Technics

ORGAN

SX-GA1
SX-GA3

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 ⟨ASA⟩ 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 UNSUIT-ABLE 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.

Fuse
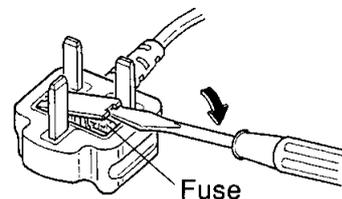
Technics

Caution

Voltage (except North America, Mexico, New Zealand and Europe excluding United Kingdom)
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.

FOR CANADA
CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT

CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE SCREWS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

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 GA organ, 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** and **RHYTHM GROUP** 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

Controls and functions: GA1

BASS PEDALS
Select the sounds to be played on the pedal keyboard. (Refer to page 48.)

UPPER ORGAN
Select the organ sounds to be played on the upper keyboard. (Refer to page 42.)

DIGITAL REVERB
Add reverberation to the sound. (Refer to page 53.)

LOWER ORGAN
Select the organ sounds to be played on the lower keyboard. (Refer to page 42.)

RHYTHM GROUP
Various rhythm patterns are available for each rhythm group. (Refer to page 60.)

PROGRAM SECTION
Several buttons are located beneath the cover. These buttons are used when setting the functions for the **SEQUENCER**, **COMPOSER** or MIDI, and when custom-setting any of the programmable functions.

UPPER ORCHESTRAL CONDUCTOR
Select the part to be played on the upper
keyboard. (Refer to page 39.)

UPPER SOUND GROUP
Select the sounds to be played on the
upper keyboard. (Refer to page 47.)

LOWER ORCHESTRAL CONDUCTOR
Select the part to be played on the lower
keyboard. (Refer to page 39.)

LOWER SOUND GROUP
Select the sounds to be played on the
lower keyboard. (Refer to page 47.)

PANEL MEMORY
Store the current panel settings for instant
recall. (Refer to page 59.)

EASY PLAY STYLE
A simple operation provides automatic
selection of the sounds, effects and
various other panel settings which are
suitable for the registration you chose.

7
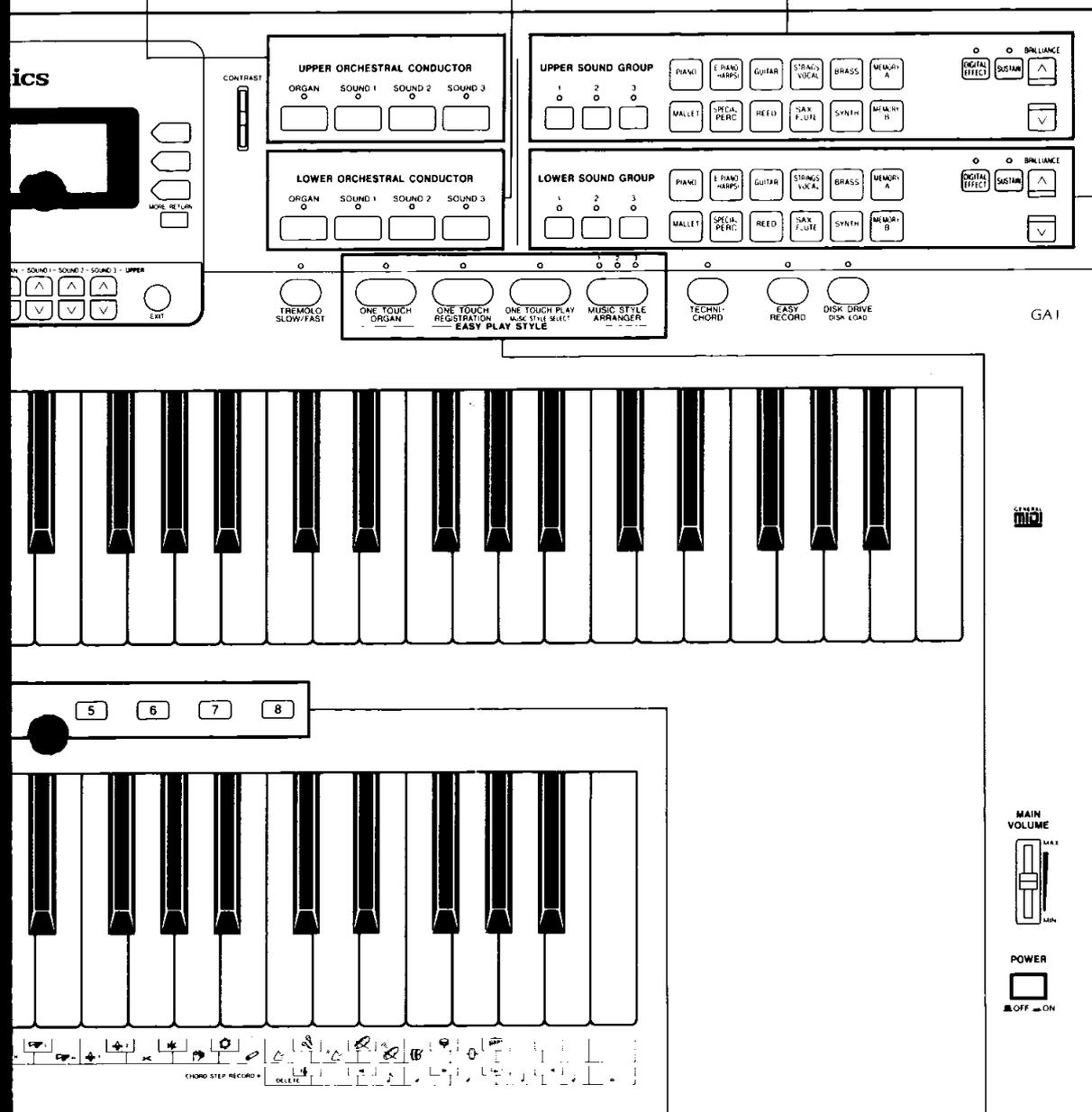
Controls and functions: GA3

BASS PEDALS
Select the sounds to be played on the
pedal keyboard. (Refer to page 48.)

UPPER ORGAN
Select the organ sounds to be played on
the upper keyboard. (Refer to page 42.)

DIGITAL REVERB
Add reverberation to the sound. (Refer to
page 53.)

LOWER ORGAN
Select the organ sounds to be played on
the lower keyboard. (Refer to page 42.)

RHYTHM GROUP
Various rhythm patterns are available for
each rhythm group. (Refer to page 60.)

PROGRAM SECTION
Several buttons are located beneath the
cover. These buttons are used when set-
ting the functions for the **SEQUENCER**,
COMPOSER or MIDI, and when custom-
setting any of the programmable func-
tions.

8

UPPER ORCHESTRAL CONDUCTOR
Select the part to be played on the upper
keyboard. (Refer to page 39.)

UPPER SOUND GROUP
Select the sounds to be played on the
upper keyboard. (Refer to page 47.)

LOWER ORCHESTRAL CONDUCTOR
Select the part to be played on the lower
keyboard. (Refer to page 39.)

LOWER SOUND GROUP
Select the sounds to be played on the
lower keyboard. (Refer to page 47.)

PANEL MEMORY
Store the current panel settings for instant
recall. (Refer to page 59.)

EASY PLAY STYLE
A simple operation provides automatic
selection of the sounds, effects and
various other panel settings which are
suitable for the registration you chose.

Getting started

Before you play

A Plug the power cord into an outlet.

B **Music stand**
Insert the music stand in the two holes as shown in the figure.
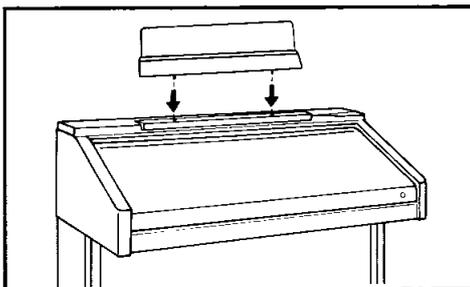
C **Keyboard cover**
Open and close the cover slowly.

③ Push
② Lift
① Unlock
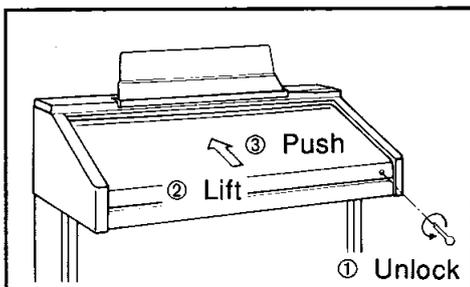
Panel light (GA3)
The panel light can be turned on by pressing the button on the left underside of the keyboards.

light
off   on

■ **About the backup memory**
The panel settings 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** and **COMPOSER**, 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. If this occurs, after checking the reminder, press the OK button.

■ **Power-on settings**
When the power to this instrument is turned on, ORGAN settings are automatically selected.
• If you wish to retain the settings which were in effect when you last turned off this instrument, set the POWER-ON MODE to BACK UP. (Refer to page 139.)

Playing

(GA3)

2   3   1 4
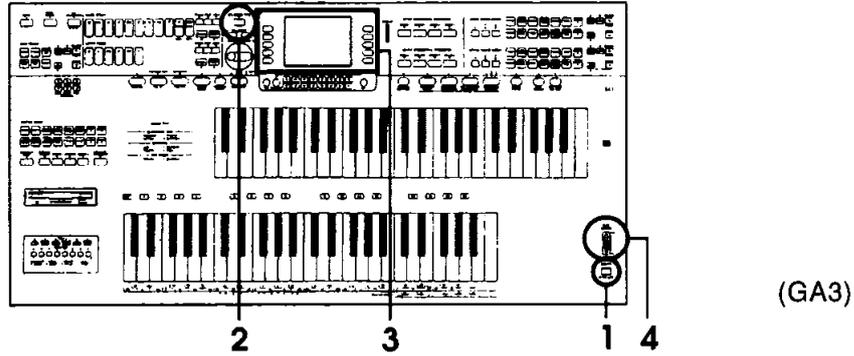
1 Press the **POWER** button to turn it on.

POWER

■OFF ▬ON
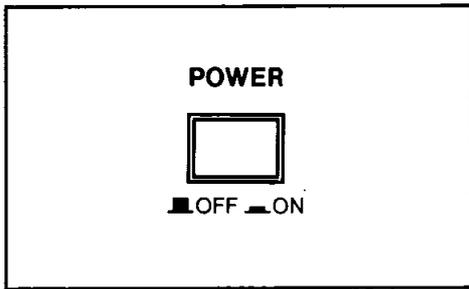
2 Press the **U/L ORGAN TYPE** button to turn it on.
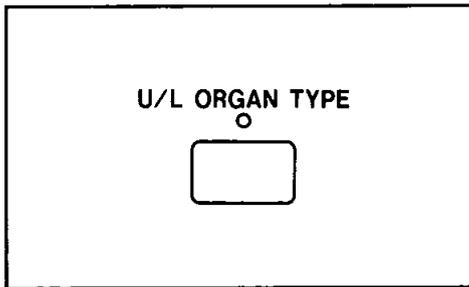
U/L ORGAN TYPE
O

• The display changes to the U/L ORGAN TYPE display.

3 Select a sound from the list of organ sounds shown on the display.
[GA1]
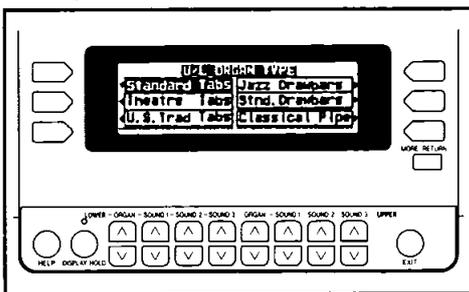
[GA3]
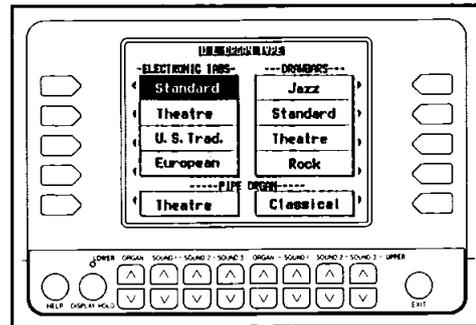
• The selected type of organ sound can be played on the upper and lower keyboards.

4 Set the **MAIN VOLUME** to an appropriate level with the sliding control while playing the keyboards.
• Use the expression pedal to change the volume level as you play.

MAIN VOLUME
MAX
MIN

Expression pedal

11
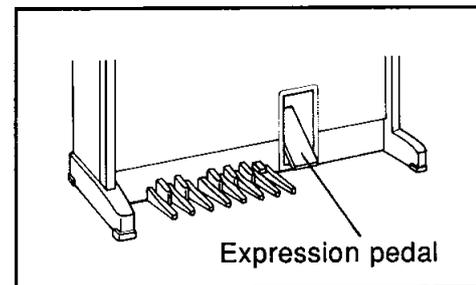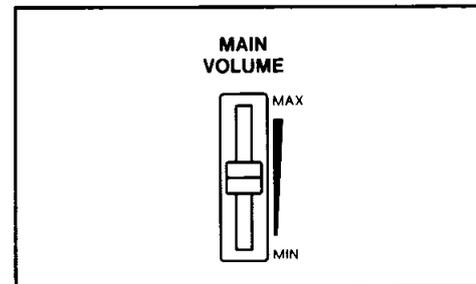
Listen to the demonstration.

Listen to a particular sound or rhythm demonstration.

1·4   2·3

1 Press the **DEMO** ♪ button.

```
            DEMO
             ♪
           ┌──────┐
           │      │
           └──────┘
```
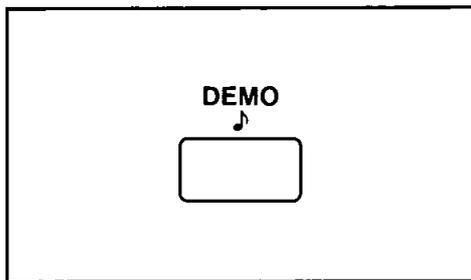
• The display changes to the DEMONSTRATION display.

2 Select ORGAN, SOUND or RHYTHM from the display.
[GA1]
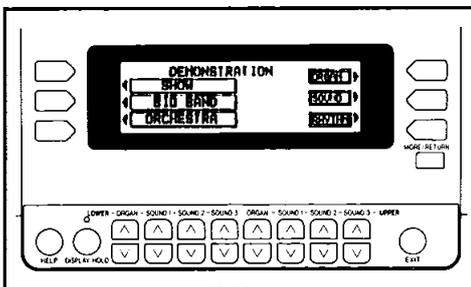
[GA3]
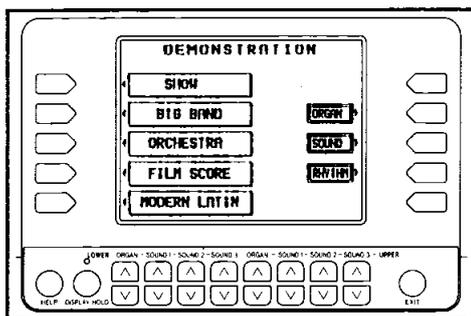
• A list of demonstration songs is shown on the display.

3 Press the button for the sound or rhythm demonstration performance you wish to hear.
<Example: SOUND (GA3)>
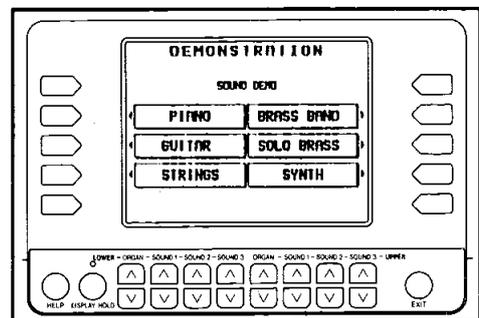
• The demonstration performance corresponding to your selection will begin.
• Repeat this procedure to listen to other sounds and rhythms.
• To change from a SOUND demonstration to a RHYTHM or ORGAN demonstration, for example, press the **EXIT** button to return to the DEMONSTRATION display and then proceed from step 2.
• 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.

1·3   2
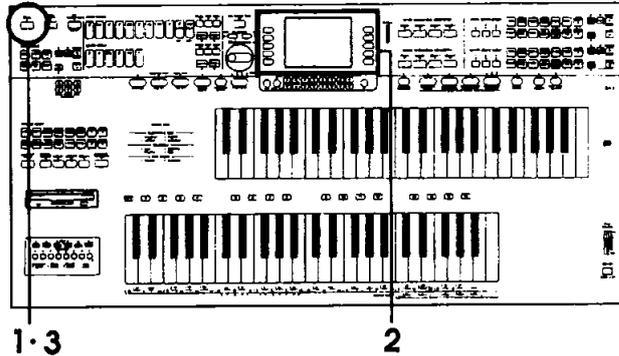
1 Press the **DEMO** ♪ button.
- The display changes to the DEMONSTRATION display.

2 Use the buttons to the left of the display to select the style demonstration performance you wish to hear.
[GA1]
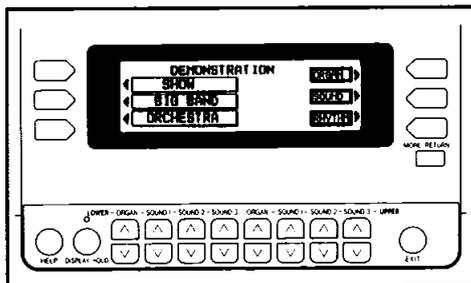
[GA3]
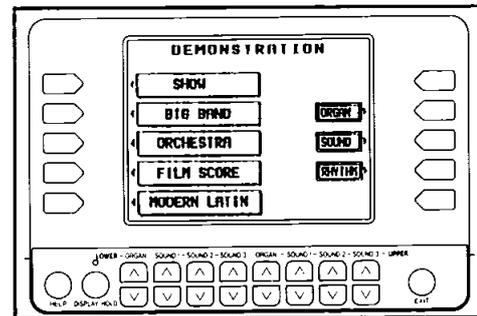
- The demonstration performance corresponding to your selection will begin.
- Repeat this procedure to listen to other styles.

3 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, all the demonstration songs are played in order in a medley performance. The medley performance continues until the **START/STOP** button or the **DEMO** ♪ button is pressed again.

- During the medley performance, if you wish to skip from the current song to the next song, press the button for the highlighted song.
- Some of the buttons do not function while the demonstration performances are being played.

13

Selecting sounds: upper and lower keyboards

Orchestral Conductor

A
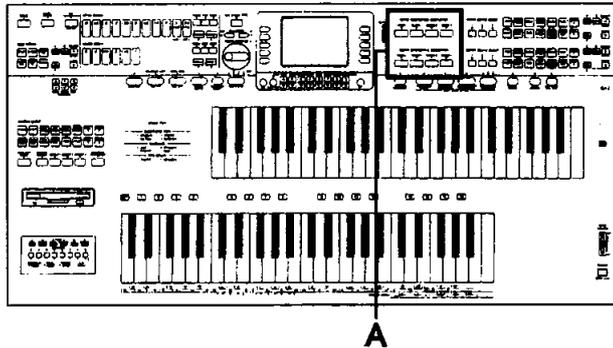
Parts

The following parts are available for the upper keyboard and lower keyboard.

ORGAN	Select an organ sound for this part.
SOUND 1 SOUND 2 SOUND 3	Select a different sound for each part.

• After selecting a sound for each part, the **ORCHESTRAL CONDUCTOR** is used to assign parts to the keyboards.

A Use the **UPPER ORCHESTRAL CONDUCTOR** to select the part for the upper keyboard, and the **LOWER ORCHESTRAL CONDUCTOR** to select the part for the lower keyboard.

```
          UPPER ORCHESTRAL CONDUCTOR

   ORGAN      SOUND 1     SOUND 2     SOUND 3
     O           O           O           O
  [      ]    [      ]    [      ]    [      ]
```
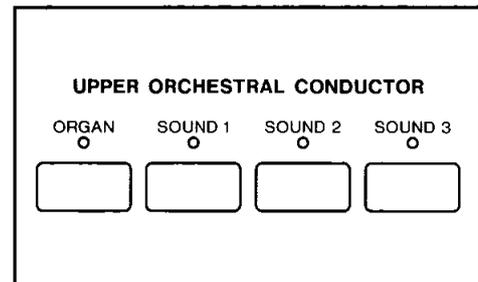
• Select the sounds for each part before assigning parts to the keyboards. (See below.)
• You can also combine sounds by turning on two or more buttons in the **ORCHESTRAL CONDUCTOR** at the same time.

ORGAN part
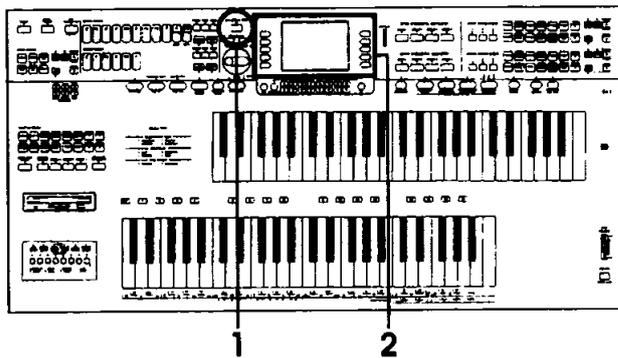
**1** Press the **U/L ORGAN TYPE** button to turn it on.
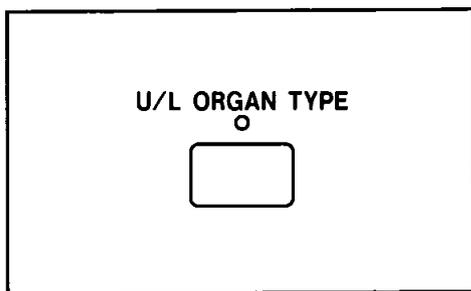
U/L ORGAN TYPE
O

• The display changes to the U/L ORGAN TYPE display.

2 Select a type of organ sound from the display.

[GA1]

[GA3]
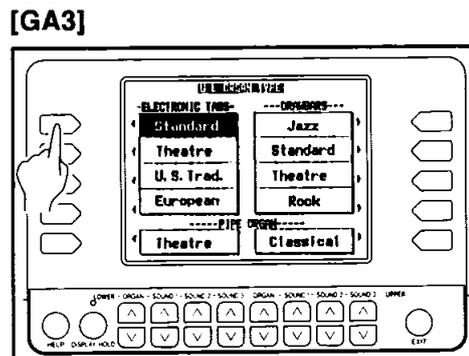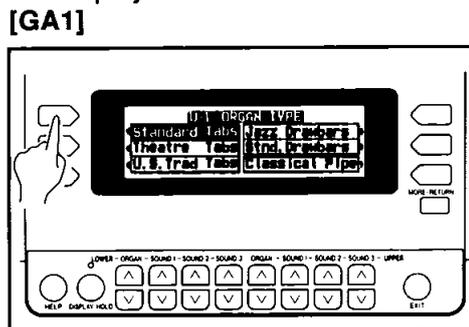
• The selected organ type is assigned to the upper and lower keyboards.
• Press the **EXIT** button to go back to the previous display.

15

SOUND parts

The sound for the upper keyboard is selected with the buttons in the **UPPER SOUND GROUP**, and the sound for the lower keyboard with the buttons in the **LOWER SOUND GROUP**.
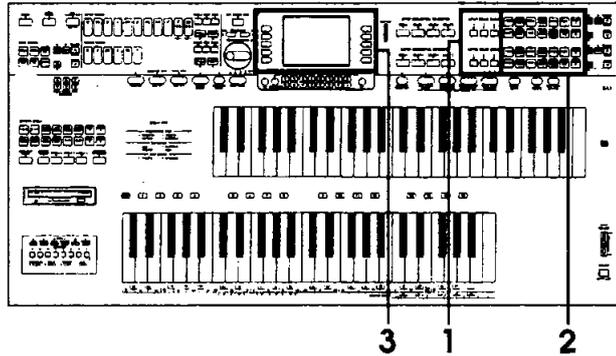
1 Press the **1**, **2** or **3** button in the **UPPER SOUND GROUP** or **LOWER SOUND GROUP** to turn it on.
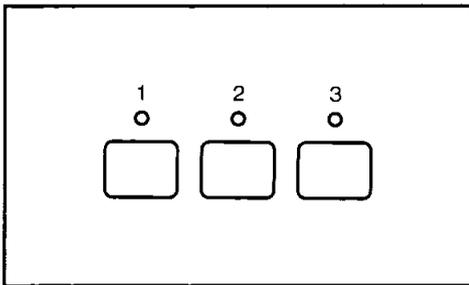
2 Press a sound button in the **UPPER SOUND GROUP** or **LOWER SOUND GROUP** to select a sound group.
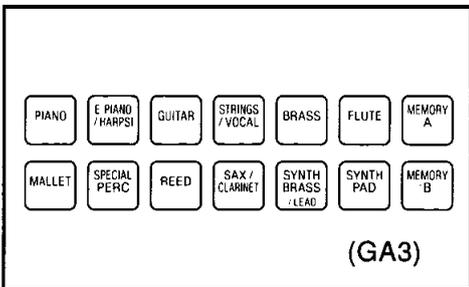
- The display changes to a list of sounds.

3 Select a sound for the part from the list on the display.

[GA1]
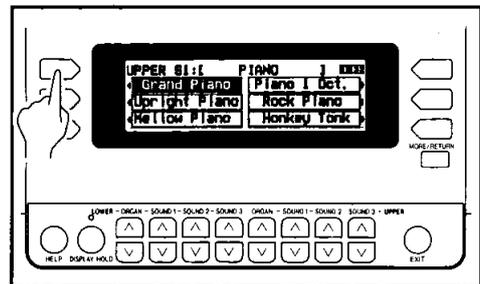
- To view a different part of the list, press the **MORE/RETURN** button.

[GA3]
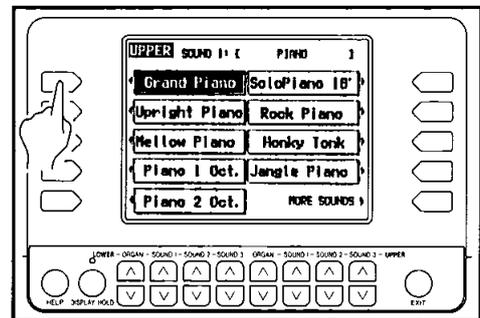
- To view a different part of the list, press the MORE SOUNDS button.

- Select sounds for the other parts in the same way.
- Press the **EXIT** button to go back to the previous display.

Selecting sounds: pedal keyboard

BASS part
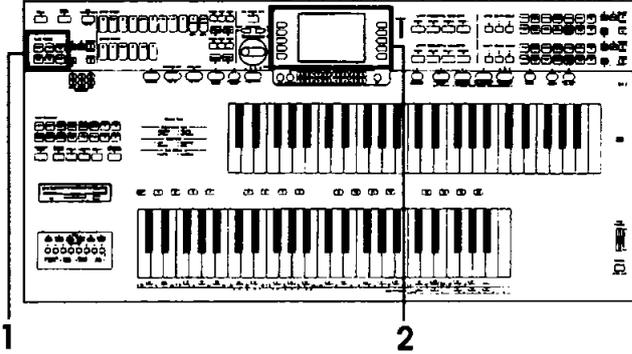
1 Press a sound button in the **BASS PEDALS** section to select a sound group.

BASS PEDALS

ORGAN	STANDARD	CONTEMPO-RARY
CLASSICAL ORGAN	ORCHES-TRAL	MEMORY
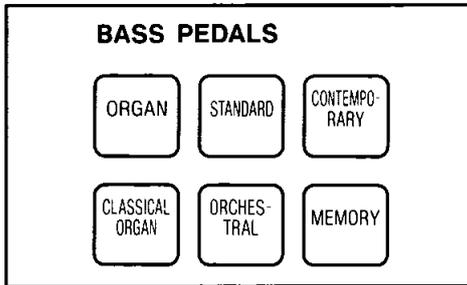
- The display changes to a list of sounds.

2 Select a sound from the display.

[GA1]

[GA3]
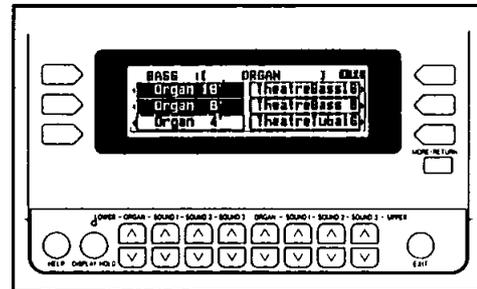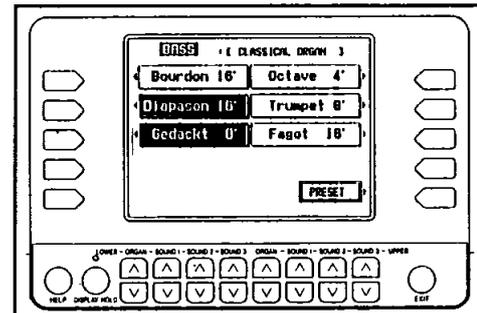
- Press the **EXIT** button to go back to the previous display.

- To play the sound you selected, play the pedal keyboard.
- You can combine two bass sounds. (Refer to page 49.)

Effects

A D B C
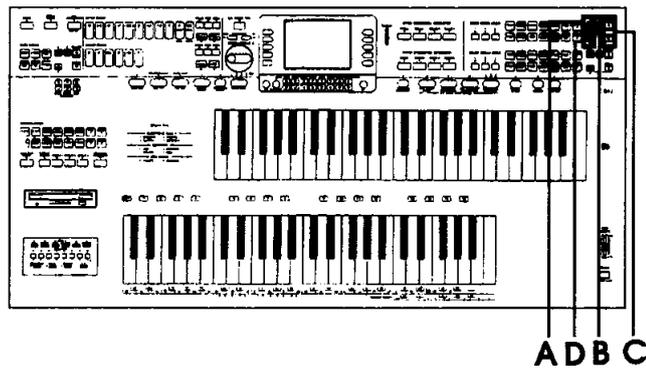
Add a feeling of spaciousness to the sound.

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

o

DIGITAL
EFFECT
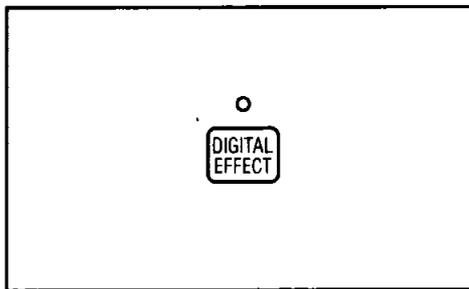
• The sound is broader and deeper.

Add sustain.

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

o

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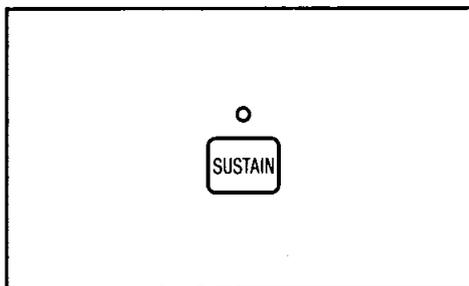
• Play and release a key. The tones fade out gradually after the key is released.

Make the sound brighter.

C Use the **BRILLIANCE** ∧ and ∨ buttons to adjust the brightness of the sound.

BRILLIANCE

∧

∨

• There are three levels of brightness.

Change the quality of the sound. (GA3)

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

DSP
EFFECT

o
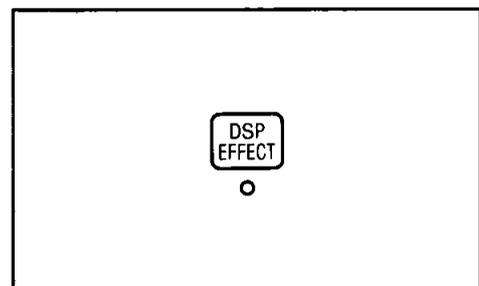
• Various effects are added to the sounds.

G   E F
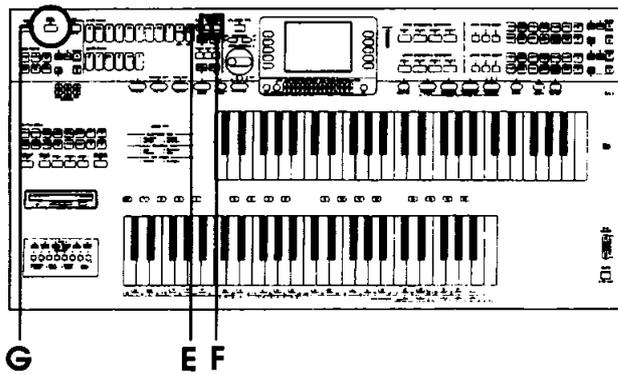
Add tremolo. (ORGAN part)

E Press the **TREMOLO** button to turn it on.

TREMOLO
○
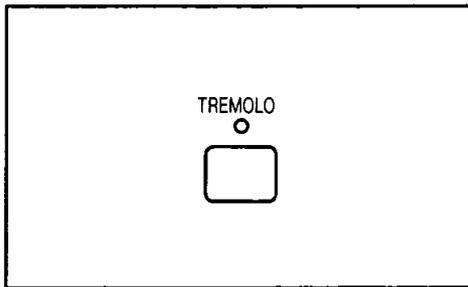
• A rapid oscillation in volume is applied to the **ORGAN** sounds.

Add a feeling of spaciousness to the sound. (ORGAN part)

F Press the **EFFECT** button to turn it on.

EFFECT
○
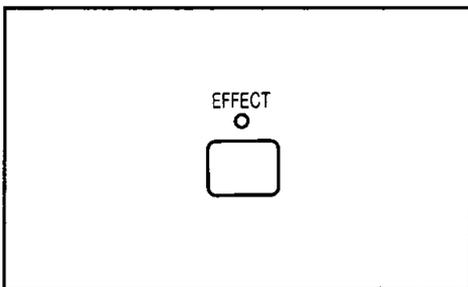
• The **ORGAN** sound is broader and deeper.

Add reverberation.

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

DIGITAL
REVERB
○

• The reverberation effect is applied to all sounds.

Playing automatic rhythms

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

RHYTHM GROUP

| 8 BEAT | 16 BEAT | BIG BAND /SWING | JAZZ COMBO | COUNTRY R & BLUES | MARCH/ POLKA | LATIN 1 | COMPOSER A |

| ROCK/ DISCO | MODERN ROCK | ROCK (OTHERS) | SHOW TIME | TRAD | WALTZ | LATIN 2 | COMPOSER B |
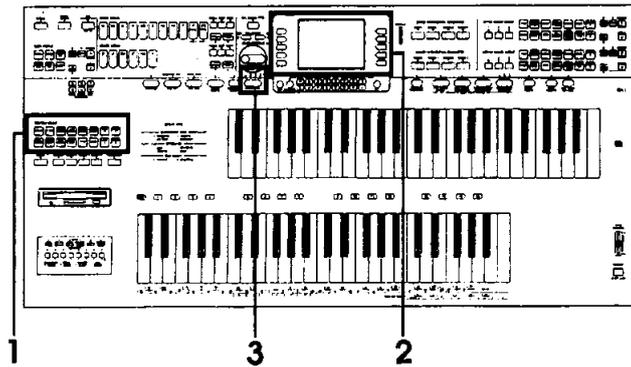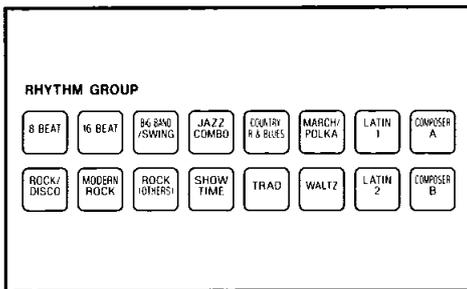
- The display changes to a list of rhythms.

2 Select a rhythm from the display.
[GA1]
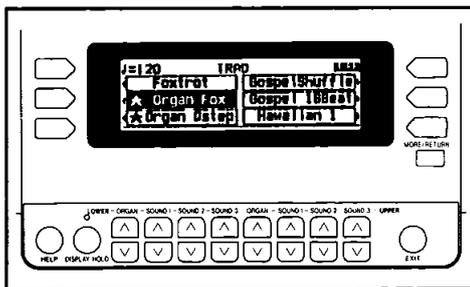
- To view a different part of the list, press the **MORE/RETURN** button.

[GA3]
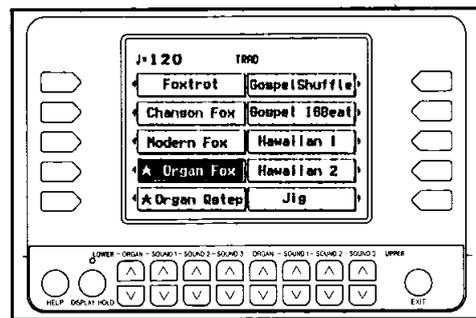
- Press the **EXIT** button to go back to the previous display.

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


```
        1    2    3    4   BEAT
        O    O    O    O
        
        START/STOP
```
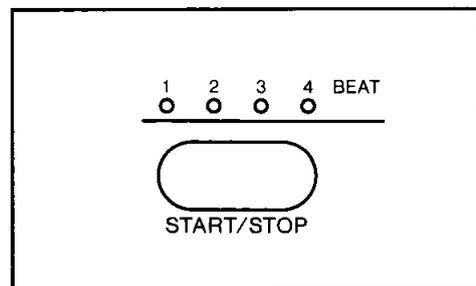
- Stop the rhythm by pressing the **START/STOP** button again.

- Rhythms marked with a ★ are especially effective for **ORGAN** sounds.

20

D C B A
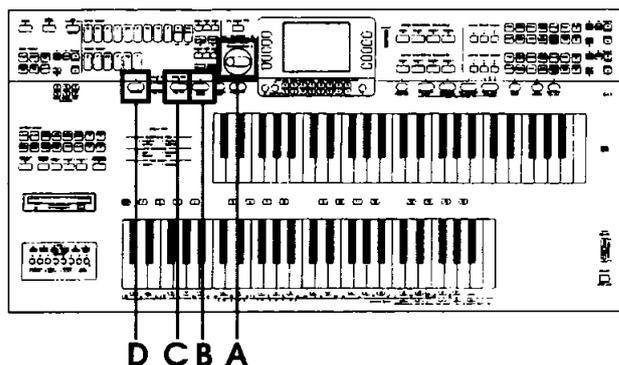
Adjust the tempo.

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

TEMPO/PROGRAM o
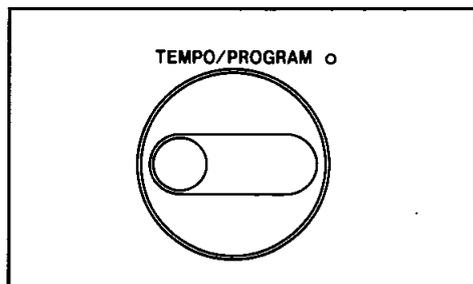
- The tempo is shown in the display as "♩=."

Insert an intro pattern.

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

o

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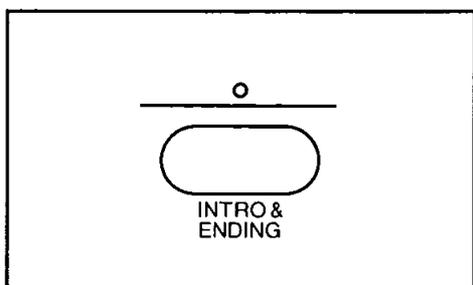
- An intro is played, after which the regular rhythm starts.

Insert a count.

C To begin your performance with a one-measure count, press the **COUNT INTRO (FILL IN 2)** button before starting the rhythm.

COUNT INTRO o

FILL IN 2

- A one-measure count is played, after which the normal rhythm pattern begins.

Select a variation pattern.

D During the rhythm performance, press the **VARIATION** button to turn it on.

o

VARIATION
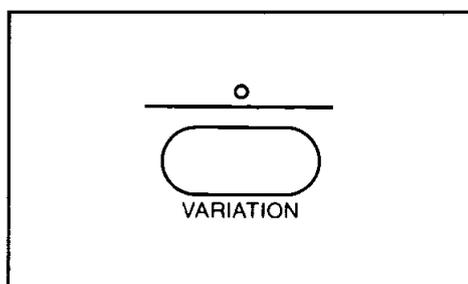
- The rhythm pattern changes to a flashier pattern.

E F
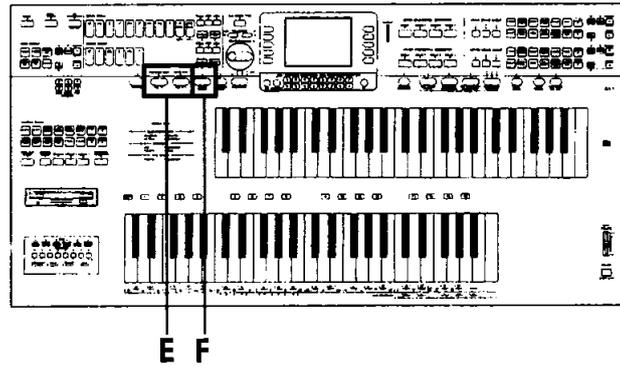
Insert a fill-in pattern.

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

```
SEQUENCER RESET        COUNT INTRO
       o                    o
  _____          _____


  (          )        (          )

   FILL IN 1            FILL IN 2
```
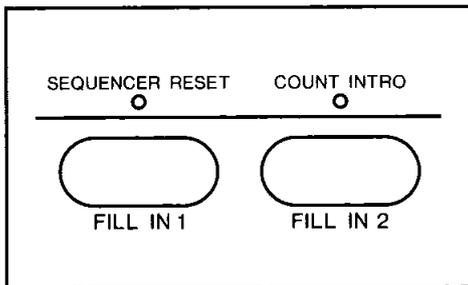
- A fill-in pattern immediately starts to play.

Insert an ending pattern.

F While the rhythm is playing, press the **INTRO & ENDING** button.

```
             o
        _____

       (          )

        INTRO &
        ENDING
```
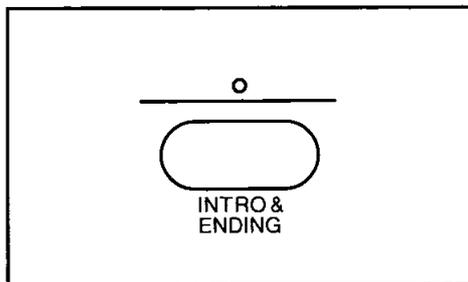
- You will hear an ending pattern, and then the rhythm stops.

22

Automatic accompaniment

Use the AUTO PLAY CHORD

1 3   2·4
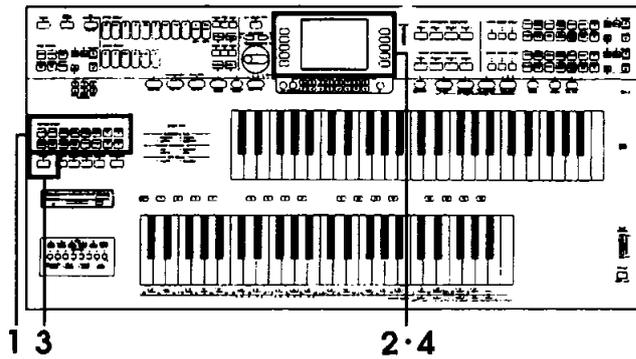
Use the **AUTO PLAY CHORD** with the following tune.

1 In the **RHYTHM GROUP** section, press the **TRAD** button.
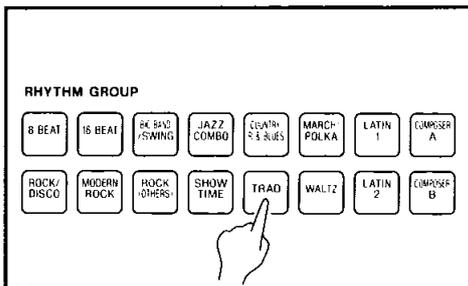
3 Press the **AUTO PLAY CHORD** button to turn it on.
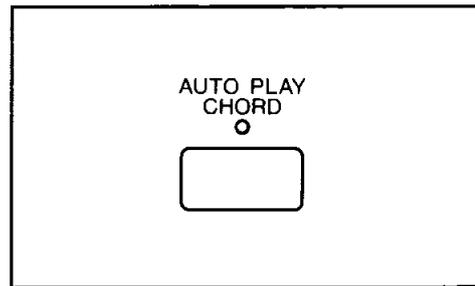
2 Select "Organ Fox" from the list of rhythms shown on the display.

(GA3)
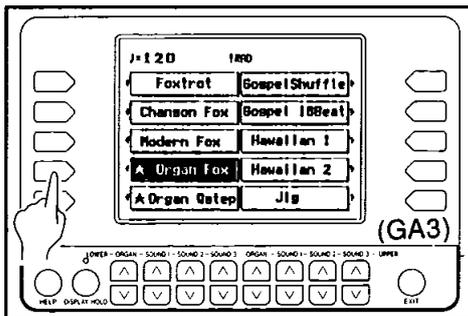
- Press the **EXIT** button to go back to the previous display.

4 Select ONE FINGER on the display.
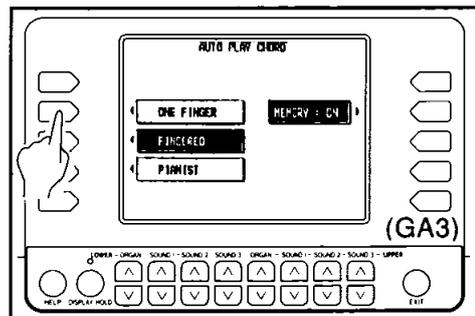
(GA3)

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

23

5·7

---

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

```
        1   2   3   4   BEAT
        O   O   O   O

         ┌─────────────┐
         │             │
         └─────────────┘
           START/STOP
```

6 With your left hand, play chords on the lower keyboard, and with your right hand, play the melody on the upper keyboard.
- When you play the lower keyboard, the automatic accompaniment begins to play.
- Where C, G7 and F are indicated in the music score, you can play the lower keyboard and pedal keyboard as shown in the figure below.
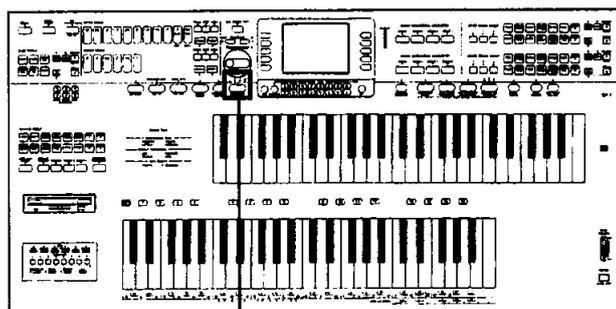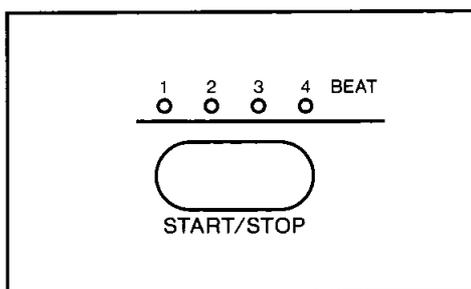
7 At the end of your performance, press the **START/STOP** button.

C chord   F chord   G7 chord
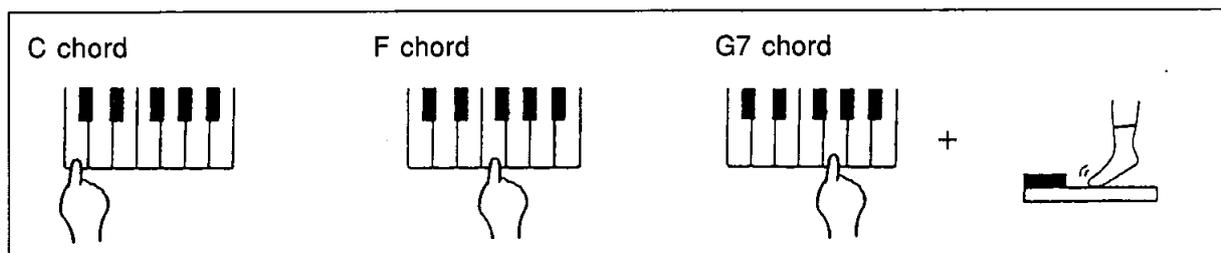
- In this example, you played chords by pressing the keys for the "root notes" (ONE FINGER chords). But you can also specify the chord by playing all the notes in the chord. (Refer to page 66.)

Record your performance

Use the **SEQUENCER** to record your performance.
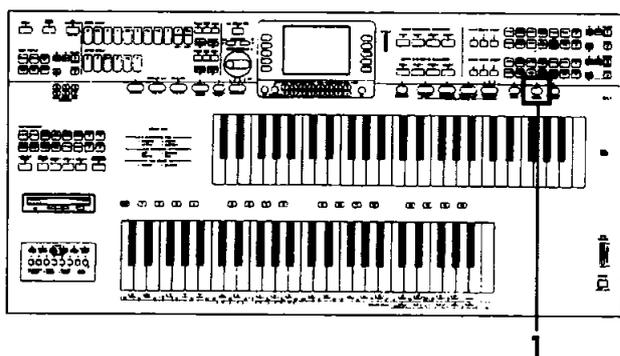
She Wore A Yellow Ribbon

March: Medium

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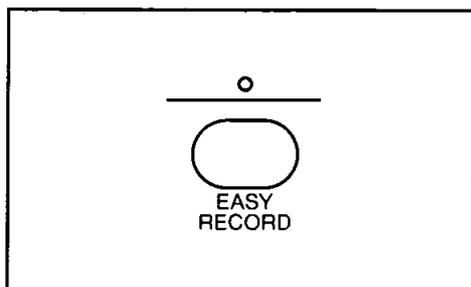
EASY
RECORD

- The display changes.
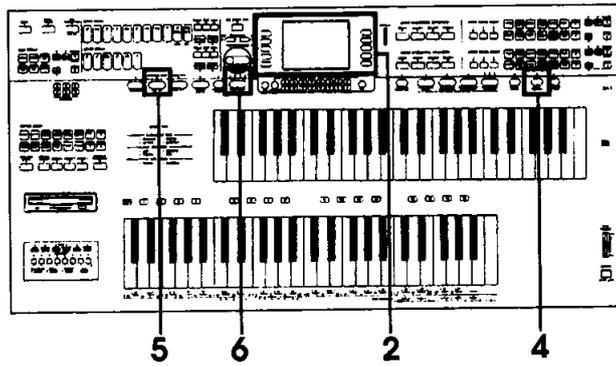
2 Press the OK button.
[GA1]
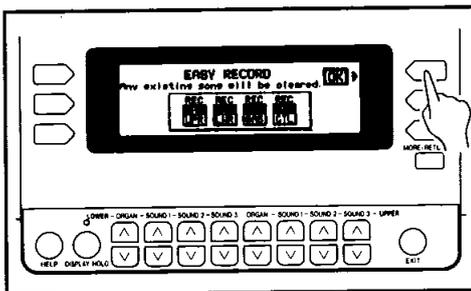
[GA3]

3 Play the song on the keyboards.

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

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

SEQUENCER RESET
○

FILL IN 1

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

1 2 3 4 BEAT
○ ○ ○ ○
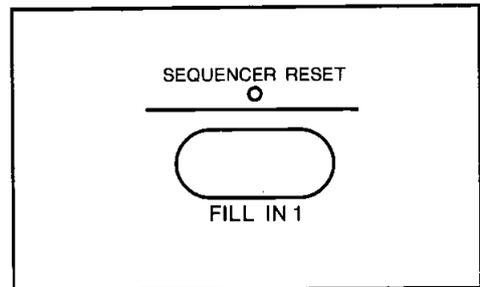
START/STOP
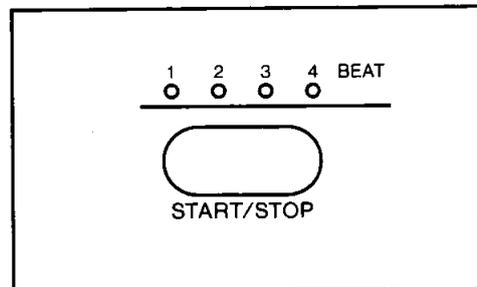
• Your performance is played back just as you recorded it.

• You can also record several parts individually and then have them played back together for an ensemble performance. (Refer to page 79.)

26

Easy Play Style

Automatic setup of the ORGAN parts
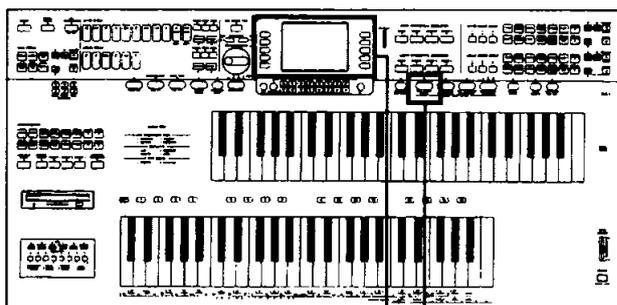
2·3·4 1

1 Press the **ONE TOUCH ORGAN** button to turn it on.
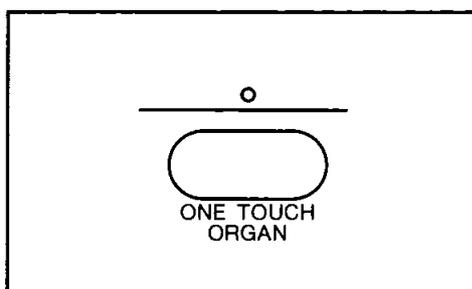
ONE TOUCH
ORGAN

• The display changes.

2 Use the ∧ and ∨ buttons to select a category (performance style).
[GA1]

[GA3]

3 Press the REG. LIST (GA1) or REGISTRATION LIST (GA3) button.
• The display changes.

4 Use the ∧ and ∨ buttons to select a type of registration (01 to 16)
[GA1]

[GA3]
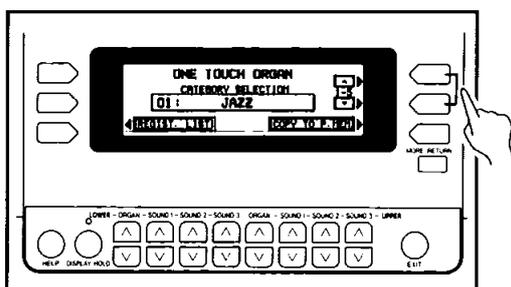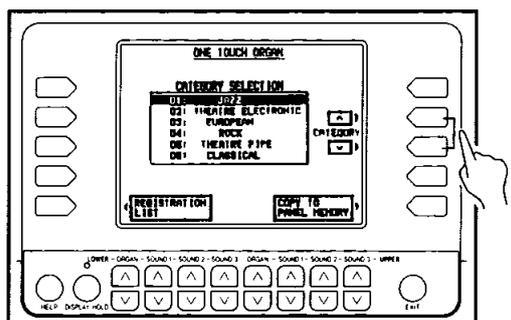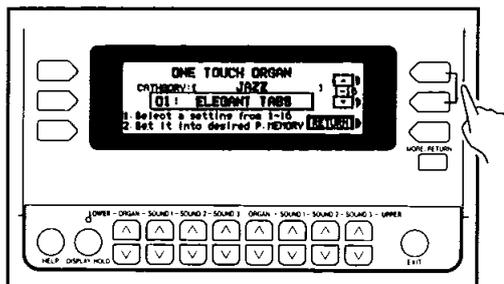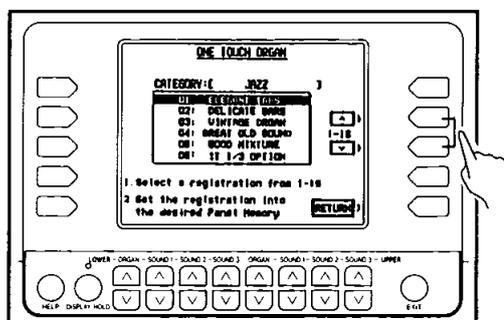
• The sounds and effects for each keyboard, and various other panel settings which are suitable for the type you chose are automatically selected.
• Press **ONE TOUCH ORGAN** button to turn it off to go back to the previous display.

Automatic setup of the SOUND parts
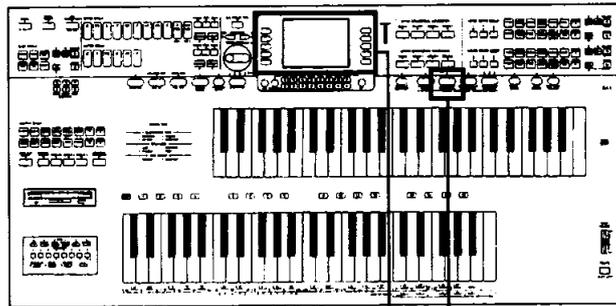
2·3·4 1

1 Press the **ONE TOUCH REGIS-TRATION** button to turn it on.
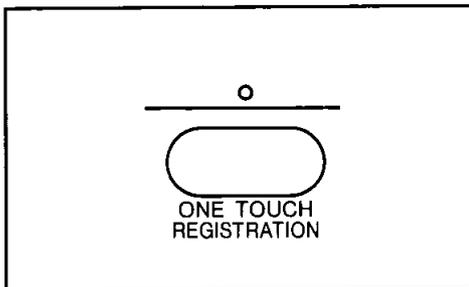
ONE TOUCH
REGISTRATION

• The display changes.

2 Use the ∧ and ∨ buttons to select a category (performance style).
[GA1]

[GA3]

3 Press the REG. LIST (GA1) or REGISTRATION LIST (GA3) button.
• The display changes.

4 Use the ∧ and ∨ buttons to select a type of registration (01 to 16).
[GA1]

[GA3]
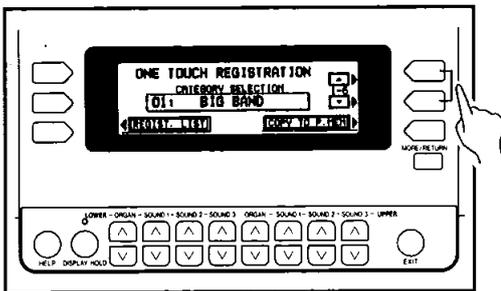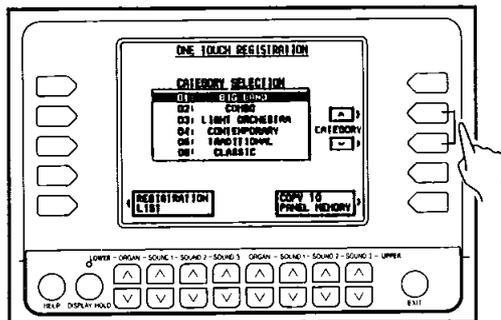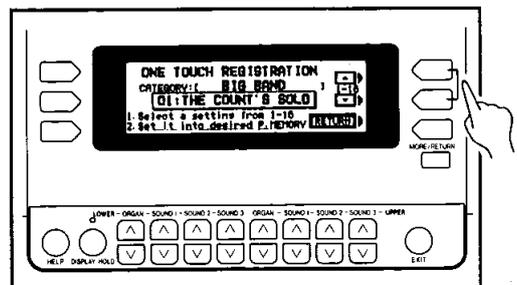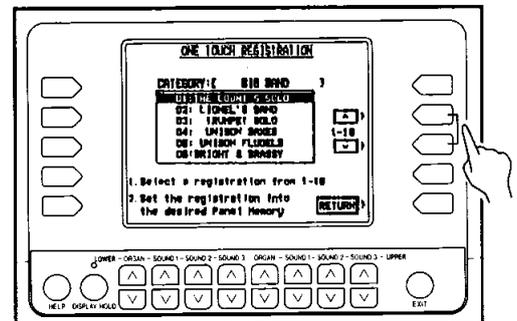
• The sounds and effects for each keyboard, and various other panel settings which are suitable for the type you chose are automatically selected.
• Press **ONE TOUCH REGISTRATION** button to turn it off to go back to the previous display.

