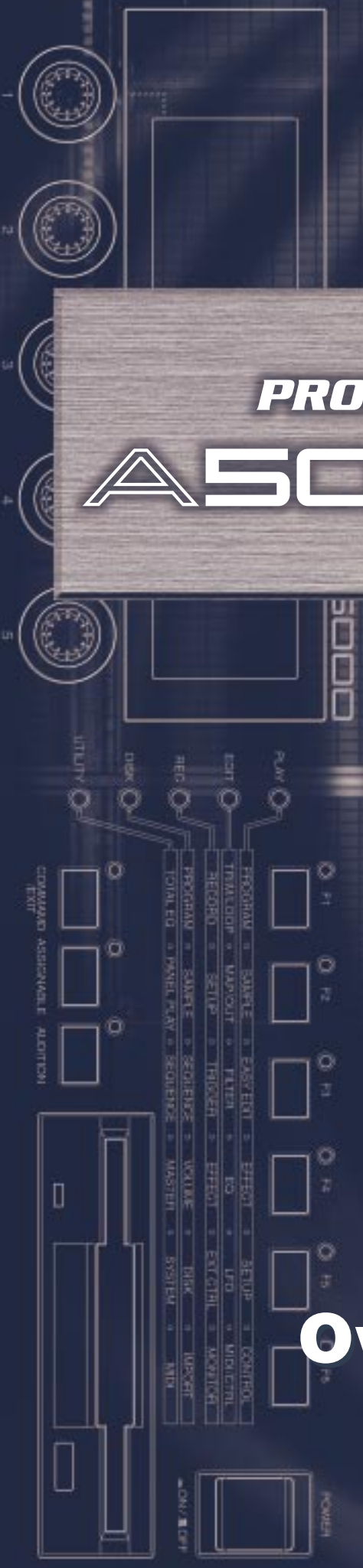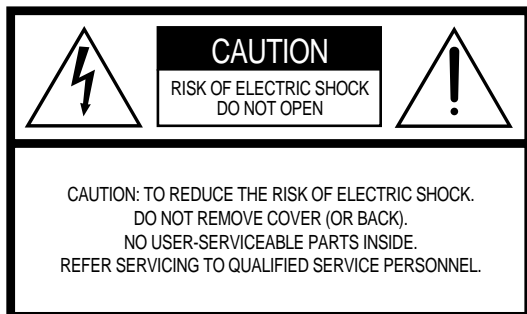# YAMAHA

PROFESSIONAL SAMPLER

A5000/A4000

Owner's Manual

SPECIAL MESSAGE SECTION

PRODUCT SAFETY MARKINGS: Yamaha electronic products may have either labels similar to the graphics shown below or molded/stamped facsimiles of these graphics on the enclosure. The explanation of these graphics appears on this page. Please observe all cautions indicated on this page and those indicated in the safety instruction section.

```
┌─────────────────────────────────────────┐
│  ⚡       CAUTION              !          │
│       RISK OF ELECTRIC SHOCK             │
│           DO NOT OPEN                     │
│                                           │
│  CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK. │
│     DO NOT REMOVE COVER (OR BACK).       │
│     NO USER-SERVICEABLE PARTS INSIDE.    │
│  REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. │
└─────────────────────────────────────────┘
```

The exclamation point within the equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.
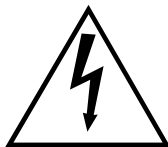
The lightning flash with arrowhead symbol, within the equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock.

IMPORTANT NOTICE: All Yamaha electronic products are tested and approved by an independent safety testing laboratory in order that you may be sure that when it is properly installed and used in its normal and customary manner, all foreseeable risks have been eliminated. DO NOT modify this unit or commission others to do so unless specifically authorized by Yamaha. Product performance and/or safety standards may be diminished. Claims filed under the expressed warranty may be denied if the unit is/has been modified. Implied warranties may also be affected.

SPECIFICATIONS SUBJECT TO CHANGE: The information contained in this manual is believed to be correct at the time of printing. However, Yamaha reserves the right to change or modify any of the specifications without notice or obligation to update existing units.

ENVIRONMENTAL ISSUES: Yamaha strives to produce products that are both user safe and environmentally friendly. We sincerely believe that our products and the production methods used to produce them, meet these goals. In keeping with both the letter and the spirit of the law, we want you to be aware of the following:

Battery Notice: This product MAY contain a small non-rechargable battery which (if applicable) is soldered in place. The average life span of this type of battery is approximately five years. When replacement becomes necessary, contact a qualified service representative to perform the replacement.

Warning: Do not attempt to recharge, disassemble, or incinerate this type of battery. Keep all batteries away from children. Dispose of used batteries promptly and as regulated by applicable laws. Note: In some areas, the servicer is required by law to return the defective parts. However, you do have the option of having the servicer dispose of these parts for you.

Disposal Notice: Should this product become damaged beyond repair, or for some reason its useful life is considered to be at an end, please observe all local, state, and federal regulations that relate to the disposal of products that contain lead, batteries, plastics, etc.

NOTICE: Service charges incurred due to lack of knowledge relating to how a function or effect works (when the unit is operating as designed) are not covered by the manufacturer's warranty, and are therefore the owners responsibility. Please study this manual carefully and consult your dealer before requesting service.

NAME PLATE LOCATION: The graphic below indicates the location of the name plate. The model number, serial number, power requirements, etc., are located on this plate. You should record the model number, serial number, and the date of purchase in the spaces provided below and retain this manual as a permanent record of your purchase.
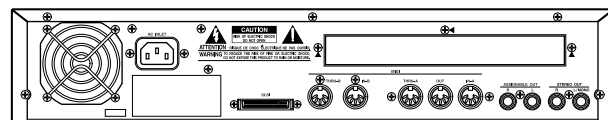
Rear Panel

Model _____

Serial No. _____

Purchase Date _____

PRECAUTIONS

PLEASE READ CAREFULLY BEFORE PROCEEDING

* Please keep these precautions in a safe place for future reference.

⚠ WARNING

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire or other hazards. These precautions include, but are not limited to, the following:

- Do not open the instrument or attempt to disassemble the internal parts or modify them in any way. The instrument contains no user-serviceable parts. If it should appear to be malfunctioning, discontinue use immediately and have it inspected by qualified Yamaha service personnel.
- Do not expose the instrument to rain, use it near water or in damp or wet conditions, or place containers on it containing liquids which might spill into any openings.
- If the power cord or plug becomes frayed or damaged, or if there is a sudden loss of sound during use of the instrument, or if any unusual smells or smoke should appear to be caused by it, immediately turn off the power switch, disconnect the electric plug from the outlet, and have the instrument inspected by qualified Yamaha

service personnel.
- Only use the voltage specified as correct for the instrument. The required voltage is printed on the name plate of the instrument.
- Always connect the three-pin attachment plug to a property grounded power source. (For more information about the main power supply, see "Power Connection".)
- Before cleaning the instrument, always remove the electric plug from the outlet. Never insert or remove an electric plug with wet hands.
- Check the electric plug periodically and remove any dirt or dust which may have accumulated on it.

⚠ CAUTION

Always follow the basic precautions listed below to avoid the possibility of physical injury to you or others, or damage to the instrument or other property. These precautions include, but are not limited to, the following:

- Do not place the power cord near heat sources such as heaters or radiators, and do not excessively bend or otherwise damage the cord, place heavy objects on it, or place it in a position where anyone could walk on, trip over, or roll anything over it.
- When removing the electric plug from the instrument or an outlet, always hold the plug itself and not the cord. Pulling by the cord can damage it.
- Do not connect the instrument to an electrical outlet using a multiple-connector. Doing so can result in lower sound quality, or possibly cause overheating in the outlet.
- Remove the electric plug from the outlet when the instrument is not to be used for extended periods of time, or during electrical storms.
- Before connecting the instrument to other electronic components, turn off the power for all components. Before turning the power on or off for all components, set all volume levels to minimum. Also, be sure to set the volumes of all components at their minimum levels and gradually raise the volume controls while playing the instrument to set the desired listening level.
- Do not expose the instrument to excessive dust or vibrations, or extreme cold or heat (such as in direct sunlight, near a heater, or in a car during the day) to prevent the possibility of panel disfiguration or damage to the internal components.
- Do not use the instrument near other electrical products such as televisions, radios, or speakers, since this might cause interference which can affect proper operation of the other products.
- Do not place the instrument in an unstable position where it might accidentally fall over.
- Before moving the instrument, remove all connected cables.

- When cleaning the instrument, use a soft, dry cloth. Do not use paint thinners, solvents, cleaning fluids, or chemical-impregnated wiping cloths. Also, do not place vinyl, plastic or rubber objects on the instrument, since this might discolor the panel or keyboard.
- Do not rest your weight on, or place heavy objects on the instrument, and do not use excessive force on the buttons, switches or connectors.
- Do not place objects in front of the instrument's air vent, since this may prevent adequate ventilation of the internal components, and possibly result in the instrument overheating. To ensure adequate ventilation and cooling, leave at least 10cm of open space behind the A5000/A4000 rear panel, and at least 4cm of open space above the top cover.
- Do not operate the instrument for a long period of time at a high or uncomfortable volume level, since this can cause permanent hearing loss. If you experience any hearing loss or ringing in the ears, consult a physician.

■ SAVING USER DATA

- To protect against data loss caused by malfunction or operating error, be sure to save your data regularly to floppy disk, hard disk or other strage medium.

> Yamaha cannot be held responsible for damage caused by improper use or modifications to the instrument, or data that is lost or destroyed.

Always turn the power off when the instrument is not in use.

■ Handling and Installation of Options

⚠ WARNING

- Before beginning installation, switch off the power to the A5000/A4000 and connected peripherals, and unplug them from the power outlet. Then remove all cables connecting the A5000/A4000 to other devices. (Leaving the power cord connected while working can result in electric shock. Leaving other cables connected can interfere with work.)
- Do not disassemble, modify, or apply excessive force to board areas and connectors on option boards, hard disk, ZIP drive, and SIMMs. Bending or tampering with boards and connectors may lead to electric shock, fire, or equipment failures.

⚠ CAUTION

- Before handling an option board, hard disk, ZIP drive, or SIMM, you should briefly touch the A5000/A4000 metal casing (or other such metallic area) with your bare hand so as to drain off any static charge from your body. Note that even a slight amount of electrostatic discharge may cause damage to these components.
- It is recommended that you wear gloves to protect your hands from metallic projections on the A5000/A4000, hard disk, SIMMs, ZIP drive, option boards, and other components. Touching leads or connectors with bare hands may cause finger cuts, and may also result in poor electrical contact or electrostatic damage.
- Take care to avoid dropping screws into the A5000/A4000 unit. If a screw does fall in, be sure to remove it before you reassemble and power up the unit. Starting the unit with a loose screw inside may lead to improper operation or equipment failure. (If you are unable to retrieve a dropped screw, consult your Yamaha dealer for advice.)

* Consult your Yamaha dealer if you have any questions regarding installation procedures for options boards, hard disks, SIMMs, or other optional devices.
* If SIMM memory, hard disk, ZIP drive, or other optional component fails to work properly, consult the item's dealer for advice.

Thank you for your purchase of the Yamaha A5000/A4000 Professional Sampler. The A5000/A4000 incorporates a leading-edge AWM2 tone generator, and is an ideal for use with synthesizers, MIDI keyboards, and other MIDI devices in a wide variety of musical applications.

This owner's manual will help you get the most from your A5000/A4000's many advanced features. Please read through the essential parts of the manual carefully before beginning work with your sampler, and refer back to the manual for additional information as necessary. Please be sure to store the manual in a safe and handy location.

List of Accessories

Your A5000/A4000 package includes the following accessories. Make sure that all of these accessories are included.

- CD-ROM set
- Booklet ("Guide for Accompanying Disks") 1
- Power Cord 1
- Power Cable for Internal Hard Disk.......................1
- SCSI Cable for Internal Hard Disk 1
- Owner's Manual (this document) 1
- Floppy Disk 4
- Power Cable for ZIP Drive 1
- IDE Cable for Internal Hard Disk 1
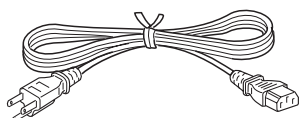
Power Cord
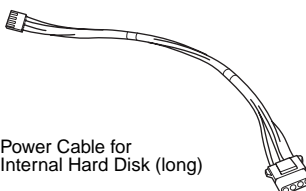
Power Cable for
Internal Hard Disk (long)

Power Cable for
ZIP Drive (short)
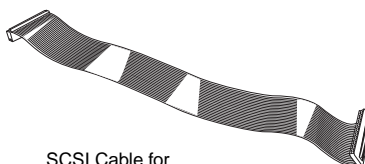
SCSI Cable for
Internal Hard Disk
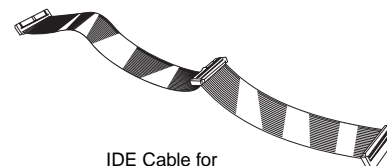
IDE Cable for
Internal Hard Disk

*   If any of the above items is missing, please contact your Yamaha dealer for assistance.
*   See the CD-ROM jackets or the separate "Guide for Accompanying Disks" booklet for information about the contents and use of the CD-ROMs and floppy disks.

Unauthorized copying of copyrighted software for purposes other than purchaser's personal use is prohibited.

Features

Professional Sampler With Endless Potential

The A5000/A4000 provides superior sound and peformance for a wide range of applications including break-beat production and playback, phrase sampling, musical instrument sampling, and much, much more.

Advanced Built-in Effect System

The A5000 has 6 high-performance effect blocks, and the A4000 has 3. An extensive range of effects from simple ambience to sophisticated sound modification can be used to enhance or radically alter the sound of samples, break-beats, or sampled phrases. Effects can even be applied during recording, so you can create samples with integral effects!

Fast, Efficient Operation

A large 320 x 80 dot full-graphic LCD panel displays sample waveforms, effect connections, and other important data in easy-to-understand form. The panel knobs, mode buttons, and function buttons also make operation exceptionally easy, intuitive, and versatile, while offering an amazing degree of real-time playback control.

Exceptional Expandability

With a built-in SCSI interface and internal SCSI and IDE connectors it's easy to add internal hard disk or ZIP drives, or external hard disk, ZIP, CD-ROM, CD-R or other drives. Further, 4 SIMM slots allow the sample memory to be expanded to maximum 128 megabytes. An optional AIEB1 I/O expansion board can be installed to provide 6 assignable analog outputs as well as digital coaxial and optical inputs and outputs.

Compatibility with a Wide Range of Sample Formats

In addition to being able to export and import AIFF and WAV wave files to or from floppy disk, SCSI disk, CD-ROM or other media, The A5000/A4000 can import a wide range of sample files from other devices including the Yamaha EX7/5/5R, SU700, and samplers from other manufacturers.

A Wide Selection of Sample Data Included

The A5000/A4000 comes with the CD-ROMs packed with useful sample data and audio sampling sources. Load the sample data directly, and record the audio source material to create your own samples. You can begin using your A5000/A4000 to make music immediately.
(An external SCSI CD-ROM drive is required to load the sample data.)

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* The company names and product names in this Owner's Manual are the trademarks or registered trademarks of their respective companies.

Using the Manual

Manual Organization

This manual is divided into 10 chapters, as follows:

Chapter 1   (page 17 — 30)

Connecting the A5000/A4000 to external MIDI equipment, amplifiers, etc., and powering up. Please read this chapter before using your A5000/A4000 for the first time.

Chapter 2   (page 31 — 56)

An easy introduction to sampling and some of the A5000/A4000's main feature. Follow the "hands-on" instructions to become familiar with your A5000/A4000.

Chapter 3   (page 57 — 86)

An in-depth look at the A5000/A4000 system and basic operating procedures. Essential knowledge for anyone who wants to make full use of the A5000/A4000's capabilities.

Chapter 4 — Chapter 9   (page 87 — 230)

The "reference" chapters, with complete, detailed information on all of the A5000/A4000 functions and features.

Appendix   (page 231)

Information on installing options, specifications, error messages, MIDI data format, and more.

Finding Information You Need

The manual offers several ways for you to locate specific information.

The Table of Contents   (page 8)

Look here to locate information in relatively broad categories.

The Index   (page 287)

Function names, key words, and other specific terms are listed in alphabetical order with page numbers allowing you to locate specific information quickly and easily.

Controls & Connectors   (page 10)
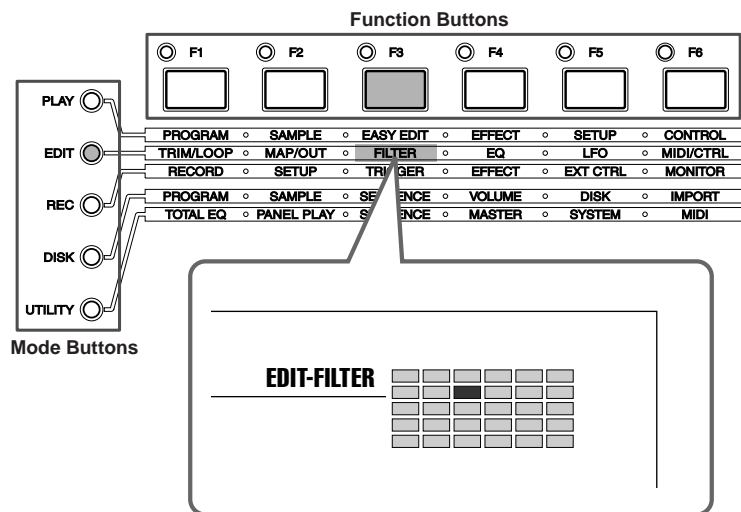
When you want to know about specific controls or connectors, go to this section.

The A5000/A4000 Function Tree   (page 73)

The Function Tree lets you find functions in context within the sampler's internal organization.

Flip Through the Pages

The chapter number and title are printed at the bottom of each manual page. The mode and function described on each page are listed at the top of the page. Next to the mode and function names at the top of each page is a 5 x 6 matrix which visually indicates the function described based on the mode and function button positions as shown below.

Function Buttons

◎ F1	◎ F2	◎ F3	◎ F4	◎ F5	◎ F6

PLAY ◎

EDIT ◎

REC ◎

DISK ◎

UTILITY ◎

Mode Buttons

PROGRAM ○	SAMPLE ○	EASY EDIT ○	EFFECT ○	SETUP ○	CONTROL
TRIM/LOOP ○	MAP/OUT ○	FILTER ○	EQ ○	LFO ○	MIDI/CTRL
RECORD ○	SETUP ○	TRIGGER ○	EFFECT ○	EXT CTRL ○	MONITOR
PROGRAM ○	SAMPLE ○	SEQUENCE ○	VOLUME ○	DISK ○	IMPORT
TOTAL EQ ○	PANEL PLAY ○	SEQUENCE ○	MASTER ○	SYSTEM ○	MIDI

EDIT-FILTER

Other Conventions

The following symbols and conventions are used throughout this manual:

❶ This symbol indicates important information that could, for example, prevent you from accidentally erasing valuable data.

NOTE Additional information that will give you a more complete understanding of the related function or feature.

HINT Hints on how you might be able to make the most of a feature or function.

(PLAY-PROGRAM-PgmSel), etc.
This type of expression indicates the mode, function, and display page on which a certain function or parameter can be found. The example points to the PLAY mode PRO-GRAM function group PgmSel display page.

[PLAY], etc. Indicates a panel button — in this case the [PLAY] button.

page ?? Page reference. Directs you to another page for related information.

In general this manual describes operation of both the A5000 and A4000. When a feature or function described is different or is not available in the A4000, this will be mentioned in the text or in parentheses following the text.

The illustrations and LCD screens as shown in this owner's manual are for instructional purposes only, and may be different from your instrument.

Contents

Panel and Connector Arrangement

■ Front Panel
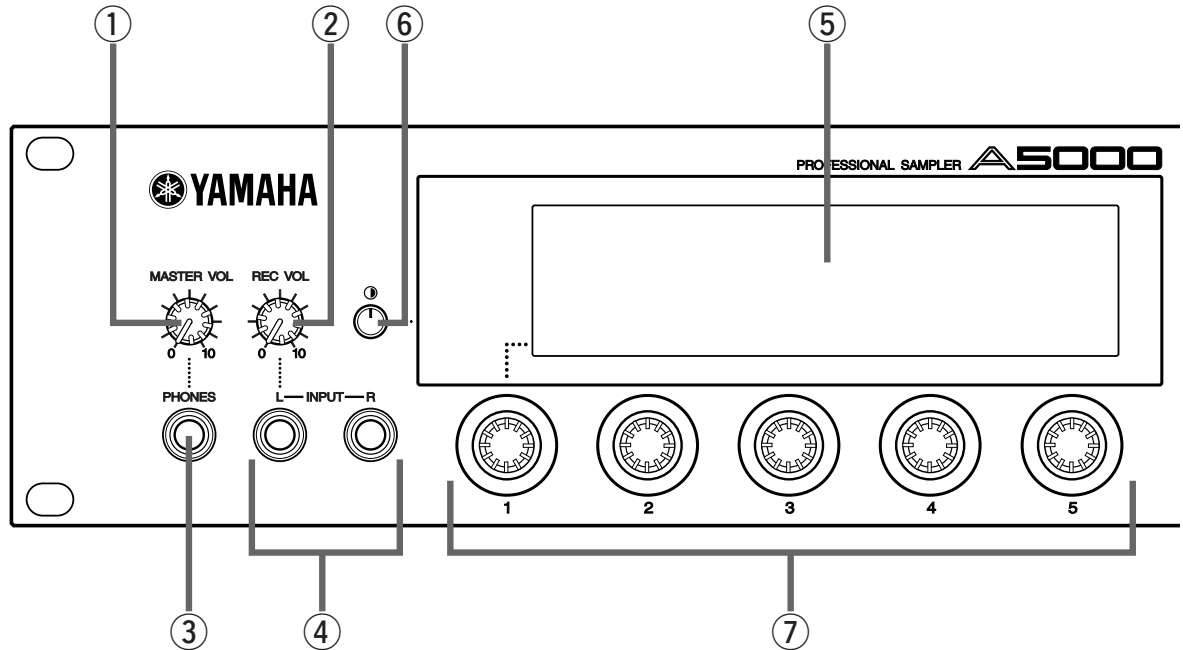
① **MASTER VOL (Master Volume)**

Adjusts the volume of the signal appearing at the STEREO OUT L/MONO and R jacks as well as the PHONES jack. This control does not affect output from the ASSIGNABLE OUT L and R jacks.

This knob does not affect the output level at the ASSIGNABLE OUT connectors, or at the various connectors provided on the optional I/O expansion board (AIEB1 board).

② **REC VOL   (Recording Volume)**

Adjusts the input level from the front panel's INPUT L and INPUT R jacks. Use the knob to adjust the level when recording a sample, or when passing an input signal directly through the A5000/A4000 outputs for realtime output ("A/D In" feature). This knob does not affect the input level to the DIGITAL IN and OPTICAL IN connectors on the optional I/O expansion board (AIEB1 board).

③ **PHONES jack**

Connects to a set of stereo headphones. The PHONES jack always produces the same signal as the STEREO OUT jacks. Note that headphone impedance should be between 16 and 150 ohms.

④ **INPUT L, INPUT R jacks**

Use these jacks to input an analog signal for recording, or for realtime output ("A/D In" feature). Use the INPUT L jack if you are supplying a monaural signal.

⑤ **Display**

The display shows a wide range of information including current status and available parameters.

⑥ **LCD Contrast Control**

LCD Contrast Control
Adjusts the contrast of the LCD display panel.

⑦ **Knobs**

You use the knobs to set the various parameter values, to switch display pages, and execute operations. In most cases you turn the knob to set a value, and push the knob to execute an operation — for example, to start or stop recording. Knobs are numbered 1 to 5.

⑧ **Mode buttons**

The A5000/A4000 provides five operating modes. You select the mode by pressing the corresponding mode button. The button lamp comes on to indicate that the mode is selected.

Each mode is further divided into six functions. After selecting the mode, you can switch among its functions by pressing the appropriate function keys.
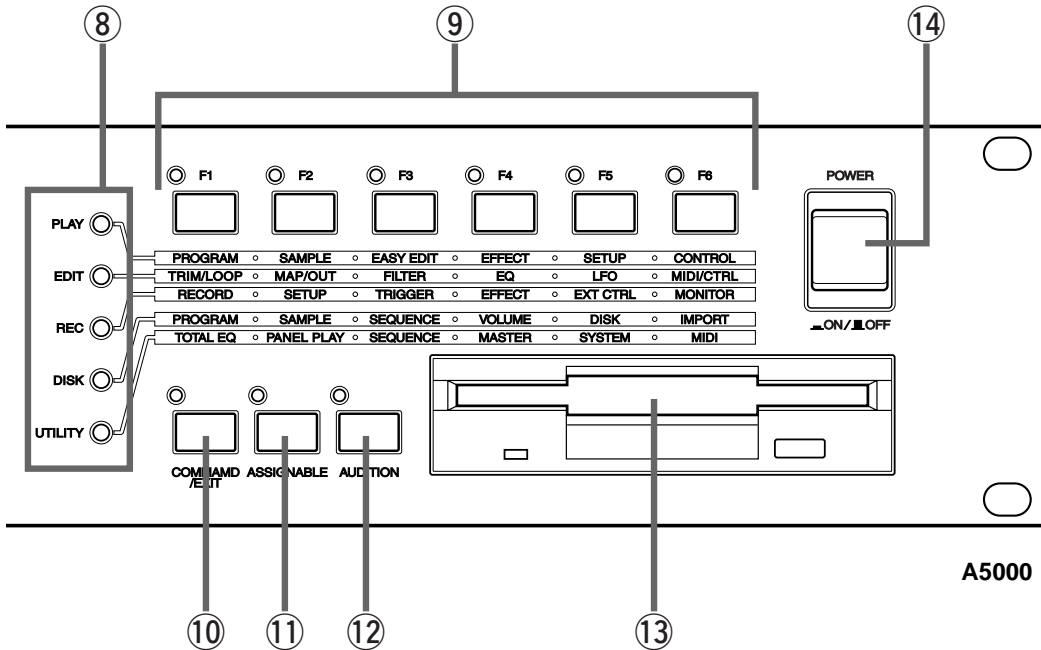
A5000

(The A5000/A4000 also uses the button lamps to let you know that it is receiving MIDI data. Each lamp corresponds to a different MIDI data type, and will continue to blink while the A5000/A4000 is receiving MIDI data of that type. (page 85))

⑨ **[F1] — [F6] Function buttons**

Use these buttons to switch among the six functions within the currently selected mode.

⑩ **[COMMAND/EXIT] button**

This button calls the command menu from which you can access a range of commands not included in the modes. Press a second time to revert to the mode display. (page 177, 206)

⑪ **[ASSIGNABLE] button**

This button can be used to turn off all notes, reset all controllers, switch Knobs 2 through 5 for control change operation, switch the function buttons for tone generator playback, and more. (page 86)

⑫ **[AUDITION] button**

Press the button to play out the currently selected sample. You use this feature to check the sound of the sample while editing.

⑬ **Floppy-disk drive**

Accepts a 3.5-inch floppy disk. You can use floppy disks to save and reload your data (programs, samples, sequences, and system settings).

Note that there is an access lamp at the lower left of the drive. The lamp lights up while the disk is being accessed. Please do not eject the floppy-disk while this lamp is on.

To eject a disk, press the EJECT button at the lower right of the drive. (page 15)

⑭ **POWER switch**

Press once to switch the power on. Press again to turn the power off. (page 27)

• The A5000/A4000 stores all new data into main memory only, and will lose all of this data when you switch off the power. You must therefore be sure to save all important data to disk before turning the A5000/A4000 off.

■ Rear Panel
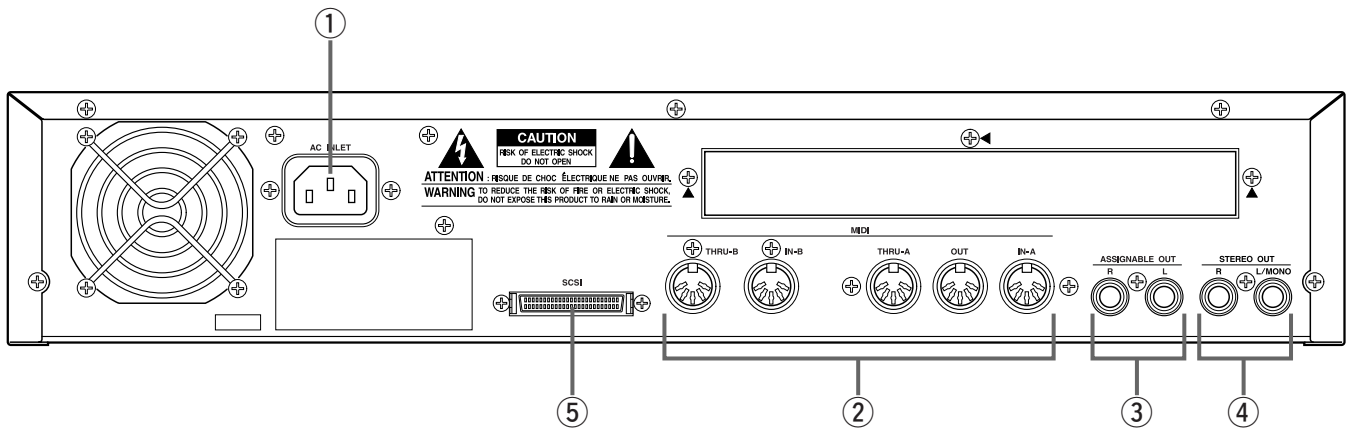
A5000

① **AC inlet**

Connects to the AC power cord supplied with the A5000/A4000. (Please do not use any other power cord with this unit.)

② **MIDI IN-A, IN-B, OUT, THRU-A, THRU-B (MIDI IN, OUT, THRU on the A4000)**

These connectors are for connection to external MIDI devices. The MIDI IN-A and MIDI IN-B connectors (MIDI IN only on the A4000) are for reception of MIDI messages, while the MIDI OUT connector is for MIDI transmission. MIDI THRU-A and THRU-B (MIDI THRU only on the A4000) retransmits the data received at the MIDI IN connector(s).

③ **ASSIGNABLE OUT jacks**

Analog output jacks. These jacks operate independently of the STEREO OUT jacks. You can use these jacks to output the sound of one or more selected samples, or to output the signal supplied through the front panel's analog input connectors (page 97, 128). You may also set them so that they output the same signal as the STEREO OUT jacks (page 125).

④ **STEREO OUT jacks**

These are the main analog output jacks.

⑤ **SCSI connector**

This is a half-pitch 50-pin connector. You use it to connect up a SCSI hard drive, CD-ROM drive, or other SCSI device.

■ Rear Panel (with optional AIEB1 board installed)
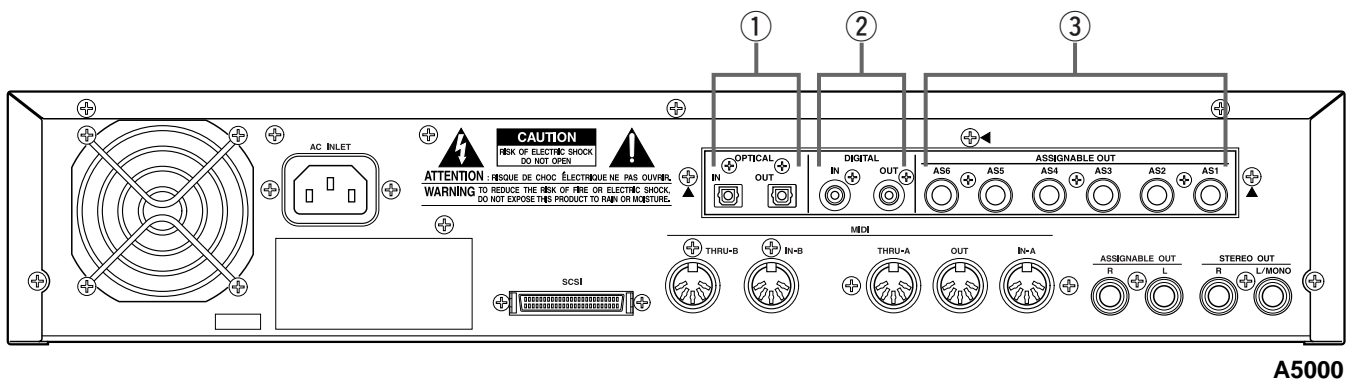
A5000

① **OPTICAL IN, OUT connectors**

Use these connectors to input or output digital signals over opti-
cal-fiber cable. You can use the OPTICAL IN to record a digital
signal of frequency 48kHz, 44.1kHz, or 32kHz. The OPTICAL
OUT connector outputs a digital signal of frequency 44.1kHz.

② **DIGITAL IN, OUT connectors**

Use these connectors to input or output digital signals over coax-
ial (RCA-pin) cable. The digital signal format is CD/DAT (S/P
DIF).

You can use the DIGITAL IN connector to record a digital signal
of frequency 48kHz, 44.1kHz, or 32kHz. The DIGITAL OUT
connector outputs a digital signal of frequency 44.1kHz.

③ **ASSIGNABLE OUT jacks (AS1 to AS6)**

Additional analog output jacks. Each pair (1&2, 3&4, 5&6)
operates independently of all other outputs on the A5000/A4000.
You can use these jacks to output the sound of one or more
selected samples, or to output the signal supplied through the
front panel's analog input connectors (page 97, 128). You may
also set them so that they output the same signal as the STEREO
OUT jacks (page 125).

A5000/A4000 Options

You can enhance the capability of your A5000/A4000 by installing options. The A5000/A4000 supports two options: (1) additional memory, and (2) the AIEB1 board (I/O expansion board).

Expansion Memory (SIMMs)

The A5000/A4000 stores all active data in main memory. To play a sample back, you must first load it into main memory. And whenever you record a sample, you must record it into main memory.

Samples consume a great deal of memory. The A5000/A4000 comes standard with 4 megabytes (4MB) of memory — but this is only sufficient to store about 48 seconds of high-quality monaural sound (at 44.1kHz sampling frequency), or approximately 24 seconds of stereo sound.

You can increase this capacity by installing additional memory. The A5000/A4000 accepts expansion memory in the form of SIMMs (single in-line memory modules). Using SIMMs, you can install up to 128MB of memory onto the A5000/A4000. SIMMs can be purchased from almost any computer-supply dealer.

Adding memory will allow you to record longer samples, and to work with more samples at the same time. For information about how to install SIMMs, refer to the Appendix. (page 234)

Important Information about Purchase of Expansion SIMMs for the A5000/A4000

The A5000/A4000 does not necessarily support all commercially available SIMMs. Before purchasing SIMMs, please consult your Yamaha dealer or an authorized Yamaha distributor (see list at end of the Owner's Manual) for advice. Note that Yamaha cannot assume responsibility for SIMM malfunctions.

SIMM Type and SIMM Configuration

- You need to use 72-pin SIMMs with access time of 70ns or less. The SIMM module size may be 4MB, 8MB, 16MB, or 32MB. The A5000/A4000 is designed for use with 32-bit (parity non-type) SIMMs, but can also accept installation of 36-bit (parity-type) SIMMs.

- When purchasing SIMMs, make sure that the SIMM design does not utilize more than 18 memory chips per module. (SIMMs comprised of more than 18 chips do not operate correctly on the A5000/A4000.)

- SIMMs must be installed in pairs: you can install either two SIMMs or four SIMMs. Both modules in a pair must have the same memory capacity.

- The A5000/A4000 ships with 4MB of sampling memory installed, and is capable of accessing up to 128MB. If you add one pair of 32MB SIMMs, for example, you increase the available sampling memory to a total of (4 + 32 x 2 =) 68MB. If you install four 32MB SIMMs, however, the sampling memory size becomes 128MB (and the original 4MB are effectively disabled).

- Yamaha recommends that you purchase SIMMs that conform to the JEDEC* standard. Please be aware, however, that conformance to this standard does not constitute a guarantee that the SIMMs will operate correctly on the A5000/A4000.

  * JEDEC (Joint Electron Device Engineering Council) sets standards for terminal configurations within electronic devices.

The I/O Expansion Board (AIEB1 Board)

In its standard configuration, the A5000/A4000 supports analog I/O only. Although it stores all internal data in digital form, it does not provide direct digital I/O connectors.

