chord
MIDI SETTING
[PART SETTING]
• Octave
[COMMON SETTING]
• Prog.chg mode
• Drums type
• Transpose
[PANEL MEMORY OUTPUT]
• P.change & Bank sel
• Volume
[INPUT/OUTPUT SETTING]
• Techni-chord
DATA CONVERT
<Normal parts>
Part4 - 16
<Control part>
<Normal parts>
Right1,2,
Left
<APC parts>
Accomp1,2,3,Bass,
Drums,Chord
MIDI FILTER (PART)
[COMMON SETTING]
• Intro,Fill-in,Ending
• APC Control
[INPUT/OUTPUT SETTING]
• APC output
• Drums pattern output
PART → MIDI CH CONVERT
[BASIC CHANNEL]
• Basic ch = 1-16,off
<System Message>
<Channel Message>
CH1 - CH16
[CONTROL MESSAGE]
• Messages on/off
[REALTIME MESSAGES]
• Realtime messages on/off
[COMMON SETTING]
• Note only
• Realtime Sysex
• Song Select
MIDI FILTER (COMMON)
MIDI OUT

BnH	Control change status
06H	Data entry (MSB)
mm	Data entry value (MSB)
(BnH)	Control change status
26H	Data entry (LSB)
ll	Data entry value (LSB)

n: 0—F Basic channel
mm ll: Values conform to the parameters
[illegible] for the RPN

BnH	Control change status
07H	Part volume
vv	Part volume value

n: 0—F Basic channel
vv: 00H—7FH

Panpot

BnH	Control change status
0AH	Panpot
vv	Panpot value

n: 0—F Basic channel
vv: 00H—7FH
*Reception of ACCOMP 1,2,3 and BASS panpot is possible only during COMPOSER record.

Expression

BnH	Control change status
0BH	Expression
vv	Expression value

n: 0—F Basic channel
vv: 00H—7FH
The expression for the CONTROL part is the [illegible] expression as modulated by the pedal operation.

Sustain

BnH	Control change status
40H	Sustain
vv	Sustain on/off

n: 0—F Basic channel
vv: 00H—3FH (00H) Off
40H—7FH (7FH) On
*Transmitted data is indicated by parentheses( ).
*Reception of ACCOMP 1,2,3 and BASS sustain is possible only during COMPOSER record.

Auto Play Chord

BnH	Control change status
50H	APC message
vv	APC message value

n: 0－F Basic channel
vv: 00H ＝Off
01H ＝FINGERED
02H ＝ONE FINGER
03H ＝PIANIST

•Transmitted／received on the basic channel for the ACCOMP 1 part.

Rhythm control

BnH	Control change status
52H	Rhythm control message
vv	Rhythm control data

n: 0－F Basic channel
vv: 00H ＝off
01H ＝FILL IN 1
02H ＝ENDING 1
03H ＝INTRO 1
05H ＝FILL IN 2
06H ＝ENDING 2
07H ＝COUNT INTRO
08H ＝INTRO 2

•Transmitted／received on the basic channel for the DRUMS part.

Reverb

BnH	Control change status
5BH	Reverb
vv	Reverb on／off

n: 0－F Basic channel
vv (CONTROL part): 00H－3FH (00H) Off
40H－7FH (7FH) On
vv (Other parts): 00H－7FH

•Transmitted data is indicated by parentheses().
•The Reverb for the CONTROL part is the total reverb.

Digital effect

BnH	Control change status
5EH	Digital effect
vv	Digital effect on／off

n: 0－F Basic channel
vv: 00H－3FH (00H) Off
40H－7FH (7FH) On

•Transmitted data is indicated by parentheses().
•Transmission/reception of the DIGITAL EFFECT for ACCOMP 1,2,3 and BASS is possible only during COMPOSER record.

DSP effect

BnH	Control change status
5DH	DSP effect
vv	DSP effect on／off

n: 0－F Basic channel
vv: 00H－7FH

•Transmitted data is indicated by parentheses().

RPN

BnH	Control change status
65H	RPN (MSB)
mm	RPN data number (MSB)
(BnH)	Control change status
64H	RPN (LSB)
ll	RPN data number (LSB)

n: 0－F Basic channel
mm,ll: The most significant byte (MSB) and least significant byte (LSB) of the parameter number specified for the RPN.