Automatic setup for the style and rhythm

2·A   3   1·B
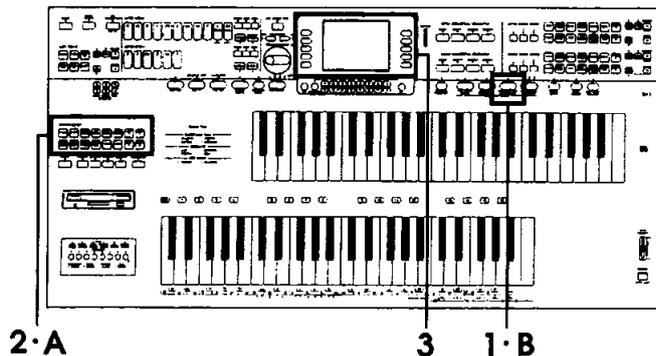
MUSIC STYLE SELECT

1 Press the **ONE TOUCH PLAY** button momentarily to turn it on.
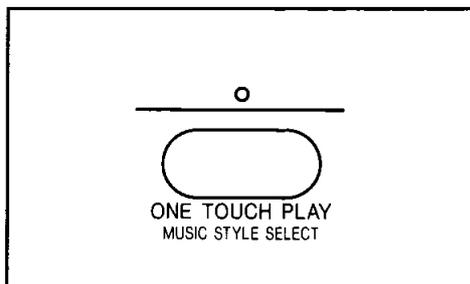
- The display changes.

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

3 Use the ∧ and ∨ buttons to select a music style.
[GA1]
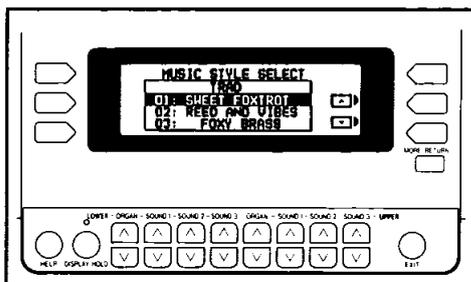
[GA3]
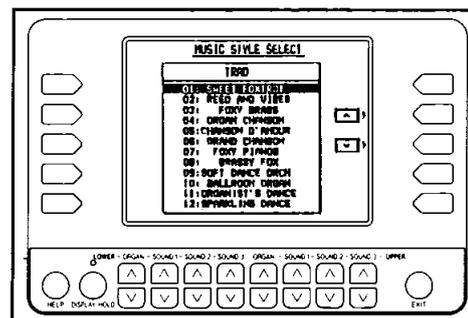
- The sounds and volume balances for each keyboard, rhythm, accompaniment and tempo, etc. suitable for the style you chose are automatically selected.
- When you play a chord on the lower keyboard, the automatic accompaniment begins to play. Play the melody on the upper keyboard.
- Press **ONE TOUCH PLAY** button to turn it off to go back to the previous display.

ONE TOUCH PLAY

A Select a rhythm pattern. (Refer to page 20.)

B Press the **ONE TOUCH PLAY** button until its indicator goes out.
- The sounds and effects for each keyboard, the tempo, and various other panel settings which are suitable for the rhythm you chose are automatically selected.

29

Arranger feature
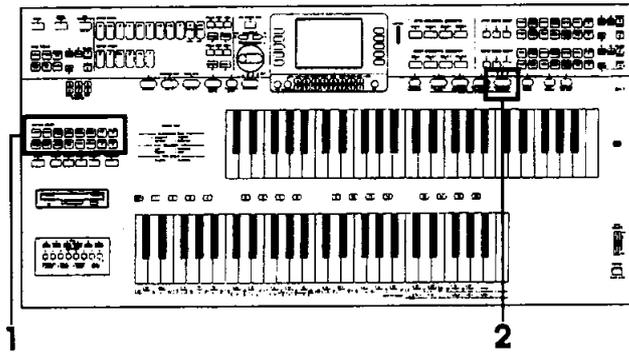
MUSIC STYLE ARRANGER

1 Select a rhythm pattern. (Refer to page 20.)

2 Press the **MUSIC STYLE ARRANGER** button to select the style (**1**, **2** or **3**) you want at the beginning of your performance.

1: Simple pattern
2: Normal pattern
3: Flashy pattern
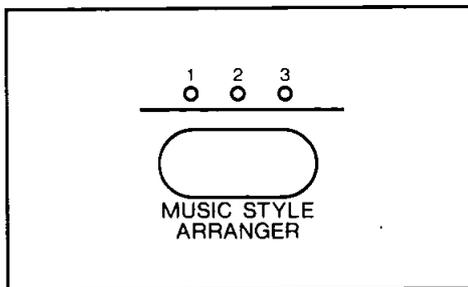
- The sounds and effects for each keyboard, the tempo, etc. suitable for the rhythm you chose are automatically selected.
- When you play a chord on the lower keyboard, the automatic accompaniment begins to play. Play the melody on the upper keyboard.
- While you are playing, press the **FILL IN 1** or **FILL IN 2** button. The specified **FILL IN** pattern plays, and then the music style changes.
- Each time the **FILL IN 1** button is pressed, the **FILL IN 1** pattern plays, and then the music style changes in the **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** order.

Basic functions

30

About the display: GA1

The display shows various information and is used for most of this instrument's operations.

Normal display

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

ORGAN group

ORGAN type

UPPER SOUND part sound

LOWER SOUND part sound

U/L ORGAN SOUND

ELECTR. TABS
TYPE
Standard

OTHER   J=120

UPPER [SOUND 1]
Grand Piano
LOWER [SOUND 1]
E.Piano 1
A min   on G

Tempo

Chord name
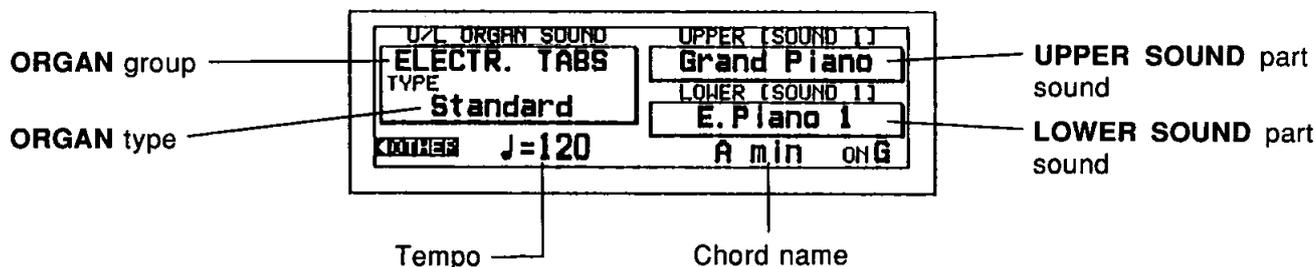
■ OTHER

If you press the button for OTHER, the display changes to the following.

Selected rhythm

RHYTHM
Organ Fox

RETURN   J=120

BASS PEDAL SOUND
Organ

BASS PEDALS sound
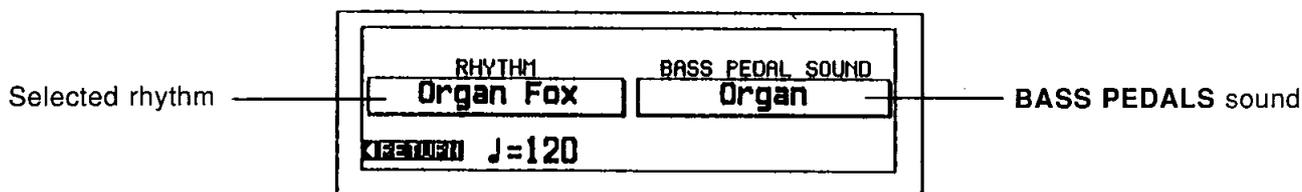
- Press the RETURN button to return to the previous display.

Volume balance

If you press one of the ∧ or ∨ buttons directly below the display, the display changes to the BALANCE display. The volume balance of each part is shown as a bar graph and a number (0 to 127).

Use the ∧ and ∨ buttons below the display to adjust the volume of each part.
- A few seconds after you change the settings, the display returns to the normal performance display.

OTHER   FIRST   BALANCE

82   120   48   100   96   127   30   96

ORGN   SND1   SND2   SND3   ORGN   SND1   SND2   SND3

MORE/RETURN

LOWER — ORGAN — SOUND 1 — SOUND 2 — SOUND 3   ORGAN — SOUND 1 — SOUND 2 — SOUND 3 — UPPER

HELP   DISPLAY HOLD   EXIT

LOWER ORGAN
LOWER SOUND 1
LOWER SOUND 2
LOWER SOUND 3

UPPER SOUND 3
UPPER SOUND 2
UPPER SOUND 1
UPPER ORGAN

Practical applications

31
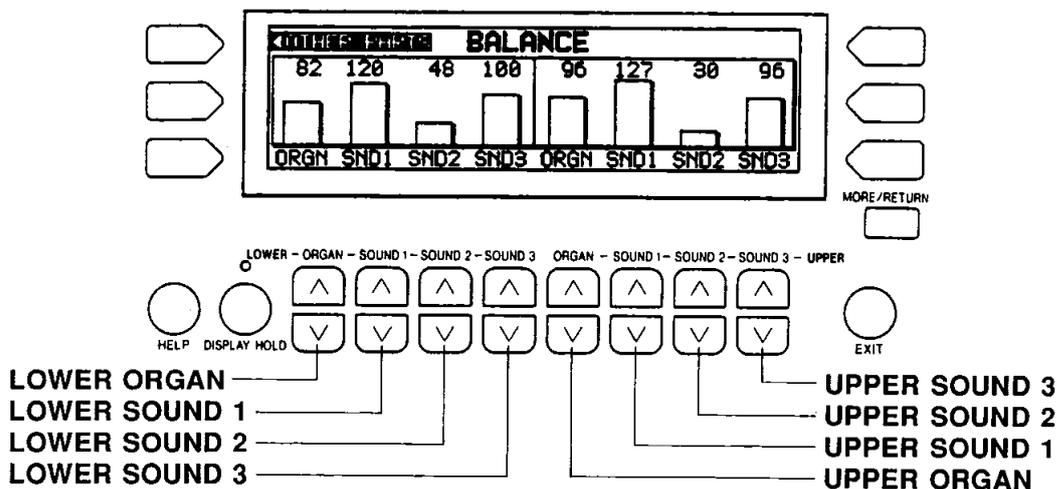
■ **OTHER PARTS**
If you press the button for OTHER PARTS, the display changes to the BALANCE display for other parts.
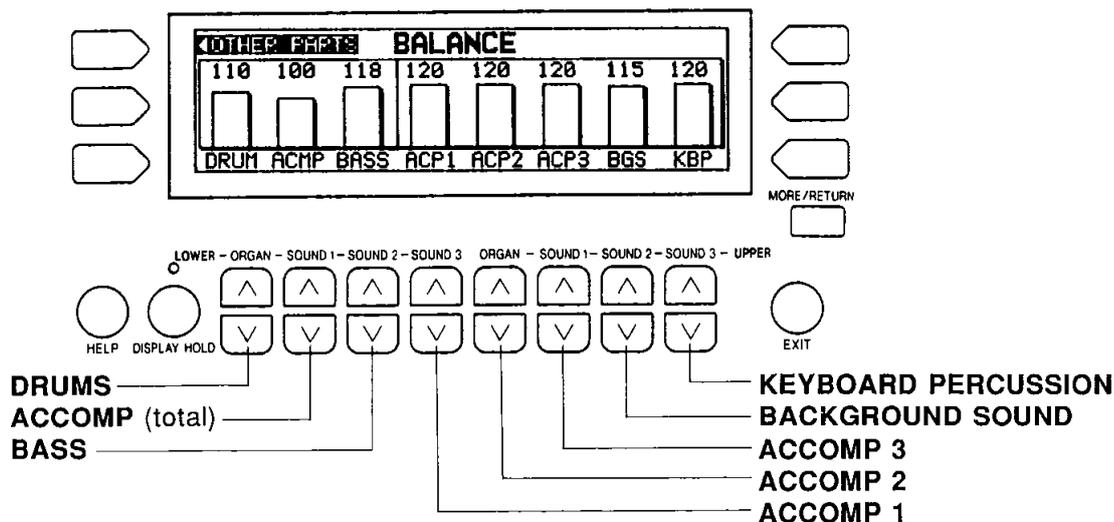
• This button is also used to access the PART 8 to 15 volume display. These parts are used in conjunction with **SEQUENCER** and MIDI functions.

• A few seconds after you change the setting, the display returns to the normal performance display.

MORE/RETURN

When there are additional parts to the current menu (for example, when a list of sounds is too long to be shown on one screen), a MORE indication is highlighted in the upper right corner of the display. Press the **MORE/RETURN** button below the display to view the next section of the menu.

■ **Example of MORE display**
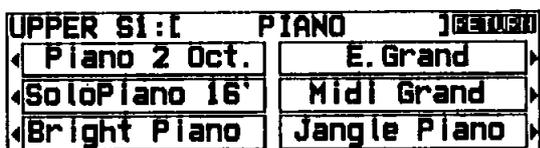
• When a RETURN indication is highlighted in the upper right corner of the display, press the **MORE/RETURN** button to return to the first part of the menu or list.

Menu display

The **MENU** and other buttons beneath the **PROGRAM SECTION** cover are used to control multiple functions. Pressing one of the buttons will access the corresponding menu display.
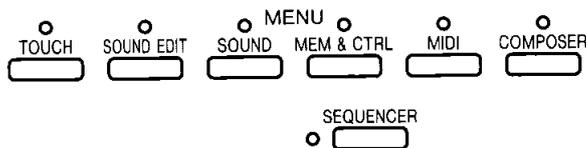
■ **Example of menu display: MEM & CTRL**
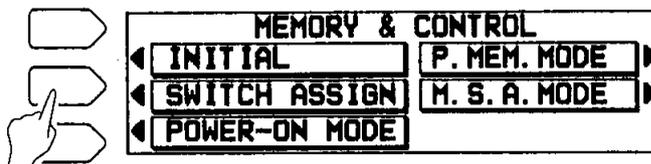
Select a function from the menu display by pressing the corresponding button to the left or right of the display indicated by the ◄ and ► arrows.
• In this manual, the steps describing how to select a function from a menu display are generally abbreviated as follows, for example: "On the **MEM & CTRL** menu display, select SWITCH ASSIGN."

Setting display

When setting various functions, the available operations 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: SWITCH ASSIGN**

```
              SWITCH ASSIGN
 ◄ KNEE LEVER    :SUSTAIN
 ◄ FOOT SWITCH   :GLIDE        [▲]►
 ◄ FULL BASS PDL:BAS TO LWR   [▼]►
```

MORE/RETURN

<Example of procedure to set a function>
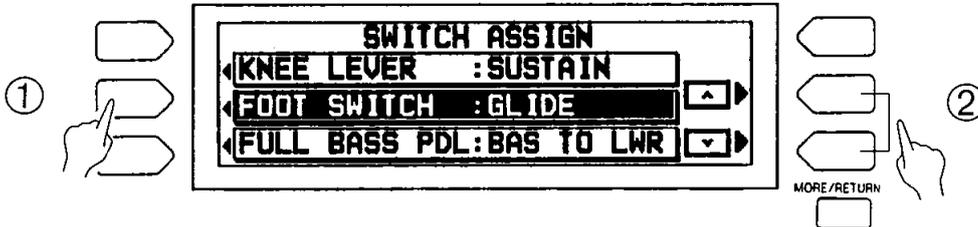
① In the illustration above, three functions are shown on the setting display: KNEE LEVER, FOOT SWITCH and FULL BASS PDL. First select one of the functions by pressing the corresponding button indicated by the ◄ arrow. (The currently selected function is highlighted.)

• 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 FOOT SWITCH."

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 select the function."

EXIT button

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

◯
EXIT

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.

○
◯
DISPLAY HOLD
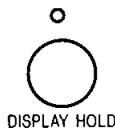
• If any of the **MENU** buttons is pressed, the **DISPLAY HOLD** mode is canceled.

TEMPO/PROGRAM dial

If the green **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.

TEMPO/PROGRAM ○

CONTRAST

Adjust the contrast of the display.

CONTRAST

About the display GA1

HELP display

You can find an explanation of most of the instrument functions right on the display.

1. Press the **HELP** button (at the lower left of the display).

○
HELP

• The following display appears.

```
    Help Index          MORE
◀ ORGAN TYPE
◀ ONE TOUCH PLAY           LANGUAGE
◀ ONE TOUCH ORGAN        ENGLISH ▶
```
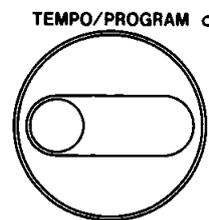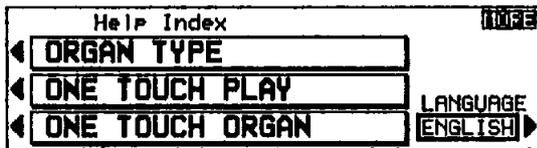
• Press the **MORE/RETURN** button to display other functions.
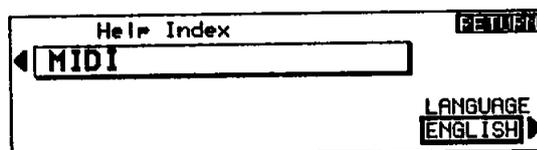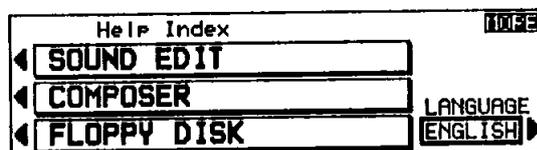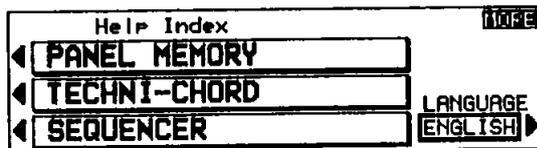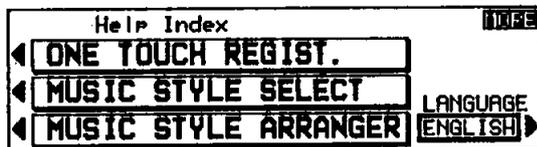
```
    Help Index          MORE
◀ ONE TOUCH REGIST.
◀ MUSIC STYLE SELECT       LANGUAGE
◀ MUSIC STYLE ARRANGER   ENGLISH ▶
```

```
    Help Index          MORE
◀ PANEL MEMORY
◀ TECHNI-CHORD            LANGUAGE
◀ SEQUENCER              ENGLISH ▶
```

```
    Help Index          MORE
◀ SOUND EDIT
◀ COMPOSER                LANGUAGE
◀ FLOPPY DISK            ENGLISH ▶
```

```
    Help Index          RETURN
◀ MIDI
                          LANGUAGE
                        ENGLISH ▶
```

2. Select a function.
• Information about the selected function will appear on the display. There may be several "pages" of information, which you can view by pressing the **MORE/RETURN** button.
• If you press the **HELP** button while you are in the process of setting a function, the display may change directly to the **HELP** mode.
• For a detailed explanation of each function, please refer to the relevant pages in this manual.

ORGAN TYPE .... page 40
ONE TOUCH PLAY .... page 69
ONE TOUCH ORGAN .... page 54
ONE TOUCH REGISTRATION .. page 55
MUSIC STYLE SELECT .... page 70
MUSIC STYLE ARRANGER .... page 71
PANEL MEMORY .... page 59
TECHNI-CHORD .... page 57
SEQUENCER .... page 73
SOUND.EDIT .... page 141
COMPOSER .... page 99
FLOPPY DISK FUNCTIONS ... page 111
MIDI .... page 164

Use the LANGUAGE button 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.

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

About the display: GA3

The display shows various information and is used for most of this instrument's operations.

Normal display

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

ORGAN group ⎯⎯⎯

ORGAN type ⎯⎯⎯

Selected rhythm ⎯⎯⎯

Tempo ⎯⎯⎯

```
 U/L ORGAN SOUND        UPPER [SOUND 1]
┌GROUP:──────┐        ┌──────────────┐
│ELECTR. TABS│        │ Grand Piano  │
├TYPE:───────┤        └──────────────┘
│  Standard  │         LOWER [SOUND 1]
└────────────┘        ┌──────────────┐
    RHYTHM            │  E. Piano I  │
┌────────────┐        └──────────────┘
│ Organ Fox  │         BASS PEDAL SOUND
└────────────┘        ┌──────────────┐
                      │    Organ     │
      ♩ = 1 4 6       └──────────────┘
                    CHORD
                ┌──────────────────┐
                │  A  min7  onG    │
                └──────────────────┘
  LOWER BALANCE        UPPER BALANCE
```

UPPER SOUND part
sound

LOWER SOUND part
sound

BASS PEDALS part
sound

Chord name

Volume balance

If you press one of the ∧ or ∨ buttons directly
below the display, the display changes to the
balance display. The volume balance of each part
is shown as a bar graph and a number (0 to 127).

Use the ∧ and ∨ buttons below the display to ad-
just the volume of each part.

```
 U/L ORGAN SOUND        UPPER [SOUND 1]
┌GROUP:──────┐        ┌──────────────┐
│ELECTR. TABS│        │ Grand Piano  │
├TYPE:───────┤        └──────────────┘
│  Standard  │         LOWER [SOUND 1]
└────────────┘        ┌──────────────┐
    RHYTHM            │  E. Piano I  │
┌────────────┐        └──────────────┘
│ Organ Fox  │         BASS PEDAL SOUND
└────────────┘        ┌──────────────┐
◄ OTHER PARTS         │    Organ     │
┌────────────┐        └──────────────┘
│96 100 100 100│      │127 120 120 120│
│ ▄  █  █  █  │      │ █  █  █  █  │
│ █  █  █  █  │      │ █  █  █  █  │
└────────────┘        └──────────────┘
  LOWER BALANCE        UPPER BALANCE
```

LOWER – ORGAN – SOUND 1 – SOUND 2 – SOUND 3   ORGAN – SOUND 1 – SOUND 2 – SOUND 3 – UPPER

HELP   DISPLAY HOLD   EXIT

LOWER ORGAN ⎯⎯⎯⎯⎯⎯
LOWER SOUND 1 ⎯⎯⎯⎯
LOWER SOUND 2 ⎯⎯⎯⎯
LOWER SOUND 3 ⎯⎯⎯⎯

⎯⎯⎯⎯⎯⎯ UPPER SOUND 3
⎯⎯⎯⎯⎯⎯ UPPER SOUND 2
⎯⎯⎯⎯⎯⎯ UPPER SOUND 1
⎯⎯⎯⎯⎯⎯ UPPER ORGAN

- A few seconds after you change the settings,
  the display returns to the normal performance
  display.

Practical applications

35

Practical applications

■ OTHER PARTS

If you press the button for OTHER PARTS, the display changes to the balance display for other parts.

```
┌─────────────────────┬─────────────────────┐
│ U/L ORGAN SOUND     │ UPPER [SOUND 1]     │
│ ┌─────────────────┐ │ ┌─────────────────┐ │
│ │GROUP:           │ │ │  Grand Piano    │ │
│ │ELECTR. TABS     │ │ └─────────────────┘ │
│ │TYPE:            │ │ LOWER [SOUND 1]     │
│ │  Standard       │ │ ┌─────────────────┐ │
│ └─────────────────┘ │ │  E.Piano 1      │ │
│      RHYTHM         │ │ BASS PEDAL SOUND  │
│ ┌─────────────────┐ │ ┌─────────────────┐ │
│ │  Organ Fox      │ │ │   Organ         │ │
│ └─────────────────┘ │ └─────────────────┘ │
│ ◄ OTHER PARTS                             │
│  110  100  118  120  120  120  115  120   │
│  DRUM ACMP BASS ACP1 ACP2 ACP3 BGS  KBP   │
└───────────────────────────────────────────┘
```

LOWER – ORGAN – SOUND 1 – SOUND 2 – SOUND 3   ORGAN – SOUND 1 – SOUND 2 – SOUND 3 – UPPER

HELP   DISPLAY HOLD   EXIT

DRUMS ─────────────────────────── KEYBOARD PERCUSSION
ACCOMP (total) ─────────────────── BACKGROUND SOUND
BASS ──────────────────────────── ACCOMP 3
                                   ACCOMP 2
                                   ACCOMP 1

- This button is also used to access the PART 8 to 15 volume display. These parts are used in conjunction with **SEQUENCER** and MIDI functions.

- A few seconds after you change the setting, the display returns to the normal performance display.

Menu display

The **MENU** and other buttons beneath the **PROGRAM SECTION** cover are used to control multiple functions. Pressing one of the buttons will access the corresponding menu display.

MENU
TOUCH   SOUND EDIT   SOUND   MEM & CTRL   MIDI   COMPOSER

SEQUENCER

■ Example of menu display: MEM & CTRL

```
┌─────────────────────────────────────────┐
│           MEMORY  &  CONTROL             │
│                                          │
│  ◄ INITIAL SETTING      PANEL MEM.MODE ► │
│                                          │
│  ◄ SWITCH ASSIGN        M.S.A. MODE    ► │
│                                          │
│  ◄ POWER-ON MODE        OUTPUT SETTING ► │
│                                          │
└─────────────────────────────────────────┘
```

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 **MEM & CTRL** menu display, select SWITCH ASSIGN."

Setting display

When setting various functions, the available operations 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: SWITCH ASSIGN**


```
              SWITCH ASSIGN
   ◄ KNEE LEVER        :SUSTAIN
   ◄ FOOT SWITCH RIGHT:FILL IN 1
   ◄ FOOT SWITCH LEFT :START/STOP   [∧]►
   ◄ FULL BASS PEDAL  :BASS TO LWR   [∨]►
```

<Example of procedure to set a function>

① In the illustration above, four functions are shown on the setting display: KNEE LEVER, FOOT SWITCH RIGHT, FOOT SWITCH LEFT and FULL BASS PEDAL. 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 FOOT SWITCH RIGHT."

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 select the function."

EXIT button

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

○
EXIT

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.

o
○
DISPLAY HOLD

• If any of the **MENU** buttons is pressed, the **DISPLAY HOLD** mode is canceled.

Practical applications

TEMPO/PROGRAM dial

If the green **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.

TEMPO/PROGRAM ○

CONTRAST

Adjust the contrast of the display.

CONTRAST

HELP display

You can find an explanation of most of the instrument functions right on the display.

1. Press the **HELP** button (at the lower left of the display).

HELP

• The following display appears.

```
HELP is available for
the following features.         LANGUAGE
◄  ORGAN TYPE                    ENGLISH ►

◄  ONE TOUCH PLAY

◄  ONE TOUCH ORGAN

◄  ONE TOUCH REGISTRATION

◄  MUSIC STYLE SELECT             MORE  ►
```

• Press the MORE button to display other functions.

```
HELP is available for
the following features.         LANGUAGE
◄  MUSIC STYLE ARRANGER          ENGLISH ►

◄  PANEL MEMORY

◄  TECHNI-CHORD

◄  SEQUENCER

◄  SOUND EDIT                     MORE  ►
```

• Press the RETURN button to go back to the previous display.

2. Select a function.
• Information about the selected function will appear on the display. There may be several "pages" of information, which you can view by following the instructions on the display.
• If you press the **HELP** button while you are in the process of setting a function, the display may change directly to the **HELP** mode.
• For a detailed explanation of each function, please refer to the relevant pages in this manual.

Use the LANGUAGE button 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.

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

Part I   Sounds and effects

The sounds for the upper keyboard, lower keyboard and pedal keyboard are grouped into "parts." A sound is selected for each part, and then the parts are assigned to the keyboards by the **ORCHESTRAL CONDUCTOR**.

Parts

You can assign four sound parts to the upper keyboard (**UPPER ORGAN, UPPER SOUND 1, UPPER SOUND 2** or **UPPER SOUND 3**) and four sound parts to the lower keyboard (**LOWER ORGAN, LOWER SOUND 1, LOWER SOUND 2** or **LOWER SOUND 3**). The **BASS** part is used for the pedal keyboard. The sound for each part is selected with the buttons as shown in the diagram below.

	Part	Sound buttons
Upper keyboard	**ORGAN**	**UPPER ORGAN**
	SOUND 1 **SOUND 2** **SOUND 3**	**UPPER SOUND GROUP**
Lower keyboard	**ORGAN**	**LOWER ORGAN**
	SOUND 1 **SOUND 2** **SOUND 3**	**LOWER SOUND GROUP**
Pedal keyboard	**BASS**	**BASS PEDALS**

Orchestral Conductor
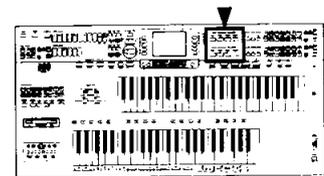
After a sound is selected for each part, the **ORCHESTRAL CONDUCTOR** buttons are used to assign a part to the upper keyboard and a part to the lower keyboard.

The **UPPER ORCHESTRAL CONDUCTOR** buttons are used to select the part for the upper keyboard, and the **LOWER ORCHESTRAL CONDUCTOR** buttons to select the part for the lower keyboard.

UPPER ORCHESTRAL CONDUCTOR

ORGAN	SOUND 1	SOUND 2	SOUND 3
o	o	o	o

LOWER ORCHESTRAL CONDUCTOR

ORGAN	SOUND 1	SOUND 2	SOUND 3
o	o	o	o

• When an **ORCHESTRAL CONDUCTOR** selection is changed, the display shows the currently selected sound for each part.

• By selecting sounds for each part beforehand, you can easily change from one sound to another during your performance just by selecting another **ORCHESTRAL CONDUCTOR** button.

• You can combine sounds by turning on two or more buttons in the **ORCHESTRAL CONDUCTOR** at the same time.

The number of notes which can be produced simultaneously for each part is as follows:
[GA1]
ORGAN part: 32 notes
All other parts: 64 notes
[GA3]
ORGAN part: 64 notes
All other parts: 64 notes

Selecting a type of organ
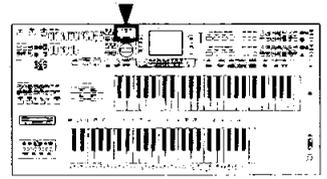
All types of organs are available for the **ORGAN** part. When you change from one type of organ to another, not only the sounds, but the entire configuration changes to that of the selected type, just as if you were playing a completely different instrument! You don't have just one organ, but many different types of organs, all in one instrument.

Organ type

Select the desired organ type from the representative types provided.

1. Press the **U/L ORGAN TYPE** button to turn it on.

U/L ORGAN TYPE
O

• The display changes to the following.

[GA1]

```
┌─────────────────────────────┐
│        U/L ORGAN TYPE       │
│◄Standard Tabs│Jazz Drawbars►│
│◄Theatre Tabs│Stnd.Drawbars►│
│◄U.S.Trad Tabs│Classical Pipe►│
└─────────────────────────────┘
```

[GA3]

```
┌─────────────────────────────┐
│        U/L ORGAN TYPE       │
│ -ELECTRONIC TABS-  ---DRAWBARS---│
│◄  Standard   │    Jazz    ►│
│◄  Theatre    │  Standard  ►│
│◄  U. S. Trad.│  Theatre   ►│
│◄  European   │    Rock    ►│
│        -----PIPE ORGAN-----  │
│◄  Theatre    │  Classical ►│
└─────────────────────────────┘
```
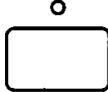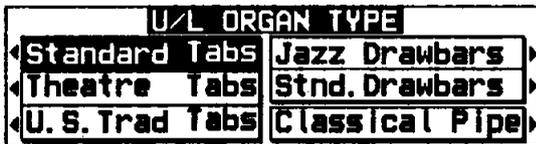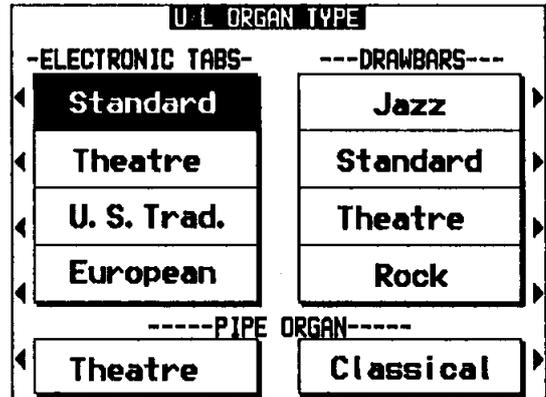
2. Select an organ type from the display.

ELECTRONIC TABS group	Standard	Technics-type electronic organ sound
	Theatre	Theatre-organ-type of electronic organ sound
	U.S. Trad	Typical American electronic organ sound
	European (GA3)	Typical European electronic organ sound
DRAWBARS group	Jazz	Drawbar organ sound for jazz performance
	Standard	Standard-type drawbar organ sound
	Theatre (GA3)	Theatre-type drawbar organ sound
	Rock (GA3)	Drawbar organ sound for rock performance
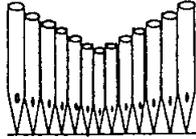
PIPE ORGAN group	Theatre (GA3)	Theatre-type pipe organ sound
	Classical	Pipe organ sound for classical music performance

- On the display, the selected type is highlighted.
- The sounds for the **UPPER ORGAN** part and **LOWER ORGAN** part change to those for the selected type.
- To play the selected organ sound on each keyboard, turn on the **ORGAN** buttons in the **ORCHESTRAL CONDUCTOR**.
- You cannot select a different organ type for the upper keyboard and lower keyboard.

- You can adjust the volume for the upper and lower parts. (Refer to page 31 or 35.)
- Press the **EXIT** button to go back to the previous display.

■ **Adjusting the sound**
The nuance of the sound for upper and lower keyboards can be changed independently.
Two methods are available. With **MANUAL** (page 42) you can control the various components of the sound. Or you can select one of the **PRESET** sounds (page 46) provided for each organ type.

Organ effects

Add effects to the **ORGAN** part sounds.

TREMOLO   EFFECT   SUSTAIN
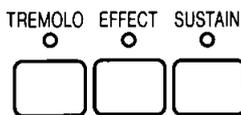
- These buttons do not work when the **PRESET** button (page 46) for the same keyboard is on.

■ **TREMOLO**
Tremolo is a rapid oscillation in volume, producing the effect of a rotating speaker. Various tremolos can be set for use with high-range sounds and low-range sounds. For example, you can achieve effects such as those shown below.

ELECTRONIC TABS group:
DRAWBARS group:
- Single-rotor-type revolving speaker effect.
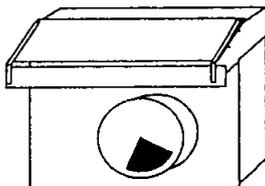
- Double-rotor-type revolving speaker effect.
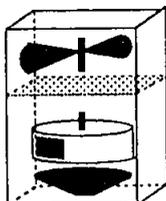
PIPE ORGAN group: A distinctive vibrating effect, peculiar to pipe organs, of air flowing through the pipes (TREMULANT).

TREMOLO SLOW/FAST
When the **TREMOLO** effect is active, press the **TREMOLO SLOW/FAST** button to turn it on. The rotating speed of the speaker is accelerated.
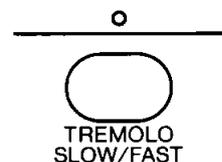
TREMOLO
SLOW/FAST

- The type of **TREMOLO** and how it is applied can be adjusted. (Refer to page 129.)
- The **TREMOLO** can be set to on or off for each tab sound and EXTRA TAB VOICES sound. (Refer to page 44.)

Practical applications

41

■ **EFFECT**
This is the beautiful wide effect of many instruments playing in unison.
- The type of effect can be changed. (Refer to page 44.)
- **EFFECT** can be set to on or off for each flute-type tab sound and EXTRA TAB VOICES sound.

■ **SUSTAIN**
SUSTAIN is the gradual fading out of musical tones after the key is released.
- The length of the sustain can be adjusted. (Refer to page 51.)

Setting the Organ sound: Manual
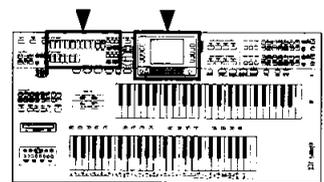
After selecting the desired organ type, you can change the nuance of the sound by using the tab buttons and the display to adjust its various components.

Outline of MANUAL settings

1. Select the organ type.

2. In the **UPPER ORGAN** or **LOWER ORGAN** section, press the **MANUAL** button to turn it on to change the sound for the respective keyboard.

MANUAL
○

3. Use the tab buttons and the display to select the desired sound. (Refer to the following section.)

■ **Using the tab buttons**
Organ sounds are obtained by combining different sound pitches (feet). By turning the tab buttons on and off, you can combine pitches to modify the selected organ sound.

■ **Using the display**
Special tabs (EXTRA TAB VOICES) and effects are provided for each individual organ type. These effects, used along with the tab buttons, allow you broad flexibility in creating the exact sound you want.
- The sound components which you can adjust differ depending on the type of organ.
- The settings are common for all the sounds in the same organ group.
- The settings are memorized independently for each organ group, so that whenever the **MANUAL** sound is selected for the same organ group, the sound you modified is automatically available.
- GA3: In the PIPE ORGAN group (Classical, Theatre), the sound settings can be made for each type.

Using the tab buttons to modify the sound

In the **UPPER ORGAN** or **LOWER ORGAN** section, use the tab buttons to change the sound for the respective keyboard.

UPPER ORGAN

| 16' | 5¹⁄₃' | 8' | 4' | 2²⁄₃' | 2' | 1³⁄₅' | 1¹⁄₃' | 1' | 4' PERC | 2²⁄₃' PERC |

CHIFF1 CHIFF2

LOWER ORGAN

| 8' | 4' | 2²⁄₃' | 2' | 1¹⁄₃' | 1' |
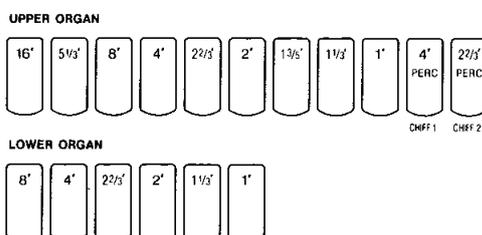
- Press the lower part of a tab button to turn it on, and the upper part to turn it off.
- When an organ type from the DRAWBARS group is selected, the tab buttons work as drawbar-volume-setting buttons. In this case, press and hold the upper part of the button to decrease the volume, and the lower part to increase the volume. While the volume is being adjusted, the status of the drawbars is shown on the display. (Refer to page 44.)

(GA3)

■ Percussives (upper keyboard)

PERC adds a tone with a fast initial attack to the tab sounds. You can get a sharp sound by combining **PERC** sounds with other tab sounds.

• When an organ type from the PIPE ORGAN group is selected, the **PERC** buttons work as **CHIFF** buttons. "Chiff" is the characteristic sound of air being sent to the pipes in a pipe organ. (Refer to page 45.)

About feet marks

The feet indication on each tab 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^1 key is pressed, the sounds of the different pitch ranks are as follows.

| 16' | | 8' | 5 1/3' | 4' | 2 2/3' | 2' | 1 1/3' | 1' |
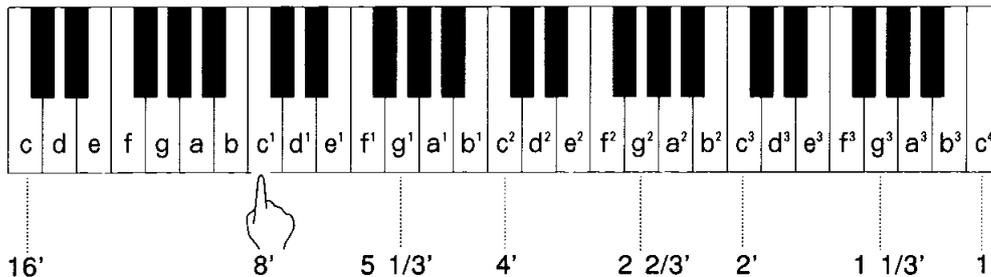
Using the display to modify the sound

When a **MANUAL** button is turned on, or when a **MANUAL** button is on and the tab buttons are operated, the setting display is shown.

■ ELECTRONIC TABS group

EXTRA TAB VOICES settings

On the display, select the sounds you wish to add.
• The setting switches between on and off each time the button is pressed.

[GA1] (Example: Upper keyboard)

```
UPPER  EXT.TAB [Standard Tabs]  MORE
◄Cello        16'  │Violin      8'▶
◄Trumpet       8'  │Kinura      8'▶
◄TREMOLO:OFF│     │EFFECT  :ON│
```

Press the **MORE/RETURN** button to change other settings.

[GA3] (Example: Upper keyboard)

```
 UPPER    EXTRA TAB VOICES
        ELECTRONIC TABS:[ Standard ]
◄│ Cello   16' │  │ Violin   8' │▶
◄│ Trombone 16'│  │ Trumpet  8' │▶
◄│ Kinura   8' │  │ Clarinet 8' │▶
◄│ TREMOLO: OFF│  │ EFFECT : ON │▶
◄│ VIBRATO: OFF│        │OTHER SETTING│▶
```
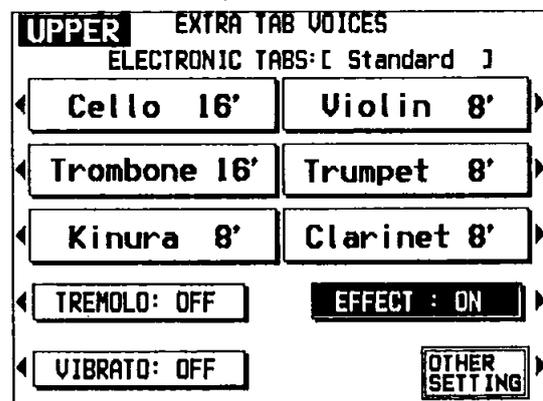
Press the OTHER SETTING button to change other settings.

• On the display, the selected sounds are highlighted.
• You can select more than one sound at the same time.

Adding effects
Add effects to the EXTRA TAB VOICES sounds.

Press the button for each effect to turn it on or off.

TREMOLO: Tremolo is a rapid oscillation in volume, producing the effect of a rotating speaker.

EFFECT: Add breadth to the sound.

VIBRATO: Add vibrato to the sound.

Volume balance adjustment
Adjust the volume of the EXTRA TAB VOICES in relation to the tab sounds from the panel buttons.

Select BALANCE, and use the ∧ and ∨ buttons to adjust the volume (0 to 127).
- When set to 100, the volume of the EXTRA TAB VOICES is the same as the volume of the tab sounds.

Effect type setting
Use the EFFECT TYPE ∧ and ∨ buttons to select the type of effect (CELESTE or CHORUS).
- When this setting is changed, all effects applied to the **ORGAN** part change to the same type.
- GA3: You can change other effect types. (Refer to page 134.)

Percussive tone adjustment (upper keyboard only)
Adjust the **PERC** sound.

[GA1]
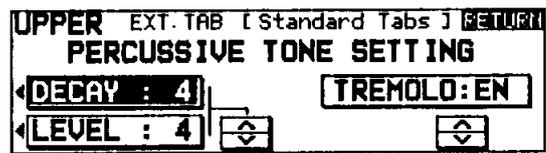
[GA3]
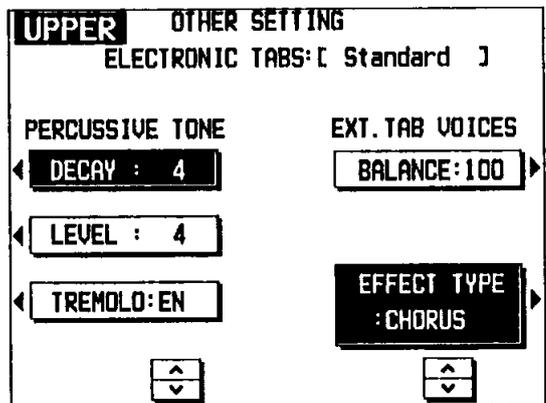
Select an attribute of the PERCUSSIVE TONE. Use the ∧ and ∨ buttons to change the setting for the attribute.

DECAY
Adjust the decay time (1 to 8).

LEVEL
Adjust the volume (1 to 8).

TREMOLO
Turn the tremolo effect on or off.
   EN: The tremolo effect is on for the percussive tone.
   DIS: The tremolo effect is off.

- If the **TREMOLO** button on the panel is off, the tremolo effect is not applied even when the TREMOLO is set to EN.

■ **DRAWBARS group**

Drawbar (tab volumes) adjustment
Adjust with the respective tab buttons.
- The drawbars are shown on the display.

[GA1] (Example: upper keyboard)
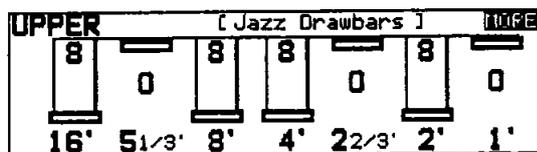
Press the **MORE/RETURN** button to change other settings.

[GA3] (Example: upper keyboard)

Press the OTHER SETTING button to change other settings.
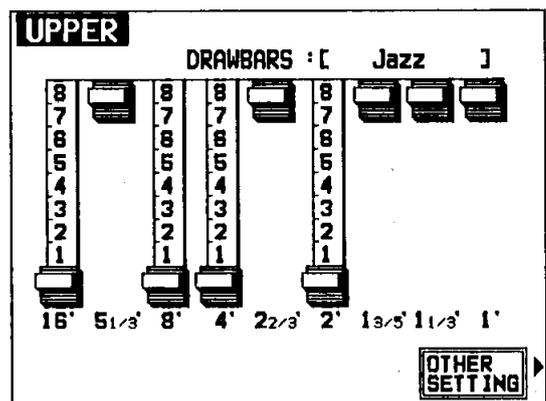
Practical applications

- The numbers below the drawbars correspond to the feet numbers of the tab buttons.
- Select a setting from 0 to 8. When set to 0, no sound is produced.

Effect type setting
Select the type of EFFECT. (Refer to page 44.)

Percussive tone adjustment (upper keyboard only)
Adjust the **PERC** sound. (Refer to page 44.)

■ PIPE ORGAN group

EXTRA TAB VOICES settings
On the display, select the sounds you wish to add.
- The setting switches between on and off each time the button is pressed.

[GA1]

```
UPPER  EXT.TAB [Classical Pipe]  MORE
◄ Flute    8'  │ Flute      4' ▶
◄ Gamba    8'  │ Trumpet    8' ▶
◄ TREMOLO:OFF │  EFFECT  :OFF ▶
```

Press the **MORE/RETURN** button to change other settings.

[GA3]

```
UPPER    EXTRA TAB VOICES
         PIPE ORGAN :[ Theatre ]
◄ Vox Celeste │ StringCeleste ▶
◄ Tuba 16'    │ Trumpet 8'    ▶
◄ EnglishHorn8' │ Saxophone 8' ▶
◄ TREMULANT:ON │  EFFECT : OFF ▶
◄ VIBRATO: OFF │       OTHER   ▶
                       SETTING
```
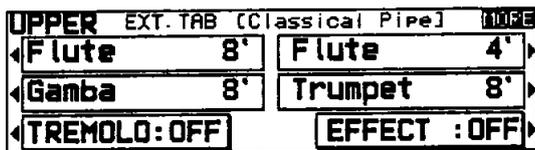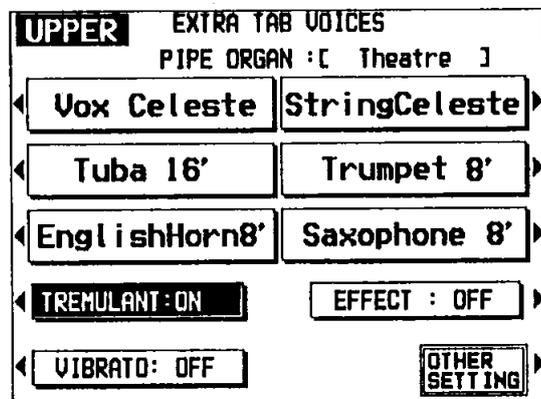
Press the OTHER SETTING button to change other settings.

- On the display, the selected sound is highlighted.
- You can select more than one sound at the same time.

Adding effects
Add effects to the EXTRA TAB VOICES sounds.

Press the button for each effect to turn it on or off.

TREMULANT
Turn the tremulant on or off.

EFFECT
Add breadth to the sound.

VIBRATO
Add vibrato to the sound.

Volume balance adjustment
Adjust the volume of the EXTRA TAB VOICES in relation to the tab sounds from the panel buttons. (Refer to page 44.)

Effect type setting
Select the type of EFFECT. (Refer to page 44.)

Chiff level adjustment (upper keyboard only)
For pipe organ types, the **PERC** buttons are used to add CHIFF sounds. (Chiff is the characteristic sound of air being sent to the pipes in a pipe organ.) Two chiff sounds, 1 and 2, are available, and the volume can be adjusted for each.

[GA1]

```
UPPER  EXT.TAB [Classical Pipe] RETURN
         CHIFF LEVEL SETTING
◄ CHIFF1: 4 │
◄ CHIFF2: 4 │ ◊
```

[GA3]

```
UPPER    OTHER SETTING
         PIPE ORGAN :[ Theatre ]

  CHIFF LEVEL        EXT.TAB VOICES
◄ CHIFF 1 : 4       │ BALANCE:100 ▶

◄ CHIFF 2 : 4
                      EFFECT TYPE ▶
                      :CELESTE
   ◊                  ◊
```
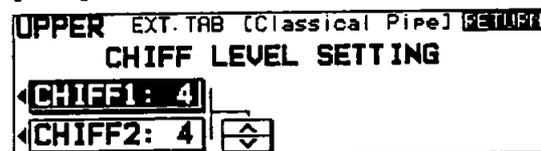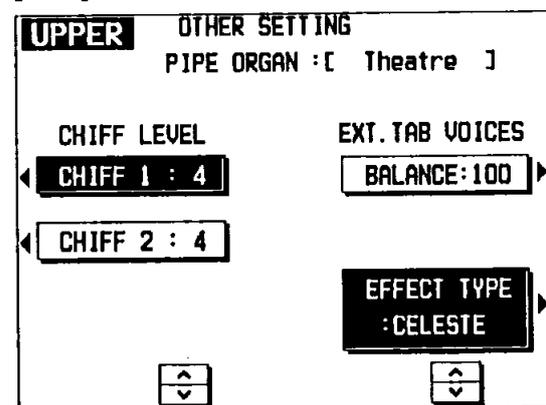
1. Select CHIFF 1 or CHIFF 2.

2. Use the ∧ and ∨ to adjust the volume (1 to 8).

3. Repeat steps 1 and 2 as desired for the other chiff volume.

Practical applications

Setting the Organ sound: Preset
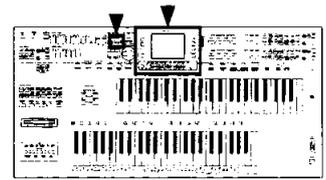
After selecting the desired organ type, choose any of the many preset sounds provided for each type.

PRESET

Select one of the **PRESET** sounds provided for each organ type.

1. Select the organ type.

2. To change the organ sound for the upper keyboard, press the **PRESET** button to turn it on in the **UPPER ORGAN** section. For the lower keyboard, press the **PRESET** button to turn it on in the **LOWER ORGAN** section.

PRESET

○

• The display looks similar to the following.

[GA1]

UPPER	ORGAN PRESET	ELECTR. TABS	MORE
◄ WARM SOLO	CONTINENTAL ►
◄ LIGHT JAZZ	WARM & BRIGHT ►
◄THEATRE SOLO	COPY TO MANUAL ►

[GA3]

UPPER	ORGAN PRESET
	ELECTRONIC TABS
◄ WARM SOLO	MAIN THEME ►
◄ LIGHT JAZZ	TROMBONE TAB ►
◄THEATRE SOLO	LIGHT FLUTES ►
◄ CONTINENTAL	FULL THEATRE ►
◄WARM & BRIGHT	COPY TO MANUAL ►
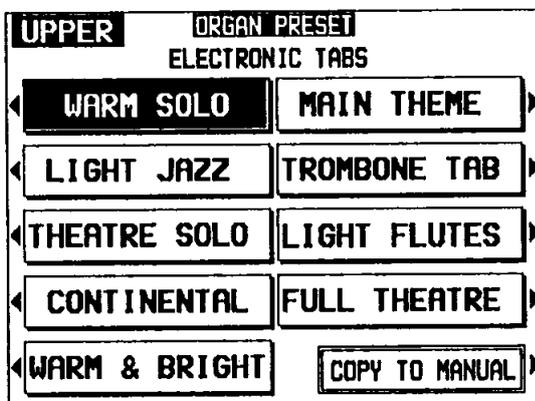
3. Select a sound from the list on the display.
• GA1: Use the **MORE/RETURN** button to view different parts of the list.
• The selected sound is memorized independently for each organ type, so that whenever the **PRESET** sound is selected for the same organ type, the sound you chose is automatically available.

4. If necessary, repeat steps 2 and 3 to select a **PRESET** sound for the other keyboard.
• The tab buttons (with feet indications) and effect buttons (except for the **SUSTAIN** button) do not work for the **PRESET** sounds. If you wish to modify the sound, first make a copy of the **PRESET** sound (see below), and then modify the copy.

■ **Copy a PRESET sound**
When you copy a **PRESET** sound to the **MANUAL** memory, you can modify the copy as desired.
Note: When you copy a sound to the **MANUAL** memory, any sound which was previously copied to the memory is erased.

1. Select a **PRESET** sound.

2. Press the COPY TO MANUAL button.
• A copy of the selected **PRESET** sound is stored in the **MANUAL** memory. You can now change the characteristics of the sound in the **MANUAL** memory. (Refer to page 42.)

Selecting Sound part sounds
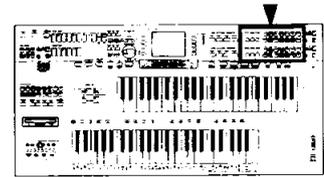
Select from a variety of sounds for the **SOUND 1**, **2** and **3** parts of the upper keyboard and lower keyboard.

Sound

1. In the **UPPER SOUND GROUP** or **LOWER SOUND GROUP**, press the **1**, **2** or **3** button to select a part.

```
   1       2       3
   o       o       o
 ┌───┐   ┌───┐   ┌───┐
 │   │   │   │   │   │
 └───┘   └───┘   └───┘
```
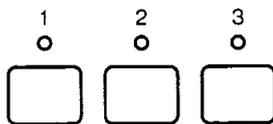
2. In the **UPPER SOUND GROUP** or **LOWER SOUND GROUP**, press one of the sound buttons to select a sound group.

   [GA1]
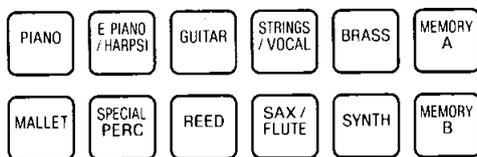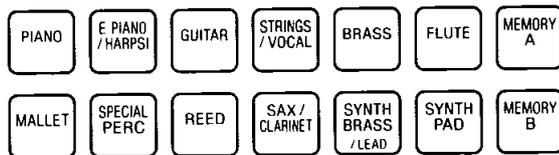
PIANO	E PIANO /HARPSI	GUITAR	STRINGS /VOCAL	BRASS	MEMORY A
MALLET	SPECIAL PERC	REED	SAX/ FLUTE	SYNTH	MEMORY B

   [GA3]

PIANO	E PIANO /HARPSI	GUITAR	STRINGS /VOCAL	BRASS	FLUTE	MEMORY A
MALLET	SPECIAL PERC	REED	SAX/ CLARINET	SYNTH BRASS /LEAD	SYNTH PAD	MEMORY B

   * 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 141 or 150.)

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

   [GA1]

   ```
   ┌──────────────────────────────────┐
   │UPPER S1:[      PIANO      ]  MORE │
   │◀ Grand Piano │ Piano 1 Oct. ▶    │
   │◀ Upright Piano│ Rock Piano  ▶    │
   │◀ Mellow Piano │ Honkey Tonk ▶    │
   └──────────────────────────────────┘
   ```

   Press the **MORE/RETURN** button to see a different part of the list.

   [GA3]

   ```
   ┌──────────────────────────────────┐
   │ UPPER  SOUND 1: [    PIANO    ]   │
   │                                  │
   │◀ Grand Piano │ SoloPiano 16' ▶  │
   │                                  │
   │◀ Upright Piano│ Rock Piano   ▶  │
   │                                  │
   │◀ Mellow Piano │ Honky Tonk   ▶  │
   │                                  │
   │◀ Piano 1 Oct. │ Jangle Piano ▶  │
   │                                  │
   │◀ Piano 2 Oct. │  MORE SOUNDS ▶  │
   └──────────────────────────────────┘
   ```
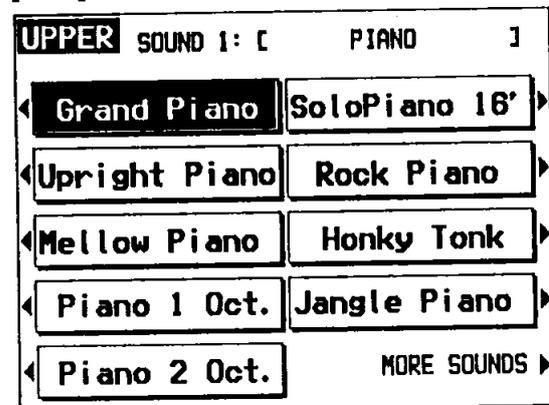
   Press the MORE SOUNDS button to see a different part of the list.

   * The selected sound is memorized independently for each sound group of each part, so that whenever the sound group is selected for the same part, the sound you chose is automatically available.

4. Repeat steps 1 to 3 to select the sound for the other parts.

   * To play the sound selected for a part on the respective keyboard, turn on the corresponding **SOUND** button in the **ORCHESTRAL CONDUCTOR**. You can combine sounds by turning on two or more buttons in the **ORCHESTRAL CONDUCTOR** at the same time.
   * You can adjust the volume of each part. (Refer to page 31 or 35.)
   * Press the **EXIT** button to go back to the previous display.

Practical applications

Selecting the bass part sound
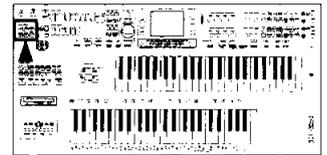
A variety of sounds for you to choose from is also available for the bass part (pedal keyboard).

Bass

1. In the **BASS PEDALS** section, select a sound group.
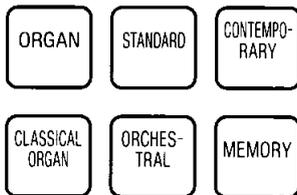
BASS PEDALS

ORGAN	STANDARD	CONTEMPO-RARY
CLASSICAL ORGAN	ORCHES-TRAL	MEMORY

- A list of sounds available for each sound group can be found in the separate "REFERENCE GUIDE" provided.
- **MEMORY** is reserved for storing sounds you modify. (Refer to page 141 or 150.)

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

[GA1]

```
BASS  :[      ORGAN       ]  MORE
◄   Organ  16'        TheatreBass16 ►
◄   Organ   8'        TheatreBass  8 ►
◄   Organ   4'        TheatreTuba16 ►
```

[GA3]

```
   BASS   : [ CLASSICAL ORGAN ]

◄  Bourdon 16'        Octave   4'  ►

◄ Diapason 16'        Trumpet 8'  ►

◄  Gedackt  8'        Fagot  16'  ►

                              PRESET  ►
```
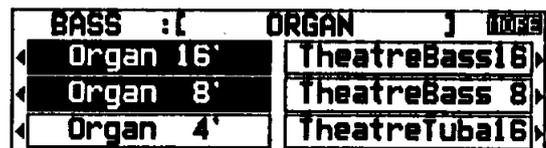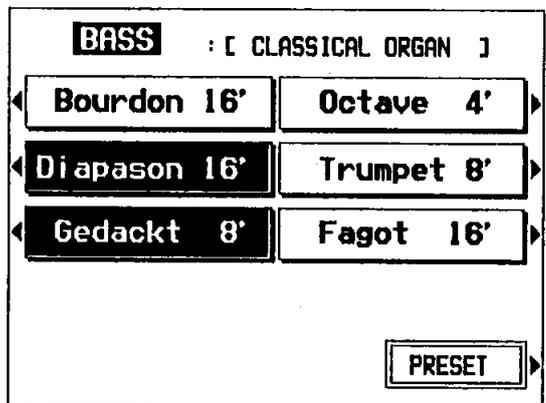
- For non-organ-type sounds, you can use the OCTAVE button to select the octave. The standard is 8', so the pitch is lowered by one octave when 16' is selected.
- For organ-type sounds (**ORGAN** and **CLASSICAL ORGAN**) you can combine multiple sounds on the display (BASS TABS) to create a different sound. Or, when you press the **MORE/RETURN** (GA1) or PRESET (GA3) button, you can select the PRESET sound.
- The selected sound is memorized independently for each sound group, so that whenever the sound group is selected, the sound you chose is automatically available.
- Press the **EXIT** button to go back to the previous display.