You can add digital I/O capacity by installing an AIEB1 board. The board offers two different digital connector types: optical connectors, and coaxial connectors. As an added benefit, the board also includes three stereo ASSIGNABLE OUTPUT pairs (six analog jacks), which operate independently of the standard STEREO OUT and ASSIGNABLE OUT jacks.

For information about how to install this board, refer to the Appendix. (page 237)

Handling the Floppy Disk Drive(FDD) and Floppy Disk

Precautions

Be sure to handle floppy disks and treat the disk drive with care. Follow the important precautions below.

Disk Type

The A5000/A4000 disk drive accepts 2HD-type and 2DD-type 3.5" floppy disks.

Inserting/Ejecting Floppy Disks

To insert a floppy disk into the disk drive:

- Hold the disk so that the label of the disk is facing upward and the sliding shutter is facing forward, towards the disk slot. Carefully insert the disk into the slot, slowly pushing it all the way in until it clicks into place and the eject button pops out.

To eject a floppy disk:

- Before ejecting the disk, be sure to confirm that the FDD is stopped (check if the LED below the floppy disk slot is off).
  Press the eject button slowly as far as it will go; the disk will automatically pop out. When the disk is fully ejected, carefully remove it by hand.
- Never attempt to remove the disk or turn the power off during reading or writing. Doing so can damage the disk and possibly the disk drive.
- If the eject button is pressed too quickly, or if it is not pressed in as far as it will go, the disk may not eject properly. The eject button may become stuck in a half-pressed position with the disk extending from the drive slot by only a few millimeters. If this happens, do not attempt to pull out the partially ejected disk, since using force in this situation can damage the disk drive mechanism or the floppy disk. To remove a partially ejected disk, try pressing the eject button once again, or push the disk back into the slot and then repeat the eject procedure.
- Be sure to remove the floppy disk from the disk drive before turning off the power. A floppy disk left in the drive for extended periods can easily pick up dust and dirt that can cause data read and write errors.

Cleaning the Disk Drive Read/Write Head

- Clean the read/write head regularly. This instrument employs a precision magnetic read/write head which, after an extended period of use, will pick up a layer of magnetic particles from the disks used that will eventually cause read and write errors.
- To maintain the disk drive in optimum working order Yamaha recommends that you use a commercially-available dry-type head cleaning disk to clean the head about once a month. Ask your Yamaha dealer about the availability of proper head-cleaning disks.

Never insert anything but floppy disks into the disk drive. Other objects may cause damage to the disk drive or floppy disks.

About the Floppy Disks

To handle floppy disks with care:

- Do not place heavy objects on a disk or bend or apply pressure to the disk in any way. Always keep floppy disks in their protective cases when they are not in use.
- Do not expose the disk to direct sunlight, extremely high or low temperatures, or excessive humidity, dust or liquids.
- Do not open the sliding shutter and touch the exposed surface of the floppy disk inside.
- Do not expose the disk to magnetic fields, such as those produced by televisions, speakers, motors, etc., since magnetic fields can partially or completely erase data on the disk, rendering it unreadable.
- Never use a floppy disk with a deformed shutter or housing.
- Do not attach anything other than the provided labels to a floppy disk. Also make sure that labels are attached in the proper location.

To protect your data (Write-protect Tab):

- To prevent accidental erasure of important data, slide the disk's write-protect tab to the "protect" position (tab open).

Data backup

- For maximum data security Yamaha recommends that you keep two copies of important data on separate floppy disks. This gives you a backup if one disk is lost or damaged.

Chapter *1*
Setting Up

Connecting the A5000/A4000 to external MIDI equipment, amplifiers, etc., and powering up. Please read this chapter before using your A5000/A4000 for the first time.

Setup Procedure

his chapter explains how to set up your equipment and run a simple sound check.

Setup Sequence

This chapter takes you through each of the steps necessary to connect up your system.

Connecting the Power

Explains how to connect up the A5000/A4000's power cord. (page 19)

Connecting the A5000/A4000 Outputs

Shows how to connect the A5000/A4000's stereo and assignable outputs to external audio devices. (page 20)

Connecting the Audio Inputs

Shows how to connect microphones and other input devices to the A5000/A4000. (page 23)

MIDI Connections

Introduces basic MIDI concepts, and shows how to connect up MIDI devices. (page 25)

Power ON/OFF

Explains the proper sequence for turning connected devices on and off. (page 27)

Sound Check

Takes you through a simple sound check, to confirm that your equipment is connected correctly. (page 28)

> • *If you have already acquired and intend to install options such as addition SIMM memory, the optional AIEB1 I/O Expansion Board, internal hard disk or ZIP disk drives, or external SCSI devices, please install the options before carrying out the setup procedures described in this chapter.*
>> • *SIMM (expansion memory) installation.....page 234*
>> • *AIEB1 I/O Expansion Board installation....page 237*
>> • *Internal SCSI hard disk installation...........page 240*
>> • *Internal IDE hard disk installation ....page 244*
>> • *ATAPI ZIP drive installation ....page 247*
>> • *External SCSI device connection..............page 251*

Power Connection

This page shows you how to connect up the power cord that comes with the A5000/A4000.

> • Be sure that the A5000/A4000's power switch is OFF before you attach the cord. (The switch is OFF when it is all the way out.)
> • The A5000/A4000 is designed for use with a grounded line (three-prong outlet).

Connecting the Cord

Connect the supplied power cord to the AC inlet on the rear panel. Then plug the other end of the cord into a 3-prong wall outlet.
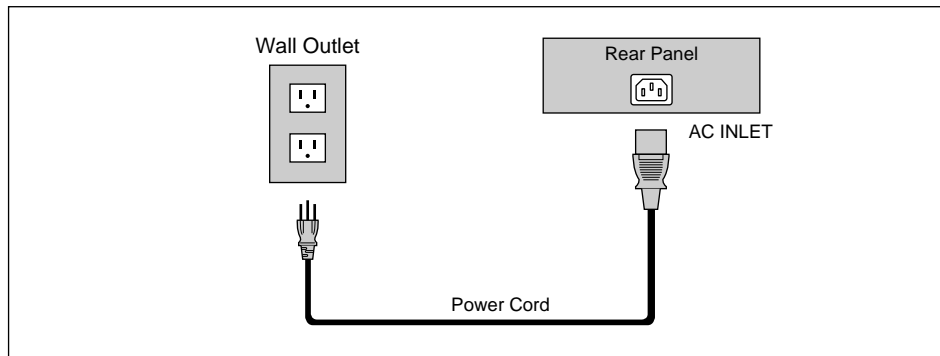
Audio Output Connections

This section explains how to connect the A5000/A4000 audio outputs to external devices.

> • *Be sure that power to the A5000/A4000 and to peripheral devices is OFF before making these connections. Connecting devices while power is ON may result in damage to amps or speakers.*
> • *Digital I/O connections are available only if the optional AIEB1 board is installed.*

Connecting the Analog Outputs

The A5000/A4000 comes standard with the following stereo output jacks.

- **STEREO OUT** ....Main analog output.
- **ASSIGNABLE OUT**.......You can set the jacks to operate independently of the STEREO OUT jacks, so that they output selected samples or programs only. The feature is useful, for example, when you want to send the main signal to one audio device while sending a specific sample to a different device. But it is also possible to set these jacks so that they output the same signal as the STEREO OUT jacks. (page 195)

If you have installed the optional I/O expansion board (AIEB1 board), your A5000/A4000 will include three additional ASSIGNABLE OUT pairs (ASSIGNABLE OUT jacks 1 to 6).

For monaural output:
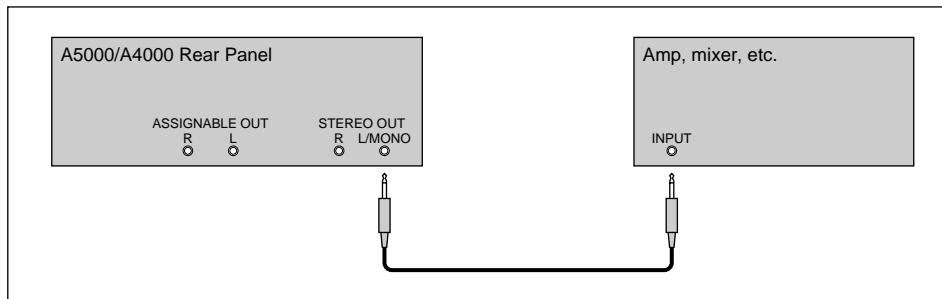
For stereo output:

For assignable output:

A5000/A4000 Rear Panel

ASSIGNABLE OUT
R   L

STEREO OUT
R   L/MONO

Amp, mixer, etc.

INPUT 1
L   R

INPUT 2
L   R
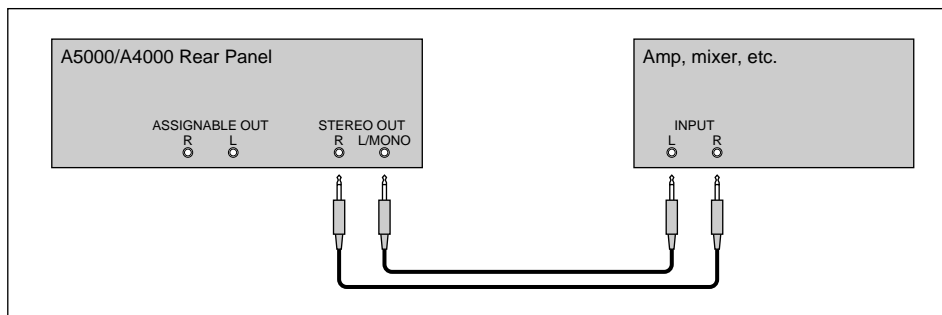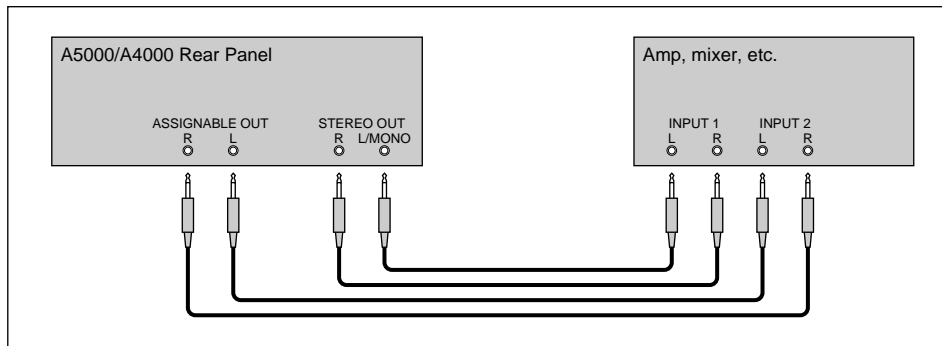
Assignable output using AIEB1 expansion board:

A5000/A4000
Rear Panel

6   5   4   3   2   1
ASSIGNABLE OUT

Amp, mixer, etc.

L   R   L   R   L   R
INPUT 3   INPUT 4   INPUT 5

ASSIGNABLE OUT
R   L

STEREO OUT
R   L/MONO

INPUT 1
L   R

INPUT 2
L   R
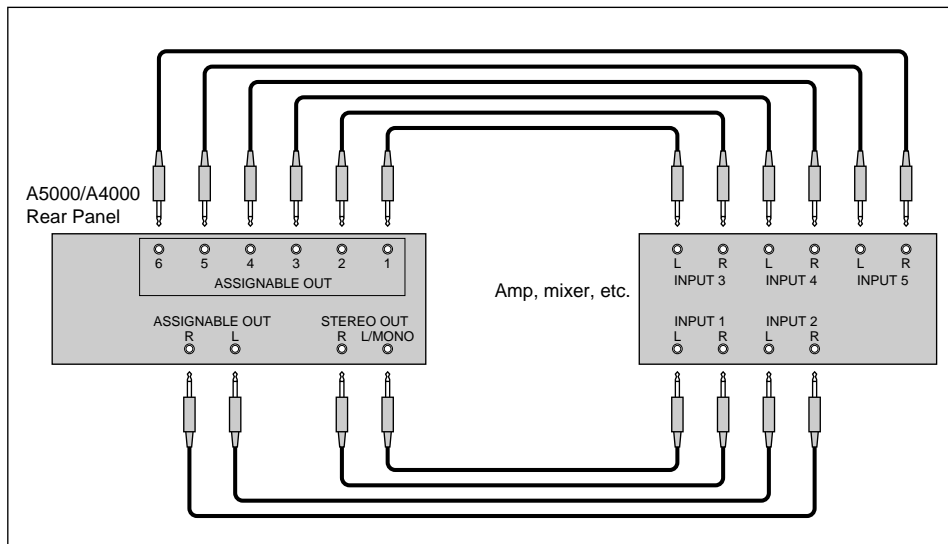
(It is not necessary, of course, to connect up all of the outputs on the expansion board. Connect only the outputs you need to use.)

Connecting the Digital Outputs

You can add digital I/O capacity to the A5000/A4000 by installing the optional I/O expansion board (AIEB1 board). The board enables direct digital output of A5000/A4000 playback and digital through-put. For purposes of compatibility, the AIEB1 board includes two different output types: OPTICAL OUT (optical fiber) and DIGITAL OUT (coaxial cable). Note that both of these outputs always produce identical signals.

The digital outputs function as assignable outputs. You can set them to output selected samples or programs, or you can set them to produce the same output as the STEREO OUT jacks (by setting the Stereo Out to Assignable Out parameter to DIG&OPT (UTILITY-MASTER-Out put) : page 195).

> • The OPTICAL connectors are protected by plastic covers. You must remove the cover before connecting the cable. Please remember to replace the cover when you disconnect the cable.

OPTICAL output connection

```
                IN   OUT      IN   OUT
                OPTICAL        DIGITAL                      OPTICAL INPUT


    A5000/A4000 Rear Panel                                 Digital device
```

Coaxial output connection

```
                IN   OUT      IN   OUT
                OPTICAL        DIGITAL                      DIGITAL INPUT


    A5000/A4000 Rear Panel                                 Digital device
```
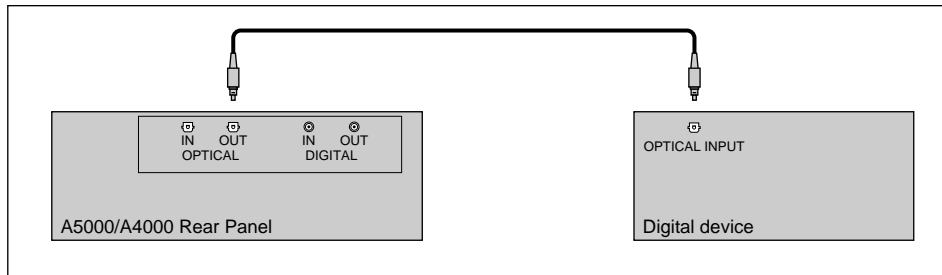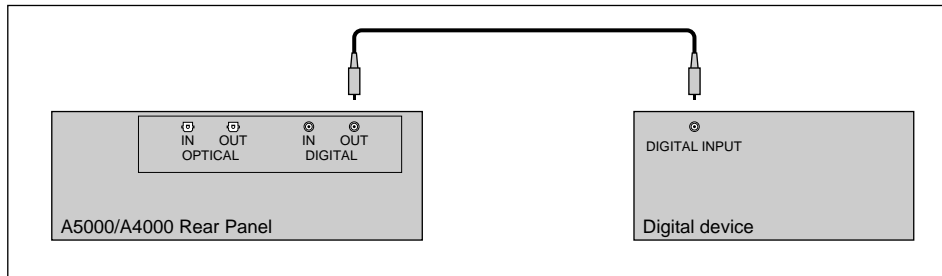
Audio Input Connections

This section explains how to connect the A5000/A4000 to a microphone, cassette recorder, or other sound source.

> • Be sure that power to the A5000/A4000 and to peripheral devices is OFF before making these connections. Connecting devices while power is ON may result in damage to amps or speakers.
>
> • Digital I/O connections are available only if the optional AIEB1 board is installed.
>
> • To select the input to be used for recording, use the Input parameter on the RecData page (page 155).

Connecting to Analog Input

The following illustrations show how to connect to an analog input source, such as a microphone, analog tape recorder, or analog synthesizer.

For monaural input
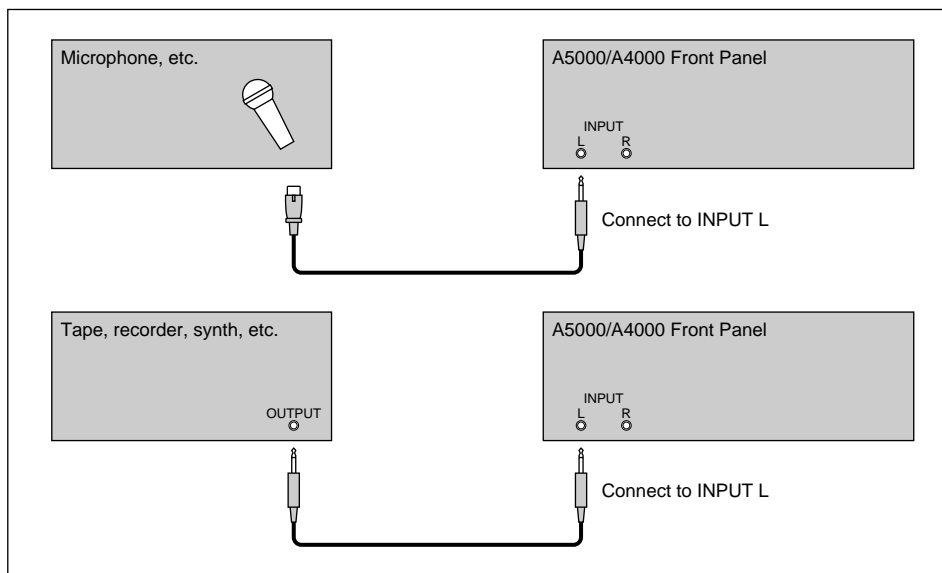
For stereo input
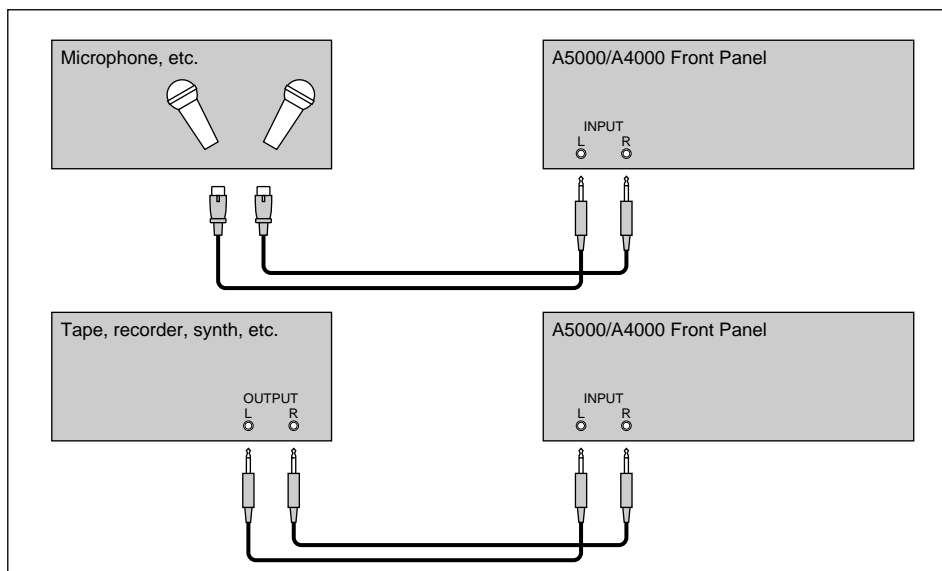
Connecting to Digital Input

Installation of the optional I/O expansion board (AIEB1 board) lets you record digital signals directly from a digital input source — such as a CD player or DAT recorder.

For purposes of compatibility, the AIEB1 board includes two different input types: OPTICAL (optical fiber) and DIGITAL (coaxial cable).

OPTICAL input connection

```
                    OPTICAL OUTPUT          IN   OUT     IN   OUT
                                              OPTICAL     DIGITAL

    Digital device                      A5000/A4000 Rear Panel
```

Coaxial input connection

```
                    DIGITAL OUTPUT          IN   OUT     IN   OUT
                                              OPTICAL     DIGITAL

    Digital device                      A5000/A4000 Rear Panel
```
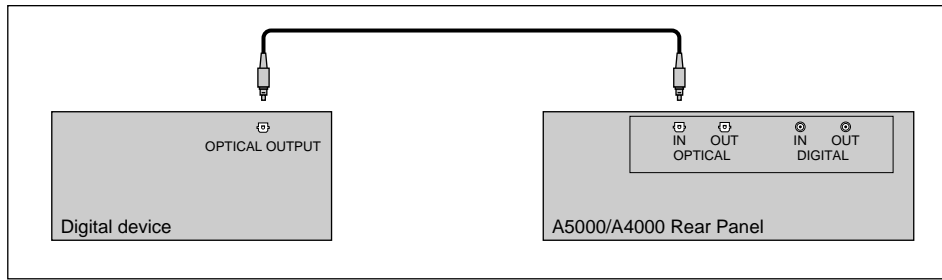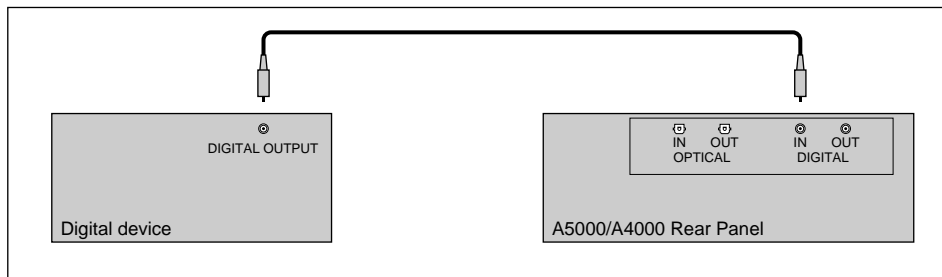
MIDI Connections

This section explains how to connect the A5000/A4000 to MIDI devices.

❗ • *Be sure that power to the A5000/A4000 and to peripheral devices is OFF before making MIDI connections. Connecting devices while power is ON may result in MIDI processing errors or unexpected and continuous sound output.*

About MIDI

The following overview introduces some basic MIDI concepts. Readers familiar with MIDI may wish to skip to "MIDI Connection Configurations," on the next page.

What is MIDI?

MIDI (for "Musical Instrument Digital Interface") is a standard, internationally-recognized interface for music-related digital communication among electronic instruments, computers, sequencers, and related devices.

MIDI connectors and cables

MIDI devices provide MIDI connectors marked IN, OUT, and THRU. The IN connector receives data from external devices, the OUT connector outputs locally produced data, and the THRU connector relays data received at the IN connector. MIDI connections are made by running standard MIDI cables between connectors on different devices. Each MIDI cable connects the OUT or THRU connector of one device to the IN connector of another device.

Channels

A single MIDI cable carries up to 16 channels of performance data. If you have a MIDI setup consisting of three keyboards outputting performance data to a fourth device, for example, each keyboard would be transmitting data over a different channel. Each channel is identified by its channel number (1 to 16).

Data types

Each channel can carry a variety of data types. Data types include the following.

Note data:	Keys (on keyboard), and key striking force
Control change:	Controller movement (modulation wheel, foot controller, etc.)
Program change:	Change in voice or program
Aftertouch:	Pressure applied to key after initial strike
Pitchbend:	Movement of the pitchbend wheel
Bulk data:	Voice and device settings and related data

MIDI Connection Configurations

You can use MIDI connections to control the A5000/A4000 from an external keyboard, sequencer, or computer, or to transfer A5000/A4000 data to an external MIDI device.

Connecting to keyboard or MIDI controller
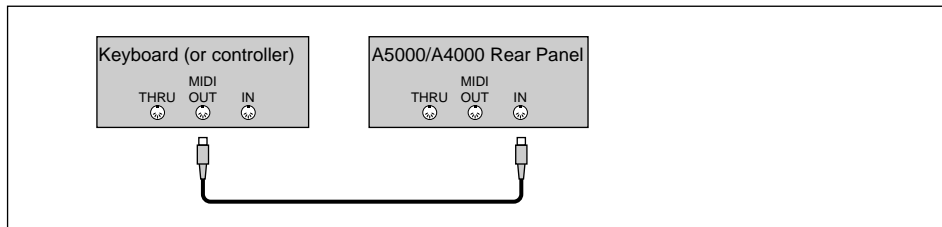
Connecting to keyboard/controller and external tone generator
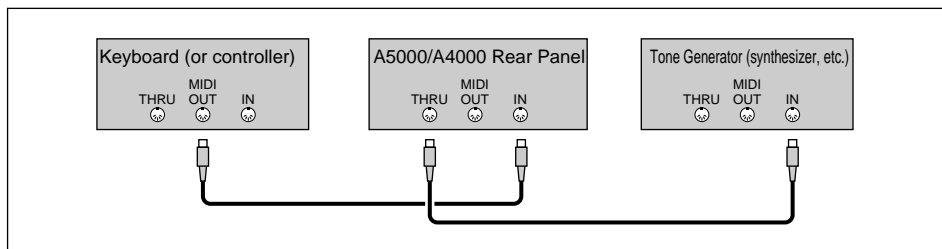
Connecting to computer or sequencer
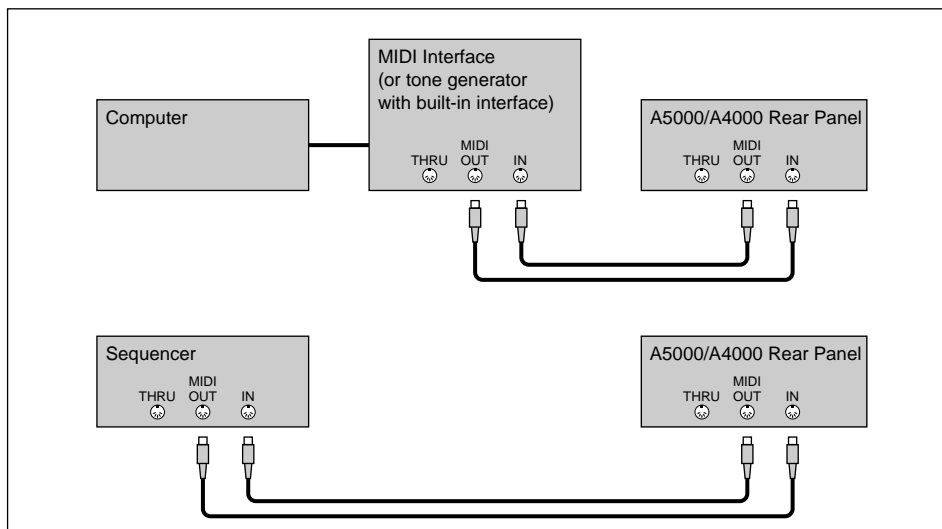
NOTE
- *A wide variety of MIDI connection configurations are available. Design your setup to suit your device and performance requirements.*
- *The A5000 has MIDI THRU-A and MIDI THRU-B connectors. The MIDI THRU-A connector retransmits MIDI data received via the MIDI IN-A connector, and the MIDI THRU-B connector retransmits MIDI data received via the MIDI IN-B connector.*

Powering On and Off

This section explains the correct procedures for powering up and powering down your equipment.

Power ON

! • *Speakers or amplifiers should be switched on last to protect against unexpected sound surges that may damage your equipment.*

[Procedure]

1. Switch on power to external MIDI and SCSI devices.
   • When powering up MIDI devices, it is generally good practice (although not strictly necessary) to switch on the transmitting-side device first.
   • If you are switching on a SCSI disk or CD-ROM drive, allow the drive a few seconds to get up to speed before proceeding to Step 2.

2. Switch on the power to the A5000/A4000. (Press the POWER switch on the front panel.)

3. Switch on power to speakers and other audio devices.

Power OFF

! • *Like other samplers, the A5000/A4000 stores all new data into main memory only, and will lose all of this data when you switch off the power. You must therefore save all important data to disk before turning the A5000/A4000 off.*

   • *Speakers or amplifiers should be switched off first to protect against unexpected sound surges that may damage your equipment.*

[Procedure]

1. Switch off the amplifiers or speakers.

2. Switch off the power to the A5000/A4000. (Press the POWER switch on the front panel.)

3. Switch off external MIDI and SCSI devices.

Sound Check

The next procedure takes you though a simple sound check that you can use to confirm proper connection of external audio and MIDI devices. The procedure assumes that you are using a MIDI keyboard to control A5000/A4000 playback.

[Procedure]

1. Make sure that the A5000/A4000 STEREO OUT jacks are connected to an amplifier or mixer and that all components are ready for playback. (page 20)

2. Connect the MIDI OUT connector of your MIDI controller — keyboard, sequencer, etc. — to the MIDI IN-A connector (MIDI IN on the A4000) of the sampler and ensure that all components are ready for MIDI control. (page 25)

3. Turn on the A5000/A40000 and all connected equipment. (page 27)

4. Set the A5000/A4000 MASTER VOL control to about the center of its range.

5. Set the amplifier, mixer, or other audio reproduction device's volume to an appropriate level.

6. Set the external MIDI controller's MIDI transmit channel to 1.

7. Make sure the sampler's [PLAY] mode button is lit (press the [PLAY] button if it isn't).
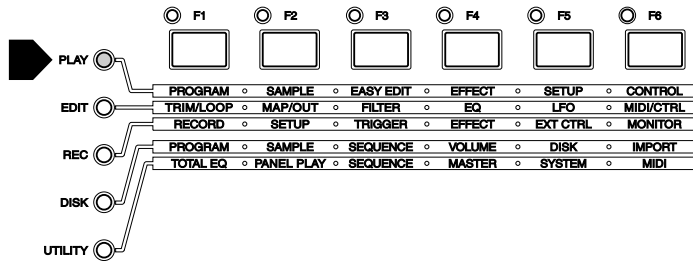
8. Press the [F2] function button.
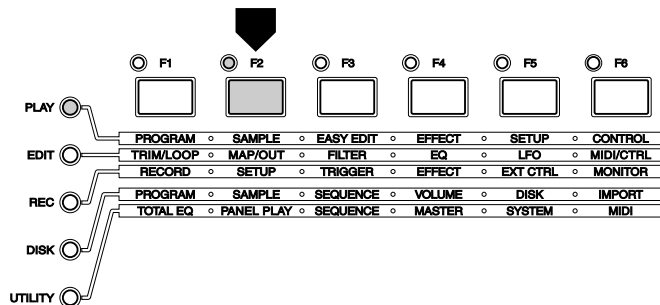
9. Rotate Knob 1 to select the Sample Select (PLAY-SAMPLE-SmpSel) display.

```
┌─────────────────────────────┐
│ ▮▯▶PLAY-SmpSel               │
│    001:Psm 001               │
│  ┌──────────────────────────┤
│   SAMPLE        SOLO  Rch ASSIGN
│   pulse 3       --        off
│   saw up        --        off    ┌──────────┐
│   sine wave     --        off    │▶DUPLICATE│
│   square        --        off    │ DELETE...│
│   triangle      --        off    │ NEW BANK │
│ 1▶TREE  2▶CLOSE  3▶SORT... 4▶RESERVE│ SAVE... │
│                                  │ RENAME...│
└─────────────────────────────┘
```
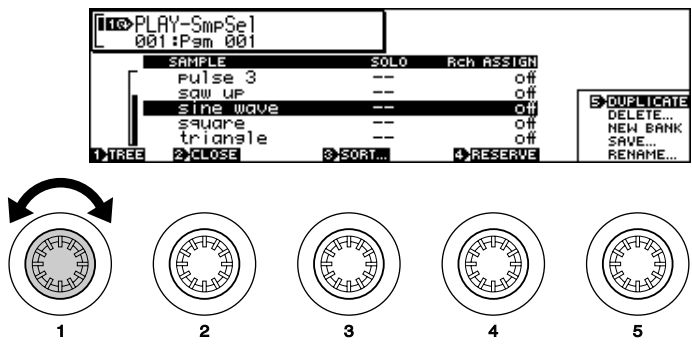
10. Rotate Knob 2 to highlight "sine wave," and rotate Knob 4 to set the Receive Channel Assign parameter to "A01" ("01" on the A4000).
  • When the A5000/A4000 is turned on a number of basic-waveform samples are automatically created. In this case we have selected the "sine wave" sample for our sound check.

```
┌─────────────────────────────┐
│ ▮▯▶PLAY-SmpSel               │
│    001:Psm 001               │
│  ┌──────────────────────────┤
│   SAMPLE        SOLO  Rch ASSIGN
│ ♪ sine wave     off       A01
│   pulse 1       --        off    ┌──────────┐
│   pulse 2       --        off    │ DUPLICATE│
│   pulse 3       --        off    │ DELETE...│
│   saw up        --        off    │ NEW BANK │
│ 1▶TREE  2▶CLOSE  3▶SORT... 4▶RESERVE│▶SAVE... │
│                                  │ RENAME...│
└─────────────────────────────┘
```
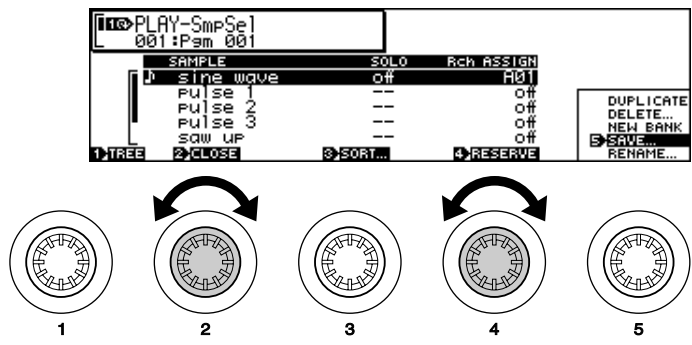
11. Play the MIDI keyboard or other controller connected to the A5000/A4000.
  • If you hear the sine wave sample at this point, all is OK.
  • If no sound is produced, try pressing the front-panel [AUDITION] button. If pressing the [AUDITION] button produces sound it is likely that you have not made the right MIDI connectors or properly set your MIDI controller. If pressing the [AUDITION] button produces no sound you should recheck your audio output connections and audio gear. Turn the power off and go back to the previous section to check you connections and settings.
  • If the sound check is successful, continue with the following steps.

AUDITION

12. Turn down all audio volume controls.

13. Turn the A5000/A4000 MASTER VOL all the way to the left (minimum volume).

14. Turn off the power to the A5000/A4000 and all connected equipment.
  • This completes the sound check procedure.

> **That completes the initial setup and test procedures. In Chapter 2 we'll provide an easy introduction to sampling and some of the A5000/A4000's main feature. Follow the "hands-on" instructions to become familiar with recording and playing samples with your A5000/A4000.**

Chapter 2

Sampler Basics & Essential Procedures

Although your individual musical needs will ultimately determine how you use your sampler, the basic operations and procedures are pretty much universal. This chapter describes the basic steps you'll need to be familiar with for just about any sampling/playback project, and provides step-by-step procedures for some of the most important operations.

SAMPLER BASICS

The process of using a sampler can be roughly divided into three phases:

> **1. Recording/Loading — getting sound into the machine.**
> **2. Editing — Tidying up and modifying the sound as desired.**
> **3. Playback — Putting it all together and making music.**

These phases and the operations each involves are described in more detail below.

Phase 1: RECORDING
Getting Sounds Into Your Sampler

No matter how you intend to use your sampler, the first thing you'll need to do is to record or load the sounds you want to play into the sampler's memory. There are basically three ways to do this:

LINE RECORDING FROM
CD, DAT, TAPE, ETC.