The RPN which can be transmitted／received are Pitch Bend Sensitivity, Fine Tuning, Coarse Tuning (corresponding respectively to the Pitch bend Range, Tuning and Key Shift of the KN3000), and RPN reset.

RPN		Data Entry		
MSB	LSB	MSB	LSB	
00H	00H	mm	—	Pitch Bend Sensitivity mm:00H - 0CH (0 - 12semi-tones) ll:ignored •Up to 1 octave can be specified in semi-tone increments.
00H	01H	mm	ll	Fine Tuning mm,ll:00H,00H - 40H,00H -7FH,7FH (－128＊100／128-0-127＊100／128cents) •ll:00H or40H (lower 6 bits ignored) •Can be specified in 100／128 cent increments.
00H	02H	mm	—	Coarse Tuning mm,34H - 40H - 4CH(－12 - 0 - ＋12semi-tones) ll:ignored •Up to 1 octave can be specified in semi-tone increments.
7FH	7FH	—	—	RPN Reset mm,ll:ignored •For when the RPN number is not specified. •The internal set value doesnot change.

BnH	Channel mode status
7BH	All note off
00H	Dummy data

n: 0—F Basic channel

Receive only

OMNI off

BnH	Channel mode status
7CH	OMNI off
00H	Dummy data

n: 0—F Basic channel

*Processed in same manner as when ALL Note off is received.

OMNI on

BnH	Channel mode status
7DH	OMNI on
00H	Dummy data

n: 0—F Basic channel

*Processed in same manner as when ALL Note off is received. Does not change to OMNI on.

MONO

BnH	Channel mode status
7EH	MONO
00H	Dummy data

n: 0—F Basic channel

*Processed in same manner as when ALL Note off is received. Does not change to MONO.

POLY

BnH	Channel mode status
7FH	POLY
00H	Dummy data

n: 0—F Basic channel

*Processed in same manner as when ALL Note off is received.

System common message

Song position pointer

F2H	Song position pointer
ll	Least significant
mm	Most significant

ll,mm: 00H - 7FH

Song select

F3H	Song select
ss	Song number

■ System real time message

Timing Clock

F8H	Timing clock

Start

FAH	Start

Continue

FBH	Continue

Stop

FCH	Stop

Active Sense

FEH	Active sense

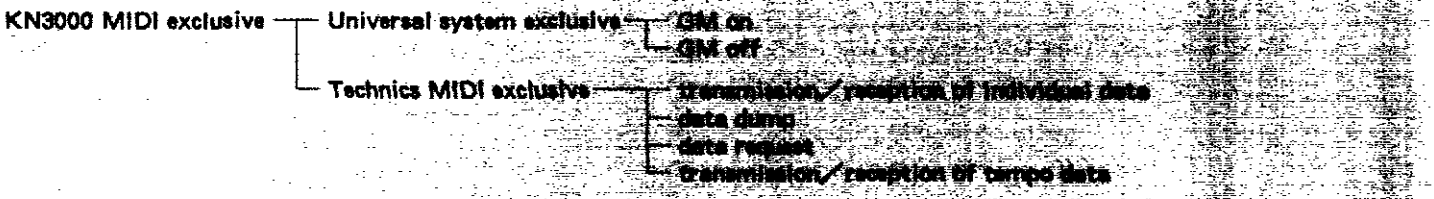
System exclusive

F0H	System exclusive status
ii	ID number
dd	data
.	
.	
dd	data
F7H	End of exclusive status

ii: 7EH (universal non-real time ID),
50H (Technics ID)
dd: 00H–7FH

About the KN3000 MIDI exclusive

Outline of KN3000 MIDI exclusive



Universal system exclusive Message format

Turn General MIDI System On:

F0H	Exclusive status
7FH	ID of target device (7F:Broadcast)
09H	sub-ID #1 = General MIDI message
01H	sub-ID #2 = General MIDI on
F7H	EOX

Turn General MIDI System Off:

F0H	Exclusive status
7FH	ID of target device (7F:Broadcast)
09H	sub-ID #1 = General MIDI message
02H	sub-ID #2 = General MIDI off
F7H	EOX

Technics MIDI exclusive Message format

■ Type of messages and their forms

SOX	Exclusive status
IDC	Technics ID number
CMD	Command ID
PC	Keyboard category ID
MD	Model differentiating ID
VER	Exclusive version ID
[data]	Body of data
EOX	End of exclusive

Messages are transmitted in order, beginning with SOX, IDC, etc. and continuing to the end.
The form of the transmission message differs depending on the type of command.