Mixing sounds

You can combine bass sounds of different groups so that they are produced simultaneously.

Press the **ORGAN** button, or the **CLASSICAL ORGAN** button, and another **BASS PEDALS** sound button at the same time to turn them both on.
- The **ORGAN** sound and **CLASSICAL ORGAN** sound cannot be mixed.
- When sounds are combined, you can change the nuance of the organ-type sound by turning the sounds shown on the display on or off.

■ Volume balance

When mixing an organ-type sound with another bass sound, the volume balance between the two sounds can be adjusted by changing the volume of the non-organ-type sound.

1. Simultaneously press the buttons for the two sounds.
- GA1: Press the **MORE/RETURN** button to show the following display.

[GA1]

```
BASS  :[     ORGAN     ]RETURN
       PRESET SOUND──JazzOrgnBass1▶
◀[▲]  DUAL BALANCE  ─JazzOrgnBass2▶
   ├─[  100  ]      Theatre Gamba▶
◀[▼]  Acoustic Bass
```

[GA3]

```
BASS   :[ CLASSICAL ORGAN ]
◀ Bourdon 16'    │  Octave   4'  ▶
◀ Diapason 16'   │  Trumpet 8'   ▶
◀ Gedackt  8'    │  Fagot   16'  ▶
◀[▲]   DUAL BALANCE
   ├─        100
◀[▼]   Acoustic Bass      PRESET  ▶
```
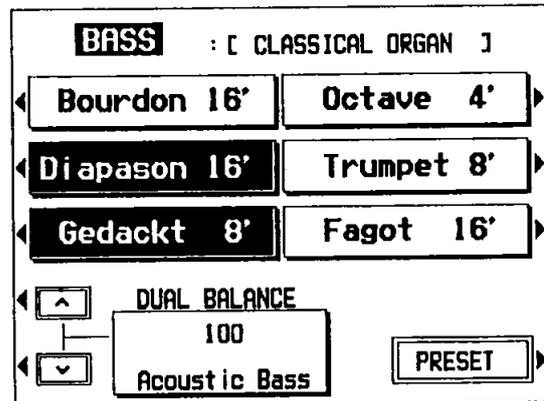
2. Use the ∧ and ∨ buttons, to adjust the volume of the non-organ-type bass sound (0 to 127).
- When set to 100, the volume of the organ-type sound is the same as the volume of the other sound.

Adjust the volume

Adjust the volume of the **BASS** part in relation to the other parts.

Use the **BASS** buttons in the **BALANCE** section to adjust the volume of the **BASS** part (0 to 127).

```
[∧] [∧] [∧]
[∨] [∨] [∨]
DRUMS ACCOMP BASS
   BALANCE
```
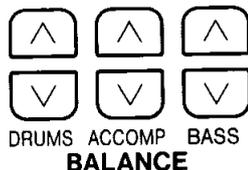
- Each time the ∧ button is pressed, the volume increases, and each time the ∨ button is pressed, the volume decreases.
- While the volume is being adjusted, the balance setting display is shown. A few seconds after you change the setting, the display returns to the previous display

Practical applications

Lower keyboard bass

You can add the bass sound to the lowest note played on the lower keyboard. This means that you can produce the bass part sound without actually playing the pedal keyboard.

Select from two methods.

■ **TO LOWER**
In the **BASS PEDALS** section, press the **TO LOWER** button to turn it on.

```
 TO
LOWER
```
O

- The bass sound is added to the lower keyboard sound as long as this button is on.
- To turn off this function, press the **TO LOWER** button again to turn it off.

■ **Full bass pedal**
Press the full bass pedal.

Full bass pedal
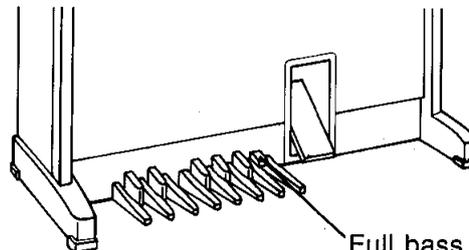
- The bass sound is added to the lower keyboard as long as this pedal is depressed.
- If this pedal is depressed when the **TO LOWER** button is on, the **TO LOWER** button turns off automatically when the pedal is released.
- You can assign a different function (bass solo, etc.) to the full bass pedal. (Refer to page 138.)

Add effects to the Sound and Bass part sounds

Various effects add character to the **SOUND** and **BASS PEDALS** sounds.

DIGITAL EFFECT

DIGITAL EFFECT gives the sound richness and enhances your performance.

O
```
DIGITAL
EFFECT
```

1. Turn on the part button for a sound (1, 2 or 3 in the **UPPER** or **LOWER SOUND GROUP**).
- This step is not necessary when you are adding the **DIGITAL EFFECT** to the **BASS** part.

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

3. Repeat steps 1 and 2 for other parts as desired.

- The **DIGITAL EFFECT** differs depending on the selected sound.
- The on or off status of the **DIGITAL EFFECT** is preset for each sound, so that the **DIGITAL EFFECT** turns on when certain sounds are selected.
- The **DIGITAL EFFECT** settings can be changed. (Refer to page 147 [GA1] or page 161 [GA3].)

Practical applications

DSP EFFECT (GA3 SOUND parts)

You can change the quality of the sound.

```
DSP
EFFECT
```
o

1. Turn on the part button for a sound (**1**, **2** or **3** in the **UPPER** or **LOWER SOUND GROUP**).

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

3. Repeat steps 1 and 2 for other parts as desired.

- The on or off status of the effect is memorized for each part.
- The display can also be used to set this effect to on or off for each part. (Refer to page 126.)
- The **DSP EFFECT** settings can be changed. (Refer to page 132.)

SUSTAIN

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

o
```
SUSTAIN
```

1. If adding this effect to a **SOUND** part, turn on the button for the part.

2. Press the corresponding **SUSTAIN** button to turn it on.
- The display changes to the following.

[GA1]

```
        SUSTAIN LENGTH
  PART:[ UPPER SOUND 1 ]
◄[∧]                      [∧]►
    ├──┌──────────────┐──┤
◄[∨] │        7       │  [∨]►
       └──────────────┘
```

[GA3]

```
        SUSTAIN LENGTH

   PART:[UPPER SOUND 1]

◄[∧]                      [∧]►
    ├─┌─────────────────┐─┤
◄[∨]  │ SUSTAIN LENGTH :  7 │ [∨]►
      └─────────────────┘
```
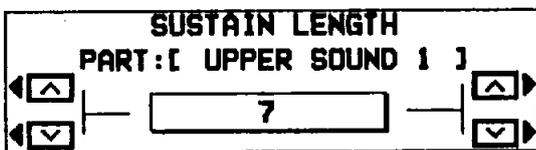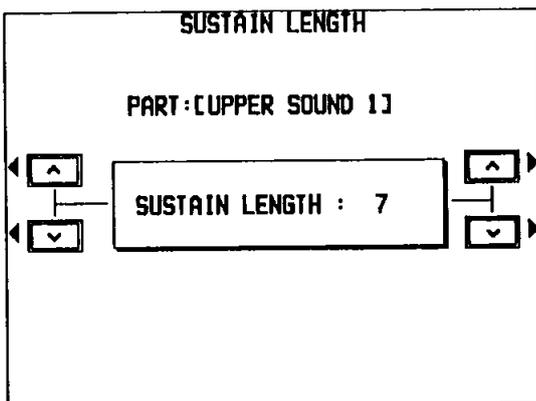
3. Use the ∧ and ∨ buttons to adjust the length of the sustain (1 to 8).
- A few seconds after changing the setting, the display returns to the previous display.

4. Repeat steps 1 to 3 for other parts as desired.

- The on or off status of the **SUSTAIN** is memorized for each part.
- The **SUSTAIN** effect differs depending on the selected sound.

BRILLIANCE

Change the brightness of the sound.

BRILLIANCE

1. If adding this effect to a **SOUND** part, turn on the button for the part.

2. Use the corresponding **BRILLIANCE** ∧ and ∨ buttons to change the setting.
- The display changes to the following.

[GA1]

```
          BRILLIANCE
PART:              BRIGHT   ▶
[ UPPER SOUND 1 ]  NORMAL   ▶
                   MELLOW   ▶
```

[GA3]

```
          BRILLIANCE


PART:[UPPER SOUND 2]

           BRIGHT   ▶

           NORMAL   ▶

           MELLOW   ▶

```
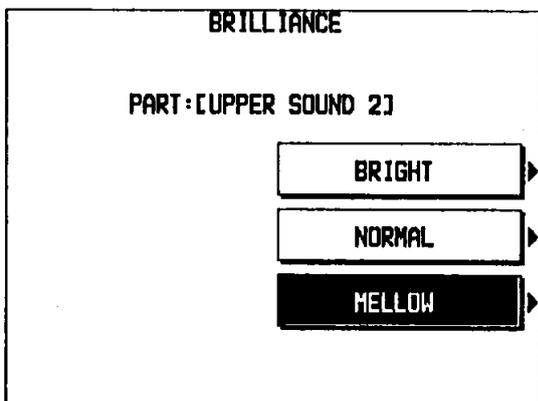
3. Repeat steps 1 and 2 for other parts as desired.

- The **BRILLIANCE** setting is memorized for each part.
- This effect differs depending on the selected sound and on the keyboard section.

- You can also specify the brightness with the buttons to the right of the display.

  BRIGHT: The sound is brighter.

  NORMAL: Standard brightness.

  MELLOW: The sound is mellow.

- A few seconds after changing the setting, the display returns to the previous display.

Other effects

Other effects give you complete control over the way your performance sounds. For example, the knee lever lets you instantly turn the sustain on and off during your performance, and you can easily add reverb to all the sounds of your instrument.

Knee lever

You can operate the knee lever located under the keyboards with your right knee to turn the **SUSTAIN** effect on and off quickly while you play.

Knee lever	Sustain effect
Raised position	The **SUSTAIN** effect for each part is enabled/disabled according to the on/off status of the **SUSTAIN** button for each part.
Lowered position (stand-by)	The **SUSTAIN** effect is standing by for those parts whose **SUSTAIN** button status is on.
Pressed to the right (on)	The **SUSTAIN** effect is applied to the parts whose **SUSTAIN** button status is on.
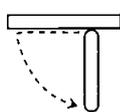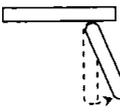
- You can assign a different function to the knee lever. (Refer to page 138.)

DIGITAL REVERB

DIGITAL REVERB applies a reverberation effect to the sound of the whole instrument, including the automatic rhythm sounds.

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

- The display can also be used to set this effect to on or off for each part separately (effective when the **DIGITAL REVERB** is on).
- The type and depth of the reverberation can be adjusted. (Refer to page 128.)

Glide

The foot switch is used as a glide control.

1. Press the foot switch (GA3: left foot switch) to the left with the side of your foot.

[GA1]

Foot switch

[GA3]
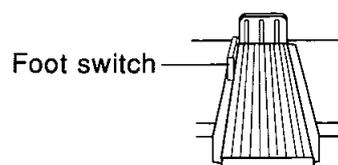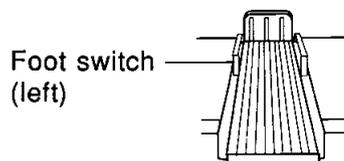
Foot switch (left)

- The pitch of the instrument is lowered by about one semitone.

2. Release the foot switch.
- The pitch returns to normal.
- A fast glide effect is applied when the foot switch is released quickly.
- You can adjust the pitch range of the glide effect, and specify whether the glide effect works for the lower keyboard. (Refer to page 132.)
- You can assign a different function to this foot switch. (Refer to page 138.)

- The glide effect does not function for the pedal keyboard sounds and for some other sounds.

Practical applications

Automatic sound and effect settings
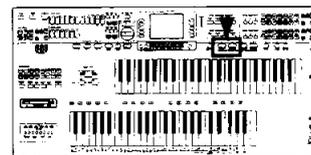
The sound and effect settings (registration) for each keyboard can be executed automatically in seconds. A great many automatic registrations are available for you to choose from.

ONE TOUCH ORGAN

A wide variety of **ORGAN** registrations has been prepared for automatic panel setup.

1. Press the **ONE TOUCH ORGAN** button to turn it on.

ONE TOUCH ORGAN

• The display looks similar to the following.

[GA1]

ONE TOUCH ORGAN
CATEGORY SELECTION
01:      JAZZ
◀ REGIST. LIST   COPY TO P.MEM ▶

[GA3]

ONE TOUCH ORGAN

CATEGORY SELECTION
01:      JAZZ
02: THEATRE ELECTRONIC
03:    EUROPEAN
04:    ROCK
05: THEATRE PIPE
06:    CLASSICAL

CATEGORY

◀ REGISTRATION LIST   COPY TO PANEL MEMORY ▶
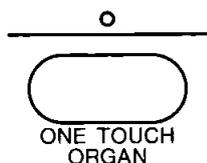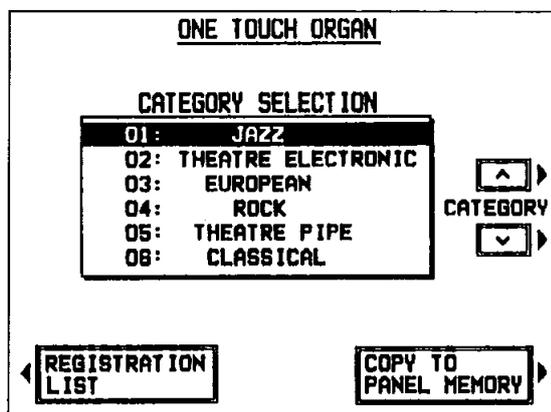
2. Use the ∧ and ∨ buttons to select the category (performance style) (01 to 05 [GA1], 01 to 06 [GA3]).

3. Press the REGIST. LIST (GA1), or REGISTRATION LIST (GA3), button.
• The display looks similar to the following.

[GA1]

ONE TOUCH ORGAN
CATHGORY: [JAZZ   ]   1-16
01:   ELEGANT TABS
1. Select a setting from 1-16
2. Set it into desired P.MEMORY   RETURN ▶

[GA3]

ONE TOUCH ORGAN

CATEGORY: [JAZZ   ]
01: ELEGANT TABS
02: DELICATE BARS
03: VINTAGE ORGAN
04: GREAT OLD SOUND
05: GOOD MIXTURE
06:   IT 1/3 OPTION

1-16

1. Select a registration from 1-16

2. Set the registration into the desired Panel Memory   RETURN ▶
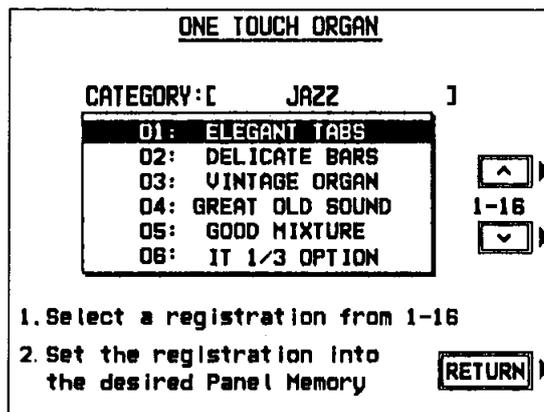
4. Use the 1-16 ∧ and ∨ buttons to select the name of a registration (01 to 16).
• The sounds and effects for each keyboard, the rhythm and various other panel settings which are suitable for the registration you chose are automatically selected.
• Play and listen to the sound. If you like the combination, store the registrations in the **PANEL MEMORY** for one-touch recall. (See below.)

• When the **ONE TOUCH ORGAN** function is used, the **ACCOMP 1, 2** and **3** buttons turn off.

■ Copy to the PANEL MEMORY

The registration contents of the selected category can be copied to the **PANEL MEMORY** buttons (page 59) for easy recall.

Notes
• When this procedure is executed, any previously stored contents of the **PANEL MEMORY** buttons are replaced by the registrations of the selected category.
• GA1: Registrations 01 to 08 are copied to the **PANEL MEMORY**. If you wish to copy any or all of registrations 09 to 16, do not use the COPY TO P.MEM function. Instead, select the desired registration and then store it in a **PANEL MEMORY** number. (Refer to page 59.)

1. Select the category.

2. Press the COPY TO P.MEM (GA1), or COPY TO PANEL MEMORY (GA3), button.
• A confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.
• The automatic registrations are copied to the **PANEL MEMORY 1** to **8** (GA1), or **1** to **16** (GA3), buttons.

ONE TOUCH REGISTRATION

Automatic settings for other parts are also available to choose from.

1. Press the **ONE TOUCH REGISTRATION** button to turn it on.

ONE TOUCH
REGISTRATION

• The display looks similar to the following.

[GA1]

[GA3]
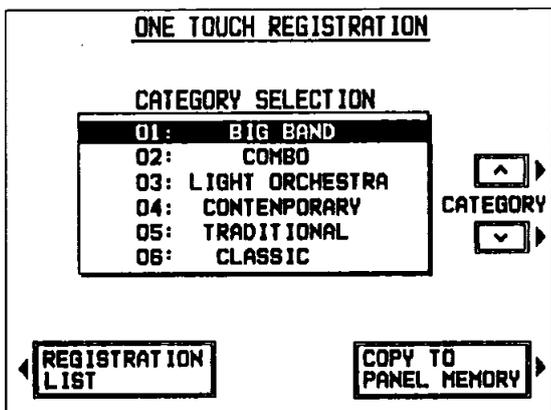
2. Use the 1-6 (GA1), or CATEGORY (GA3), ∧ and ∨ buttons to select a style of performance (01 to 06).

3. Press the REGIST. LIST (GA1), or REGISTRATION LIST (GA3), button.
• The display looks similar to the following.

[GA1]
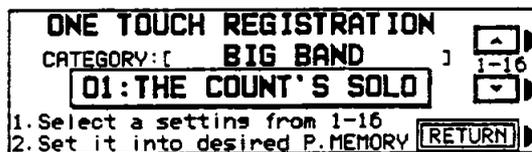
[GA3]
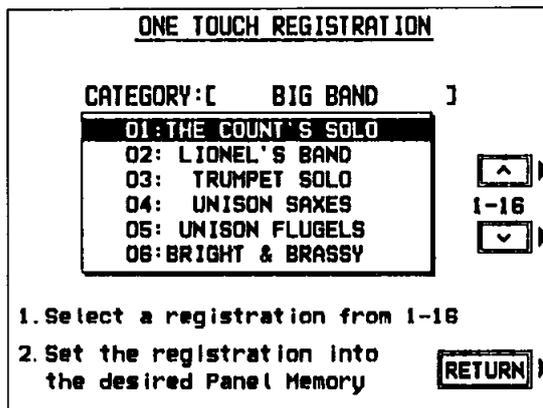
4. Use the 1-16 ∧ and ∨ buttons to select a registration (01 to 16).
• The sounds and effects for each keyboard, and various other panel settings which are suitable for the registration you chose are automatically selected.
• Play and listen to the sound. If you like the combination, store it in the **PANEL MEMORY** for one-touch recall. (Refer to page 59.)
• When the **ONE TOUCH REGISTRATION** function is used, the **ACCOMP 1, 2** and **3** buttons turn off.

Practical applications

■ Copy to the PANEL MEMORY

The registration contents of the selected category can be copied to the **PANEL MEMORY** buttons (page 59) for easy recall.

Notes
- When this procedure is executed, any previously stored contents of the **PANEL MEMORY** buttons are replaced by the registrations of the selected category.
- GA1: Registrations 01 to 08 are copied to the **PANEL MEMORY**. If you wish to copy any or all of registrations 09 to 16, do not use the COPY TO P.MEM function. Instead, select the desired registration and then store it in a **PANEL MEMORY** number. (Refer to page 59.)

1. Select the category.

2. Press the COPY TO P.MEM (GA1), or COPY TO PANEL MEMORY (GA3), button.
- A confirmation display appears. Press the YES button to execute the function, or press the NO button to cancel the function.
- The automatic registrations are copied to the **PANEL MEMORY** 1 to 8 (GA1), or 1 to 16 (GA3), buttons.

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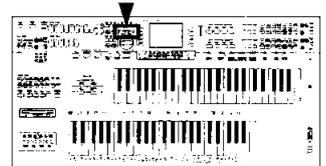
The **TRANSPOSE** buttons are used to change the key (pitch) of the entire instrument in semi-tone steps across an entire octave.

Suppose you learn to play a song—in the key of C, for example—and decide you want to sing it, only to find 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 **TRANSPOSE** buttons (**UP** and **DOWN**).

```
DOWN   TRANSPOSE    UP
 o <            >  o
```

Each press of the **UP** button changes the key as follows: D♭ → D → E♭ → E → F → F♯.
Each press of the **DOWN** button changes the key as follows: B → B♭ → A → A♭ → G.

- If the two buttons are pressed at the same time, the key returns to C.
- When the **TRANSPOSE** function is active, the indicator for the **UP** or **DOWN** button remains lit.
- When the **TRANSPOSE** function is active, the transposed key is shown on the display.

[GA1]

```
  U/L ORGAN SOUND        UPPER [SOUND 1]
 ┌ELECTR. TABS┐       ┌Grand Piano┐
 │TYPE         │      │LOWER [SOUND 1]│
 │  Standard   │      │ E. Piano 1 │
 └OTHER   ♩=120   <D >┘
```
Actual key

[GA3]
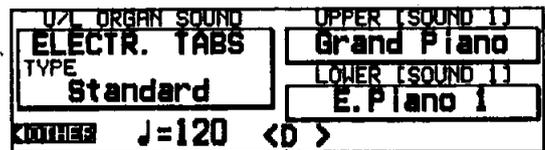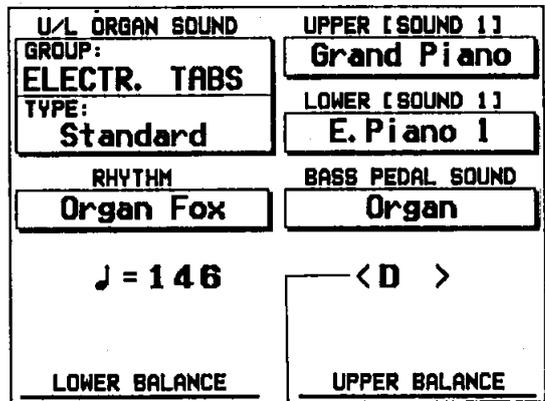
```
  U/L ORGAN SOUND         UPPER [SOUND 1]
 ┌GROUP:        ┐      ┌               ┐
 │ELECTR. TABS │      │ Grand Piano  │
 ├TYPE:         ┤      ├LOWER [SOUND 1]┤
 │  Standard    │      │  E. Piano 1  │
 ├RHYTHM        ┤      ├BASS PEDAL SOUND┤
 │  Organ Fox   │      │    Organ      │
 │              │      │               │
 │    ♩ = 146   │   ┌─ <D  >         │
 │              │   │               │
 ├LOWER BALANCE ┤   │  UPPER BALANCE │
 └──────────────┘   └───────────────┘
```
Actual key

<Example: transposed to D>

Played keys   Notes that sound

C major   D major

Techni-chord
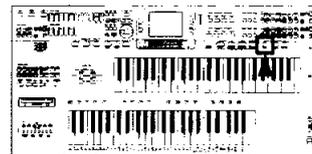
TECHNI-CHORD transfers the chord notes you play on the lower keyboard to each melody note you play on the upper keyboard.

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

```
        o
   _____

      (   )
   TECHNI-
   CHORD
```
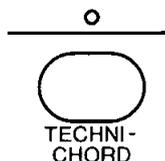
2. Play the example below, playing the chords on the lower keyboard and the melody on the upper keyboard.

Left hand (chord)   C   F   G   C

Right hand (melody)

- The melody you play on the upper keyboard is automatically played in chords which are based on the chords you play on the lower keyboard.

- **TECHNI-CHORD**s cannot be played using the lowest octave of the upper keyboard.
- This feature is very effective when used with the **AUTO PLAY CHORD**. (Refer to page 65.)
- The display can be used to select the desired harmony style. (Refer to page 131.)

Practical applications

BGS Background Sound
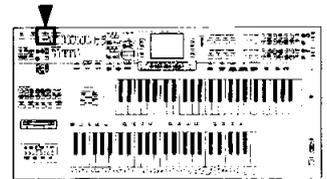
Various preset background sounds such as the chirping of birds and the sound of waves are available. Use the background sounds to give your music that special atmosphere.

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

BGS
BACKGROUND SOUND
O

FADE OUT

• The display changes to the following.

[GA1]

```
       BACK GROUND SOUND
◀[    BIRD    ][  CHRCH BELL  ]▶
◀[    WAVE    ][   APPLAUSE   ]▶
◀[    RAIN    ][      BALANCE ]▶
```

[GA3]

```
       BACK GROUND SOUND

◀[   BIRD   ]   [ CHURCH BELL ]▶

◀[   WAVE   ]   [   APPLAUSE  ]▶

◀[   RAIN   ]   [  BALANCE   ]▶
```
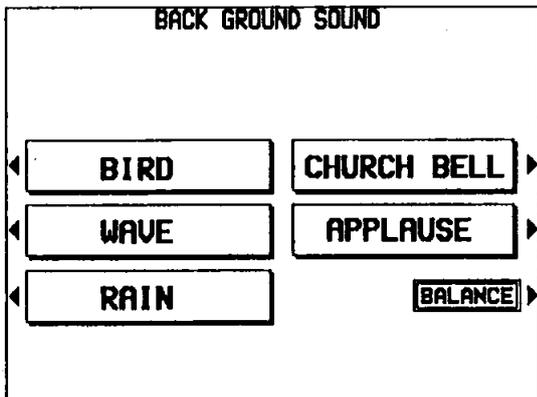
2. Press the button for the desired background sound.
• The selected sound is immediately produced.
• The background sounds can be mixed when two buttons are pressed at the same time.
• A few seconds after making your selection, the display returns to the previous display.

3. To turn off the background sound, press the **BGS** button again.
• The background sound dies out slowly (FADE OUT).

■ **Volume**
On the BACK GROUND SOUND display, press the BALANCE button to access the volume-setting display. Use the BGS buttons to adjust the volume.

Panel Memory
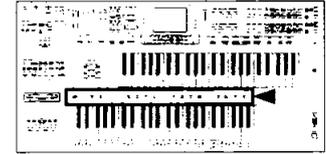
PANEL MEMORY stores the panel setups of your instrument (up to 8 panel setups on the GA1, 16 on the GA3), allowing you to make complex changes at the touch of a single button.

1. Select the sounds, effects and volumes for all the parts.

2. With the **SET** button held down, press one of the numbered buttons of the **PANEL MEMORY**.

[SET]   [1]   [2]   [3]   [4]

- The current settings are now stored in the specified number button. To recall the settings, just press the respective number button in the **PANEL MEMORY**.

- After recalling the settings by pressing a **PANEL MEMORY** number button, you can change the panel settings manually, but the memory contents of the **PANEL MEMORY** remain unchanged until you store them again.

■ 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.

[GA1]

```
       PANEL MEMORY MODE
 NORMAL: Stores sound & balance
◄        settings only
 EXPAND: Stores the total settings
◄        including Rhythm, Transpose
         & Tempo.
```

[GA3]

```
       PANEL MEMORY MODE

◄   NORMAL
    Stores sound & balance
    settings only

    EXPAND
◄   Stores the total setting
    including Rhythm, Transpose
    & Tempo
```
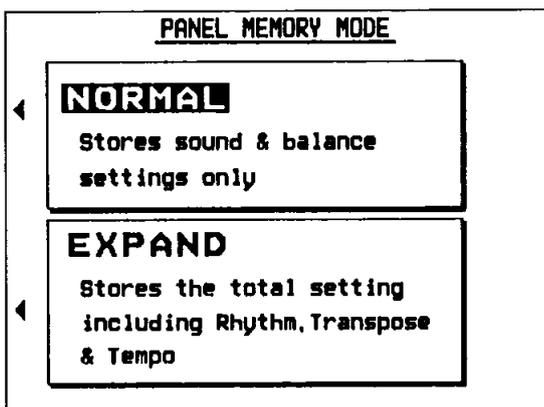
2. Select the mode (NORMAL or EXPAND).

NORMAL: Stores sound and volume balance settings, etc.

EXPAND: Stores all instrument settings, including rhythm, **TRANSPOSE** status, tempo, etc.

- After a few seconds, the display exits the setting mode.

Suggestions for using PANEL MEMORY

The initial factory setting of the **PANEL MEMORY** contains various 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**. (Refer to page 181.) Selecting the EXPAND mode will allow you to make full use of the initial factory settings of the **PANEL MEMORY**.

- You can change from one **PANEL MEMORY** to another by using a foot switch. (Refer to page 138.)

Practical applications

Part II Playing the rhythm

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

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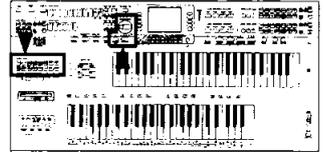
After first selecting a **RHYTHM GROUP**, choose the desired rhythm from the display.

Select a rhythm.

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

RHYTHM GROUP

8 BEAT	16 BEAT	BIG BAND /SWING	JAZZ COMBO	COUNTRY/ R & BLUES	MARCH/ POLKA	LATIN 1	COMPOSER A
ROCK/ DISCO	MODERN ROCK	ROCK (OTHERS)	SHOW TIME	TRAD	WALTZ	LATIN 2	COMPOSER B

- A list of rhythms available for each rhythm group can be found in the separate "REFERENCE GUIDE" provided.
- **COMPOSER A** and **COMPOSER B** are reserved for storing rhythms you create yourself. (Refer to page 99.)

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

[GA1]

```
♩=120      TRAD          MORE
◄  Foxtrot    │GospelShuffle►
◄ ★ Organ Fox │Gospel 16Beat►
◄★Organ Qstep │Hawaiian 1    ►
```

Use the **MORE/RETURN** button to view different parts of the list of rhythms.

[GA3]

```
♩=120        TRAD
◄  Foxtrot     │GospelShuffle►
◄  Chanson Fox │Gospel 16Beat►
◄  Modern Fox  │ Hawaiian 1  ►
◄ ★ Organ Fox  │ Hawaiian 2  ►
◄★Organ Qstep  │    Jig      ►
```

- Rhythms marked with a ★ are especially effective for an **AUTO PLAY CHORD** performance with **ORGAN** sounds.
- 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.
- Press the **EXIT** button to go back to the previous display.

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.

```
 1    2    3    4   BEAT
 O    O    O    O
```
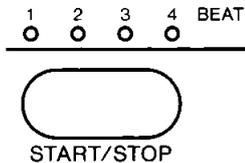

START/STOP

- The selected rhythm pattern immediately begins to play.
- You can stop the rhythm by pressing the **START/STOP** button again to turn it off.
- During the rhythm performance, 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 lower keyboard or pedal keyboard.

1. Select a rhythm.

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

```
         O
```


SYNCHRO & BREAK
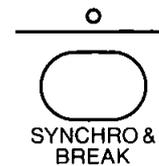
3. Play a key on the lower keyboard or a pedal on the pedal keyboard.
- The rhythm pattern begins to play.
- You can stop the rhythm by pressing the **START/STOP** button to turn it off.

Adjust the volume

The volume of the rhythm is adjusted with the **DRUMS** buttons in the **BALANCE** section.

DRUMS ACCOMP BASS
BALANCE
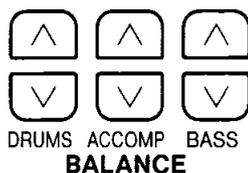
- While the volume is being adjusted, the balance-setting display is shown.

Adjust the tempo

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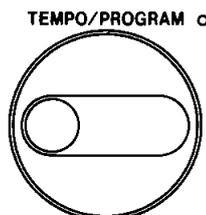
TEMPO/PROGRAM O

- The tempo is shown on the display as a numerical value ($\rfloor = 40$ to 300).
- When the **TEMPO/PROGRAM** indicator is lit, it means that one of the various function-setting modes is active and the **TEMPO/PROGRAM** dial is not currently available for adjusting the tempo.

Practical applications

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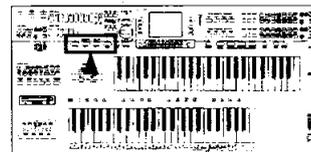
Intro, fill-in and ending patterns fitting each different rhythm pattern are permanently recorded in your instrument, thus allowing a versatile rhythm performance.

INTRO

Begin the rhythm performance with an intro pattern.

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

○

INTRO &
ENDING

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

1 2 3 4 BEAT
○ ○ ○ ○
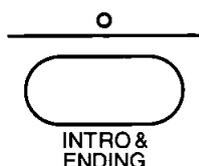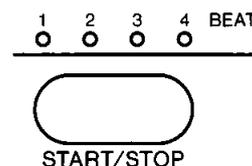
START/STOP

- 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.

COUNT INTRO
○

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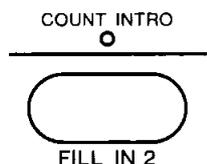
2. Press the **START/STOP** button to start the rhythm.
- A one-measure count is played, after which the normal rhythm pattern begins.

VARIATION

Each rhythm pattern also has a variation pattern. Add drama to your performance by switching to the variation pattern at climactic points in the melody.

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

2. Press the **VARIATION** button to turn it on.

○
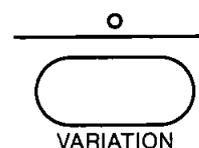
VARIATION

- The rhythm changes to a flashier pattern.
- Press the **VARIATION** button again to turn it off and go back to the normal rhythm pattern.
- This button does not function when the **MUSIC STYLE ARRANGER** is on. (Refer to page 71.)

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.

SEQUENCER RESET   COUNT INTRO
         O   O

FILL IN 1   FILL IN 2
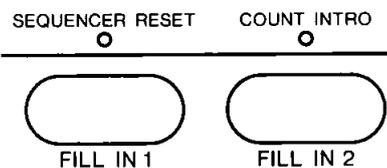
- A fill-in pattern is heard immediately for the remainder of the measure.
- When a **FILL IN** button is pressed on the last beat of the measure, the fill-in pattern continues to the end of the following measure.

ENDING

Finish the rhythm performance with an ending pattern.

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

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

                    O
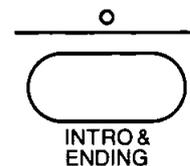
INTRO &
ENDING

- 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 performance continues.

Practical applications

Keyboard Percussion
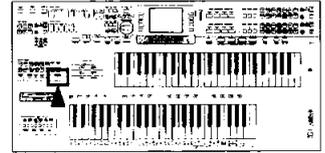
A complete set of percussion instruments and other special sounds is at your fingertips. Use the lower keyboard to play the percussion performance.

1. Press the **KEYBOARD PERCUSSION** button to turn it on.

KEYBOARD
PERCUSSION
O

• The display looks similar to the following.

[GA1]

```
KEYBOARD PERCUSSION KIT    MORE
◄ Rock Kit 1      Soul Kit   ►
◄ Rock Kit 2      Jazz Kit   ►
◄ LightRock Kit   Brush Kit 1 ►
```

Use the **MORE/RETURN** button to view different parts of the list of sound kits.

[GA3]

```
        KEYBOARD PERCUSSION KIT
◄ Rock Kit 1      Brush Kit 1  ►
◄ Rock Kit 2      Brusk Kit 2  ►
◄ LightRock Kit   OrchestralKit ►
◄ Soul Kit        Trad Kit     ►
◄ Jazz Kit
```

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

3. Play the lower keyboard.
• Percussion instrument sounds are produced by the lower 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," the arrangement of percussion instruments is different.

Auto Play Chord

Simply by playing a chord on the lower 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
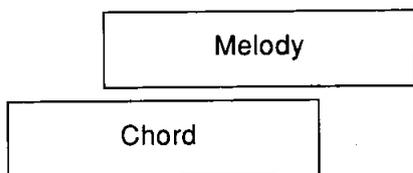
Melody

Chord

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 on the lower keyboard. The melody is played on the upper keyboard.

- The accompaniment pattern of the **AUTO PLAY CHORD** is composed of five parts: **DRUMS**, **BASS**, **ACCOMP 1**, **ACCOMP 2** and **ACCOMP 3**.

Playing chords

You can choose from one of the following three **AUTO PLAY CHORD** modes.

■ ONE FINGER mode

Press a key on the lower keyboard to specify the root note. The major chord (on the lower keyboard) and the bass note (on the pedal keyboard) corresponding to this root note are automatically played in an accompaniment pattern.

Example: C chord

Minor, seventh and minor seventh chords are also easily produced as shown below.

minor chord	seventh chord	minor seventh chord
Play the root note on the lower keyboard and any black pedal.	Play the root note on the lower keyboard and any white pedal.	Play the root note on the lower keyboard and any black pedal and white pedal, at the same time.

Practical applications

65

You can also use just the lower keyboard to specify minor, seventh and minor seventh chords.

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
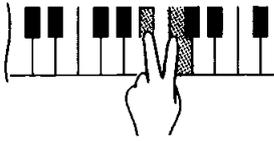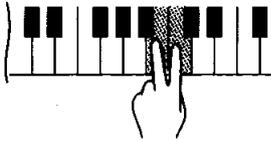
■ FINGERED mode
Indicate the chord by actually playing the chord keys on the lower keyboard. In the FINGERED mode, the **AUTO PLAY CHORD** recognizes more chord types, and thus the scope of your performance expression is expanded.

Example: C chord
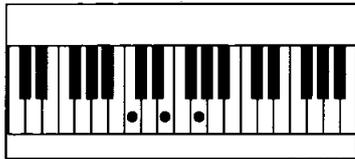
- The **AUTO PLAY CHORD** can distinguish the following played chords for each key (C is given as an example): C, C7, CM7, Caug, Cm, Cm7, Cdim7, Cm7♭5, CmM7, Csus4, etc.

■ PIANIST mode
Indicate the chord by actually playing the chord keys on the lower keyboard. In addition to the chords recognized in the FINGERED mode, the **AUTO PLAY CHORD** also recognizes 9th and 13th chords.

- If a pedal is pressed while you are playing a chord in the FINGERED and PIANIST mode, only the bass pattern is produced in the key of the pressed pedal, thus making it possible to play chords such as DonC.

Practical applications

66

How the use the AUTO PLAY CHORD

1. Select the desired rhythm and sounds, and set the tempo.
- Rhythms marked with a ★ are especially effective for an **AUTO PLAY CHORD** performance with **ORGAN** sounds.

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

AUTO PLAY
CHORD
o

- The display looks similar to the following.

[GA1]

```
    AUTO PLAY CHORD
◀ ONE FINGER      MEMORY:ON  ▶
◀ FINGERED
◀ PIANIST
```

[GA3]

```
        AUTO PLAY CHORD


  ◀   ONE FINGER         MEMORY : ON   ▶

  ◀   FINGERED

  ◀   PIANIST

```
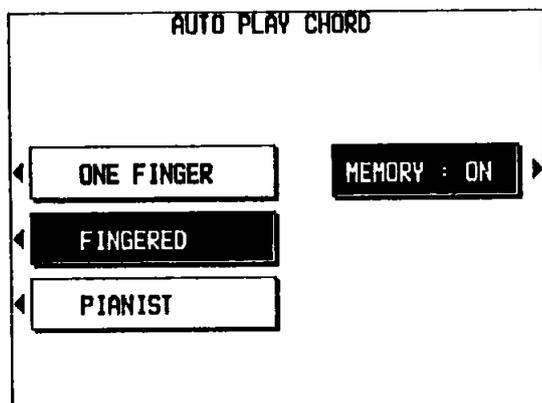
3. Use the buttons to the left of the display to select an **AUTO PLAY CHORD** mode.
- After a few seconds, the display returns to the previous display.
- When the MEMORY is set to ON, even when the keys are released, the chord is memorized and the accompaniment continues to play until you specify another chord.

4. Press the **START/STOP** button to begin the rhythm.
- You can also start the rhythm by playing the lower keyboard or pedal keyboard (synchronized start). (Refer to page 61.)

5. Specify the chord on the lower keyboard.
- An accompaniment pattern in the specified chord begins to play. Play the melody on the upper keyboard.
- When you use **VARIATION**, **FILL IN**, **INTRO** and **ENDING**, the automatic accompaniment is also used in these patterns.
- When the rhythm is off, if the **AUTO PLAY CHORD** button is on and a chord is specified, the specified root note and chord notes are produced.

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

Adjust the volume

The volume for each part is adjusted with the respective **DRUMS**, **ACCOMP** or **BASS** buttons in the **BALANCE** section.

```
 ∧   ∧   ∧
 ∨   ∨   ∨
DRUMS ACCOMP BASS
    BALANCE
```
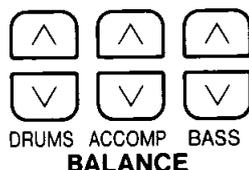
- While the volume is being adjusted, the balance setting display is shown.
- The volumes for the **ACCOMP 1**, **2** and **3** parts can be adjusted independently. (Refer to page 32 or 36.)

ACCOMP parts

The **ACCOMP** part of the automatic accompaniment is composed of three different parts. You can change the accompaniment by turning any or all of the three parts on or off.

ACCOMP 1   ACCOMP 2   ACCOMP 3
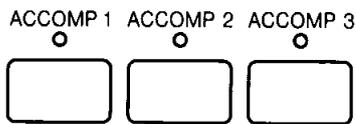
* If all the **ACCOMP** parts are turned off, the **ACCOMP** part sound is not produced.

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.

DYNAMIC
ACCOMP

2. Play the instrument with one of the **AUTO PLAY CHORD** modes on.
* Depending on how hard the keyboard keys are played or how complicated the melody phrase, for example, each **ACCOMP** part changes.

BREAK function

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

1. Turn on the **AUTO PLAY CHORD** button and select a mode.
* At this time, the MEMORY should be set to OFF.

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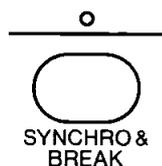
SYNCHRO &
BREAK

3. Specify a chord on the lower keyboard.
* The automatic accompaniment begins to play (synchronized start).

4. Release the lower keyboard keys.
* The automatic accompaniment stops. When the keys are pressed again, the automatic accompaniment starts from the first beat.

Practical applications

Automatic settings
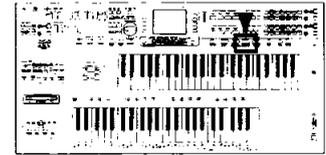
With the automatic settings, the panel settings change depending on the rhythm or music style you select. This lets you get a great sound straight away, even if you are playing this instrument for the first time.

ONE TOUCH PLAY

Set up your instrument with a combination of sounds and balances suitable for your selected rhythm style.

1. Select a rhythm pattern.
• Do not select a rhythm from the **COMPOSER A** or **COMPOSER B** group.

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

○

ONE TOUCH PLAY
MUSIC STYLE SELECT

• The display looks similar to the following.

[GA1]

ONE TOUCH PLAY

ORGANIST'S DANCE

[GA3]

ONE TOUCH PLAY

ORGANIST'S DANCE
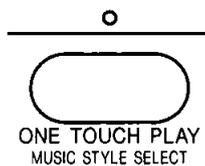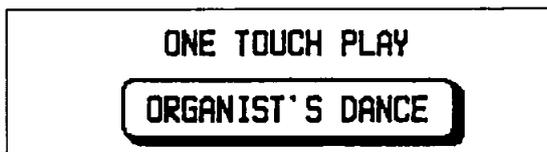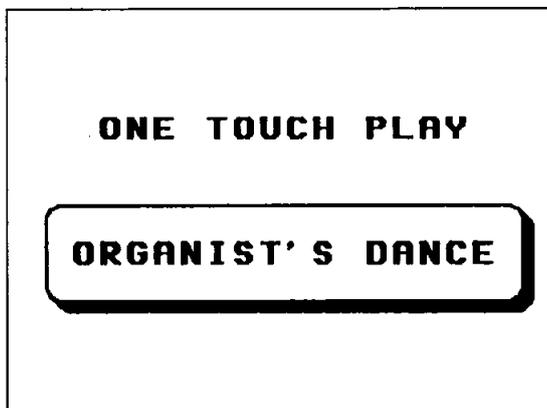
• The **AUTO PLAY CHORD** and the **SYNCHRO & BREAK** button turn on, and the sounds, effects and tempo are automatically set.

3. Play the keyboards.
• When a chord is specified on the lower keyboard, the automatic accompaniment begins to play. Play the melody on the upper keyboard.

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. (Refer to page 59.)

Practical applications

MUSIC STYLE SELECT

With this feature, the panel settings are automatically set to match the selected music style.

1. Press the **ONE TOUCH PLAY (MUSIC STYLE SELECT)** button momentarily.
- The display looks similar to the following.

[GA1]

```
MUSIC STYLE SELECT
      TRAD
01: SWEET FOXTROT        [▲]▶
02: REED AND VIBES
03:   FOXY BRASS         [▼]▶
```

[GA3]

```
     MUSIC STYLE SELECT

          TRAD

01: SWEET FOXTROT
02: REED AND VIBES
03:   FOXY BRASS          [∧]▶
04: ORGAN CHANSON
05:CHANSON D'AMOUR
06: GRAND CHANSON         [∨]▶
07:  FOXY PIANOS
08:   BRASSY FOX
09:SOFT DANCE ORCH
10: BALLROOM ORGAN
11:ORGANIST'S DANCE
12:SPARKLING DANCE
```

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

3. Use the ∧ and ∨ buttons to select a music style.
- The **AUTO PLAY CHORD** 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.

4. Play the keyboards.
- When a chord is specified on the lower keyboard, the automatic accompaniment begins to play. Play the melody on the upper keyboard.

- To return to the normal performance display, press the **ONE TOUCH PLAY** button to turn it off, or press the **EXIT** button.

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, balance and tempo to your own taste and store your new registration in the **PANEL MEMORY** for future use. (Refer to page 59.)

Practical applications

Music Style Arranger
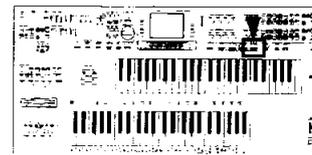
The **MUSIC STYLE ARRANGER** helps you make professional registration changes during your perform-
ance. Select between three contrasting registrations at the touch of a button. The **MUSIC STYLE
ARRANGER** will alter the accompaniment in character with the registration change, creating a polished-
sounding arrangement.

How to use the MUSIC STYLE ARRANGER

1. Select a rhythm pattern.

2. Press the **MUSIC STYLE ARRANGER** button
   to select the style (**1**, **2** or **3**) you want at the
   beginning of your performance.

```
   1   2   3
   o   o   o          1: Simple pattern
 _____          2: Normal pattern
(           )         3: Flashy pattern
(           )
 _____
 MUSIC STYLE
 ARRANGER
```
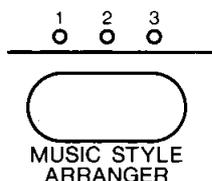
- Each time the **MUSIC STYLE ARRANGER** but-
  ton is pressed, the style indication changes as
  follows: **1 → 2 → 3 →** off.
- The panel settings change according to the
  selected rhythm and music style. The **AUTO
  PLAY CHORD** and the **SYNCHRO & BREAK**
  button turn on. When a key on the lower key-
  board is pressed, the automatic accompani-
  ment starts to play immediately.
- The **MUSIC STYLE ARRANGER** includes the
  rhythm **VARIATION** setting. Therefore, the
  VARIATION button does not function when the
  MUSIC STYLE ARRANGER is on.

How to change the music style during your performance

While you are playing your instrument with the
MUSIC STYLE ARRANGER on, press the **FILL
IN 1** or **FILL IN 2** button.
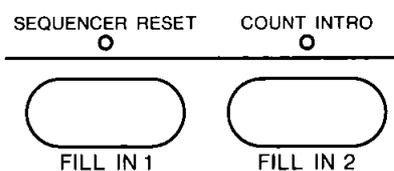
```
 SEQUENCER RESET    COUNT INTRO
        o                o
 _____      _____
(           )    (           )
(           )    (           )
 _____      _____
  FILL IN 1        FILL IN 2
```

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

Practical applications

■ **MUSIC STYLE ARRANGER mode**
You can define which panel settings change when
the **MUSIC STYLE ARRANGER** is on and a **FILL
IN** button is pressed.

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

[GA1]

```
        MSA MODE
    SOUND
    RHYTHM                    [▲]▶
    SOUND & RHYTHM
    PANEL MEMORY              [▼]▶
```

[GA3]

```
    MUSIC STYLE ARRANGER MODE

  ◄ SOUND

  ◄ RHYTHM

  ◄ SOUND & RHYTHM

  ◄ PANEL MEMORY
```
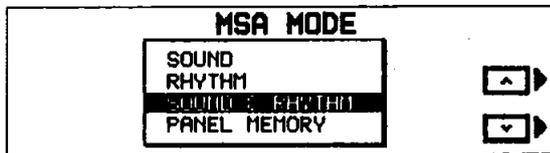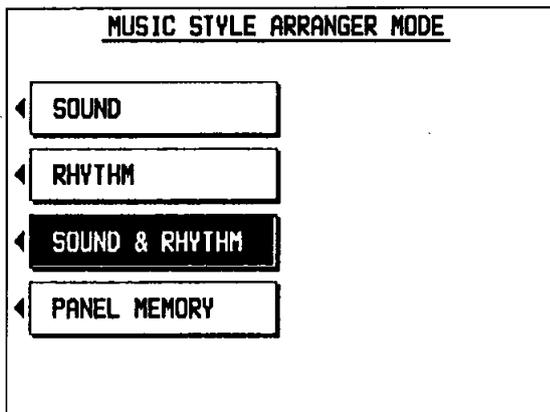
2. Select the mode.

SOUND
Only the sound changes.

RHYTHM
Only the rhythm changes.

SOUND & RHYTHM
Both the sound and rhythm change.

PANEL MEMORY
The **PANEL MEMORY** number changes.

• After a few seconds, the display exits the set-
ting mode.
• You can also access this display with the **MEM
& CTRL** button. (Refer to page 135.)

Practical applications

Part III   Sequencer

Outline of the Sequencer
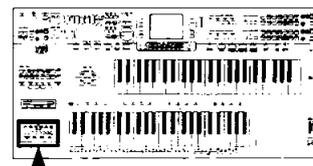
A sequencer records your performance in a similar way to a tape recorder. This instrument's **SEQUENCER** allows you to record in a variety of ways. You may want to record your entire performance in one go (especially if you are using **AUTO PLAY CHORD** to provide the accompaniment), or to build up a complex arrangement with several different parts playing together, like an orchestral score. This **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. The **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 instrument.
• Features and operation of the built-in Disk Drive are explained in Part V: Disk Drive (page 111).

Memory capacity

Expressed in terms of notes, the total number of notes which can be stored in all the tracks is about 28,000. 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 **SEQUEN-CER**.
• It is a good practice to save your recorded performances on disks before clearing any of the **SEQUENCER** memories. (Refer to page 116.)

Practical applications

73

SEQUENCER buttons

The buttons related to **SEQUENCER** recording and editing are briefly explained below.

■ EASY RECORD

Begin recording quickly without complicated set-up procedures.

```
     o
   _____
  (      )
   ------
   EASY
  RECORD
```
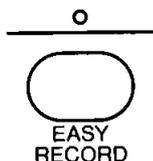
EASY RECORD (page 75)
This feature allows you to bypass the more complex recording procedures so you can record and play back your performance quickly and easily.
• You can also record an accompaniment from the **AUTO PLAY CHORD**.

■ SEQUENCER REC

Record your performance just as you play it on the keyboard.

```
  SEQUENCER REC
  o [======]
```
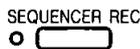
REALTIME RECORD (page 78)
Record your performance in up to 16 tracks and create your own orchestra or band.

■ STEP REC

Store the sounds note-by-note on the display.

```
     STEP REC
  o [======]
```

STEP RECORD (page 80)
For repeating patterns or those especially complicated phrases, this mode is convenient for recording the notes one-by-one.
• This mode can be used to store both the chord progression for the automatic accompaniment and the rhythm changes.

■ SEQUENCER

Edit the contents of your recorded performance. These features allow you to edit the contents of specific tracks or measures, and also to define the kind of playback you want.

```
   SEQUENCER
  o [====]
```

[GA1]

```
┌─────────────────────────────────┐
│          SEQUENCER              │
│◄[ PUNCH RECORD ] [EDIT     ]►│
│◄[ TRACK ASSIGN ] [PLAY     ]►│
│◄[ EXP. SETTING ] [MEDLEY   ]►│
└─────────────────────────────────┘
```

[GA3]

```
┌─────────────────────────────────┐
│         SEQUENCER               │
│                                 │
│◄[ PUNCH RECORD ] [ EDIT    ]►│
│                                 │
│◄[ TRACK ASSIGN ] [ PLAY    ]►│
│                                 │
│◄[ EXPRESSION  ] [ MEDLEY   ]►│
│  [ SETTING    ]                 │
│◄[ AFTER TOUCH ]                 │
│  [ SETTING    ]                 │
└─────────────────────────────────┘
```
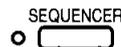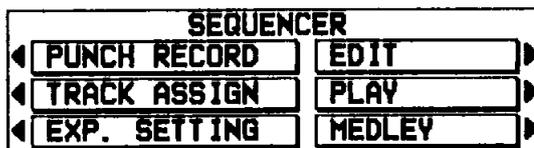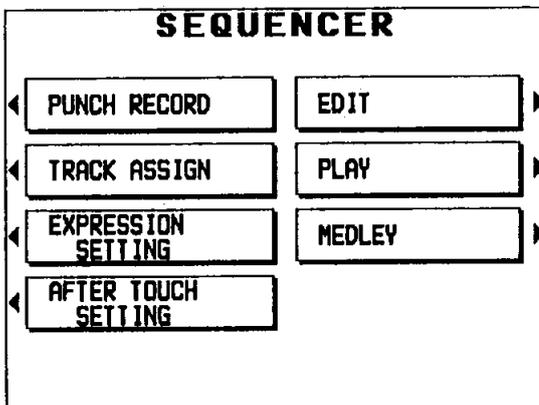
PUNCH RECORD (page 95)
Correct a selected portion of your recorded performance.

TRACK ASSIGN (page 85)
Assign parts to up to 16 different tracks.

EXPRESSION SETTING (page 86)
Specify how pedal operation data is handled during recording or playback.

AFTER TOUCH SETTING (GA3) (page 87)
Specify whether or not aftertouch data is recorded.

EDIT (page 88)
The following editing features are available.
- SONG CLEAR: Erase the recorded contents of all tracks.
- TRACK CLEAR: Erase the contents of a specific track.
- TRACK MERGE: Merge the recorded contents of two tracks and store in a third track.
- QUANTIZE: Correct the timing of the recorded performance.
- MEASURE ERASE: Erase the contents of specific measures.
- MEASURE COPY: Copy the contents of specific measures.

- MEASURE DELETE: Delete specific measures.
- MEASURE INSERT: Insert measures at a specified point.
- VELOCITY CHANGE: Modify velocity data (how hard the keys are played).

PLAY (page 97)
Adjust the settings related to playback operation.

MEDLEY (page 98)
Specify medley playback of songs recorded on a disk.

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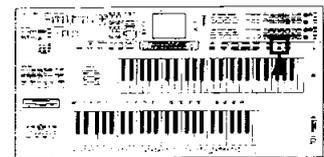
Suppose you are playing your instrument, and you wish to record and play back your performance to hear how it sounds. You can bypass the set-up procedures of the full-scale sequencer and begin recording quickly and easily.

Recording procedure

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

2. Press the **EASY RECORD** button to turn it on.

○

EASY
RECORD

- The display changes to the following.

[GA1]

```
  EASY RECORD          [OK] ▶
Any existing song will be cleared.
   REC   REC   REC   REC
    1     2     3     5
  UPR   LWR   BAS   CTL
```

[GA3]

```
      EASY RECORD

Easy Record sets the Sequencer to
record your complete performance
including Auto Play Chord. Any
existing song will be cleared.    [OK] ▶

Press [OK] to proceed.

   REC   REC   REC   REC
    1     2     3     5
  UPR   LWR   BAS   CTL
```
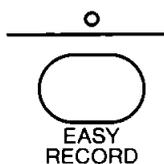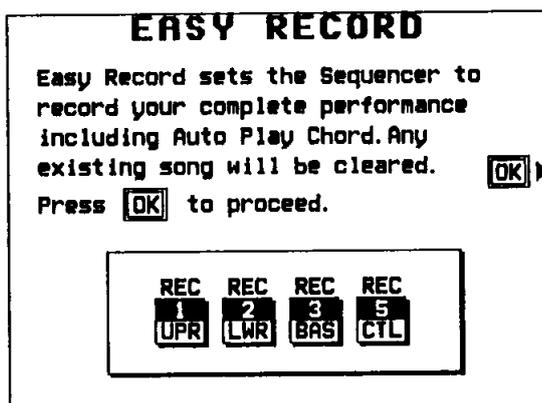
Note that when you select the EASY RECORD mode, the following settings are automatically effected.
- Tracks available for recording are selected as follows.
    1: UPPER part (Record the upper keyboard performance.)
    2: LOWER part (Record the lower keyboard performance.)
    3: BASS part (Record the pedal keyboard performance.)
    5: CONTROL part (Record rhythm changes, changes in the panel button status, etc.)

3. Press the OK button.
- Note that when you press the OK button, the contents of all **SEQUENCER** tracks are erased (SONG CLEAR).
- The display changes to the REALTIME RECORD display.

4. Begin your performance.
- Recording begins as soon as you start the rhythm or play a keyboard.

5. When you have finished recording, press the **EASY RECORD** button to turn it off.

Practical applications

Playback

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

SEQUENCER RESET
O

FILL IN 1

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

1 2 3 4 BEAT
O O O O
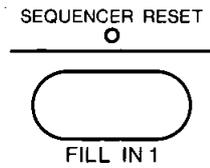
START/STOP
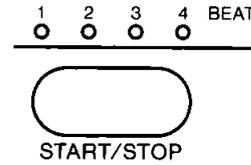
- Your recorded performance is played back automatically.

Sequencer parts

The **SEQUENCER** has 16 recording tracks. The track assignment and recorded contents are as outlined in the following table.