MICROPHONE RECORDING
FROM LIVE SOURCES

SAMPLE DATA FROM
DISK OR OTHER EQUIPMENT
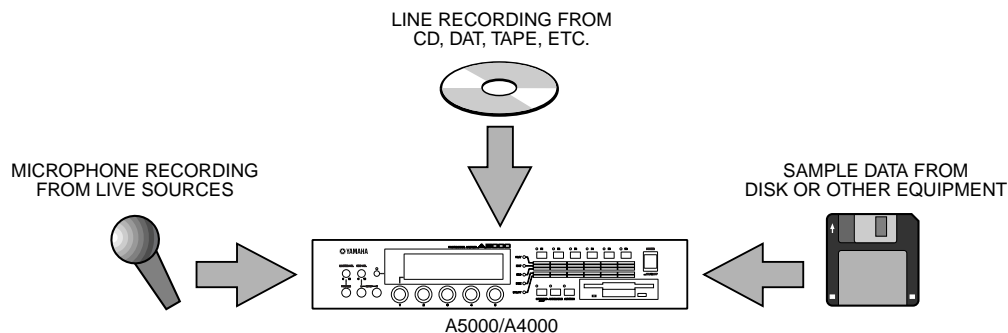
A5000/A4000

1. Live Sources (Microphone Recording)

This is the method you'll use if you will be recording acoustic musical instruments, voice, or other "live" sound to be edited, processed, and played via the A5000/A4000.

➲ *Step-by-Step procedure on page 37.*

2. Pre-recorded Audio Sources (Line Recording)

Line recording can be used to record samples from audio CD "TOOLS," loops and breakbeats from appropriate CDs, of from tape, DAT, or MiniDisc audio recordings you've made yourself "on location."

➲ *Step-by-Step procedure on page 37.*

3. Loading Sample Data

This procedure does not exactly qualify as "recording" since it is used to load sample data (i.e. samples already recorded and saved in digital sample format) from the internal floppy disk drive, external hard disk or other high-capacity drives, or directly from a computer or other compatible device via the SCSI interface.

➲ *Details beginning on page 165.*

Phase 2: **EDITING**
Making Your Samples Sound Right

Once the sample(s) you intend to use have been satisfactorily recorded and placed in the sampler's memory, then you can edit the sample data to create exactly the sound you want. This can involve anything from simply trimming/looping and mapping the sample (procedures which do not actually change the sound of the sample), to applying filter, envelope generator, low-frequency modulation, and effects which might dramatically alter the basic timbre and sound of the sample.

Although you probably won't need to use all of the available editing functions for every sample, the normal sequence of editing procedures would be:

1. Trimming and/or Looping

Once you've recorded a sample you might find that there's unnecessary space or noise preceding or following the sound you want to use. Or you might only want to use a portion of the sound you initially recorded. Trimming, as the term implies, allows you to "trim" away unwanted portions of the recorded sound, leaving only the sound you want to use.
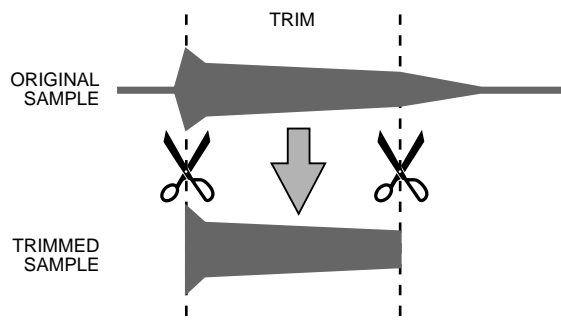
If you simply want your sample to play back in linear fashion from beginning to end, then looping is not necessary. But if you want the entire sample to repeat continuously, or you want a specified segment of the sample to repeat continuously to create a sustained tone, then you will need to specify the appropriate looping parameters.
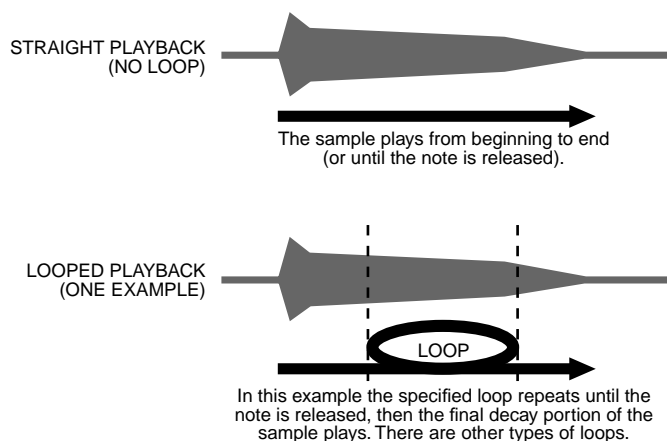
2. **Mapping**

Mapping determines the range of notes on the keyboard or other controller that will play the sample, and how the sample will respond to those notes - e.g. whether it will always play at the same pitch or at different pitches corresponding to the notes played. You can, for example, have a single sample played across the entire note range, several split or overlapping samples played in different note ranges, or many samples each played by an individual key/note.

SAMPLE 1   SAMPLE 2   SAMPLE 3

MAPPING
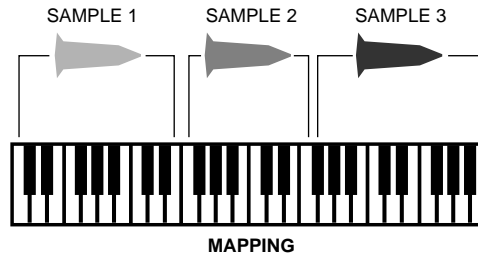
➲ *Step-by-Step procedure on page 46.*

3. **Filter, EG, and LFO**

If you want to actually modify the sound of your samples to create a desired musical effect, you might want to apply:

- Static or dynamic velocity-controlled filtering to modify the timbre of the sound or created "wah-wah" type effects.

Filter cutoff (or center) frequency
controlled by note velocity,
envelope generator or LFO.
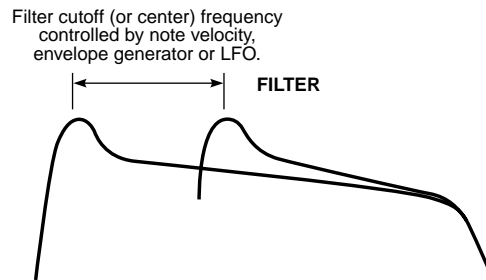
FILTER

➲ *Step-by-Step procedure on page 47.*

- Envelope-generator-based amplitude, filter, or pitch variations such that the controlled parameter varies over time whenever a note is played.

ENVELOPE   **EG**

Envelope generators can produce time-based
variations in amplitude, filter frecuency or pitch.
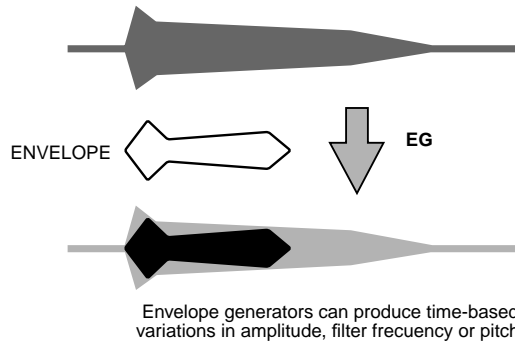
➲ *Step-by-Step procedure on page 50.*

• Cyclic LFO-based amplitude, filter, or pitch variations such as tremolo or vibrato.

LFO

LFO modulation can produce cyclic variations
in amplitude, filter frecuency or pitch.
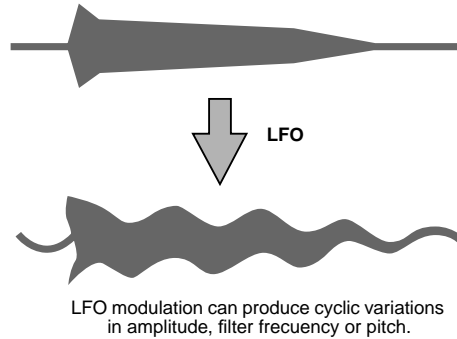
➲ *Step-by-Step procedure on page 52.*

4. Other Edit Functions

The A5000/A4000 actually offers many more editable functions than the few listed above. You can, for example, individually set the level, pan position, pitch, velocity response, level scaling, and other parameters for each sample. It may seem complex at first, but all these options allow you to create precisely the sound your music requires.

➲ *Details beginning on page 117.*

Phase 3: **PLAYBACK**
Putting It All Together & Making Music

Your individual samples are the basic "building blocks" used by the A5000 and A4000 to create musical sound. After your samples have been recorded and edited there are still a few steps you'll need to take before you can start making music.

1. Programs

Since the A5000/A4000 does not directly play individual samples, your samples need to be assigned to a "Program" which can be played from your keyboard, computer, or other MIDI controller. A Program can consist of a single sample played over the entire range of your keyboard or controller, or a number of samples "mapped" to different key ranges. Another program feature offered by the A5000/A4000 is the "Multi" mode in which different programs can be assigned up to 32 "parts" on the A5000 or up to 16 parts on the A4000, which can be played simultaneously via separate MIDI channels.

2. Effects

The extensive range of top-quality effects provided by the A5000/A4000 can be used to add the finishing touches to your sound. Both models offer multiple effect stages with versatile connection variations. The A5000 features six high-performance effect stages, and the A4000 has three. Both samplers offer a selection of 46 top-quality effects ranging from basic reverb, delay, and modulation effects to much more sophisticated, innovative effects as well as combinations.

3. Controller Functions

Another basic but important step in setting up for playback is assigning controller functions. Your keyboard's modulation wheel, for example, can be assigned to a wide range of parameters other than simple modulation. Effective use of MIDI controllers can give you extraordinary realtime expression control.

ESSENTIAL PROCEDURES

This section provides step-by-step procedures for some of the most important A5000/A4000 sampling, editing, and playback operations. Although complete coverage of all possible procedures and variations is not possible within the scope of this manual, the procedures provided will help you to become familiar with the A5000/A4000 interface to the point that you should be able to achieve the desired results by referring to the detailed "Reference" section of the manual (beginning on page 87).

> **NOTE** • Make sure that you have properly connected and set up your A5000/A4000 as described in the Setting Up section (page 17) before attempting the procedures in this section.

Step-by-Step
MICROPHONE/LINE RECORDING

This section describes recording from a microphone or line source. For details on loading sample data from a floppy disk or other storage device, refer to page 165 in the reference section of this manual.

1. Connect a Source

If you will be recording via microphone, connect a microphone with a 1/4" phone plug connector (or use an appropriate adaptor) to the sampler's "L" INPUT.

> **NOTE** • Just about any high-quality dynamic or condenser microphone can be used, but the A5000/A4000 does not provide phantom power for studio-type phantom-powered condenser microphones.
>
> • Two microphones connected to the "L" and "R" inputs, or a stereo microphone with independent 1/4" phone plugs for the left and right channels, can be used with the A5000/A4000 to record stereo samples.

If you will be recording from a line source, connect it to the "L," or "L" and "R" INPUT jacks.

> **NOTE** • If your source has either coaxial or optical digital output and you have installed the optional AIEB1 I/O Expansion Board in your sampler (page 13, 14), you can connect the digital output from your source directly to either the coaxial SPDIF or optical input on the expansion board.

2. Go To the Record Setup Display

Press the [REC] mode button, and then the [SETUP] function key to go to the "REC-RecSetup" display.
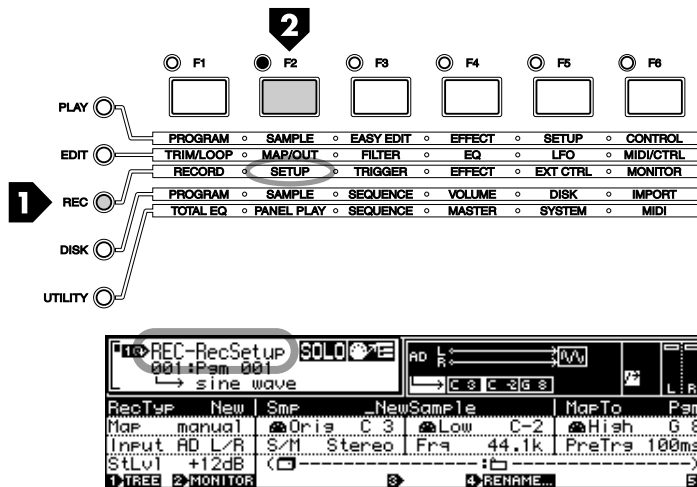
3. Select a Record Type

With the topmost function line on the display highlighted (use Knob 1 to select the top line if it is not already selected), use Knob 2 to select the "New" Record Type. This is the Record Type to select when you want to record a new sample to the sampler's memory.
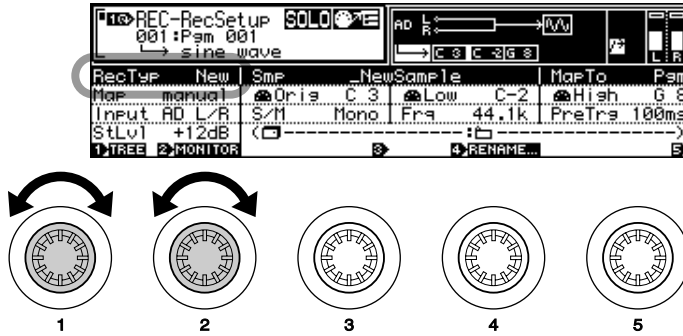
NOTE • In addition to "New," you can select "New+" to append the recorded data to the end of the currently selected sample, "Replc" to replace a specified existing sample, or "Save" to automatically save the recorded data to disk. See page 153 for details.

4. Select an Input

Use Knob 1 to highlight the third function line on the display, then use Knob 2 to select the input to which your source is selected. If you have connected a mono microphone to the "L" input, for example, use Knob 2 to select "AD L". If you have a stereo microphone or line source connected to the "L" and "R" inputs, select "AD L/R".
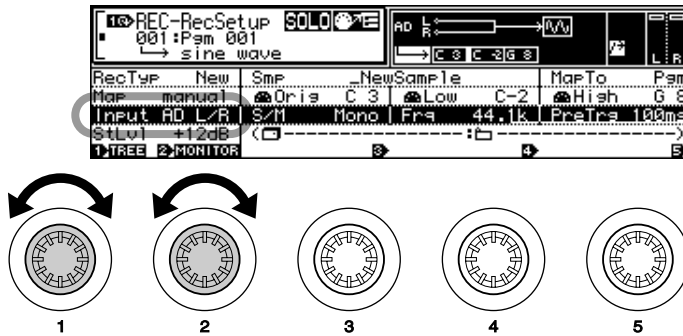
NOTE • If you have installed the optional AIEB1 I/O Expansion Board (page 13, 14), you will also be able to select "DIGITAL" (the coaxial SPDIF digital input on the expansion board, or "OPTICAL" (the optical digital input on the expansion board).

• The A5000/A4000 also allows you to select "StOut" in order to directly re-sample the output signal from the sampler's stereo outputs.

5. Select a Sample Type

With the third function line still highlighted, use Knob 3 to select "Mono" if you want to record a mono sample, or "Stereo" to record a stereo sample. If "Mono" is selected, a mono sample will be recorded even if you are recording from a stereo source.
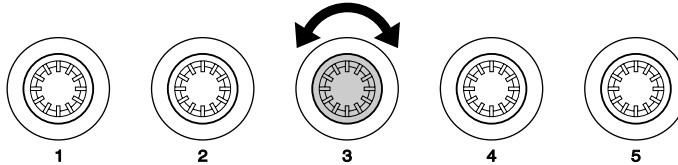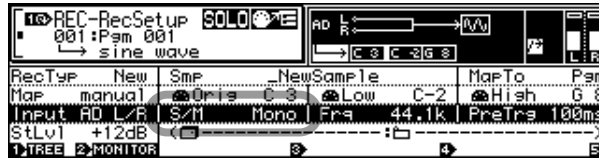
NOTE • If the optional AIEB1 I/O Expansion Board is installed (page 13, 14), and the "DIGITAL" or "OPTICAL" input is selected (above), only the "Stereo" Sample Type is available.

6. Select a Sampling Frequency

With the third function line highlighted, use Knob 4 to select the desired sampling frequency. The choices for the "AD L" and "AD L/R" input settings are:

44.1k	This is the same sampling frequency used by audio CDs, and the sampling frequency that will give you the highest quality (while using up the most memory).
22k	The frequency response is limited to about 10 kHz, but the memory requirements are only about 1/2 that of the 44.1 kHz sampling frequency.
22kLoFi	A noisy "Lo-Fi" version of the 22k sampling frequency.
11k	Only 1/4 the maximum 44.1 kHz sampling frequency, with frequency response limited to about 5 kHz.
11kLoFi	A noisy "Lo-Fi" version of the 11k setting.
5k	Frequency response is limited to only about 2.5 kHz, but this setting may be sufficient for some types of samples.
5kLoFi	A noisy "Lo-Fi" version of the 5k setting.

NOTE • If the optional AIEB1 I/O Expansion Board is installed (page 13, 14), and the "DIGITAL" or "OPTICAL" input is selected (above), the sampling frequency can be set to match the sampling frequency of the digital input signal, or it can be set to 1/2, 1/4, or 1/8 of the input signal. See page 155 for details.

7. Select a Pre-trigger Time

With the third function line highlighted, use Knob 5 to select an appropriate pre-trigger time. "Pre-trigger" means that recording actually begins the specified number of milliseconds (a millisecond is 1/1000th of a second) **before** recording is started, either manually or by automatic triggering. This ensures that the beginning of samples won't be cut off, particularly when using automatic triggering. Your choices are "0", "100", "200", "300", "400", and "500" milliseconds.

8. Go To the Record Trigger Display

Press the [TRIGGER] function key to go to the "REC-Trigger" display.
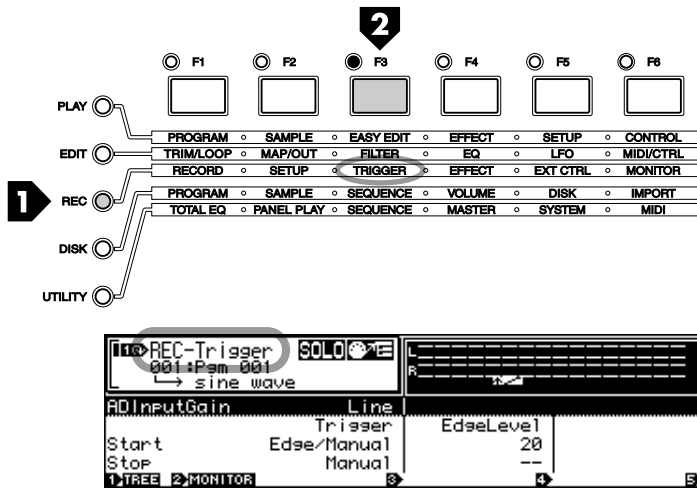
9. Set the AD Input Gain

This is not necessary if you're using direct digital input, but if you are recording analog microphone or line signals via the "L-INPUT-R" jacks you will need to select the appropriate AD Input Gain setting. With the top function line highlighted, use Knob 3 to select "Line" if you will be recording line-level signals, or "Mic" if you will be recording a low-level microphone signal.

10. Set the Trigger Options

The "REC-Trigger" display also offers "Start" and "Stop" trigger type and edge level parameters (function lines 3 and 4, respectively). If you want to start and stop recording manually (i.e. by pressing a panel button), select the "Manual" trigger mode. If you select the "Edge/Manual" mode, recording will be triggered automatically when the input signal level exceeds the threshold set by the corresponding "EdgeLevel" parameter (recording can still be triggered manually in this mode). The higher the edge level setting, the higher the signal level required to trigger recording. You can check your edge level setting visually in this page by applying the signal to be recorded to the A5000/A4000 and watching the meter and edge level marker at the top of the display.

The same applies to "Stop" triggering. You can stop recording in the "Manual" mode, or select the "Edge/Manual" mode so that recording stops automatically when the source signal level drops **below** the threshold set by the "EdgeLevel" parameter.
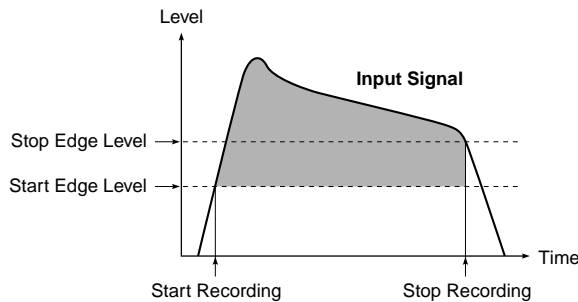
NOTE • When the MONITOR function is turned off, the source signal is not routed to the sampler's outputs for monitoring. If you wish to monitor the source via the sampler's outputs while recording, press Knob 2 (MONITOR) to turn monitoring on (the "MONITOR D" icon will appear).

11. Go To the Record Display

Press the [RECORD] function key to go to the "REC-Record" display. In this display the "RECORD" value is the total number of seconds that can be recorded as a single sample (the corresponding memory size in kilobytes appears in parentheses following the seconds value).
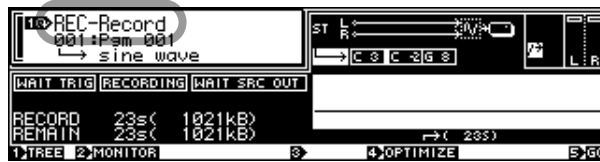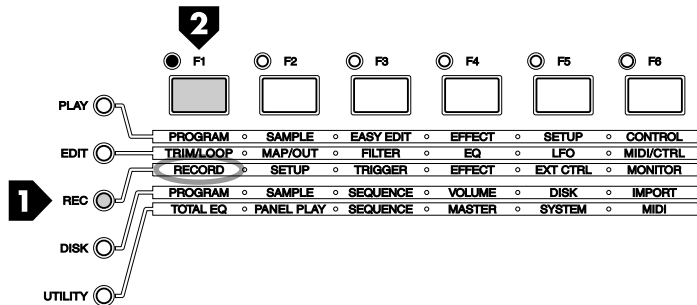
12. Go To the Record Standby Display

Press Knob 5 (GO) to go to the record standby display. The "WAIT TRIG" indicator in the display will be highlighted while the A5000/A4000 waits for recording to be triggered either automatically or manually.
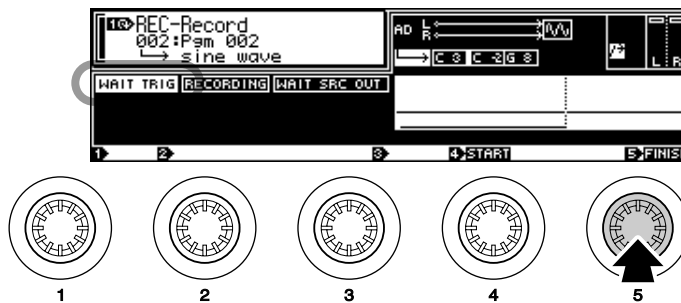
13. Start Recording

If you selected the "Edge/Manual" Start Trigger mode in step 10, recording will begin automatically as soon as the input signal level exceeds the specified Edge Level. If you selected the "Manual" Start Trigger mode, recording will begin as soon as you press Knob 4 (START). The "RECORDING" indicator in the display will be highlighted while recording is in progress.
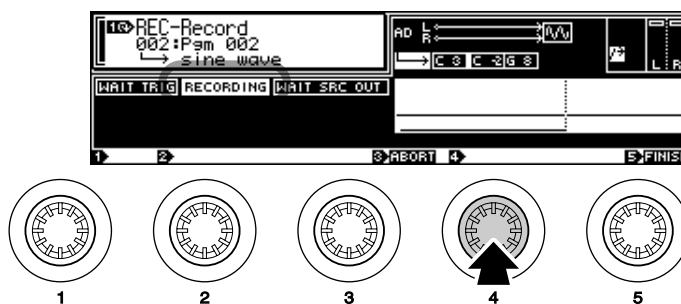
*14.*Stop Recording

If you selected the "Manual" Stop Trigger mode, recording will stop as soon as you press Knob 5 (FINISH). If you selected the "Edge/Manual" Stop Trigger mode in step 10, recording will stop automatically as soon as the input signal level drops below the specified Edge Level. If the recording is not going as expected and you want to stop and try again, press Knob 3 (ABORT) to abort the record operation without saving the recorded data to memory.

> **NOTE** • *When you record a sample as described in the above procedure, the recorded data is saved to the sampler's **volatile memory** and will be lost if the power is turned off before the data is saved to disk. See page 208 for information on saving recorded samples to disk.*

Step-by-Step
TRIMMING

Trimming allows you to "trim" away unwanted portions of the recorded sound, leaving only the sound you want to use.

1. Go To the TRIM/LOOP Display
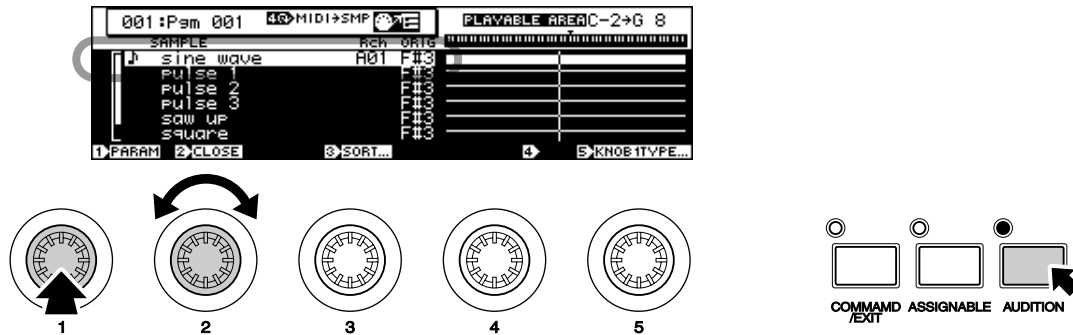
Press the [EDIT] button and then the [TRIM/LOOP] function key to go to the "EDIT-Waveform" display.
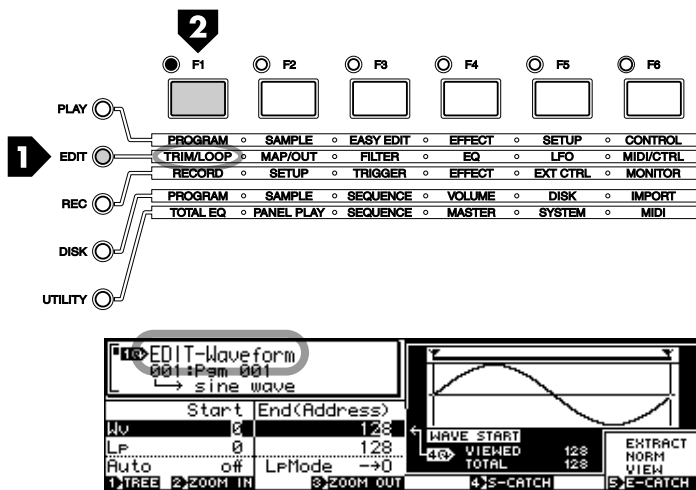
2. Select a Sample To Edit

If the sample you want to edit isn't already selected (the sample name appears at the bottom of the window in the upper left corner of the display), press Knob 1 (TREE) to see a list of the available samples, use Knob 2 to select the desired sample, then press Knob 1 (PARAM) again to return to the "EDIT-Waveform" display.

You can play the selected sample by pressing the [AUDITION] button.

3. Specify the Wave Start & End Addresses

With the topmost function line on the display highlighted ("Wave": use Knob 1 to select it if it isn't already selected), use Knob 2 and Knob 3 to specify the start and end addresses at which the sample is to be trimmed, respectively. Solid vertical lines in the waveform display show the currently selected Start and End points.

If you need coarser or finer adjustment, use Knob 4 to select the digit in the Start and End values which will be directly adjusted by Knobs 2 and 3. Your options are x1, x10, x100, x1000, and x10000. The position of the inverse block cursor in the address values shows the digit currently being adjusted. You can hear how the edited sample sounds at any point during this process by pressing the [AUDITION] button.

> **NOTE**
> • Be sure to check out the "Handy Auto-addressing Functions" described in the next section ("Step-by-Step LOOPING"). They can make locating optimum Start and End points a lot easier.
>
> • You can change the units used for trim and loop point specification by scrolling down to the "End-Type" parameter and using Knob 2 to select the desired unit: "Address", "Length", "Time", or "Beat". See page 124 for details on this feature.
>
> • The specified Wave Start and End points are saved with the sample data.

Step-by-Step
LOOPING

Looping lets you specify all or a portion of the sample as a "loop" which will repeat during playback, depending on the selected "Loop Mode." Looping can be used to simply make a sound repeat, or to make it possible to play sustained tones of virtually any length using a short sample.

If you have a violin sample, for example, it will have an attack, a relatively uniform middle section, and a release. If you loop a carefully selected section of the middle portion you can sustain the violin sound as long as you hold a note, then the release portion would play when the note is released.

1. Go To the TRIM/LOOP Display

If you are not already there, press the [EDIT] button and then the [TRIM/LOOP] function key to go to the "EDIT-Waveform" display.

2. Select a Sample To Edit

If the sample you want to edit isn't already selected (the sample name appears at the bottom of the window in the upper left corner of the display), press Knob 1 (TREE) to see a list of the available samples, use Knob 2 to select the desired sample, then press Knob 1 (PARAM) again to return to the "EDIT-Waveform" display.

You can play the selected sample by pressing the [AUDITION] button.
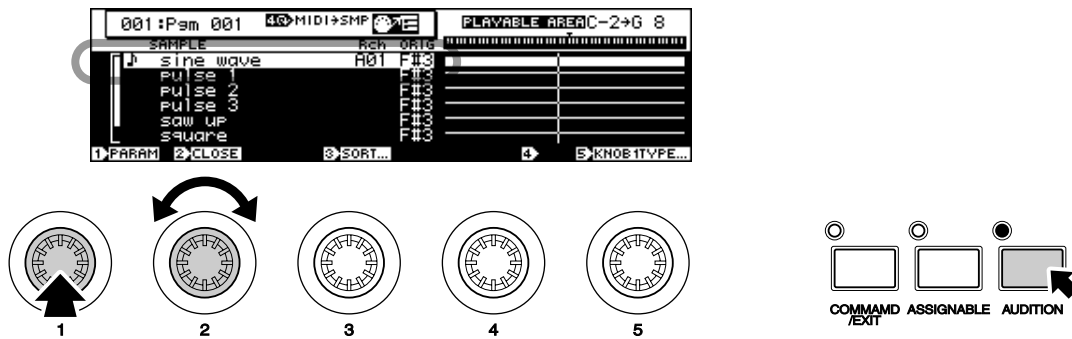
3. Specify the Loop Mode

Use Knob 1 to highlight the third function line on the display ("Auto" & "LpMode"), and use Knob 3 to select the desired Loop Mode. The available loop modes are listed below:

– – →	No loop
– →O	Continuous loop; the loop will continue to play until the note(s) is released, then the remainder of the loop will play and playback will stop.
→O→	Loop to release: the loop will play until the note(s) is released, then the remaining portion of the sample will play.
← – –	No loop; reverse playback.
One→	No loop one-shot. The sample plays through to the end regardless of note-off.
One←	No loop; reverse one shot. The sample plays through to the end backwards, regardless of note-off.

4. Specify the Loop Start & End Addresses

Use Knob 1 to highlight the second function line on the display ("Loop"), then use Knob 2 and Knob 3 to specify the Loop Start and End addresses, respectively. Dotted vertical lines in the waveform display show the currently selected Start and End points.

If you need coarser or finer adjustment, use Knob 4 to select the digit in the Start and End values which will be directly adjusted by Knobs 2 and 3. Your options are x1, x10, x100, x1000, and x10000. The position of the inverse block cursor in the address values shows the digit currently being adjusted. You can hear how the edited sample sounds at any point during this process by pressing the [AUDITION] button.

> **NOTE**
> • Note that the Loop values cannot be set "outside" the Wave Start and End points. Obviously, the Loop Start point cannot be set earlier than the Wave Start Point, and the Loop End Point cannot be set later than the Wave End Point.
>
> • You can change the units used for trim and loop point specification by scrolling down to the "End-Type" parameter and using Knob 2 to select the desired unit: "Address", "Length", "Time", or "Beat". See page 124 for details on this feature.
>
> • The specified Loop Start and End points are saved with the sample data.

Handy Auto-addressing Functions •

Sometimes, setting the optimum Wave and Loop points can be a tricky business. Unless your Start and End points are set precisely to the right points on the sample waveform, you can end up with annoying clicks and noise. The A5000/A4000 provides a number of auto-addressing functions that can make it easy to set precise Start and End points.

Use Knob 1 to highlight the third function line ("Auto" and "LpMode"), then use Knob 2 to select the Auto mode that best suits you purpose (see list below).

off	No auto-addressing.
LengLock	"Length Lock". When this mode is selected the length of the sample or loop will be precisely maintained when either the Start or End point is changed. For example, if you adjust the Loop Start address, the Loop End address will change automatically to maintain a constant loop length.
Zero	When this mode is selected only addresses which correspond to zero-crossing points on the waveform can be selected. This makes it easy to trim or loop a waveform so that no clicks are produced at the beginning or end of the sample.
Snap	When "Snap" is selected, only addresses corresponding to points on the waveform which are at exactly the same level as the opposing point can be selected. For example, if you have set the Start point of a loop, then the End point will always be at precisely the same level as the Start point. This mode can make it easy to set smooth, noise-free loops.

Step-by-Step
MAPPING

1. Go To the MAP/OUT Display

If you are not already there, press the [EDIT] button and then the [MAP/OUT] function key to go to the "EDIT-Mix&Key" display.
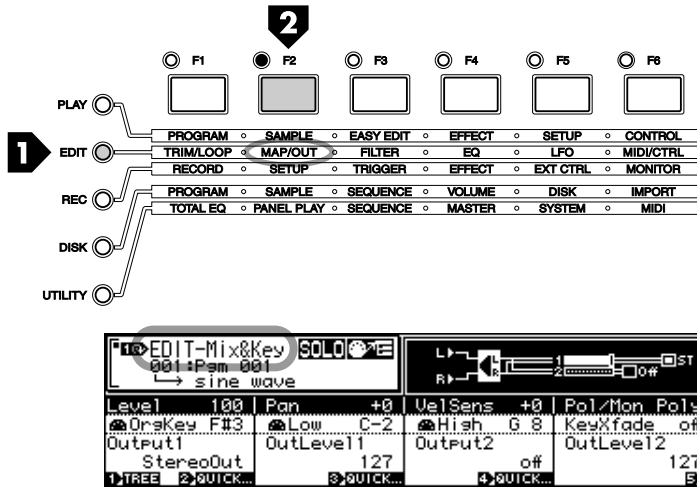
2. Select a Sample To Edit

If the sample you want to edit isn't already selected (the sample name appears at the bottom of the window in the upper left corner of the display), press Knob 1 (TREE) to see a list of the available samples, use Knob 2 to select the desired sample, then press Knob 1 (PARAM) again to return to the "EDIT-Waveform" display.

You can play the selected sample by pressing the [AUDITION] button.
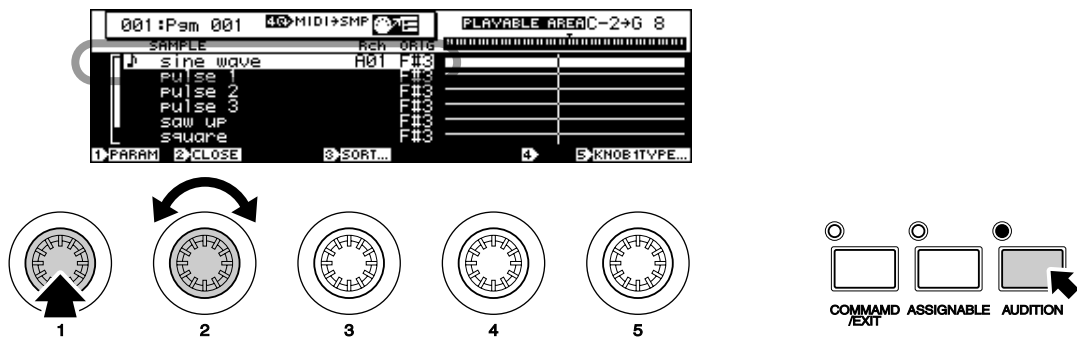
3. Map the Sample

Use Knob 1 to highlight the second function line on the display ("OrigKey/Low/High/KeyXfade").
Knob 2 sets the samples "Original Key." This is the note to which the original sample will be mapped (e.g. the note at which the sample will sound at its original pitch). Use Knob 3 and Knob 4 to set the "Low" and "High" notes of the range over which you want the sample to play. The defaults are "Low = C-2" and "High = G8," with which the sample will sound over the entire range of MIDI notes from any controller. If you want the sample to sound only on the octave beginning at middle C, for example, set the "Low" and "High" parameters to "C3" and "C4," respectively. When the "KeyXfade" parame-

ter is turned "on," rather than abruptly starting and stopping at the assigned keys the sound of the sample will fade into the adjacent key ranges, in some cases providing a smooth "crossover" between adjacent samples.
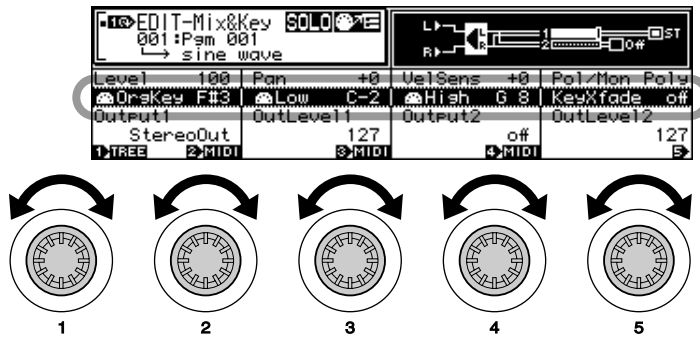
NOTE • *A number of other important sample parameters can be accessed for this display page. See pages 127 through 132 in the reference section of this manual for details.*

Step-by-Step
FILTER SETUP

The A5000/A4000 features an extraordinarily sophisticated filter stage which offers not only the standard low-pass, high-pass, peak, and band elimination response modes, but a number of composite modes as well: e.g. dual peaks, LPF + peak, and more.