Explanation of messages

[illegible]

... manufacturer differentiating ID ...

HST: Hand shake routine

... Negative acknowledge

FUL: Memory full

RTD: Data request

ITD: Individual data

BTD: Data block

... product category ID

01H ... TKN

DMY: Dummy data for ACK NAK EOK END

... Data dump, and Data

ADR (MSB) ADDRESS MSB (7bit)

... (7bit)

(LSB) ADDRESS LSB (7bit)

... MSB of the address length of ... data from the above

... LSB of the address length of relevant data from the above ... data

... address length of beginning data. The type of ... The 21-bit address is ... bits each, and is sent in order ... Refer to the address

SIZ:

Indicates length of address from ADR. (Refer to the ...) ... address length is divided into ... bytes each and is sent in order beginning with the upper end.

If a size not consistent with the data is indicated, data ... is ineffective. If the data request concerns the data dump, then dummy data is sent, although it has no significance.

DT:

Body of transmitted data. The 8-bit data is divided into bytes of 4 bits each, and is sent in order beginning ...

Note that SIZ = number of bytes in DT divided by 2.

CN: Indicates data continue / discontinue

00H STP : End of data

01H CNT : More data follows (CMD of next packet is CDD)

The number of bytes in one exclusive packet is 256. In a transmission where the number of bytes exceeds one packet, CN = CNT, and the continuing data is transmitted in the continuing data (CMD = CDD) format.

SM: Checksum

Checksum for checking data errors.
Based on EXCLUSIVE-OR operation from IDC to CN.

[Data] for Tempo.

DT1	Data LSB
DT2	Data MSB

SIZ, DT1 : 07H, 08H, 12H, 0CH

(= 40-300)

Tempo data is 9bit Binary. (= 101000 ~ 100101100)

The lower 4 bits is expressed as DT1. And the remaining upper 5 bits as DT2. DT1 is sent first followed by DT2.

■ The form of the transmission message

Function	SOX	IDC	CMD	PC	MD	VER	[data]					EOX
	=F0H	=50H		=01H	=20H	=10H	ADR	SIZ	DT	CN	SM	=F7H
Hand shake request	SOX	IDC	HRQ	PC	MD	VER	–	–	–	–	–	EOX
Hand shake routine	SOX	IDC	HRT	PC	MD	VER	–	–	–	–	–	EOX
Acknowledge	SOX	IDC	ACK	DMY	–	–	–	–	–	–	–	EOX
Negative Acknowledge	SOX	IDC	NAK	DMY	–	–	–	–	–	–	–	EOX
End of Block	SOX	IDC	EOK	DMY	–	–	–	–	–	–	–	EOX
End	SOX	IDC	END	DMY	–	–	–	–	–	–	–	EOX
Error	SOX	IDC	ERR	DMY	–	–	–	–	–	–	–	EOX
Memory full	SOX	IDC	FUL	DMY	–	–	–	–	–	–	–	EOX
Tempo data	SOX	IDC	TMP	–	–	–	–	–	DT	–	–	EOX
Data request	SOX	IDC	DRQ	PC	MD	VER	ADR	SIZ	–	CN	SM	EOX
Individual data												
System data	SOX	IDC	ITR	PC	MD	VER	ADR	SIZ	DT	CN	SM	EOX
Part data	SOX	IDC	ITR	PC	MD	VER	ADR	SIZ	DT	CN	SM	EOX
Data dump												
Sound Memory												
header	SOX	IDC	BTR	PC	MD	VER	ADR	SIZ	DT	CN	SM	EOX
parameter	SOX	IDC	BTR	PC	MD	VER	ADR	SIZ	DT	CN	SM	EOX
Panel												
panel total data	SOX	IDC	BTR	PC	MD	VER	ADR	SIZ	DT	CN	SM	EOX
panel memory	SOX	IDC	BTR	PC	MD	VER	ADR	SIZ	DT	CN	SM	EOX
Composer												
location	SOX	IDC	BTR	PC	MD	VER	ADR	SIZ	DT	CN	SM	EOX
header	SOX	IDC	BTR	PC	MD	VER	ADR	SIZ	DT	CN	SM	EOX
performance	SOX	IDC	BTR	PC	MD	VER	ADR	SIZ	DT	CN	SM	EOX
Sequencer												
location	SOX	IDC	BTR	PC	MD	VER	ADR	SIZ	DT	CN	SM	EOX
header	SOX	IDC	BTR	PC	MD	VER	ADR	SIZ	DT	CN	SM	EOX
performance	SOX	IDC	BTR	PC	MD	VER	ADR	SIZ	DT	CN	SM	EOX
Continuing data	SOX	IDC	CDD	–	–	–	–	–	DT	CN	SN	EOX