Part (Recorded keyboard)	Used for	Recorded contents
UPPER SOUND 1 to 3 [US1 to US3] (Upper keyboard)	Recording the respective keyboard performance (realtime/step)	• Keyboard note data • Selected sounds, volumes • **DIGITAL EFFECT, DSP EFFECT** (GA3), **SUSTAIN** on/off • Aftertouch, knee lever on/off
LOWER SOUND 1 to 3 [LS1 to LS3] (Lower keyboard)		
UPPER ORGAN [UOR] (Upper keyboard)	Recording the **ORGAN** part performance (realtime/step)	• Keyboard note data • Tab settings, volume • Tab tremolo, effect, **SUSTAIN** on/off • EXTRA TAB settings • EXTRA TAB tremolo, effect on/off
LOWER ORGAN [LOR] (Lower keyboard)		
UPPER [UPR] (Upper keyboard)	Recording all parts of the respective keyboard performance (realtime/step)	• Same as recorded contents of **UPPER/LOWER SOUND 1 to 3**, and **UPPER/LOWER ORGAN**, above • **ORCHESTRAL CONDUCTOR** status • Glide on/off
LOWER [LWR] (Lower keyboard)		
Part 8 to 15 [P8 to P15], (Upper keyboard)	Recording the respective part (realtime/step)	• Selected sounds, volume • **DIGITAL EFFECT, DSP EFFECT** (GA3), **SUSTAIN** on/off • Aftertouch
BASS [BAS] (Pedal, lower keyboard [full bass pedal])		
KEYBOARD PERCUSSION [KBP] (Lower keyboard)	Recording the keyboard performance using the **KEYBOARD PERCUSSION** (realtime/step)	• Selected sound (drum kit), volume
CHORD [CHD] (Lower keyboard)	Recording the chord progression for the **AUTO PLAY CHORD** (step)	• Chord progression • **FILL IN 1, FILL IN 2, INTRO & ENDING** on

Part (Recorded keyboard)	Used for	Recorded contents
RHYTHM [RHY]	Recording settings related to the rhythm (step)	• Rhythm settings and selection changes (including **COMPOSER**) • **START/STOP, FILL IN 1, FILL IN 2, INTRO & END-ING** on • Tempo setting
CONTROL [CTL]	Recording panel button settings and changes (realtime/step)	• Tab, **SOUND 1, 2** and **3** sound settings, rhythm settings, volumes • Tab tremolo, effect • **DIGITAL EFFECT, SUSTAIN** on/off • **DSP EFFECT** (GA3) on/off, type and depth setting • **DIGITAL REVERB** on/off • **AUTO PLAY CHORD** status • **DYNAMIC ACCOMP** on/off • **MUSIC STYLE ARRANGER** status • **VARIATION** on/off, **FILL IN 1, 2, INTRO & ENDING** • **PANEL MEMORY** settings • **TRANSPOSE** status • **BACKGROUND SOUND** setting • Tempo setting • **CONDUCTOR, PART SELECT** status • Knee lever, expression pedal operation • EXTRA TAB settings • **ACCOMP PART** on/off • **KEYBOARD PERCUSSION** on/off • **TECHNI-CHORD** on/off • Full bass pedal on/off

- You can use the TRACK ASSIGN function to assign parts to tracks as you wish. (Refer to page 85.)
- During recording, 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.

■ Factory-preset track assignment
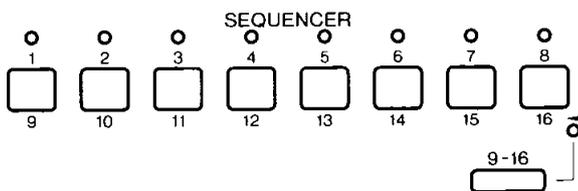
1: UPPER	**9:** UPPER SOUND 2
2: LOWER	**10:** UPPER SOUND 3
3: BASS	**11:** UPPER ORGAN
4: CHORD	**12:** LOWER SOUND 1
5: CONTROL	**13:** LOWER SOUND 2
6: RHYTHM	**14:** LOWER SOUND 3
7: KEYBOARD PER-CUSSION	**15:** LOWER ORGAN
8: UPPER SOUND 1	**16:** PART 5

Realtime Record

With REALTIME RECORD, your performance is recorded with the timing exactly as you played it on the keyboard. And with multi-track recording, you can use up to 16 tracks to record your performance.

Recording

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

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

SEQUENCER REC
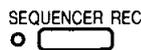
- The display looks similar to the following.

[GA1]
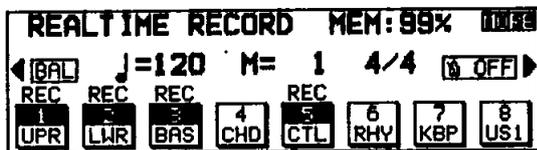
[GA3]
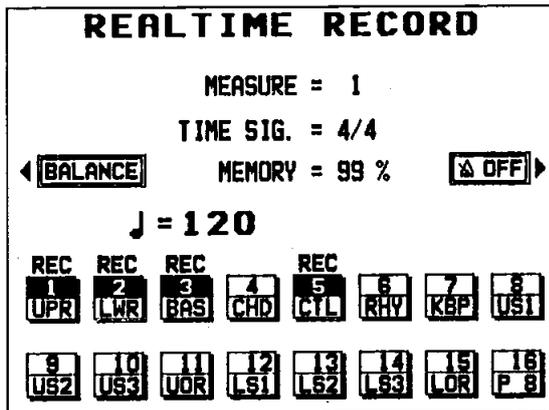
3. Use the buttons below the display to specify the tracks for the parts you are going to record. (For details about track assignment, refer to pages 76 and 85.)
- Press the buttons to display "REC" above the track numbers you are going to record.
- GA1: For tracks 9 to 16, press the **MORE/RETURN** button and select the tracks.
- GA3: For tracks 1 to 8, use the ∧ buttons, and for tracks 9 to 16 use the ∨ buttons to select the tracks.
- You can select two or more tracks to record at one time.
- At this time, the panel settings you selected in step 1 are stored.

- You can also use the **SEQUENCER** track buttons to select the tracks.
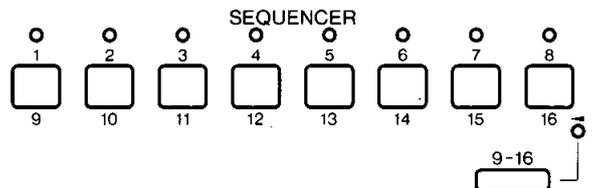
- To select tracks 9 to 16, make your selection while pressing the **9-16** button.
- The indicator for the selected track button flashes slowly. (For tracks 9 to 16, the indicator flashes when the **9-16** button is pressed.)

4. Use the **TEMPO/PROGRAM** dial to adjust the tempo.
- The tempo is shown on the display as a numerical value ($\downarrow$ =).
- If you wish to record the tempo setting and tempo changes, record them in the CONTROL part, or use the RHYTHM STEP RECORD.

5. 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.

6. Play the keyboard.
- Recording begins.
- 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.
- On the display, the following information is shown.

   [GA1]
   M=: Current measure number
   Time signature
   MEM: Remaining memory (%)

   [GA3]
   MEASURE=: Current measure number
   TIME SIG.=: Time signature
   MEMORY=: Remaining memory (%)

- If you wish to adjust the volume of each track or part during recording, press the BAL (GA1), or BALANCE (GA3), button to recall the PART 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 95.)

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

Playback

1. Turn on the track buttons for the parts you wish to play back.
- Tracks whose indicators are not lit will not be played back.

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

SEQUENCER RESET
O

FILL IN 1
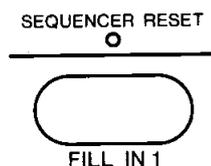
- The **SEQUENCER** returns to the beginning of the song and the beginning panel settings are recalled.

3. Press the **START/STOP** button.
- The recorded performance is played back automatically.

Multi-track recording

When recording several tracks, you can record one track while listening to the track or tracks already recorded.

1. Follow the procedure to record the first track.
- When you turn the **SEQUENCER REC** button off, confirm that the indicator for the track you recorded is lit. Turn on the buttons for the tracks you wish to have played back.

2. Follow the procedure to record the next track.
- When the **START/STOP** button is turned on, the track recorded in step 1 is played back. You can record the next track in time with this.
- On the display "REC" indicates tracks which are being recorded, and "PLAY" indicates tracks which are being played back.

3. Repeat step 2 to record all the desired parts.

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 keyboards 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. Press the **STEP REC** button to turn it on.
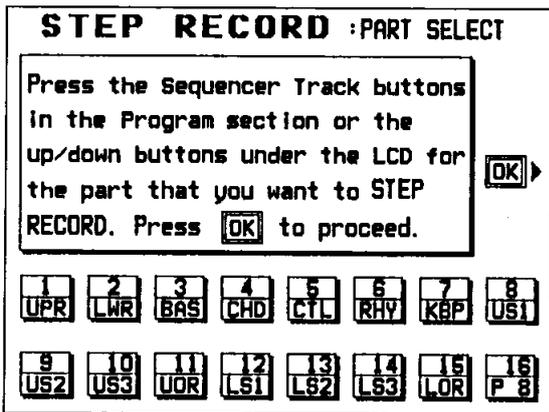
* The display looks similar to the following.

[GA1]

[GA3]

2. Use the buttons below the display to specify the tracks for the parts you are going to record.
* For tracks 1 to 8, use the ∧ buttons, and for tracks 9 to 16, use the ∨ buttons to select the track.
* You can also use the **SEQUENCER** track buttons to select the track. In this case, to select tracks 9 to 16, make your selection while pressing the **9-16** button.
* On the display, the selected track number is highlighted. Confirm that this is the correct track.

3. Press the OK button.
* The display changes to the STEP RECORD input display.

[GA1]

[GA3]

* If you selected the track to which the CHORD part has been assigned, the display changes to the CHORD STEP RECORD display. (Refer to page 82.)
* If you selected the track to which the RHYTHM part has been assigned, the display changes to the RHYTHM STEP RECORD display. (Refer to page 84.)

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 (reverse video box) 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, ♩, ♩, ₀, ₀ × 2 to 4. (A 3 denotes a triplet-type note.)
   - For note values other than these, use the right LENGTH ∧ and ∨ 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 100% 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, etc.—are recorded at the cursor position.

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

ERAS (GA1)/ERS (GA3)
If you make a mistake, move the cursor to the error, and after displaying the data you wish to erase, press this button.

BAL (GA3)
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 **EXIT** button and repeat the procedure from step 2.

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

■ **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 ERAS (GA1), or ERS (GA3), button to erase the data which is displayed.

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 rightmost **CHORD STEP RECORD** keys of the lower keyboard.

Reset key

↳ Press to begin storing from the beginning.

Correction keys

◄ Move back one chord.
► Move forward one chord.
DELETE Press to erase data.

Repeat key

↳ Press to end the chord-storing procedure and to specify automatic repeat playback of the stored progression.
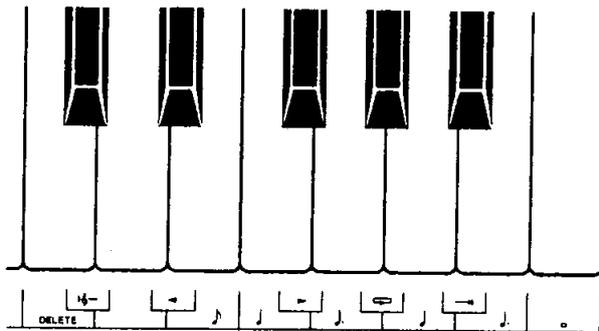
Note value keys

o Whole note
♩. Dotted half-note
♩ Half-note
♩. Dotted quarter-note
♩ Quarter-note
♪ Eighth-note

End key

—I Press after the whole chord progression has been stored.

■ **Example of storing a chord progression**

C	C	F	G7	C	Am
o	o	♩	♩	♩	♩

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

2. Use the buttons below the display or **SEQUENCER** track buttons to select the track to which the CHORD part is assigned (the factory preset is 4).
- On the display, the track for the CHORD part (CHD) is highlighted. Confirm that this is the correct track.

3. Press the OK button.
- The display changes to the CHORD STEP RECORD input display similar to the following.
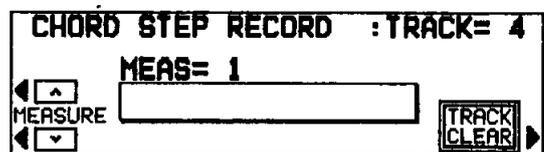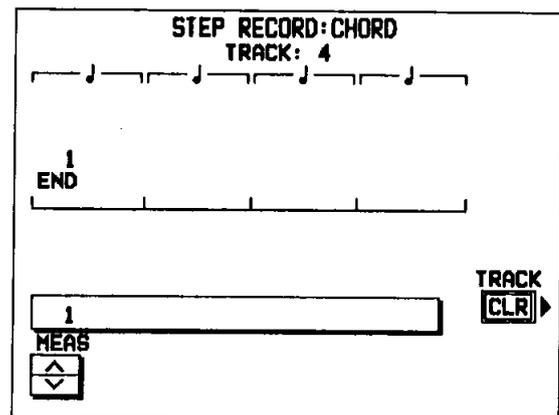
[GA1]

```
CHORD STEP RECORD  :TRACK= 4
          MEAS= 1
◄ [▲]
MEASURE [_____]   [TRACK]
◄ [▼]                        [CLEAR] ►
```

[GA3]

```
      STEP RECORD:CHORD
           TRACK: 4
┌─♩─┐ ┌─♩─┐ ┌─♩─┐ ┌─♩─┐

   1
 END
└───────┴───────┴───────┴───────┘

┌────────────────────────────┐        TRACK
│  1                         │        [CLR] ►
└────────────────────────────┘
MEAS
[∧]
[∨]
```

4. Use the MEASURE (GA1), or MEAS (GA3), ∧ and ∨ buttons to select the measure you wish to record.
- This step is not necessary if you are recording from measure 1 of a blank track.

5. Store the chords on the lower keyboard.

<Measure 1, measure 2>
While playing a C chord with your left hand, press the o key one time with your right hand.
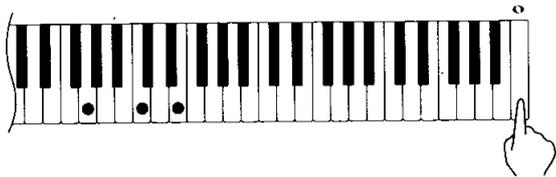
- A "beep" tone indicates that the chord has been successfully stored.
- The chord name is shown on the display.

<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 can be stored only at the beginning.)
- Store a rest by pressing a note value key without specifying a chord.
- Chords can also be specified with the one-finger method.

6. At the end of the chord progression, press the End key (⊣).
- The instrument 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 (⊣).
- If you press the **INTRO & ENDING** button instead of the End key (⊣), when you play back your performance, an ending pattern will be produced and then the performance will stop.
- When you play back the track for the CHORD part, the chords of the automatic accompaniment change in accordance with the stored chord progression.

■ **Correct the recorded chord progression**
1. Select CHORD STEP RECORD on the display.

2. Use the MEASURE (GA1), or MEAS (GA3), ∧ and ∨ 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 measure number, beat number, specified chord name, specified note length, and function (**INTRO, FILL IN**, etc.) are shown on the display.
- To move to the end of the chord progression, while pressing the Reset key (⊩—), press the ◀ key.

- The lengths of rests are indicated as follows.

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

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 the 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 TRACK CLEAR (GA1) or TRACK CLR (GA3) 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

Data for the rhythm progression can be stored by measures with the step recording method.
- The rhythm progression is recorded in the track for the RHYTHM part.

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

2. Use the buttons below the display or **SEQUEN-CER** track buttons to select the track to which the RHYTHM part is assigned (the factory preset is 6).
- On the display, the track for the RHYTHM part (RHY) is highlighted. Confirm that this is the correct track.

3. Press the OK button.
- The display changes to the RHYTHM STEP RECORD input display similar to the following.
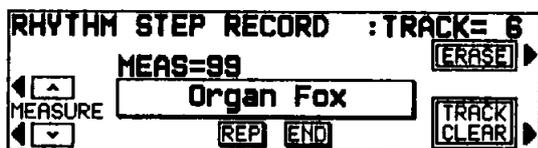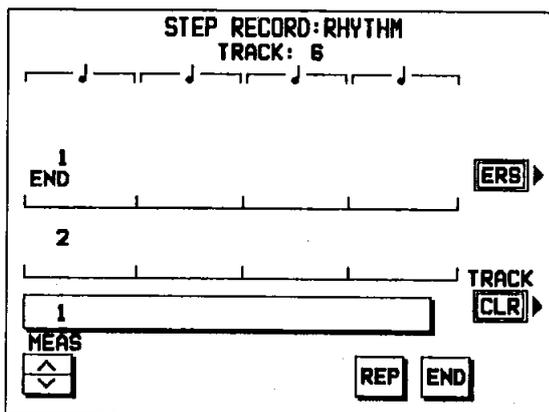
[GA1]

```
RHYTHM STEP RECORD  :TRACK= 6
    MEAS=99                  [ERASE]▶
 ◀[▲]      Organ Fox
 MEASURE ├────────────┤     [TRACK
 ◀[▼]      [REP] [END]       CLEAR]▶
```

[GA3]

```
     STEP RECORD:RHYTHM
         TRACK: 6
 ┌──♩──┬──♩──┬──♩──┬──♩──┐

     1
   END                      [ERS]▶
 └────┴────┴────┴────┘

     2

 └────┴────┴────┴────┘ TRACK
 ┌─────────────────┐  [CLR]▶
 │ 1               │
 └─────────────────┘
  MEAS
  [▲]
  [▼]            [REP] [END]
```

4. Use the MEASURE (GA1), or MEAS (GA3), ∧ and ∨ buttons to select the measure you wish to record.
- This step is not necessary if you are recording from measure 1 of a blank track.

5. Use the panel buttons to store the rhythm data.
- Data which can be stored

  START/STOP
  Changes in the rhythm selection
  COUNT INTRO, INTRO, FILL IN, VARIATION, ENDING
  Tempo changes

- Be sure to store the **START/STOP** data in the measure in which the rhythm starts.
- If you are storing a **COUNT INTRO** or **INTRO**, store this data before the **START/STOP** data.

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

7. At the end of the rhythm progression, press the REP button or the END button.

REP: During playback, the recorded rhythm progression is repeated.

END: During playback, playback of the recorded rhythm progression stops at this point.

- The instrument exits the recording mode.

■ Correct the recorded rhythm progression

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

2. Use the MEASURE (GA1), or MEAS (GA3), ∧ and ∨ buttons to go to the measure you wish to modify.

3. Correct the rhythm data.
- Press the ERASE (GA1), or ERS (GA3), 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 TRACK CLEAR (GA1) or TRACK CLR (GA3) 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. Press the **SEQUENCER** button to turn it on.

SEQUENCER

- The display looks similar to the following.

[GA1]

SEQUENCER	
◀ PUNCH RECORD	EDIT ▶
◀ TRACK ASSIGN	PLAY ▶
◀ EXP. SETTING	MEDLEY ▶

[GA3]

SEQUENCER

◀ PUNCH RECORD	EDIT ▶
◀ TRACK ASSIGN	PLAY ▶
◀ EXPRESSION SETTING	MEDLEY ▶
◀ AFTER TOUCH SETTING	
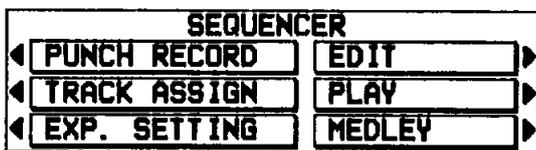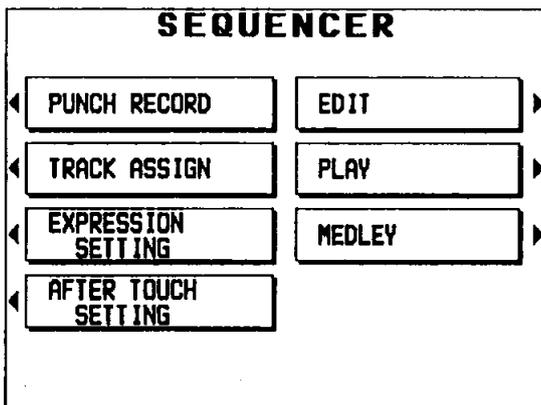
2. On the **SEQUENCER** menu display, select TRACK ASSIGN.
- The display looks similar to the following.

[GA1]

TRACK ASSIGN			
TRACK	PART	LOCAL CONTROL	MIDI-OUT CHANNEL
TR 1	UPPER	ON	CH --

[GA3]

TRACK ASSIGN			
	TRACK ASSIGN	LOCAL CONTROL	MIDI-OUT CHANNEL
TR 1	UPPER	ON	CH --
TR 2	LOWER	ON	CH --
TR 3	BASS	ON	CH 3
TR 4	CHORD	--	CH --
TR 5	CONTROL	ON	CH 15
TR 6	RHYTHM	ON	CH 16
TR 7	KB. PERC	ON	CH 16
TR 8	U. SND 1	ON	CH 1

ASSIGN LOCAL CHANNEL

3. Use the TRACK ∧ and ∨ buttons to select the track.
- GA3: 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 PART (GA1) or ASSIGN (GA3) ∧ and
   ∨ buttons to select the part for the specified
   track.
• Select one of the following parts: UPPER,
  LOWER, BASS, CHORD, CONTROL,
  RHYTHM, KB.PERC, USOUND 1 to 3, UOR-
  GAN, LSOUND 1 to 3, LORGAN, PART8 to 15.
  (For an explanation of each **SEQUENCER** part,
  refer to page 76.)
• When a part other than the RHYTHM, CON-
  TROL or CHORD part is assigned, the track
  assign procedure is completed at this point.
• The RHYTHM, CONTROL and CHORD parts
  cannot be assigned to more than one track.
• You can use the LOCAL CONTROL (GA1), or
  LOCAL (GA3), ∧ and ∨ buttons to turn the
  LOCAL CONTROL on or off, and the MIDI-OUT
  CHANNEL (GA1), or CHANNEL (GA3), ∧ and
  ∨ buttons to assign the BASIC CHANNEL. (For
  a detailed explanation of these MIDI functions,
  refer to pages 168 and 169.)

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

Other recording settings you can adjust

These settings allow you to specify whether or not expression pedal and aftertouch (GA3) data is recorded
with your performance.

EXPRESSION SETTING

You can specify whether or not expression pedal
operation data is recorded with your performance.
And you can also specify whether the recorded
expression pedal operation data is read when
your performance is played back.

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

2. Select EXP. SETTING (GA1), or EXPRES-
   SION SETTING (GA3).
• The display looks similar to the following.

[GA1]

```
┌─────────────────────────────────┐
│       EXPRESSION SETTING         │
│ ┌─────────────────────────┐  ┌─┐ │
│◄│ RECORD TO SEQ:ENABLE    │  │▲│►│
│ └─────────────────────────┘  └─┘ EN/DIS
│ ┌─────────────────────────┐  ┌─┐ │
│◄│ PLAY FROM SEQ:DISABLE   │  │▼│►│
│ └─────────────────────────┘  └─┘ │
└─────────────────────────────────┘
```

[GA3]

```
┌───────────────────────────────────────┐
│         EXPRESSION SETTING             │
│                                        │
│  Select whether or not                 │
│  Expression pedal movements are        │
│  recorded or played by the Sequencer.  │
│                                        │
│  ┌────────────────────────────┐  ┌──┐  │
│ ◄│ RECORD TO SEQUENCER:ENABLE │  │▲│►  │
│  └────────────────────────────┘  └──┘  │
│                                  EN/DIS │
│  ┌────────────────────────────┐  ┌──┐  │
│ ◄│ PLAY FROM SEQUENCER:ENABLE │  │▼│►  │
│  └────────────────────────────┘  └──┘  │
│                                        │
└───────────────────────────────────────┘
```
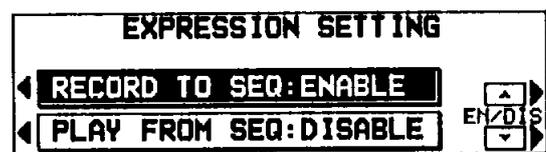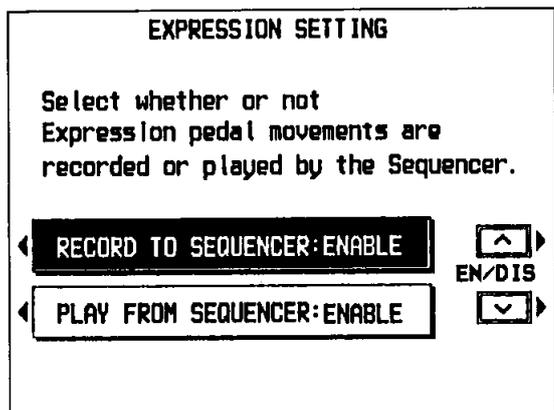
3. Select RECORD TO SEQ (GA1), or RECORD TO SEQUENCER (GA3). Use the EN/DIS ∧ and ∨ buttons to specify if the expression pedal performance is recorded.

ENABLE: The expression pedal operation data is recorded (factory-preset setting).

DISABLE: The data is not recorded.

4. Select PLAY FROM SEQ (GA1), or PLAY FROM SEQUENCER (GA3), and use the EN/DIS ∧ and ∨ buttons to specify if the recorded expression pedal performance is played back.

ENABLE: The recorded expression pedal data is played back (factory-preset setting).

DISABLE: The data is not played back.

AFTER TOUCH SETTING (GA3)

Specify for each keyboard (upper and lower) whether or not the aftertouch data is recorded with the performance.

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

2. Select AFTER TOUCH SETTING.
* The display looks similar to the following.

```
          AFTER TOUCH SETTING


     Select whether or not After Touch
        Is recorded by the Sequencer.


  ◄ UPPER KEYBOARD:DISABLE        [∧]►
                                  EN/DIS
  ◄ LOWER KEYBOARD:DISABLE        [∨]►
```
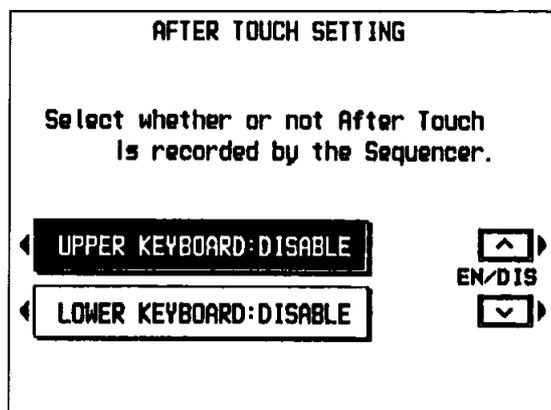
3. Select UPPER KEYBOARD or LOWER KEYBOARD. Use the EN/DIS ∧ and ∨ buttons to specify if the aftertouch data is recorded.

ENABLE: Aftertouch data is recorded with the performance.

DISABLE: The data is not recorded (factory-preset setting).

4. Repeat step 3 for the other keyboard, if desired.
* For an explanation of the aftertouch effect, refer to page 137.

Practical applications

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

2. Select EDIT.
• The display looks similar to the following.

[GA1]

```
        SEQUENCER EDIT      MORE
◀ SONG CLEAR    ◀ TRACK MERGE ▶
◀ TRACK CLEAR   ◀ QUANTIZE    ▶
```
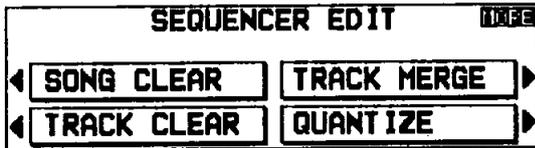
Press the **MORE/RETURN** button to view the next part of the edit menu.

```
        SEQUENCER EDIT    RETURN
◀ MEAS. ERASE   ◀ MEAS. DELETE ▶
◀ MEAS. COPY    ◀ MEAS. INSERT ▶
◀ VELOCITY CHANGE
```

[GA3]

```
              SEQUENCER EDIT

◀ SONG CLEAR        TRACK MERGE ▶

◀ TRACK CLEAR       QUANTIZE    ▶

◀ MEASURE ERASE     MEASURE DELETE ▶

◀ MEASURE COPY      MEASURE INSERT ▶

◀ VELOCITY CHANGE
```
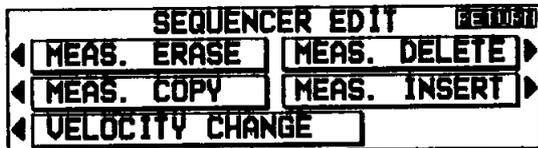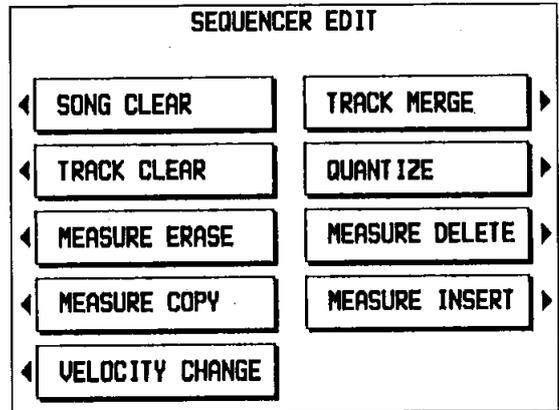
3. Select the function to edit.
• The display changes in accordance with your selection.

4. Perform the editing procedures (explained in detail below).
• During the editing procedure, you can press the **EXIT** button to go back to the SEQUENCER 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.

SONG CLEAR

Erase the recorded contents of all tracks.
• Press the YES button to execute the function, or press the NO button to cancel the function.

[GA1]

```
        SONG CLEAR         YES ▶
 Any recorded tracks
           will be erased.
 Are You Sure ?          NO  ▶
```

[GA3]

```
              SONG CLEAR

        ATTENTION !
  Using SONG CLEAR will erase      YES ▶
  any existing recording in the
  Sequencer.                       NO  ▶

  Are You Sure?
```
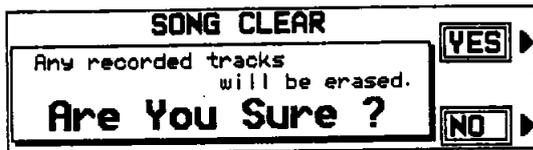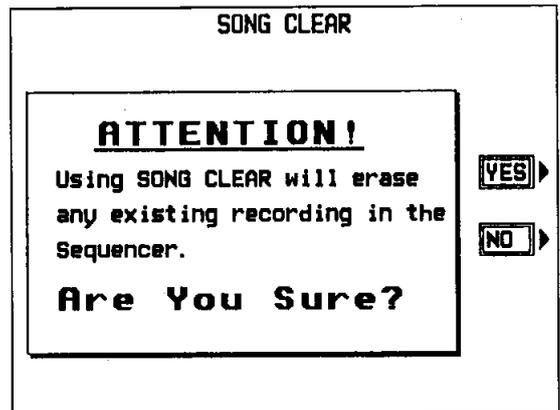
• When the data has been erased, "COMPLETED!" appears on the display, and the instrument returns to the normal performance mode.

Practical applications

TRACK CLEAR

Erase the contents of a specific track.

[GA1]

[GA3]
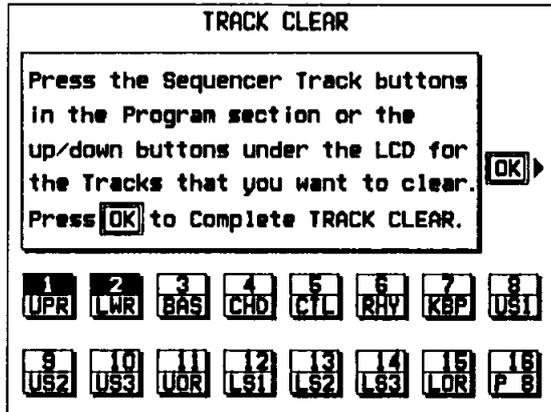
1. Use the buttons below the display or the **SE-QUENCER** track buttons to select the track or tracks you wish to clear.
* On the display, the selected tracks are highlighted.

2. Press the OK button.
* The following confirmation display appears.

[GA1]
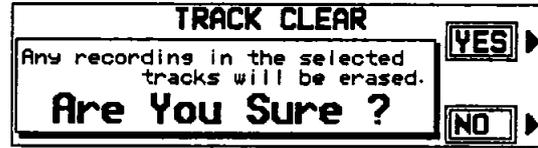
[GA3]

* Press the YES button to execute the function, or press the NO button to cancel the function.
* When the data has been erased, "COMPLETED!" appears on the display.

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.

[GA1]
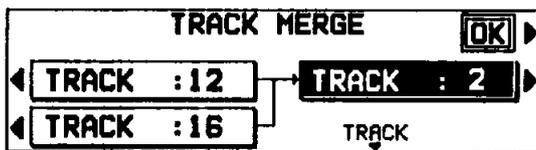
[GA3]
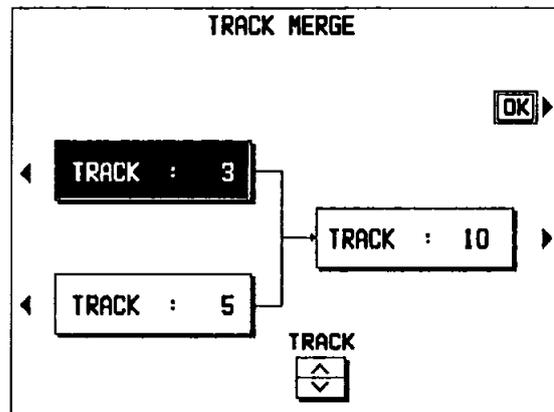
1. Select the two source tracks (left half of the display).
* Use the buttons on the left side of the display to select one of the source tracks, and use the TRACK ∧ and ∨ buttons to specify the track number. Repeat for the other source track.
* This function does not work for the CONTROL, RHYTHM and CHORD tracks.

- 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.

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.
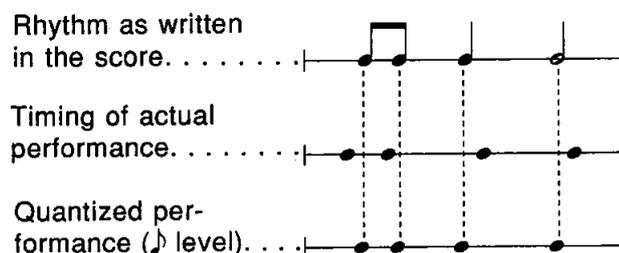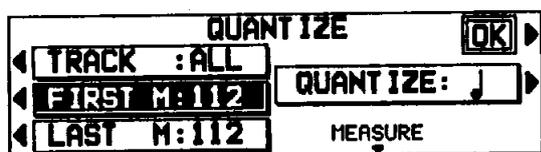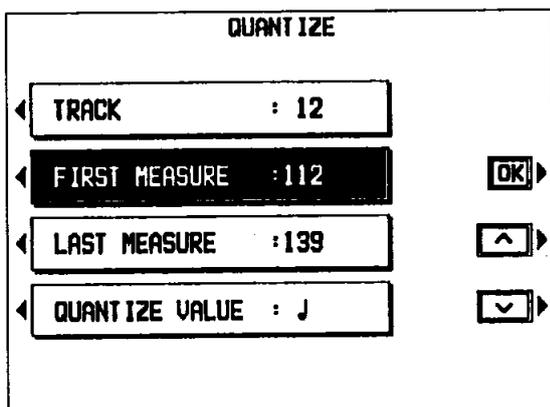
Rhythm as written in the score. . . . .

Timing of actual performance. . . . .

Quantized performance (♪ level). . . .

[GA1]

QUANTIZE [OK]
TRACK :ALL
FIRST M:112　QUANTIZE: ♩
LAST M:112　MEASURE

[GA3]

QUANTIZE

TRACK　　　　　: 12
FIRST MEASURE　:112　[OK]
LAST MEASURE　　:139　[∧]
QUANTIZE VALUE　: ♩　[∨]

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.

1. Select TRACK. Use the TRACK ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the track number.
- This function does not work for the CONTROL, RHYTHM and CHORD tracks.
- If ALL is selected, all the tracks are quantized.

2. Select FIRST M (GA1), or FIRST MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the start point (measure number).

3. Select LAST M (GA1), or LAST MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the end point (measure number).

4. Select QUANTIZE (GA1), or QUANTIZE VALUE (GA3). Use the VALUE ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the quantize level.
- Select from ♪3, ♪, ♩3, ♩, ♩3, ♪, ♩. (A 3 denotes a triplet-type note.)

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 ERASE

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

[GA1]

```
        MEASURE ERASE      [OK]▶
◀ TRACK   : 12
◀ FIRST M:112    ERASE :NOTE  ▶
◀ LAST  M:112       TRACK
                      ▼
```

[GA3]

```
            MEASURE ERASE

◀  TRACK            : 12

◀  FIRST MEASURE    :112       [OK]▶

◀  LAST MEASURE     :139       [^]▶

◀  ERASE DATA       :NOTE      [v]▶

```

1. Select TRACK. Use the TRACK ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the track number.
* You cannot select the track 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 M (GA1), or FIRST MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the start point (measure number).

3. Select LAST M (GA1), or LAST MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the end point (measure number).

4. Select ERASE (GA1), or ERASE DATA (GA3). Use the VALUE ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), 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.

Practical applications

91

MEASURE COPY

Copy measures from one track (source track) to another track (destination track).
- On the destination track, the new data replaces the current measure contents.

[GA1]

```
        MEASURE COPY
◄ TRACK   : 12 ┤→TO TRACK: 5  ►
◄ FIRST M:112 ┤ START M: 32  ►
◄ LAST   M:112 ┤ MEASURE  OK ►
```

[GA3]

```
        MEASURE COPY

                        OK ►

◄ FROM TRACK      TO TRACK  ►
   :12              : 5
◄ FIRST MEASURE ⇨ START MEASURE ►
   :112             :45
◄ LAST MEASURE  ►
   :116
                MEASURE
                 ∧
                 ∨
```

1. Select TRACK (GA1), or FROM TRACK (GA3). Use the TRACK ∧ 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 M (GA1), or FIRST MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons to specify the start point (measure number) on the source track.

3. Select LAST M (GA1), or LAST MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons to specify the end point (measure number) on the source track.

4. Select TO TRACK. Use the TRACK ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), 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 M (GA1), or START MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the start point (measure number) on the destination track.

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.

MEASURE DELETE

Delete specified measures from a track.
* The length of the performance accordingly decreases by the number of deleted measures.

[GA1]

```
        MEASURE DELETE    OK ▶
◀ TRACK  :  12
◀ FIRST M:112
◀ LAST  M:112       MEASURE
                       ▼
```

[GA3]

```
          MEASURE DELETE

◀  TRACK          : 12

◀  FIRST MEASURE  :112        OK ▶

◀  LAST MEASURE   :139        ^ ▶

                              ∨ ▶
```
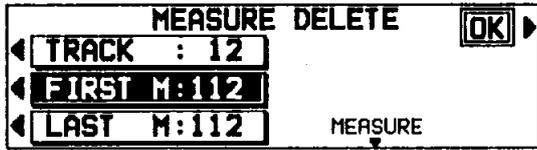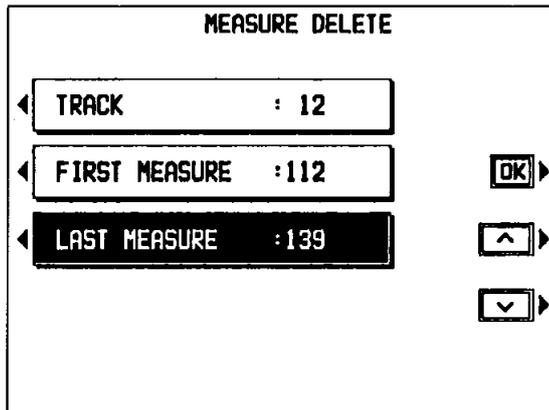
1. Select TRACK. Use the TRACK ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to select the track from which measures are to be deleted.
* You cannot select a CHORD or RHYTHM track in which the repeat function has been stored.
* If ALL is selected, the specified measures are deleted from all the tracks at one time.

2. Select FIRST M (GA1), or FIRST MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the first measure to delete.

3. Select LAST M (GA1), or LAST MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), 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.

[GA1]

```
        MEASURE INSERT
◀ TRACK  :  12 → TO TRACK:  5 ▶
◀ FIRST M:112   START M: 32  ▶
◀ LAST  M:112   MEASURE   OK ▶
                    ▼
```

[GA3]

```
          MEASURE INSERT

                              OK ▶

◀ FROM TRACK       TO TRACK    ▶
    :12              : 5

◀ FIRST MEASURE  ⇨ START MEASURE ▶
    :112             :45

◀ LAST MEASURE
    :116
                   TRACK
                    ^
                    ∨
```
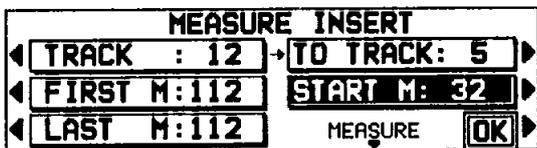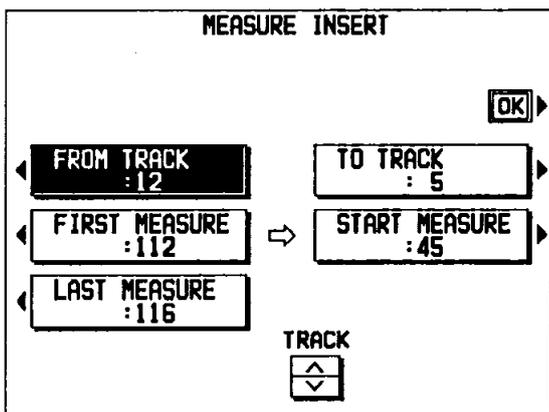
1. Select TRACK (GA1), or FROM TRACK (GA3). Use the TRACK ∧ and ∨ buttons to select the source track.
* You cannot select a CHORD or RHYTHM track in which the repeat function has been stored.
* If ALL is selected, the measures are inserted in all tracks at the same time.

2. Select FIRST M (GA1), or FIRST MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons to specify the first measure on the source track from which to copy.

3. Select LAST M (GA1), or LAST MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons to specify the last measure on the source track from which to copy.

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

Practical applications

5. Select START M (GA1), or START MEASURE (GA3). Use the TRACK ∧ and ∨ buttons to specify the insert point on the destination track.

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.

VELOCITY CHANGE

Modify the recorded velocity in specific measures of specific tracks (except for the CONTROL, RHYTHM and CHORD tracks).

[GA1]

```
      VELOCITY CHANGE    [OK] ▶
◀[ TRACK   : 12 ]
◀[ FIRST M:112 ]   VELOCITY:+40 ]▶
◀[ LAST  M:112 ]      VALUE
                        ▼
```

[GA3]

```
            VELOCITY CHANGE
◀[ TRACK          : 12 ]
◀[ FIRST MEASURE  :112 ]    [OK]▶
◀[ LAST MEASURE   :139 ]    [∧]▶
◀[ VELOCITY       :+40 ]    [∨]▶
```

1. Select TRACK. Use the TRACK ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the track number.
• If ALL is selected, all the tracks are modified.

2. Select FIRST M (GA1), or FIRST MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the start point (measure number) of the velocity change.

3. Select LAST M (GA1), or LAST MEASURE (GA3). Use the MEASURE ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the end (measure number) of the velocity change.

4. Select VELOCITY. Use the VALUE ∧ and ∨ buttons (GA1), or ∧ and ∨ buttons (GA3), to specify the change in velocity (−127 to +127).
• 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.

[GA1]

```
      VELOCITY CHANGE    [YES]▶

     [ Are You Sure ? ]  [NO]▶
```

[GA3]

```
            VELOCITY CHANGE
◀[ TRACK          : 12 ]
◀[ FIRST MEASURE  :112 ]    [YES]▶
◀[ LAST MEASURE   :139 ]    [NO]▶
◀[ VELOCITY       :+40 ]
   [ Are You Sure? ]
```

Punch record

If you make a playing error during REALTIME RECORD or would like to change the recording for some other reason, you can correct a selected portion of the performance without having to redo the whole part. "Punch in" means to enter the recording mode, and "punch out" means to exit it.
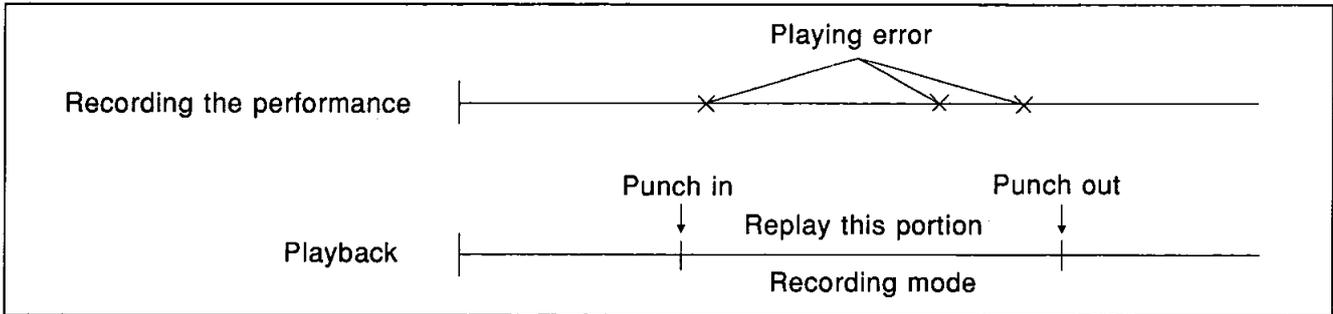
1. Press the **SEQUENCER** button to turn it on.

2. Select PUNCH RECORD on the display.
• The display looks similar to the following.

[GA1]

[GA3]
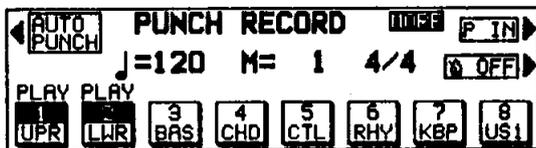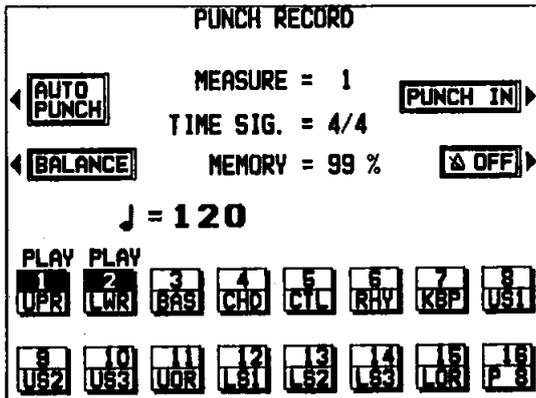
3. Select the tracks you wish to play back during punch recording.
• Use the buttons below the display to display "PLAY" above the track numbers you are going to play back.
• GA1: To view the display for tracks 9 to 16, press the **MORE/RETURN** button.
• If you use the **SEQUENCER** track buttons to select the tracks, press the track buttons to turn the indicators on.

4. Select the track which contains the portion you want to correct.
• Use the buttons below the display to display "REC" above the track numbers you are going to record.
• If you use the **SEQUENCER** track buttons to select the tracks, press the track buttons to make the indicators flash.

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

6. During playback, press the P IN (GA1), or PUNCH IN (GA3), button at the point you want to begin recording.
• Recording begins as soon as the button is pressed. Begin playing at this point.
• GA1: The P IN button switches to the P OUT button.
• GA3: The PUNCH IN button switches to the PUNCH OUT button.

7. Press the P OUT (GA1), or PUNCH OUT (GA3), 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 a foot switch. (Refer to page 138.)

95

■ AUTO PUNCH RECORD

You can 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, and then select the track which contains the portion you want to correct.

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

[GA1]

```
AUTO PUNCH REC :CURRENT MEAS= 18
◄ PUNCH IN MEASURE : 20   ▣ OFF ►
◄ PUNCH OUT MEASURE: 25    ⌃ ►
◄ MEASURE COUNT IN :  2   MEAS
                           ⌄ ►
```

[GA3]

```
          AUTO PUNCH RECORD

   CURRENT MEASURE    :18

 ◄ PUNCH IN MEASURE  :20      ▣ OFF ►

 ◄ PUNCH OUT MEASURE :25       ⌃ ►
                              MEAS
 ◄ MEASURE COUNT IN  : 2       ⌄ ►

   Press the START/STOP button to begin
```
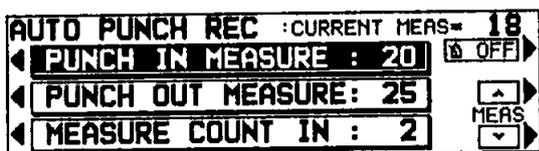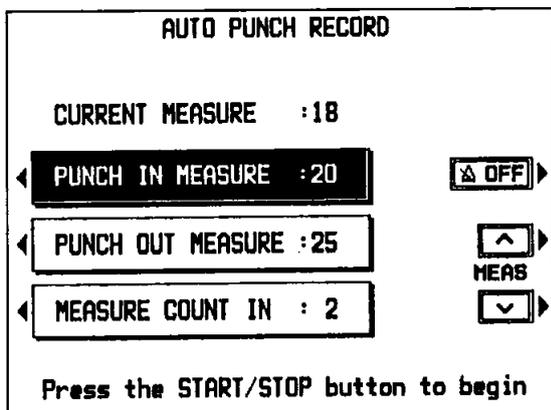
3. Select PUNCH IN MEASURE. Use the MEAS ∧ and ∨ buttons to specify the number of the punch-in measure.

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 MEAS ∧ and ∨ buttons to specify the number of lead-in measures you wish to have played back before the punch-in measure.
• Playback will begin from the measure indicated by CURRENT MEASURE on the display.
• Set the metronome to on or off with the ON or OFF button.

6. Press the **START/STOP** button.
• Playback begins from the measure specified in step 5.

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.
• Note that, even when you have set the punch-in and punch-out measures, you can begin recording before the punch-in measure starts by playing the keyboard or pressing a foot switch to which the PUNCH IN/OUT function has been assigned.

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

Playback from a specific measure

You can specify the measure from which you wish playback to begin.

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

2. Select PLAY on the display.
• The display looks similar to the following.

   [GA1]

   [GA3]
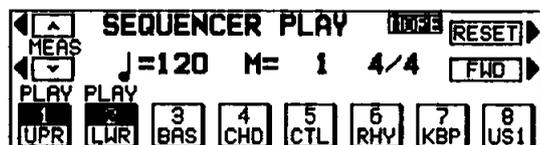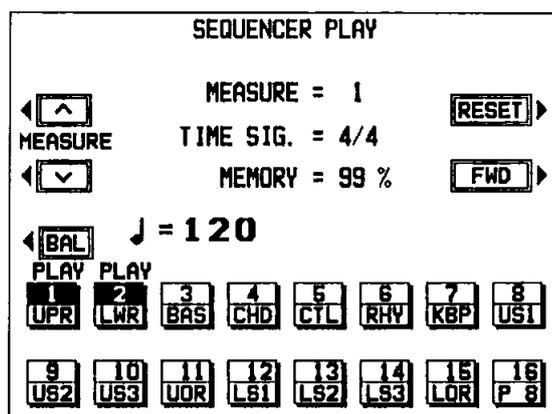
3. Select the tracks you wish to have played back.

4. Use the MEAS (GA1), or MEASURE (GA3), ∧ and ∨ buttons to specify the beginning measure of playback.
• GA1: "M=" indicates the current measure number.
• GA3: "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.)
• You can press the RESET button to return to the beginning of the first measure and recall the panel status which was in effect at the beginning of recording. (This button does not work during playback.)
• GA3: If you wish to adjust the volume of each track, press the BAL button to recall the PART BALANCE display. You can then adjust the volumes.

5. 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.

6. To stop playback, press the **START/STOP** button again.
• If the **START/STOP** button is pressed again, playback will continue from the point it was interrupted.

Practical applications

Sequencer Medley

You can have the songs on a disk played back continuously in order.

1. Insert the disk into the Disk Drive.

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

3. Select MEDLEY on the display.
- The display looks similar to the following.

   [GA1]
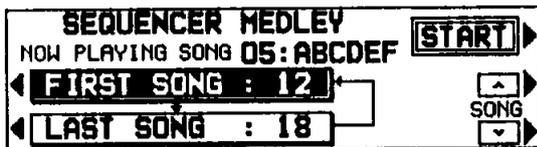
   [GA3]
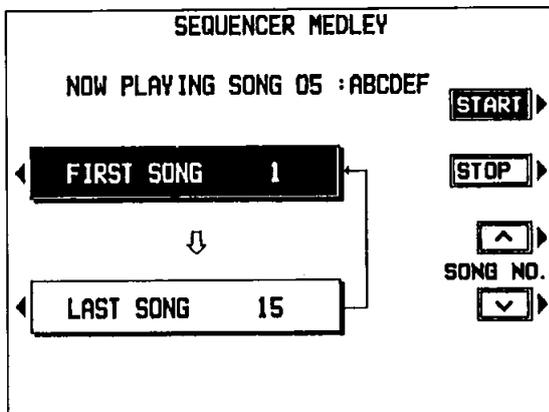
4. Select FIRST SONG. Use the SONG (GA1), or SONG NO. (GA3), ∧ and ∨ buttons to specify the first song you wish to have played.

5. Select LAST SONG. Use the SONG (GA1), or SONG NO. (GA3), ∧ and ∨ buttons to specify the last song.

6. Press the START button.
- The songs from the specified range are repeatedly played back in order.
- If you press the **START/STOP** button during medley play, the song currently playing will stop, and playback continues from the next recorded song on the disk.

7. To stop medley play, press the STOP button.

8. Press the **SEQUENCER** button to turn it off.

- Only data which has been saved in the Technics file format can be played in a medley performance
- The procedure for saving your **SEQUENCER** performances on a disk is explained in Part V: Disk Drive (page 111).

Part IV Composer

Outline of the Composer
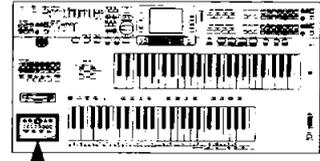
The **COMPOSER** enables you to create your own accompaniment patterns or to edit preset accompaniment patterns. Your original pattern is then stored in a memory and can be used just like the preset rhythms in the **RHYTHM GROUP** section.

■ **Example of a rhythm pattern**

Components of a rhythm pattern

You can store up to 12 different rhythms (6 each in banks **A** and **B**).
- Each pattern is comprised of five parts: **DRUMS, BASS,** and **ACCOMP 1, 2** and **3**.
- When you set the **COMPOSER** mode to the EXPAND MODE, you can also create **INTRO**, **FILL IN** and **ENDING** patterns. (Refer to page 110.)
- The recorded contents can be saved on a disk for recall at a later time. (Refer to page 116.)

Two ways to record in the COMPOSER

There are two ways to create and record a rhythm.

■ **Edit a preset rhythm**
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**
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 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.

Memory capacity
Expressed in terms of notes, the total number of notes which can be stored in all the **COMPOSER** memories is about 8600. 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**.
- It is a good practice to save your completed rhythm patterns on disks before clearing any of the **COMPOSER** memories.

COMPOSER menu

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

○
COMPOSER
⊏⊐

[GA1]

```
         COMPOSER
◄[RECORD MEM-A] [PATTERN COPY]►
◄[RECORD MEM-B] [MODE SELECT]►
◄[LOAD SINGLE PATTERN]
```
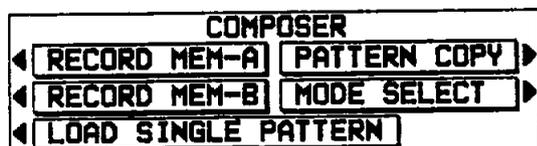
■ **Summary of the COMPOSER menu items**

RECORD MEM-A (page 101)
Create rhythm patterns in the **COMPOSER A** bank.

RECORD MEM-B (page 101)
Create rhythm patterns in the **COMPOSER B** bank.

MODE SELECT (page 110)
Specify whether or not you are making your own **INTRO, FILL IN** and **ENDING** patterns.

PATTERN COPY (page 101)
Copy a rhythm pattern into a memory.

LOAD SINGLE PATTERN
Recall the desired **COMPOSER** data from data saved on a disk.
• The items on this menu are also on the **DISK DRIVE** menu, and the procedures are the same. (Refer to page 119.)

[GA3]

```
          COMPOSER
◄[RECORD MEMORY-A]  [PATTERN COPY]►
◄[RECORD MEMORY-B]  [MODE SELECT]►
◄[LOAD SINGLE
  COMPOSER PATTERN]
```
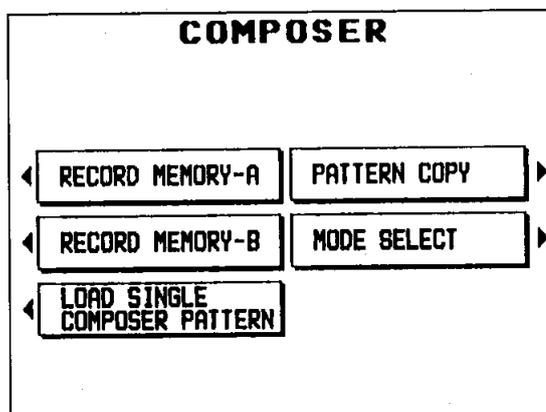
■ **Summary of the COMPOSER menu items**

RECORD MEMORY-A (page 101)
Create rhythm patterns in the **COMPOSER A** bank.

RECORD MEMORY-B (page 101)
Create rhythm patterns in the **COMPOSER B** bank.

MODE SELECT (page 110)
Specify whether or not you are making your own **INTRO, FILL IN** and **ENDING** patterns.

PATTERN COPY (page 101)
Copy a rhythm pattern into a memory.

LOAD SINGLE COMPOSER PATTERN
Recall the desired **COMPOSER** data from data saved on a disk.
• The items on this menu are also on the **DISK DRIVE** menu, and the procedures are the same. (Refer to page 119.)

Setting up to create a rhythm pattern

First decide whether you are going to "Edit a preset rhythm pattern" or "Create a completely new rhythm." Below are the instructions for preparing to edit a preset rhythm pattern. If you are going to create a completely new rhythm pattern, follow the instructions on page 103.

Edit a preset rhythm pattern

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

[GA1]

```
        COMPOSER COPY        [OK]▶
FROM GROUP:    TRAD      MEM:A
     RHY  :  Organ Fox   MEM:A
     PTN  :   NORMAL     PTN:MEMORY 1
      GRP   RHY   PTN       MEM   PTN
```

[GA3]

```
      COMPOSER PATTERN COPY

    FROM              TO

  GROUP:          MEMORY:
     TRAD             A
                              [OK]▶
  RHYTHM:     ⇨   PATTERN:
    Organ Fox         MEMORY 1

  PATTERN:
    NORMAL

  ┌─ FROM ─┐        ┌─ TO ─┐
  GRP  RHY  PTN     MEM   PTN
  [∧∨][∧∨][∧∨]     [∧∨] [∧∨]
```
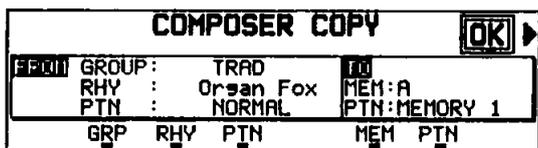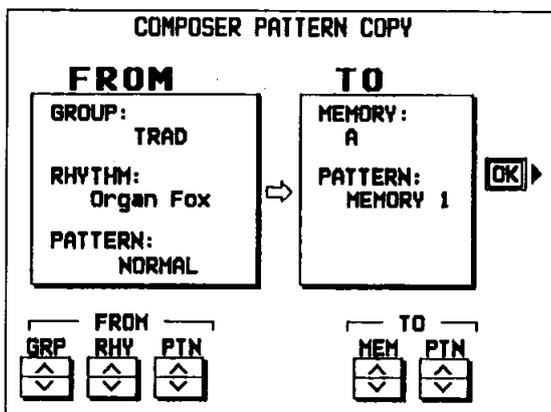
2. Select a rhythm group, name and pattern to copy (FROM).
* Use the GRP ∧ and ∨ buttons to specify the rhythm group.
* Use the RHY ∧ and ∨ buttons to specify the rhythm name.
* Use the PTN ∧ and ∨ buttons to specify the rhythm pattern (NORMAL, INTRO, FILL IN 1, FILL IN 2, ENDING, VARIATION, FILL IN 1 VARI or FILL IN 2 VARI).
* You can also select the rhythm group and rhythm name with the panel buttons.

3. Select a memory bank and pattern name to copy to (TO).
* Use the MEM ∧ and ∨ button to specify the memory bank (A or B).
* Use the PTN ∧ and ∨ buttons to specify the pattern (MEMORY 1 to 12, FILL IN 1, FILL IN 2, INTRO or ENDING).

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).
* GA1: Select RECORD MEM-A or RECORD MEM-B.
* GA3: Select RECORD MEMORY-A or RECORD MEMORY-B.
* The display looks similar to the following.