1. Go To the FILTER Display

If you are not already there, press the [EDIT] button and then the [FILTER] function key to go to the "EDIT-Fltr&EQ" display.
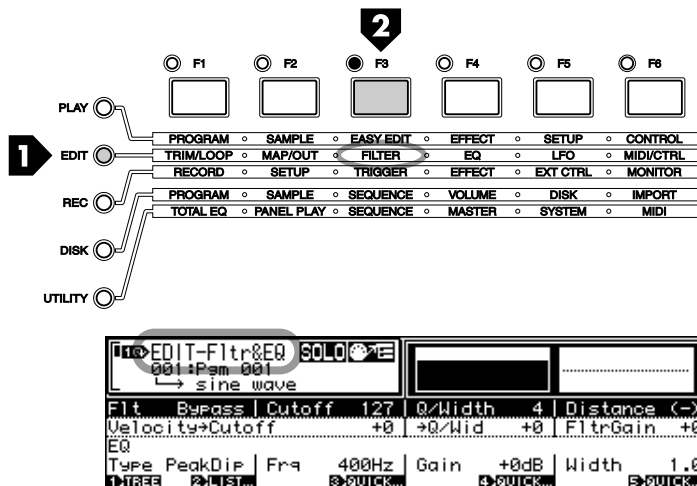
2. Select a Sample To Edit

If the sample you want to edit isn't already selected (the sample name appears at the bottom of the window in the upper left corner of the display), press Knob 1 (TREE) to see a list of the available samples, use Knob 2 to select the desired sample, then press Knob 1 (PARAM) again to return to the "EDIT-Fltr&EQ" display.

You can play the selected sample by pressing the [AUDITION] button.
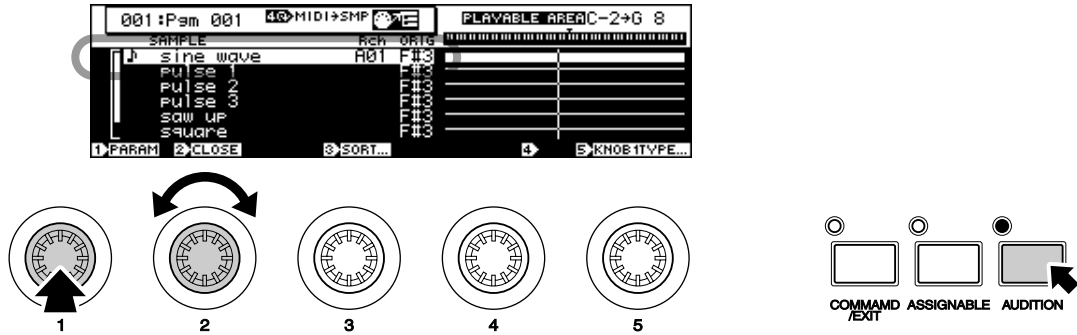
3. Set the Basic Filter Parameters

With the topmost function line on the display highlighted (use Knob 1 to select it if it isn't), use Knob 2 to select the type of filter response you want to use, Knob 3 to set the filter's cutoff frequency, Knob 4 to set the filter's bandwidth or resonance (the function of this parameter depends on the type of filter selected - see chart below), and Knob 5 to set the "distance" between the filter frequencies in compound filter types (also see the chart below). Your choices are as follows:

Bypass	No filter.
LowPass1	A low-pass filter with a relatively gentle rolloff curve (12 dB/oct). • Knob 4 (Q/Width) adjusts the gain of a resonant peak at the cutoff frequency. • Knob 5 (Distance) has no effect with this filter type.
LowPass2	A low-pass filter with a steep cutoff (24 dB/oct). • Knob 4 (Q/Width) adjusts the gain of a resonant peak at the cutoff frequency. • Knob 5 (Distance) has no effect with this filter type.
LowPass3	A low-pass filter with a medium 18dB/oct cutoff. • Knob 4 (Q/Width) adjusts the gain of a resonant peak at the cutoff frequency. • Knob 5 (Distance) has no effect with this filter type.
HiPass1	A high-pass filter with a relatively gentle rolloff curve (12 dB/oct). • Knob 4 (Q/Width) adjusts the gain of a resonant peak at the cutoff frequency. • Knob 5 (Distance) has no effect with this filter type.
HiPass2	A high-pass filter with a steep cutoff (24 dB/oct). • Knob 4 (Q/Width) adjusts the gain of a resonant peak at the cutoff frequency. • Knob 5 (Distance) has no effect with this filter type.

Bandpass	This bandpass filter passes only a relatively narrow band of frequencies centered at the cutoff point. • Knob 4 (Q/Width) adjusts the width of the filter's pass band. • Knob 5 (Distance) has no effect with this filter type.
BandElim	The opposite of the bandpass response, the Band Elimination filter "eliminates" (cuts out) a relatively narrow band of frequencies centered at the cutoff point. • Knob 4 (Q/Width) adjusts the width of the filter's elimination band. • Knob 5 (Distance) has no effect with this filter type.
Peak1	A peaking filter which can be used to boost a band of frequencies centered at the cutoff point. • Knob 4 (Q/Width) adjusts the gain of a resonant peak at the cutoff frequency. • Knob 5 (Distance) has no effect with this filter type.
Peak2	The "Peak2" filter mixes the direct signal with the peak-filtered signal for a drier sound. • Knob 4 (Q/Width) adjusts the gain of a resonant peak at the cutoff frequency. • Knob 5 (Distance) has no effect with this filter type.
2Peaks	This mode provides two peaks. • Knob 4 (Q/Width) adjusts the gain of resonant peaks at the cutoff frequencies of both peaks. • Knob 5 (Distance) adjusts the "distance" between the cutoff frequencies of the two peaks.
2Dips	This mode provides 2 dips. • Knob 4 (Q/Width) simultaneously adjusts the width of both filter dips. • Knob 5 (Distance) adjusts the "distance" between the cutoff frequencies of the two dips.
DualLPFs	Two low-pass filters having different cutoff are combined to produce a "stepped" low-pass response. • Knob 4 (Q/Width) adjusts the gain of resonant peaks at the cutoff frequencies of both low-pass filters. • Knob 5 (Distance) adjusts the "distance" between the cutoff frequencies of the two low-pass filters.
LPF+Peak	A combined low-pass filter and peaking filter. • Knob 4 (Q/Width) adjusts the gain of resonant peaks at the cutoff frequencies of both filters. • Knob 5 (Distance) adjusts the "distance" between the cutoff frequencies of the two filters.
DualHPFs	Two high-pass filters having different cutoff are combined to produce a "stepped" high-pass response. • Knob 4 (Q/Width) adjusts the gain of resonant peaks at the cutoff frequencies of both high-pass filters. • Knob 5 (Distance) adjusts the "distance" between the cutoff frequencies of the two high-pass filters.
HPF+Peak	A combined high-pass filter and peaking filter. • Knob 4 (Q/Width) adjusts the gain of resonant peaks at the cutoff frequencies of both filters. • Knob 5 (Distance) adjusts the "distance" between the cutoff frequencies of the two filters.
LPF+HPF	A combined low-pass and high-pass filter. • Knob 4 (Q/Width) adjusts the gain of resonant peaks at the cutoff frequencies of both filters. • Knob 5 (Distance) adjusts the "distance" between the cutoff frequencies of the two filters.

The graphic response display in the upper right corner of the LCD panel will give you an idea of the type of response you have created. You can also use the [AUDITION] key at any time to actually hear the sound produced with the current settings.

4. Set the Filter's Velocity Sensitivity & Gain

Use Knob 1 to highlight the second function line on the display, then use Knobs 3, 4, and 5 to set the filters velocity-to-cutoff sensitivity, velocity-to-width sensitivity, and gain.

Velocity→Cutoff	With this parameter the filter can set so that its cutoff frequency varies according to keyboard (or other controller) velocity. In other words, the filter cutoff frequency, and therefore the timbre of the sound, will vary according to how hard each note is played. This parameter can be set to both positive and negative values: positive values produce higher cutoff frequencies in response to higher velocity, while negative values produce lower cutoff frequencies in response to higher velocity.
→Q/Width	Similarly to the "Velocity→Cutoff" parameter above, the "→Q/Width" parameter causes the bandwidth or resonant peak of the filter (depending on the selected filter type) to vary according to keyboard (or other controller) velocity.
FltrGain	Although it is on the same function line as the velocity sensitivity parameters, the "FltrGain" parameter simply adjusts the overall gain of the filter - normally to compensate for changes in loudness produced by the filter's response.

> **NOTE** • In addition to the dynamic filter settings described above, the A5000/A4000 also provides a static filter section which can be set up via the parameters on the lowest function line on the display (EQ). See page 135 for details.
>
> • Scroll below the bottom function line for the filter scaling parameters which allow filter response to be varied across the range of the keyboard or other controller. Details on page 135.

Step-by-Step
EG SETUP

The A5000/A4000 actually has three independent envelope generators which control different aspects of the sound: amplitude, filter, and pitch. In this section we'll take a quick look at the basic procedure for setting up an amplitude envelope. Full details on all envelope generators can be found in the section beginning on page 137 of this manual.

1. Go To the EG Display

If you are not already there, press the [EDIT] button and then the [EG] function key to go to the "EDIT-AmpEG" display.
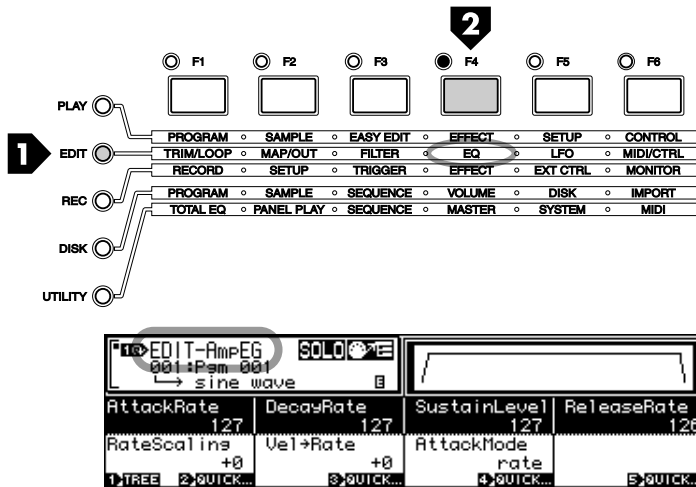
2. Select a Sample To Edit

If the sample you want to edit isn't already selected (the sample name appears at the bottom of the window in the upper left corner of the display), press Knob 1 (TREE) to see a list of the available samples, use Knob 2 to select the desired sample, then press Knob 1 (PARAM) again to return to the "EDIT-AmpEG" display.

You can play the selected sample by pressing the [AUDITION] button.

3. Set the EG's Attack, Decay, Sustain Level, and Release

When the top function line of the display is highlighted, use Knobs 2, 3, 4, and 5 to adjust the amplitude envelope generator's attack rate, decay rate, sustain level, and release rate parameters, respectively.

Attack Rate	This parameter produces a faster or slower attack by determining how quickly the sound will reach maximum level when a note is played. The higher the value the faster the attack. The way you set the "AttackRate" parameter can significantly change the character of the sound. If you apply a slow attack to a sample that normally has a fast attack - a piano or plucked string, for example - the result might sound more like a violin or some type of synthesized electronic sound than the original instrument. The way this parameter works also depends on the "AttackMode" parameter setting (discussed in the next step).
DecayRate	This parameter determines how rapidly the sound will decay to the sustain level (see below) after the maximum attack level has been reached. It will have no audible effect if the "Sustain Level" parameter (below) is set to its maximum value.
SustainLevel	While the other three amplitude envelope generator parameters affect rates, the "SustainLevel" parameter actually sets the level at which the sound will be sustained while a note is held. Setting this parameter lower than its maximum value can emphasize the initial attack/decay portion of the envelope, producing sounds which have a pronounced attack with a more subdued sustain.
ReleaseRate	The speed at which the sound drops from the sustain level to zero after a note is released is set by this parameter.

The graphic envelope display in the upper right corner of the LCD panel will give you a general idea of the current amplitude envelope shape.

4. Set the Rate Scaling, Velocity Sensitivity, and Attack Mode

Use Knob 1 to highlight the 2nd function line on the display, and set the "RateScaling," "Velocity →Rate," and "AttackMode," parameters as required.

RateScaling	This parameter can be adjusted so that the evelope's rates increase or decrease toward the higher notes in your keyboard or other controller's range. This simulates the envelope characteristics of many acoustic instruments in which the overall envelope is shorter on higher notes (piano is one example). Positive values produce a shorter envelope on higher notes, while negative values produce a longer envelope on higher notes.
Velocity→Rate	With this parameter the envelope can be set so that its rates varies according to keyboard (or other controller) velocity. In other words, the overall envelope rates, and therefore the length of the notes, will vary according to how hard each note is played. This parameter can be set to both positive and negative values: positive values produce faster rates in response to higher velocity, while negative values produce slower rates in response to higher velocity.
AttackMode	The normal attack mode is "rate" in which the attack of the envelope starts at zero and then increases toward maximum at a rate determined by the setting of the "AttackRate" parameter (above). If the "AttackMode" parameter is set to "hold", however, the envelope starts immediately at maximum level, and the "AttackRate" parameter determines how long maximum level is maintained before the initial decay begins.

NOTE • Scroll below the "EDIT-AmpEG" display to go to the "EDIT-FilterEG" (filter envelope generator) page, and then below that page again to go to the "EDIT-PitchEG" (pitch envelope generator) page. See the section beginning on page 137 for full details on all EG parameters.

Step-by-Step
LFO SETUP

The A5000/A4000 LFO (Low Frequency Oscillator) can be used to apply low-frequency modulation to amplitude (for tremolo type effects), pitch (for vibrato type effects), or filter cutoff (for wah-wah type effects).

1. Go To the LFO Display

If you are not already there, press the [EDIT] button and then the [LFO] function key to go to the "EDIT-LFO" display.
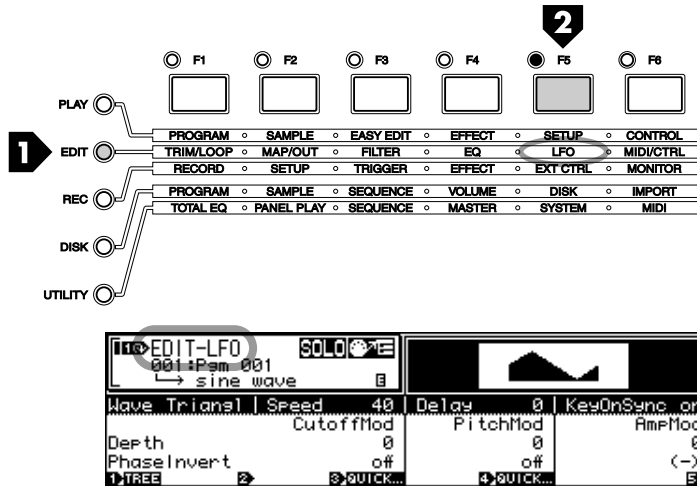
2. Select a Sample To Edit

If the sample you want to edit isn't already selected (the sample name appears at the bottom of the window in the upper left corner of the display), press Knob 1 (TREE) to see a list of the available samples, use Knob 2 to select the desired sample, then press Knob 1 (PARAM) again to return to the "EDIT-LFO" display.

You can play the selected sample by pressing the [AUDITION] button.
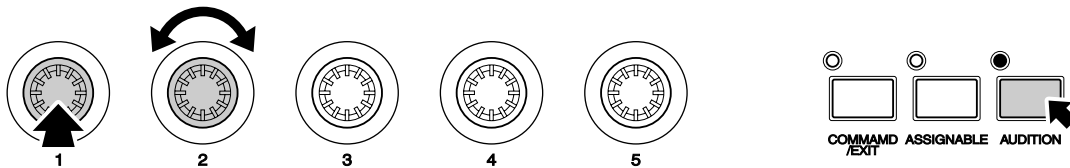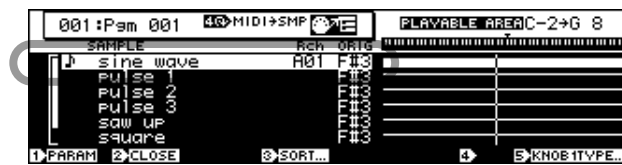
3. Set the LFO Wave, Speed, Delay, & KeyOnSync Parameters

With the topmost function line of the display highlighted (use Knob 1 to select it if necessary), use Knobs 2, 3, 4, and 5 to set the LFO waveform, speed, initial delay, and key synchronization as required.
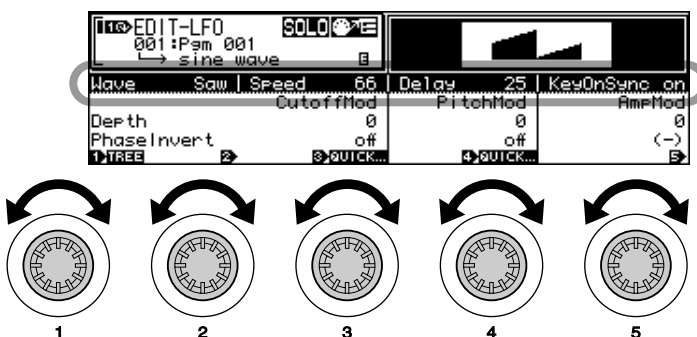
Wave	This parameter selects the waveform used for LFO modulation, Your choices are "Saw" (saw-tooth), "Triangl" (triangular: the usual substitute for a sine wave), "Square," and "S/H" (sample-and-hold: essentially a series of random levels switched in square-wave fashion).
Speed	The function of this parameter is fairly obvious - it sets the speed of LFO modulation.
Delay	When set to "0" LFO modulation will begin instantaneously when a note is played. But as you increase this value a delay will occur between the instant the note is played and the start of LFO modulation. Higher values produce longer delays.
KeyOnSync	The "KeyOnSync" parameter determines whether the start of LFO modulation is synchronized to the beginning of each note. If "on" modulation will always begin at the same point in the LFO waveform whenever a note is played. When "off" modulation will begin at a random point in the LFO waveform.

4. Set the Appropriate Modulation Depth Parameters

Use Knob 1 to highlight the second function line on the display ("Depth"), and use Knobs 3, 4, and 5 to set the filter cutoff, pitch modulation, and/or amplitude modulation depth as required. Modulation can be applied to a single destination, or any two or three simultaneously.
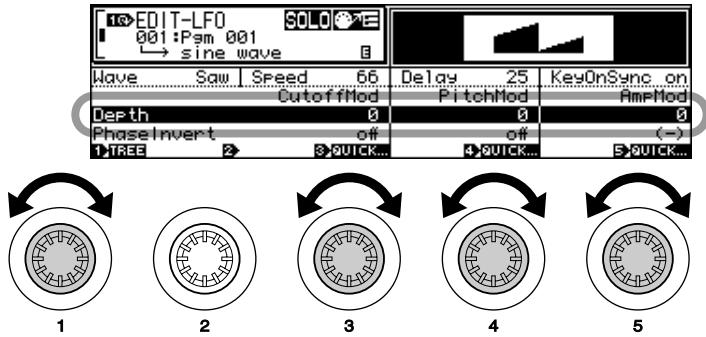
CutoffMod	Sets the amount of LFO modulation applied to filter cutoff. The final sound will be determined somewhat by the way the filter is set up (page 133), but filter cutoff modulation will generally produce a wah-wah type effect. Higher values produce deeper modulation.
PitchMod	Sets the amount of LFO modulation applied to pitch. The result will be a vibrato type effect. Higher values produce deeper modulation.
AmpMod	Sets the amount of LFO modulation applied to amplitude. The result will be a tremolo type effect. Higher values produce deeper modulation.

NOTE • The "PhaseInvert" parameters on the bottom function line can be used to invert the phase of the LFO waveform for the corresponding modulation destinations. See page 144 for details.

Step-by-Step
PROGRAM ASSIGNMENT

Assigning single sample or multiple samples to a program is the final step you'll need to take before playing your sample's via the A5000/A4000.

1. Go To the Program Select Display

Press the [PLAY] button and then the [PROGRAM] function key to go to the "PLAY-PgmSel" (program select) display.
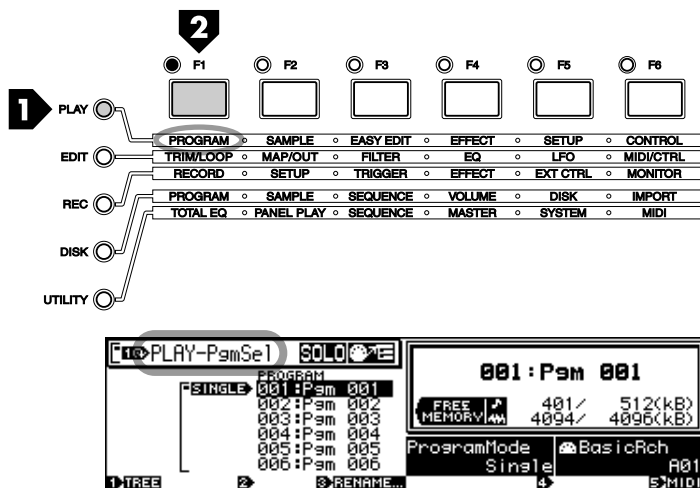
2. Select a Program

Use Knob 2 or 3 to select the program to which you want to assign your sample(s). The number and name of the selected program will appear in the window in the upper right corner of the display.

> **NOTE**
> • Use the "Rename" function to give the program an original name, if required. See page 89 for details.
>
> • In the "PLAY-PgmSel" display Knob 4 is used to select the "Single" or "Multi" play mode (page 89 for details), and Knob 5 is used to set the sampler's basic receive channel (page 89 for details).

3. Go To the Sample Select Display

Press the [SAMPLE] function key to go to the "PLAY-SmpSel" (sample select) display.
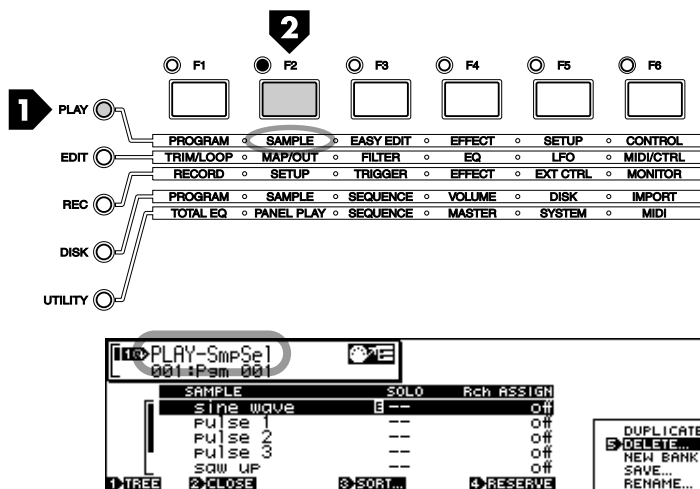
4. **Assign Your Samples**

Use Knob 2 to highlight a sample, then use Knob 4 to assign the selected sample to the currently selected program as required and specify it's receive channel.

When "off" the sample is not assigned. When set to "=Smp" the sample is assigned to the "Sample Bank" receive channel (a "Sample Bank" is a group of samples which can be handled as a unit in many ways - see page 60 for details). On the A4000 you can also select MIDI channels "01" through "16," while on the A5000 (which has MIDI A and B inputs) you can select MIDI "A" input channels "A01" through "A16" and MIDI "B" input channels "B01" through "B16." On both models you can also select "Bch," which is the basic receive channel set by Knob 5 in the "PLAY-PgmSel" display.
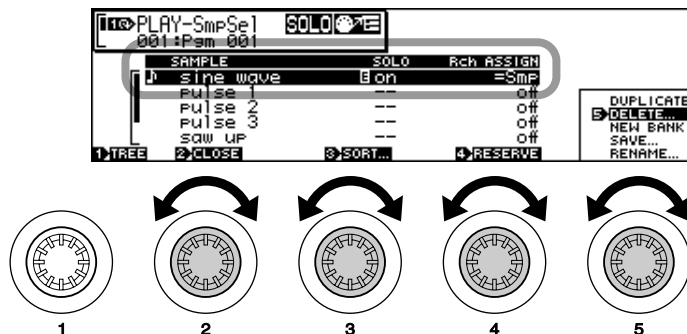
> **NOTE** • From the "PLAY-SmpSel" display you can also use Knob 5 to rename, save, duplicate, delete, and create a new sample bank. See page 94 for details.

5. **Play!**

Once your samples have been assigned to a program, you can go ahead and play the program from your keyboard, sequencer, or other controller.

IN CONCLUSION

Well that's the end of our basic "tutorial" section. If you've read the basics and gone through at least some of the procedures described you should be well on your way to becoming familiar with the way the A5000/A4000 works. Please understand, however, that so far we've really only scratched the surface, and that there are LOTS of other important features and functions which are described in detail in the reference section of this manual. Please take the time to look over the tabe of contents (page 8), and perhaps even the index (page 287) so you'll have an idea about how and where to look for any further information you might need.

Happy sampling!

Chapter *3*

The A5000/A4000 System & Features

A5000/A4000 system structure and basic operating procedures.

1. System Overview

The A5000/A4000 is capable of recording, processing, and playing back musical instrument sounds, sound effects, segments of complete tunes, or just about any type of sound. The basic A5000/A4000 system configuration is described below.

Internal Structure

The A5000/A4000 consists of a tone generator, effect stage, total EQ stage, controllers, sequencer, and I/O interface.
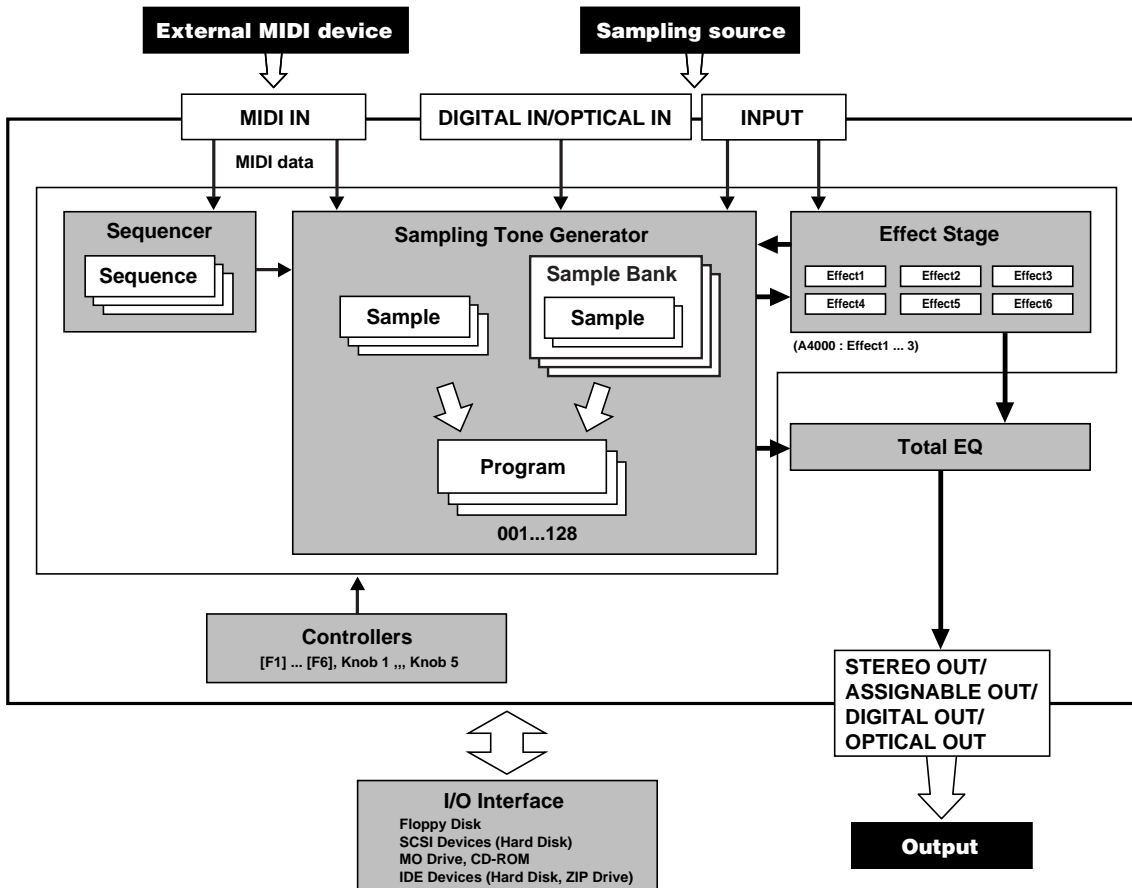
Sampling Tone Generator (page 59)

This section records audio signals received via the analog input jacks (or the digital coaxial or optical inputs, if the optional I/O board is installed), and allows the recorded samples to be played from an external MIDI controller. This is the "heart" of the A5000/A4000 system.

Effect Stage (page 63)

The effect section adds ambience effects such as reverb or more dramatic effects to the output signal from the tone generator section. Effects can also be added to input signals as they are recorded.
A comprehensive range of 96 effects is provided in 6 individual effect blocks (3 in the A4000).

Total EQ (page 107)

A versatile four-band equalizer which can be used to shape the sound of the tone generator's output.

Controllers (page 107)

Knobs 2 through 5, the [F1] through [F6] function buttons, [AUDITION] button, [ASSIGNABLE] button, etc., can be used for efficient control of the tone generator and sequencer sections.

Sequencer (page 107)

The sequencer can be used to record performance data from a MIDI controller or other device, and play the recorded data back using the sampler's tone generator. This is a no-frills sequencer that can be used as a convenient "notepad" to jot down ideas for break beats or musical phrases.

I/O Interface (page 108)

The A5000/A4000 has a built-in floppy disk drive which can be used to save and load samples, programs, and other data. Additional storage devices such as hard disks, ZIP drives, CD-ROM drives, etc., can be connected externally via the sampler's built-in SCSI interface, or internally via the SCSI and IDE connectors provided.

An optional I/O expansion board is also available which provides digital coaxial and optical inputs and outputs for direct sample and playback of digital signals, as well as a number of individual analog outputs.

The A5000/A4000 wave memory can be expanded up to a maximum of 128 megabytes.

Sampling Tone Generator

The tone generator section records audio signals received via the analog input jacks (or the digital coaxial or optical inputs, if the optional I/O board is installed), and allows the recorded samples to be edited and played from an external MIDI controller. The recorded signals can be organized as samples, grouped in sample banks, and assigned to programs for easy handling and operation.

Samples

A "sample" is the smallest unit of data handled by the A5000/A4000, consisting of the sampled waveform plus the most basic playback parameters.

The act of recording signals received via the analog INPUT jacks (or the DIGITAL IN or OPTICAL IN connectors if the optional I/O expansion board is installed) is known as "sampling," and the recorded wave data is kept in the sample's internal wave memory.

In addition to the raw wave data, samples include start and end addresses that specify where playback of the wave data is to start and end, loop addresses, an original key parameter, EG (Envelope Generator) parameters, LFO (Low Frequency Oscillator) parameters, and other data that determines how the sample is to be played back.

```
┌─────────────────────────────────────────────┐
│ Sample                                        │
│  ┌────────────────┐   ┌─────────────────────┐ │
│  │   Wave Data    │   │   Sample Parameters │ │
│  │                │   │                     │ │
│  │     ◢◣         │   │  Start/end address, loop, │
│  │                │   │  original key. EG, LFO ... │
│  └────────────────┘   └─────────────────────┘ │
└─────────────────────────────────────────────┘
```
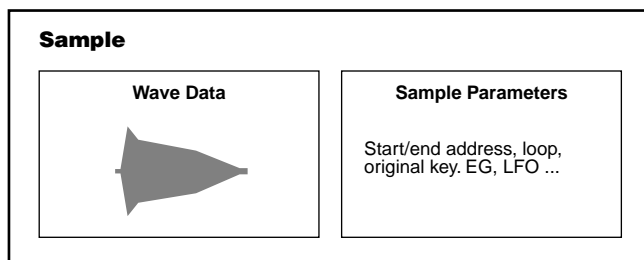
NOTE
- *In conventional samplers the term "sample" normally refers to the wave data only. It is important to remember that A5000/A4000 samples also include a number of sample parameters.*
- *Samples can be either mono or stereo. Stereo samples have independent wave data for the left and right channels.*
- *The total number and size of samples that can be recorded or loaded into memory at a time will depend on the amount of internal wave memory available.*
- *Sampling is carried out using the RECORD mode (page 150), while sample editing is carried out in the EDIT mode (page 118).*

Sample Banks

A "sample bank" is a group of samples which can be handled as a single sample. Multi-sampled instruments, drum kits, etc., are collections of many samples that function together to create the desired sound. By grouping all the related samples together as a sample bank, they can be copied, saved, and otherwise managed all at once, making it unnecessary to go through the tedious process of individually processing each sample.
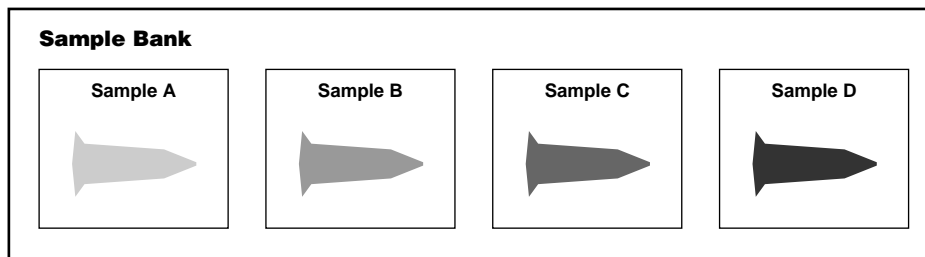
NOTE
- *Multi-sampling is often used to achieve realistic reproduction of instruments that have a wide pitch range. Small groups of notes or even single note are individually sampled, then the resultant samples are "mapped" to the playback key range, thus accurately reproducing the instrument's natural tonal variation across its entire range.*
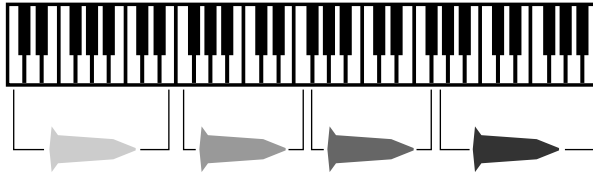
- *Drum kits consist of individual samples of the various drum and percussion instruments required — bass drum, snare, toms, cymbals, etc., — mapped to individual notes of the keyboard or other controller.*
- *When multi-sampled data which was not created using the A5000/A4000 or A3000 is imported, an appropriate sample bank will usually be automatically created. This may not occur, however, with data imported from certain devices.*
- *Sample banks are created using the PLAY mode Sample Select function (PLAY – SAMPLE-SmpSel, page 93).*

Programs

When you play a sound on your sampler, you are actually playing a "program" to which the necessary samples and/or sample banks are assigned. There are always 128 programs in memory — even when the power is first turned on the sampler contains 128 "initialized" programs (program numbers 001 — 128).