[illegible] exclusive address map

[illegible] ADDRESS [illegible]

[illegible]	ADDRESS	Area	Subarea	Sub-subarea
[illegible]	[illegible]~	SYSTEM		REAL TIME
[illegible]	[illegible]~	PART	COMMON	REAL TIME
[illegible]	[illegible]~	PART	SPECIAL	REAL TIME
30 00 00~	0C0000H~	SOUND MEMORY	HEADER	NON-REAL TIME
[illegible]	[illegible]~	SOUND MEMORY	PARAMETER	NON-REAL TIME
40 00 00~	100000H~	PANEL	PANEL DATA	NON-REAL TIME
41 00 00~	104000H~	PANEL	PANEL MEMORY	NON-REAL TIME
[illegible]	[illegible]~	COMPOSER	LOCATION	NON-REAL TIME
[illegible]	[illegible]~	COMPOSER	HEADER	NON-REAL TIME
[illegible]	[illegible]~	COMPOSER	PERFORMANCE	NON-REAL TIME
[illegible]	[illegible]~	SEQUENCER	LOCATION	NON-REAL TIME
60 10 00~	130000H~	SEQUENCER	HEADER	NON-REAL TIME
61 30 00~	189000H~	SEQUENCER	PERFORMANCE	NON-REAL TIME

Classification of individual data and data dump areas

Individual data area:

System	
Part	(Common/special)

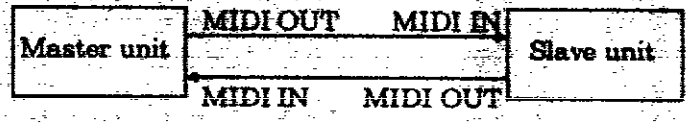
Data dump area:

Sound Memory	(Header + Parameter)
Panel	(Panel data + Panel Memory)
Composer	(Location + Header + Performance)
Sequencer	(Location + Header + Performance)

One-way transmission and handshake transmission

In one-way transmission,communication takes place in one direction only,that is from the master unit to the slave unit.

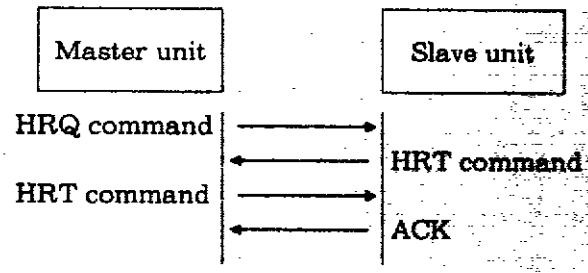
In handshake transmission,the transmission status between the master unit and slave unit is being confirmed during data transmission. For this reason, a MIDI cable connection from the slave unit to the master unit is also necessary. In comparison to one-way transmission, handshake transmission is faster.



In the KN3000, the transmission mode is switched automatically between handshake transmission and one-way transmission. Communication begins with handshake transmission, and if there is no response from the slave unit within a given time, communication switches automatically to one-way transmission.