[GA1]

```
◀   RECORD MEMORY-A        MORE
◀[  MEMORY 1  ] [  MEMORY 4  ]▶
◀[  MEMORY 2  ] [  MEMORY 5  ]▶
◀[  MEMORY 3  ] [  MEMORY 6  ]▶
```
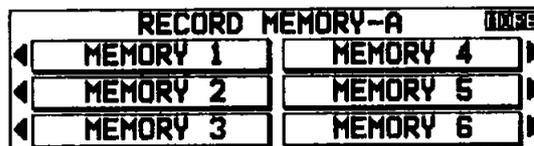
Use the **MORE/RETURN** button to show the INTRO, FILL IN, etc. menu. (Refer to page 110.)

[GA3]

```
        RECORD MEMORY-A

◀[  MEMORY 1  ] [  MEMORY 4  ]▶
◀[  MEMORY 2  ] [  MEMORY 5  ]▶
◀[  MEMORY 3  ] [  MEMORY 6  ]▶
◀[  FILL IN 1 ] [  FILL IN 2 ]▶
◀[   INTRO    ] [   ENDING   ]▶
```
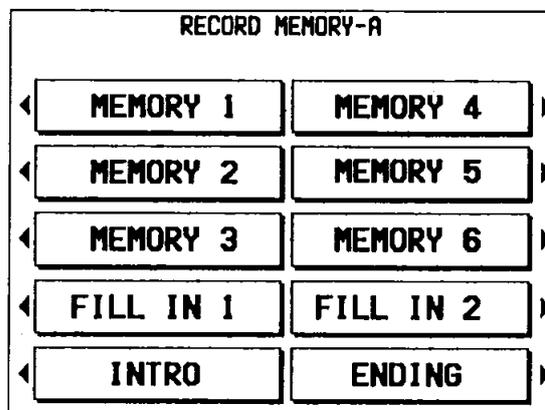
7. Select the pattern name to which you copied the pattern (the pattern name you selected in step 3).
- The display looks similar to the following.

[GA1]

```
┌─────────────────────────────────────┐
│ RECORD:MEMORY A-MEM1   [MEASURE]▶   │
│                                      │
│ ◀[CLEAR]  START RECORDING  [NAMING]▶ │
│    [DRM][AC1][AC2][AC3][BAS]         │
│                            [OTHER]▶  │
└─────────────────────────────────────┘
```

[GA3]

```
┌─────────────────────────────────────┐
│         RECORD MEMORY-A              │
│  ┌────────────────────────────┐      │
│  │ CLEAR THE ENTIRE PATTERN   │  ▶   │
│  └────────────────────────────┘      │
│  ┌────────────────────────────┐      │
│  │ PATTERN NAMING             │  ▶   │
│  └────────────────────────────┘      │
│  ┌────────────────────────────┐      │
│  │ RECORD SETTING             │  ▶   │
│  └────────────────────────────┘      │
│                                      │
│        START RECORDING               │
│   [DRM][AC1][AC2][AC3][BAS]          │
└─────────────────────────────────────┘
```
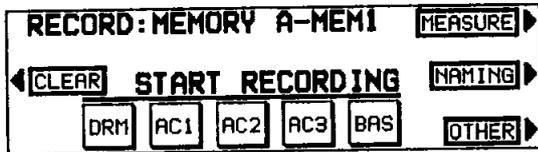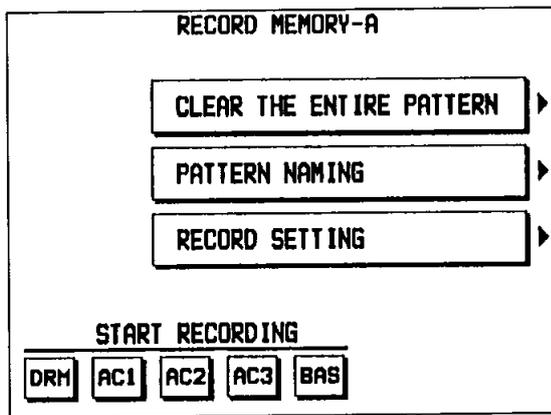
8. If you wish to name your new rhythm pattern, select NAMING (GA1), or PATTERN NAMING (GA3).
- FILL IN, INTRO and ENDING patterns cannot be named.
- If you do not input a name for your rhythm pattern, the name becomes the same as the original rhythm from which you copied.
- The display looks similar to the following.

[GA1]

```
┌─────────────────────────────────────┐
│ PATTERN NAMING  ┌──────────────┐    │
│ MEMORY A-MEM1   │   Dance6     │    │
│                 └──────────────┘    │
│ A B C D E F G H I J K L M N O P Q R │
│ S T U V W X Y Z a b c d e f g h i j k│
│ ▼CURSOR▼      ▼ SEL ▼    ▼CLR ▼A/a  │
└─────────────────────────────────────┘
```

[GA3]

```
┌─────────────────────────────────────┐
│  RECORD MEMORY-A:PATTERN NAMING      │
│      Please enter the name           │
│      of your new pattern             │
│      ┌──────────────┐                │
│      │ DANCE6       │                │
│      └──────────────┘                │
│   A B C D E F G H I J K L M N O      │
│   P Q R S T U V W X Y Z a b c d e    │
│   f g h i j k l m n o p q r s t u    │
│   v w x y z 0 1 2 3 4 5 6 7 8 9 !    │
│   " # $ % & ' ( ) + - * / = . . 0    │
│   : ; ? ¥ ^ _ ' | → ← < > [ ] ( )    │
│   POSITION    ABC··](  )             │
│   [<] [>]    [<] [>]      [CLR][A/a] │
└─────────────────────────────────────┘
```
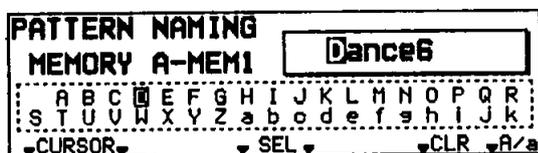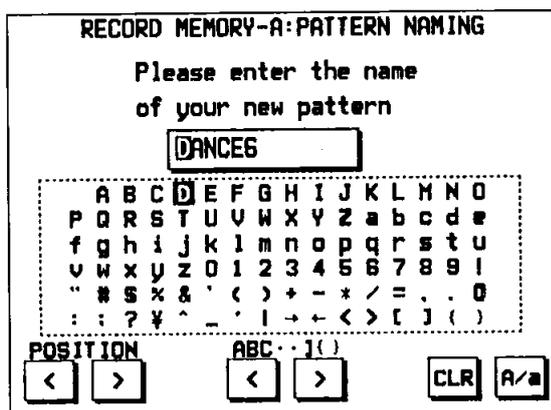
9. Type a new name for your rhythm pattern (up to 13 characters).
- GA1: Use the CURSOR buttons to highlight the character position in the name box. Use the SEL buttons to select the character. Repeat these steps to type the whole name.
- GA3: Use the POSITION < and > buttons to highlight the character position in the name box. Use the ABC ···] { } < and > buttons to select the character. Repeat these steps to type the whole name.
- To erase the name, press the CLR button.
- Use the A/a button to switch between upper case and lower case characters.

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.

DRM: **DRUMS**
AC1: **ACCOMP 1**
AC2: **ACCOMP 2**
AC3: **ACCOMP 3**
BAS: **BASS**

- The pattern you copied and the metronome sound start, and recording begins. (Refer to page 106.)

Create a completely new rhythm

Here are the preparatory steps to compose a com-
pletely new rhythm from scratch.

1. On the **COMPOSER** menu display, select a
   bank in which to record the rhythm.
- GA1: Select RECORD MEM-A or RECORD
  MEM-B.
- GA3: Select RECORD MEMORY-A or
  RECORD MEMORY-B.
- The display looks similar to the following.

[GA1]

```
┌─────────────────────────────────────┐
│        RECORD MEMORY-A        MORE   │
│ ◄│  MEMORY 1  │  MEMORY 4  │►        │
│ ◄│  MEMORY 2  │  MEMORY 5  │►        │
│ ◄│  MEMORY 3  │  MEMORY 6  │►        │
└─────────────────────────────────────┘
```

Use the **MORE/RETURN** button to show the
INTRO, FILL IN, etc. menu.

[GA3]

```
┌─────────────────────────────────────┐
│          RECORD MEMORY-A            │
│                                     │
│ ◄│   MEMORY 1  │  │   MEMORY 4  │►  │
│                                     │
│ ◄│   MEMORY 2  │  │   MEMORY 5  │►  │
│                                     │
│ ◄│   MEMORY 3  │  │   MEMORY 6  │►  │
│                                     │
│ ◄│   FILL IN 1 │  │   FILL IN 2 │►  │
│                                     │
│ ◄│    INTRO    │  │    ENDING   │►  │
└─────────────────────────────────────┘
```
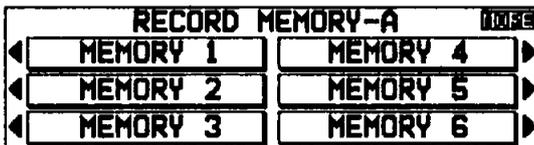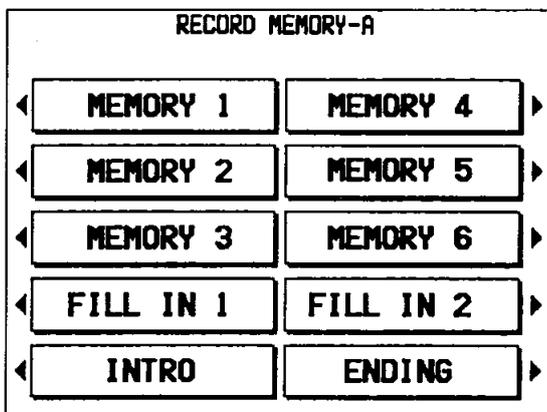
2. Specify the pattern you are going to create.
- The display looks similar to the following.

[GA1]

```
┌─────────────────────────────────────┐
│ RECORD:MEMORY A-MEM1    MEASURE ►    │
│ ◄CLEAR  START RECORDING  NAMING ►    │
│        DRM AC1 AC2 AC3 BAS   OTHER ► │
└─────────────────────────────────────┘
```

[GA3]

```
┌─────────────────────────────────────┐
│          RECORD MEMORY-A            │
│                                     │
│   │ CLEAR THE ENTIRE PATTERN │►     │
│                                     │
│   │   PATTERN NAMING         │►     │
│                                     │
│   │   RECORD SETTING         │►     │
│                                     │
│     START RECORDING                 │
│    DRM AC1 AC2 AC3 BAS              │
└─────────────────────────────────────┘
```
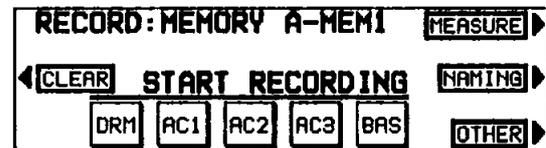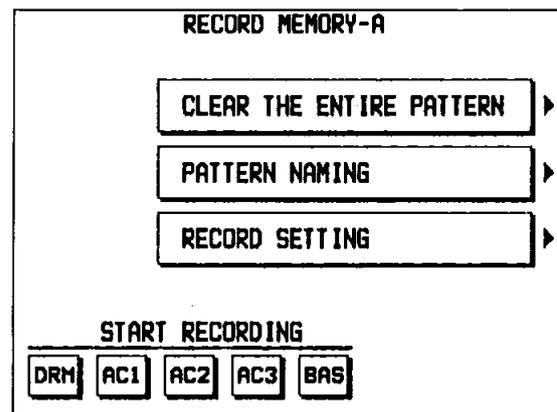
3. Press the CLEAR (GA1), or CLEAR THE EN-
   TIRE PATTERN (GA3), button.
- The following confirmation display appears.
  Press the YES button to execute the function,
  or press the NO button to cancel the function.

[GA1]

```
┌─────────────────────────────────────┐
│         ATTENTION!                  │
│      MEMORY A-MEM1        YES ►      │
│      PATTERN CLEAR                  │
│      Are You Sure?       NO  ►      │
└─────────────────────────────────────┘
```

[GA3]

```
┌─────────────────────────────────────┐
│          RECORD MEMORY-A            │
│                                     │
│  ┌──────────────────────┐           │
│  │   ATTENTION !        │  YES ►    │
│  │ MEMORY 1 PATTERN CLEAR│          │
│  │                      │  NO  ►    │
│  │                      │           │
│  │   Are You Sure?      │           │
│  └──────────────────────┘           │
└─────────────────────────────────────┘
```

Practical applications
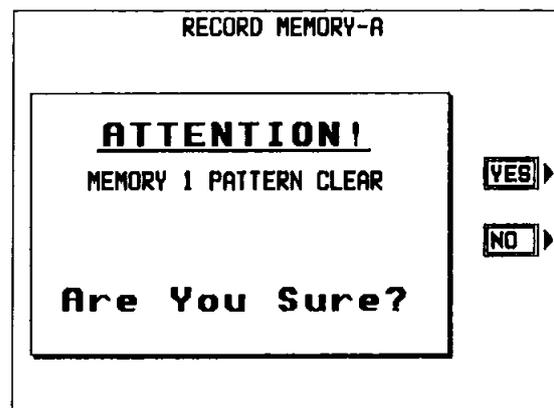
4. Select NAMING (GA1), or PATTERN NAMING (GA3).
- FILL IN, INTRO and ENDING patterns cannot be named.
- The display looks similar to the following.

[GA1]

```
PATTERN NAMING
MEMORY A-MEM1      ■   Clear

■ A B C D E F G H I J K L M N O P Q R
  S T U V W X Y Z a b c d e f g h i j k
 ▼CURSOR▼        ▼ SEL ▼        ▼CLR ▼A/a
```

[GA3]

```
   RECORD MEMORY-A:PATTERN NAMING

        Please enter the name
        of your new pattern
           ■   Clear

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

   POSITION      ABC··]{ }
    < | >         < | >        CLR  A/a
```
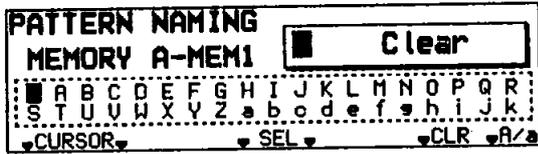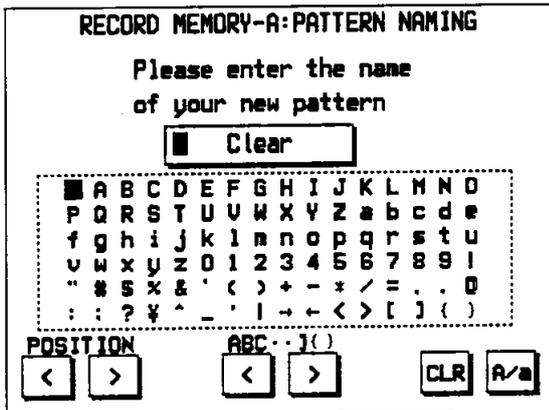
5. Type a name for your rhythm pattern (up to 13 characters).
- GA1: Use the CURSOR buttons to highlight the character position in the name box. Use the SEL buttons to select the character. Repeat these steps to type the whole name.
- GA3: Use the POSITION < and > buttons to highlight the character position in the name box. Use the ABC ···] { } < and > buttons to select the character. Repeat these steps to type the whole name.
- To erase the name, press the CLR button.
- Use the A/a button to switch between upper case and lower case characters.

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

7. Adjust the various recording settings. (Refer to the following section on "Recording settings.")

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

9. In the START RECORDING area on the display, select the rhythm part you want to record first.

DRM:	**DRUMS**
AC1:	**ACCOMP 1**
AC2:	**ACCOMP 2**
AC3:	**ACCOMP 3**
BAS:	**BASS**

- The metronome sound starts, and recording begins. (Refer to page 106.)

Recording settings (GA1)

■ MEASURE & TIME SIGNATURE
Press the MEASURE button.
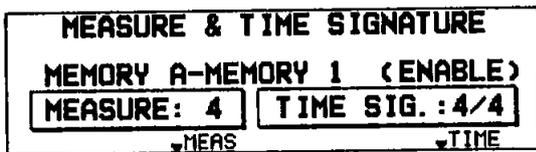
```
  MEASURE & TIME SIGNATURE

  MEMORY A-MEMORY 1  (ENABLE)
  MEASURE: 4 | TIME SIG.:4/4
        ▼MEAS          ▼TIME
```

MEASURE
Use the MEAS ∧ and ∨ buttons to specify the number of measures in your repeating pattern (1 to 8).

TIME SIG.
Use the TIME ∧ and ∨ buttons to specify the time signature (1/4 to 8/4).

- These settings can be adjusted only when the pattern was cleared by the CLEAR function.

Practical applications

■ OTHER SETTING

Press the OTHER button.
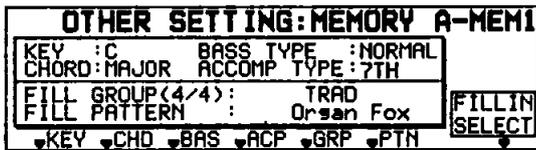
```
OTHER SETTING:MEMORY A-MEM1
KEY  :C        BASS TYPE  :NORMAL
CHORD:MAJOR    ACCOMP TYPE:7TH
FILL GROUP(4/4):      TRAD
FILL PATTERN   :   Organ Fox      FILLIN
                                  SELECT
 ▾KEY ▾CHD ▾BAS ▾ACP ▾GRP ▾PTN
```

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 BAS ∧ and ∨ buttons to specify the type of phrase progression for the **BASS** part (NORMAL or 7TH).

ACCOMP TYPE

Use the ACP ∧ and ∨ buttons to specify to 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.

FILL GROUP

Use the GRP ∧ and ∨ buttons to specify the rhythm group.

FILL PATTERN

Use the PTN ∧ and ∨ buttons to specify the rhythm name.

- This setting is effective only when the **COMPOSER** mode is set to the NORMAL MODE. (Refer to page 110.)
- If you changed the FILL GROUP or FILL PATTERN selection, 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 SIG. you specified.

Recording settings (GA3)

Press the RECORD SETTING button.

```
RECORD MEMORY-A:SETTING
  MEASURE & TIME SIGNATURE
MEASURE        :  4
TIME SIGNATURE :4/4 (ENABLE)
      RECORD SETTING
KEY            :C
CHORD          :MAJOR
BASS TYPE      :NORMAL
ACCOMP TYPE    :7TH            FILLIN
                              SELECT ▶
    FILLIN SELECT   (4/4)
GROUP          :     TRAD
PATTERN        :  Organ Fox

MEAS TIME KEY  CHD  BASS ACMP GRP  PTN
 ∧    ∧    ∧    ∧    ∧    ∧    ∧    ∧
 ∨    ∨    ∨    ∨    ∨    ∨    ∨    ∨
```
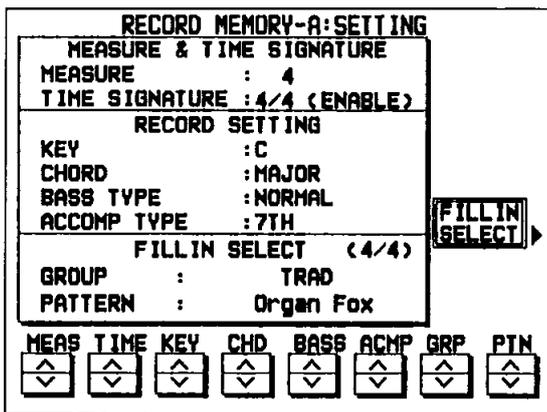
■ MEASURE & TIME SIGNATURE

MEASURE

Use the MEAS ∧ and ∨ buttons to specify the number of measures in your repeating pattern (1 to 8).

TIME SIGNATURE

Use the TIME ∧ and ∨ buttons to specify the time signature (1/4 to 8/4).

- These settings can be adjusted only when the pattern was cleared by the CLEAR THE ENTIRE PATTERN function.

■ 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 to 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.

GROUP
Use the GRP ∧ and ∨ buttons to specify the rhythm group.

PATTERN
Use the PTN ∧ and ∨ buttons to specify the rhythm name.

- This setting is effective only when the **COMPOSER** mode is set to the NORMAL MODE. (Refer to page 110.)
- 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.

Record your rhythm pattern

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

Recording procedure

[GA1]

```
RECORD:MEMORY A-MEMORY 1 [67%]
◄QTZ  QT=OFF ♩=120 M=1    PART CLR►
◄SOL    REC                ALL ERAS►
◄STEP DRM AC1 AC2 AC3 BAS INST ERS►
```

[GA3]

```
          RECORD MEMORY-A

◄BAL    ┌─────────────────┐ PART CLR►
        │ PATTERN = MEMORY 1│
◄STEP   │ TEMPO   = 120     │ ALL ERAS►
        │ QUANTIZE= OFF     │
        │ MEASURE = 2       │ INST ERS►
        │ MEMORY  = 67 %    │
        └─────────────────┘ QUANTIZE►
REC
DRM AC1 AC2 AC3 BAS          SOLO   ►
```
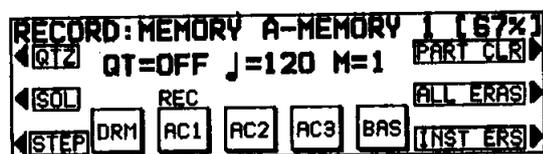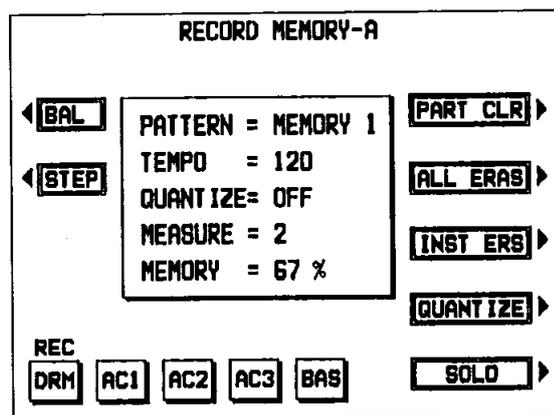
1. Adjust the tempo.
- The tempo can be freely adjusted when you play back the rhythm pattern, so record at the tempo which is easiest for you to play.

2. Select the sound.
- For the **DRUMS** part, select sounds from the **KEYBOARD PERCUSSION** sound group.
- For the **ACCOMP 1, ACCOMP 2,** and **ACCOMP 3** parts, select sounds from the **LOWER SOUND GROUP.** For the **BASS** part, select sounds from the **BASS PEDALS** sound group.
- Only one sound can be selected for each part, and it cannot change in the middle of the pattern.

3. Record the part on the lower keyboard.

- 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 "M=" (GA1), or "MEASURE=" (GA3).
- Record the performance in C major for correct chord progressions during playback. To record the performance in a different scale, specify a KEY and CHORD when you adjust the recording settings (page 104 [GA1], or page 105 [GA3]).
- The SUSTAIN on/off is also recorded (except for the DRM part).

4. When you have finished recording one part, use the part 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.
- If you wish to continue creating other patterns, press the **EXIT** button to go back to the pattern selection display.

6. When you have finished recording the rhythm, press the **COMPOSER** button to turn it off.

■ The display during recording
BAL (GA3)
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.

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 108.)

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.

QTZ (GA1)/QUANTIZE (GA3)
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 as "QT=" (GA1) or "QUANTIZE=" (GA3). Select from ♪₃, ♪, ♩₃, ♩, ♩₃, ♩, ♩. (A 3 denotes a triplet-type note.)

SOL (GA1)/SOLO (GA3)
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.

■ Maximum simultaneous tones
The maximum number of notes which can sound simultaneously for each part is 8. Even if you record more notes at one timing, only 8 are produced when the pattern is played back.

Playback

1. In the **RHYTHM GROUP** section, select the bank in which the desired rhythm is stored (**COMPOSER A** or **COMPOSER B**).

COMPOSER
A

COMPOSER
B

- The list of available rhythms is shown on the display.

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

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**.

Practical applications

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.

[GA1]
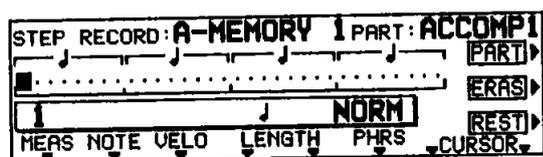
[GA3]
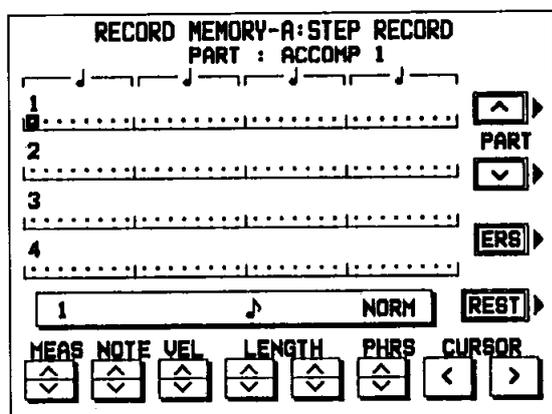
2. Use the MEAS buttons to select the measure you wish to record.
- This step is not necessary if you are recording from measure 1 of a blank part.

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 ∧ and ∨ buttons to specify the note value. Select from ♪3, ♪, ♪3, ♪, ♪3, ♪, ♩3, ♩, ♩, o, o × 2 to 4. (A 3 denotes a triplet-type note.)
- For note values other than these, use the right LENGTH ∧ and ∨ 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 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 100% 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.
  - Points at which nothing is stored are read as rests.

  ERAS (GA1)/ERS (GA3)
  If you make a mistake, move the cursor to the error, and after displaying the data you wish to erase, press this button.

7. Repeat steps 3 through 6 to continue storing notes.
- To record a different part, use the PART buttons to select another part.
- You may decide to record one part in realtime and another part in the STEP RECORD mode. You can easily switch between the two modes any time during recording. To return to the realtime recording display while in 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 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 a chord is recorded, a different note in the chord is displayed each time a CURSOR button is pressed.

3. Correct the 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).

   - Press the ERAS (GA1), or ERS (GA3), button to erase the data which is displayed.

Practical applications

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.

   [GA1]

   ```
   COMPOSER MODE SELECT
   ◄ NORMAL: Intro,Fill-Ins & Ending are
             copied from preset pattern
   ◄ EXPAND: You can create your own
             Intro,Fill-Ins & Ending.
   ```

   [GA3]

   ```
   COMPOSER MODE SELECT

   ◄ NORMAL MODE:
     The Intro,Fill-Ins and Ending
     for each Composer Pattern can
     be copied from any preset
     pattern.

   ◄ EXPAND MODE:
     A Composer Memory is assigned
     to each of the Intro,Fill-In 1,
     Fill-In 2 and Ending buttons,
     so you can create your own
     Intro,Fill-Ins & Ending.
   ```
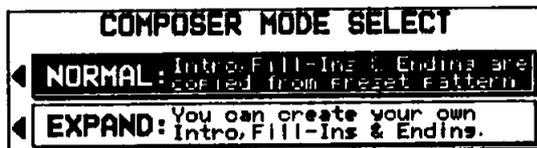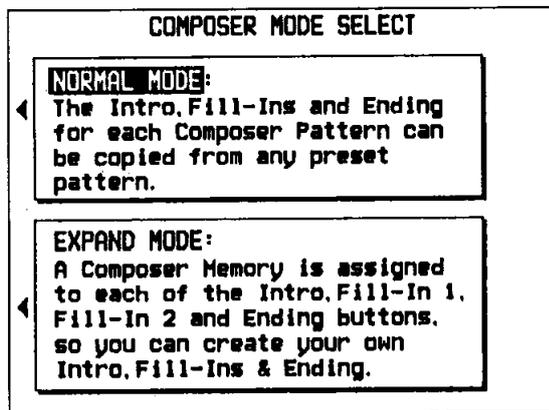
2. Use the buttons to the left of the display to select the mode.

   NORMAL (GA1)/NORMAL MODE (GA3)
   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 OTHER SETTING display (GA1) (page 105), or RECORD SETTING display (GA3) (page 106).

   EXPAND (GA1)/EXPAND MODE (GA3)
   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** and **ENDING** pattern can be created for each of the two banks (**COMPOSER A** and **COMPOSER B**). The fill-in patterns, etc. for each bank are used for all the basic rhythms in the same bank.

<Bank A>

<Bank B>
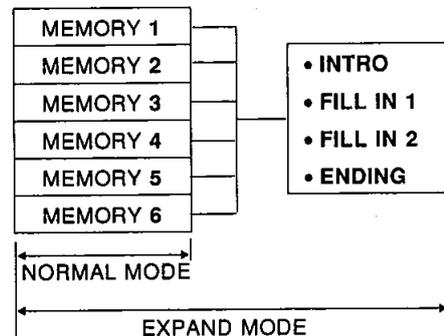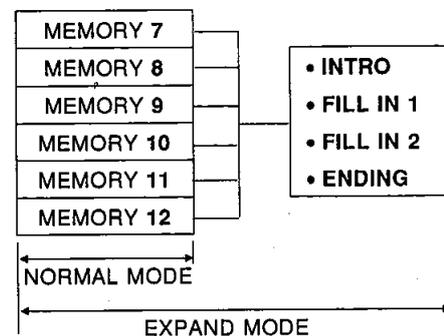
Part V Disk Drive

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

Internal memory and Disk Drive

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

You may choose to store only **SEQUENCER** or **COMPOSER** data, for example, and you can specify exactly what kind of data you wish to load into your instrument's memory from the disk.

- You can use 3.5 inch 2DD or 2HD disks; however, 2HD disks formatted as 2DD cannot be used.
- Specific formats are handled as follows.

		SAVE	LOAD
TECHNICS File FORMAT		○	○
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.
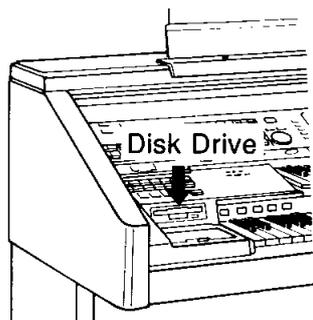
Disk Drive

SAVE | LOAD

Floppy disk
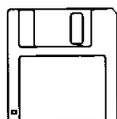
Technics: Maximum 20 files
SMF: Maximum 40 performances

■ Playback of commercial software

Disks recorded using the Disk Drive of this instrument can, of course, be played back on your organ. But this instrument also reads song data from 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.

About Standard MIDI Files

"Standard MIDI File" is a standardized 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 instrument, and vice versa.

- Only files with the ".MID" extension can be loaded.
- No more than 128 KB of data can be loaded into this instrument.

> **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.

Practical applications

Main parts of the Disk Drive

Disk slot

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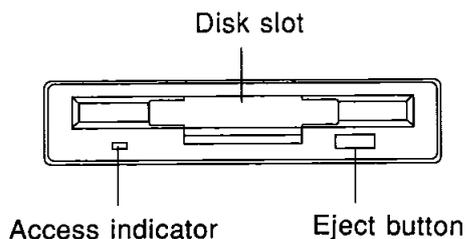
Eject button
Press to remove the disk from the Disk Drive.

Access indicator
Lights when data is being loaded from or saved to a 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 **DISK DRIVE** button to turn it on.

DISK DRIVE
DISK LOAD
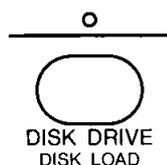
- The display changes to the following.

[GA1]

Press the **MORE/RETURN** button to see the next page of the menu.

[GA3]
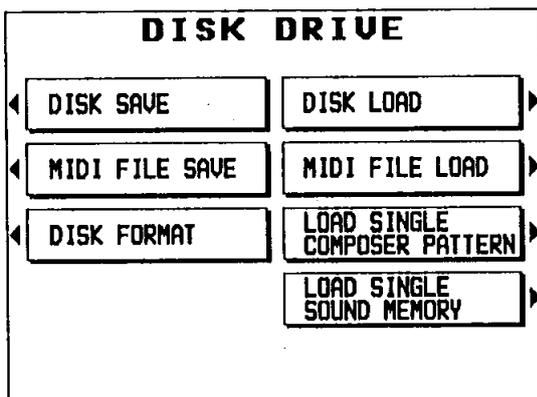
DISK SAVE (page 116)
Save data from your instrument's memory to a disk.

DISK LOAD (page 113)
Load data from a disk into your instrument's memory.

MIDI FILE LOAD (page 114)
Load song data which was stored in the Standard MIDI File format into your instrument's memory.

MIDI FILE SAVE (page 117)
Save data from your instrument's memory in the Standard MIDI File format to a disk.

DISK FORMAT (page 115)
Format new disks or erase the contents of recorded disks so they can be used by this instrument.

LOAD SINGLE COMPOSER PATTERN
(page 119)
Load **COMPOSER** data from a disk into a specified memory number.

LOAD SINGLE SOUND MEMORY (page 120)
Load **SOUND** data from a disk into a specified memory number.

2. Select the desired menu and follow the procedures on the corresponding display.
- Press the **EXIT** button to go back to the previous display. To go to another menu, use the **EXIT** button to go back to the menu 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 **DISK DRIVE** button to turn it off.

Loading data

Recall (load) the data from the disk to your instrument's memories. Please note that 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. Push it all the way in until you hear a click.
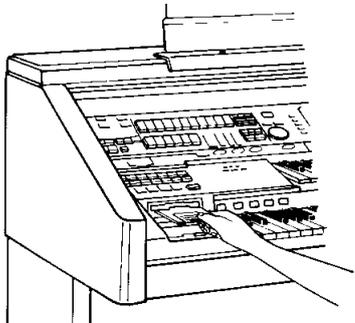
2. On the **DISK DRIVE** menu display, select DISK LOAD.
- The display looks similar to the following.

[GA1]

```
        DISK LOAD         [LOAD]▶
     01:ABCD_1.ALL
 OPTION  02:ABCD_2.ALL      [▲]▶
  ALL    03:              SONG
OPTION                      [▼]▶
```

[GA3]

```
                DISK LOAD
 LOAD FILE
 01 :ABCO1_.ALL  11 :CDEO1_.CMP
 02 :ABCO2_.ALL  12 :CDEO2_.CMP    [LOAD]▶
 03 :ABCO3_.ALL  13 :CDEO3_.CMP
 04 :ABCO4_.ALL  14 :CDEO4_.CMP
 05 :BCDO1_.ALL  15 :
 06 :BCDO2_.ALL  16 :DEFO2_.PNL
 07 :BCDO3_.ALL  17 :DEFO3_.PNL
 08 :            18 :
 09 :BCDO5_.SEQ  19 :
 10 :BCDO6_.SEQ  20 :              [▲]▶

 LOAD OPTION
 ALL / SEQUENCER / COMPOSER /      [▼]▶
 SOUND MEMORY / PANEL MEMORY
```
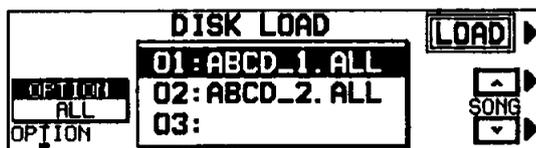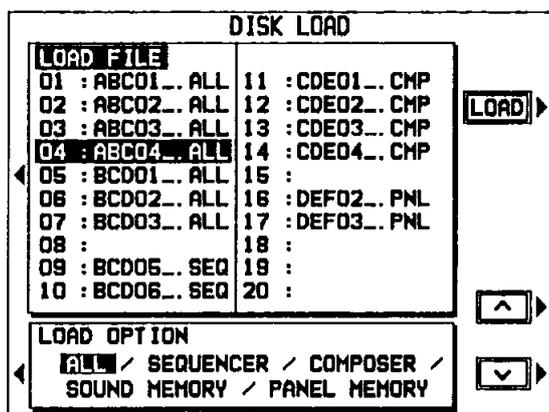
3. Select the number of the song file to load.
- GA1: Use the SONG ∧ and ∨ buttons to select the number.
- GA3: Select the LOAD FILE box, and then use the ∧ and ∨ buttons to select the number.
- Files in which data is currently stored are indicated by the file name following the file number.

4. Specify the kind of data you wish to load from the disk to your instrument.
- GA1: Use the OPTION ∧ and ∨ buttons to specify the kind of data.
- GA3: Select the LOAD OPTION box, and then use the ∧ and ∨ buttons to specify the 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. (Refer to page 117.)
- Select from ALL, SEQUENCER, COMPOSER, SOUND MEMORY and PANEL MEMORY.

5. Press the LOAD button.
- The DISK 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.

> You can also access the DISK LOAD display by pressing the **DISK DRIVE** button for a few seconds.

Practical applications

MIDI FILE LOAD

Data which has been saved in the Standard MIDI File format can be loaded into this instrument's **SEQUENCER**.

1. Insert the disk on which data is saved in Standard MIDI File format into the Disk Drive.

2. On the **DISK DRIVE** menu display, select MIDI FILE LOAD.
- The display looks similar to the following.

[GA1]

```
 MIDI FILE LOAD    [LOAD] ▶
 01:ABCDEF_1.MID
 02:ABCDEF_2.MID    [▲] ▶
 03:              SONG
                   [▼] ▶
```

[GA3]

```
      MIDI FILE LOAD
 01: ABC01000.MID
 02: ABC02000.MID
 03: ABC03000.MID       [LOAD] ▶
 04:
 05:
 06:
 07:
 08:
 09:
 10:                     [▲] ▶

                        [▼] ▶
```
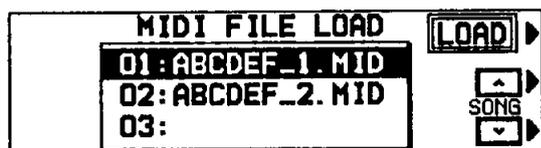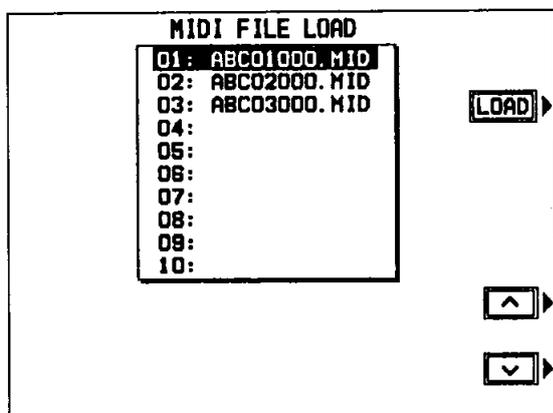
3. Use the SONG ∧ and ∨ buttons (GA1), or the ∧ and ∨ buttons (GA3), to select the name of the file with the desired data.

4. Press the LOAD button.
- The MIDI FILE LOAD operation begins.
- When the operation has been successfully completed, "COMPLETED!" is shown on the display.
- Press the **START/STOP** button to begin playback of the song data.
- When the MIDI FILE LOAD procedure is executed, the status of this instrument changes to the GENERAL MIDI status. (Refer to page 180.)

Formatting a disk

New 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.

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 or 2HD disks; however, 2HD disks formatted as 2DD cannot be used.
- To format the disk, the write-protect window must be closed, as illustrated.

Storage is not possible   Storage is possible

Open   Close
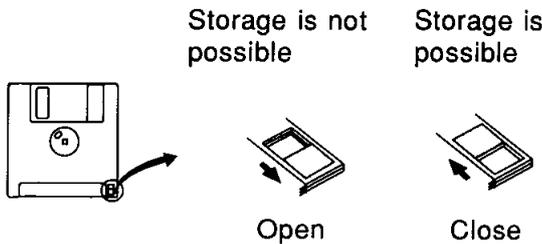
1. Insert the disk into the Disk Drive slot. Push it all the way in until you hear a click.

2. On the **DISK DRIVE** menu display, select DISK FORMAT.
   - The display changes to the following.

   [GA1]

DISK FORMAT (2DD)	YES ▶
ATTENTION! Any data will be erased. Are You Sure?	NO ▶

   [GA3]

   DISK FORMAT   (2DD)

   ATTENTION!

   Using DISK FORMAT will erase   YES ▶

   any current data on the disk.   NO ▶

   Are You Sure?
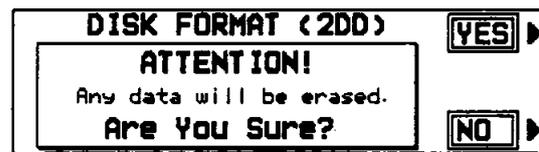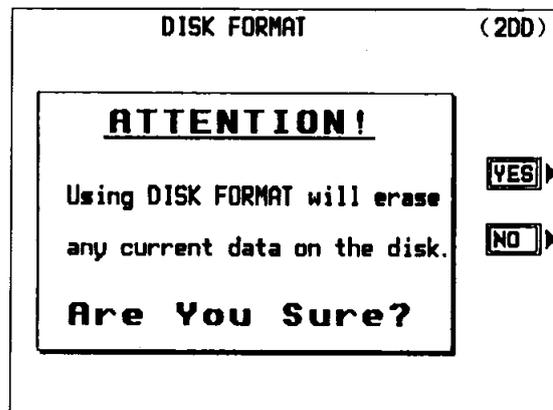
3. Press the YES button to format the disk, or press the NO button to cancel the format.
   - After about one minute, formatting is completed and "COMPLETED!" is shown on the display.

Practical applications

Saving data

Use the Disk Drive to save the recorded data and panel settings on a disk. A formatted disk should be in place in the Disk Drive.

DISK SAVE

1. On the **DISK DRIVE** menu display, select DISK SAVE.
- The display changes to the following.

[GA1]
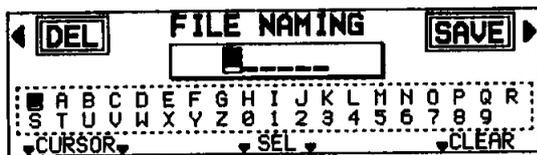
[GA3]
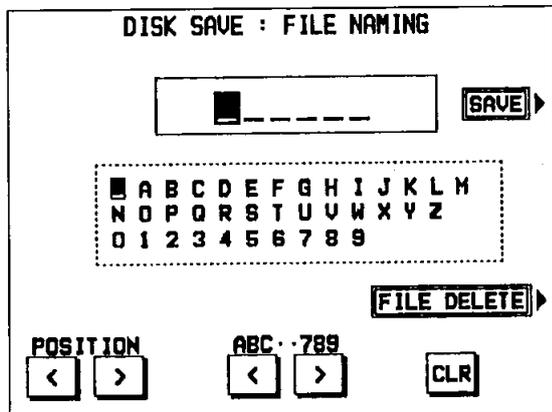
2. Type a name for the new data file (up to 6 characters).
- Use the CURSOR (GA1), or POSITION (GA3), buttons to highlight the character position in the name box. Use the SEL (GA1), or ABC··789 (GA3), buttons to select the alphanumeric character. Repeat these steps to type the whole name.
- To erase the name, press the CLEAR (GA1), or CLR (GA3), button.

3. Press the SAVE button.
- The display looks similar to the following.

[GA1]
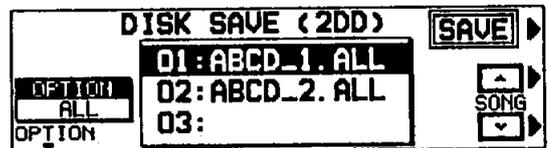
[GA3]
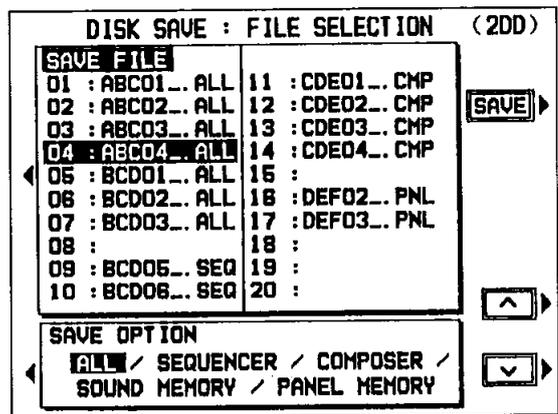
4. Select the file number in which to save the data (01 to 20).
- GA1: Use the SONG ∧ and ∨ buttons to select the file number.
- GA3: Select the SAVE FILE box, and then use the ∧ and ∨ buttons to select the file number.
- Files in which data is currently stored are indicated by the file name following the file number.
- The maximum number of songs which can be saved may be less than 20 if you are saving many songs which use a lot of memory.
- The maximum number of songs which can be saved is 10 if you are saving only songs with the SAVE OPTION set to ALL.

5. Specify the kind of data you wish to store in the data file on the disk.
- GA1: Use the OPTION button to specify the kind of data.
- GA3: Select the SAVE OPTION box, and then use the ∧ and ∨ buttons to specify the kind of data.

ALL <ALL>
All the data from this instrument is saved.

SEQUENCER <SEQ>
Only data from the **SEQUENCER**

COMPOSER <CMP>
Only data from the **COMPOSER**

SOUND MEMORY <SND>
Only data stored in the **SOUND** memories

PANEL MEMORY <PNL>
Only data stored in the **PANEL MEMORY**

- The abbreviated indication (in < > brackets) for the selected data type appears after the file name.

6. Press the SAVE button.
- 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 DEL (GA1), or FILE DELETE (GA3), button. Then on the DISK SAVE (GA1), or FILE SELECTION (GA3), 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 in the Standard MIDI File format.
- What you can save in the Standard MIDI File format is ordinary performance data, such as note data. Data which is specific to Technics instruments (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.

1. On the **DISK DRIVE** menu display, select MIDI FILE SAVE.
- The display changes to the FILE NAMING display.

2. Type a name for the new data file (up to 8 characters).
- Use the CURSOR (GA1), or POSITION (GA3), buttons to highlight the character position in the name box. Use the SEL (GA1), or ABC···789 (GA3), buttons to select the alphanumeric character. Repeat these steps to type the whole name.
- To erase the name, press the CLEAR (GA1), or CLR (GA3), button.

3. Press the SAVE button.
- The display looks similar to the following.

[GA1]

[GA3]
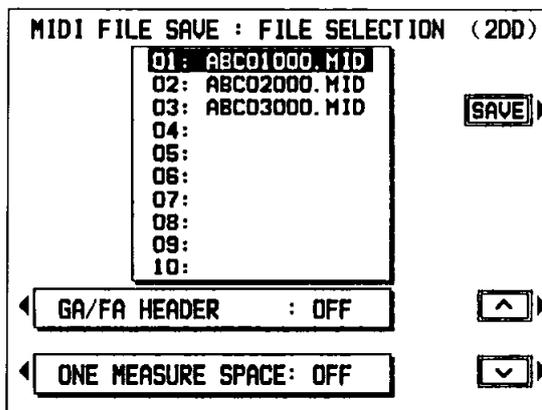
4. Use the SONG ∧ and ∨ buttons (GA1), or the ∧ and ∨ buttons (GA3), to select the name of the file in which to save the data.
- To save in a new file, select a blank line.

5. Press the SAVE button.
- When the operation has been successfully completed, "COMPLETED!" is shown on the display.
- If you attempt to save data to a file name 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 MIDI FILE SAVE operation begins.

■ GA/FA HEADER
You can save the sound, volume and other settings for each part as data at the beginning of the file. Select YES to save the data, or NO if you do not wish to have the data saved at the file beginning.

■ ONE MEASURE SPACE
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, or 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 this option set to ON, please set it to OFF each time the file is subsequently saved.

■ FILE delete
To erase a song from a disk, on the FILE NAMING display, press the DEL (GA1), or FILE DELETE (GA3), button. Then on the DISK SAVE (GA1), or FILE SELECTION (GA3), 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.

Single data type load

You can load **COMPOSER** or **SOUND** data into the memories you specify.

LOAD SINGLE COMPOSER PATTERN

Load the desired **COMPOSER** data from a disk into a specific **COMPOSER** memory.

1. Insert the disk with the stored **COMPOSER** data into the Disk Drive.

2. On the **DISK DRIVE** menu display, select LOAD SINGLE COMPOSER PATTERN.
 • The display looks similar to the following.

[GA1]

```
 LOAD SINGLE COMPOSER PATTERN
 FROM FILE: 01:ABCD_1  TO
      MEM : A        MEM : A
      PTN : FILL IN 1 PTN : FILL IN 2

 FILE MEM PTN     MEM PTN     OK ▶
```

[GA3]

```
     LOAD SINGLE COMPOSER PATTERN

       FROM             TO
    FILE:
      01:ABCD_1
                              MEMORY:    OK ▶
    MEMORY:      ⇒        A
      A

    PATTERN:              PATTERN:
      MEMORY 1             MEMORY 1

    ┌── FROM ──┐         ┌─ TO ─┐
    FILE MEM PTN         MEM PTN
    [^] [^] [^]         [^] [^]
    [v] [v] [v]         [v] [v]
```
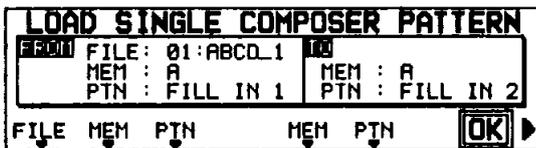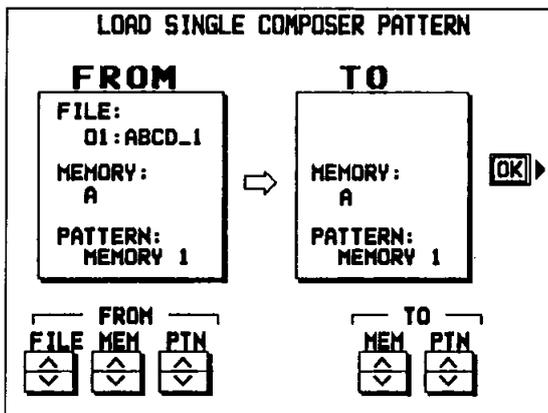
3. Select a file, memory name and pattern to load from the disk (FROM).

FILE: Use the ∧ and ∨ buttons to specify the file number on the disk.

MEM: Use the ∧ and ∨ buttons to select the memory bank (A or B).

PTN: Use the ∧ and ∨ buttons to specify the pattern name.

4. Select the memory bank and pattern to load to (TO).

MEM: Use the ∧ and ∨ buttons to select the memory bank (A or B).

PTN: Use the ∧ and ∨ buttons to specify the pattern name.

5. Press the OK button.
 • When the operation has been successfully completed, "COMPLETED!" is shown on the display.
 • The LOAD SINGLE COMPOSER PATTERN procedure can also be begun from the **COMPOSER** menu display. (Refer to page 100.)

Practical applications

LOAD SINGLE SOUND MEMORY

Load the desired **SOUND** data from a disk into a specific **SOUND** memory.

1. Insert the disk with the stored **SOUND** data into the Disk Drive.

2. On the **DISK DRIVE** menu display, select LOAD SINGLE SOUND MEMORY.
• The display looks similar to the following.

[GA1]
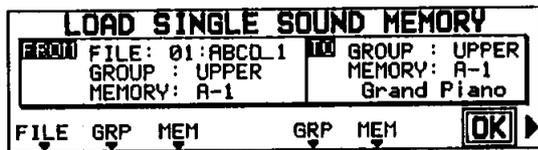
[GA3]
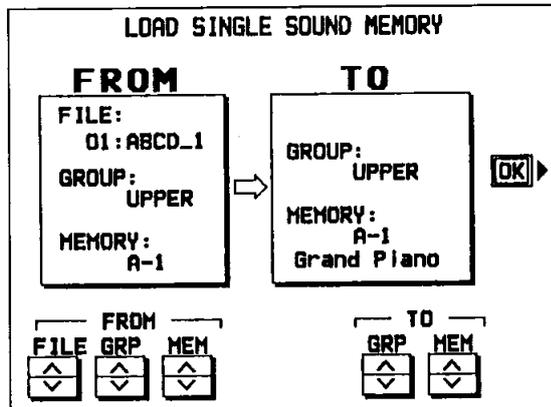
3. Select a file and memory name to load from the disk (FROM).

FILE: Use the ∧ and ∨ buttons to specify the file number on the disk.

GRP: Use the ∧ and ∨ buttons to select the memory group.

MEM: Use the ∧ and ∨ buttons to select the memory bank (A or B).

4. Select the memory to load to (TO).

GRP: Use the ∧ and ∨ buttons to select the memory group.

MEM: Use the ∧ and ∨ buttons to select the memory bank.

5. Press the OK button.
• When the operation has been successfully completed, "COMPLETED!" is shown on the display.

Part VI   Adjusting the sounds

Sound mode
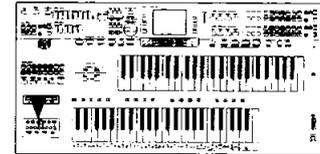
The **SOUND** mode is used for making fine adjustments to the functions related to sound, such as tone, volume and effects.

SOUND menu

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

○
SOUND

• The display changes to the following.

[GA1]

```
        SOUND SETTING
◄[ PART SETTING ][ MASTER TUNE ]►
◄[ TECHNI-CHORD ][ REVERB ]►
◄[ TREMOLO SPEED ][ GLIDE RANGE ]►
```

[GA3]

```
        SOUND SETTING

◄[ PART SETTING ]    [ MASTER TUNING ]►

◄[ REVERB SETTING ]  [ TECHNI-CHORD ]►

◄[ DSP EFFECT ]      [ GLIDE SETTING ]►

◄[ TREMOLO SETTING ] [ ORGAN EFFECT ]►
```
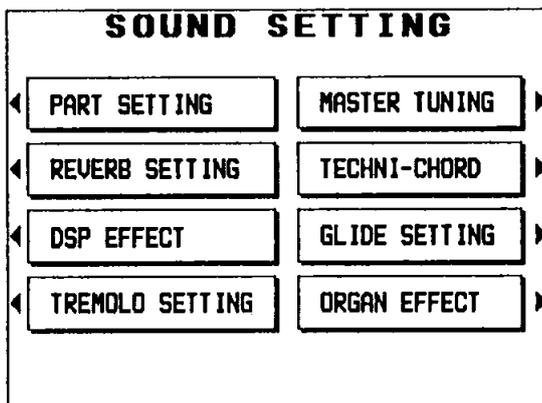
• Refer to the summary of **SOUND** menu items below.

2. Select the desired menu and follow the procedures on the corresponding setting display.

• The functions and their adjustment are explained in detail on the following pages.
• 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.

• 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.

■ **A word about parts**
The organization of the sound parts is as follows.

Normal parts
UPPER SOUND 1 to 3, UPPER ORGAN, LOWER SOUND 1 to 3, LOWER ORGAN, BASS, PART 8 to 15.

• PART 16 is reserved for **KEYBOARD PERCUSSION**.
• PART 8 to 16 are used in **SEQUENCER** and MIDI functions.

AUTO PLAY CHORD parts
ACCOMP 1, ACCOMP 2, ACCOMP 3, BASS, DRUMS, CHORD.

Other parts
BGS.

■ **Summary of the SOUND menu items (GA1)**

PART SETTING (page 123)
Set the various sound attributes for each part.

• PAN: Adjust the stereo balance of each part.
• SUSTAIN: Turn the sustain on or off and adjust the sustain length for each part.
• REVERB: Turn the reverb on or off for each part.
• BRILLIANCE: Adjust the brilliance for each part.
• VOLUME: Adjust the volume for each part.

• KEY: Adjust the key of each part in semitone increments.
• TUNING: Fine-tune the pitch of each part.
• BEND: Set the pitch range when MIDI pitch bend data is received.
• ASSIGN: Specify whether polyphonic, monophonic or solo sound is output for each part.

TECHNI-CHORD TYPE (page 131)
Select the **TECHNI-CHORD** harmony style.

TREMOLO SPEED (page 129)
Adjust the speed of the tremolo.

MASTER TUNE (page 130)
Select the type of tuning for the instrument.

REVERB (page 128)
Select the type and depth of the **DIGITAL REVERB**.

GLIDE RANGE (page 132)
Adjust the settings for the glide effect.

■ **Summary of the SOUND menu items (GA3)**

PART SETTING (page 124)
Set the various sound attributes for each part.

- SUSTAIN: Turn the sustain on or off and adjust the sustain length for each part.
- BRILLIANCE: Adjust the brilliance for each part.
- REVERB: Turn the reverb on or off for each part.
- DSP EFFECT: Turn the **DSP EFFECT** on or off for each part.
- PAN: Adjust the stereo balance of each part.
- KEY SHIFT: Adjust the key of each part in semitone increments.
- VOLUME: Adjust the volume for each part.
- TUNING: Fine-tune the pitch of each part.
- BEND RANGE: Set the pitch range when MIDI pitch bend data is received.
- ASSIGN MODE: Specify whether polyphonic, monophonic or solo sound is output for each part.

REVERB SETTING (page 128)
Select the type and depth of the **DIGITAL REVERB**.

DSP EFFECT (page 132)
Select the type and degree of the **DSP EFFECT**.

TREMOLO SETTING (page 129)
Adjust the speed or depth of the tremolo.

MASTER TUNING (page 130)
Select the type of tuning for the instrument.

TECHNI-CHORD TYPE (page 131)
Select the **TECHNI-CHORD** harmony style.

GLIDE SETTING (page 132)
Adjust the settings for the glide effect.

ORGAN EFFECT (page 134)
Select the type of EFFECT for the **ORGAN** part.

SOLO
The **SOLO** sound is monophonic, which means that only one note can sound at a time. When only a **SOLO** part is selected for the keyboard, the **SOLO** sound is produced for the last key played.

When a **SOLO** part and another part are both selected for one keyboard, however, the **SOLO** sound is produced for the highest key played. This means that you can use the keyboard to play chords with your left hand and a **SOLO**-sound melody with your right hand, for example.
- If the interval between the highest note and the next lower note is more than one whole tone, the **SOLO** sound will not shift to the next lower key when the highest key is released.

Sound setting

Set the various sound attributes for each part.

PART SETTING (GA1)

1. On the **SOUND** menu display, select PART SETTING.
- The display looks similar to the following.

```
         PART SETTING          MORE
SOUND: Grand Piano
   PART      PAN     SUSTAIN  REV  BRIL
 U.SND1 |-+-+-+-+-| OFF   5  ON   NOR
 PART       PAN     ON/OFF LNGTH REV  BRIL
   ▼         ▼                ▼    ▼    ▼
```

Press the **MORE/RETURN** button to view the next page of the display.

```
         PART SETTING        RETURN
SOUND: Grand Piano
   PART   VOLUME KEY TUNING BEND ASSIGN
 U.SND2   127    0    0     2   POLY
 PART      VOL  KEY  TUN        BEND  ASS
   ▼        ▼    ▼    ▼          ▼    ▼
```

2. Use the PART buttons to select a part.
- If necessary, select the sound for the part. (Only **KEYBOARD PERCUSSION** sounds can be selected for PART 16.)
- The sound for the selected part is shown on the upper portion of the display.

3. Use the buttons along the bottom of the display to select the attribute you wish to adjust.

PAN: Adjust the stereo balance of each part.
- A thick vertical line on the display indicates the selected position.

ON/OFF: Set the sustain to on or off.

LNGTH: 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.

REV: Set the reverb to on or off.

BRIL: Adjust the brilliance setting (MEL/NOR/BRI).

VOL: Adjust the volume (0 to 127).

KEY: Raise or lower the pitch in semitone increments (−12 to +12).
- A value of 1 means a shift of one semitone. To raise (or lower) the pitch one octave, set the value to +12 (or −12).

TUN: Fine-tune the pitch of each part (−128 to +127).

BEND: Set the pitch range when MIDI pitch bend data is received (0 to 12).
- Increments are in semitones.

ASS: Select the output mode for each part (POLY, MONO or SOLO).
- SOLO cannot be selected for the BASS part.

- Only the VOL and REV settings can be adjusted for PART 16.
- The PAN, KEY, TUN, BEND, SUSTAIN, BRIL and ASSIGN settings cannot be changed for the CHORD part.