■ Program Data

The data included in programs can be broadly divided into three types:

1. Sample Select

This parameter specifies which samples and/or sample banks residing in the sampler's memory are to be used by the program.

> **NOTE** • In programs, multiple samples can be "layered" and played simultaneously, played on separate keys, in speci-fied velocity ranges, and more.
> • Samples and sample banks can only be played via MIDI control when they are assigned to a program.
> • Sample and sample bank assignment is carried out by using the Sample Select parameter in the PLAY mode (PLAY – SAMPLE – SmpSel, page 93).

2. Easy Edit

This type of data allows the sample parameters to be temporarily adjusted as necessary (these adjustments only apply to the program to which the samples/sample banks are assigned).

> **NOTE** • Easy Edit can be applied individually to all samples and sample banks assigned to the program.
> • Easy Edit allows samples to be adjusted only for the corresponding program, without actually changing the sample's parameters. A single sample can therefore be used in multiple programs with different Easy Edit adjustments for each program.
> • Easy Edit is accessible via the Play Mode Easy Edit function (page 96).

3. Program Parameters

This data specifies the program's volume (loudness), how it will be affected by MIDI controllers, and other important parameters that affect playback. This also includes individual effect settings for each program.

> **NOTE** • The program parameters are accessed via the PLAY mode Program (page 89), Effect (page 102), Setup (page 107), and Control (page 110) displays.
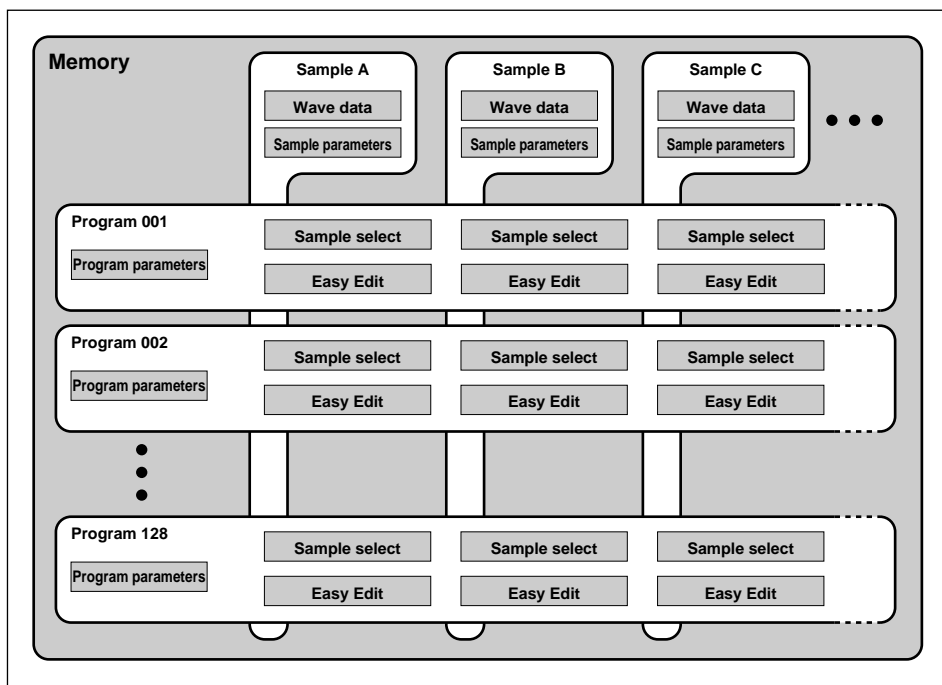
About the Program Mode

In the program mode the A5000/A4000 tone generator can be set to function in the Single or Multi mode. When the Single mode is selected only one program can be played at a time.

NOTE • Even when the Single mode is selected it is possible to achieve Multi-mode type performance by assigning multiple samples or sample banks to the same key range, and assigning each a different MIDI receive channel via the Receive Channel Assign parameter (page 93).

In the example below, sample A will be played via MIDI channel 1, and sample B will be played via MIDI channel 2.

Program

Sample A	Sample B
Receive Channel Assign = 1ch	Receive Channel Assign = 2ch
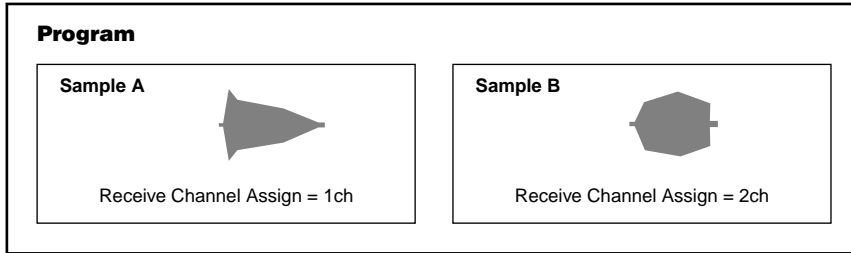
When the Multi mode is selected, different programs can be assigned to as many as 32 "parts" on the A5000 (part A01 — B16) or 16 parts on the A4000 (part 01 — 16), and each part played via a different MIDI channel.

In the example below, MIDI data received on MIDI channel 1 via the MIDI IN-A connector controls program 001, data received on MIDI channel 2 controls program 002, and data received on MIDI channel 3 controls program 003. In this case the Receive Channel Assign settings for samples A and B assigned to program 001 are ignored.

NOTE • When the Multi mode is selected, the program assigned to the part for which the Basic Receive Channel (page 89) is selected becomes the "master program." All PLAY mode effect, setup, and control parameters set for the master program will affect all parts in the same way.

In the example below, if the Basic Receive Channel is A02 (02 in the A4000), program 002 becomes the master program.

Part	Program
A01(01)	Program001
A02(02)	Program002
A03(03)	Program003
:	:
A16(16)	Program032

The A4000 part numbers are shown in parentheses

Program 001

Sample A	Sample B
Receive Channel Assign = A02 (02)	Receive Channel Assign = A03 (03)

Ignored
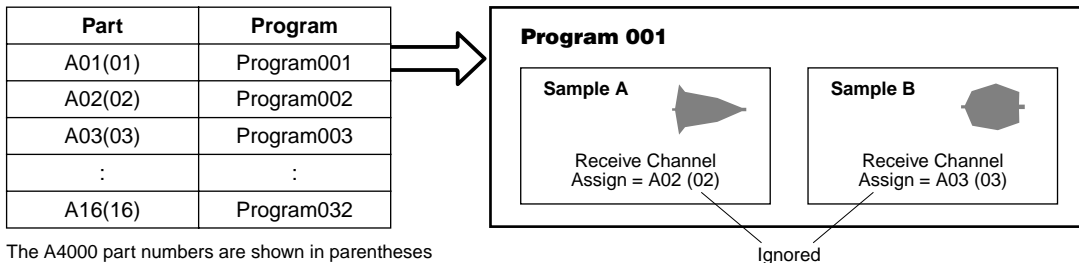
Maximum Polyphony

The maximum polyphony of the A5000 is 126 notes, and that of the A4000 is 64 notes. This is the "per sample" polyphony, thus when stereo samples (each actually using two samples) are played, or when multiple samples are layered, the total polyphony is reduced accordingly.

The Effect Stage

The effect stage adds ambience effects such as reverb or more dramatic effects to the output signal from the tone generator section. The effect settings are all saved as program parameters, so completely different effect setups can be applied to each program

Effects and the Sampling Tone Generator

The routing of the output signal from the sampling tone generator section is determined for each sample by the sample Output 1 and Output 2 parameters (EDIT – MAP/OUT – Mix&Key, page 129). When an effect block is specified (E1 — E6 on the A5000, or E1 — E3 on the A4000) for the Output 1 or Output 2 parameter, the output of that sample will be routed to the corresponding effect block.

Sampling Tone Generator   **Effect Stage**

Program

| **Sample A** |
| **Output 1 = E1** |

| **Sample B** |
| **Output 1 = E2** |

Effect 1

Effect 2 → **Output**
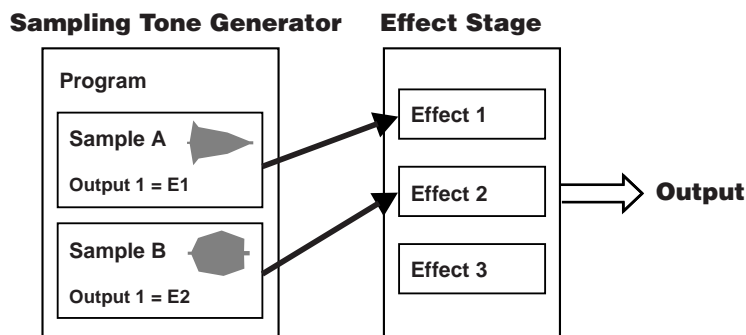
Effect 3

NOTE • *The routing of sample output to the effects is carried out via the sample parameters, but the actual effect settings are accessed via the program parameters.*

Effect Connections

The A5000 effect stage has 6 separate effect blocks, while the A4000 effect stage has 3. 3 effect blocks are used together as a group, thus the A5000 has two effect groups (Effect 1 — 3 and Effect 4 — 6), while the A4000 has one effect group (Effect 1 — 3). The connections between the effect blocks in each group can be set up in a number of ways (page 102, 103).
The effects can be connected in series, in parallel, or a combination of both types. When connected in parallel, each effect block can be independently used to apply different effects to different samples, for example. When connected in series the effects can be combined to create more complex sounds. For example, after applying delay to a sound you could then apply reverb and/or equalization.

Series

Effect 1
↓
Effect 2
↓
Effect 3 →

Parallel

Effect 1 →
Effect 2 →
Effect 3 →

Combined

Effect 1
↓
Effect 2 →
Effect 3 →
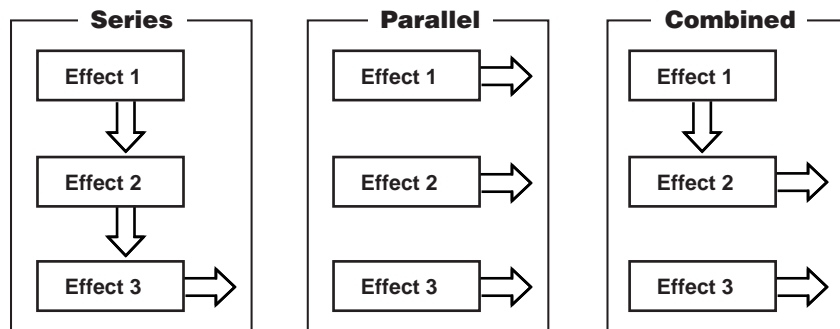
NOTE • *In the A5000 it is possible to route the output of Effects 1 — 3 to Effects 4 — 6, thus effectively connecting 6 effect blocks in series (page 102).*

Recording Effects

Effects can also be added to input signals as they are recorded, so that the samples are recorded complete with effects. The Record effect settings should be made in the RECORD mode before recording each sample.

Total EQ

A versatile four-band equalizer which can be used to shape the sound of the tone generator's output. The EQ settings affect the sound delivered via the stereo outputs and headphone output, so it can be used on stage or in the studio to match the overall sound of the output to the room. The Total EQ parameters are accessed via the UTILITY mode (UTILITY – TOTAL EQ – TotalEQ, page 189). The Total EQ settings remain the same regardless of which program is selected.

The Total EW settings do not affect the signal delivered via the L&R assignable outputs, assignable outputs 1 — 6, or the digital coaxial or optical outputs on the optional I/O expansion board.

Controllers

Knobs 2 through 5, the [F1] through [F6] function buttons, [AUDITION] button, [ASSIGNABLE] button, etc., can be used for efficient control of the tone generator and sequencer sections.

Knobs 2 through 5 can be used to transmit MIDI control change messages to the sampler's tone generator section (Knob Controller — page 191, Knob Controller Setup — page 191), and to control sequence recording and playback (Sequence — page 194). Function buttons [F1] through [F6] can be used as a "mini keyboard" to play the tone generator when the [ASSIGNABLE] button is engaged (Function Key Play Setup — page 192). A range of playback functions can therefore be controlled even when an external MIDI controller is not available.

The [AUDITION] button can be used to play the selected sample from memory or directly from disk.

Sequencer

The sequencer can be used to record performance data from a MIDI controller or other device, and play the recorded data back using the sampler's tone generator. This is a no-frills sequencer that can be used as a convenient "notepad" to jot down ideas for break beats or musical phrases.

The sequencer allows real-time recording only, and advanced sequencer features such as MIDI clock synchronization and sequence editing are not implemented. The recorded data is stored in memory as a "Sequence," and the number and length of recordable sequences is limited only by the amount of memory available.

I/O Interface

The A5000/A4000 has a built-in floppy disk drive which can be used to save and load samples, programs, and other data. Additional storage devices such as hard disks, ZIP drives, CD-ROM drives, etc., can be connected externally via the sampler's built-in SCSI interface, or internally via the SCSI and IDE connectors provided.

An optional I/O expansion board is also available which provides digital coaxial and optical inputs and outputs for direct sample and playback of digital signals, as well as a number of individual analog outputs.

The A5000/A4000 wave memory can be expanded up to a maximum of 128 megabytes.

Data Organization & Management

All data in the A5000/A4000 internal memory will be lost when the power is turned off. For this reason data save and load operations are essential for efficient operation of the A5000/A4000. In this section we'll take a look at how the internal memory and disk storage media are related.

Data in Memory

Samples, sample banks, and programs being used by the sampler are kept in the internal memory. Other types of data kept in internal memory are sequences and system parameters.

Sequence data consists of MIDI performance data recorded from an external MIDI device via the sampler's UTILITY mode.

System parameters are retained in non-volatile memory which is not lost even when the power is turned off. System parameters include the UTILITY mode Total EQ parameters, Panel Play, Master, System, and MIDI parameters, as well as setup data for the RECORD mode. The system parameters also include the program-to-part assignments for the tone generator when the Multi mode is selected.
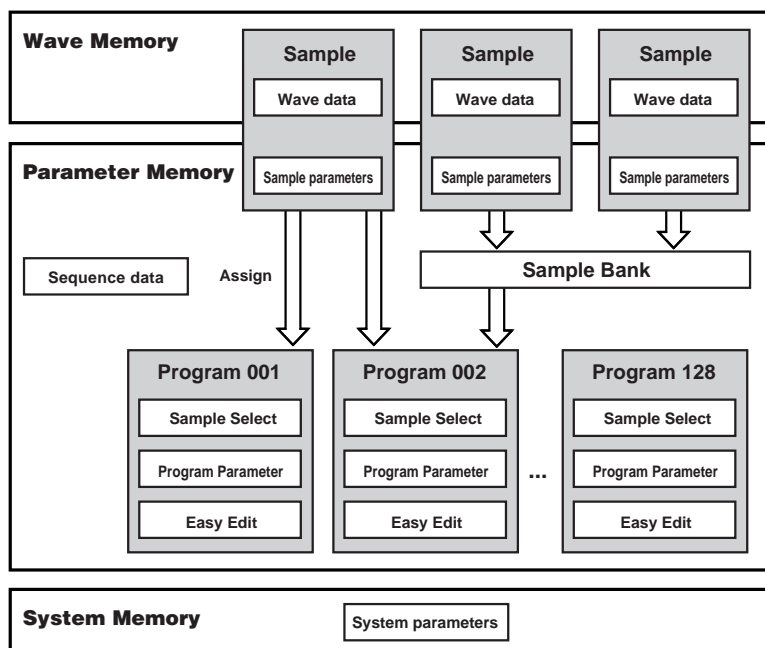
Drives

The A5000/A4000 has a built-in floppy disk drive, and additional internal hard disk, ZIP, or similar drives can be installed and connected via the SCSI and IDE connectors provided. External storage devices such as hard disks, ZIP drives, CD-ROM drives, MO drives, etc., can be connected via the sampler's built-in SCSI interface. Such drives are referred to as SCSI or IDE devices.

Disks

The term "disk" refers to the actual storage disk/medium used: floppy disk, ZIP disk, MO disk, etc. New disks must be "formatted" by the A5000/A4000 before they can be used for data storage and retrieval (page 177). Furthermore, hard disks, ZIP disks, and similar media can be "partitioned" to function as up to 8 individual disks.

Volumes

The A5000/A4000 stores all main-memory data into a volume on the target disk (or disk partition). The volume stores an entire set of main-memory data.

A floppy disk can store a single volume only. The A5000/A4000 automatically creates this volume (named "FD VOLUME") when you format the disk.

If you are using a SCSI disk, then you are free to create multiple volumes, so that you can store a different set of data onto each. The following illustration shows the relationship between disks and volumes.
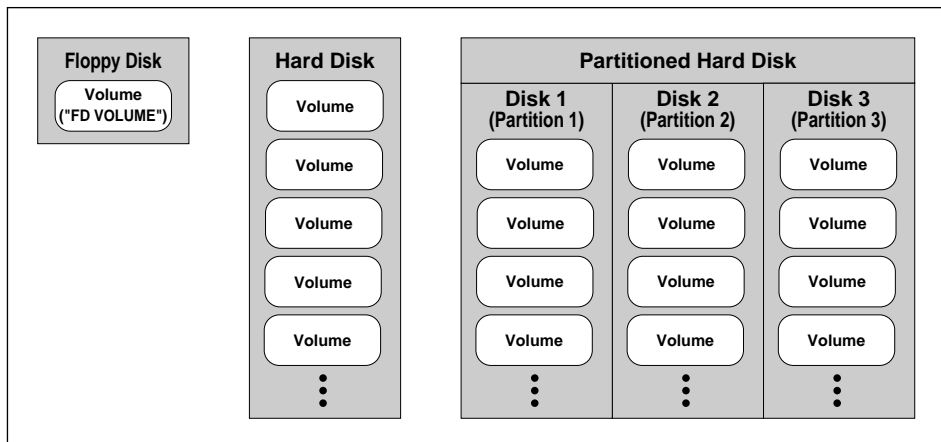
The point to remember here is that each disk volume corresponds exactly to a full set of main-memory data. As the next illustration shows, the A5000/A4000 saves all main-memory data into a single volume. When you reload the volume, you restore the main memory to its exact state at the time of the data save.

Saving and Loading

For the sake of convenience, you will generally want to save and reload an entire volume. The use of a "volume save" makes it easy to save the entire main-memory content before switching the A5000/A4000 off, so that you can then restore the identical environment the next time you switch the power back on. You can resume work exactly where you left off, with all of your samples and programs intact.

The use of multiple volumes allows you to prepare multiple environments, so that you can then switch from one to the other during live performance or when working on different projects. If you are using floppy disks only, then you can store only one volume per disk (so that you will need to change disks in order to load a different environment). If you are using a SCSI drive, however, then you can save multiple volumes to the same physical disk.

It is also possible, of course, to save and reload one or more selected objects (samples, programs, or sequences). This approach is useful when you want to bring objects from one environment into another environment — for example, when you want to load all objects from one volume and then add selected objects from some other volume.

Saving and Loading Procedures

For instructions about how to execute various types of saves and loads, please refer to the pages indicated below.

Save Type
- All main-memory content .....SAVE (COMMAND-SAVE) (page 208)
- Newly edited data only.........SAVE (COMMAND-SAVE) (page 208)
- All programs only ....SAVE (COMMAND-SAVE) (page 208)
- Single program only ....SAVE (COMMAND-SAVE) (page 208)
- All samples only ....SAVE (COMMAND-SAVE) (page 208)
- Single sample only...............SAVE (COMMAND-SAVE) (page 208)
- Single sequence ....SAVE (COMMAND-SAVE) (page 208)

Load Type
- Entire volume ....Volume Selest (DISK-VOLUME-Volume) (page 172)
- All programs.........................Plogram Load (DISK-PROGRAM-PgmLoad) (page 167)
- Single program ....Plogram Load (DISK-PROGRAM-PgmLoad) (page 167)
- All samples ....Sample Load (DISK-SAMPLE-SmpLoad) (page 169)
- Single sample ....Sample Load (DISK-SAMPLE-SmpLoad) (page 169)
- All sequences ....Sequence Load (DISK-SEQUENCE-SeqLoad) (page 171)
- Single sequence ....Sequence Load (DISK-SEQUENCE-SeqLoad) (page 171)

2. The A5000/A4000 Functions

A5000/A4000 Mode Organization

For easy, efficient operation all of the A5000/A4000 "functions" are grouped into "modes." A number or "commands" are also provided, covering a range of functions not included in the "modes."

All of the A5000/A4000 functions are grouped into 5 modes and one command group.

- **PLAY MODE**..................The PLAY mode is used to play and edit programs.
- **EDIT MODE**...................Allows direct editing of the actual sample or sample bank parameters.
- **RECORD MODE**...........This mode is used to record new samples.
- **UTILITY MODE**..............The UTILITY mode includes a range of functions that affect overall operation of the A5000/A4000 as well as sequence recording/playback, etc.
- **COMMANDS** ....The COMMANDS include program and sample copy, edit, and a range of operations not included in the function displays.

The various modes are selected by pressing the corresponding mode button, the function groups within each mode are selected by pressing the corresponding function button ([F1] — [F6]), and the commands are accessed by pressing the [COMMAND/EXIT] button.
Try switching between the various modes and functions to get a feel for how the A5000/A4000 interface works.
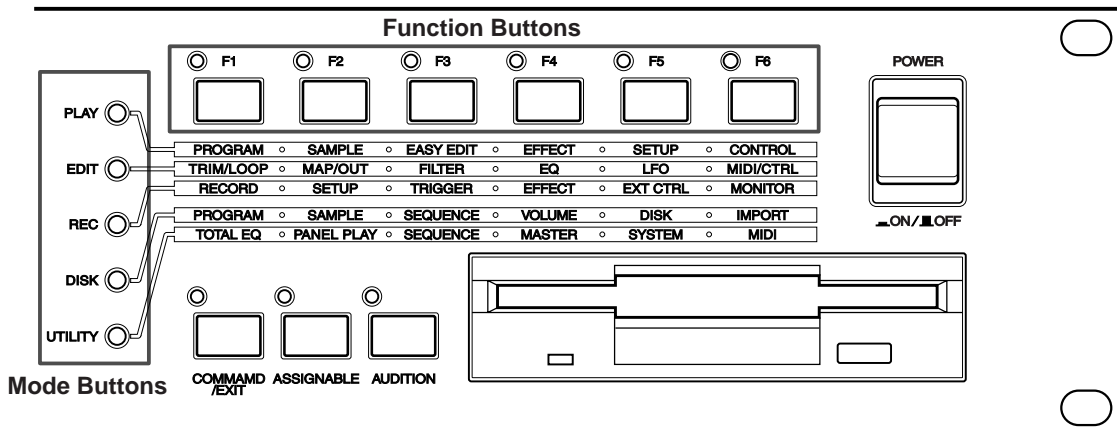
PLAY MODE [PLAY] (page 87)

The PLAY mode is used to play and edit programs. When you play a sound on your sampler, you are actually playing a "program" to which the necessary samples and/or sample banks are assigned.
Press the [PLAY] button to enter the PLAY mode.
The PLAY mode consists of the following 6 functions:

■ **[F1] PROGRAM Button (page 89)**
Selects the program(s) to be played. Also allows selection on the Single or Multi program mode, as well as setting individual level, pan, transpose, and portamento parameters for each program.

■ **[F2] SAMPLE Button (page 93)**
Specifies the samples and/or sample banks to be used with the program.

■ **[F3] EASY EDIT Button (page 96)**
Allows the sample parameters to be temporarily adjusted as necessary (these adjustments only apply to the program to which the samples/sample banks are assigned).

■ **[F4] EFFECT Button (page 102)**
Sets up the effects to be used with the program.

■ **[F5] SETUP Button (page 107)**
Sets up the LFO S/H (Sample & Hold) speed, the A/D input functions, etc.

■ **[F6] CONTROL Button (page 110)**
Specifies the MIDI controllers (or the Program LFO) which will control the program.

EDIT MODE [EDIT] (page 117)

Allows direct editing of the actual sample or sample bank parameters. A "sample" is the smallest unit of data handled by the A5000/A4000, consisting of the sampled waveform plus the most basic playback parameters. A "sample bank" is a group of samples which can be handled as a single sample. Multi-sampled instruments, drum kits, etc., are collections of many samples that function together to create the desired sound.
Press the [EDIT] button to go to the EDIT mode.
The following 6 functions are provided:

■ **[F1] TRIM/LOOP Button (page 120)**
Allows setting the sample start and end addresses (the points in the waveform at which playback will start and end), loop start and end addresses, loop mode, etc.

■ **[F2] MAP/OUT Button (page 127)**
Sets the sample's original key, key range, output destination, output level, tuning, etc.

■ **[F3] FILTER Button (page 133)**
Sets up the filter and EQ parameters that will alter the sample's sound.

■ **[F4] EG Button (page 137)**
Sets up individual envelope generators provided for amplitude, filter, and pitch.

■ **[F5] LFO Button (page 143)**
Sets up the LFO for cyclic amplitude, filter, and pitch modulation.

■ **[F6] MIDI/CTRL Button (page 145)**
Sets the MIDI receive channels via which the samples will be controlled, and the functions of MIDI controller to be used.

RECORD MODE [REC] (page 149)

This mode is used to record new samples.
Press the [REC] button to enter the RECORD mode.
The RECORD mode consists of the following 6 functions:

■ **[F1] RECORD Button (page 151)**
This function is used to actually record new samples.

■ **[F2] SETUP Button (page 153)**
The SETUP function includes parameters which specify the recording source, key range, start/stop method, normalization, and more.

■ **[F3] TRIGGER Button (page 158)**
Specifies how recording will be started and stopped.

■ **[F4] EFFECT Button (page 160)**
Specifies "record effects" which will be applied to the recorded signal.

■ **[F5] EXT CTRL Button (External Control Button) (page 161)**
Controls playback of an external audio CD.

■ **[F6] MONITOR Button (page 163)**
Sets up monitoring of the source signal. Also allows generation of a reference click signal at the specified tempo.

DISK MODE [DISK] (page 165)

The DISK mode provides access to functions for loading data from or saving data to floppy disk, hard disk, CD-ROM, and other storage media. A range of functions for managing disks, volumes, and SCSI devices are also provided.

The DISK MODE consists of the following 6 functions and 1 command selected via the [F1] through [F6] buttons and [COMMAND/EXIT] button.

■ **[F1] PROGRAM Button (page 167)**
Loads programs from floppy disk, hard disk, or other media.

■ **[F2] SAMPLE Button (page 169)**
Loads samples and sample banks from floppy disk, hard disk, or other media.

■ **[F3] SEQUENCE Button (page 171)**
Loads sequences from floppy disk, hard disk, or other media.

■ **[F4] VOLUME Button (page 172)**
Selects and creates volumes on floppy or hard disk, and allows loading all data in a volume at once.

■ **[F5] DISK Button (page 173)**
Functions for selecting disks, renaming disks, mounting and unmounting hard disks and CD-ROM drives, and specifying the A5000/A4000's own SCSI ID number.

■ **[F6] IMPORT Button (page 177)**
Allows importing computer-format wave files as well as sample data originally created for other equipment.

UTILITY MODE [UTILITY] (page 187)

The UTILITY mode includes a range of functions that affect overall operation of the A5000/A4000 as well as sequence recording/playback, etc.
Press the [UTILITY] button to go to the UTILITY mode.
The following 6 functions are provided.

■ **[F1] TOTAL EQ Button (page 189)**
Sets up the 4-band equalizer that applies to the stereo and headphone output signals.

■ **[F2] PANEL PLAY Button (page 191)**
Sets up the panel Knobs and function buttons to control the sampler's tone generator.

■ **[F3] SEQUENCE Button (page 194)**
Allows recording and playback of performance data from an external MIDI controller.

■ **[F4] MASTER Button (page 195)**
Includes functions affecting overall operation of the A5000/A4000.

■ **[F5] SYSTEM Button (page 197)**
Overall system operation and display settings.

■ **[F6] MIDI Button (page 200)**
A wide range of functions affecting MIDI reception and transmission.

THE COMMANDS [COMMAND/EXIT] (page 203)

The COMMANDS include program and sample copy, edit, and a range of operations not included in the function displays.

The first 16 commands — COPY through REVERT — are accessed when the [COMMAND/EXIT] button is pressed from the PLAY, EDIT, or UTILITY mode. The remaining 6 commands — FORMAT through LOAD OS — and the SAVE command are accessed when the [COMMAND/EXIT] button is pressed from the DISK mode.

■ **COPY (page 206)**
Copies all or specified programs or samples (sample banks) in memory to different programs or samples (sample banks).

■ **DELETE (page 208)**
Deletes the specified sample (sample bank) or sequence from memory.

■ **SAVE (page 208)**
Saves data from memory to disk.

■ **ARRANGE (page 211)**
Automatically remaps the samples assigned to a specified program or sample bank.

■ **FREEZE (page 212)**
Causes the easy edit settings to be actually applied to the samples or sample banks, or the sample banks settings to the samples it contains.

■ **REGISTER (page 214)**
Registers the settings of the selected program or sample as the initial values.

■ **BULK DUMP (page 216)**
Allows bulk transmission of program or sample data in memory via the MIDI OUT connector.

■ **INITIALIZE (page 217)**
Initializes a single specified program or all programs in memory.

■ **PROCESS (page 218)**
Applies normalization, reverse, fade, loop crossfade, etc., to samples.

■ **LOOP DIVIDE (page 221)**
Divides the wave data between the sample loop start and loop end points into equal segments which become independent samples.

■ **RESAMPLE (page 222)**
Applies time stretch and pitch conversion to samples. Time stretch changes the length of samples without changing their pitch, while pitch convert changes the pitch of samples without changing their length.

■ **STEREO→MONO (page 225)**
Converts stereo samples to mono.

■ **MOVE (page 226)**
Moves the samples assigned to a program to a sample bank, or the samples in a sample bank to another sample bank or program.

■ **CREATE OSC (page 227)**
Creates 7 different basic oscillator waveforms: sine wave, saw up, triangle, square, pulse 1, pulse 2, pulse 3.

■ **EXPORT (page 228)**
Export the selected sample to floppy disk or hard disk as a computer wave file in WAV or AIFF format.

■ **REVERT (page 230)**
Restores the selected sample or sample bank to the previously saved version.

■ **FORMAT (page 177)**
This command formats floppy disks, hard disks, ZIP drives, etc. When a hard disk or ZIP drive is formatted you can specify the creation of 2 to 8 partitions.

■ **COPY VOLUME (page 181)**
Copies all data in a selected volume to a separate volume. Floppy disk volumes cannot be selected as the copy source or destination. Also, volumes on disks which were not formatted by the A5000/A4000 cannot be copied.

■ **SYSTEM FILE (page 182)**
Allows saving all system parameters to disk, or loading them from disk (for information on system parameters see page 274 MIDI Data Format).

■ **BACKUP (page 182)**
Allows the entire contents of a hard disk, ZIP disk, or other disk to be backed up to CD-R or CD-RW. Up to 8 disks can be backed up to a single CD-R or CD-RW disk.

■ **CD-DA (page 184)**
Writes samples stored on disk to CD-R or CD-RW disk to produce an audio CD.

■ **LOAD OS (page 185)**
Allows an OS file to be loaded in order to update the sampler's operating system.

Function Tree

[PLAY] PLAY Mode

See page 76 for information on the COMMANDs.

[EDIT] EDIT Mode

See page 76 for information on the COMMANDs.

[REC] RECORD Mode

[DISK] DISK Mode

[UTILITY] UTILITY Mode

See page 76 for information on the COMMANDs.

[COMMAND/EXIT] COMMAND

3. Basic Operation

Common Mode Display Features

The following display features are provided in all A5000/A4000 mode displays (but not in the COMMAND displays).

② ① ⑤ ⑥ ⑦

③

④
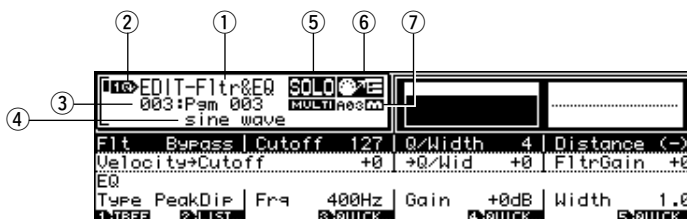
① The currently selected mode and display page.

② Indicates that Knob 1 can be used to position the cursor and switch display pages.

③ The number and name of the currently selected program. This only difference is in the PLAY mode PROGRAM function page, in which the selected program is highlighted in the PRO-GRAM list.

④ The currently selected sample or sample bank name. This is not shown in the PLAY mode.

> **NOTE** • The following icons may appear to the left of the sample name:
> • " ▣ "........... Sample bank.
> • " ▣ " .... Stereo sample.
> • The following icon may appear to the right of the sample name:
> • " ▣ "........... The sample has been edited but not saved to disk.

⑤ " **SOLO** " will appear when the sample solo function (page 93) is turned on.

⑥ When the tree view display MIDI→Sample function (page 83) is set to either Upper or Lower, the " ▣▣ " or " ▣▣ " icon will appear, respectively.

⑦ The currently selected part number is displayed here when the Multi program mode is selected. "▣" will also appear when the currently selected part is set to receive on the Basic Receive Channel (i.e. it is the Master program).

Selecting Modes & Functions

When selecting a function on the A5000/A4000, first press the mode button containing the function you want to access (PLAY, EDIT, REC, DISK, or UTILITY), and then press the appropriate function button ([F1] — [F6]).

To access the EDIT mode FILTER functions, for example, first press the [EDIT] mode button and then the [F3] function button (FILTER).
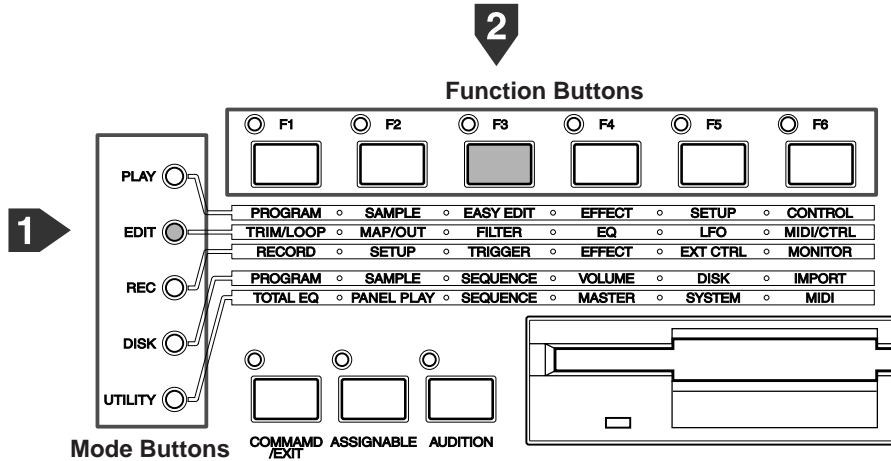
One of the FILTER display pages will appear.

Selecting Display Pages

Once you have selected a function group as described in the preceding section, you will have access to one or more display pages containing the related function parameters. When more than one display page is available, you can select pages by rotating Knob 1 until the desired page appears, or by pressing the corresponding mode or function button as many times as necessary to select the desired page.

Using Knob 1

Rotate Knob 1 clockwise to select the next display page, or counter-clockwise to select the previous display page. Some display pages include several display lines, and in such cases rotating Knob 1 clockwise will move the cursor down line-by-line until the bottom of the page is reached, and then the next display page will be selected. The opposite occurs if Knob 1 is rotated counter-clockwise: i.e. the cursor will move upward line-by-line until the top line is reached, then the previous display page will be selected.
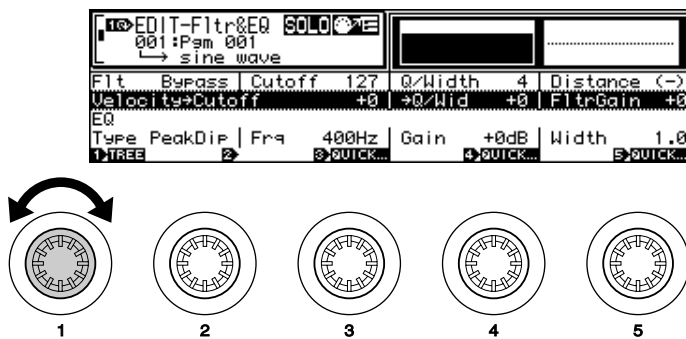
For example, when the EDIT mode FILTER function Filter & EQ page is selected, as shown in the example above, rotating Knob 1 clockwise will move the cursor down line-by-line until the bottom line is reached, then if the Knob is rotated more the next page — Filter Scaling — will be selected.