Communication sequence between master unit and slave unit

■ Comunication sequence of handshake confirmation



HRQ command: handshake request

SOX	F0H
IDC	50H
HRQ	21H
PC	01H
MD	20H
VER	10H
EOX	F7H

HRT command: handshake routine

SOX	F0H
IDC	50H
HRT	22H
PC	01H
MD	20H
VER	10H
EOX	F7H

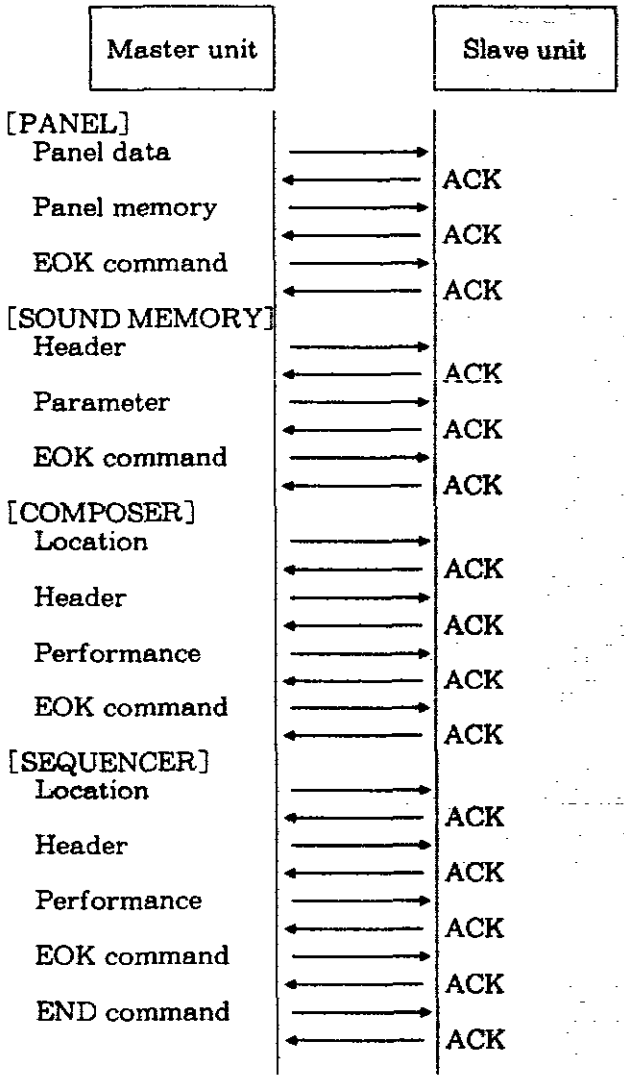
ACK: Acknowledge

SOX	F0H
IDC	50H
ACK	23H
DMY	7FH
EOX	F7H

- **There is no END command.**
- **If there is no response from the slave unit to the master unit even after the above handshake confirmation routine is performed three times,it is interpreted as inability to transmit handshake transmission data, and the transmission mode switches to one-way transmission (in the case of a MIDI sequencer, etc.) .**
- **Handshake communication is possible only during data dump.**

Panel
Master unit
Slave unit
Panel data
ACK
END command
Sound memory
Header
Parameter
ACK
END command
ACK
Composer data Sequencer data
Master unit
Slave unit
Location
Header
ACK
ACK
END command
ACK
END command
ACK

● All data



● SIZ of data dump area

SIZ MSB	SIZ LSB	Area	Subarea
00 00 10		SOUND MEMORY	HEADER
01 6F 70			PARAMETER
00 0D 00		PANEL	PANEL DATA
01 10 00			PANEL MEMORY
00 00 60		COMPOSER	LOCATION
00 28 60			HEADER
Variable			PERFORMANCE
00 10 00		SEQUENCER	LOCATION
01 20 00			HEADER
Variable			PERFORMANCE