4. Repeat steps 2 and 3 for each part as desired.

Practical applications

PART SETTING (GA3)

1. On the **SOUND** menu display, select PART SETTING.
- The display looks similar to the following.

```
              PART SETTING

            Grand Piano
◄ [ ^ ]
       ┌ PART SELECT : UPPER SOUND 1
◄ [ v ]
    ┌────────────────────────────────────┐
    │ SUSTAIN   : OFF   KEY SHIFT  :   0  │
    │ SUS LENGTH:  5    VOLUME     : 127  │
    │ BRILLIANCE:NORMAL    --- OTHER ---  │
    │ REVERB    : ON    TUNING     :   0  │
    │ DSP EFFECT: OFF   BEND RANGE :   2  │
    │ PAN       : 96    ASSIGN MODE:POLY  │
    ├──────┬──────┬──────┬──────┬──────┬──────┬──────┬──────┤
    │ SUS  │ BRI  │ REV  │ DSP  │ PAN  │ KEY  │ VOL  │ OTH  │
    │ [^]  │ [^]  │ [^]  │ [^]  │ [^]  │ [^]  │ [^]  │ [^]  │
    │ [v]  │ [v]  │ [v]  │ [v]  │ [v]  │ [v]  │ [v]  │ [v]  │
    └──────┴──────┴──────┴──────┴──────┴──────┴──────┴──────┘
```

2. Use the ∧ and ∨ buttons to select a part.
- If necessary, select the sound for the part. (Only **KEYBOARD PERCUSSION** sounds 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.

SUS: SUSTAIN
BRI: BRILLIANCE
REV: REVERB
DSP: DSP EFFECT
PAN: PAN
KEY: KEY SHIFT
VOL: VOLUME
OTH: OTHER (TUNING, BEND RANGE, ASSIGN MODE)

- The display changes in accordance with your selection.

- Only the VOLUME and REVERB settings can be adjusted for PART 16.
- The SUSTAIN, BRILLIANCE, PAN, KEY SHIFT, TUNING, BEND RANGE and ASSIGN MODE settings cannot be changed for the CHORD part.

4. Set each attribute. (Refer to the pages following.)
- Use the buttons below the display to change the settings for each attribute.

5. Repeat steps 2 to 4 for each part as desired.

■ SUSTAIN

Turn the sustain on or off for each part, and specify the length of the sustain.

```
      SOUND SETTING : SUSTAIN

  ◄ [ ^ ]        Grand Piano
           └ PART SELECT : UPPER SOUND 1
  ◄ [ v ]

  ◄──── [ SUSTAIN ON/OFF : OFF ]

  ◄──── [ SUSTAIN LENGTH : 5 ]

  SUS  BRI  REV  DSP  PAN  KEY  VOL  OTH
  [^]  [^]  [^]  [^]  [^]  [^]  [^]  [^]
  [v]  [v]  [v]  [v]  [v]  [v]  [v]  [v]
```
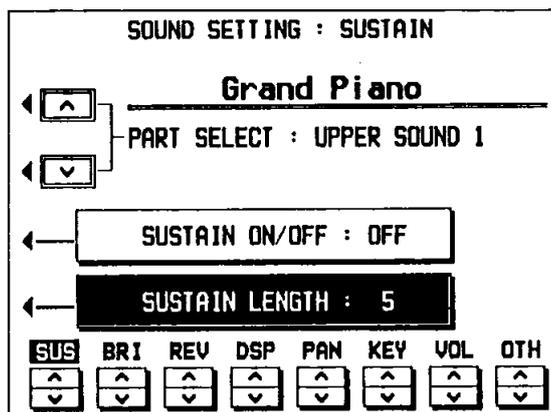
SUSTAIN ON/OFF

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.

- To adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

■ BRILLIANCE

Adjust the brilliance.

```
      SOUND SETTING: BRILLIANCE

  ◄ [ ^ ]        Grand Piano
           └ PART SELECT : UPPER SOUND 1
  ◄ [ v ]

        [ BRILLIANCE : NORMAL ]

  SUS  BRI  REV  DSP  PAN  KEY  VOL  OTH
  [^]  [^]  [^]  [^]  [^]  [^]  [^]  [^]
  [v]  [v]  [v]  [v]  [v]  [v]  [v]  [v]
```
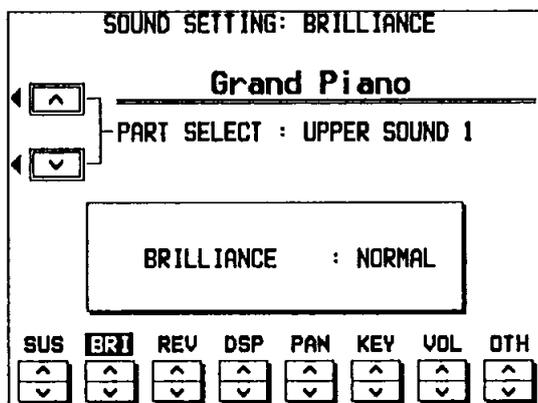
Use the BRI ∧ and ∨ buttons to select a brilliance setting.
- Select from MELLOW, NORMAL and BRIGHT.

- To adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

■ REVERB

Turn the reverb on or off.

```
      SOUND SETTING: REVERB

  ◄ [ ^ ]        Grand Piano
           └ PART SELECT : UPPER SOUND 1
  ◄ [ v ]

        [ REVERB : ON ]

  SUS  BRI  REV  DSP  PAN  KEY  VOL  OTH
  [^]  [^]  [^]  [^]  [^]  [^]  [^]  [^]
  [v]  [v]  [v]  [v]  [v]  [v]  [v]  [v]
```
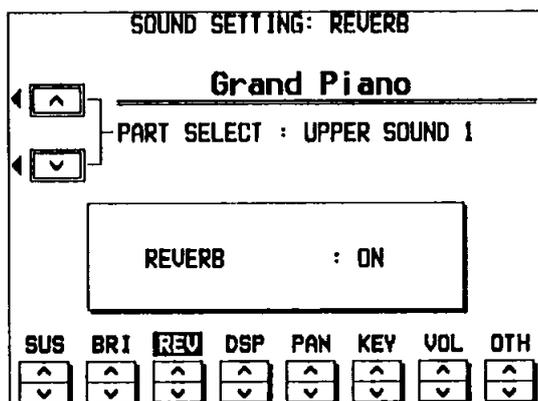
Use the REV ∧ and ∨ buttons to turn the reverb on or off for the part.
- To adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

Practical applications

■ DSP EFFECT

Turn the **DSP EFFECT** on or off.

```
      SOUND SETTING: DSP EFFECT

           Grand Piano
 ◄[ ^ ]┐
       ├PART SELECT : UPPER SOUND 1
 ◄[ v ]┘

      ┌─────────────────────────┐
      │                         │
      │   DSP EFFECT   : OFF     │
      │                         │
      └─────────────────────────┘

   SUS  BRI  REV  DSP  PAN  KEY  VOL  OTH
   [^]  [^]  [^]  [^]  [^]  [^]  [^]  [^]
   [v]  [v]  [v]  [v]  [v]  [v]  [v]  [v]
```
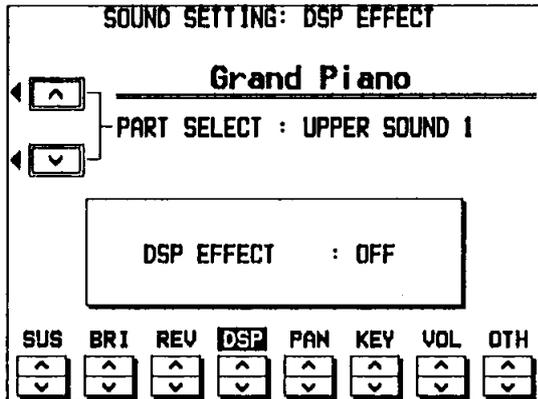
Use the DSP ∧ and ∨ buttons to turn the **DSP EFFECT** on or off for the part.
- To adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

■ PAN

Adjust the stereo balance of each part.

```
        SOUND SETTING : PAN

           Grand Piano
 ◄[ ^ ]┐
       ├PART SELECT : UPPER SOUND 1
 ◄[ v ]┘

      ┌─────────────────────────┐
      │          PAN= 96         │
      │ LEFT     CENTER    RIGHT │
      │  └─┬───┬────┬──█───┘     │
      └─────────────────────────┘

   SUS  BRI  REV  DSP  PAN  KEY  VOL  OTH
   [^]  [^]  [^]  [^]  [^]  [^]  [^]  [^]
   [v]  [v]  [v]  [v]  [v]  [v]  [v]  [v]
```
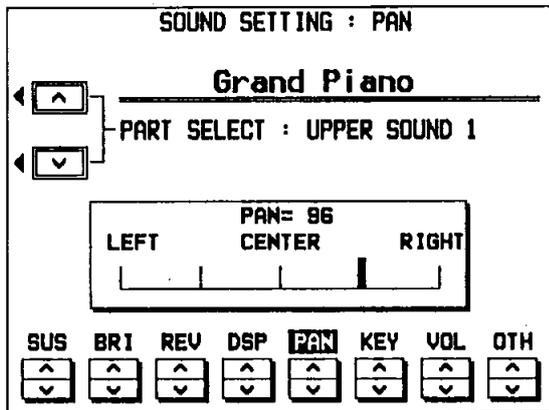
Use the PAN ∧ and ∨ buttons to adjust the stereo balance (0 to 127).
- At 0 the sound is completely to the left, at 127 completely to the right. At 64, the sound is at the centered.
- A thick vertical line on the display indicates the selected position.
- To adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

■ KEY SHIFT

The pitch of the part can be shifted up or down.

```
       SOUND SETTING : KEY SHIFT

           Grand Piano
 ◄[ ^ ]┐
       ├PART SELECT : UPPER SOUND 1
 ◄[ v ]┘

      ┌─────────────────────────┐
      │                         │
      │   KEY SHIFT    :    0    │
      │                         │
      └─────────────────────────┘

   SUS  BRI  REV  DSP  PAN  KEY  VOL  OTH
   [^]  [^]  [^]  [^]  [^]  [^]  [^]  [^]
   [v]  [v]  [v]  [v]  [v]  [v]  [v]  [v]
```
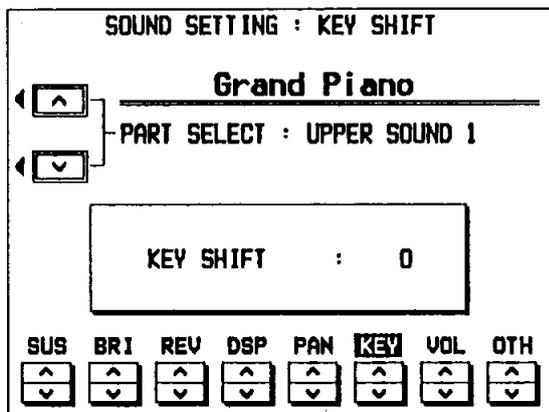
Use the KEY ∧ and ∨ buttons to specify the amount of key shift (–12 to +12).
- A value of 1 means a shift of one semitone. To raise (or lower) the pitch one octave, set the value to +12 (or –12).
- The ∧ button is used to rise the pitch, and the ∨ button to lower the pitch.
- To adjust this effect for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

■ VOLUME

Adjust the volume of each part.

```
        SOUND SETTING : VOLUME

            Grand Piano

   ┌─┐
◀ │⌃│
   └─┘ ─ PART SELECT : UPPER SOUND 1
   ┌─┐
◀ │⌄│
   └─┘

        ┌─────────────────────┐
        │                     │
        │  VOLUME      : 127  │
        │                     │
        └─────────────────────┘

  SUS  BRI  REV  DSP  PAN  KEY  VOL  OTH
  ┌⌃┐  ┌⌃┐  ┌⌃┐  ┌⌃┐  ┌⌃┐  ┌⌃┐  ┌⌃┐  ┌⌃┐
  └⌄┘  └⌄┘  └⌄┘  └⌄┘  └⌄┘  └⌄┘  └⌄┘  └⌄┘
```
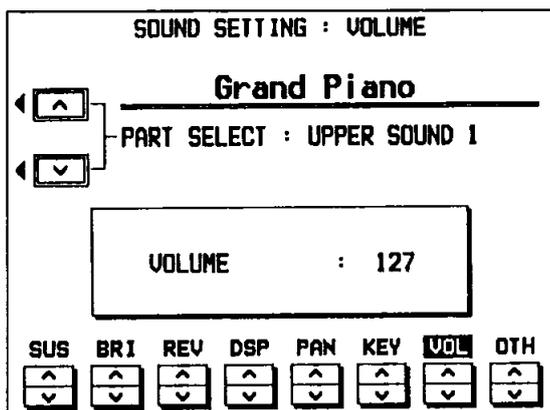
Use the VOL ∧ and ∨ buttons to adjust the volume (0 to 127).
- The ∧ button is used to increase the volume, and the ∨ button to decrease the volume.
- No sound is produced when the volume setting is 0.
- To adjust VOLUME for other parts, use the PART SELECT ∧ and ∨ buttons to select another part.

■ OTHER

Adjust the part settings for the tuning, pitch bend MIDI data reception, and the output mode.

```
        SOUND SETTING: OTHER

            Grand Piano

   ┌─┐
◀ │⌃│
   └─┘ ─ PART SELECT : UPPER SOUND 1
   ┌─┐
◀ │⌄│
   └─┘

  ┌──────────────┐  ┌──────────────────┐
  │ TUNING  :  0 │  │ ASSIGN MODE:POLY │
  └──────────────┘  └──────────────────┘
  ┌──────────────┐
  │ BEND RANGE : 2│
  └──────────────┘

  TUN  BND  ASS
  ┌⌃┐  ┌⌃┐  ┌⌃┐              ┌────────┐
  └⌄┘  └⌄┘  └⌄┘              │ RETURN │▶
                            └────────┘
```
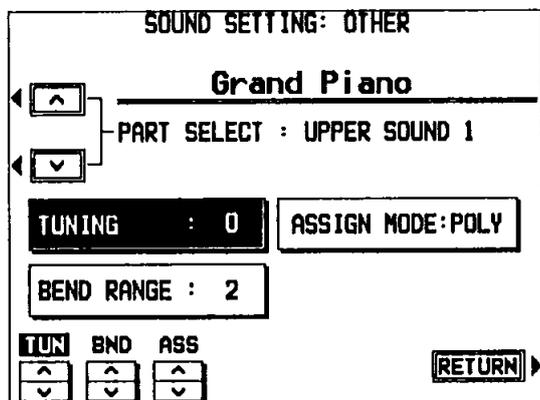
Press the OTH ∧ and ∨ buttons.

TUNING

Use the TUN ∧ and ∨ buttons to adjust the tuning (−128 to +127).

BEND RANGE

Use the BND ∧ and ∨ buttons to set the pitch range when MIDI pitch bend data is received (0 to 12).
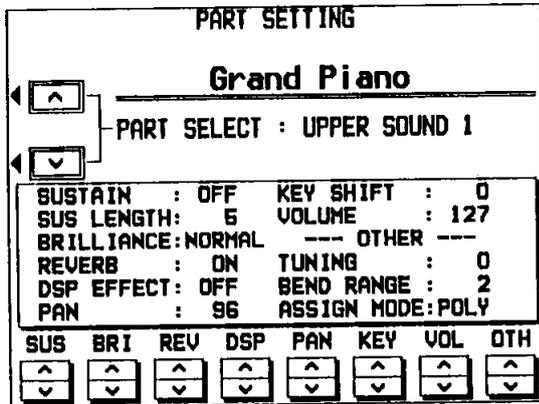- Increments are in semitones.

ASSIGN MODE

Use the ASS ∧ and ∨ buttons to select the output mode for each part (POLY, MONO or SOLO).
- SOLO cannot be selected for the BASS part.

- Press the RETURN button to return to the previous display.

Practical applications

REVERB SETTING (GA1)

Select the type and depth of the **DIGITAL REVERB**.

1. On the **SOUND** menu display, select REVERB.
• The display looks similar to the following.

```
        REVERB SETTING
 ◄ REVERB TYPE :  HALL 1    [▲]►
                           TYPE
 ◄ REVERB DEPTH:  5         [▼]►
```
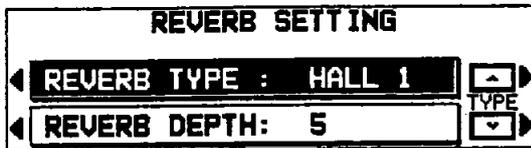
2. Select REVERB TYPE.

3. Use the TYPE ∧ and ∨ buttons to select the type of reverb.

4. Select REVERB DEPTH.

5. Use the DEPTH ∧ and ∨ buttons to adjust the depth of the reverb (1 to 10).

> You can also access this display by pressing and holding the **DIGITAL REVERB** button for a few seconds.
> • In this case, you can press the **EXIT** button to return to the previous display.

REVERB SETTING (GA3)

Select the type and depth of the **DIGITAL REVERB**.

1. On the **SOUND** menu display, select REVERB SETTING.
• The display looks similar to the following.

```
              REVERB SETTING
   ORGAN REVERB        TYPE LIST
 ◄[TYPE :  HALL 1 ]    ROOM 1
                       ROOM 2
 ◄[DEPTH:  5     ]     HALL 1   [▲]►
                       HALL 2   TYPE
 ◄[[REVERB ORDER]]     HALL 3   [▼]►
                       CATHEDRAL
   ORCHESTRAL REVERB   ECHO 1
 ◄[TYPE :  HALL 1 ]    ECHO 2
                       ECHO 3
 ◄[DEPTH:  5     ]     ECHO 4
```
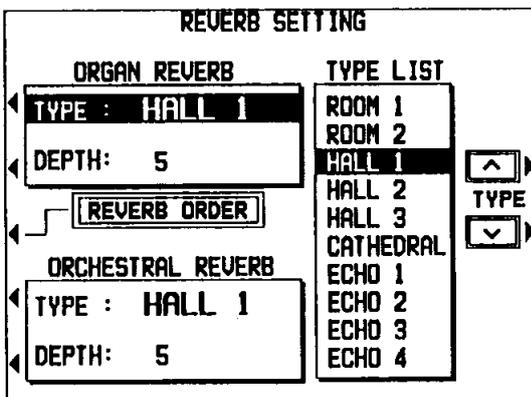
2. Select the item to adjust.

■ ORGAN part reverb setting
Adjust the reverb settings for the **ORGAN** part sounds. You can also specify the order in which reverb and other effects are applied to the sound.

(1) In the ORGAN REVERB box, select TYPE.

(2) Use the TYPE ∧ and ∨ buttons to select the type of reverb.

(3) In the ORGAN REVERB box, select DEPTH.

(4) Use the DEPTH ∧ and ∨ buttons to adjust the depth of the reverb (1 to 10).

■ REVERB ORDER
The order in which reverb is applied to the sound can be changed.

(1) Select REVERB ORDER.
• The display changes.

(2) Select the desired reverb order.

NORMAL: Sound → other effects → reverb

SPECIAL: Sound → reverb → tremolo

• When SPECIAL is selected, the organ reverb does not work unless the **TREMOLO** is on.
• When the power to this instrument is turned on, this setting is always set to NORMAL.

■ Other part reverb setting
Adjust the reverb setting for parts other than the **ORGAN** part, such as **SOUND GROUP** and **BASS PEDALS**, and the rhythm sounds.

(1) In the ORCHESTRAL REVERB box, select TYPE.

(2) Use the TYPE ∧ and ∨ buttons to select the type of reverb.
• Select from the TYPE LIST on the display.

(3) In the ORCHESTRAL REVERB box, select DEPTH.

(4) Use the DEPTH ∧ and ∨ buttons to adjust the depth of the reverb (1 to 10).

> You can also access this display by pressing and holding the **DIGITAL REVERB** button for a few seconds.
> • In this case, you can press the **EXIT** button to return to the previous display.

TREMOLO

Tremolo is a rapid oscillation in volume, producing the effect of a rotating speaker. The type of tremolo and how it is applied can be adjusted.

1. On the **SOUND** menu display, select TREMOLO SPEED (GA1), or TREMOLO SETTING (GA3).
   - The display changes to the following.

[GA1]

```
TREMOLO TYPE: STANDARD TREMOLO
◄ TREBLE SPEED(FAST): 57    ▲ ►
◄ BASS    SPEED(FAST): 57   TYPE
◄ DISTORTION DEPTH  :  0     ▼ ►
              ▼PARAMETER   ▼VALUE
```

[GA3]

```
        TREMOLO SPEED SETTING


   TYPE: STANDARD TREMOLO

              ┌(FAST): 57      ▲ ►
   TREBLE     └(SLOW): 12      TYPE
                               ▼ ►
              ┌(FAST): 57
   BASS       └(SLOW): 12

   —TREBLE—      —BASS—
   FAST SLOW    FAST SLOW      MORE ►
   ▲   ▲         ▲    ▲
   ▼   ▼         ▼    ▼
```
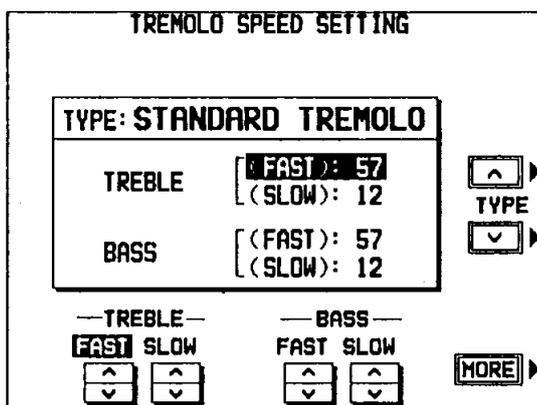
2. Use the TYPE ∧ and ∨ buttons to select the type of speaker (STANDARD TREMOLO, THEATRE TREMOLO, U.S. TRAD TREMOLO, EUROPEAN TREMOLO, JAZZ ROTOR, STANDARD ROTOR, THEATRE ROTOR, ROCK ROTOR, TREMULANT 1, 2).
   - ROTOR refers to the number of rotating units in a rotary speaker.

3. Modify the parameters (explained below).

GA1: Use the buttons to the left of the display to select the item, the PARAMETER ∧ and ∨ buttons to select the parameter, and the VALUE ∧ and ∨ buttons to change the value.

GA3: Use the buttons below the display to change the value for the respective parameter.
   - Press the MORE button to display other parameters.

> You can also access this display by pressing and holding the **TREMOLO** button for a few seconds.
> - In this case, you can press the **EXIT** button to return to the previous display.

■ **Parameters**

STANDARD TREMOLO, THEATRE TREMOLO, U.S. TRAD TREMOLO, EUROPEAN TREMOLO
Like a single-rotor-type speaker.

TREBLE/BASS (FAST)
The speed when the rotor is turning fast.

TREBLE/BASS (SLOW)
The speed when the rotor is turning slowly.

TREBLE/BASS WIND UP
The time it takes to reach the (TREBLE/BASS) FAST speed when the speed is changed from slow to fast.

TREBLE/BASS WIND DOWN
The time it takes to reach the (TREBLE/BASS) SLOW speed when the speed is changed from fast to slow.

DISTORTION
Amount of distortion applied to the sound.

JAZZ ROTOR, STANDARD ROTOR, THEATRE ROTOR, ROCK ROTOR
Like a double-rotor-type speaker.

TREBLE (FAST)
The speed when the treble rotor is turning fast.

TREBLE (SLOW)
The speed when the treble rotor is turning slowly.

BASS (FAST)
The speed when the bass rotor is turning fast.

BASS (SLOW)
The speed when the bass rotor is turning slowly.

TREBLE (WIND UP)
The time it takes for the treble rotor to reach the TREBLE (FAST) speed when the speed is changed from slow to fast.

TREBLE (WIND DOWN)
The time it takes for the treble rotor to reach the TREBLE (SLOW) speed when the speed is changed from fast to slow.

Practical applications

BASS (WIND UP)
The time it takes for the bass rotor to reach the BASS (FAST) speed when the speed is changed from slow to fast.

BASS (WIND DOWN)
The time it take for the bass rotor to reach the BASS (SLOW) speed when the speed is changed from fast to slow.

DISTORTION
Amount of distortion applied to the sound.

TREMULANT 1, 2
This is a distinctive vibrating effect, peculiar to pipe organs, of air flowing through the pipes.

SPEED 1
Speed of effect applied to tab sounds.

SPEED 2
Speed of effect applied to EXTRA TAB VOICES.

DEPTH 1
Depth of effect applied to tab sounds.

DEPTH 2
Depth of effect applied to EXTRA TAB VOICES.

MASTER TUNING

This setting is used to fine-tune the pitch of the entire instrument. This is convenient when playing 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 TUNE (GA1), or MASTER TUNING (GA3).
 • The display changes to the following.

   [GA1]

   ```
   ┌──────────────────────────────────┐
   │          MASTER TUNING           │
   │◄│MASTER TUNING:  440.0 Hz│    ┌─┐ │
   │                              │▲│►│
   │ TUNING TYPE   :              └─┘ │
   │◄        EQUAL TEMPERAMENT    │▼│►│
   └──────────────────────────────────┘
   ```

   [GA3]

   ```
   ┌──────────────────────────────────┐
   │           MASTER TUNING          │
   │                                  │
   │                                  │
   │  MASTER TUNING                   │
   │◄                             ┌─┐ │
   │    TUNE :440.0 Hz            │▲│►│
   │                              └─┘ │
   │                              ┌─┐ │
   │  TUNING TYPE                 │▼│►│
   │◄ EQUAL TEMPERAMENT           └─┘ │
   │  PIANO TUNING                    │
   │                                  │
   └──────────────────────────────────┘
   ```
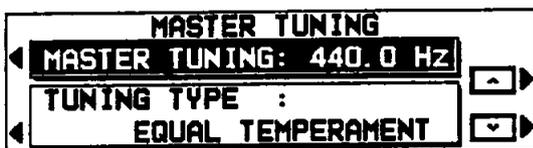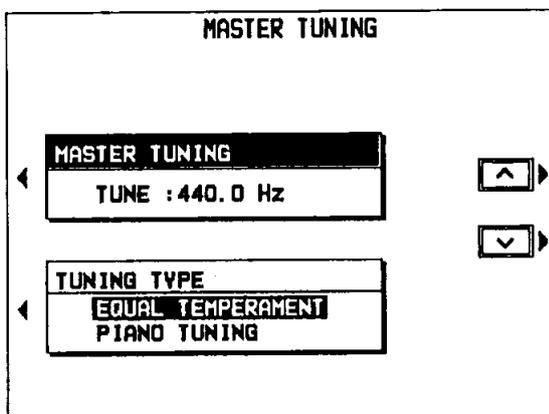
2. Select MASTER TUNING.

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 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.

Practical applications

TECHNI-CHORD TYPE

Select the desired harmony style for the **TECH-NI-CHORD**.

1. On the **SOUND** menu display, select TECHNI-CHORD.
* The display changes to the following.

[GA1]

```
TECHNI-CHORD TYPE SELECT

┌─────────────────────┐   ┌─┐
│      CLOSE          │   │▲│▶
└─────────────────────┘   TYPE
                          │▼│▶
                          └─┘
```

[GA3]

```
       TECHNI-CHORD TYPE

┌──────────────────────────┐
│ CLOSE      BLOCK          │   ┌─┐
│ OPEN 1     BIG BAND BRASS │   │▲│▶
│ OPEN 2     BIG BAND REEDS │   └─┘
│ DUET       OCTAVE         │   ┌─┐
│ COUNTRY    HARD ROCK      │   │▼│▶
│ THEATRE    FANFARE        │   └─┘
│ HYMN                      │
└──────────────────────────┘
```
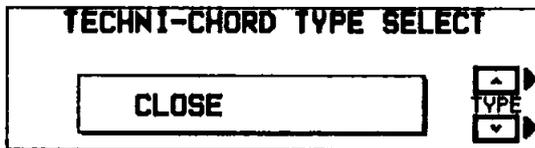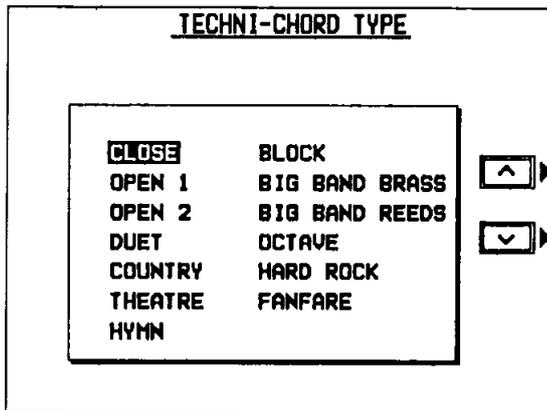
2. Use the ∧ and ∨ buttons to select the harmony style.
* When the OCTAVE, HARD ROCK or FAN-FARE style is selected, the **TECHNI-CHORD** is always active for the upper keyboard.
* For a detailed explanation of the different harmony styles, refer to the separate "REFER-ENCE GUIDE" provided.

You can also access this display by pressing and holding the **TECHNI-CHORD** button for a few seconds.
* In this case, you can press the **EXIT** button to return to the previous display.

Practical applications

GLIDE SETTING

Adjust the pitch range of the glide effect, and specify whether the glide effect works for the lower keyboard.

1. On the **SOUND** menu display, select GLIDE RANGE (GA1), or GLIDE SETTING (GA3).
 - The display changes to the following.

[GA1]

```
         GLIDE SETTING
◄ GLIDE RANGE:SEMI-TONE    [▲]►
◄ LOWER KEYBOAD:DISABLE     [▼]►
```

[GA3]

```
         GLIDE SETTING


◄ GLIDE RANGE    : SEMI-TONE

                              [▲]►


◄ LOWER KEYBOARD : DISABLE    [▼]►
```
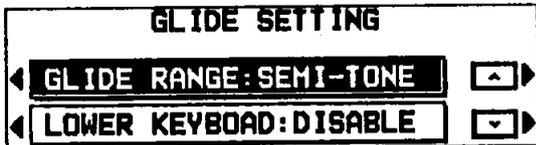
2. Select GLIDE RANGE.

3. Use the ∧ and ∨ buttons to change the setting.

 WHOLE TONE
 The pitch changes by as much as a whole tone.

 SEMI-TONE
 The pitch changes by as much as a semitone.

4. Select LOWER KEYBOARD.

5. Use the ∧ and ∨ buttons to enable or disable the glide effect for the lower keyboard.

 DISABLE
 The glide effect does not work for the lower keyboard.

 ENABLE
 The glide effect works for the lower keyboard.

DSP EFFECT (GA3)

Select the type of **DSP EFFECT**, and adjust the depth of the effect.

1. On the **SOUND** menu display, select DSP EFFECT.
 - The display changes to the following.

```
            DSP EFFECT

      TYPE :FLANGER
      DEPTH1        :  11
      DEPTH2        :  11
      SPEED         :  10      [▲]►
      RESONANCE     : +20    TYPE
      MANUAL        :  20
      PHASE         :  30      [▼]►
      OUTPUT LEVEL  :  70
      REVERB DEPTH  :  20

  DEP1 DEP2 SPD RESO MANU PHS LVL REV
  [▲] [▲] [▲] [▲] [▲] [▲] [▲] [▲]
  [▼] [▼] [▼] [▼] [▼] [▼] [▼] [▼]
```
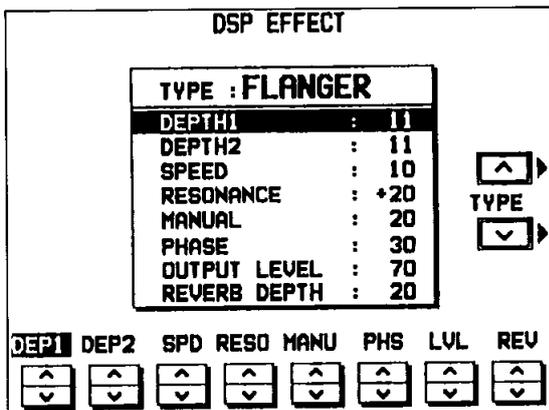
2. Use the TYPE ∧ and ∨ buttons to select the type of effect (CHORUS, FLANGER, PHASER, DISTORTION, OVER DRIVE, EXCITER, DELAY 1, 2).

3. Use the buttons below the display to change the parameters of the selected type (explained below).
 - When a type of effect is selected, the parameters automatically revert to the factory-preset settings.

> You can also access this display by pressing and holding the **DSP EFFECT** button for a few seconds.
> - In this case, you can press the **EXIT** button to return to the previous display.

■ Parameters

CHORUS
A natural fullness and richness is achieved by adding a sound of a slightly different pitch to the original sound.

DEPTH
Depth of the modulation.

SPEED
Velocity of the modulation.

OUTPUT LEVEL
Volume of the part to which the effect is applied.

REVERB DEPTH
Output to the reverb.

FLANGER
An undulation is added, giving an intensity to sounds having many overtones (harmonics).

DEPTH 1, 2
Depth of the modulation.

SPEED
Velocity of the modulation.

RESONANCE
Feedback volume (inverted when a minus value).

MANUAL
Center frequency to which the effect is applied.

PHASE
Phase difference between left and right modulation.

OUTPUT LEVEL
Volume of the part to which the effect is applied.

REVERB DEPTH
Output to the reverb.

PHASER
A more distinct undulation effect than FLANGER. Ideal for electric piano type sounds.

DEPTH
Depth of the modulation.

SPEED
Velocity of the modulation.

RESONANCE
Feedback volume (inverted when a minus value).

MANUAL
Center frequency to which the effect is applied.

OUTPUT LEVEL
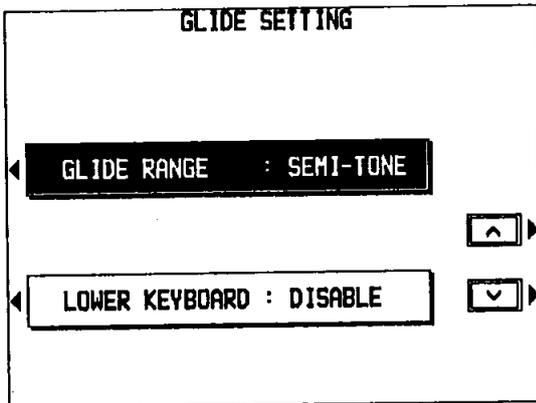Volume of the part to which the effect is applied.

REVERB DEPTH
Output to the reverb.

DISTORTION
The sound is very distorted. A powerful effect when applied to a sound which is played solo.

DRIVE
Degree of distortion.

OUTPUT LEVEL
Volume of the part to which the effect is applied.

REVERB DEPTH
Output to the reverb.

OVER DRIVE
A more natural distortion than the above effect, similar to that achieved with a vacuum tube amplifier.

DRIVE
Degree of distortion.

OUTPUT LEVEL
Volume of the part to which the effect is applied.

REVERB DEPTH
Output to the reverb.

EXCITER
Modulation gives a clear outline to the sound.

DRIVE
Degree of distortion.

BOOST LEVEL
Volume emphasis in the upper pitch range.

OUTPUT LEVEL
Volume of the part to which the effect is applied.

REVERB DEPTH
Output to the reverb.

DELAY 1
An echo effect, in which the original sound is repeated after a delay.

DELAY R
Time difference between original sound and the repeat (ms).

DELAY L
Delay time for the L (left) channel (ms).

FEEDBACK R
Feedback volume (inverted when a minus value).

FEEDBACK L
Left feedback volume (inverted when a minus value).

OUTPUT LEVEL
Volume of the part to which the effect is applied.

REVERB DEPTH
Output to the reverb.

Practical applications

DELAY 2
A shorter-type delay than DELAY 1 type.

DELAY R1, 2
Delay time for the R (right) channel (ms).

DELAY L1, 2
Delay time for the L (left) channel (ms).

FEEDBACK R
Right feedback volume (inverted when a minus value).

FEEDBACK L
Left feedback volume (inverted when a minus value).

OUTPUT LEVEL
Volume of the part to which the effect is applied.

REVERB DEPTH
Output to the reverb.

ORGAN EFFECT (GA3)

Select the type of EFFECT for the **ORGAN** part.

1. On the **SOUND** menu, select ORGAN EF-
   FECT.
- The display changes to the following.

```
ORGAN EFFECT TYPE


    For U&L ORGAN SOUND


◄  CHORUS

◄  CELESTE

◄  PHASER

◄  FLANGER
```
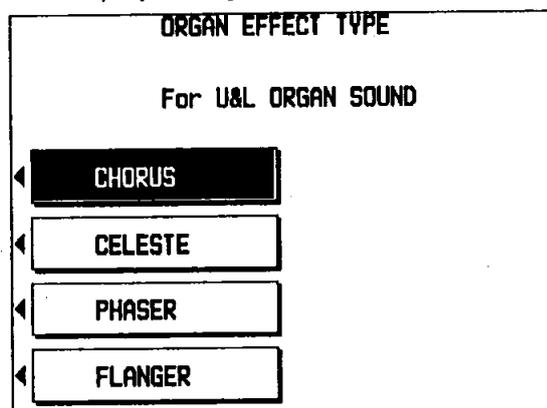
2. Use the buttons to the left of the display to
   select the type of effect.
- You can also access this display by pressing
  and holding the **EFFECT** button for a few
  seconds.

Part VII Adjusting the functions

Various functions on your instrument can be custom-set to match your personal tastes and style of play, giving you maximum versatility and control of your instrument.

Outline of procedure
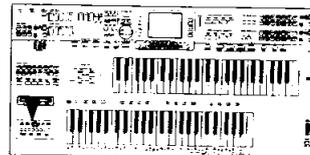
TOUCH

Specify whether the touch response function works for this instrument. You can also turn touch response on or off for each keyboard, and for each part.

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

○
TOUCH

- The display looks similar to the following.

[GA1]

```
INITIAL TOUCH SENSITIVITY    MORE

TOTAL TOUCH CONTROL: ON    [∧]▶
                           [∨]▶
```

[GA3]

```
INITIAL TOUCH SENSITIVITY

TOTAL TOUCH CONTROL :ON    [∧]▶

◀ UPPER KEYBOARD :   5      [∨]▶

◀ LOWER KEYBOARD :   5

◀ PEDAL KEYBOARD :  OFF

◀ PART SETTING              [∧]
                            [∨]
```
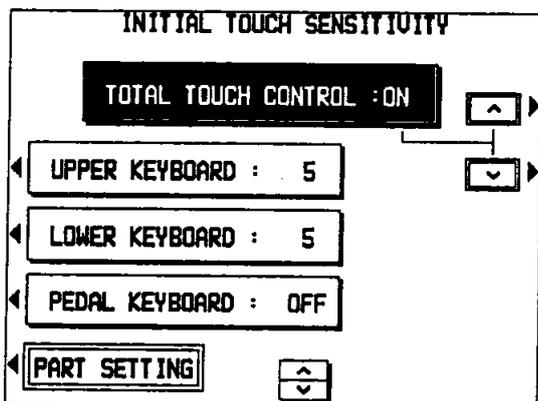
2. Set TOTAL TOUCH CONTROL to on or off.

3. Adjust the settings for each keyboard and part. (Refer to page 136.)
- GA1: Press the **MORE/RETURN** button to adjust the functions.

4. When you have finished adjusting the functions, press the **TOUCH** button to turn it off.

CONTROL

Make various settings related to the operation of your instrument.

1. Press the **MEM & CTRL** button to turn it on.

○
MEM & CTRL
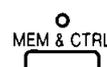
- The following menu display appears.

[GA1]

```
    MEMORY & CONTROL
◀ INITIAL        P. MEM. MODE ▶
◀ SWITCH ASSIGN  M. S. A. MODE ▶
◀ POWER-ON MODE
```

[GA3]

```
    MEMORY & CONTROL

◀ INITIAL SETTING    PANEL MEM. MODE ▶

◀ SWITCH ASSIGN      M. S. A.  MODE ▶

◀ POWER-ON MODE      OUTPUT SETTING ▶
```
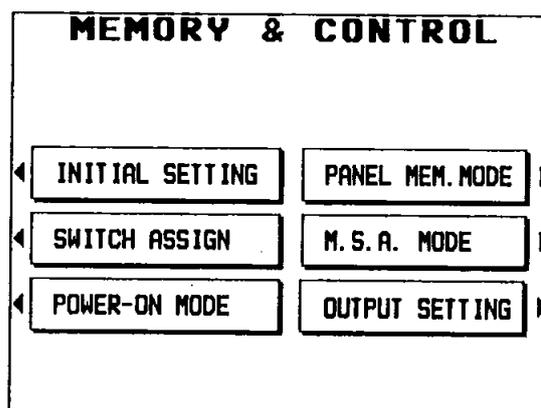
SWITCH ASSIGN (page 138)
Assign the desired functions to the foot switches, knee lever and full bass pedal.

POWER-ON MODE (page 139)
Specify the sound settings which are in effect when the power to this instrument is turned on.

OUTPUT SETTING (GA3) (page 140)
Specify whether the **ORGAN, BASS** and **DRUMS** part sounds are output separately.

Practical applications

• Information regarding the following settings can be found on the pages indicated.

2. Select the desired menu and follow the procedures on the corresponding setting display.
• Press the **EXIT** button to go back to the previous display. To go to another menu, use the **EXIT** button to go back to the menu 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 **MEM & CTRL** button again to turn it off.

Touch functions

Select the item and perform the setting procedures.

INITIAL TOUCH SENSITIVITY

Adjust the degree of touch response for the upper keyboard, the lower keyboard and the pedal keyboard.

1. Press the **TOUCH** button to turn it on.
• The display looks similar to the following.

[GA1]

```
INITIAL TOUCH SENSITIVITY   MORE

TOTAL TOUCH CONTROL: ON    [∧]▶
                           [∨]▶
```

Press the **MORE/RETURN** button to show the following display.

```
INITIAL TOUCH SENSITIVITY   MORE
◀ UPPER KEYBOARD : 5 ▶
◀ LOWER KEYBOARD : 5      [∧]▶
◀ PEDAL KEYBOARD :OFF     [∨]▶
```

[GA3]

```
INITIAL TOUCH SENSITIVITY

TOTAL TOUCH CONTROL :ON    [∧]▶

◀ UPPER KEYBOARD :   5     [∨]▶

◀ LOWER KEYBOARD :   5

◀ PEDAL KEYBOARD :   OFF

◀ PART SETTING            [↕]
```
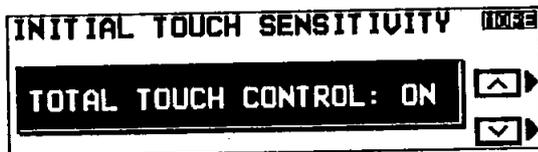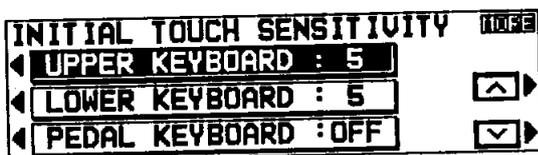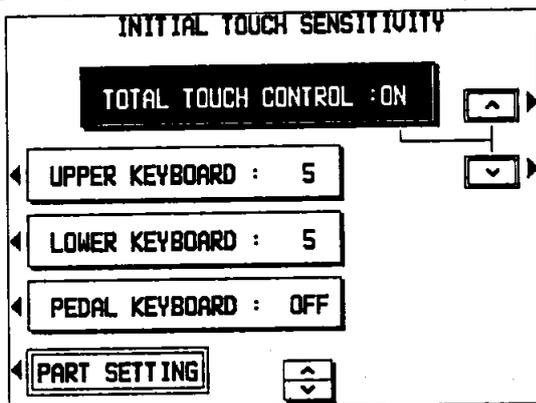
2. Use the TOTAL TOUCH CONTROL ∧ and ∨ buttons to enable or disable the touch function.

ON: Use the touch function.
OFF: Do not use the function.

3. If ON was selected in step 2, select the keyboard (UPPER, LOWER or PEDAL).

4. Use the ∧ and ∨ buttons (GA1), or the SENSITIVITY ∧ and ∨ buttons (GA3), to adjust the degree of touch sensitivity.
• Select from OFF, 1 to 9. The higher the number, the greater the change in volume corresponding to how hard or softly the keyboard is played. When set to OFF, the volume is the same no matter how hard or softly the keyboard is played.

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

■ **TOUCH SENSE PART SETTING**
Specify for each part whether the touch sensitivity setting is effective.

1. On the INITIAL TOUCH SENSITIVITY display, press the **MORE/RETURN** (GA1) or PART SETTING (GA3) button to show the following display.
[GA1]

```
TOUCH SENSE PART SETTING [RETURN]
◀ UPPER   SOUND 1 : ON
◀ LOWER   SOUND 1 : ON
           PART      ON/OFF
```

[GA3]

```
       TOUCH SENSE PART SETTING


        PART     INITIAL   AFTER
◀ UPPER  SOUND 1 :  ON   :  ON

◀ LOWER  SOUND 1 :  ON   :  ON


        PART     INITIAL   AFTER
        [∧/∨]    [∧/∨]    [∧/∨]
```
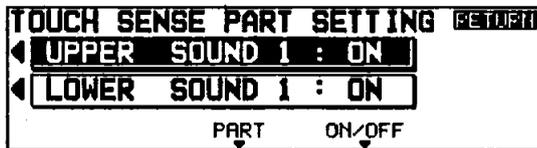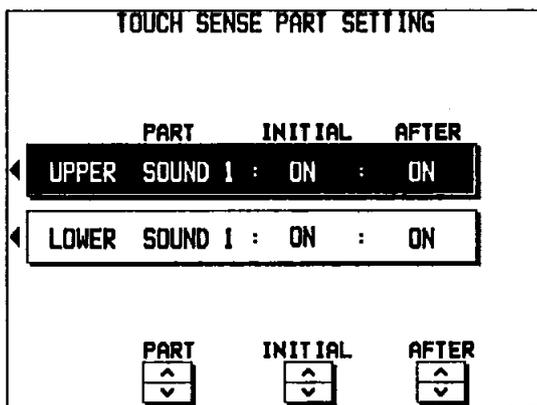
2. Select the keyboard of the part (UPPER or LOWER).

3. Use the PART buttons to select the part (ORGAN, SOUND 1, 2 or 3).

4. Use the ON/OFF (GA1), or INITIAL (GA3), buttons to set the touch sensitivity to ON or OFF for the part.
- GA3: You can use the AFTER ∧ and ∨ buttons to set the AFTER TOUCH effect to ON or OFF for the part.
- The AFTER TOUCH applies a special effect to the sound depending on how hard the keys are pressed. You can select which effect is applied when the AFTER TOUCH is on. (Refer to page 156.)

Practical applications

Control functions

Select the item and perform the setting procedures.

SWITCH ASSIGN

You can assign different functions to the foot switches, knee lever and full bass pedal.

1. On the **MEM & CTRL** menu display, select SWITCH ASSIGN.
* The display looks similar to the following.

[GA1]

```
         SWITCH ASSIGN
◄ KNEE LEVER    :SUSTAIN
◄ FOOT SWITCH   :GLIDE        [^]►
◄ FULL BASS PDL:BAS TO LWR    [v]►
```

[GA3]

```
              SWITCH ASSIGN

◄ KNEE LEVER          :SUSTAIN

◄ FOOT SWITCH RIGHT:FILL IN 1

◄ FOOT SWITCH LEFT  :GLIDE        [^]►

◄ FULL BASS PEDAL   :BASS TO LWR  [v]►
```
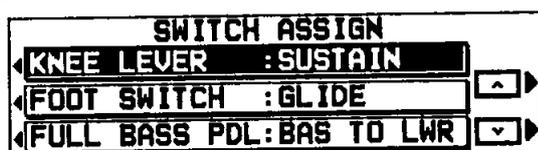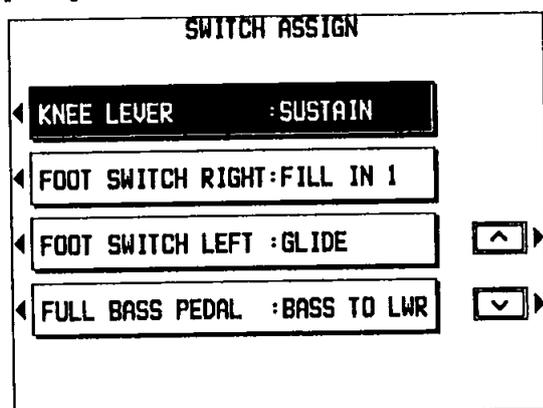
2. Select the switch to which you will assign a new function.

GA1: Select KNEE LEVER, FOOT SWITCH or FULL BASS PDL.

GA3: Select KNEE LEVER, FOOT SWITCH RIGHT, FOOT SWITCH LEFT or FULL BASS PEDAL.

3. Use the ∧ and ∨ buttons to select the desired function for the switch.

■ **Functions which can be assigned to the knee lever and foot switches**

P.MEMORY 1 to 8 (GA1)
Turns on a specific **PANEL MEMORY** button (1 to 8).

P.MEMORY 1 to 16 (GA3)
Turns on a specific **PANEL MEMORY** button (1 to 16).

PANEL MEMORY INC
Turns on the next higher **PANEL MEMORY** button.

START/STOP
Turns the **START/STOP** button on/off.

VARIATION
Turns the **VARIATION** button on/off.

FILL IN 1, 2
Turns the **FILL IN 1** or **2** button on/off.

ENDING
Turns the **INTRO & ENDING** button on/off.

SUSTAIN
Turns the sustain effect on/off.

TREMOLO
Turns the **TREMOLO SLOW/FAST** button on/off.

GLIDE
Turns the **GLIDE** effect on/off.

TECH-CHORD
Turns the **TECHNI-CHORD** button on/off.

PUNCH
Switches the PUNCH IN/PUNCH OUT mode.

■ **Functions which can be assigned to the full bass pedal**

APC
Turns **AUTO PLAY CHORD** on/off.

APC MEMORY
Turn the A.P.C. memory on/off.

BASS TO LWR
Turns the **TO LOWER** button on/off.

BASS SOLO
Only the **BASS** sound is produced when the lower keyboard is played with the **TO LOWER** button on.

■ **The factory-preset switch assignment is as follows:**

[GA1]
KNEE LEVER:	SUSTAIN
FOOT SWITCH:	GLIDE
FULL BASS PEDAL:	BASS TO LWR

[GA3]
KNEE LEVER:	SUSTAIN
FOOT SWITCH RIGHT:	FILL IN 1
FOOT SWITCH LEFT:	GLIDE
FULL BASS PEDAL:	BASS TO LWR

4. Repeat steps 2 and 3 for the other switches as desired.

POWER ON MODE

Specify the sounds which are in effect for the upper and lower keyboards when the power to this instrument is turned on.

1. On the **MEM & CTRL** menu display, select POWER-ON MODE.
- The display looks similar to the following.

[GA1]

```
┌─────────────────────────────────┐
│        POWER-ON MODE            │
├─────────────────────────────────┤
│◀│ NORMAL : Start with ORGAN sound│
│◀│ BACK UP: Start with LAST settIng│
└─────────────────────────────────┘
```

[GA3]

```
┌─────────────────────────────────────┐
│           POWER-ON MODE             │
│                                     │
│   ┌─────────────────────────────┐   │
│ ◀ │ NORMAL                      │   │
│   │    Start with ORGAN sound   │   │
│   └─────────────────────────────┘   │
│                                     │
│   ┌─────────────────────────────┐   │
│ ◀ │ BACK  UP                    │   │
│   │    Start with LAST setting  │   │
│   └─────────────────────────────┘   │
│                                     │
└─────────────────────────────────────┘
```
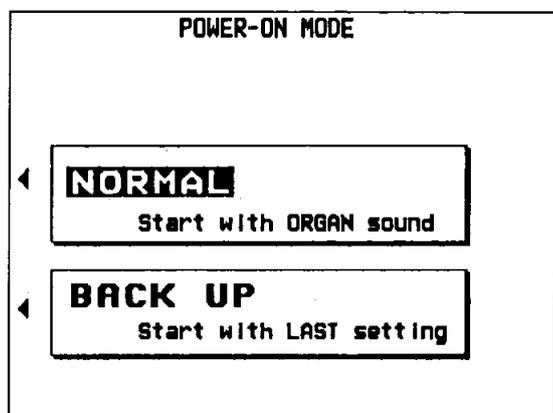
2. Select the mode.

NORMAL: When the power to this instrument is turned on, ORGAN sounds are selected (factory-preset setting).

BACK UP: The sounds which were in effect when you last turned off this instrument are selected.

Practical applications

OUTPUT SETTING (GA3)

The output settings for the **ORGAN** part, the **BASS** part and the **DRUMS** part can be adjusted.

1. On the **MEM & CTRL** menu display, select OUTPUT SETTING.
- The display looks similar to the following.

PART	EXP. PEDAL FOR SEP. OUT	SIGNAL TO	
		LINE OUT TERMINAL	INTERNAL SPEAKER
U/L ORGAN	ON	ON	ON
DRUMS	ON	ON	
BASS	ON	ON	

PART   EXP. PEDAL   LINE OUT   INT. SP.

2. Use the PART ∧ and ∨ buttons to select the part (U/L ORGAN, DRUMS or BASS).

3. Use the EXP. PEDAL ∧ and ∨ buttons to specify whether the expression pedal operation is effective for the sounds output from the **SEPARATED LINE OUT** terminals.

ON: The sounds output from the **SEPARATED LINE OUT** terminals are affected by the expression pedal operation.

OFF: The sounds are not affected.

4. Use the LINE OUT ∧ and ∨ buttons to select the output mode for the part.

ON: The signals are output from the **LINE OUT** terminals.

OFF: The signals are not output from the **LINE OUT** terminals.

5. Use the INT.SP ∧ and ∨ buttons to specify whether the sound of the part is output from this instrument's speakers.

ON: The sound of the part is output from this instrument's speakers.

OFF: The sound of the part is not output from this instrument's speakers.

- When the power to this instrument is turned on, this setting is automatically switched to ON for all parts.

6. Repeat steps 2 to 5 for each part as desired.

- For detailed information concerning the output terminals, refer to page 182.

Part VIII   Creating sounds: GA1

Outline of the Sound Edit
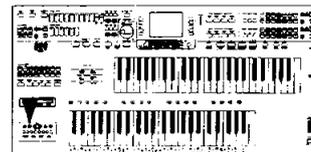
SOUND EDIT enables you to create your own new sound by altering one of the preset sounds. Your new sound can be stored in one of the sound memory locations. **SOUND EDIT** has two methods of use. You can edit in detail using functions more commonly associated with a synthesizer, or you can use EASY EDIT which allows you to change some basic parameters on just two display pages.

Outline of procedure

1. Select a preset sound on which to build your new sound.
   - Select sounds from the **UPPER SOUND GROUP**, **LOWER SOUND GROUP** or **BASS PEDALS**.
   - The **ORGAN** or **CLASSICAL ORGAN** sound cannot be selected from the **BASS PEDALS** group.

2. Press the **SOUND EDIT** button to turn it on.

```
        O
    SOUND EDIT
    ⌐_____⌐
```

- The indicator for the sound button you selected in step 1 flashes.
- The display changes to the following.

```
  SOUND EDIT    EDIT GROUP:[ UPPER ]
◄[ EASY EDIT ]  [ GENERAL EDIT ]►
                [ TONE EDIT    ]►
◄[ WRITE ]      [ EFFECT EDIT  ]►
```
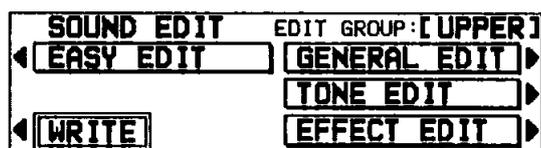
EASY EDIT (page 142)
The most often used edit functions—such as brightness and attack speed—are assembled on two displays for easy sound modification.

GENERAL EDIT (page 143)
Editing functions which apply to the entire sound.

OCTAVE SHIFT
Place the sound in the optimum octave range.

VIBRATO
Set the vibrato effect for the sound.

AUTOBEND & TRILL
Adjust the pitch change during the attack.

TONE EDIT (page 145)
Modify the tones which make up the sound.

TONE
Set the sound of each tone.

VOLUME & PITCH
Adjust the volume and pitch of each tone.

ENVELOPE
Adjust the change in volume over time for each tone.

FILTER
Adjust the amount of frequency cut in specific frequency ranges.

EFFECT EDIT (page 147)
Select the type and degree of **DIGITAL EFFECT** for the sound.

3. Select the desired menu and follow the procedures on the corresponding setting display.

<Example: EFFECT EDIT>

```
           EFFECT EDIT
◄[ORIGNL] TYPE: CELESTE1      [WRITE]►
◄[ON]     DEPTH:15   DETUNE:+10   [▲]►
          SPEED:25   DELAY : 0   TYPE
◄[STEREO]  DEP  SPD  DTN  DLY     [▼]►
```

- Press the EDITED (or ORIGNL) button to switch between the modified sound (EDITED) and the original sound (ORIGNL). This allows you to compare the edited sound to the original sound as you are modifying it. Play the keyboard for the part you selected in step 1 to confirm the sound.
- 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 EDIT** 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.

4. When the sound is just the way you like it, press the WRITE button to store your new sound. (Refer to page 148.)
   - The WRITE button appears on all the editing displays and may be pressed whenever you wish to store the new sound.

141

- While editing a sound, if you change to a different sound, a confirmation display appears. Press the YES button if you wish to change the sound, or press the NO button if you wish to cancel the change. (Only a sound for the part you selected in step 1 can be edited.)

- While editing a sound, the **ORCHESTRAL CONDUCTOR** and part buttons (**1**, **2** and **3**) do not work.

Easy Edit

The most commonly used edit functions are consolidated on two displays, providing convenient and quick editing operation.

1. On the **SOUND EDIT** menu display, select EASY EDIT.
- The display changes to the following.

```
           EASY EDIT
◄ VIB DEPTH:OFF BRILLIANCE:
◄ VIB SPEED:   0          0
◄ VIB DELAY:   0  VALUE  WRITE ►
```

Press the **MORE/RETURN** button to view the next section of the menu.

```
           EASY EDIT        RETURN
◄ ATTACK   :  0 DIGI.EFFECT:
◄ RELEASE  :  0      OFF
◄ OCT.SHFT:   0  VALUE  WRITE ►
```
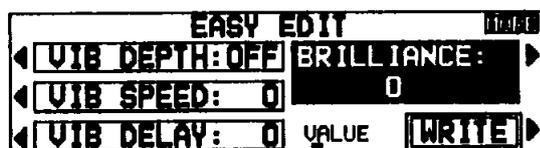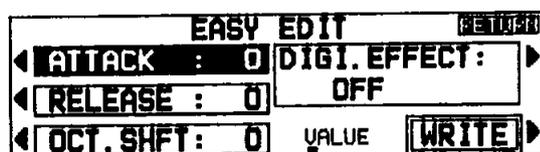
2. Select a sound attribute to modify.

VIB DEPTH
Set vibrato depth.

VIB SPEED
Set vibrato speed.

VIB DELAY
Set time delay between key played and vibrato start.

BRILLIANCE
Adjust the brightness of the sound.

ATTACK
Adjust attack time.

RELEASE
Adjust time of sound fade-out after key is released.

OCT.SHFT
Shift the octave range.

DIGI.EFFECT
Select type of effect.

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 147).
- An effect may remain unchanged when EASY EDIT is used to set the value, if GENERAL EDIT or TONE EDIT was first used to set the value to its upper or lower limit. For example, when changing the OCTAVE SHIFT value of the "Piano" sound, the octave can be shifted only two octaves up (+2) or one octave down (−1). Even if you set the OCTAVE SHIFT value to −2, the octave will shift down by only one octave.

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 148.
- 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.

General Edit

These editing functions pertain to the entire sound.

Selecting attributes

1. On the **SOUND EDIT** menu, select GENERAL EDIT.
* The display looks similar to the following.

```
        GENERAL EDIT
◄[ OCTAVE SHIFT  ]  [ VIBRATO  ]►
◄[ AUTOBEND&TRILL ]
```

2. Select the attribute you wish to modify.
* The display changes to the setting display for the selected attribute.

3. Modify each attribute (explained below).
* When you have finished modifying an attribute, press the **EXIT** button to return to the GENERAL EDIT display, select another attribute and continue modifying the sound.

OCTAVE SHIFT

The octave of the output sound can be specified separately for the upper and lower keyboards.

```
         OCTAVE SHIFT
◄[ORIGNL]  UPPER OCTAVE :  0   [WRITE]►
           LOWER OCTAVE :  0
           PARAMETER   VALUE
```
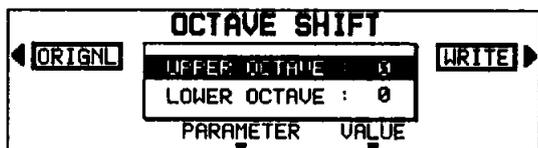
1. Use the PARAMETER ∧ and ∨ buttons to specify the keyboard.