> **NOTE** • *This method can be used when the Tree View page Knob Type parameter (page 84) is set to "Page." If this parameter is set to "Sample," however, Knob 1 selects samples or sample banks to be edited instead of moving the cursor and selecting display pages.*

Using the Mode and Function Buttons

Press the currently selected function button to select the next display page, or the currently selected mode button to select the previous display page. Some display pages include several display lines, and in such cases pressing the current function button will move the cursor down line-by-line each time the button is pressed until the bottom of the page is reached, and then the next display page will be selected. The opposite occurs if the current mode button is used: i.e. the cursor will move upward line-by-line each time the button is pressed until the top line is reached, then the previous display page will be selected.

Editing Parameters

Knobs 2 through 5 are used to edit the various parameters that appear on each display page. In almost all pages four parameters are displayed directly above Knobs 2 through 5, and those parameters can be edited simply by rotating the corresponding knob. In some pages more than one display line is provided, and it is necessary to use Knob 1 to select the line containing the desired parameter before using the corresponding knob (2 — 5) to edit it.

For example, when the cursor is located at the top line in the EDIT mode FILTER function Filter & EQ page (i.e. the top line is highlighted) . . .
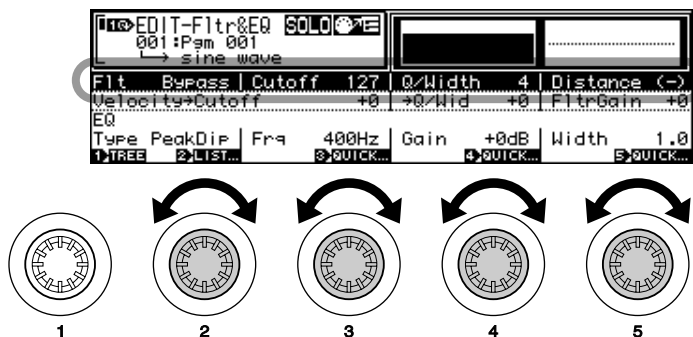
Knob 2 selects the Filter Type.
Knob 3 sets the cutoff value (0 — 127).
Knob 4 sets the Q/Width value (0 — 30).
Knob 5 sets the Distance value (-63 — +63).

> **NOTE** • *In some pages certain knobs may have no assigned function, or more than one knob may edit the same parameter.*

Executing Functions

In most display pages you'll see labels such as "1>TREE," "2>LIST," or "3>QUICK" immediately above certain knobs. These indicate functions which can be engaged by pressing the corresponding knob. In some display pages with multiple lines, however, these functions may change according to the selected display line.

When the top line is selected in the EDIT mode FILTER function Filter & EQ page, for example, pressing Knob 2 engages the "2>LIST" function, displaying a list of the available filter types.
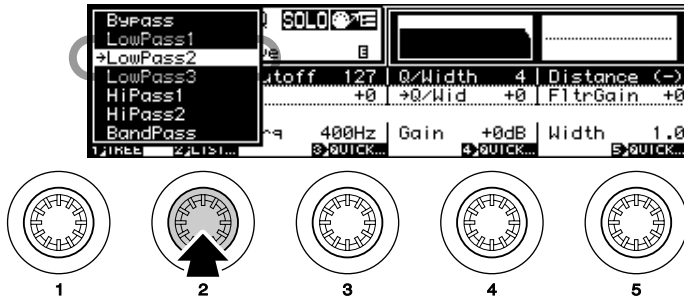
Command Selection

The A5000/A4000 features a selection of "commands" covering a range of functions not included in the modes. The commands are accessed by pressing the [COMMAND/EXIT] button: a command "menu" will appear when the button is pressed. The command menu which appears when the [COMMAND/EXIT] button is pressed from the DISK mode differs from that which appears when the [COMMAND/EXIT] button is pressed from any other mode (except the RECORD mode — no commands are accessible from the RECORD mode).

NOTE • Commands which can only be accessed via the DISK mode are described in "Chapter 7: DISK Mode" (page 177). All other commands are described in "Chapter 9: COMMAND" (page 204).

● **DISK Command menu (from DISK mode)**
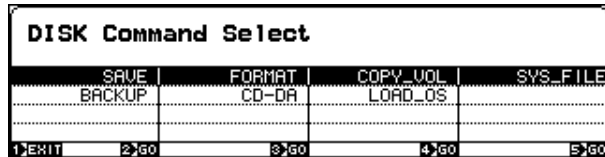
● **Command menu (from SONG, EDIT, UTILITY mode)**
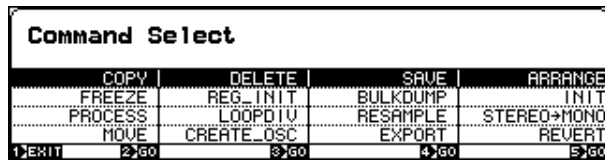
To select a command from the menu, first use Knob 1 to select the line containing the command to be selected, then press the knob (2 — 5) below the command.

To select the INIT (Initialize) command, for example, use Knob 1 to highlight line 2, then press Knob 5.

```
 Command Select

          COPY │      DELETE │        SAVE │      ARRANGE
        FREEZE │   REG_INIT │    BULKDUMP │         INIT
       PROCESS │     LOOPDIV │    RESAMPLE │  STEREO→MONO
          MOVE │  CREATE_OSC │      EXPORT │       REVERT
  1▶EXIT    2▶GO        3▶GO         4▶GO          5▶GO
```
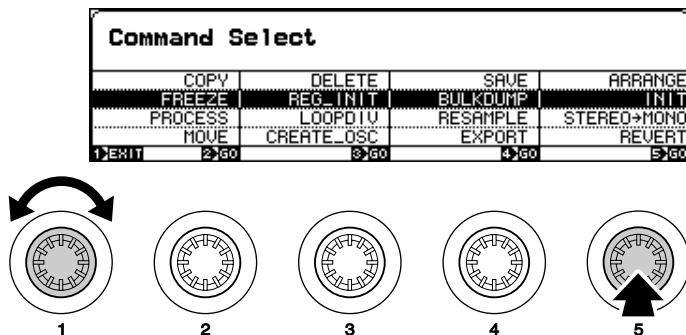
Character Entry

A display like the one shown below will appear when you choose to enter a sample name, program, name, etc.

```
 Rename [_NewSample         ]

          ABCDEFGHIJKLMNOPQR■TUVWXYZ

 1▶PASTE
   SPACE-IN   ↩▶←──→      ↩▶SELECT      ↩▶TYPE
   DELETE
   DELALL    2▶SPACE&ENTER  3▶ENTER     4▶CANCEL        5▶OK
```
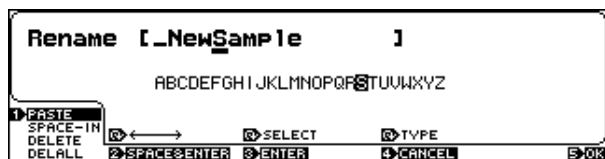
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Function menu	Cursor	Character select	Character type	—
	Press action	EXEC	SPACE & ENTER	ENTER	CANCEL	OK

Characters are entered via this display as follows:

Cursor Position

The name being entered appears on the upper line. An underline cursor will appear below one of the characters in the name (in the example display above, the cursor is below "m"), and a new character can be entered at the cursor position. **Rotate Knob 2** to move the cursor left or right to the desired character location.

Character Selection

After positioning the cursor at the desired character location, **use Knob 3** to select a character in the lower display line. When a character is selected, the character at the cursor position in the name will change accordingly. The type of available characters can be changed by **rotating Knob 4**: you can select upper-case alphabet, lower-case alphabet, numbers, or symbols.

Enter & Move To the Next Character

When you've selected the desired character for the current cursor location as described above, **press Knob 3** to actually enter that character and move the cursor to the next character location.

Enter a Space & Move To the Next Character (Erase a Character)

Position the cursor at the desired character location and press **Knob 2 (SPACE&ENTER)** to enter a space at that location and move to the next character.

Paste the Previously Entered Name

Press Knob 1 to paste in the previously entered name. For example, if you previously entered the name "SAMPLE ABC" and pressed Knob 5 to finish character entry, **pressing Knob 1** will paste in "SAMPLE ABC."

Insert a Space

Rotate Knob 1 to display "SPACE-IN" and then **press Knob 1** to insert a space at the current cursor location. All characters to the right of the new space will be moved to the right one character, accordingly.

Delete a Character

Rotate Knob 1 to display "DELETE" and then **press Knob 1** to delete the character at the current cursor location. All characters to the right of the deleted character will be moved to the left one character, accordingly.

Delete All Characters

Rotate Knob 1 to display "DELALL" and then **press Knob 1** to delete all characters in the current name.

Cancel Character Entry

To exit from the character entry display without entering a name **press Knob 4**.

Confirm and Finish Character Entry

To confirm and enter the new name and exit from the character entry display **press Knob 5**.

MIDI Input

Parameters such as MIDI channels, note numbers, velocities, etc. can be set either in the normal way or by receiving an appropriate MIDI message from an external MIDI controller.

In the display shown below, for example, Knob 5 can be pressed to allow MIDI input. The "MIDI" label will flash when the knob is pressed, indicating that the sampler is ready to receive MIDI input. When an appropriate MIDI message is then received, the received MIDI channel, note number, velocity, or other data is entered for the corresponding parameter. Press the knob a second time or select a different function to finish and exit from the MIDI input mode.
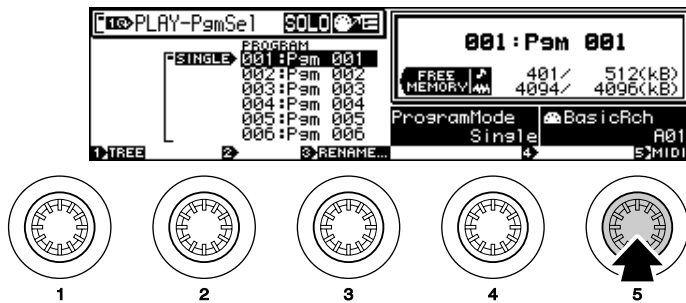
QUICK Entry

Some parameters have a QUICK entry option that allows the maximum, minimum, central ("0" for example), or last-entered value to be easily selected.

When "QUICK" appears above a knob — as it does above knobs 4 and 5 in the example display, below — that knob can be pressed to show a pop-up value menu. Rotate the knob to select the desired value, then press the knob to enter that value and close the QUICK pop-up window.

NOTE • *In some cases the previously-entered value is only temporarily retained by the QUICK entry function, and will be lost when the cursor is moved or different page is selected.*

QUICK pop-up window

minimum
last entered value
maximum
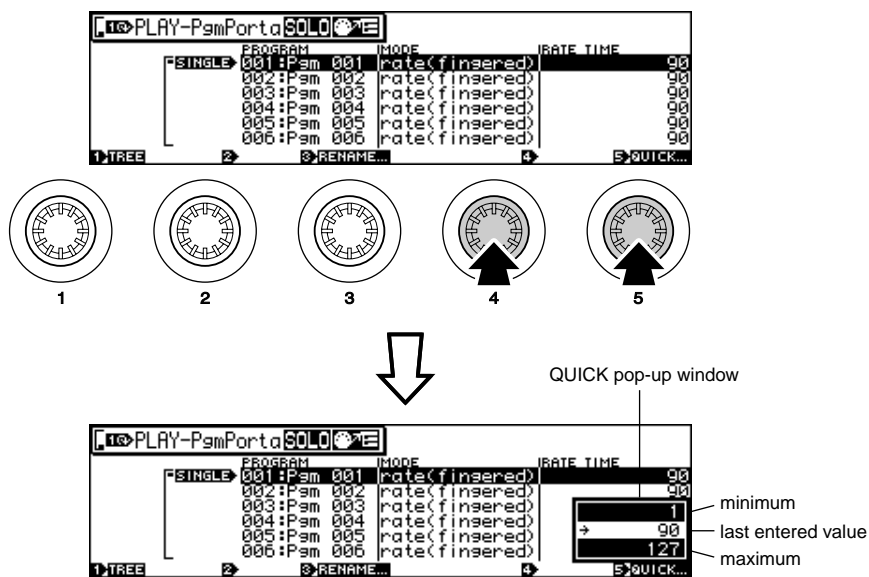
Tree View Display

In most A5000/A4000 display pages pressing Knob 1 calls the Tree View display for convenient sample selection. In addition to allowing selection of the sample to be edited, this page includes a function which allows samples to be directly selected via MIDI input.

NOTE • *The same capability is also available in the following display pages (the parameters are linked).*
  • *Knob 2 "Sample" in the PLAY-SAMPLE-SmpSel (Sample Select) page (page 93).*
  • *Knob 2 "OPEN/CLOSE" in the PLAY-SAMPLE-SmpSel (Sample Select) page (page 93).*
  Sample selection is a function you'll need frequency when editing programs or samples. This type of function organization makes sample selection fast and easy.
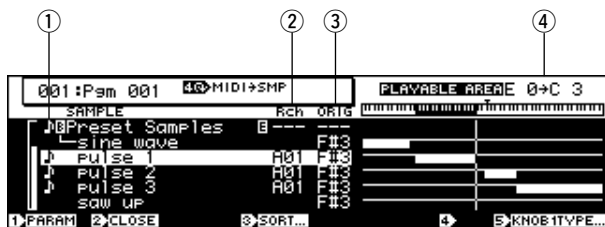
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	—	Sample	—	MIDI→ Sample	—
	Press action	—	OPEN/CLOSE	SORT...	—	KNOB1 TYPE

Knob 2

[⌒Turn] Sample

Selects a sample.

[⬆ Press] OPEN/CLOSE

Selects display or non-display of all samples in the selected sample bank.

Knob 3

[⬆ Press] SORT...

The SORT function accessed by pressing Knob 3 allows the display order of the sample names to be sorted according to the specified conditions.

[Range] off, Name, Status&Name

- **off** ... No sorting occurs.

- **Name** ... The sample bank and sample names are separately sorted and displayed in alphabetical order, with the sample banks first and the samples second.

- **Status&Name** ... The sample banks and samples are sorted according to their receive channel settings: all samples and sample banks for which the Receive Channel parameter is not set to "off" are arranged in ascending order by receive channel number, and then the samples and sample banks for which the Receive Channel parameter is "off" are listed. Samples/sample banks with the same channel settings will be sorted according to Name.

Knob 4

[⌒Turn] MIDI→Sample

The sample to be edited can be selected by playing that sample from an external MIDI controller.

[Range] off, Upper, Lower

- **off** ... No MIDI sample selection occurs.

- **Upper** ... When a MIDI note-on message plays a sample contained in a sample bank, that sample bank is selected.

- **Lower** ... When a MIDI note-on message plays a sample contained in a sample bank, that sample is selected.

> (HINT) • For example, if you have selected a program in which SAMPLE A is assigned to notes C-2 — B3, SAMPLE B is assigned to C4 — B4, and SAMPLE C is assigned to C5 — G8, and you press a key in the C4 — B4 range while editing SAMPLE A, SAMPLE B will be selected for editing without the need to switch displays. In the same way, SAMPLE C can be instantaneously selected for editing by playing a note in the C5 — G8 range.

This function makes it easy to switch between multiple samples assigned to the same program for fast, efficient editing.

> (NOTE) • When a note plays multiple "layered" sample, the samples played by that note are selected one after the other each time the note is played. If this is inconvenient, this sequential sample selection feature can be disable via the UTILITY-SYSTEM-Custom page (page 198).

Knob 5

[⬆ Press] KNOB1TYPE

Determines whether Knob 1 will be used for cursor positioning and page selection ("Page"), or for sample/sample bank selection ("Sample").

[Range] Page, Sample

[Display Explanation]

① **▮▯ Symbol**

"▮▯" will appear to the left of the names of samples which are assigned to the currently selected program.

② **Rch (Receive Channel)**

Shows the MIDI receive channel specified for each sample/sample bank assigned to the currently selected program in the PLAY-SAMPLE-SmpSel page (page 93). When Receive Channel Assign is set to "Bch" (the Basic Channel) the basic channel will be displayed, and when Receive Channel Assign is set to "=smp" the sample's receive channel will be displayed. "---" will be displayed if a sample bank's Receive Channel Assign is "=smp" and the sample bank's MIDI channel is set to "---." Nothing is displayed if the Receive Channel Assign is "off."

③ **ORIG (Original Key)**

The current pitch of the original key note resulting from program transpose and easy edit settings is displayed for each sample (the original key is set via the EDIT-MAP/OUT-Mix&Key page, page 127). "---" appears for sample banks.

NOTE • The program transpose value (PLAY-PROGRAM-PgmMix, page 128) is not shown for samples which are not assigned to the currently selected program.

④ **PLAYABLE AREA**

This shows the actual playable area for each sample as a result of program transpose and easy edit settings. To the right of the list the key range set up via the EDIT-MAP/OUT-Mix&Key page is indicated by thin lines and the actual playable range is indicated by thick lines. Nothing is displayed for sample banks.

The playable area is not shown for samples which are not assigned to the currently selected program.

A/D Input

This special feature lets you pass an analog signal through the A5000/A4000 at the same time as you are playing out your programs. You would typically use this feature when you wish to combine a vocal performance with A5000/A400 program play.

You must supply the analog signal to the A/D input(s) on the front panel. You may elect to pass this signal through any of the available effects on its way through the A5000/A4000.

You can set this feature up using the AD Inputfunction (PLAY - SETUP - ADInput) (page 107).

MIDI Indicator

The A5000/A4000 lets you know that it is currently receiving MIDI data by blinking one of the lamps on its five mode buttons. The blinking lamp indicates the type of data that coming in, as follows.

Received Data Type	Blinking Lamp
Note On/Off :	PLAY lamp
Control Change :	EDIT lamp
Pitchbend :	RECORDING lamp
Aftertouch :	DISK lamp
Program Change :	UTILITY lamp

But note that these indications do not operate with respect to data types that are filtered out by the MIDI Receiving Filter (page 200).

Shortcut Operation

The following shortcut operations are available by pressing the [COMMAND/EXIT] button and a function button.

[COMMAND/EXIT] + [F1]: turns all currently sounding notes off.

[COMMAND/EXIT] + [F2]: Alternately switches the MIDI→Sample function (Tree View display, page 83) between "off" and "on (Upper/Lower)".

[COMMAND/EXIT] + [F3]: Alternately switches the Knob 1 Type function (Tree View display, page 83) between "Page" and "Sample."

[COMMAND/EXIT] + [F4]: Resets all controller values.

Special Button Functions

[COMMAND/EXIT] Button

The [COMMAND/EXIT] button can be used to open and close the command menu (page 177, 204). It can also be used in conjunction with the function buttons to perform a range of shortcut operations (see previous section).

[ASSIGNABLE] Button

Functions you use frequently while playing can be assigned to this button. For example, it can be set up to instantly turn all notes off, or reset all controllers. The [ASSIGNABLE] button and Knobs 2 — 5 can be used for real-time control, and the [ASSIGNABLE] button and function buttons can be used to play the tone generator. The type of function assigned to the [ASSIGNABLE] button is determined via the UTILITY-SYSTEM-KeysSet page (page 197).

[AUDITION] Button

Pressing the [AUDITION] button plays the currently selected sample. The {AUDITION] button will even play samples which are not assigned to the currently selected program, so it can be used to check which sample is selected, and to monitor the sound of a sample being edited.

When a sample bank is selected, the [AUDITION] button sequentially plays all sample contained in that sample bank each time it is pressed. The [AUDITION] will also play a selected sample stored on disk without out loading the sample into memory.

Factory Reset

The A5000/A4000 can be restored to its factory preset status as follows:

! • *When this operation is executed all memory contents are restored to the original factory settings.*

[Operation]

Turn the power ON while holding the [F1] and [ASSIGNABLE] buttons. Release the buttons after the factory reset confirmation display appears.

Chapter *4*
PLAY Mode

This mode is used to edit and play programs.

About the PLAY Mode

This mode is used to edit and play programs. Press the [PLAY] button to enter the PLAY mode.

NOTE • A "program" consists of one or more samples set up and ready to be played via your keyboard or other MIDI controller.

PLAY Mode Functions

The PLAY mode includes the 6 functions listed below (selected via the [F1] — [F6] function buttons, respectively).

■ [F1] PROGRAM Button

This function is used primarily to select and play programs. The PROGRAM function also allows switching between the single and multi program modes, and setting the level, transpose, and portamento of individual programs (page 89). The PgmSel (Program Select), PgmMix (Program Mix), and PgmPorta (Program Portamento) pages can be accessed via this function.

■ [F2] SAMPLE Button

This function can be used to select samples and set up sample banks (page 93). Two pages are provided: SmpSel (Sample Select) and SmpBank (Sample Bank).

■ [F3] EASY EDIT Button

Use this function to make program-level adjustments to each sample's playback settings. You make these settings separately for each program, and they remain effective only while the program is selected. These changes do not affect the sample's own (local) data. (page 96)

The EASY EDIT function provides access to the following 10 pages: Mix, Output, Out&Gain (Output and Gain), Filter, Pitch, AmpEG (Amplitude EG), Key, Velocity, Xfade (Crossfade), and Control.

■ [F4] EFFECT Button

This function selects and sets up the effects for each program. (page 102)

Three pages are provided: EfSetupA (Effect Setup A), EfSetupB (Effect Setup B), and EfEdit (Effect Edit).

NOTE • The A4000 does not have an EfSetupB page, only a single EfSetup page in place of the A5000's EfSetupA page.

■ [F5] SETUP Button

This mode includes functions such as LFO S/H (Sample & Hold) speed and A/D input setup (page 107). Two pages are provided: S/HSpeed (Sample & Hold Speed), and ADInput (A/D Input).

■ [F6] CONTROL Button

This function sets up program controllers and handles controller resets. (page 110)

The CONTROL function provides access to the following four pages: PgmCtrlA (Program Control A), PgmCtrlB (Program Control B), ChSetup (Channel Setup), and PgmLFO (Program LFO).

1. PROGRAM

This function is used primarily to select and play programs. The PROGRAM function also allows switching between the single and multi program modes, and setting the level, transpose, and portamento of individual programs.

Press the [PLAY] button and then the [F1] function button to enter the PROGRAM mode. The PgmSel (Program Select), PgmMix (Program Mix — page 90), and PgmPorta (Program Portamento — page 91) pages can be accessed via this function.

NOTE • See "Basic Operation" on page 78 for details on acessing the various display pages.

Program Select

[PLAY] Button → [F1] Button → Knob 1 to select
"PLAY-PgmSel"

From the Program Select page you can select the program you want to play, set the program mode, and set the basic MIDI channel.

The content of this display will depend on the Program Mode setting.

■ Program Mode = Single
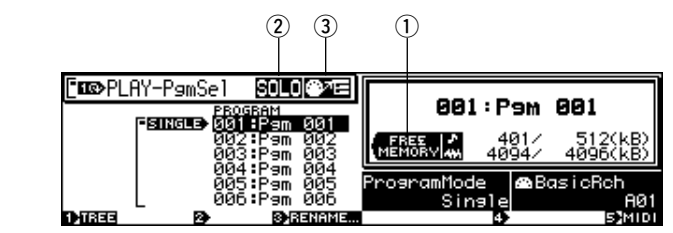
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Page	Program	Program	Program Mode	Basic Receive Channel
	Press action	Tree View	—	RENAME...	—	MIDI

Knob 1

[Turn] Page
Selects display pages.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] Program (Select Program)
Turn the knob to select a program for playback, editing, or save.

[Range] 001 — 128

Knob 3

[Turn] Program (Select Program)
Same function as Knob 2.

[Press] RENAME...
If you wish to set or change the program's name, press this knob to proceed to the name editing screen. For information about how to edit name strings, see "Character Entry" (page 81).

Knob 4

[Turn] Program Mode
Determines whether one A5000/A4000 part will function as a single tone generator receiving data over a single MIDI channel ("Single"), or as a multi-timbre tone generator ("Multi") receiving data over as many as 32 channels on the A5000 or 16 channels on the A4000.

[Range] Single, Multi

Knob 5

[Turn] Basic Receive Channel
Turn the knob to select the MIDI channel that drives the sample's playback.

[Range] A01 — A16, B01 — B16 (01 — 16 on the A4000)

NOTE • The MIDI receive channel set for each sample or sample bank takes priority (page 93).

[Press] MIDI
You can input your controller-number selection directly from your MIDI keyboard. First press Knob 2 so that the indicator lamp (directly above the knob) begins blinking, and then operate the appropriate controller at the keyboard. The controller's controller number will then appear on the screen directly above the knob. Push the knob again (or move to another page) to terminate this MIDI-entry mode and register the new setting.

NOTE • When setting the MIDI channel via MIDI on the A5000, receive the appropriate MIDI messages via the MIDI IN-A connector to set channels A01 — A16, and via the MIDI IN-B connector to set channels B01 — B16.

[DISPLAY]

① **FREE MEMORY**
This page displays the amount of memory currently available for use (currently unused). The screen shows separate values for waveform memory ( ) and parameter memory ( ).

 displays the parameter memory. Parameter memory is the memory used by program or sample parameter data as well as sequence data.

 displays the wave memory. Wave memory is memory containing the sample wave data.

② **SOLO**
If Sample Solo is turned "on" for any sample in the SmpSel page, the **SOLO** mark will appear (MIDI → SAMPLE).

PLAY-PROGRAM

③ **MIDI → SAMPLE**

If MIDI → SAMPLE is set to "Upper" or "Lower" in the tree view display page, the corresponding icon will appear: [icon] for Upper, and [icon] for Lower.

■ Program Mode = Multi
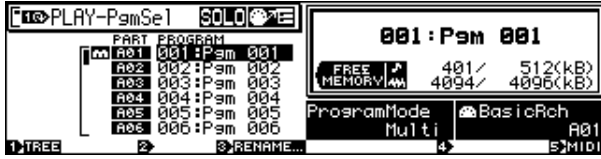
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Part	Program	Program Mode	Basic Receive Channel
Press action	Tree View	—	RENAME...	—	MIDI

Knob 1

Same function as Program Mode = Single (pege 89).

Knob 2

[Turn] Part

Selects the program part to be edited.

[Range] A01 — A16, B01 — B16 (01 — 16 on the A4000)

Knob 3

[Turn] Program

Turn the knob to select a program for playback, editing, or save.

[Range] 001 — 128

[Press] RENAME...

If you wish to set or change the program's name, push this knob to proceed to the name editing screen. For information about how to edit name strings, see "Character Entry" (page 81).

Knob 4, 5

Same function as Program Mode = Single (pege 89).

NOTE
- When Program Mode = "Multi", the MIDI channels set for each part number take priority over the MIDI channels set for individual samples or sample banks.
- A program selected with a part which is assigned to the basic channel becomes the "Master Program," and all effect, setup, and control settings made for the Master Program will affect the entire Multi setup.

Program Mix

[PLAY] Button → [F1] Button → Knob 1 to select "PLAY-PgmMix"

The Program Mix page allows the final output levels and transpose values for each program to be set as required. The content of this display will depend on the Program Mode setting (page 89).

■ Program Mode = Single

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Program	Program	Program Level	Program Transpose
Press action	Tree View	—	RENAME...	QUICK...	QUICK...

Knob 1

[Turn] Page

Selects display pages.

[Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[Turn] Program (Select Program)

Turn the knob to select a program for playback, editing, or save.

[Range] 001 — 128

Knob 3

[Turn] Program (Select Program)

Same function as Knob 2.

[Press] RENAME...

If you wish to set or change the program's name, press this knob to proceed to the name editing screen. For information about how to edit name strings, see "Character Entry" (page 81).

Knob 4

[Turn] Program Level

Turn the knob to set the program's overall output level.

[Range] 0 — 127

[Press] QUICK...

Calls the quick entry menu (page 83).

Knob 5

[⌒Turn] Program Transpose

Use this setting to transpose the program up or down, in semitone increments. The transposition operates by raising or lowering all samples used by the program.

Note that each sample's keyboard range also transposes by an equivalent amount.
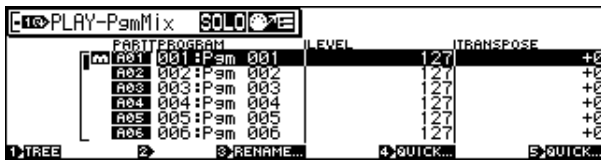
[Range] -127 — +127

> HINT • If a sample's keyboard range is set to C3 through B3, for example, then transposing the program by -12 will shift the range for the sample to C2 through B2, so that striking key C2 will produce the sound originally associated with key C3.

[▲Press] QUICK...

Calls the quick entry menu (page 83).

■ Program Mode = Multi

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Page	Part	Program	Program Level	Program Transpose
▲	Press action	Tree View	—	RENAME...	QUICK...	QUICK...

Knob 1

Same function as Program Mode = Single (pege 90).

Knob 2

[⌒Turn] Part

Selects the program part to be edited.

[Range] A01 — A16, B01 — B16 (01 — 16 on the A4000)

Knob 3

[⌒Turn] Program

Turn the knob to select a program for playback, editing, or save.

[Range] 001 — 128

[▲Press] RENAME...

If you wish to set or change the program's name, push this knob to proceed to the name editing screen. For information about how to edit name strings, see "Character Entry" (page 81).

Knob 4, 5

Same function as Program Mode = Single (pege 90).

> NOTE • Program Level (Knob 4) and Program Transpose (Knob 5) directly set the corresponding values for each program in the same way whether the Multi or Single Program Mode is selected.

Program Portamento

[PLAY] Button → [F1] Button → Knob 1 to select "PLAY-PgmPorta"

Use this page to set the portamento mode and portamento rate or time for the selected program.

> NOTE • These settings apply only to samples for which the sample portamento mode (EDIT-MAP/OUT-Pitch) is set to "=Pgm" (page 130).

The content of this display will depend on the Program Mode setting (page 89).

■ Program Mode = Single

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Page	Program	Program	Program Portamento Mode	Program Portamento Rate/Time
▲	Press action	Tree View	—	RENAME...	—	QUICK...

Knob 1

[⌒Turn] Page

Selects display pages.

[▲Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[⌒Turn] Program (Select Program)

Turn the knob to select a program for playback, editing, or save.

[Range] 001 — 128

Knob 3

[⌒Turn] Program (Select Program)

Same function as Knob 2.

[▲Press] RENAME...

If you wish to set or change the program's name, press this knob to proceed to the name editing screen. For information about how to edit name strings, see "Character Entry" (page 81).

Knob 4

[Turn] **Program Portamento Mode**

Turn either knob to select the mode. The "rate" settings select a fixed-rate slide, while the "time" settings select a fixed-time slide.

[Range] rate (fingered), rate (fulltime), time (fingered), time (fulltime)

- **rate (fingered)** ... Slides one note into the next only if the first note (key) is still held when the next note is struck. Slide is at a constant rate; the time required to slide from the first note's pitch to the next note's pitch increases as the difference between the pitches increases.

- **rate (fulltime)** ... Pitch between consecutive notes always slides, even if the first note is released before the second note is struck. Again, pitch slide occurs at a constant rate.

- **time (fingered)** ... Slides one note into the next only if the first note (key) is still held when the next note is struck. The slide time is always the same; the slide rate increases as the difference between the pitches increases.

- **time (fulltime)** ... Pitch between consecutive notes always slides, even if the first note is released before the second note is struck. Again, the slide time is always the same.

> **NOTE** • Note that the "fingered" setting is effective only on samples that are set for one-note-at-a-time replay (samples whose Mono/Poly switch is set to mono (EDIT-MAP/OUT-Mix&Key) (page 127). Samples set to poly always receive "fulltime" portamento.

Knob 5

[Turn] **Program Portamento Rate/Time**

This value sets the pitch slide rate or slide time. The setting determines the slide rate (if the mode is set to "rate") or the slide time (if the mode is set to "time").

[Range] 1 — 127

[Press] QUICK...

Calls the quick entry menu (page 83).
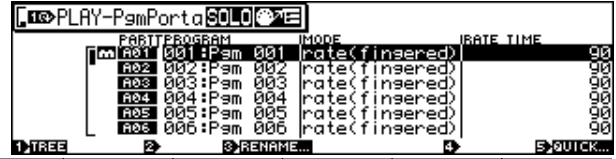
■ Program Mode = Multi

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Page	Part	Program	Program Portamento Mode	Program Portamento Rate/Time
	Press action	Tree View	—	RENAME...	—	QUICK...

Knob 1

Same function as Program Mode = Single (pege 91).

Knob 2

[Turn] **Part**

Selects the program part to be edited.

[Range] A01 — A16, B01 — B16 (01 — 16 on the A4000)

Knob 3

[Turn] **Program**

Turn the knob to select a program for playback, editing, or save.

[Range] 001 — 128

[Press] RENAME...

If you wish to set or change the program's name, push this knob to proceed to the name editing screen. For information about how to edit name strings, see "Character Entry" (page 81).

Knob 4, 5

Same function as Program Mode = Single (pege 92).

> **NOTE** • Program Portamento (Knob 4) and Program Portamento Rate/Time (Knob 5) directly set the corresponding values for each program in the same way whether the Multi or Single Program Mode is selected.

2. SAMPLE

This function can be used to select samples to be used in a program and set up sample banks. Press the [PLAY] button and then the second function key [F2] to enter the SAMPLE mode.

Two pages are provided: SmpSel (Sample Select) and SmpBank (Sample Bank — page 95).

NOTE • See "Basic Operation" on page 78 for details on acessing the various display pages.

Select Sample

[PLAY] Button → [F2] Button → Knob 1 to select
"PLAY-SmpSel"

Use this page to assign samples to the current program, to select samples for editing, or to save the selected sample to disk.

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Page	Sample	Sample Solo	Receive Channel Assign	Shortcut Command
⬆	Press action	Tree View	OPEN/CLOSE	SORT	RESERVE	EXECUTE

Knob 1

[⌒Turn] Page
Selects display pages.

[⬆ Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⌒Turn] Sample
Selects a sample to be used in the program. Samples selected here will be used in the current program unless the "RchASSIGN" parameter is turned "off" via Knob 4.

NOTE • The characters which appear to the left of the sample name have the following meanings:
• ▣ ... Sample Bank
• ▤ ... Stereo Sample
• The characters which appear to the right of the sample name have the following meanings:
• ▧ ... The sample has been edited but not saved to disk.

[⬆ Press] OPEN/CLOSE
Pressing this knob alternately selects display or non-display of all samples in the sample bank.

Knob 3

[⌒Turn] Sample Solo
This setting enables or disables the "sample solo" feature. Setting this feature ON lets you use MIDI input to play the selected sample (or sample bank) by itself. You use this feature when you are editing a sample (or sample bank) and need to hear how it sounds in isolation from other samples.

[Range] off, on

NOTE • If Sample Solo is turned on for any sample bank, only that sample bank will sound.

HINT • As an example, assume that you are working with a program that uses two samples, Sample A and Sample B, and that both of these samples are set to play over the entire key range (C-2 to G8). If the "sample solo" feature is OFF, playing a key at the keyboard will produce sounds from both samples.

Assume, further, that you are now editing Sample A, and that you want to produce the sound of this sample without intrusion from Sample B. If you set the "sample solo" feature ON, your MIDI input will produce sound from Sample A only.

NOTE • Note that this feature is available only with samples used by the program selected by Knob 2. If you select a sample that is not used by this program, the screen displays a "- -" to indicate that the feature is not available.
• Note also that this feature is not available with individual samples within a sample bank. If you select such a sample, the screen displays a "- -". But it is possible, however, to select the entire sample bank for solo play.
• This parameter cannot be edited when Program Mode is set to Multi.