● ADR of data request concerns the data dump

ADR MSB	ADR LSB	Area
30 00 00		SOUND MEMORY
40 00 00		PANEL
00 00 00		COMPOSER
60 00 00		SEQUENCER

[illegible] PART PARAMETER

[illegible] SIZE(HEX)	PARAMETER	DATA(HEX) RANGE	DISCRIPTION	NOTE *1
[illegible]	REAL TIME			
00 00 01	MASTER TUNING	00-00-3F	427.3-440.0-453.0	QR
	MASTER TYPE	00-01	00H:Equal.Temperament, 01H:Piano Tuning	QR
00 00 01	TRANSPOSE	00-05-0B	G-C-F#	QRT
	OVERALL TOUCH SENSITIVITY	00-09	0-9	QR
00 00 01	PANEL MEMORY NUMBER	00-18	Off, 1-1, 1-2, ・・・, 3-8	QRT
	SAMPL MEMORY EXPAND MODE	00-01	00H:Normal, 01H:Expand	QR
00 00 01	MUSIC STYLE ARRANGER STYLE	00-04	00H:Off, 01H-04H:1-4	QRT
00 00 01	MUSIC STYLE ARRANGER MODE	01-03	01H:Rhythm 02H:Sound&Rhythm 03H:Panel Memory	QR
	MANUAL SEQUENCE PADS	00-7F	00-127	RT
	CNG#BANK SELECT	00-FF	00-255	
	PART COMMON REAL TIME			
00 00 01	TOTAL EXPRESSION	00-7F	0-127	QRT
00 00 01	TECHNI-CHORD ON/OFF	00-01	00H:Off, 01H:On	QRT
00 00 01	TECHNI-CHORD TYPE	00-0C	00H:Close, 07H:Block 01H:Open1 08H:Big Band Brass 02H:Open2 09H:Big Band Reeds 03H:Duet, 0AH:Octave 04H:Country 0BH:Hard Rock 05H:Theatre 0CH:Fanfare 06H:Hymn	QR
00 00 01	REVERB TOTAL ON/OFF	00-7F	00H:Off 7FH:On	QRT
00 00 01	REVERB TYPE	00-1B	10H:Room Reverb1 17H:Dark Reverb2 11H:Room Reverb2 18H:Bright Reverb1 12H:Plate Reverb1 19H:Bright Reverb2 13H:Plate Reverb2 1AH:Wave Reverb1 14H:Concert Reverb1 1BH:Wave Reverb2 15H:Concert Reverb2 09H:Single Delay 16H:Dark Reverb1 0AH:Multi Tap Delay	QR
	DSP EFFECT TYPE	01-83	01H:Chorus 34H:Auto Wah 02H:Modulated Chorus 35H:Rotary Speaker 03H:Enhancer 36H:Ring Modulator 04H:Flanger 38H:Mix up 05H:Phaser 40H:Single Delay * Chorus 06H:Ensemble 41H:Single Delay * Single Delay 08H:Gated Reverb 42H:Single Delay * Flanger 09H:Single Delay 43H:Single Delay * Vibrato 0AH:Multi Tap Delay 44H:Single Delay * Phaser 20H:Distortion 46H:Auto Wah * Single Delay 21H:Overdrive 47H:PEQ * Chorus 22H:Fuzz 48H:PEQ * Single Delay 23H:Exciter 49H:PEQ * Flanger 24H:Compressor 4AH:PEQ * Vibrato 25H:Slow Attacker 4BH:PEQ * Compressor 27H:Parametric Equalizer 60H:PEQ * Cmprs * Distortion 30H:Auto Pan 61H:PEQ * Cmprs * Overdrive 32H:Vibrato 62H:PEQ * Distortion * Delay 63H:PEQ * Overdrive * Delay	QR
00 00 01	DSP EFFECT to REVERB send value	00-99		
	PART SPECIAL REAL TIME			
	RHYTHM PROG. CNG Select	00-7F 00-FF	0-127 0-255	QRT *2
	AFC TYPE	00-03	00H:Off 01H:One Finger 02H:Fingered 03H:Pianist	QRT *3
	AFC MEMORY ON/OFF	00-01	00H:Off, 01H:On	QRT *3
	DYNAMIC ACMP ON/OFF	00-01	00H:Off, 01H:On	QRT
	SYNCHRO/BREAK	00-01	00H:Off, 01H:On	QRT *4
	VARIATION	00-03	00H:Vari1, 01H:Vari2, 02H:Vari3, 03H:Vari4	QRT *4
00 00 01	INTRO	00-02	00H:Off, 01H:Intro1 On, 02H:Intro2 On	RT *4
00 00 01	COUNT INTRO	00-01	00H:Off, 01H:On	RT *4
00 00 01	FILL IN	00-02	00H:Off, 01H:Fill In1 On, 02H:Fill In2 On	RT *4
00 00 01	ENDING	00-02	00H:Off, 01H:Enging1 On, 02H:Enging2 On	RT *4

[illegible] THIS PARAMETER IS RECEIVED, THE RELEVANT data IS SET.

[illegible]

[illegible] RHYTHM NUMBERS ON THE RHYTHM PAD.