2. Use the VALUE ∧ and ∨ buttons to raise or lower the pitch by octaves (–2 to 2).
* To lower the pitch one octave (or two octaves), set the value to –1 (or –2). To raise the pitch one octave (or two octaves), set the value to 1 (or 2).

3. Repeat steps 1 and 2 for the other keyboard if desired.

VIBRATO

Modify the vibrato attributes of the sound.

```
         VIBRATO        [MORE]
◄[ORIGNL]  1ST ON/OFF   :OFF  [WRITE]►
           2ND ON/OFF   :OFF
           SUB ON/OFF   :OFF
           PARAMETER   VALUE
```

1. Use the PARAMETER ∧ and ∨ buttons to select the item.

1ST ON/OFF
Set the vibrato for the 1st tone to on or off. (For an explanation of tones, refer to page 145.)

2ND ON/OFF
Set the vibrato for the 2nd tone to on or off.

SUB ON/OFF
Set the vibrato for the SUB tone to on or off.

PCH MOD DEP
Adjust the pitch range of the vibrato (0 to 30).

VOL MOD DEP
Adjust the volume range of the vibrato (0 to 30).

SPEED
Set the vibrato speed (0 to 30).

DELAY
Set the delay time (0 to 30).
* Delay time is the time elapsed from when the keyboard key is pressed until the vibrato effect begins.

2. Use the VALUE buttons to adjust the attributes.

3. Repeat steps 1 and 2 to modify other attributes as desired.

AUTOBEND & TRILL

The AUTOBEND & TRILL causes a change in pitch during the attack period.

```
    AUTOBEND & TRILL    MORE
◀ ORIGNL  ON/OFF    :OFF    WRITE ▶
          MODE      :ALL
          TYPE      :BEND
          PARAMETER  VALUE
              ▼         ▼
```

1. Use the PARAMETER ∧ and ∨ buttons to select the item.

ON/OFF
 ON: This effect is on for the sound.
 OFF: This effect is off for the sound.
 TOUCH: This effect is applied only when the keyboard is played hard.

MODE
 1ST: The effect is applied only to the 1st tone.
 2ND: The effect is applied only to the 2nd tone.
 ALL: The effect is applied to all the tones.
 INVERSE: The effect is applied to all the tones, but is inverted for the 2nd tone.

TYPE
 BEND: The pitch change is continuous.
 TRILL: The pitch changes in steps.

PATTERN
 BEND types: UP, UP-DOWN, UP-DROP, DELAY-UP
 TRILL types: DOWN-UP, UP-DOWN, MELODY, 5-UP
• A list of AUTOBEND & TRILL patterns (PATTERN) can be found in the separate "REFERENCE GUIDE" provided.

DEPTH
 Specify the amount of pitch bend (−30 to +30).

SPEED
 Specify the time it takes for the altered pitch (auto bend pitch) to become the normal pitch (key pitch) (0 to 30).

2. Use the VALUE ∧ and ∨ buttons to adjust the attributes.

3. Repeat steps 1 and 2 to modify other attributes as desired.

Tone Edit

Modify the separate tones which comprise the sound. A sound may be made up of at most three tones.

```
                      ┌─ 1ST tone
                      │
         SOUND  ──────┼─ 2ND tone
                      │
                      └─ SUB tone
```

- The essence of the sound is created by the combination of the 1ST tone and 2ND tone.
- Depending on the sound output status of the instrument, the SUB tone may not be generated.

Selecting attributes

1. On the **SOUND EDIT** menu, select TONE EDIT.
- The display looks similar to the following.

```
┌─────────────────────────────────┐
│            TONE EDIT            │
│ ◄[ TONE        ] [ENVELOPE ]►   │
│ ◄[VOLUME & PITCH] [FILTER   ]►  │
└─────────────────────────────────┘
```
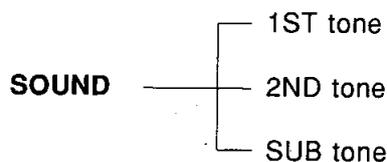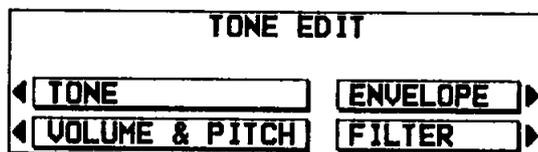
- The attributes which can be modified are shown. The attributes are modified for each tone.

2. Select the attribute you wish to modify.
- The display changes to the setting display for the selected attribute.

3. Modify each attribute (explained below).
- When you have finished modifying an attribute, press the **EXIT** button to go back to the TONE EDIT display, select another attribute and continue modifying the sound.
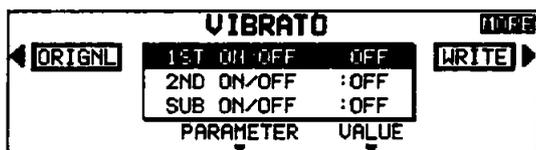
TONE

Set the sound of each tone.

```
┌─────────────────────────────────┐
│              TONE              │
│◄[ORIGNL] ON/OFF    ON  [WRITE]►│
│          GROUP  :A              │
│◄[ 1ST ]  TONE:E.Piano 1        │
│          ON/OFF  GROUP  TONE SELECT│
└─────────────────────────────────┘
```
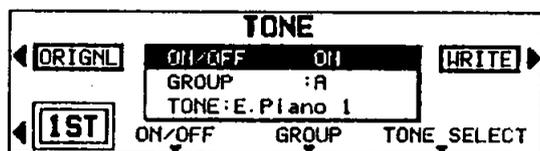
1. Select the tone to modify (1ST, 2ND or SUB).

2. Use the ∧ and ∨ buttons at the bottom of the display to change the setting.

ON/OFF
 ON: The tone is generated.
 OFF: The tone is not generated.

GROUP
Select the group to which the tone is assigned.
- Tones are classified in groups named A to N. A list of tones can be found in the separate "REFERENCE GUIDE" provided.

TONE SELECT
Select the kind of tone.

3. Repeat steps 1 and 2 for the other tones as desired.

VOLUME & PITCH

Set the volume and pitch of each tone.
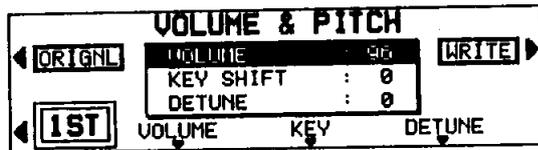
```
        VOLUME & PITCH
◀[ORIGNL] VOLUME      96  [WRITE]▶
          KEY SHIFT  : 0
          DETUNE     : 0
◀[1ST]    VOLUME    KEY    DETUNE
            ▾        ▾       ▾
```

1. Select the tone to modify (1ST, 2ND or SUB).

2. Use the ∧ and ∨ at the bottom of the display to change the setting.

VOLUME
Adjust the volume of the tone (0 to 127).

KEY SHIFT
Specify the amount of key-shift in semitone increments (–24 to +24).

DETUNE
Fine-adjustment of the pitch (–50 to +50).
• Slight differences in the DETUNE values between the tones add fullness to the sound.

3. Repeat steps 1 and 2 for the other tones as desired.

ENVELOPE

Specify how the volume changes over time, from the time the key is played to the time the sound dies out.

```
        ENVELOPE      [WRITE]▶
◀[ORIGNL] ATTACK   0  DECAY2  : 44
          DECAY1 : 42 SUSTAIN2: 0
          SUSTAIN1: 30 RELEASE : 13
◀[1ST]   ATK DCY1 SUS1 DCY2 SUS2 RLS
          ▾   ▾    ▾    ▾    ▾    ▾
```
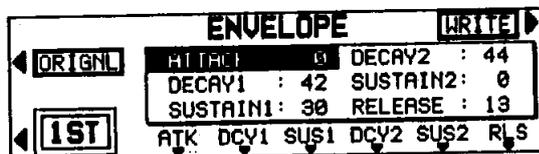
1. Select the tone to modify (1ST, 2ND or SUB).

2. Use the ∧ and ∨ buttons at the bottom of the display to change the setting.
• For details about the envelope, refer to the separate "REFERENCE GUIDE" provided.

3. Repeat steps 1 and 2 for the other tones as desired.

FILTER

Make major changes to the sound by eliminating specific frequency ranges.

```
        FILTER        [WRITE]▶
◀[ORIGNL] CUTOFF  100  TOUCH CURVE:+1
          TYPE   : 0   TOUCH DEPTH: 30
◀[1ST]   CUT  TYPE CURVE DEPTH
          ▾    ▾    ▾    ▾
```
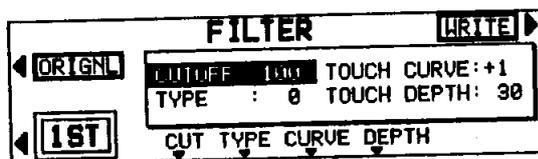
1. Select the tone to modify (1ST, 2ND or SUB).

2. Use the ∧ and ∨ buttons at the bottom of the display to change the setting.

CUT OFF
Set the frequency range which is cut by the filter (0 to 127).

TYPE
0: Low-pass filter
   Low-range signals are unchanged. High-range signals are cut according to the CUT value.

1 to 4: Low-pass filter + high-boost filter
A low-pass filter which emphasizes high-range signals when the CUT value is large.
• With this type of filter, the higher the number, the lower the range that is emphasized.

5 to 6: Low-pass filter + resonance
A low-pass filter which emphasizes the harmonic components of frequencies close to the CUT value.
• There is little emphasis when the CUT value is small.
• With this type of filter, the higher the number, the greater the amount of emphasis.

THRU: No filter effect is applied.

TOUCH CURVE
Set the cut-off frequency in relation to key velocity (–3 to +3).
• For details about CURVE types, refer to the separate "REFERENCE GUIDE" provided.

TOUCH DEPTH
Set the filter strength in proportion to key velocity (0 to 50).

3. Repeat steps 1 and 2 for the other tones as desired.

Practical applications

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.

1. On the **SOUND EDIT** menu, select EFFECT EDIT.
• The display looks similar to the following.

```
          EFFECT EDIT
◄ ORIGNL  TYPE: CELESTE1       WRITE ►
◄ ON      DEPTH:15   DETUNE:+10   ▲  ►
          SPEED:25   DELAY :  0   TYPE
◄ STEREO  DEP  SPO  DTN  DLY    ▼  ►
```
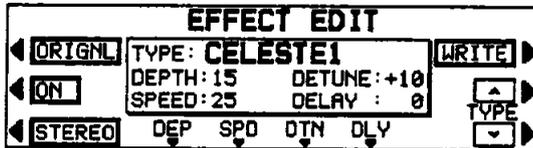
• The display for the effect type which is best-suited for the sound currently being edited is selected.

■ **EDITED/ORIGNL button**
Press the EDITED (or ORIGNL) button to switch between the modified sound (EDITED) and the original sound (ORIGNL). This allows you to compare the edited sound to the original sound as you are modifying it. The button alternates between EDITED and ORIGNL each time it is pressed.

■ **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.

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.

3. Use the buttons along the bottom of the display to select the attribute you wish to adjust.
• For a detailed explanation of the parameters of each type of effect, refer to the separate "REFERENCE GUIDE" provided.
• When the type is changed, the parameters revert to the factory-preset values.

Practical applications

Store the new sound

The **MEMORY** buttons in the sound section are memory banks reserved for the sounds you create with the **SOUND EDIT**. You can store your original sounds in the memories, and then select them just like the factory-preset sounds.

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, press the WRITE button.
• The WRITE button appears on all the editing displays and may be pressed whenever you wish to store the new sound.
• The display changes to the MEMORY WRITE display.

```
┌─┬──────┬─────────────────┬────┬─┐
│◄│SOUND │ MEMORY WRITE    │[OK]│►│
│ │NAMING│ NAME: E.Piano 1 │    │ │
├─┼──────┴───────┬─────────┼────┼─┤
│◄│ GROUP  UPPER │         │ ▲  │►│
├─┼──────────────┴─────────┤GROUP│ │
│◄│SELECT:A- 1 < Grand Piano >│ ▼ │►│
└─┴──────────────────────────┴───┴─┘
```

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.

```
┌─────────────────────────────────┐
│SOUND NAMING                      │
│              │■ E.Piano 1      │ │
│ ■ A B C D E F G H I J K L M N O P Q R │
│ S T U V W X Y Z a b c d e f g h i j k │
│ ▼CURSOR▼      ▼ SEL ▼    ▼CLR ▼A/a │
└─────────────────────────────────┘
```

3. Type a new name for your sound (up to 13 characters).
• Use the CURSOR buttons to highlight the character position in the name box. Use the SEL buttons to select the character. Repeat these steps to type the whole name.
• To erase the name, press the CLR button.
• Use the A/a button to switch between upper case and lower case characters.

4. When you have finished typing the name, press the **EXIT** button.
• The display returns to the MEMORY WRITE display.

5. Select GROUP. Use the GROUP ∧ and ∨ buttons to select the group in which to store the sound.

UPPER: The sound is stored in the **UPPER SOUND GROUP** memory.

LOWER: The sound is stored in the **LOWER SOUND GROUP** memory.

BASS: The sound is stored in the **BASS PEDALS** memory.

6. Select SELECT. Use the SELECT ∧ and ∨ buttons to select the memory number in which to store the new sound.
• If you selected UPPER or LOWER in step 5, you can select a memory number from A1 to A18 or from B1 to B18. If you selected BASS in step 5, you can select a memory number from 1 to 16.

7. 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 116.)

Select a new sound

You can select your original sound just like the factory-preset sounds.

1. In the sound group section in which the new sound is stored, press the **MEMORY** button to turn it on.
- For sounds stored in the **UPPER** or **LOWER SOUND GROUP** section, press the relevant **MEMORY A** or **MEMORY B** button (the bank in which you stored the sound during the MEMORY WRITE procedure).

```
┌─────────┐
│ MEMORY  │
│   A     │
└─────────┘
```

```
┌─────────┐
│ MEMORY  │
│   B     │
└─────────┘
```

- The list of sounds in the selected bank is shown on the display.

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

Practical applications

Part IX Creating sounds: GA3

Outline of the Sound Edit
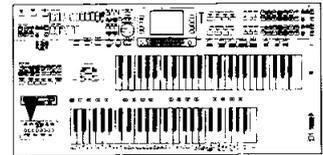
SOUND EDIT enables you to create your own new sound by altering one of the preset sounds. Your new sound can be stored in one of the sound memory locations. **SOUND EDIT** has two methods of use. You can edit in detail using functions more commonly associated with a synthesizer, or you can use EASY EDIT which allows you to change some basic parameters on one page.

Outline of procedure

1. Select a preset sound on which to build your new sound.
- Select sounds from the **UPPER SOUND GROUP, LOWER SOUND GROUP** or **BASS PEDALS**.
- The **ORGAN** or **CLASSICAL ORGAN** sound cannot be selected from the **BASS PEDALS** group.

2. Press the **SOUND EDIT** button to turn it on.

○
SOUND EDIT

- The indicator for the sound button you selected in step 1 flashes.
- The display changes to the following.

```
      SOUND  EDIT

     EDIT GROUP:[ UPPER ]

 ◄ [ EASY EDIT ]    [ GENERAL EDIT ] ►
                    [ TONE EDIT ]    ►
                    [ EFFECT EDIT ]  ►

 ◄ [WRITE]
```
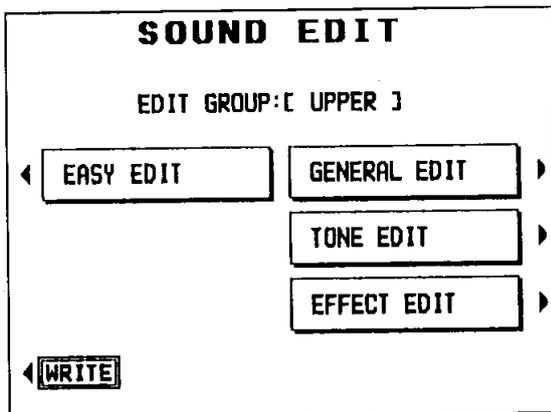
EASY EDIT (page 152)
The most often used edit functions—such as brightness and attack speed—are assembled on one display for easy sound modification.

GENERAL EDIT (page 153)
Editing functions which apply to the entire sound.

OCTAVE SHIFT
Place the sound in the optimum octave range.

VIBRATO
Set the vibrato effect for the sound.

AUTOBEND & TRILL
Adjust the pitch change during the attack.

MODULATION
Adjust the amount of modulation effect.

DISTORTION
Specify the distortion attributes of the sound.

CONTROLLERS
Change the settings for effects such as glide and sustain.

AFTER TOUCH
Adjust the aftertouch settings.

TONE EDIT (page 157)
Modify the tones which make up the sound.

TONE
Set the sound and pitch of each tone.

LEVEL
Adjust the volume of each tone.

ENVELOPE
Adjust the change in volume over time for each tone.

ENVELOPE KEY FOLLOW
Adjust the change in volume over time based on pitch.

FILTER
Adjust the amount of frequency cut in specific frequency ranges.

EFFECT EDIT (page 161)
Select the type and degree of **DIGITAL EFFECT** for the sound.

3. Select the desired menu and follow the proce-
dures on the corresponding setting display.

<Example: EFFECT EDIT>

```
                   EFFECT EDIT

◄ EDITED    TYPE :CELESTE 1        WRITE ►
            DEPTH          :   15
◄ OFF       SPEED          :   25     ^  ►
            DETUNE         : + 10
            DELAY          :    0   TYPE
◄ STEREO    BALANCE        :  100     v  ►

            INTENSITY      :    0

    DEP  SPD  DTN  DLY  BAL        INT
     ^    ^    ^    ^    ^          ^
     v    v    v    v    v          v
```

- Press the EDITED (or ORIGNL) button to
switch between the modified sound (EDITED)
and the original sound (ORIGNL). This allows
you to compare the edited sound to the original
sound as you are modifying it. Play the key-
board for the part you selected in step 1 to
confirm the sound.
- 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
EDIT menu display and make another selec-
tion.
- When the TEMPO/PROGRAM indicator is lit,
it indicates that the dial is available for setting
the current function.

4. When the sound is just the way you like it,
press the WRITE button to store your new
sound. (Refer to page 162.)
- The WRITE button appears on all the editing
displays and may be pressed whenever you
wish to store the new sound.

- While editing a sound, if you change to a dif-
ferent sound, a confirmation display appears.
Press the YES button if you wish to change
the sound, or press the NO button if you wish
to cancel the change. (Only a sound for the
part you selected in step 1 can be edited.)
- While editing a sound, the **ORCHESTRAL
CONDUCTOR** and part buttons (**1, 2** and **3**) do
not work.

Practical applications

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.

```
            EASY EDIT

◄ BRILLIANCE   :  0   OCTAVE SHIFT:  0 ►

◄ VIBRATO DEPTH:OFF   ATTACK TIME  :  0 ►

◄ VIBRATO SPEED:  0   RELEASE TIME:  0 ►

◄ VIBRATO DELAY:  0   DIGITAL EFFECT:  ►
                      OFF
              VALUE
◄ WRITE        ╔═══╗
               ║ ⌃ ║
               ║ ⌄ ║
               ╚═══╝
```

2. Select a sound attribute to modify.

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.

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 161).
• An effect may remain unchanged when EASY EDIT is used to set the value, if GENERAL EDIT or TONE EDIT was first used to set the value to its upper or lower limit. For example, when changing the OCTAVE SHIFT value of the "Piano" sound, the octave can be shifted only two octaves up (+2) or one octave down (−1). Even if you set the OCTAVE SHIFT value to −2, the octave will shift down by only one octave.

4. Repeat steps 2 and 3 to modify other sound attributes as desired.

5. Press the WRITE button to store your new sound.
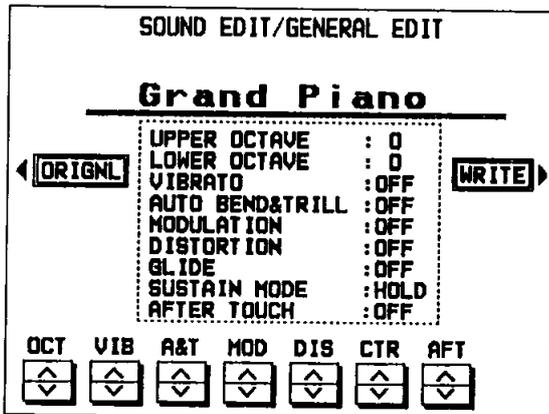• Storing your new sound is explained on page 162.
• If a sound is stored in the EASY EDIT mode, and is later selected in the EASY EDIT mode, the displayed value of an attribute may be different from the value when it was stored. The sound itself, however, is exactly as it was stored.

General Edit

These editing functions pertain to the entire sound.

Selecting attributes

1. On the **SOUND EDIT** menu, select GENERAL EDIT.
• The display looks similar to the following. The current status of all attributes is shown.

```
        SOUND EDIT/GENERAL EDIT

        Grand  Piano
         ┌─────────────────────────┐
         :UPPER OCTAVE    : 0       :
◄ ORIGNL :LOWER OCTAVE    : 0       : WRITE ►
         :VIBRATO         :OFF      :
         :AUTO BEND&TRILL :OFF      :
         :MODULATION      :OFF      :
         :DISTORTION      :OFF      :
         :GLIDE           :OFF      :
         :SUSTAIN MODE    :HOLD     :
         :AFTER TOUCH     :OFF      :
         └─────────────────────────┘
   OCT  VIB  A&T  MOD  DIS  CTR  AFT
   ┌─┐  ┌─┐  ┌─┐  ┌─┐  ┌─┐  ┌─┐  ┌─┐
   │^│  │^│  │^│  │^│  │^│  │^│  │^│
   │v│  │v│  │v│  │v│  │v│  │v│  │v│
   └─┘  └─┘  └─┘  └─┘  └─┘  └─┘  └─┘
```

2. Use the buttons along the bottom of the display to select the attribute you wish to modify.

   OCT: OCTAVE SHIFT
   VIB: VIBRATO
   A&T: AUTOBEND & TRILL
   MOD: MODULATION
   DIS: DISTORTION
   CTR: CONTROLLERS
   AFT   AFTER TOUCH

• The display changes to the setting display for the selected attribute.

3. Modify each attribute (explained below).
• The buttons along the bottom of the display are present in each setting display of the GENERAL EDIT mode. When you have finished modifying an attribute, use the buttons to select another attribute and continue modifying the sound.

OCTAVE SHIFT

The octave of the output sound can be specified separately for the upper and lower keyboards.

```
        GENERAL EDIT:OCTAVE SHIFT

        Grand  Piano
         ┌─────────────────────────┐
◄ ORIGNL │                         │ WRITE ►
         │ UPPER OCTAVE   :  0      │
◄ ^      │                         │
         │ LOWER OCTAVE   :  0      │
◄ v      │                         │
         └─────────────────────────┘
   OCT  VIB  A&T  MOD  DIS  CTR  AFT
   ┌─┐  ┌─┐  ┌─┐  ┌─┐  ┌─┐  ┌─┐  ┌─┐
   │^│  │^│  │^│  │^│  │^│  │^│  │^│
   │v│  │v│  │v│  │v│  │v│  │v│  │v│
   └─┘  └─┘  └─┘  └─┘  └─┘  └─┘  └─┘
```
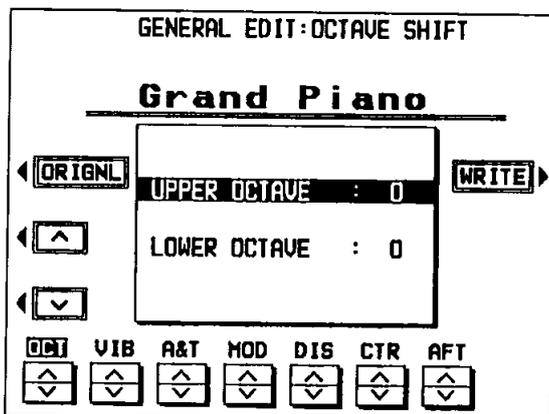
1. Use the ∧ and ∨ buttons to specify the keyboard.

2. Use the OCT ∧ and ∨ buttons to raise or lower the pitch by octaves (−2 to 2).
• To lower the pitch one octave (or two octaves), set the value to −1 (or −2). To raise the pitch one octave (or two octaves), set the value to 1 (or 2).

3. Repeat steps 1 and 2 for the other keyboard if desired.

VIBRATO

Modify the vibrato attributes of the sound.

```
GENERAL EDIT:VIBRATO

Grand Piano

◄[ORIGNL]    1ST ON/OFF      :OFF     [WRITE]►
             2ND ON/OFF      :OFF
             SUB ON/OFF      :OFF
◄[ ∧ ]       PITCH MOD DEPTH : 6
             VOLUME MOD DEPTH: 0
             SPEED           :15
◄[ ∨ ]       DELAY           : 0

OCT  VIB  A&T  MOD  DIS  CTR  AFT
[⇕] [⇕] [⇕] [⇕] [⇕] [⇕] [⇕]
```
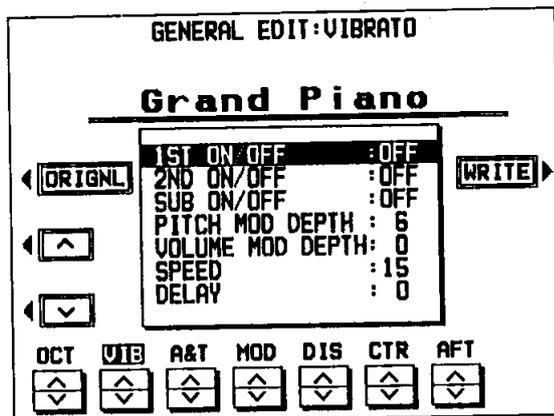
1. Use the ∧ and ∨ buttons to select the item.

1ST ON/OFF
Set the vibrato for the 1st tone to on or off. (For an explanation of tones, refer to page 157.)

2ND ON/OFF
Set the vibrato for the 2nd tone to on or off.

SUB ON/OFF
Set the vibrato for the SUB tone to on or off.

PITCH MOD DEPTH
Set the frequency change (pitch) of the vibrato (0 to 30).

VOLUME MOD DEPTH
Set the depth of the volume change (0 to 30).

SPEED
Set the vibrato speed (0 to 30).

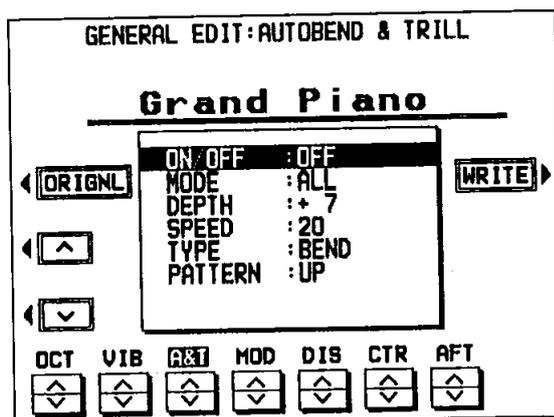**DELAY**
Set the delay time (0 to 30).
- Delay time is the time elapsed from when the keyboard key is pressed until the vibrato effect begins.

2. Use the VIB ∧ and ∨ buttons to adjust the attributes.

3. Repeat steps 1 and 2 to modify other attributes as desired.

AUTOBEND & TRILL

The AUTOBEND & TRILL causes a change in pitch during the attack period.

```
GENERAL EDIT:AUTOBEND & TRILL

Grand Piano

◄[ORIGNL]    ON/OFF   :OFF     [WRITE]►
             MODE     :ALL
             DEPTH    :+ 7
◄[ ∧ ]       SPEED    :20
             TYPE     :BEND
             PATTERN  :UP
◄[ ∨ ]

OCT  VIB  A&T  MOD  DIS  CTR  AFT
[⇕] [⇕] [⇕] [⇕] [⇕] [⇕] [⇕]
```

1. Use the ∧ and ∨ buttons to select the item.

ON/OFF
ON: This effect is on for the sound.
OFF: This effect is off for the sound.
TOUCH: This effect is applied only when the keyboard is played hard.

MODE
1ST: The effect is applied only to the 1st tone.
2ND: The effect is applied only to the 2nd tone.
ALL: The effect is applied to all the tones.
INVERSE: The effect is applied to all the tones, but is inverted for the 2nd tone.

DEPTH
Specify the amount of pitch bend (−30 to +30).

SPEED
Specify the time it takes for the altered pitch (auto bend pitch) to become the normal pitch (key pitch) (0 to 30).

TYPE
BEND: The pitch change is continuous.
TRILL: The pitch changes in steps.

PATTERN
BEND types: UP, UP-DOWN, UP-DROP, DELAY-UP
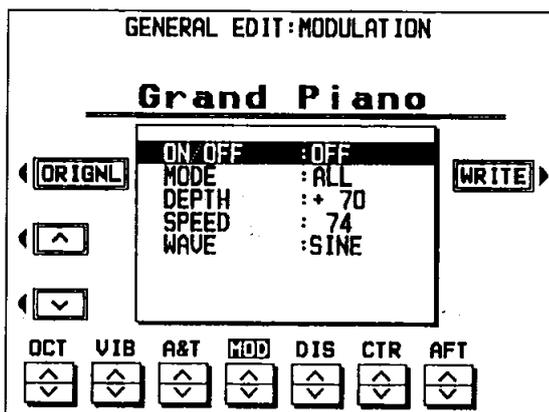TRILL types: DOWN-UP, UP-DOWN, MELODY, 5-UP
- A list of AUTOBEND & TRILL patterns (PATTERN) can be found in the separate "REFERENCE GUIDE" provided.

2. Use the A&T ∧ and ∨ buttons to adjust the attributes.

3. Repeat steps 1 and 2 to modify other attributes as desired.

MODULATION

Modify the modulation.

```
       GENERAL EDIT:MODULATION

          Grand  Piano

          ON/OFF    :OFF
◀ ORIGNL  MODE      :ALL          WRITE ▶
          DEPTH     :+ 70
◀ ⌃       SPEED     : 74
          WAVE      :SINE

◀ ⌄


  OCT VIB A&T MOD DIS CTR AFT
  ⟨⌃⟩ ⟨⌃⟩ ⟨⌃⟩ ⟨⌃⟩ ⟨⌃⟩ ⟨⌃⟩ ⟨⌃⟩
  ⟨⌄⟩ ⟨⌄⟩ ⟨⌄⟩ ⟨⌄⟩ ⟨⌄⟩ ⟨⌄⟩ ⟨⌄⟩
```

1. Use the ∧ and ∨ buttons to select the item.

ON/OFF
ON: The effect is applied to the sound.
OFF: The effect is not applied to the sound.
• This setting may not be effective in some cases.

MODE
1ST: The effect is applied to the 1st tone.
2ND: The effect is applied to the 2nd tone.
ALL: The effect is applied to all the tones.
INVERSE: The effect is applied to all the tones, but is inverted for the 2nd tone.

DEPTH
Set the frequency change (pitch) of the vibrato (−127 to +127).

SPEED
Set the vibrato speed (0 to 127).

WAVE
Modulate the waveform.

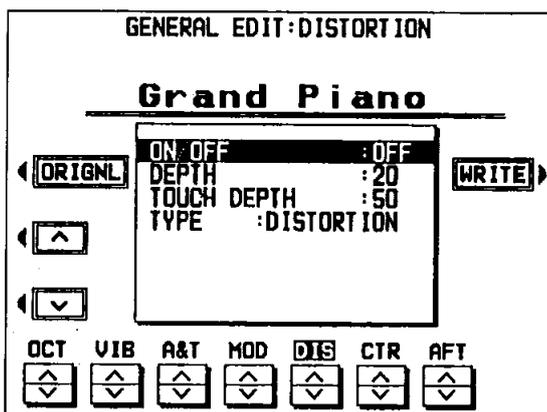SINE: Sine wave
TRIANGLE: Triangle wave
SQUARE: Square wave
SAW: Saw tooth wave

2. Use the MOD ∧ and ∨ buttons to adjust the attributes.

3. Repeat steps 1 and 2 to modify other attributes as desired.

DISTORTION

Modify the distortion attributes of the sound.

```
       GENERAL EDIT:DISTORTION

          Grand  Piano

          ON/OFF        :OFF
◀ ORIGNL  DEPTH         :20         WRITE ▶
          TOUCH DEPTH   :50
◀ ⌃       TYPE      :DISTORTION

◀ ⌄


  OCT VIB A&T MOD DIS CTR AFT
  ⟨⌃⟩ ⟨⌃⟩ ⟨⌃⟩ ⟨⌃⟩ ⟨⌃⟩ ⟨⌃⟩ ⟨⌃⟩
  ⟨⌄⟩ ⟨⌄⟩ ⟨⌄⟩ ⟨⌄⟩ ⟨⌄⟩ ⟨⌄⟩ ⟨⌄⟩
```

1. Use the ∧ and ∨ buttons to select the item.

ON/OFF
ON: This effect is on for the sound.
OFF: This effect is off for the sound.
• This setting may not be effective in some cases.

DEPTH
Set the amount of change (0 to 50).

TOUCH DEPTH
Set the degree of depth change in proportion to key velocity (0 to 50).

TYPE
DISTORTION: The distortion is applied to the whole sound.
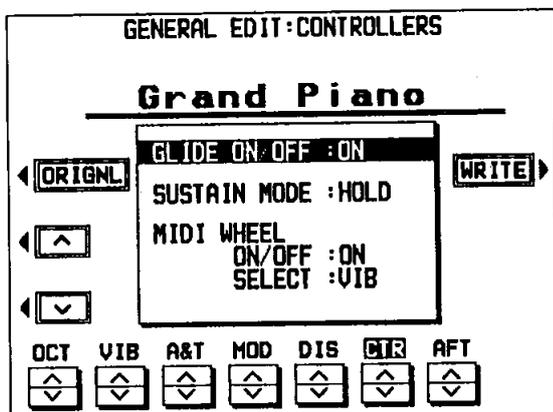GROWL: The distortion is applied only to the attack period of the sound.

2. Use the DIS ∧ and ∨ buttons to adjust the attributes.

3. Repeat steps 1 and 2 to modify other attributes as desired.

Practical applications

CONTROLLERS

Specify whether the glide effect can be applied
to the sound with a controller, the type of sustain,
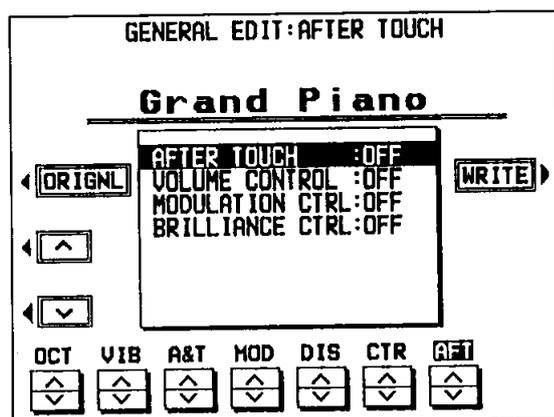and whether MIDI wheel data is received.

```
        GENERAL EDIT:CONTROLLERS

          Grand  Piano

        GLIDE ON/OFF :ON
 ◄ORIGNL                        WRITE►
        SUSTAIN MODE :HOLD

 ◄ ^    MIDI WHEEL
             ON/OFF :ON
 ◄ v         SELECT :VIB


  OCT  VIB  A&T  MOD  DIS  CTR  AFT
  ^    ^    ^    ^    ^    ^    ^
  v    v    v    v    v    v    v
```

1. Use the ∧ and ∨ buttons to select the item.

GLIDE ON/OFF
   ON: The glide effect can be applied with a foot
       switch or other assigned controller.
   OFF: The glide effect is not applied when the
        controller is operated.

SUSTAIN MODE
   LONG: When sustain is on, the release time
         of the sound is extended.
   HOLD: When sustain is on, the key-pressed
         condition is maintained.

MIDI WHEEL ON/OFF
   ON: The sound is affected by modulation wheel
       operation data from MIDI, etc.
   OFF: The sound is not affected by modulation
        wheel operation data from MIDI, etc.

MIDI WHEEL SELECT
   MOD: Modulation effect is applied to the sound
        when wheel data is received through MIDI.
   VIB: Vibrato effect is applied to the sound when
        wheel data is received through MIDI.

2. Use the CTR ∧ and ∨ buttons to adjust the
   settings.

3. Repeat steps 1 and 2 to modify other attributes
   as desired.

AFTER TOUCH

Specify how the sound is affected when the keys
are pressed hard.

```
        GENERAL EDIT:AFTER TOUCH

          Grand  Piano

        AFTER TOUCH    :OFF
 ◄ORIGNL VOLUME CONTROL :OFF    WRITE►
        MODULATION CTRL:OFF
        BRILLIANCE CTRL:OFF
 ◄ ^

 ◄ v


  OCT  VIB  A&T  MOD  DIS  CTR  AFT
  ^    ^    ^    ^    ^    ^    ^
  v    v    v    v    v    v    v
```

1. Use the ∧ and ∨ buttons to select the item.

AFTER TOUCH
   ON: This effect is on for the sound.
   OFF: This effect is off for the sound.

VOLUME CONTROL
Turn the volume control on/off.

MODULATION CTRL
Turn the modulation control on/off.

BRILLIANCE CTRL
Turn the brilliance control on/off.

2. Use the AFT ∧ and ∨ buttons to set the at-
   tribute to on or off.
• When AFTER TOUCH is set to OFF, there is
  no effect, even when the keys are played hard.

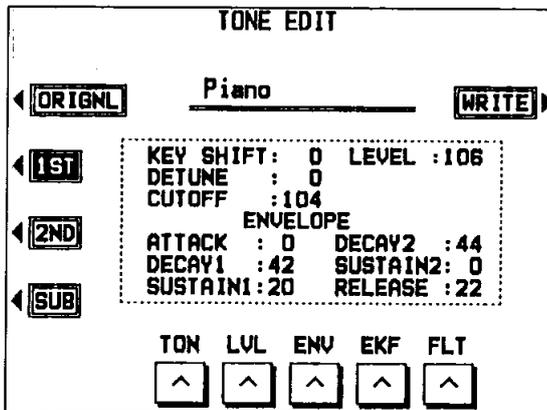3. Repeat steps 1 and 2 to modify other attributes
   as desired.

Practical applications

Tone Edit

Modify the separate tones which comprise the sound. A sound may be made up of at most three tones.

```
                    ┌── 1ST tone
                    │
    SOUND ──────────┼── 2ND tone
                    │
                    └── SUB tone
```
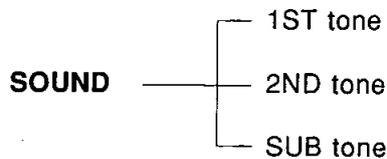
- The essence of the sound is created by the combination of the 1ST tone and 2ND tone.
- Depending on the sound output status of the instrument, the SUB tone may not be generated.

Selecting attributes

1. On the **SOUND EDIT** menu, select TONE EDIT.
- The display looks similar to the following. The current status of the major attributes is shown.

```
               TONE EDIT

 ◄ ORIGNL      Piano              WRITE ►

 ◄ 1ST    KEY SHIFT: 0  LEVEL :106
          DETUNE   : 0
          CUTOFF    :104
 ◄ 2ND          ENVELOPE
          ATTACK  : 0   DECAY2  :44
          DECAY1  :42   SUSTAIN2: 0
 ◄ SUB    SUSTAIN1:20   RELEASE :22

          TON  LVL  ENV  EKF  FLT
          [^]  [^]  [^]  [^]  [^]
```

- The attributes are modified for each tone. Use the 1ST, 2ND and SUB buttons to switch among the tones.

2. Use the buttons along the bottom of the display to select the attribute you wish to modify.

TON: TONE
LVL: LEVEL
ENV: ENVELOPE
EKF: ENVELOPE KEY FOLLOW
FLT: FILTER

- The display changes to the setting display for the selected attribute.

3. Modify each attribute (explained below).
- When you have finished modifying an attribute, press the **EXIT** button to go back to the TONE EDIT display, select another attribute and continue modifying the sound.

TONE

Set the sound and pitch of each tone.

1. Select the tone to modify (1ST, 2ND or SUB).

2. Use the ∧ and ∨ buttons at the bottom of each column to change the setting in the column.

ON/OFF
ON: The tone is generated.
OFF: The tone is not generated.

GROUP & TONE SELECT
Select the kind of tone.
• Tones are classified in groups named A to N. A list of tones can be found in the separate "REFERENCE GUIDE" provided.

KEY
Specify the amount of key-shift in semitone increments (–24 to +24).

TUNE
Fine-adjustment of the pitch (–50 to +50).
• Slight differences in the TUNE values between the tones add fullness to the sound.

3. Repeat steps 1 and 2 for the other tones as desired.

LEVEL

Adjust the volume and key touch attributes of each tone.

1. Select the tone to modify (1ST, 2ND or SUB).

2. Use the ∧ and ∨ buttons at the bottom of each column to change the setting in the column.

VOLUME
Adjust the volume of the tone (0 to 127).

TOUCH
Set the degree of volume change in proportion to key velocity (–50 to +50).
• At – settings, the softer the keyboard is played, the louder the sound. At + settings, the harder the keyboard is played, the louder the sound.

CURVE
Select the type (curve) of volume increase when the keyboard is played harder (–3 to +3).
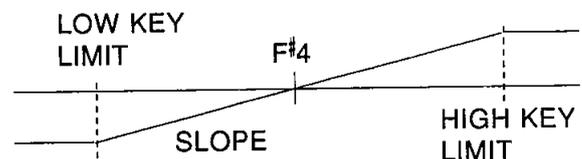• For details about CURVE types, refer to the separate "REFERENCE GUIDE" provided.

SLOPE
Specify the slope of the volume change (–50 to +50) with F#4 as the center.

KEY LIM
Specify the range of the keyboard which is affected by the volume change settings (C0 to G8).

3. Repeat steps 1 and 2 for the other tones as desired.

ENVELOPE

Specify how the volume changes over time, from the time the key is played to the time the sound dies out.

```
           TONE EDIT
         ENVELOPE
◄ ORIGNL                        WRITE ►
      ATK DCY1 SUS1 DCY2 SUS2 RLS TCH
◄ 1ST  0   42   20   26    0   22  + 4
◄ 2ND  0   42   20   44    0   22  + 4
◄ SUB  0   42   25   44    0   22  + 4
```

1. Select the tone to modify (1ST, 2ND or SUB).

2. Use the ∧ and ∨ buttons at the bottom of each column to change the setting in the column (0 to 50).
* For details about the envelope, refer to the separate "REFERENCE GUIDE" provided.
* The TCH setting changes the attack curve according to how hard the keyboard is played (−50 to +50). At a − value, the softer the keyboard is played, the faster the attack. At a + value, the harder the keyboard is played, the faster the attack.

* If the leftmost button below the display is pressed, the current envelope is illustrated on the display.

```
           TONE EDIT
         ENVELOPE
                                < >
                               SCALE
◄ 1ST                           > <
◄ 2ND
      ATK DCY1 SUS1 DCY2 SUS2 RLS
◄ SUB  0   42   20   26    0   22
```

* Use the ∧ and ∨ buttons at the bottom to change the corresponding setting.
* You can use the 1ST, 2ND and SUB buttons to change the TONE.
* The size of the diagram can be changed with the SCALE button.
* Press the RETURN button to go back to the previous display.

3. Repeat steps 1 and 2 for the other tones as desired.

ENVELOPE KEY FOLLOW

Specify how the envelope changes in relation to pitch.

```
           TONE EDIT
     ENVELOPE KEY FOLLOW
◄ ORIGNL                        WRITE ►
       SLOPE   KEY LIM
◄ 1ST    0    C 0-G 8    ATTACK ►
◄ 2ND    0    C 0-G 8    DECAY  ►
◄ SUB    0    C 0-G 8    RELEASE ►
```

1. Use the buttons to the right of the display to select the component of the envelope subject to modification (ATTACK, DECAY, RELEASE).
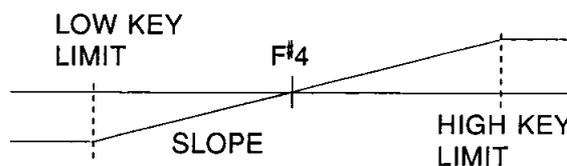* The selected component is highlighted.

2. Select the tone to modify (1ST, 2ND or SUB).

3. Use the ∧ and ∨ buttons at the bottom of each column to change the setting in the column.

SLOPE
Specify the slope of the volume change (−50 to +50) with F#4 as the center.

KEY LIM
Specify the range of the keyboard which is affected by the volume change settings (C0 to G8).

4. Repeat steps 1 through 3 for the other components as desired.

FILTER

Make major changes to the sound by eliminating specific frequency ranges.

```
          TONE EDIT
        F I L T E R
◄ ORIGNL                    WRITE ►

      TYPE CUT  TCH CURV SLOPE KEY LIM
◄ 1ST  0   104  44   26    0   C 0-G 8

◄ 2ND  0   112  45   26    0   C 0-G 8

◄ SUB  0   102  34   26   + 4  C 0-G 8
       ▼   ▼    ▼    ▼    ▼    ▼     ▼
      [◊] [◊]  [◊]  [◊]  [◊]  [◊]   [◊]
```

1. Select the tone to modify (1ST, 2ND or SUB).

2. Use the ∧ and ∨ buttons at the bottom of each column to change the setting in the column.

TYPE
   0: Low-pass filter
   Low-range signals are unchanged. High-range signals are cut according to the CUT value.

   1 to 4: Low-pass filter + high-boost filter
   A low-pass filter which emphasizes high-range signals when the CUT value is large.
   • With this type of filter, the higher the number, the lower the range that is emphasized.

   5 to 6: Low-pass filter + resonance
   A low-pass filter which emphasizes the harmonic components of frequencies close to the CUT value.
   • There is little emphasis when the CUT value is small.
   • With this type of filter, the higher the number, the greater the amount of emphasis.

   THRU: No filter effect is applied.

CUT
Set the frequency range which is cut by the filter (0 to 127).

TCH
Set the filter strength in proportion to key velocity (0 to 50).

CURV
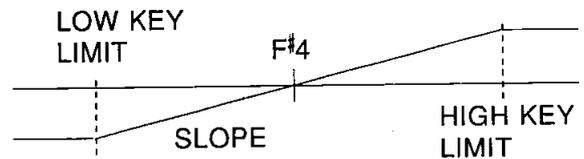Set the cut-off frequency in relation to key velocity (−3 to +3).
• For details about CURVE types, refer to the separate "REFERENCE GUIDE" provided.

SLOPE
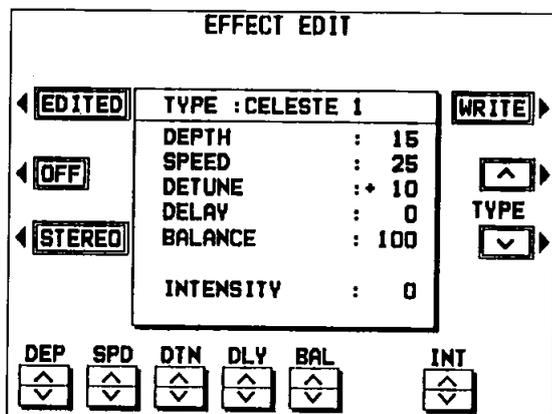Set the slope of the filter effect (−50 to +50) with F♯4 as the center.

KEY LIM
Specify the range of the keyboard which is affected by the filter (C0 to G8).

```
LOW KEY
LIMIT           F♯4
                              HIGH KEY
          SLOPE                LIMIT
```

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.

1. On the **SOUND EDIT** menu, select EFFECT EDIT.
- The display looks similar to the following.

```
                  EFFECT EDIT

  ◀[EDITED]   TYPE :CELESTE 1      [WRITE]▶
               DEPTH      :   15
  ◀[OFF]       SPEED      :   25      [ ∧ ]▶
               DETUNE     :+  10
               DELAY      :    0     TYPE
  ◀[STEREO]    BALANCE    :  100      [ ∨ ]▶

               INTENSITY  :    0


   DEP  SPD  DTN  DLY  BAL        INT
  [∧]  [∧]  [∧]  [∧]  [∧]       [∧]
  [∨]  [∨]  [∨]  [∨]  [∨]       [∨]
```

- The display for the effect type which is best-suited for the sound currently being edited is selected.

■ 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.

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.

3. Use the buttons along the bottom of the display to select the attribute you wish to adjust.
- For a detailed explanation of the parameters of each type of effect, refer to the separate "REFERENCE GUIDE" provided.
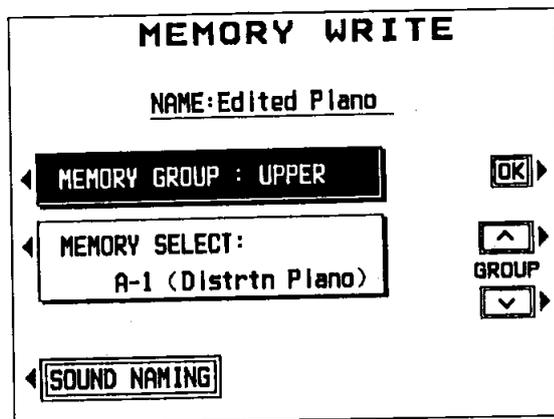- When the type is changed, the parameters revert to the factory-preset values.

Practical applications

Store the new sound

The **MEMORY** buttons in the sound section are memory banks reserved for the sounds you create with the **SOUND EDIT**. You can store your original sounds in the memories, and then select them just like the factory-preset sounds.
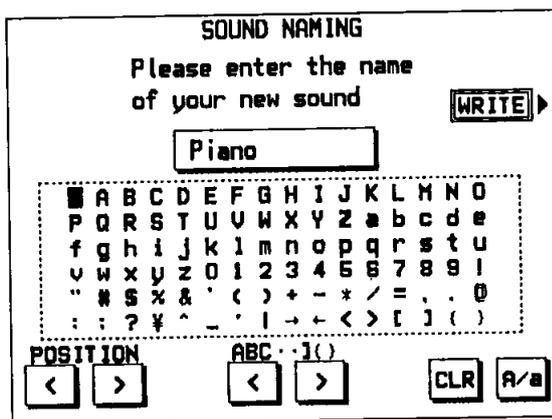
Warning: Your new sound will be erased if you exit the **SOUND EDIT** mode without first storing it in a memory.

Procedure

1. When you have edited the sound to just the way you like it, press the WRITE button.
- The WRITE button appears on all the editing displays and may be pressed whenever you wish to store the new sound.
- The display changes to the MEMORY WRITE display.

```
        MEMORY WRITE

      NAME:Edited Piano

◄  MEMORY GROUP : UPPER        [OK]►

◄  MEMORY SELECT:              [ ^ ]►
      A-1 (Distrtn Piano)      GROUP
                               [ v ]►

◄ [SOUND NAMING]
```

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.

```
         SOUND NAMING
      Please enter the name
      of your new sound      [WRITE]►

           [ Piano ]

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

   POSITION      ABC··]()
   [ < ] [ > ]   [ < ] [ > ]   [CLR] [A/a]
```

3. Type a new name for your sound (up to 13 characters).
- Use the POSITION < and > buttons to highlight the character position in the name box. Use the ABC ··] { } < and > buttons to select the character. Repeat these steps to type the whole name.
- To erase the name, press the CLR button.
- Use the A/a button to switch between upper case and lower case characters.

4. When you have finished typing the name, press the WRITE button.
- The display returns to the MEMORY WRITE display.

5. Select MEMORY GROUP. Use the GROUP ∧ and ∨ buttons to select the group in which to store the sound.

UPPER: The sound is stored in the **UPPER SOUND GROUP** memory.

LOWER: The sound is stored in the **LOWER SOUND GROUP** memory.

BASS: The sound is stored in the **BASS PEDALS** memory.

6. Select MEMORY SELECT. Use the SELECT ∧ and ∨ buttons to select the memory number in which to store the new sound.
- If you selected UPPER or LOWER in step 5, you can select a memory number from A1 to A18 or from B1 to B18. If you selected BASS in step 5, you can select a memory number from 1 to 18.

7. 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 116.)

Select a new sound

You can select your original sound just like the factory-preset sounds.

1. In the sound group section in which the new sound is stored, press the **MEMORY** button to turn it on.
- For sounds stored in the **UPPER** or **LOWER SOUND GROUP** section, press the relevant **MEMORY A** or **MEMORY B** button (the bank in which you stored the sound during the MEMORY WRITE procedure).

```
┌─────────┐
│ MEMORY  │
│    A    │
└─────────┘

┌─────────┐
│ MEMORY  │
│    B    │
└─────────┘
```

- The list of sounds in the selected bank is shown on the display.

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

Part X   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.

About the MIDI terminals

(On the rear panel)

THRU   **MIDI OUT**   IN

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 this instrument to other equipment.

* For these connections, use a commercially available MIDI cable.

Connection examples

■ To generate sound from a connected instrument by playing this instrument

```
                    MIDI cable
    OUT                                         IN
This instrument                    Another MIDI instrument
```
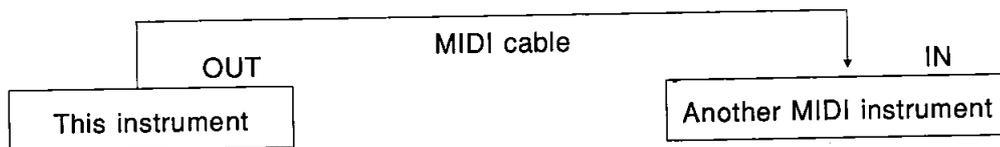
■ To generate sound from this instrument by operating a connected instrument

```
                    MIDI cable
    IN                                         OUT
This instrument                    Another MIDI instrument
```
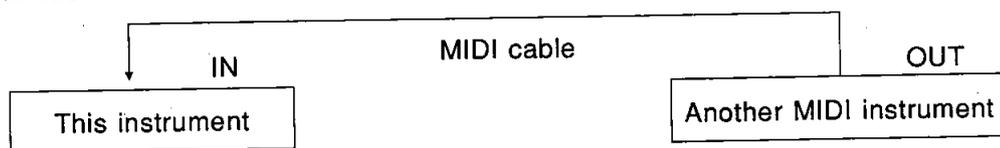
■ To connect with a MIDI sequencer or a personal computer

```
                    MIDI cable
  OUT     IN                      OUT     IN
This instrument                    MIDI sequencer
```
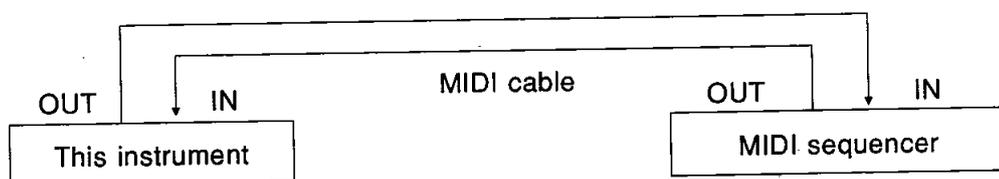
MIDI channels

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.

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
mlɒl

Practical applications

Outline of MIDI functions
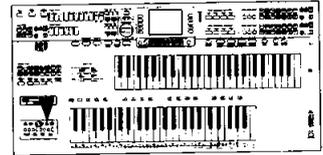
Select the various settings which are used for MIDI operation of the instrument.

Outline of procedure

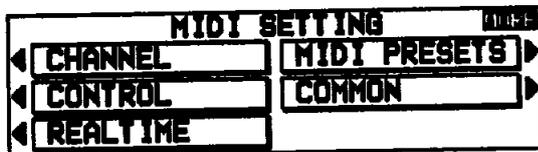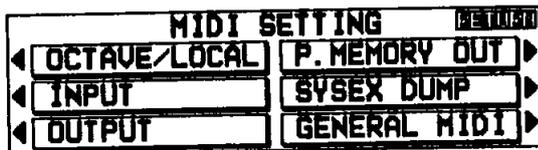1. Press the **MIDI** button to turn it on.

○
MIDI
▭

- The display changes to the following menu.

[GA1]

```
        MIDI SETTING        [MORE]
◄[CHANNEL]      [MIDI PRESETS]►
◄[CONTROL]      [COMMON]       ►
◄[REALTIME]                    
```

Press the **MORE/RETURN** button to see the next page of the menu.

```
        MIDI SETTING        [RETURN]
◄[OCTAVE/LOCAL]  [P. MEMORY OUT]►
◄[INPUT]         [SYSEX DUMP]   ►
◄[OUTPUT]        [GENERAL MIDI]►
```

CHANNEL (page 168)
Assign a MIDI channel to each part.

CONTROL (page 169)
Enable or disable the exchange of various control data.

REALTIME (page 171)
Make the REALTIME COMMAND and CLOCK settings.

MIDI PRESETS (page 178)
Establish the optimum settings depending on how this instrument is connected to other equipment.

COMMON (page 171)
Functions which are common to all parts.

SETTING 1
  P. CHANGE TO P. MEM
  NOTE ONLY
  INTRO-FILL-END
  APC CONTROL

SETTING 2
  TRANSPOSE
  P.CHANGE MODE
  DRUMS TYPE
  SONG SELECT
  SETUP LOAD

OCTAVE/LOCAL SETTING (page 169)
Make the OCTAVE and LOCAL CONTROL settings for each part.

INPUT (page 178)
Various settings related to data reception.

OUTPUT (page 179)
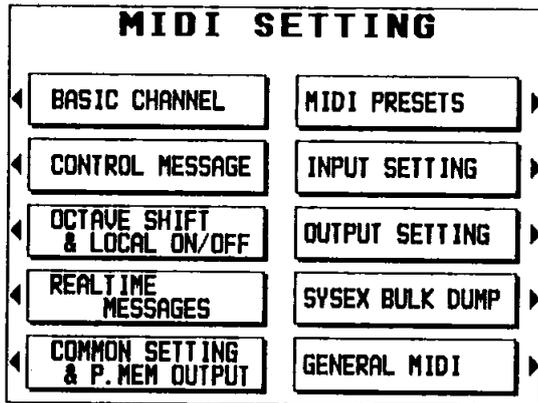Various settings related to data transmission.

P. MEMORY OUT (page 176)

P.MEMORY LOCAL CONTROL
  Settings related to LOCAL CONTROL by **PANEL MEMORY** operation.

P.MEMORY PROGRAM CHANGE
  Settings related to PROGRAM CHANGE by **PANEL MEMORY** operation.

SYSEX DUMP (page 179)
Settings related to SYSTEM EXCLUSIVE data exchange.

GENERAL MIDI (page 180)
Specify whether this instrument is compatible with GENERAL MIDI standard instruments.

[GA3]

```
┌─────────────────────────────────────┐
│         MIDI SETTING                 │
│  ┌──────────────┐  ┌──────────────┐  │
│ ◄│ BASIC CHANNEL│  │ MIDI PRESETS │► │
│  └──────────────┘  └──────────────┘  │
│  ┌──────────────┐  ┌──────────────┐  │
│ ◄│CONTROL MESSAGE│ │ INPUT SETTING│► │
│  └──────────────┘  └──────────────┘  │
│  ┌──────────────┐  ┌──────────────┐  │
│ ◄│OCTAVE SHIFT  │  │OUTPUT SETTING│► │
│  │& LOCAL ON/OFF│  └──────────────┘  │
│  └──────────────┘  ┌──────────────┐  │
│  ┌──────────────┐  │SYSEX BULK DUMP│► │
│ ◄│REALTIME      │  └──────────────┘  │
│  │   MESSAGES   │  ┌──────────────┐  │
│  └──────────────┘  │ GENERAL MIDI │► │
│  ┌──────────────┐  └──────────────┘  │
│ ◄│COMMON SETTING│                     │
│  │& P.MEM OUTPUT│                     │
│  └──────────────┘                     │
└─────────────────────────────────────┘
```

BASIC CHANNEL (page 168)
Assign a MIDI channel to each part.