[⬆ Press] SORT
The SORT function accessed by pressing Knob 3 allows the display order of the sample names to be sorted according to the specified conditions.

[Range] off, Name, Rch&Name

• **off** ... No sorting occurs.

• **Name** ... The sample bank and sample names are separately sorted and displayed in alphabetical order, with the sample banks first and the samples second.

• **Rch&Name** ... The samples are sorted according to their receive channel settings, as follows:

Program Mode = Single:
A01 — B16 (01 — 16 on the A4000) → Bch → =smp → off

Program Mode = Multi:
=A01 — =B16 (01 — 16 on the A4000) → off

Samples with the same channel settings will be sorted according to Name.

Knob 4

[⌒Turn] **RchASSIGN (Receive Channel Assign)**

Determines whether the selected sample will or will not be used in the current program. Set this parameter to "off" if the sample is not be used in the program, or set to the MIDI receive channel via which the sample is to be controlled.

[Range] Program Mode = Single:

A01 — B16 (01 — 16 on the A4000), Bch (Basic Receive Channel), =smp (the receive channel set for the sample), off.

Program Mode = Multi:

Any part number assigned to the current program (A01 — B16 on the A5000; 01 — 16 on the A4000), off

NOTE • An alert message will appear on the display if you attempt to turn a sample which has easy-edit settings "off," and you will be asked whether it is OK to delete the easy-edit settings. If you then press Knob 5 (>YES) the easy-edit settings will be deleted and the Rch ASSIGN parameter will be turned off.

• If Knob 2 selects a sample that belongs to a bank, therefore, the RchASSIGN setting is blanked out (a "- -" appears in the setting area).

• Selecting too many overlapped samples (samples with identical or overlapping key ranges) may cause a delay in playback. In general, you should set your program up such that no key (on the keyboard) produces sound from more than four monaural samples (or 2 stereo samples).

[⬆Press] **RESERVE**

Pressing this knob has the same effect as temporarily turning the receive channel assignment for the sample used in the program "off." When pressed the receive channel assignment for the selected channel will appear in brackets, and that sample will not sound. Press the knob a second time to restore normal playback.

NOTE • This function will not work when a sample bank is selected or with samples for which the receive channel assignment is turned "off."

Knob 5

[⌒Turn] **Shortcut Command**

This knob positions the cursor within the sub-mode window to select one of the available shortcut commands.

[Range] DUPLICATE, DELETE..., NEW BANK, SAVE..., RENAME...

(See "The Shortcut Commands" below for details on each command)

[⬆Press] **EXECUTE**

Executes the shortcut command at the current cursor position.

The Shortcut Commands

■ DUPLICATE

Creates a copy of the sample selected via Knob 2. If you specify a sample contained in a sample bank to be duplicated, a confirmation display asking whether you want the duplicate to be made inside or outside the sample bank will appear. Press Knob 4 (>InBank) to create a duplicate in the sample bank, or Knob 5 (>Out Of Bank) to create a duplicate outside the sample bank.

If you duplicate a sample bank, the A5000/A4000 duplicates both the bank and all of the samples within the bank. (The name for each new sample becomes: original name + "*".)

NOTE • Immediately following the copy, the new version will have the same sound as the original version: it will have the same parameter settings, and will make use of the same waveform data. You can then edit the parameter data to customize the sound of the new sample.

■ DELETE...

Deletes the sample or sample bank selected by Knob 2. Push the knob to delete the sample(s). The A5000/A4000 returns a confirmation screen. Press Knob 5 (>YES) to complete the deletion, or Knob 4 (>NO) to cancel.

If you select a sample bank for deletion, the A5000/A4000 screen will ask whether you want to also delete all of the samples within that bank. Push Knob 5 (>YES) to delete all samples together with the bank, or push Knob 4 (>NO) to delete the sample bank only, while leaving the samples in memory.

■ NEW BANK

Use this page to create a new, empty sample bank in main memory.

■ SAVE...

Saves data currently residing in memory to a disk. See page 208 for details.

■ RENAME...

If you wish to set or change the program's name, press this knob to proceed to the name editing screen. For information about how to edit name strings, see "Character Entry" (page 81).

Select Sample from Sample Bank

[PLAY] Button → [F2] Button → Knob 1 to select
"PLAY-SmpBank"

This display page lets you edit sample banks, adding or
removing samples to or from a sample bank.

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Sample Bank	—	Sample	—
Press action	Tree View	FOCUS	SORT	FOCUS	REMOVE/ADD

Knob 1

[Turn] Page

Selects display pages.

[Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[Turn] Sample Bank

Positions the cursor at the sample bank to be edited.

> NOTE
> • "E " will appear to the right of the names of sample
> banks which have been edited but not saved to disk.
> • " N " will appear to the left of the names of samples
> which are used by the currently selected program.

[Press] FOCUS

Selects the the highlighted sample for editing.

> HINT
> • After using knob 2 to select a sample bank and Knob
> 4 to select a sample, if you use Knob 5 to execute the
> REMOVE command the sample will be removed
> from the sample bank and will become an indepen-
> dent sample. In the same way, if you use Knob 5 to
> execute the ADD command the selected sample will
> be added to the sample bank.

Knob 3

[Press] SORT

The SORT function accessed by pressing Knob 3 allows
the display order of the sample names to be sorted
according to the specified conditions.

[Range] off, Name, Status&Name

- **off** ... No sorting occurs.
- **Name** ... The sample banks and samples are sepa-
  rately sorted by name in alphabetical order.
- **Status&Name** ... Sample banks are sorted
  according to their relationship with programs,
  and samples according to their relationship
  with sample banks, as follows:

  Sample banks are sorted so that sample
  banks assigned to programs are listed first
  and those which are not assigned are listed
  second.

Samples are sorted so that those assigned to
the currently selected sample bank are listed
first, unassigned samples are listed second,
and samples assigned to programs or other
sample banks are listed last.

When multiple samples or sample banks meet
the same conditions, they will be sorted by
name.

Knob 4

[Turn] Sample

Positions the cursor at the sample to be edited.

> NOTE
> • An "E " will appear to the right of the names of sam-
> ples which have been edited but not saved to disk.
> • "L " will appear to the left of the names of samples
> contained in the sample bank currently selected via
> Knob 2.
> • "N " will appear to the left of the names of samples
> which are used by the currently selected program.
> • "USED " will appear to the right of names of samples
> which are already being used in a sample bank or
> program.

[Press] FOCUS

Selects the the highlighted sample for editing.

Knob 5

[Press] REMOVE or ADD

When a sample contained in the sample bank selected
by Knob 2 is selected by Knob 4, the press function of
Knob 5 becomes REMOVE. When any other sample is
selected by Knob 4 the press function of this knob
becomes ADD.

■ REMOVE

The sample selected via Knob 4 will be removed from the
sample bank, and will become an independent sample.

> NOTE
> • The REMOVE function will only work if the sample
> selected via Knob 4 is actually assigned to the sam-
> ple bank selected via Knob 2.

■ ADD

The sample selected via Knob 4 will be added to the
sample bank selected via Knob 2.

> NOTE
> • The ADD function will have no effect if the sample
> selected via Knob 4 is already assigned to the sam-
> ple bank selected via Knob 2.

If a "USED" sample is selected the "MOVE&ADD" and
"DUPLICATE&ADD" optionas become available.
The "MOVE&ADD" option the sample will be moved from
the program or sample bank to which it was previously
assigned, and added to the specified sample bank.
The "DUPLICATE&ADD" option duplicates the sample
and adds it to the specified sample bank. (The name for
each new sample becomes: original name + "*".)

> NOTE
> • Note that the A5000/A4000 does not create another
> copy of the waveform data when "duplicating" the
> sample. Instead, both samples access the same
> waveform memory area. This means that the dupli-
> cation does not consume any additional waveform
> memory.

3. EASY EDIT

Use this function to make program-level adjustments to each sample's playback settings. You make these settings separately for each program, and they remain effective only while the program is selected. These changes do not affect the sample's own (local) data.

Press the [PLAY] button and then the third function button [F3] to enter the EASY EDIT mode.

NOTE
- *In EASY EDIT, only the samples used by the current program are listed.*
- *If EASY EDIT is entered when a sample which is not used by the current program is selected, the EASY EDIT display will open with none of the listed samples selected. Knob 2 can be used at this point to select one of the listed samples.*
- *EASY EDIT settings will be cancelled when the "RchASSIGN" parameter for the edited sample is set to "off" (the EASY EDIT settings will not be restored when the sample is re-assigned).*
- *If you apply easy editing to a sample bank, the settings apply to the entire bank. You can apply edit settings to individual samples within the bank.*

HINT
- *This feature lets you adjust the way a sample operates and sounds within a program while leaving the sample's original settings unchanged. This is particularly useful when you wish to use the same sample in different ways with different programs.*

The EASY EDIT mode has the following 10 display pages: Mix, Output (page 97), Out&Gain (page 97), Filter (page 98), Pitch (page 98), AmpEG (Amplitude EG — page 99), Key (page 99), Velocity (page 100), Xfade (Crossfade — page 100), and Control (page 101).

NOTE
- *See "Basic Operation" on page 78 for details on acessing the various display pages.*

EASY EDIT Parameters

The EASY EDIT mode is used to apply temporary offset or replacement values for the sample's own editable parameters, and thus the easy edit parameters are essentially the same as those provided in the EDIT mode. In this section we'll simply list the ESY EDIT parameters available and their settings. For details refer to the corresponding EDIT mode parameters on the page numbers provided.

NOTE
- *Whether each parameter is an "offset" or "replacement" type is indicated in parentheses after the values.*
- *Press "QUICK..." entry knobs for the quick-entry menu — refer to page 83 for details.*
- *Press "MIDI" input knobs to set the input value from a MIDI controller — refer to page 82 for details.*

Mix

[PLAY] Button → [F3] Button → Knob 1 to select "PLAY-Mix"

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Page	Sample	Level	Pan	Poly/Mono
	Press action	Tree View	—	QUICK...	QUICK...	—

Knob 1

[Turn] Page
Selects display pages.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] Sample
Selects the sample to be edited.

Knob 3

[Turn] Level (page 127)
[Range] -127 — +127 (offset)

[Press] QUICK...
Calls the quick entry menu (page 83).

Knob 4

[Turn] Pan (page 127)
[Range] -127 — +127 (offset)

[Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[Turn] Poly/Mono (page 127)
[Range] Poly, Mono, =Smp (replace)

When "=Smp" is selected the receive channel for each sample (page 127) is used as is.

Output

[PLAY] Button → [F3] Button → Knob 1 to select
"PLAY-Output"
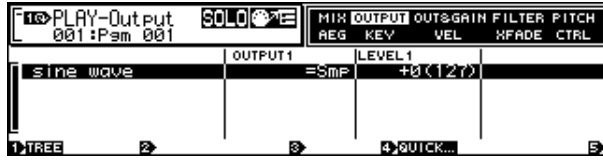
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Sample	Output1	Output Level1	—
Press action	Tree View	—	—	QUICK...	—

Knob 1

[Turn] Page

Selects display pages.

[Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[Turn] Sample

Selects the sample to be edited.

Knob 3

[Turn] Output1 (page 129)

[Range] off, StereoOut, AsgnOutL&R — AsgnOut5&6, DIG&OPT, Ef1 — Ef6 (Ef1 — Ef3 on the A4000) (replace)

Knob 4

[Turn] Output Level1 (page 129)

[Range] -127 — +127 (offset)

[Press] QUICK...

Calls the quick entry menu (page 83).

NOTE • *When both the sample and Easy Edit Output1 and Output 2 parameters are set to the same output destination, the higher of the two output level settings (Output Level 1 and Output Level2) will take priority. If reducing the Output Level 1 or Output Level 2 setting has no effect, check the sample and Easy Edit Output1 and Output2 destination settings.*

Out & Gain

[PLAY] Button → [F3] Button → Knob 1 to select
"PLAY-Out&Gain"
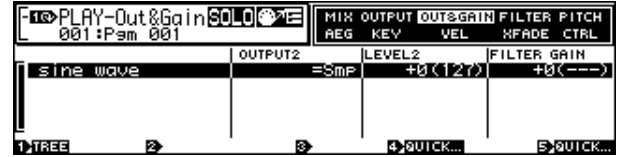
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Sample	Output2	Output Level2	Filter Gain
Press action	Tree View	—	—	QUICK...	QUICK...

Knob 1

[Turn] Page

Selects display pages.

[Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[Turn] Sample

Selects the sample to be edited.

Knob 3

[Turn] Output2 (page 129)

[Range] off, StereoOut, AsgnOutL&R — AsgnOut5&6, DIG&OPT, Ef1 — Ef6 (Ef1 — Ef3 on the A4000) (replace)

Knob 4

[Turn] Output Level2 (page 129)

[Range] -127 — +127 (offset)

[Press] QUICK...

Calls the quick entry menu (page 83).

NOTE • *When both the sample and Easy Edit Output1 and Output 2 parameters are set to the same output destination, the higher of the two output level settings (Output Level 1 and Output Level2) will take priority. If reducing the Output Level 1 or Output Level 2 setting has no effect, check the sample and Easy Edit Output1 and Output2 destination settings.*

Knob 5

[Turn] Filter Gain (page 134)

[Range] -63 — +63 (offset)

[Press] QUICK...

Calls the quick entry menu (page 83).

Filter

[PLAY] Button → [F3] Button → Knob 1 to select "PLAY-Filter"

```
⌐1®PLAY-Filter  SOLO⊙⊁⊟  MIX OUTPUT OUT&GAIN FILTER PITCH
  001:Pgm 001             AEG  KEY    VEL   XFADE CTRL
                CUTOFF      DISTANCE    Q/WIDTH
  sine wave     +0(---)     +0(---)     +0(--)

 1▶TREE    2↯      3▶QUICK...   4▶QUICK...   5▶QUICK...
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Sample	Cutoff	Cutoff Distance	Q/WIDTH
Press action	Tree View	—	QUICK...	QUICK...	QUICK...

Knob 1

[⌒Turn] Page
Selects display pages.

[▲Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⌒Turn] Sample
Selects the sample to be edited.

Knob 3

[⌒Turn] Cutoff (page 134)

[Range] -127 — +127 (offset)

[▲Press] QUICK...
Calls the quick entry menu (page 83).

Knob 4

[⌒Turn] Cutoff Distance (page 134)

[Range] -127 — +127 (offset)

[▲Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[⌒Turn] Q/Width (page 134)

[Range] -31 — +31 (offset)

[▲Press] QUICK...
Calls the quick entry menu (page 83).

Pitch

[PLAY] Button → [F3] Button → Knob 1 to select "PLAY-Pitch"

```
⌐1®PLAY-Pitch  SOLO⊙⊁⊟  MIX OUTPUT OUT&GAIN FILTER PITCH
  001:Pgm 001             AEG  KEY    VEL   XFADE CTRL
                COARSE      FINE        PORTAMENTO
  sine wave     +0( +0)     +0(-20)         =Smp

 1▶TREE    2↯      3▶QUICK...   4▶QUICK...   5▶
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Sample	Pitch Coarse	Pitch Fine	Portamento
Press action	Tree View	—	QUICK...	QUICK...	—

Knob 1

[⌒Turn] Page
Selects display pages.

[▲Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⌒Turn] Sample
Selects the sample to be edited.

Knob 3

[⌒Turn] Pitch Coarse (page 129)

[Range] -127 — +127 (offset)

[▲Press] QUICK...
Calls the quick entry menu (page 83).

Knob 4

[⌒Turn] Pitch Fine (page 130)

[Range] -127 — +127 (offset)

[▲Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[⌒Turn] Portamento (page 130)

[Range] =Smp, off, =Pgm (replace)

- **=Smp** ... the portamento set for the sample is used.
- **off** ... no portamento
- **=Pgm** ... the portamento set for the program is used.

Amplitude EG

[PLAY] Button → [F3] Button → Knob 1 to select "PLAY-AmpEG"

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Sample	AEG Attack Rate	AEG Decay Rate	AEG Release Rate
Press action	Tree View	—	QUICK...	QUICK...	QUICK...

Knob 1

[Turn] Page
> Selects display pages.

[Press] Tree View
> Calls the Tree View display (page 83).

Knob 2

[Turn] Sample
> Selects the sample to be edited.

Knob 3

[Turn] AEG Attack Rate (page 137)
> **[Range] -127 — +127 (offset)**

[Press] QUICK...
> Calls the quick entry menu (page 83).

Knob 4

[Turn] AEG Decay Rate (page 137)
> **[Range] -127 — +127 (offset)**

[Press] QUICK...
> Calls the quick entry menu (page 83).

Knob 5

[Turn] AEG Release Rate (page 137)
> **[Range] -127 — +127 (offset)**

[Press] QUICK...
> Calls the quick entry menu (page 83).

Key

[PLAY] Button → [F3] Button → Knob 1 to select "PLAY-Key"

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Sample	Key Range Shift	Key Low Limit	Key High Limit
Press action	Tree View	—	QUICK...	MIDI	MIDI

Knob 1

[Turn] Page
> Selects display pages.

[Press] Tree View
> Calls the Tree View display (page 83).

Knob 2

[Turn] Sample
> Selects the sample to be edited.

Knob 3

[Turn] Key Range Shift
> **[Range] -127 — +127 (offset)**
>
> *NOTE* • *This parameter simultaneously applies offset to the sample's Original Key (page 128), Low Key (page 128), and High Key (page 128) parameters. In short, it produces a lateral shift in the sample's key range.*

[Press] QUICK...
> Calls the quick entry menu (page 83).

Knob 4

[Turn] Key Low Limit
> **[Range] C-1 — Key High Limit**
>
> *NOTE* • *Notes within the sample's key range set by the Key Range Shift parameter which are below the specified Key Low Limit will not sound.*

[Press] MIDI
> Allows the note number to be set by MIDI note-on input via the MIDI IN connector (page 82).

Knob 5

[Turn] Key High Limit
> **[Range] Key Low Limit — G8**
>
> *NOTE* • *Notes within the sample's key range set by the Key Range Shift parameter which are above the specified Key High Limit will not sound.*

[Press] MIDI
> Allows the note number to be set by MIDI note-on input via the MIDI IN connector (page 82).

Velocity

[PLAY] Button → [F3] Button → Knob 1 to select
"PLAY-Velocity"

```
┌──────────────────────────────────────────────────┐
│ ▣PLAY-Velocity SOLO◆☰ │ MIX OUTPUT OUT&GAIN FILTER PITCH │
│ L  001:Pgm 001         │ AEG  KEY    VEL   XFADE  CTRL    │
│                  SENSITIVITY │LOW LIMIT │HIGH LIMIT│
│ ┃ sine wave      +0( +0)│        0│      127│
│ ┃                                              │
│ ┃                                              │
│ 1▶TREE      2▶      3▶QUICK...  4▶MIDI   5▶MIDI │
└──────────────────────────────────────────────────┘
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Sample	Velocity Sensitivity	Velocity Low Limit	Velocity High Limit
Press action	Tree View	—	QUICK...	MIDI	MIDI

Knob 1

[⌒Turn] Page
Selects display pages.

[⬆ Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⌒Turn] Sample
Selects the sample to be edited.

Knob 3

[⌒Turn] Velocity Sensitivity (page 127)

[Range] -127 — +127 (offset)

[⬆ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 4

[⌒Turn] Velocity Low Limit

[Range] 0 — Velocity High Limit

> **NOTE** • Notes with velocity values between the sample's Velocity Low Range (page 131) and Velocity High Range (page 132) settings which have velocity values lower than the specified Velocity Low Limit will not sound.

[⬆ Press] MIDI
Allows the velocity value to be set by MIDI note-on input via the MIDI IN connector (page 83).

Knob 5

[⌒Turn] Velocity High Limit

[Range] Velocity Low Limit — 127

> **NOTE** • Notes with velocity values between the sample's Velocity Low Range and Velocity High Range settings which have velocity values higher than the specified Velocity High Limit will not sound.

[⬆ Press] MIDI
Allows the velocity value to be set by MIDI note-on input via the MIDI IN connector (page 83).

Crossfade

[PLAY] Button → [F3] Button → Knob 1 to select
"PLAY-Xfade"

```
┌──────────────────────────────────────────────────┐
│ ▣PLAY-Xfade  SOLO◆☰ │ MIX OUTPUT OUT&GAIN FILTER PITCH │
│ L  001:Pgm 001      │ AEG  KEY    VEL   XFADE  CTRL    │
│              KEY XFADE │VEL LOW XFADE│VEL HIGH XFADE│
│ ┃ sine wave    =Smp│  +0(  0)│  +0(  0)│
│ ┃                                              │
│ ┃                                              │
│ 1▶TREE   2▶      3▶      4▶QUICK...  5▶QUICK... │
└──────────────────────────────────────────────────┘
```
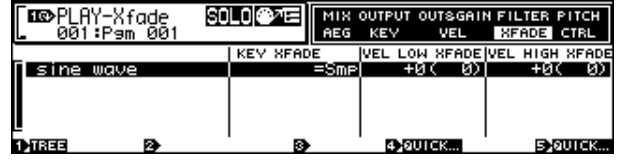
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Sample	Key Crossfade	Velocity Low Crossfade	Velocity High Crossfade
Press action	Tree View	—	—	QUICK...	QUICK...

Knob 1

[⌒Turn] Page
Selects display pages.

[⬆ Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⌒Turn] Sample
Selects the sample to be edited.

Knob 3

[⌒Turn] Key Crossfade (page 128)

[Range] =Smp, off, on (replace)

> • **=Smp** ... The sample's Key Crossfade setting takes priority.
> • **off** ... Key Crossfade is off.
> • **on** ... Key Crossfade is on.

Knob 4

[⌒Turn] Velocity Low Crossfade (page 131)

[Range] -127 — +127 (offset)

[⬆ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[⌒Turn] Velocity High Crossfade (page 132)

[Range] -127 — +127 (offset)

[⬆ Press] QUICK...
Calls the quick entry menu (page 83).
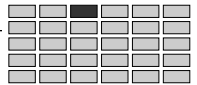
Control

[PLAY] Button → [F3] Button → Knob 1 to select
"PLAY-Control"

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Sample	Alternate Group	MIDI Control	—
Press action	Tree View	—	—	—	—

Knob 1

[⌢ Turn]   Page
Selects display pages.

[⬆ Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⌢ Turn]   Sample
Selects the sample to be edited.

Knob 3

[⌢ Turn]   Alternate Group (page 145)

[Range] =Smp, off, 1 — 16 (replace)

- **=Smp** ... The sample's Alternate Group setting takes priority.

- **off** ... No alternate group is selected.

- **1 — 16** ... The corresponding alternate group is specified.

Knob 4

[⌢ Turn]   MIDI Control
Determines whether the sample (sample bank) controller settings will or will not be effective.

[Range] off, on

- **off** ... the sample (sample bank) controller settings are ignored.

- **on** ... the sample (sample bank) controller settings are used.

4. EFFECT

Selects and sets up the effects to be used with the current program.

Press the [PLAY] button and then then [F4] function button to enter the effect mode. 3 display pages are provided: EfSetupA (Effect Setup A), EfSetupB (Effect Setup B), and EfEdit (Effect Edit).

The A4000 does not have an EfSetupB page, only a single EfSetup page in place of the A5000's EfSetupA page.

NOTE • See "Basic Operation" on page 78 for details on accessing the various display pages.

• When "off", "StereoOut, "AsgnOutL&R" — "AsgnOut5&6" or "DIG&OPT" is selected as the sample output destination, no effect will be applied to the sound. In order to use the effects be sure to select "Ef1 — 6" ("Ef1 — 3" on the A4000). See page 129.

• The sample's output destination can also be set via the EASY EDIT function (page 97).

• When the program mode is set to "Multi" (page 89), the master program effect settings take priority (the master program is the program selected for the part assigned to the basic channel). If an effect function is accessed when any other part is selected "Not a Master Part" will appear on the display. If this happens select an appropriate part via the PLAY-PROGRAM-PgmSel page (page 89), and then use the effect functions.

Effect Setup A

[PLAY] button → [F4] button → Knob 1 to select
"PLAY-EfSetupA" ("EfSetup" on the A4000).

EFFECT SETUP A provides access to the Effect 1 — 3 effect types and three different effect connection types.

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor/Page	Effect Type	Effect Output	Effect1...3 Connect	Effect4...6 Connect
	Press action	Tree View	LIST...	Effect1 BYPASS	Effect2 BYPASS	Effect3 BYPASS

Knob 1

[Turn] Cursor/Page
Positions the cursor to select effect 1 — 3, and selects display pages.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] Effect Type
Select the effect type to be applied as Effect 1 — 3. For information about available selections, refer to the "Effect type list" in the appendix. (page 256)

[Press] LIST... (Effect Type List)
Shows a list of the effect types.

Knob 3

[Turn] Effect Output
Selects the output destination for Effect 1 — 3.

[Range] StereoOut, AsgnOutL&R, AsgnOut1&2, AsgnOut3&4, AsgnOut5&6, DIG&OPT, Ef4, Ef5, Ef6

• **StereoOut** ... Output is sent to the rear-panel STEREO OUT jacks as well as the front-panel PHONES jack.

• **AsgnOutL&R** ... The rear-panel assignable output jacks.

• **AsgnOut1&2, AsgnOut3&4, AsgnOut5&6** ... The corresponding assignable outputs on the optional AIEB1 I/O expansion board.

• **DIG&OPT** ... The coaxial and optical digital outputs on the optional AIEB1 I/O expansion board.

• **Ef4, Ef5, Ef6** ... Output is routed to the specified effect (not available on the A4000).

NOTE • When the output is connected to another effect "-----------" will appear on the display and the effect output can not be selected.

• The AsgnOut1&2, AsgnOut2&4, and AsgnOut5&6 output destinations cannot be selected unless the optional AIEB1 I/O expansion board is installed.

[Press] Effect1 BYPASS
The Effect1 effect type display will appear as " (Bypass)" and Effect1 will be temporarily bypassed (no effect). Press a second time to to re-engage the effect.

Knob 4

[⌒ Turn] Effect1 — 3 Connect

Select the interconnection between the three effects blocks.

[Range] 1/2/3, 1→2/3, 1→2→3, 1/2→3, 1→2←3

• **1/2/3**..............No interconnection — all effects blocks operate independently.

• **1 → 2/3**.........Feeds the Effect-1 block through the Effect-2 block. Specifically, output from the Effect-1 block passes through the Effect-2 block and then to the stereo outputs.

• **1 → 2 → 3**....Feeds the Effect-1 block to the Effect-2 block, and the Effect-2 block to the Effect-3 block.

• **1/2 → 3**.........Effect 1 functions independently, while the output of Effect 2 is connected to Effect 3.

• **1 → 2 ← 3**....Feeds the Effect-1 block to the Effect-2 block, and the Effect-3 block to the Effect-2 block.

[▲ Press] Effect2 BYPASS

The Effect2 effect type display will appear as "(Bypass)" and Effect2 will be temporarily bypassed (no effect). Press a second time to to re-engage the effect.

Knob 5

[⌒ Turn] Effect4 — 6 Connect

Select the interconnection between the three effects blocks.
This function is not available on the A4000.

[Range] 4/5/6, 4→5/6, 4→5→6, 4/5→6, 4→5←6

• **4/5/6**.............No interconnection — all effects blocks operate independently.

• **4 → 5/6**........Feeds the Effect-4 block through the Effect-5 block. Specifically, output from the Effect-1 block passes through the Effect-5 block and then to the stereo outputs.

• **4 → 5 → 6**...Feeds the Effect-4 block to the Effect-5 block, and the Effect-5 block to the Effect-6 block.

• **4/5 → 6**........Effect 4 functions independently, while the output of Effect 5 is connected to Effect 6.

• **4 → 5 ← 6**...Feeds the Effect-4 block to the Effect-5 block, and the Effect-6 block to the Effect-5 block.

[▲ Press] Effect3 BYPASS

The Effect3 effect type display will appear as "(Bypass)" and Effect3 will be temporarily bypassed (no effect). Press a second time to to re-engage the effect.

Knob 5

[⌒Turn] Effect Edit Type

Specifies the the selection method to be used for select-ing effect parameters.

[Range] full, favorite

• **full** ... This setting allows you to select and set any parameter from the full range of parameters available for the selected effect. Although you have access to all parameters, it can take a lit-tle more time to locate the desired parameters using this method.

• **favorite** ... You have immediate access to four of your "favorite" parameters.

[DISPLAY]

① The PLAY-EFFECT-EfSetupA/B (EfrSetup on the A4000) page shows the specified Effect Output (page 102) and Effect Connect type (page 103).

■ Effect Edit Type = full

Cursor ❷

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor/Page	Effect #	—	Parameter #	Value
▲	Press action	Tree View	—	—	—	—

Knob 1

Same function as cursor ❶ (page 104).

Knob 2

[⌒Turn] Effect # (Effect Number)

Selects the effect to be edited.

[Range] Ef1 — Ef6 (Ef1 — Ef3 on the A4000)

NOTE • The effect type assigned to the selected effect will be shown on the display (page 102).

Knob 4

[⌒Turn] Parameter # (Parameter Number)

Turn either knob to select the parameter whose value you want to view or set. You can then set the value using Knob 5. You can repeat the sequence to set each of the available parameters: first select the parameter with Knob 4, and then set the value with Knob 5.

Note that the available parameters differ for each effect type. For a listing of parameters and their meanings, refer to the "Effect parameter list" in the Appendix. (page 256).

[Range] 01/Effect Parameters 1 — 16/Effect Parameter 16, --/Input Level, --/Output Level, --/Pan, --/Width

• **01/Effect Parameters 1 — 16/Effect Parameter 16** ... Depends on the selected effect type.

• **--/Input Level** ... Sets the level of the signal sent to the input of the effect.

• **--/Output Level** ... Sets the effect output level.

• **--/Pan** ... Turn the knob to set the pan (stereo posi-tioning) for the effect block's output. Positive values set pan to the right; negative values set pan to the left.

If the effect output is stereo, higher absolute pan settings will narrow the stereo feeling while noticeably shifting the sound position.

• **--/Width** ... Sets the stereo width of the effect. Neg-ative values reverse the stereo image.

NOTE • When a selected effect type has less than 16 param-eters, unavailable parameters will appear as "No./------" on the display.

• If the selected Effect Type is "Through," effect paramerts 1 — 16 will appear as "------" on the dis-play.

Knob 5

[⌒Turn] Value

Turn the knob to set the value for the parameter selected by Knob 4.

■ Effect Edit Type = favorite

Cursor ❷
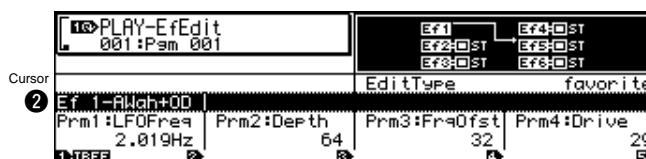
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor/Page	Effect #	—	—	—
▲	Press action	Tree View	—	—	—	—

Knob 1

[⌒Turn] Cursor/Page

Positions the cursor and selects display pages.

[▲ Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[⌒Turn] Effect # (Effect Number)

Selects the effect to be edited.

[Range] Ef1 — Ef6 (Ef1 — Ef3 on the A4000)

NOTE • The effect type assigned to the selected effect will be shown on the display (page 102).

Cursor ❸

```
⎡▯▷PLAY-EfEdit        ┌─Ef1───→Ef4:▯ST
⎣   001:Psm 001        Ef2:▯ST  Ef5:▯ST
                       Ef3:▯ST  Ef6:▯ST
                      EditType        favorite
      Ef 1-AWah+OD
Cursor Prm1:LFOFreq│Prm2:Depth│Prm3:FrqOfst│Prm4:Drive
 ❸      2.019Hz  │      64  │      32   │      29
      1▶TREE  2▶LIST…    3▶LIST…   4▶LIST…    5▶LIST…
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
↻	Turn action	Cursor/Page	Parameter1 Value	Parameter2 Value	Parameter3 Value	Parameter4 Value
▲	Press action	Tree View	PARAM1	PARAM2	PARAM3	PARAM4

Knob 1

Same function as cursor ❷ (page 105).

Knob 2 — 5

[↻Turn] Parameter1 Value — Parameter4 Value

Adjust the corresponding parameters on the top line of the display.

[▲ Press] Parameter1 List — Parameter4 List

Displays a list of the corresponding parameters.

Knobs 2 — 5 can be used to change the parameters to be edited.

[Range] 01/Effect Parameters 1 — 16/Effect Parameter 16

• **01/Effect Parameters 1 — 16/Effect Parameter 16** ... Depends on the selected effect type.
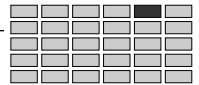
5. SETUP

This mode includes functions such as LFP S/H (Sample & Hold) speed and A/D input setup.

Press the [PLAY] button and then the [F5] button to enter the SETUP mode.

2 display pages are provided: S/Hspeed and ADInput.

NOTE
- See "Basic Operation" on page 78 for details on acessing the various display pages.
- When the program mode is set to "Multi" (page 89), the master program setup settings take priority (the master program is the program selected for the part assigned to the basic channel). If a setup function is accessed when any other part is selected "Not a Master Part" will appear on the display. If this happens select an appropriate part via the PLAY-PROGRAM-PgmSel page (page 89), and then use the setup functions.

S/H Speed

[PLAY] Button → [F5] Button → Knob 1 to select "PLAY-S/Hspeed"

Set the sample & hold speed for the LFO (low-frequency oscillator).

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Page	—	S/HSpeed	—	—
	Press action	Tree View	—	QUICK...	—	—

Knob 1

[Turn] Page
Selects display pages.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 3

[Turn] S/HSpeed (Sample & Hold Speed)
Turn the knob to set the sample & hold speed for the LFO (low-frequency oscillator).
This setting determines how the LFO operates on samples whose LFO Wave parameter is set to S/H. Specifically, the setting determines the "sample and hold" rate used for random LFO modulation (page 143).

> **NOTE**
> - Note that the term "sample" in "sample & hold" refers to sampling rate, and is unrelated to A5000/A4000 sound samples.

[Press] QUICK...
Calls the quick entry menu (page 83).

AD Input

[PLAY] Button → [F5] Button → Knob 1 to select "PLAY-ADInput"

The ADInput page includes AD input ON/Off, source, pan, and other functions relating to operation of the A/D input.

HINT
- Depending on the AD Input Source setting the L and R A/D inputs can be used as independent mono inputs.

Cursor ❶

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor/Page	AD Input on/off	AD Input Source	AD Input-L Pan	AD Input-R Pan
	Press action	Tree View	—	—	QUICK...	QUICK...

Knob 1

[Turn] Cursor/Page
Positions the cursor and selects display pages.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] AD Input on/off
Switch the A/D-input feature on or off.

[Range] off, on

Knob 3

[Turn] AD Input Source
Selects the input for the acoustic signal.

[Range] L/R, L+R, 2Mono

- **L/R** ... Use input stereo signal; handle the signal as stereo.
- **L+R** ... Use input stereo signal, but handle as monaural (mix the incoming L-channel and R-channel signals).
- **2Mono** ... The received stereo input signal is processed as two independent mono signals.

Knob 4

[Turn] AD Input-L Pan (A/D Input Left Pan)
Specifies the output pan position of the signal received via the "L" A/D input jack.

[Range] -63 — +63

Positive values set pan to the right; negative values set pan to the left.

[Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[⌒Turn] AD Input-R Pan (A/D Input Right Pan)

Specifies the output pan position of the signal received via the "R" A/D input jack.

[Range] -63 — +63

> Positive values set pan to the right; negative values set pan to the left.

> NOTE • When "L/R" or "L+R" is selected as the AD Input Source, the ADInput-Lpan setting applies to both channels and thus the ADInput-Rpan parameter cannot be edited.

[▲ Press] QUICK...

Calls the quick entry menu (page 83).