[illegible] ENABLE = 0 (disable)

[illegible] FILL IN INTRO ENABLE = 0(disable)

HOW TO USE MIDI PRESETS

The KN3000 can be connected to any MIDI equipped musical instrument.
To connect the KN3000 to another instrument use a standard MIDI cable and connect the MIDI OUT socket of the MASTER UNIT (the one you are playing) to the MIDI IN socket of the SLAVE UNIT.

MIDI Presets are designed to help you set up the KN3000 quickly and easily for use with various other instruments.
There are two pages of MIDI Presets,the first with the KN3000 as the master unit and the second with the KN3000 as the slave. On the appropriate page highlight the other product type that you are using and select whether or not you want to use Auto Play Chord, and press OK.
Many applications are very simple, but the following guidelines should be helpful with more complicated setups.

■MIDI PRESETS FOR CONNECTING AN ORGAN TO THE KN3000 USING AUTO PLAY CHORD.

MASTER UNIT		MIDI PRESET	
EQUIPMENT	PLAY STYLE	TYPE	APC
ORGAN (ALL)	FINGERED	MASTER : ORGAN TYPE1	WITH APC
	ONE FINGER*	MASTER : ORGAN TYPE2	WITH APC

* TURN ON ONE FINGER(FA/GA/EA) OR FINGERED1(OTHERS) AND TURN DOWN APC VOLUME ON THE ORGAN.

■MIDI PRESETS FOR CONNECTING AN ORGAN TO THE KN3000 WITHOUT AUTO PLAY CHORD.

MASTER UNIT		MIDI PRESET	
EQUIPMENT	PLAY STYLE	TYPE	APC
ORGAN (FA/GA/EA)	---	MASTER : ORGAN TYPE2	WITHOUT APC
ORGAN (OTHERS)	---	MASTER : ORGAN TYPE1	WITHOUT APC

■MIDI PRESETS FOR CONNECTING THE KN3000 TO AN ORGAN USING AUTO PLAY CHORD.

SLAVE UNIT		MIDI PRESET	
EQUIPMENT	PLAY STYLE	TYPE	APC
ORGAN (FA/GA/EA)	---	SLAVE : ORGAN TYPE2	WITH APC
ORGAN (OTHERS)	---	SLAVE : ORGAN TYPE1	WITH APC

■MIDI PRESETS FOR CONNECTING THE KN3000 TO AN ORGAN WITHOUT AUTO PLAY CHORD.

SLAVE UNIT		MIDI PRESET	
EQUIPMENT	PLAY STYLE	TYPE	APC
ORGAN (FA/GA/EA)	---	SLAVE : ORGAN TYPE2	WITHOUT APC
ORGAN (OTHERS)	---	SLAVE : ORGAN TYPE1	WITHOUT APC

[illegible] FOR CONNECTING A PR PIANO TO THE KN3000 USING AUTO PLAYCHORD

[illegible]	MIDI PRESET	
PLAY STYLE	TYPE	APC
FINGERED	MASTER : PR PIANO TYPE1	WITH APC
FINGERED	MASTER : ORGAN TYPE1	WITH APC
ONE FINGER	MASTER : PR PIANO TYPE2	WITH APC
PIANIST	MASTER : PX PIANO	WITH APC

[illegible] FOR CONNECTING A PR PIANO TO THE KN3000 WITHOUT AUTO PLAYCHORD

[illegible]	MIDI PRESET	
PLAY STYLE	TYPE	APC
	MASTER : PR PIANO TYPE2	WITHOUT APC
	MASTER : PR PIANO TYPE1	WITHOUT APC

[illegible] FOR CONNECTING THE KN3000 TO A PR PIANO USING AUTO PLAYCHORD

SLAVE UNIT	MIDI PRESET	
PLAY STYLE	TYPE	APC
	SLAVE : PR PIANO TYPE2	WITH APC
	SLAVE : PR PIANO TYPE1	WITH APC

[illegible] PRESETS FOR CONNECTING THE KN3000 TO A PR PIANO WITHOUT AUTO PLAYCHORD

SLAVE UNIT	MIDI PRESET	
PLAY STYLE	TYPE	APC
	SLAVE : PR PIANO TYPE2	WITHOUT APC
	SLAVE : PR PIANO TYPE1	WITHOUT APC

[illegible]

[illegible] "KEYBOARD TYPE1" and "KEYBOARD TYPE2"

[illegible] KEYBOARD TYPE1 : Equipment which does not have MIDI presets.