CONTROL MESSAGE (page 169)
Enable or disable the exchange of various control data.

OCTAVE SHIFT & LOCAL ON/OFF (page 170)
Make the OCTAVE and LOCAL CONTROL settings for each part.

REALTIME MESSAGES (page 171)
Make the REALTIME COMMAND and CLOCK settings.

COMMON SETTING & P. MEM OUTPUT (page 173)
Functions which are common to all parts.

SETTING 1
  PROG. CHANGE TO P. MEM
  NOTE ONLY

SETTING 2
  AUTO PLAY CHORD CONTROL

SETTING 3
  TRANSPOSE
  PROGRAM CHANGE MODE
  DRUMS TYPE
  SONG SELECT
  SETUP LOAD

PANEL MEMORY LOCAL CONTROL
  Settings related to LOCAL CONTROL by **PANEL MEMORY** operation.

PANEL MEMORY PROGRAM CHANGE
  Settings related to PROGRAM CHANGE BY **PANEL MEMORY** operation.

MIDI PRESETS (page 178)
Establish the optimum settings depending on how this instrument is connected to other equipment.

INPUT SETTING (page 178)
Various settings related to data reception.

OUTPUT SETTING (page 179)
Various settings related to data transmission.

SYSEX BULK DUMP (page 179)
Settings related to SYSTEM EXCLUSIVE data exchange.

GENERAL MIDI (page 180)
Specify whether this instrument is compatible with GENERAL MIDI standard instruments.

2. Select the menu and perform the setting procedures.
- 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 SETTING 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 adjusting the settings, press the **MIDI** button to turn it off.

Practical applications

MIDI Implementation Chart

Although MIDI makes it easy for you to connect various instruments for an enhanced perform-ance, it does not necessarily follow that all MIDI data can be exchanged. For example, if the trans-mitting instrument handles data that the receiving instrument can not, then such data cannot be suc-cessfully sent. For data to be exchanged, both instruments must be able to handle it. You can find out what kind of data can be sent or received by each instrument by referring to the MIDI Im-plementation Chart for each instrument. The MIDI Implementation Chart for this instrument can be found in the separate "REFERENCE GUIDE" provided.

MIDI data format

A detailed explanation of how MIDI data of this instrument is organized can be found in the separate "REFERENCE GUIDE" provided.

Setting the functions

Select the relevant menu and perform the procedure to set the functions.

BASIC CHANNEL (GA1)

Channel numbers have already been assigned to parts (factory-presets), but you can reassign channel numbers to parts as desired.


```
      BASIC CHANNEL
◀▲▶
 PART   U. SOUND 1: CH  1   ◀▲▶ CHANNEL
◀▼▶                        ◀▼▶
```
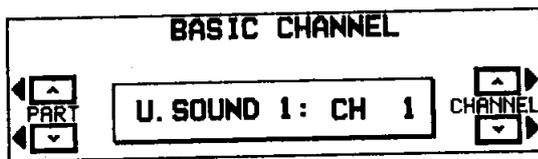
1. Use the PART ∧ and ∨ buttons to select the part.

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.
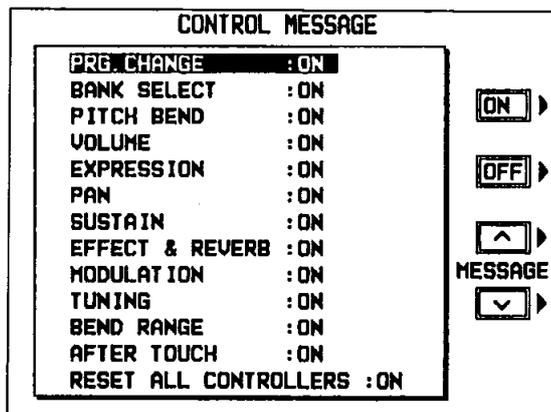
3. Repeat steps 1 and 2 for each part as desired.

BASIC CHANNEL (GA3)

Channel numbers have already been assigned to parts (factory-presets), but you can reassign channel numbers to parts as desired.


```
        BASIC CHANNEL
        ┌──────────┬─────────┐
        │   PART   │ CHANNEL │
        ├──────────┼─────────┤
        │ U. SND 1 │    1    │
        │ U. SND 2 │    2    │
        │ U. SND 3 │    3    │
◀MANUAL │ L. SND 1 │    5    │   ◀▲▶
        │ L. SND 2 │    6    │   PART
        │ L. SND 3 │    7    │
◀OTHER  │ BASS     │    4    │   ◀▼▶
        │ U. ORGAN │   OFF   │
        │ L. ORGAN │   OFF   │
◀APC    │ KB. PERC.│   16    │
        └──────────┴─────────┘
             CHANNEL
             ◀▲▼▶
```
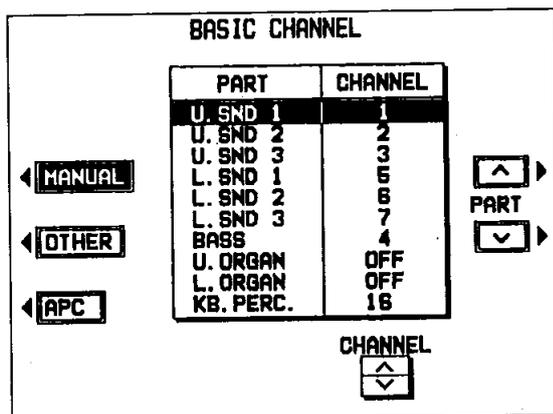
1. Use the buttons to the left of the display to select the group of parts.

MANUAL: U.SND 1 to 3, L.SND 1 to 3, BASS, U.ORGAN, L.ORGAN, KB. PERC.

OTHER: PART 8 to 15, CONTROL

APC: ACCOMP 1 to 3, BASS, DRUMS, CHORD

2. Use the PART ∧ and ∨ buttons to select the part.

3. 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.

4. Repeat steps 1 to 3 for each part as desired.

CONTROL MESSAGE

Enable or disable the exchange of various control data.

[GA1]

```
        CONTROL MESSAGE
  ┌─┐
◄ │▲│
  MESSAGE   PROG. CHANGE : ON    ON  ►
◄ │▼│                           OFF  ►
  └─┘
```

[GA3]

```
        CONTROL MESSAGE
  ┌──────────────────────────┐
  │ PRG. CHANGE         : ON  │
  │ BANK SELECT         : ON  │
  │ PITCH BEND          : ON  │    ON  ►
  │ VOLUME              : ON  │
  │ EXPRESSION          : ON  │   OFF  ►
  │ PAN                 : ON  │
  │ SUSTAIN             : ON  │    ▲  ►
  │ EFFECT & REVERB     : ON  │  MESSAGE
  │ MODULATION          : ON  │
  │ TUNING              : ON  │    ▼  ►
  │ BEND RANGE          : ON  │
  │ AFTER TOUCH         : ON  │
  │ RESET ALL CONTROLLERS : ON │
  └──────────────────────────┘
```
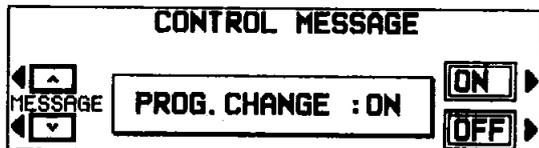
1. Use the MESSAGE ∧ and ∨ buttons to select the control message.

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, TREMOLO** 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/LOCAL SETTING (GA1)

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).

```
        OCTAVE / LOCAL SETTING
  ┌─┐ ┌───────┬───────┬───────┐
◄ │▲│ │ PART  │ OCTAVE│ LOCAL │
  PART│───────┼───────┼───────┤
◄ │▼│ │U. SOUND1│  0   │  ON   │
  └─┘ └───────┴───────┴───────┘
           ▼       ▼
```
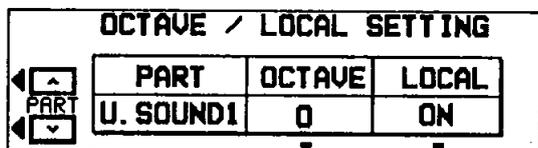
1. Use the PART ∧ and ∨ buttons to select the part.

2. Use the ∧ and ∨ buttons at the bottom of the display to change the setting for the corresponding function.

OCTAVE (−3 to 3)
- Set the octave shift value. 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 (ON/OFF)
- 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.
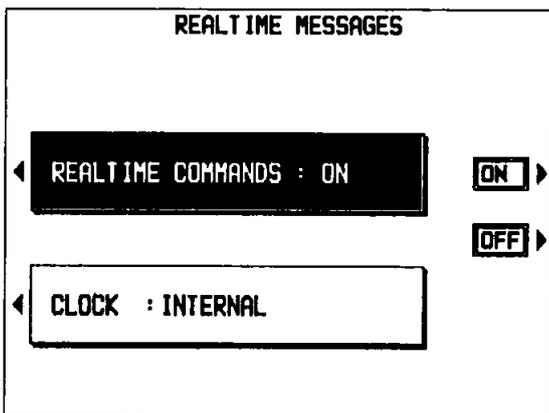
3. Repeat steps 1 and 2 for each part as desired.

Practical applications

OCTAVE SHIFT & LOCAL ON/OFF (GA3)

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).

```
       OCTAVE SHIFT & LOCAL ON/OFF

        PART     OCTAVE  LOCAL
        U.SND 1      0     ON
        U.SND 2      0     ON
        U.SND 3      0     ON
 MANUAL  L.SND 1     0     ON
        L.SND 2      0     ON       [^]
        L.SND 3      0     ON       PART
 OTHER  BASS         0     ON       [v]
        U.ORGAN      0     ON
        L.ORGAN      0     ON
 APC    KB.PERC.     0     ON

            OCTAVE  LOCAL
            [^/v]   [^/v]
```

1. Use the buttons to the left of the display to select the group of parts.

MANUAL: U.SND 1 to 3, L.SND 1 to 3, BASS, U.ORGAN, L.ORGAN, KB. PERC.

OTHER: PART 8 to 15

APC: ACCOMP 1 to 3, BASS, DRUMS, CHORD

2. Use the PART ∧ and ∨ buttons to select the part.

3. Use the ∧ and ∨ buttons to change the setting for the corresponding function.

OCTAVE (–3 to 3)
- Set the octave shift value. 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 (ON/OFF)
- 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.

4. Repeat steps 1 to 3 for each part as desired.

Practical applications

REALTIME MESSAGE

Enable or disable the exchange of **START/STOP** data (REALTIME COMMANDS), and select the CLOCK mode.

[GA1]

```
        REALTIME MESSAGE
◄ REALTIME COMMAND:ON       [ON ] ►
◄ CLOCK : INTERNAL          [OFF] ►
```

[GA3]

```
        REALTIME MESSAGES


◄ REALTIME COMMANDS : ON    [ON ] ►

                            [OFF] ►

◄ CLOCK : INTERNAL
```

1. Use the buttons to the left of the display to select a function (REALTIME COMMANDS or CLOCK).

2. Use the ON and OFF buttons, or the ∧ and ∨ 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.

- When MIDI is selected, the tempo is displayed as "– – –" and the rhythm and **SEQUENCER** are disabled until the CLOCK signal is received from the connected instrument.

3. Repeat steps 1 and 2 as desired.

COMMON SETTING (GA1)

Set the functions which are common to all parts.

```
      MIDI COMMON SETTING
◄SETTING1 P.CHANGE TO P.MEM/NOTE ONLY/
          INTRO-FILL-END/APC CONTROL

◄SETTING2 TRANSPOSE/P.CHANGE MODE/
          DRUMS TYPE/SONG SELECT/
          SETUP LOAD
```

■ **COMMON SETTING 1**

1. On the COMMON SETTING menu display, select SETTING 1.
- The display changes to the following.

```
      COMMON SETTING 1
◄[▲]                        [ON ] ►
SETTING P.CHG TO P.MEM:OFF
◄[▼]                        [OFF] ►
```
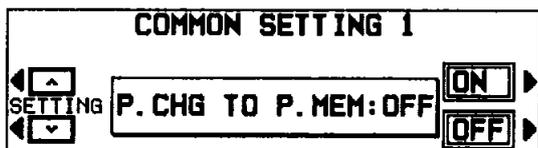
2. Use the SETTING ∧ and ∨ buttons to select the function.

P. CHG TO P. MEM
Enable or disable the exchange of program change numbers for the U.SOUND 1 part by operation of the **PANEL MEMORY** buttons. The **PANEL MEMORY 1** to 8 buttons correspond to program change numbers 0 to 7.

NOTE ONLY
Of the performance data, specify whether or not only note data is exchanged.

INTRO-FILL-END
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 **AC-COMP 1** part.

Practical applications

3. Use the ON and OFF buttons to select on or off.

ON: Data exchange is enabled.
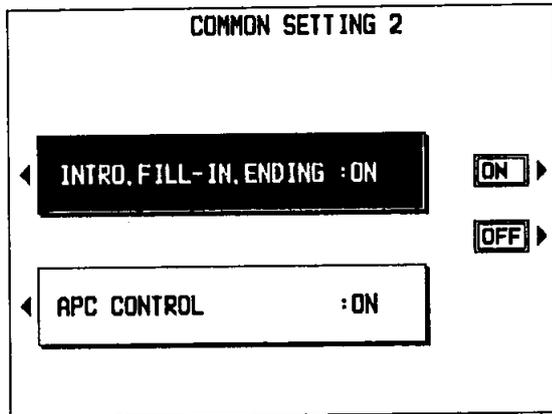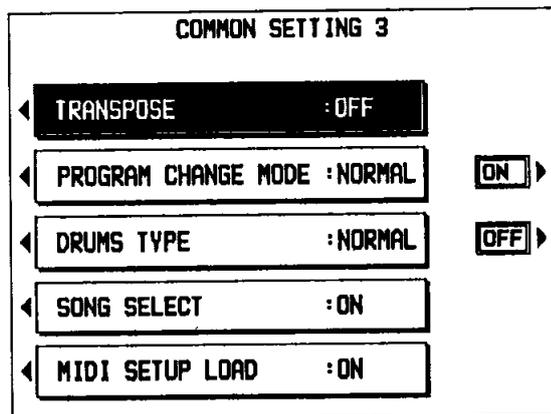
OFF: Data exchange is disabled.

4. Repeat steps 2 and 3 for the other settings as desired.

■ COMMON SETTING 2

1. On the COMMON SETTING menu display, select SETTING 2.
● The display changes to the following.

```
┌─────────────────────────────────────┐
│      COMMON SETTING 2                │
│ ◄[ ▲ ]              ┌──────┐         │
│         TRANSPOSE   │ ON   │ ►       │
│ SETTING  : OFF      └──────┘         │
│ ◄[ ▼ ]              │ OFF  │ ►       │
│                     └──────┘         │
└─────────────────────────────────────┘
```
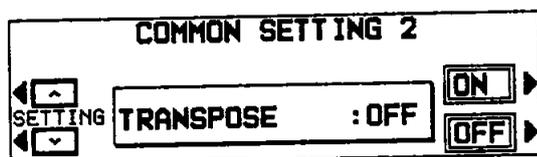
2. Use the SETTING ∧ and ∨ buttons to select the function.

TRANSPOSE

ON: The note number of the transposed note is transmitted/received.

OFF: The note number of the played key is transmitted/received.

P. CHNG MODE

NORMAL: The program change numbers follow the order of the sound buttons as they are lined up on the panel.

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.

DRUMS 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 connected Technics models set to this type. (The closest instrument sound is automatically selected.)

GM: Keyboard percussion instrument sounds follow the GM standard.

SONG SELECT

ON: Song number data can be exchanged.
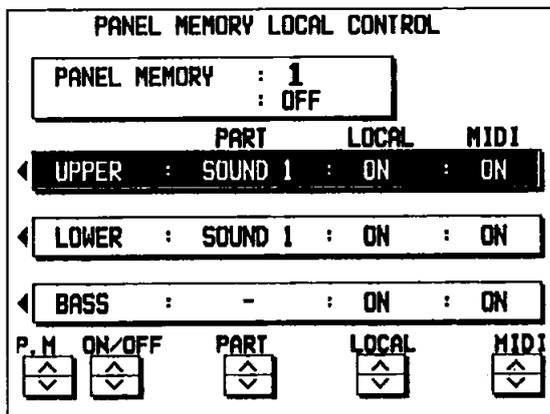
OFF: Song number data cannot be exchanged.

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.

3. Use the ∧ and ∨ button, or the ON and OFF buttons, to change the settings.

4. Repeat steps 2 and 3 for the other functions as desired.

COMMON SETTING & PANEL MEMORY OUTPUT (GA3)

Set the functions which are common to all parts.
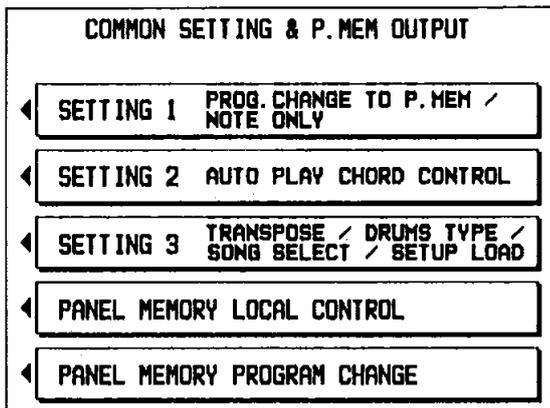
```
      COMMON SETTING & P.MEM OUTPUT

  ◄  SETTING 1   PROG.CHANGE TO P.MEM /
                 NOTE ONLY

  ◄  SETTING 2   AUTO PLAY CHORD CONTROL

  ◄  SETTING 3   TRANSPOSE / DRUMS TYPE /
                 SONG SELECT / SETUP LOAD

  ◄  PANEL MEMORY LOCAL CONTROL

  ◄  PANEL MEMORY PROGRAM CHANGE
```

■ COMMON SETTING 1

1. On the COMMON SETTING menu display, select SETTING 1.
- The display changes to the following.

```
         COMMON SETTING 1



  ◄  PROG.CHANGE TO P.MEM :OFF        ON  ►

                                     OFF  ►


  ◄  NOTE ONLY            :OFF
```
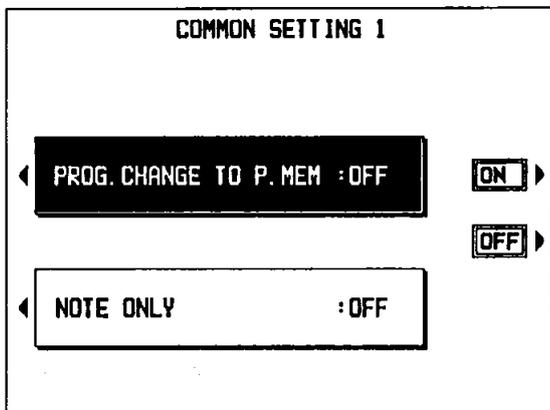
2. Use the buttons to the left of the display to select the function.

PROG. CHG TO P. MEM
Enable or disable the exchange of program change numbers for the U.SOUND1 part by operation of the **PANEL MEMORY** buttons. The **PANEL MEMORY 1** to **16** buttons correspond to program change numbers 0 to 15.

NOTE ONLY
Of the performance data, specify whether or not only note data is exchanged.

3. Use the ON and OFF buttons to select on or off.

ON: Data exchange is enabled.

OFF: Data exchange is disabled.

4. Repeat steps 2 and 3 for the other settings as desired.

Practical applications

Practical applications

■ COMMON SETTING 2

1. On the COMMON SETTING menu display, select SETTING 2.
- The display changes to the following.

```
        COMMON SETTING 2



  ◀ INTRO.FILL-IN.ENDING :ON        ON ▶

                                   OFF ▶

  ◀ APC CONTROL          :ON
```

2. Use the buttons the left of the display to select the function.

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 L.SOUND1 part.

3. Use the ON and OFF buttons to select on or off.

ON: Data exchange is enabled.

OFF: Data exchange is disabled.

4. Repeat steps 2 and 3 for the other setting as desired.

■ COMMON SETTING 3

1. On the COMMON SETTING menu display, select SETTING 3.
- The display changes to the following.

```
        COMMON SETTING 3

  ◀ TRANSPOSE            :OFF

  ◀ PROGRAM CHANGE MODE :NORMAL    ON ▶

  ◀ DRUMS TYPE          :NORMAL   OFF ▶

  ◀ SONG SELECT          :ON

  ◀ MIDI SETUP LOAD      :ON
```

2. Use the buttons the left of the display to select the function.

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 follow the order of the sound buttons as they are lined up on the panel.
    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.

DRUMS 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 connected Technics models set to this type. (The closest instrument sound is automatically selected.)
    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 set-
        tings stored on the disk are automatically
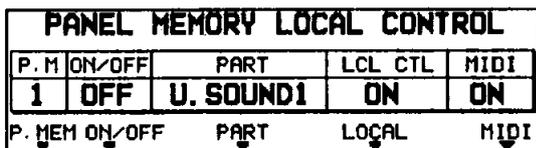   recalled.
    OFF: MIDI settings stored on the disk are not
        recalled.

■ PANEL MEMORY LOCAL CONTROL
During a performance, you can change the sound
generator setting and MIDI mode setting by
changing the **PANEL MEMORY** selection.

1. On the COMMON SETTING menu display,
   select PANEL MEMORY LOCAL CONTROL.
   * The display changes to the following.

```
    PANEL MEMORY LOCAL CONTROL

   PANEL MEMORY   :  1
                  :  OFF

                  PART    LOCAL   MIDI
 ◀ UPPER   :  SOUND 1  :  ON   :  ON

 ◀ LOWER   :  SOUND 1  :  ON   :  ON

 ◀ BASS    :    -      :  ON   :  ON
  P.M  ON/OFF   PART    LOCAL    MIDI
  ┌─┐  ┌─┐      ┌─┐     ┌─┐      ┌─┐
  │∧│  │∧│      │∧│     │∧│      │∧│
  │∨│  │∨│      │∨│     │∨│      │∨│
  └─┘  └─┘      └─┘     └─┘      └─┘
```

2. Use the P.M ∧ and ∨ buttons to specify the
   PANEL MEMORY number.

3. Use the ON/OFF ∧ and ∨ buttons to turn the
   specified **PANEL MEMORY** local control on or
   off.

ON: The **PANEL MEMORY** settings of this instru-
   ment are effective.

OFF: The **PANEL MEMORY** settings of this in-
   strument are not effective.

3. Use the ∧ and ∨ buttons, or the ON and OFF
   buttons, to change the settings.

4. Repeat steps 2 and 3 for the other functions
   as desired.

4. Use the PART ∧ and ∨ buttons to select a part
   (SOUND 1 to 3).

5. Use the LOCAL or MIDI ∧ and ∨ buttons to
   select the mode.

LOCAL
    ON: The performance from this instrument
        sounds from this instrument.
    OFF: The performance from this instrument
        does not sound from this instrument.

MIDI
    ON: Performance data and control data are
        transmitted.
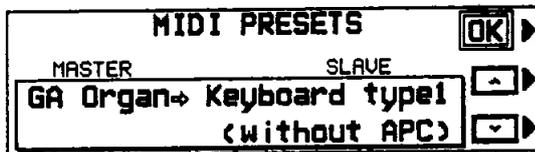   OFF: Performance data and control data are
        not transmitted.

6. Repeat steps 4 and 5 for each part as desired.

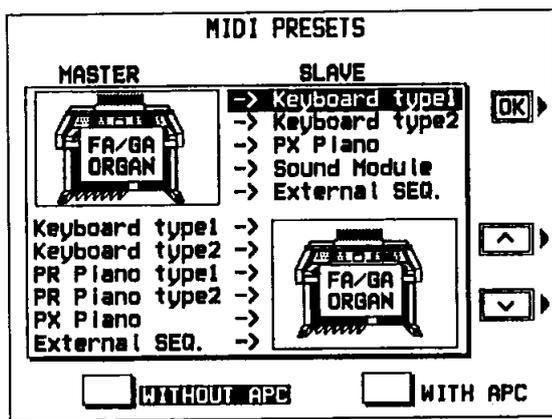7. Repeat steps 2 through 6 for each **PANEL
   MEMORY** number as desired.

Practical applications

■ **PANEL MEMORY PROGRAM CHANGE**

Specify how **PANEL MEMORY** operation affects transmission of program change data for the **SOUND 1** to **3**, **ORGAN** and **BASS** parts.

1. On the COMMON SETTING menu display, select PANEL MEMORY PROGRAM CHANGE.
* The display changes to the following.
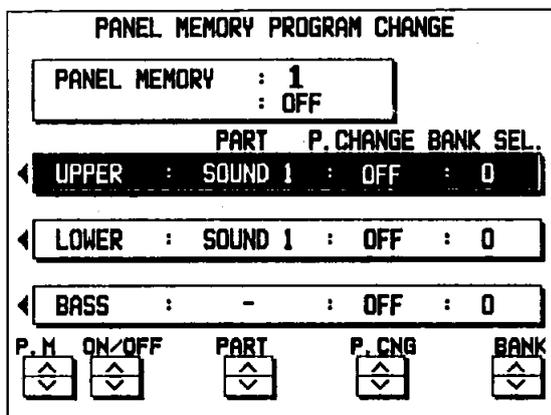
```
      PANEL MEMORY PROGRAM CHANGE

  PANEL MEMORY    :  1
                  :  OFF

                  PART    P.CHANGE BANK SEL.
  ◀ UPPER  :  SOUND 1  :  OFF  :  0

  ◀ LOWER  :  SOUND 1  :  OFF  :  0

  ◀ BASS   :    -      :  OFF  :  0

  P.M  ON/OFF   PART     P.CNG     BANK
  [^v] [^v]     [^v]     [^v]      [^v]
```

2. Use the P.M ∧ and ∨ buttons to specify a **PANEL MEMORY** number.

3. Use the ON/OFF ∧ and ∨ buttons to turn the specified **PANEL MEMORY** program change output to on or off.

ON: The **PANEL MEMORY** settings of this instrument are effective.

OFF: The **PANEL MEMORY** settings of this instrument are not effective.

4. Use the PART ∧ and ∨ buttons to select a part (SOUND 1 to 3).

5. Use the P.CNG ∧ and ∨ buttons to specify a PROGRAM CHANGE number (0 to 127, OFF), and the BANK ∧ and ∨ buttons to specify a BANK SELECT number (0 to 255).

6. Repeat steps 4 and 5 for each part as desired.

7. Repeat steps 2 through 6 for each **PANEL MEMORY** number as desired.

PANEL MEMORY OUT SETTING (GA1)

```
      PANEL MEMORY OUT SETTING

  ◀ [ P.MEMORY LOCAL CONTROL ]
  ◀ [ P.MEMORY PROGRAM CHANGE ]
```

■ **PANEL MEMORY LOCAL CONTROL**

During a performance, you can change the sound generator setting and MIDI mode setting by changing the **PANEL MEMORY** selection.

1. On the PANEL MEMORY OUT SETTING menu display, select P.MEMORY LOCAL CONTROL.
* The display changes to the following.

```
  PANEL MEMORY LOCAL CONTROL

  P.M |ON/OFF|   PART    |LCL CTL| MIDI
   1  | OFF  | U.SOUND1  |  ON   |  ON

  P.MEM ON/OFF   PART     LOCAL    MIDI
```

2. Use the P.MEM ∧ and ∨ buttons to specify the **PANEL MEMORY** number.

3. Use the ON/OFF ∧ and ∨ buttons to turn the specified **PANEL MEMORY** local control on or off.

ON: The **PANEL MEMORY** settings of this instrument are effective.

OFF: The **PANEL MEMORY** settings of this instrument are not effective.

4. Use the PART ∧ and ∨ buttons to select a part (U.SOUND1 to 3, L.SOUND1 to 3, BASS).

5. Use the LOCAL or MIDI ∧ and ∨ buttons to select the mode.

LOCAL
ON: The performance from this instrument sounds from this instrument.
OFF: The performance from this instrument does not sound from this instrument.

MIDI
ON: Performance data and control data are transmitted.
OFF: Performance data and control data are not transmitted.

6. Repeat steps 4 and 5 for each part as desired.

7. Repeat steps 2 through 6 for each **PANEL MEMORY** number as desired.

■ **PANEL MEMORY PROGRAM CHANGE**
Specify how **PANEL MEMORY** operation affects transmission of program change data for the **SOUND 1** to **3** and **BASS** parts.

1. On the PANEL MEMORY OUT SETTING menu display, select P.MEMORY PROGRAM CHANGE.
• The display changes to the following.

PANEL MEMORY PROGRAM CHANGE			
P.M	ON/OFF	PART	PRG·CNG	BANK
1	OFF	U. SOUND1	OFF	0
P.MEM ON/OFF	PART	PRG.CNG	BANK

2. Use the P.MEM ∧ and ∨ buttons to specify a **PANEL MEMORY** number.

3. Use the ON/OFF ∧ and ∨ buttons to turn the specified **PANEL MEMORY** program change output to on or off.

ON: The **PANEL MEMORY** settings of this instrument are effective.

OFF: The **PANEL MEMORY** settings of this instrument are not effective.

4. Use the PART ∧ and ∨ buttons to select a part (U.SOUND1 to 3, L.SOUND1 to 3, BASS).

5. Use the P.CNG ∧ and ∨ buttons to specify a PROGRAM CHANGE number (0 to 127, OFF), and the BANK ∧ and ∨ buttons to specify a BANK SELECT number (0 to 255).

6. Repeat steps 4 and 5 for each part as desired.

7. Repeat steps 2 through 6 for each **PANEL MEMORY** number as desired.

Practical applications

MIDI PRESETS

Establish the optimum settings depending on how this instrument is connected to other equipment, and on whether this instrument is used as the master or the slave.

[GA1]

```
MIDI PRESETS        [OK]▶
MASTER       SLAVE
GA Organ⇒ Keyboard type1  [▲]▶
         (without APC)    [▼]▶
```

[GA3]

```
MIDI PRESETS
MASTER       SLAVE
             -> Keyboard type1  [OK]▶
             -> Keyboard type2
FA/GA        -> PX Piano
ORGAN        -> Sound Module
             -> External SEQ.
Keyboard type1 ->
Keyboard type2 ->           [▲]▶
PR Piano type1 ->   FA/GA
PR Piano type2 ->   ORGAN
PX Piano       ->
External SEQ.  ->           [▼]▶
   [ WITHOUT APC]   [ ]WITH APC
```

1. Use the ∧ and ∨ buttons to select the connection setup.
- The MASTER is the instrument used to transmit data, and the SLAVE is the instrument used to receive the data.
- GA3: Use the buttons at the bottom of the display to select WITHOUT APC or WITH APC.

WITHOUT APC
AUTO PLAY CHORD is not used.

WITH APC
Performance includes **AUTO PLAY CHORD** performance.

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 SETTING

Make the settings which determine how various performance data is treated during data reception.

[GA1]

```
INPUT SETTING
◄ U.SOUND1 INPUT:CONDUCTOR
◄ L.SOUND1 INPUT:CONDUCTOR  [▲]▶
◄ APC INPUT      :ON        [▼]▶
```

[GA3]

```
INPUT SETTING

◄ U.SOUND 1 INPUT  :CONDUCTOR  [▲]▶

◄ L.SOUND 1 INPUT  :CONDUCTOR  [▼]▶

◄ AUTO PLAY CHORD INPUT :ON
```
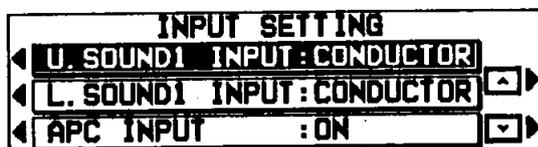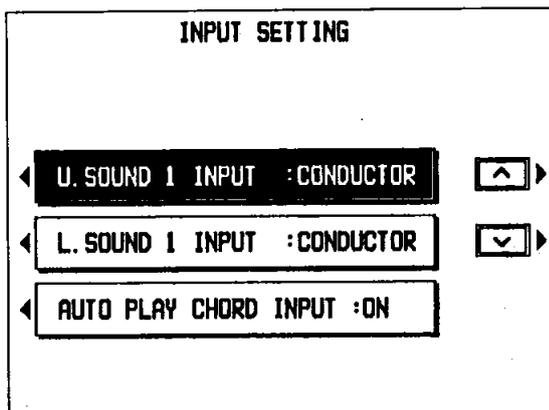
1. Use the buttons to the left of the display to select the item.

U.SOUND 1 INPUT, or L.SOUND 1 INPUT
CONDUCTOR: When data for the U.SOUND 1, or L.SOUND 1, part is received, the **CONDUCTOR** of this instrument determines which part it is used for.
DIRECT: When data for the U.SOUND 1, or L.SOUND 1, part is received, it is treated only as **UPPER SOUND 1**, or **LOWER SOUND 1**, data.

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.

2. Use the ∧ and ∨ buttons, or the ON and OFF buttons, to change the setting.

3. Repeat steps 1 and 2 for each item as desired.

OUTPUT SETTING

Make the settings which determine how various performance data is treated during data transmission.

[GA1]

```
    OUTPUT SETTING         [DATA]
◀ TECHNI-CHORD OUT:OFF
◀ DRUM PATTERN OUT:OFF      ▲ ▶
◀ APC PATTERN OUT :OFF      ▼ ▶
```

[GA3]

```
         OUTPUT SETTING

◀ TECHNI-CHORD OUTPUT    :OFF

◀ DRUM PATTERN OUTPUT    :OFF      ▲ ▶

◀ AUTO PLAY CHORD OUTPUT:ON        ▼ ▶

◀ UPPER KEYBOARD : U.SOUND 1

◀ LOWER KEYBOARD : L.SOUND 1
```
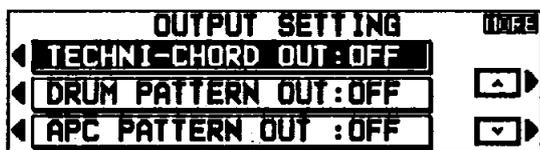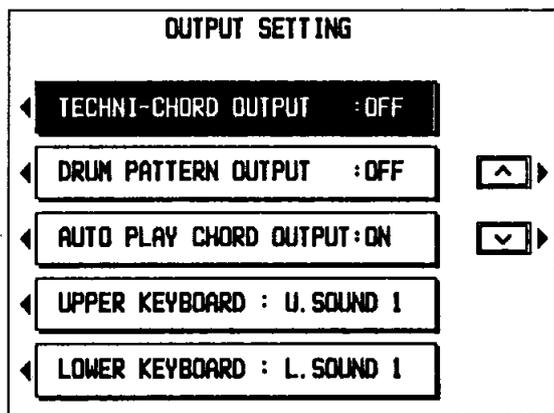
1. Use the buttons to the left of the display to select the item.

TECHNI-CHORD OUTPUT
  ON: Keyboard notes generated by the **TECH-NI-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.

UPPER KEYBOARD/LOWER KEYBOARD (GA3)
  CONDUCTOR: Upper and lower keyboard note data is transmitted on the basic channels corresponding to the selected **ORCHESTRAL CONDUCTOR** parts.
  U/L.SOUND 1: Upper and lower keyboard note data is transmitted on the basic channel to which the **SOUND 1** part is assigned.

2. Use the ∧ and ∨ buttons, or the ON and OFF buttons, to change the setting.

3. Repeat steps 1 and 2 for each item as desired.

SYSTEM EXCLUSIVE BULK DUMP

This instrument's internal data such as panel settings, performance data, etc. can be transmitted to an received from another GA/FA Series Organ or other MIDI equipment as SYSTEM EX-CLUSIVE data.
• Sound is not generated from this instrument during this procedure.

[GA1]

```
  SYSTEM EXCLUSIVE BULK DUMP
◀ ▲
            TOTAL ORGAN
◀ ▼                          [SEND] ▶
```

[GA3]

```
      SYSTEM EXCLUSIVE BULK DUMP

◀ │ TOTAL ORGAN │

◀ │ COMPOSER    │        [SEND] ▶

◀ │ SEQUENCER   │

◀ │ SOUND MEMORY│

◀ │ PANEL MEMORY│
```

Practical applications
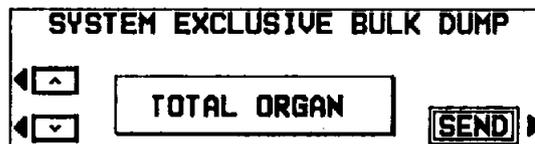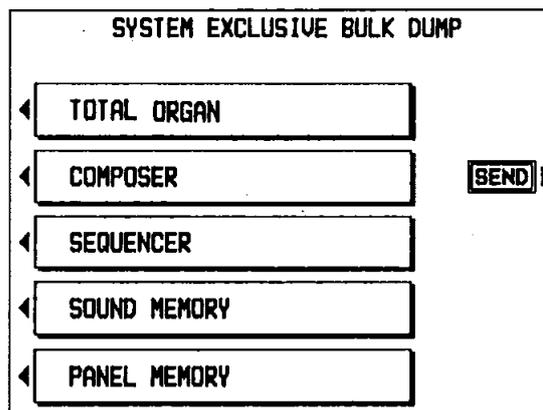
■ Transmitting

1. Follow the procedure necessary to prepare the receiving instrument for data reception.

2. Use the ∧ and ∨ buttons (GA1) or the buttons to the left of the display (GA3) to select the type of data to transmit (TOTAL ORGAN, COMPOSER, SEQUENCER, SOUND MEMORY or PANEL MEMORY).

3. Press the SEND button.
- During transmission, the transmitting status is shown on the display.

■ Receiving

After accessing this display on this instrument, follow the transmission procedure on the transmission side.
- During reception, the receiving status is shown on the display.

GENERAL MIDI

Make the GENERAL MIDI settings. (A brief explanation of GENERAL MIDI is on page 165.)

[GA1]

```
┌─────────────────────────────────┐
│   GENERAL MIDI        [OK] ▶    │
│  ┌──────────────────────┐ [ON] ▶│
│  │GENERAL MIDI MODE :OFF│[OFF] ▶│
│  └──────────────────────┘        │
└─────────────────────────────────┘
```

[GA3]

```
┌─────────────────────────────────┐
│         GENERAL MIDI             │
│                                  │
│                        [OK] ▶   │
│                                  │
│                        [ON] ▶   │
│  ┌────────────────────────┐      │
│  │GENERAL MIDI MODE : OFF │[OFF]▶│
│  └────────────────────────┘      │
│                                  │
└─────────────────────────────────┘
```
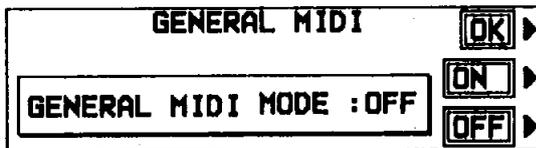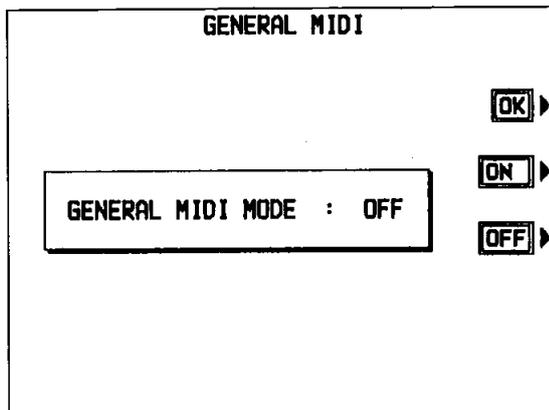
1. Use the ON and OFF buttons to specify whether or not this instrument should be compatible with GENERAL MIDI standard instruments.
- This setting is automatically set to ON if data is loaded from a disk for which the GM mode was set to on, or from a disk for which the GM mode has not been specified.
- If ON is selected, the status of this instrument 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 equipment, the received data has priority.

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.

```
┌─────────────────────────────────┐
│ Warning                          │
│ • The SEQUENCER memory is cleared when │
│   the GENERAL MIDI mode is changed. │
│ • If the power is turned off while the GENERAL │
│   MIDI mode is ON, the setting is automat- │
│   ically set to OFF and the SEQUENCER │
│   memory is cleared.             │
└─────────────────────────────────┘
```

Practical applications

Initialize

This instrument has many settable functions and storable memories. However, you can return the settings and memories to the factory-preset status.

INITIAL

1. Press the **MEM & CTRL** button to turn it on.

O
MEM & CTRL

- The display changes to the following.

[GA1]

```
         MEMORY & CONTROL
◄  INITIAL          P. MEM. MODE   ►
◄  SWITCH ASSIGN    M. S. A. MODE  ►
◄  POWER-ON MODE
```

[GA3]

```
   MEMORY  &  CONTROL

◄  INITIAL SETTING    PANEL MEM. MODE  ►

◄  SWITCH ASSIGN      M. S. A. MODE    ►

◄  POWER-ON MODE      OUTPUT SETTING   ►
```
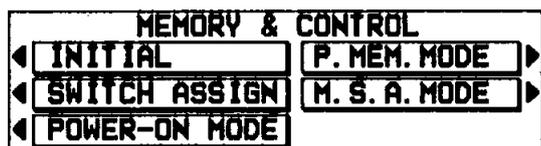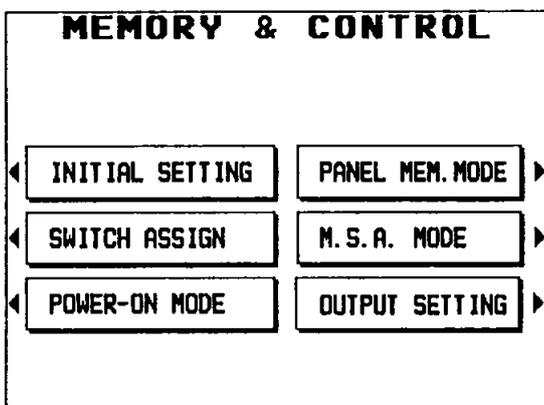
2. Select INITIAL.
- The display changes to the following.

[GA1]

```
    INITIAL SETTING     [OK] ►
 TOTAL ORGAN    SOUND MEMORY   [^] ►
 SEQUENCER      MIDI SETTING
 COMPOSER       PANEL MEMORY   [v] ►
```

[GA3]

```
        INITIAL SETTING
 Resets the total organ or
 individual sections to the
 original factory settings.
   TOTAL ORGAN       [OK] ►
   COMPOSER
   SEQUENCER         [^] ►
   SOUND MEMORY
   MIDI SETTING      [v] ►
   PANEL MEMORY
```
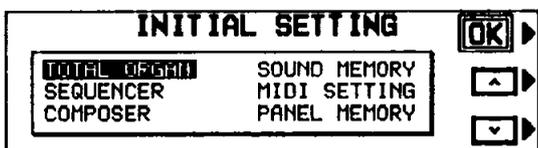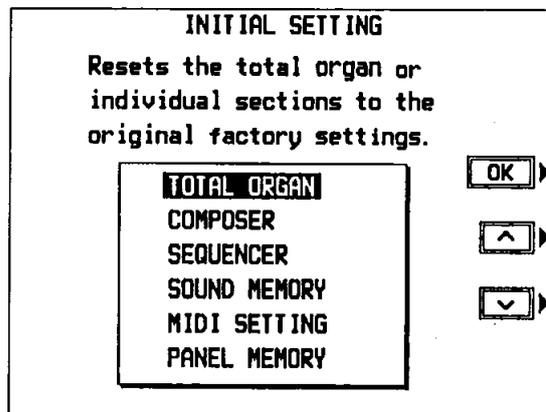
3. Use the ∧ and ∨ buttons to select the desired type of initialization (TOTAL SETTING, COMPOSER, SEQUENCER, SOUND MEMORY, MIDI SETTING, PANEL MEMORY).

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 competed, the instrument returns to the normal performance mode.

- You can also reset all the instrument settings with the following procedure: Turn off the **POWER** button once. Then, while pressing the three lower left buttons in the **RHYTHM GROUP** section at the same time, turn the **POWER** button on again.

■ **About the backup memory**
The panel settings, **PANEL MEMORY** and MIDI settings 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** and **COMPOSER**, 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. If this occurs, after checking the reminder, press the OK button.

■ **Power-on settings**
When the power to this instrument is turned on, ORGAN settings are automatically selected.
- If you wish to retain the settings which were in effect when you last turned off this instrument, set the POWER-ON MODE to BACK UP. (Refer to page 139.)

Connections

[GA1]
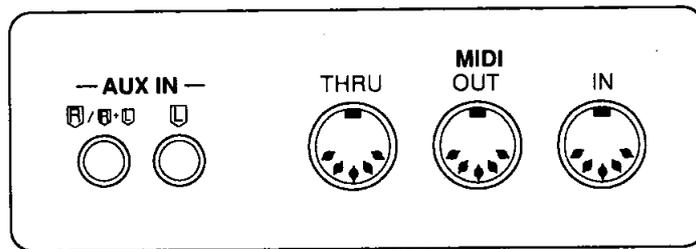
[GA3]
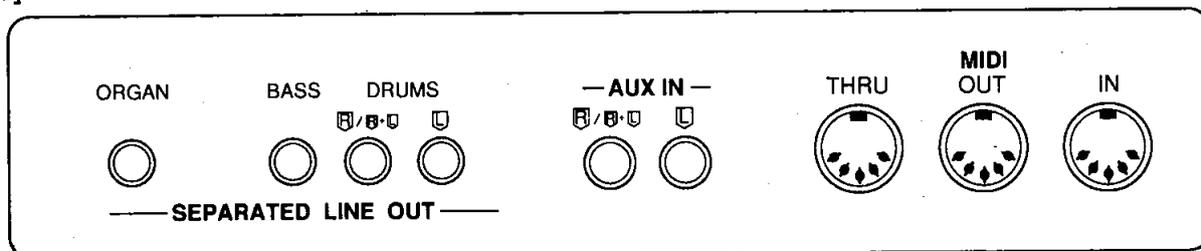
AUX IN (input level 500 mV, 33 kΩ)
Other instruments such as a keyboard can be connected to the organ so that the signal is output from the organ. To receive monaural sound, connect instruments to the **R/R+L** terminal. (In this case, do not use the **L** terminal.)

MIDI (Refer to page 164.)

SEPARATED LINE OUT (GA3)
The signals of the **BASS**, **DRUMS** and **ORGAN** parts can be output independently from these terminals.
- The **DRUMS** output signal can be stereo. For monaural output, connect the speaker to the **R/R+L** terminal. (In this case, do not use the **L** terminal.)
- For more information on the use of these terminals, refer to page 140.

(Beneath the right side of the lower keyboard)

[GA1]

[GA3]
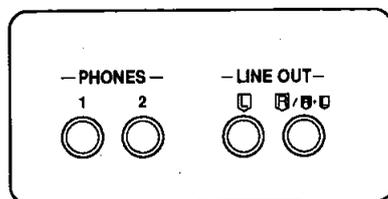
PHONES
For silent practice, headphones may be used. When plugged in, this instrument's speaker system is automatically switched off, and the sound is heard only through the headphones.

MIC (GA3) (input level 7.5 mV, 10 kΩ)
A microphone can be connected to this terminal for output from the organ's speakers. You can, for example, sing while you play the organ, and both sounds are heard from the organ's speakers. Control the output level with the **VOLUME** control.
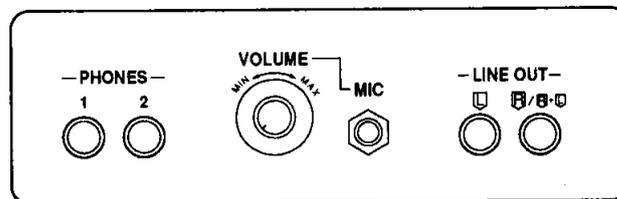
LINE OUT (output level 1.0 Vrms, 600 Ω)
By connecting an external high-power amplifier, the sound can be reproduced at a high volume. To output monaural sound, connect the external equipment to the **R/R+L** terminal. (Do not connect the **L** terminal.)
- GA3: You can specify whether or not the **ORGAN**, **BASS** and **DRUMS** part sounds are output from these terminals. (Refer to page 140.)

Assembly

Assemble your Technics organ as shown in the following figures.
To disassemble the organ, reverse the procedure.
• To prevent the upper organ part from falling off the lower organ part, secure it firmly with the bolts.

---

1. On the lower organ part, remove the four bolts from the metal joints.
Lay the cords to the back of the lower organ part.
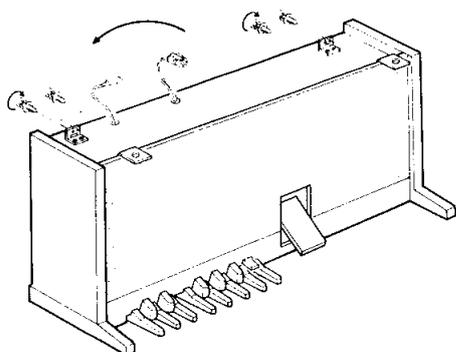
2. Place the upper organ part on the lower organ part, making sure to fit the metal pieces together.
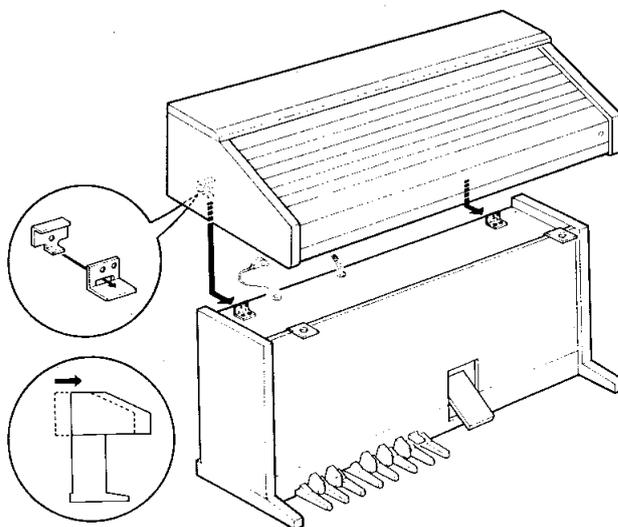
3. Using the four bolts removed in step 1, secure the upper organ part to the lower organ part as shown in the figure.
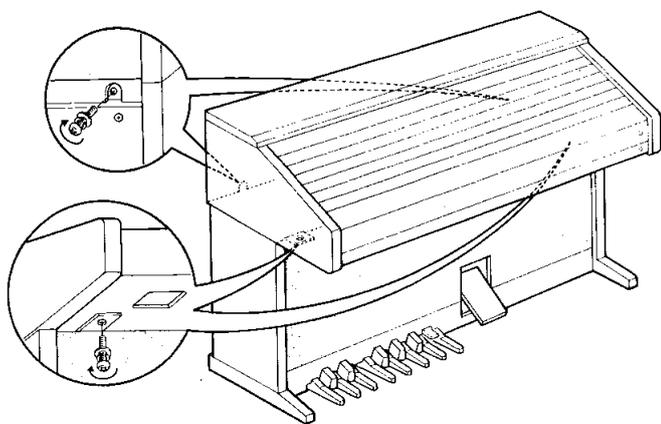
4. Connect the speaker cord and pedal cord as shown.
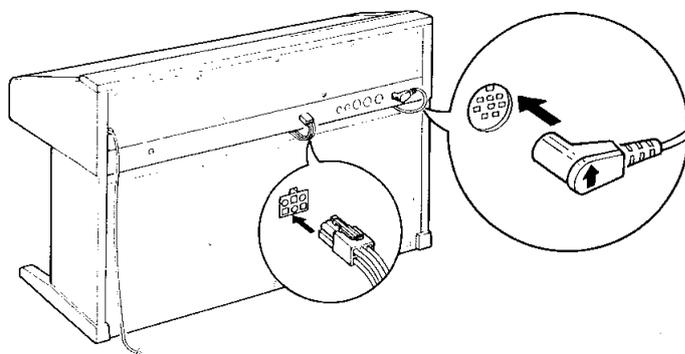
Symptoms which appear to be signs of trouble

The following changes in performance may occur in the Technics Organ 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 (**ROCK/DISCO**, **MODERN ROCK** and **ROCK [OTHERS]**) 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 31 or 35.) • The local control for a part performed on the keyboard is set to OFF. Set the local control to ON. (Refer to page 169 or 170.)
	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 181.)
	Some sounds cannot be selected.	• When the GENERAL MIDI mode is set to ON, the sounds which can be selected and operations which can be exectuted are limited. Set the GENERAL MIDI mode to OFF to return the instrument to its normal operation. (Refer to page 180.)
	Only percussive instrument sounds are produced when the lower keyboard is played.	• The **KEYBOARD PERCUSSION** button is on.
	The knee lever, foot switch(es) and full bass pedal do not operate properly. For example, the knee lever does not turn the **SUSTAIN** function on and off.	• Any functional on and off operation other than the factory presets are storable in these switches. For example, the knee lever can turn the **TECHNI-CHORD** on and off. Store your favorite functions to turn them on and off. (Refer to page 138.)
	The sound of the lower keyboard does not stop.	• The MEMORY button of the **AUTO PLAY CHORD** is on. Turn off the MEMORY button.
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 **COMPOSER A** or **COMPOSER B** with no stored pattern was selected. Select a different rhythm. • A **SEQUENCER** track button is on. When you are not playing back the **SEQUENCER** performance, turn off the track buttons. • CLOCK is set to MIDI. Set CLOCK to INTERNAL. (Refer to page 171.) • The rhythm does not work when the GENERAL MIDI mode is set to ON. Set the GENERAL MIDI mode to OFF. (Refer to page 180.)

	Phenomenon	Remedy
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 pages 88 and 89.)
	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. (Refer to page 79.)
	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 84.)
AUTO PLAY CHORD	No sound is produced for the automatic accompaniment.	• In the **RHYTHM GROUP** section, a rhythm in **COMPOSER A** or **COMPOSER B** 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.	• Some or all of the **ACCOMP 1, 2** and **3** buttons are turned off. Press the buttons to turn them on.
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 103.)
	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 107.)
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 116.)
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.
11	The password that you entered is incorrect.
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.

No.	Contents
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 this organ 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.
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 this organ 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 Technics Organ. It is only possible to load using the "ALL" option.
44	It is impossible to edit a Drum Kit. Please select a different sound from any group except Keyboard Percussion.

Index

Specifications

		SX-GA1	SX-GA3
KEYBOARD	UPPER	49 KEYS	
	LOWER	49 KEYS	
	PEDAL	13 KEYS, FULL BASS PEDAL	
SOUND GENERATOR		PCM	
MAXIMUM NUMBER OF NOTES PRODUCED SIMULTANEOUSLY	ORGAN PART	32 NOTES	64 NOTES
	ALL OTHER PARTS	64 NOTES	64 NOTES

SOUNDS

			SX-GA1	SX-GA3
ORCHESTRAL CONDUCTOR (UPPER, LOWER)			ORGAN, SOUND 1, SOUND 2, SOUND 3	
SOUND GROUP (UPPER, LOWER)			120 SOUNDS GROUPS: PIANO, E PIANO/HARPSI, GUITAR, STRINGS/VOCAL, BRASS, MALLET, SPECIAL PERC, REED, SAX/FLUTE, SYNTH	200 SOUNDS GROUPS: PIANO, E PIANO/HARPSI, GUITAR, STRINGS/VOCAL, BRASS, FLUTE, MALLET, SPECIAL PERC, REED, SAX/CLARINET, SYNTH BRASS/LEAD, SYNTH PAD
ORGAN	TYPE		6 TYPES GROUPS: ELECTRONIC TABS, DRAWBARS, CLASSICAL PIPE ORGAN	10 TYPES GROUPS: ELECTRONIC TABS, DRAWBARS, PIPE ORGAN
	TAB		<UPPER> 16', 5-1/3', 8', 4', 2-2/3', 2', 1', 4' PERC, 2-2/3' PERC <LOWER> 8', 4', 2-2/3', 2', 1'	<UPPER> 16', 5-1/3', 8', 4', 2-2/3', 2', 1-3/5', 1-1/3', 1', 4' PERC, 2-2/3' PERC <LOWER> 8', 4', 2-2/3', 2', 1-1/3', 1'
BASS PEDALS			48 SOUNDS	63 SOUNDS
			GROUPS: ORGAN, CLASSICAL ORGAN, STANDARD, ORCHESTRAL, CONTEMPORARY	

EFFECTS

	SX-GA1	SX-GA3
TREMOLO	UPPER/LOWER ORGAN (SLOW/FAST)	
EFFECT	UPPER/LOWER ORGAN	
SUSTAIN	UPPER/LOWER ORGAN, UPPER/LOWER SOUND GROUP, BASS PEDALS	
DIGITAL EFFECT	UPPER/LOWER SOUND GROUP, BASS PEDALS	
DSP EFFECT	—	UPPER/LOWER SOUND GROUP
BRILLIANCE	UPPER/LOWER SOUND GROUP, BASS PEDALS	
DIGITAL REVERB	O	

	SX-GA1	SX-GA3
TRANSPOSE	G–C–F'	
RHYTHM	140 RHYTHMS GROUPS: 8 BEAT, 16 BEAT, BIG BAND/SWING, JAZZ COMBO, COUNTRY/R&BLUES, MARCH/POLKA, LATIN 1, 2, ROCK/DISCO, MODERN ROCK, ROCK (OTHERS), SHOW TIME, TRAD, WALTZ	
CONTROLS	MAIN VOLUME, BALANCE, U/L ORGAN TYPE, START/STOP, INTRO & ENDING, FILL IN 1, 2, VARIATION, COUNT INTRO, SYNCHRO & BREAK, TEMPO/PROGRAM	
KEYBOARD PERCUSSION	O	
BACKGROUND SOUND	BIRD, WAVE, RAIN, CHURCH BELL, APPLAUSE	
AUTO PLAY CHORD	ONE FINGER, FINGERED, PIANIST, MEMORY, DYNAMIC ACCOMP	
EASY PLAY STYLE	ONE TOUCH ORGAN, ONE TOUCH REGISTRATION, ONE TOUCH PLAY/MUSIC STYLE SELECT, MUSIC STYLE ARRANGER	
TECHNI-CHORD	O	
PANEL MEMORY	SET, 1–8	SET, 1–16
SEQUENCER	16 TRACKS STORAGE CAPACITY: APPROX. 28,000 NOTES INPUT MODES: EASY RECORD, REALTIME RECORD, STEP RECORD FUNCTIONS: PUNCH RECORD, TRACK ASSIGN, EXPRESSION SETTING, AFTER TOUCH SETTING (GA3), EDIT (SONG CLEAR, TRACK CLEAR, TRACK MERGE, QUANTIZE, MEASURE ERASE, MEASURE COPY, MEASURE DELETE, MEASURE INSERT, VELOCITY CHANGE), PLAY, MEDLEY	
COMPOSER	5 PARTS: ACCOMP 1, 2, 3, BASS, DRUMS STORAGE CAPACITY: APPROX. 8600 NOTES INPUT MODES: REALTIME RECORD, STEP RECORD FUNCTIONS: MODE SELECT, PATTERN COPY, LOAD SINGLE COMPOSER PATTERN MEMORY: 2 BANKS × 6	
DISK DRIVE	3.5 Inch DISK DRIVE FOR 2HD, 2DD FUNCTIONS: DISK SAVE, DISK LOAD, MIDI FILE SAVE, MIDI FILE LOAD, DISK FORMAT, LOAD SINGLE COMPOSER PATTERN, LOAD SINGLE SOUND MEMORY	
SOUND	PART SETTING (PAN, SUSTAIN, REVERB, BRILLIANCE, VOLUME, KEY, TUNING, BEND, ASSIGN), TECHNI-CHORD TYPE, TREMOLO SPEED, MASTER TUNE, REVERB, GLIDE RANGE	PART SETTING (PAN, SUSTAIN, REVERB, DSP EFFECT, BRILLIANCE, VOLUME, KEY SHIFT, TUNING, BEND RANGE, ASSIGN MODE), TECHNI-CHORD TYPE, TREMOLO SPEED, MASTER TUNING, REVERB SETTING, GLIDE SETTING
MEMORY & CONTROL	INITIAL, SWITCH ASSIGN, POWER ON MODE, PANEL MEMORY MODE, MUSIC STYLE ARRANGER MODE, OUTPUT SETTING (GA3)	