[illegible] KEYBOARD TYPE2 : Equipment which has MIDI presets.

[illegible] KN2000, KN1200, KN700, KN901 KN701, KN501, etc.

[illegible] preset to connect any other instrument (except a PX piano) to the [illegible] Play Chord, the KN3000 will be set to MIDI clock [illegible] means that the KN3000's Rhythm will start & stop from the start/stop button of the [illegible] and the tempo will be controlled by the master unit. It is preferable to set [illegible] Rhythm and Accompaniment balances of the master unit to zero to avoid any [illegible] unpleasant clashes with the KN3000's Rhythm & Accompaniment.

511.

GENERAL MIDI SETTINGS

■ SOUND

P.CNG#	SOUND NAME	P.CNG#	SOUND NAME	P.CNG#	SOUND NAME	P.CNG#	SOUND NAME
1	Piano	33	Acoustic Bass	65	Soprano Sax	97	Ice Rain
2	Rock Piano	34	Bright E.Bass	66	Alto Sax	98	Soundtrack
3	Electric Grand	35	Picked E.Bass	67	Tenor Sax	99	Synth Glocken
4	Honky-Tonk Piano	36	Fretless Bass	68	Baritone Sax	100	Atmosphere
5	E.Piano 1	37	Slap Bass 1	69	Oboe	101	Mist
6	Modern E.P.1	38	Slap Bass 2	70	English Horn	102	Goblins
7	Harpsichord	39	Wow Bass 1	71	Bassoon	103	Echo Drops
8	Clavi	40	Synth Chopper	72	Jazz Clarinet 1	104	Star Theme
9	Celesta	41	Violin	73	Piccolo	105	Sitar
10	Glockenspiel	42	Viola	74	Jazz Flute	106	Banjo
11	Music Box	43	Cello	75	Recorder	107	Shamisen
12	Vibraphone	44	Bowed Bass	76	Pan Flute 1	108	Koto
13	Marimba	45	Tremolo Strings	77	Blown Bottle	109	Kalimba
14	Xylophone	46	Pizzicato Str.	78	Shakuhachi	110	Bagpipe
15	Tubular Bells	47	Harp	79	Whistle	111	Fiddle
16	Dulcimer	48	Timpani	80	Ocarina	112	Shenai
17	Full Drawbars	49	Classical Strings	81	Square Lead	113	Tinkle Bell
18	Jazz Organ	50	Slow Strings	82	Saw Lead	114	Agogo
19	Rock Organ	51	Synth Strings 1	83	Synth Calliope	115	Steel Drum
20	Pipe Organ 1	52	Synth Strings 2	84	Chiffer Lead	116	Wood Block
21	Harmonium	53	Vocal Ah	85	Charang	117	Taiko Drum
22	Bright Accordion	54	Vocal Doo	86	Air Vox	118	Melodic Tom
23	Blues Harmonica	55	Synth Vocal	87	5th Wave	119	Synth Drum
24	Bandoneon	56	Orchestra Hit 1	88	Bass & Lead	120	Reverse Cymbal
25	Jazz Ac.Guitar	57	Trumpet 1	89	Fantasia	121	Fret Noise
26	Folk Guitar	58	Bright Trombone	90	Mellow Ensemble	122	Breath Noise
27	Jazz Guitar 1	59	Orchestral Tuba	91	Polysynth	123	Seashore
28	Bright Solid Gtr	60	Harmon Mute Tpt	92	Spacy Pad	124	Bird Tweet
29	Mute Guitar	61	Open Fr.Horn	93	Bowed Glass	125	Telephone
30	Overdrive Guitar	62	Brass	94	Metal Pad	126	Helicopter
31	Distortion Gtr	63	Synth Brass 1	95	Halo Pad	127	Applause
32	Rock Harmonics	64	Mellow Synth Brass	96	Sweep Pad	128	Gun Shot

■ Parts

MIDI CHANNEL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PART	R1	R2	L	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16
SEQUENCER TRACK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

■ Non-working Function

DEMO,RHYTHM GROUP,ONE TOUCH PLAY/MUSIC STYLE SELECT,
MUSIC STYLE ARRANGER, PANEL MEMORY, TECHNI-CHORD, AUTO PLAY CHORD, COMPOSER,
SOUND ARRANGER,SOUND EDIT etc.

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