Cursor ❷

```
┌─────────────────────────────────────┐
│ PLAY-ADInput SOLO       │
│ 001:Psm 001             │
├─────────────────────────────────────┤
│ADInput  off│Src  2Mono│InL-Pan  +0│InR-Pan  +0│
│     Output1│  OutLevel1│   Output2│  OutLevel2│
│L StereoOut │        64│       off│        64│
│R StereoOut │        64│       off│        64│
│ TREE │    │ QUICK...│    │ QUICK...│
└─────────────────────────────────────┘
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	ADInput-L Output1	ADInput-L Output Level1	ADInput-L Output2	ADInput-L Output Level2
Press action	Tree View	—	QUICK...	—	QUICK...

Knob 1

Same function as Cursor ❶ (page 107).

Knob 2

[⌒Turn] ADInput-L Output1 (A/D Input Left Output 1)

Sets the output destination of the signal received at the "L" A/D input jack.

[Range] off, StereoOut, AsgnOutL&R, AsgnOut1&2, AsgnOut3&4, AsgnOut5&6, DIG&OPT, Ef1 — Ef6 (Ef1 — Ef3 on the A4000)

> • **StereoOut** ... Output is sent to the rear-panel STEREO OUT jacks as well as the front-panel PHONES jack.
>
> • **AsgnOutL&R** ... The rear-panel assignable output jacks.
>
> • **AsgnOut1&2, AsgnOut3&4, AsgnOut5&6** ... The corresponding assignable outputs on the optional AIEB1 I/O expansion board.
>
> • **DIG&OPT** ... The coaxial and optical digital outputs on the optional AIEB1 I/O expansion board.
>
> • **Ef1 — Ef6** ... Output is routed to the specified effect.

Knob 3

[⌒Turn] ADInput-L Output Level1 (A/D Input Left Output Level 1)

Sets the level of the signal sent to the output destination specified by the ADInput-LOutput1 parameter.

[Range] 0 — 127

[▲ Press] QUICK...

Calls the quick entry menu (page 83).

> NOTE • When both the Output1 and Output 2 parameters are set to the same output destination, the higher of the two output level settings (Output Level 1 and Output Level2) will take priority.

Knob 4

[⌒Turn] ADInput-L Output2 (A/D Input Left Output 2)

Sets the output destination of the signal received at the "L" A/D input jack.

[Range] off, StereoOut, AsgnOutL&R, AsgnOut1&2, AsgnOut3&4, AsgnOut5&6, DIG&OPT, Ef1 — Ef6 (Ef1 — Ef3 on the A4000)

> The settings are the same as for the ADInput-L Output1 parameter (page 108).

Knob 5

[⌒Turn] ADInput-L Output Level2 (A/D Input Left Output Level 2)

Sets the level of the signal sent to the output destination specified by the ADInput-L Output2 parameter.

[Range] 0 — 127

[▲ Press] QUICK...

Calls the quick entry menu (page 83).

> NOTE • When both the Output1 and Output 2 parameters are set to the same output destination, the higher of the two output level settings (Output Level 1 and Output Level2) will take priority.

Cursor ❸

```
┌─────────────────────────────────────┐
│ PLAY-ADInput SOLO       │
│ 001:Psm 001             │
├─────────────────────────────────────┤
│ADInput  off│Src  2Mono│InL-Pan  +0│InR-Pan  +0│
│     Output1│  OutLevel1│   Output2│  OutLevel2│
│L StereoOut │        64│       off│        64│
│R StereoOut │        64│       off│        64│
│ TREE │    │ QUICK...│    │ QUICK...│
└─────────────────────────────────────┘
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	ADInput-R Output1	ADInput-R Output Level1	ADInput-R Output2	ADInput-R Output Level2
Press action	Tree View	—	QUICK...	—	QUICK...

Knob 1

Same function as Cursor ❶ (page 107).

Knob 2

[⌒Turn] ADInput-R Output1 (A/D Input Right Output 1)
Sets the output destination of the signal received at the "R" A/D input jack.

[Range] off, StereoOut, AsgnOutL&R, AsgnOut1&2, AsgnOut3&4, AsgnOut5&6, DIG&OPT, Ef1 — Ef6 (Ef1 — Ef3 on the A4000)

The settings are the same as for the Cursor ❷ ADInput-L Output1 parameter (page 108).

Knob 3

**[⌒Turn] ADInput-R Output Level1
(A/D Input Right Output Level 1)**
Sets the level of the signal sent to the output destination specified by the ADInput-R Output1 parameter.

[Range] 0 — 127

[⬆ Press] QUICK...
Calls the quick entry menu (page 83).

NOTE • *When both the Output1 and Output 2 parameters are set to the same output destination, the higher of the two output level settings (Output Level 1 and Output Level2) will take priority.*

Knob 4

[⌒Turn] ADInput-R Output2 (A/D Input Right Output 2)
Sets the output destination of the signal received at the "R" A/D input jack.

[Range] off, StereoOut, AsgnOutL&R, AsgnOut1&2, AsgnOut3&4, AsgnOut5&6, DIG&OPT, Ef1 — Ef6 (Ef1 — Ef3 on the A4000)

The settings are the same as for the Cursor ❷ ADInput-L Output1 parameter (page 108).

Knob 5

**[⌒Turn] ADInput-R Output Level2
(A/D Input Right Output Level 2)**
Sets the level of the signal sent to the output destination specified by the ADInput-R Output2 parameter.

[Range] 0 — 127

[⬆ Press] QUICK...
Calls the quick entry menu (page 83).

NOTE • *When both the Output1 and Output 2 parameters are set to the same output destination, the higher of the two output level settings (Output Level 1 and Output Level2) will take priority.*

6. CONTROL

This function sets up the program's controller handling.
Press the PLAY button and then the [F6] button to enter the
CONTROL mode.

4 display pages are provided: PgmCtrlA (Program Control
A), PgmCtrlB (Program Control B), ChSetup (Channel Setup,
and PgmLFO (Program LFO).

NOTE
• *See "Basic Operation" on page 78 for details on acessing the various display pages.*
• *When the program mode is set to "Multi" (page 89), the master program control settings take priority (the master program is the program selected for the part assigned to the basic channel). If a control function is accessed when any other part is selected "Not a Master Part" will appear on the display. If this happens select an appropriate part via the PLAY-PROGRAM-PgmSel page (page 89), and then use the control functions.*

Program Controller A/B

[PLAY] Button → [F6] Button → Knob 1 to select
"PLAY-PgmCtrlA"/"PLAY-PgmCtrlB"

Program Controller A/B lets you specify and set up the controllers to be used to play programs.

NOTE
• *The controller settings that you make here operate in response to control-change messages received over the Basic Receive Channel.*

CONTROLLER A

```
 ▶PLAY-PgmCtrlASOLO  
   001:Pgm 001

    Device    Function    Range        Type
1 091/------- E1-1:------- +32      -/+offset
2 093/------- E2-1:------- +32      -/+offset
3 094/------- E3-1:------- +32      -/+offset
1▶TREE  2▶MIDI     3▶LIST...   4▶QUICK...    ▶
```

CONTROLLER B

```
 ▶PLAY-PgmCtrlBSOLO  
   001:Pgm 001



    Device    Function    Range        Type
4 000/------- off          +0        +offset
1▶TREE  2▶MIDI     3▶LIST...   4▶QUICK...    ▶
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor/Page	Device	Program Control Function	Range	Type
	Press action	Tree View	MIDI	LIST...	QUICK...	—

Knob 1

[↷Turn] Cursor/Page
Positions the cursor to select a controller, and selects display pages.

[⬆ Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[↷Turn] Device
Use this setting to select the external physical controller that you want to set for operation with the A5000/A4000.

[Range] 000 — 120, AfterTouch, PitchBend, NoteNumber, Velocity, ProgramLFO, KeyOnRandom

• **000 — 120** ... Specifies one of the standard MIDI controllers.

• **AfterTouch** ... Program control via keyboard (or controller) aftertouch.

• **PitchBend** ... Program control via pitch bend data.

• **NoteNumber** ... Program control via note-on message note number data.

• **Velocity** ... Program control via note-on message velocity data.

• **ProgramLFO** ... Control change data created by the internal Program LFO is used for program control.

• **KeyOnRandom** ... A random control value is generated each time a note-on message is received.

NOTE
• *If a controller with a standard control assignment - "001/Modwhel", for example - is selected, the controller name will also be displayed.*

HINT
• *You should generally avoid controller numbers 000 and 032, however, as many MIDI devices use these numbers for bank selection purposes.*

[⬆ Press] MIDI
Allows setting the Device parameter directly from an external MIDI controller (page 82).

Knob 3

[↷Turn] Program Control Function
Specifies the program function to be controlled from an external MIDI controller or the Program LFO.

[Range]

Function	Control Target	Page
-----	—	
EF1-1 — 16	Effect 1 parameters 1 — 16	105
EF1:Output Level	Effect 1 output level	105
EF1:Pan	Effect 1 pan	105
EF1:Width	Effect 1 width	105
EF2-1 — 16	Effect 2 parameters 1 — 16	105
EF2:Output Level	Effect 2 output level	105
EF2:Pan	Effect 2 pan	105
EF2:Width	Effect 2 width	105
EF3-1 — 16	Effect 3 parameters 1 — 16	105
EF3:Output Level	Effect 3 output level	105
EF3:Pan	Effect 3 pan	105
EF3:Width	Effect 3 width	105
Program Level	Program volume	90
S/H Speed	Sample-and-hold speed	107
Portament Rate/Time	Portamento rate/time	92
AD Pan L&R	A/D input L&R pan	107
AD Pan L	A/D input L pan	107
AD Pan R	A/D input R pan	107
AD Level L&R	A/D input L&R output level	
AD Level L	A/D input L output level	
AD Level R	A/D input R output level	
Control1 Range	Controller 1 range	111
Control2 Range	Controller 2 range	111
Control3 Range	Controller 3 range	111
Control4 Range	Controller 4 range	111
Program LFO Depth	Program LFO depth	
EF4-1 — 16	Effect 4 parameters 1 — 16	105
EF4:Output Level	Effect 4 output level	105
EF4:Pan	Effect 4 pan	105
EF4:Width	Effect 4 width	105
EF5-1 — 16	Effect 5 parameters 1 — 16	105
EF5:Output Level	Effect 5 output level	105
EF5:Pan	Effect 5 pan	105
EF5:Width	Effect 5 width	105
EF6-1 — 16	Effect 6 parameters 1 — 16	105
EF6:Output Level	Effect 6 output level	105
EF6:Pan	Effect 6 pan	105
EF6:Width	Effect 6 width	105

(Functions relating to Ef4 — Ef6 cannot be selected on the A4000)

NOTE
• Depending on the effect parameter, non-controllable functions will appear as "---."
• Some parameters may produce noise when controlled.

[⬆ Press] LIST...
Shows a list of the available functions.

Knob 4

[◠Turn] Range
Sets the maximum offset that the controller can apply to the target parameter. This also determines how sensitive the parameter is to changes in the controller position.

[Range] -63 — +63

When set to "0" the controller will have no effect. The higher the value the greater the control range. Negative values revers the control "direction."

[⬆ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[◠Turn] Type
The setting determines how the A5000/A4000 converts and applies the control-change value received from the controller.

When you move a controller at a MIDI device, the controller transmits a control-change value indicating the magnitude of the movement. The transmitted values always range from 0 to 127.

[Range] +offset, -/+offset, +offset(-exp), +offset(+exp)

• **+offset** ... The A5000/A4000 converts the received value (0 to 127) to a corresponding value in the range {0 to range}, and adds the result to the target parameter. Notice that the resulting offset is therefore always positive (or always negative, depending on the Range sign; see below). In other words, the controller can offset the target parameter in one direction only.

• **-/+offset** ... The A5000/A4000 converts the received value (0 to 127) to a corresponding value in the range {-range to 0 to +range}, and adds the result to the target parameter. Notice that in this case the controller applies 0 offset when at its center position; displacement in one direction generates a negative offset, while displacement in the other generates a positive offset.

• **+offset(-exp)** ... The received value (0 — 127) is converted to an appropriate value within the available range. The conversion is not linear, however, with greater variation produced at lower values and less variation produced at higher values.

• **+offset(+exp)** ... The received value (0 — 127) is converted to an appropriate value within the available range. The conversion is not linear, however, with smaller variation produced at lower values and greater variation produced at higher values.

Channel Setup

[PLAY] Button → [F6] Button → Knob 1 to select
"PLAY-ChSetup"

This page selects how controllers are set when you switch
into this program from another program. You can choose to
retain the previous control-change values, or else to tempo-
rarily reset these values to 0.
You can set the operation separately for each MIDI channel.
You can also specify how note playback is affected by MIDI
note-on and note-off messages.

```
PLAY-ChSetup  SOLO
  001:Pgm 001

MIDIChA01 | CtrlReset on | NoteOnType    normal
     A02               on               normal
     A03               on               normal
     A04               on               normal
1 TREE    2 MIDI          3           4           5
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤸	Turn action	Page	MIDI Ch	Controller Reset	—	Note On Type
⬆	Press action	Tree View	MIDI	—	—	—

Knob 1

[⤸Turn] Page
Selects display pages.

[⬆ Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⤸Turn] MIDI Ch (MIDI Channel)
Selects the MIDI receive channel to which the Controller
Reset and Note On Type settings will apply.

> **HINT** • Once the MIDI channel has been specified you can
> set the Controller Reset and Note On Type parame-
> ters via Knobs 3 and 5, respectively.

[Range] A01 — A16, B01 — B16 (01 — 16 on the A4000)

[⬆ Press] MIDI
Allows setting the MIDI Ch parameter from an external
MIDI controller (page 82).

> **NOTE** • When setting the MIDI channel via MIDI on the
> A5000, receive the appropriate MIDI messages via
> the MIDI IN-A connector to set channels A01 — A16,
> and via the MIDI IN-B connector to set channels B01
> — B16.

Knob 3

[⤸Turn] Controller Reset
Determines whether the last received controller data will
be retained or reset when a different program is selected.

[Range] off, on

- **off** ... The last controller data is retained.
- **on** ... The controller data is reset.

> **HINT** • As an example, consider the following programs:
> PROGRAM 001 and PROGRAM 002.
>
> **PROGRAM 001** ... This program uses a sample to
> which the modulation wheel is assigned for
> pitch modulation depth control (via MIDI
> receive channel 1).
>
> **PROGRAM 002** ... This program uses a sample to
> which the modulation wheel is assigned for fil-
> ter modulation depth control (via MIDI receive
> channel 1).
>
> • Now, if you're playing PROGRAM 001 and the modu-
> lation wheel has been used to apply heavy pitch
> modulation, then you switch to PROGRAM 002, the
> following will occur:
>
> **If the MIDI channel 1 Control Reset =
> off for PROGRAM 002** ... PROGRAM 002 will
> begin playing with correspondingly heavy fil-
> ter modulation.
>
> **If the MIDI channel 1 Control Reset =
> on for PROGRAM 002** ... PROGRAM 002 will
> begin playing with no filter modulation. Filter
> modulation will then be applied the instant the
> modulation wheel is moved.

Knob 5

[⤸Turn] Note On Type
Determines how notes are played when note-on and
note-off messages are received.

[Range] Normal, Toggle

- **Normal** ... The note begins playing when a note-on
  message is received, and stops when a note-
  off message is received.

- **Toggle** ... Note-off messages are ignored. Any
  note which was previously sounding on the
  same MIDI channel will be stopped and the
  new note will begin playing when a note-on
  message is received (only one note can sound
  at a time on any one MIDI channel).

Program LFO

[PLAY] Button → [F6] Button → Knob 1 to select
"PLAY-PgmLFO"

Sets up the Program LFO.

The Program LFO can be synchronized to a MIDI clock signal from an external MIDI device to control programs and samples. Use MIDI clock synchronization and the StepWave LFO waveform, perfectly synchronized note-length control becomes possible.

NOTE • *In order to use the Program LFO to control programs and /or samples, the program and/or sample controller parameter must be set to "Program LFO."*

Cursor ❶

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	Program LFO Wave	Program LFO Sync	Program LFO Tempo	Program LFO Cycle
Press action	Tree View	—	—	QUICK...	—

Knob 1

[Turn] Cursor/Page
Positions the cursor to select a controller, and selects display pages.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] Program LFO Wave
Specifies the waveform of the program LFO.

[Range] off, Sine, Saw, Triangle, Square, S/H, StepWave

• **off** ... The Program LFO will not function.

• **Sine**

• **Saw**
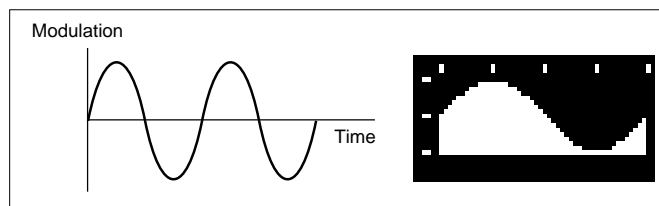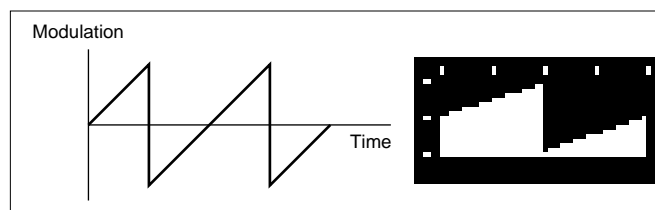
• **Triangle**
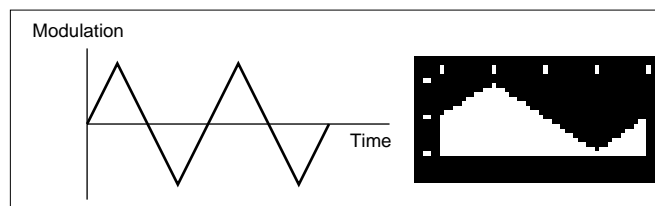
• **Square**
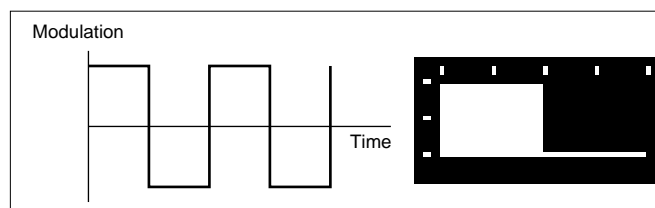
• **S/H (Sample and Hold)** ... Random variation is produced.
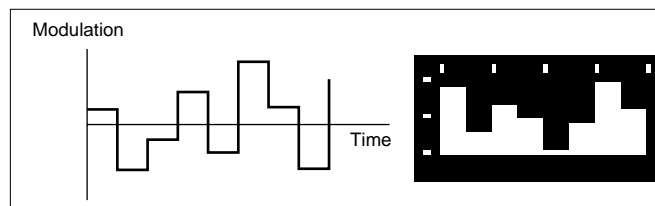
• **StepWave** ... The wave created by using the Cursor ❸ parameter on this page is used.

Knob 3

[Turn] Program LFO Sync
Determines whether or not the LFO speed will be synchronized to an external MIDI controller.

[Range] Manual, MIDI-A,
MIDI-B (Manual, MIDI on the A4000)

> • **Manual** ... The speed specified by the Progral LFO Tempo parameter is used.

> • **MIDI-A** ... The LFO speed is synchronized to a MIDI clock signal received via the MIDI IN-A connector.

> • **MIDI-B** ... The LFO speed is synchronized to a MIDI clock signal received via the MIDI IN-B connector.

NOTE • *When Program LFO Sync is set to MIDI-A or MIDI-B (MIDI on the A4000), the Program LFO Tempo, Program LFO Phase Reset Channel, and Program LFO Phase Reset Note parameters will appear as "---" on the display and cannot be edited.*

Knob 4

[Turn] Program LFO Tempo

Specifies the tempo on which the program LFO speed will be based. The actual LFO speed is determined by the setting of this parameter and the Program LFO Cycle parameter (when the Program LFO Sync parameter is set to "Manual").

[Range] 25 — 250

NOTE • This parameter cannot be edited when the Program LFO Sync parameter is set to MIDI-A or MIDI-B (MIDI on the A4000).

[Press] QUICK...

Calls the quick entry menu (page 83).

Knob 5

[Turn] Program LFO Cycle

Determines the LFO cycle in relation to the tempo set by the Program LFO Tempo parameter.

[Range] ♪, ♩, ♪ x 2, ♩ x 2, ♩ x 4, ♩ x 8, ♩ x 16

"♪" produces the fastest LFO cycle (twice the Program LFO Tempo setting), while "♩ x 16" produces the slowest LFO cycle (1/16th the Program LFO Tempo setting).

Cursor ❷

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor/Page	Program LFO Initial Phase	Program LFO Phase Reset Ch	—	Program LFO Phase Reset Note
	Press action	Tree View	—	MIDI	—	MIDI

Knob 1

Same function as Cursor ❶ (page 113).

Knob 2

[Turn] Program LFO Initial Phase

Specifies the phase angle at which the progam LFO cycle begins.

[Range] 0°, 90°, 180°, 270°

0°   **90°**

180°   **270°**

NOTE • The Program LFO Initial Phase setting becomes effective when a Program LFO Reset Channel command is received, or if the Program LFO Sync parameter is set to MIDI-A or MIDI-B (MIDI on the A4000).

Knob 3

[Turn] Program LFO Phase Reset Ch

Specifies the MIDI channel on which phase reset note data (Program LFO Phase Reset Note) will be received.

[Range] off, AUD, A01 — B16 (01 — 16 on the A4000), Bch

• **off** ... No phase reset occurs even if note-on data is received.

• **AUD** ... The LFO phase is reset when the panel [AUDITION] bnutton is pressed.

• **A01 — B16, Bch (basic receive channel)** ... The phase will be reset when a Program LFO Reset Note is received on the specified channel.

[Press] MIDI

Allows the Program LFO Phase Reset Channel to be set directly from an external MIDI device (page 82).

NOTE • When setting the MIDI channel via MIDI on the A5000, receive the appropriate MIDI messages via the MIDI IN-A connector to set channels A01 — A16, and via the MIDI IN-B connector to set channels B01 — B16.

Knob 5

[Turn] Program LFO Phase Reset Note

Specifies the note(s) which will be used to reset the phase of the Program LFO.

[Range] all, C-2 — G8

• **all** ... The Program LFO phase will be set by any note received via the Program LFO Phase Reset channel.

• **C-2 — G8** ... The Program LFO phase will be set by notes in the specified range received via the Program LFO Phase Reset channel.

NOTE • This parameter cannot be edited when Program LFO Sync is set to MIDI-A or MIDI-B (MIDI on the A4000).

• This parameter cannot be edited when Program LFO Sync is set to Manual, or the Program Phase Rest Channel is set to off or AUD.

[Press] MIDI

Allows the parameter to be set directly by receiving an appropriate MIDI message from an external MIDI device (page 82).

Cursor ❸

```
┌─────────────────────────────────────────────────┐
│ ▣▶PLAY-PgmLFO    SOLO◆▤  |·······  |····         │
│  L  001:Pgm 001                                  │
├─────────────────────────────────────────────────┤
│ Wave   StepWv  Sync manual  Tempo  120 Cycle ♩×8 │
│ InitPhs    0°  ◉RstCh  off  ◉ResetNote       (─) │
│ StepWave                                         │
│ TotalStep  8 │Slope   off│Step    1:│Value    64 │
│ 1▶TREE        2           3▶RANDOM 4▶WAVELIST... 5▶QUICK...│
└─────────────────────────────────────────────────┘
```

Cursor ❸

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌢	Turn action	Cursor/Page	Step Wave Total Step	Step Wave Slope	Step Wave Step #	Value
⬆	Press action	Tree View	—	RANDOM	WAVE LIST...	QUICK...

Knob 1

Same function as Cursor ❶ (page 113).

Knob 2

[⌢ Turn] Step Wave Total Step

Specifies the total number of steps to occur in one Step-Wave cycle. The more steps, the more complex the Step-Wave waveform will be.

[Range] 2, 3, 4, 6, 8, 12, 16

Knob 3

[⌢ Turn] Step Wave Slope

Specifies the type of slope to occur between each Step-Wave step.

[Range] off, Up, Down, Up&Down

- **off** ... No slope is used between steps, thus producing a waveform that is more rectangular or sample-and-hold like.

- **Up** ... Higher "Value" settings (Knob 5) produce a longer slope only at the corresponding step, creating a rising sawtooth type waveform.

- **Down** ... Lower "Value" settings (Knob 5) produce a longer slope only at the corresponding step, creating a downward sawtooth type waveform.

- **Up&Down** ... All steps are connected by slopes, producing a triangular type waveform.

[⬆ Press] RANDOM

When this knob is pressed the "Value" settings (Knob 5) for all steps are randomly generated. The results are confirmed and entered when the knob is pressed a second time or you switch to a different display.

Knob 4

[⌢ Turn] Step # Step Number)

Specifies the step number to be edited via the Value parameter (Knob 5).

[Range] 1 — the highest step number (Total Step)

[⬆ Press] WAVE LIST...

Allows the StepWave waveform to be automatically selected from a list.

> *HINT* • *The vales for each step in any waveform selected from the list can be varied as required by using Knobs 4 and 5.*

Knob 5

[⌢ Turn] Value

Sets the value for currently selected step number.

[Range] 0 —127

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).

Chapter **5**
EDIT Mode

This mode is used to directly edit samples and sample banks.

About the EDIT Mode

The EDIT mode is used to directly edit samples and sample banks. Press the [EDIT] button to enter the EDIT mode.

> **NOTE**
> • A "sample" is the smallest sound unit handled by the A5000 or A4000, consisting of a digitally-recorded waveform and related playback parameters.
> • A "sample bank" is a group of samples which can be handled as a single sample. Sample banks make it easy to manage samples for multi-sampled instruments or drum kits, for example.

EDIT Mode Functions

The EDIT mode includes the 6 functions listed below (selected via the [F1] — [F6] function buttons, respectively).

■ [F1] TRIM/LOOP Button

Use this function to select the playback area on the waveform (the playback "start" and "end" points), to trim off extraneous waveform data, and to set up the playback direction (forward or backward) and loop characteristics (loop range and type) (page 120).
3 display pages are provided: Waveform, SmpInfo (Sample Information), and LoopRmx (Loop Remix).

■ [F2] MAP/OUT Button

Use this function to edit the sample's key range, original-key value, output level, tuning, and various other playback settings (page 127).
4 display pages are provided: Mix&Key (Mix & Key Range), Pitch, Exp&Vel (Expand & Velocity Range), and LvlScal (Level Scaling).

■ [F3] FILTER Button

This function sets the sample's filter type, filter characteristics, and equalization (page 133).
2 display pages are provided: Fltr&EQ (Filter & EQ), and FltrScal (Filter Scaling).

■ [F4] EG Button

Use this function to set up the sample's three envelope generators: amplitude EG, filter EG, and pitch EG. The EG settings determine how the sound of each note develops over time (page 137).
3 display pages are provided: AmpEG (Amplitude EG), FilterEG, and PitchEG.

■ [F5] LFO Button

This function sets up the sample's low-frequency oscillator (LFO). You use the LFO to apply an audible modulation to the output level, filtering, and pitch (page 143).
This function has only one page: LFO (Low Frequency Oscillator).

■ [F6] MIDI/CTRL Button

This function selects the MIDI channel that drives the sample, and determines how the sample responds to controller action. You can also use this function to select the sample's "alternate group" (page 145).
3 display pages are provided: MIDISet (MIDI Setup), SmpCtrlA (Sample Controller A), and SmpCtrlB (Sample Controller B).

> **NOTE**
> • You can listen to the sound of the sample you are editing by pressing the [AUDITION] button. This makes it easy to monitor the results of your changes as you make them.
> • When editing a sample which is used by the currently selected program, an arrow mark will not appear to the left of the sample name in upper left corner of the display. Further, when editing a sample contained in a sample bank, "B" will appear to the left of the arrow.

Samples and Sample Banks

You use EDIT mode to edit both samples and sample banks. Operation varies slightly according to whether you are editing ❶ a freestanding sample, ❷ a sample bank, or ❸ a sample within a sample bank.

❶ Freestanding sample

In most cases you will probably be editing freestanding samples - individual samples that are not assigned to sample banks. You can access and edit all available sample parameters directly.

❷ Sample banks

A sample bank is a group of related samples that you handle as a single unit for purposes of program assignment, disk saves, and disk loads. When editing a sample bank, you should be aware of the difference between (a) parameter values set by each sample within the bank, and (b) parameter values set by the sample bank itself. For example, you need to understand the meaning of two special sample-bank settings: "----", and "(----)".

A "----" parameter setting means that each sample in the bank uses its own locally-set value for this parameter. When you begin editing the sample bank, many parameters will show this setting. If you like, you can select a specific value for the parameter by rotating the corresponding knob. If you do this, the A5000/A4000 will apply the value you select to all of the samples in the bank, temporarily overriding their local settings. If you wish to cancel the bank-level setting and return the samples to their original values, turn the knob to reselect the "----".

A "(----)" setting means that it is not possible to override the samples' local settings for this parameter. Turning the knob will have no effect.

Keep in mind that sample-bank editing never changes the parameter values stored within the samples themselves. To change these values, you must edit the samples individually.

❸ Samples within a sample bank

Editing content is the same as for freestanding samples - you have direct access to each of the sample's parameters.

Selecting the Sample (or Bank)

Before you can edit a sample or sample bank, you must first select it. A variety of selection methods are available, as described below.

If the sample (bank) is already in a program...

If the sample (bank) you want to edit already belongs to a program, you can select it as follows: (1) Select PLAY – PROGRAM (PLAY mode, PROGRAM function); (2) go to the PgmSel page (page 89) and turn Knob 2 or 3 to select the program; (3) select PLAY – SAMPLE; (4) go to the SmpSel page (page 93) and turn Knob 2 to select the sample (bank). Then press the [EDIT] button to enter editing mode.

To create a program at same the time...

If you want to edit a sample (bank) and assign it to a new program, you can do it this way: (1) Select PLAY – PROGRAM; (2) go to the PgmSel page (page 89) and turn Knob 2 or 3 to select a new (unused) program; (3) select PLAY – SAMPLE; (4) go to the SmpSel page (page 93), turn Knob 2 to select the sample (bank), and then turn Knob 4 to set the RchAssign switch to any setting other than "on." Then press the [EDIT] button to enter editing mode. If necessary, you can later switch to PLAY mode and apply further editing at the program level.

To select a sample from a sample bank, for independent editing...

If you need to edit a sample from a sample bank, proceed as follows: (1) Select PLAY – SAMPLE and go to the SmpBank page (page 95), (2) turn Knob 2 to select the sample bank, and (3) turn Knob 3 or 4 to select the sample. Then press the [EDIT] button to enter editing mode.

> **NOTE**
> • *In the PLAY-SAMPLE-SmpSel display, you can press Knob 2 (OPEN) and then rotate Knob to select any sample within the sample bank.*
> • *Remember to save your edited sample and sample banks to disk (page 208). All unsaved data is lost when you switch off the A5000/A4000.*
> • *It is usually possible to switch directly from one sample to another while working in EDIT mode. To switch to a different sample, push Knob 1 on the edit screen you are working at. If switching is supported, the A5000/A4000 will now display the Tree View display. Turn Knob 2 to select the next sample you want to edit. Then press Knob 1 again to return to the previous edit screen, with the new sample now selected.*

1. TRIM/LOOP

This section describes the EDIT mode's TRIM/LOOP function. You use this function to change the playback area on the waveform (the playback "start" and "end" points), to trim off extraneous waveform data, to set the playback direction (forward or backward) and loop characteristics (loop range and type), and to make various other related settings.

NOTE • *Keep in mind that the [COMMAND/EXIT] button gives you rapid access to a number of helpful commands while you are working with this function. For example, you can use the [COMMAND/EXIT] button when you want to save your edit results to disk, or when you want to cancel your new changes and restore the previously saved data.*

Press the [EDIT] button and then the [F1] button to go to the TRIM/LOOP function.

3 display pages are provided: Waveform, SmpInfo (Sample Information — page 124), and LoopRmx (Loop Remix — page 125).

NOTE • *See the "Basic Operation" section on page 78 for details on switching between display pages.*

Waveform

[EDIT] Button → [F1] Button → Knob 1 to select
"EDIT-Waveform"

Use this page to change the playback area on the waveform (the playback "start" and "end" points), to trim off extraneous waveform data, to set the playback direction (forward or backward) and loop characteristics (loop range and type), and to make various other related settings.

NOTE • *When editing a sample bank, all parameters will appear as "(----)" and cannot be edited.*

Cursor ❶
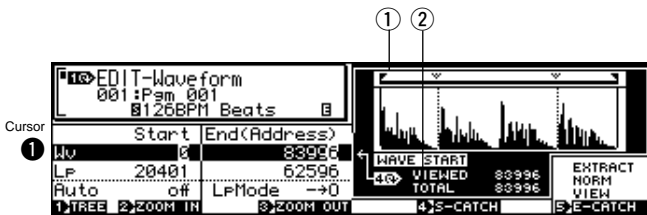
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌢	Turn action	Cursor/Page	Wave Start Address	Wave End Address	Step	Shortcut Command
⬆	Press action	Tree View	ZOOM IN	ZOOM OUT	S-CATCH	EXECUTE

Knob 1

[⌢Turn] Cursor/Page

Positions the cursor and selects display pages.

[⬆Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[⌢Turn] Wave Start Address

Sets the playback "start" address on the waveform. (Note that the waveform itself always starts at address 0.) The concept is illustrated below.

[Range] 0 — Wave End Address
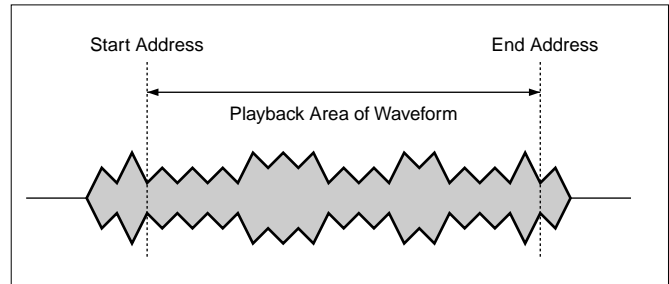
NOTE • *When "– →O" or "→O→" is selected as the Loop Mode, The Wave Start Address cannot be set later than the Loop Start Address.*

[⬆Press] ZOOM IN

Press this knob to expand the waveform display. This can be repeated until maximum magnification is reached.

Knob 3

[⌢Turn] Wave End Address

Sets the playback "end" address on the waveform.
The actual playback endpoint also depends on the loop-mode setting that you make at the Wave Mode page.

[Range] Wave Start Address — End of wave data.

The range of this parameter changes according to the setting of the End Type parameter (page 124).

- **End Type = Address** ... Sets the wave end address (this is the normal function).

- **End Type = Length** ... Specifies the actual playback length (Wave End Address - Wave Start Address).

- **End Type = Time** ... Specifies the actual playback time in seconds (From the Wave Start Address to the Wave End Address at the original pitch of the sample).

- **End Type = Beat** ... Specifies the playback time (Wave Start Address to Wave End Address at the original pitch of the sample) in beats based on the Loop Tempo setting.

NOTE • *When "– →O" or "→O→" is selected as the Loop Mode, The Wave End Address cannot be set earlier than the Loop End Address.*

[⬆Press] ZOOM OUT

Reduces the waveform display. This can be repeated until the minimum magnification level is reached.
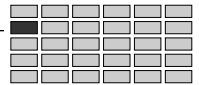
Knob 4

[Turn] Step

This knob selects the increment used for address adjustments made with Knobs 2 and 3. Specifically, the value that you set here determines the amount that the address value changes when you turn Knob 2 or Knob 3 by a single click.

[Range] x1, x10, x100, x1000, x10000

NOTE • The step setting does not appear on the display as actual numbers, but rather as an underline below the appropriate digits of the Wave Start Address and Wave End Address values. Only digits higher than the underline will be edited.

[Press] S-CATCH

If you push this knob while playing the sample with the [AUDITION] button or an external keyboard, the wave start address (Loop Start Address for Cursor ❷) automatically resets to the current playback location.

Knob 5

[Turn] Shortcut Command

Positions the cursor within the pop-up window to select one of the available shortcut commands.

[Range] EXTRACT..., NORM..., VIEW, E-CATCH

(See "Cursor ❶ Shortcut Commands" for details on the commands)

[Press] EXECUTE

Executes the shortcut command at the current cursor position.

Cursor ❶ Shortcut Commands

• EXTRACT...

Push this knob to "trim" the waveform, deleting all waveform data ahead of the start address and all waveform data located after the end address. This operation reduces the size of the sample and frees up additional waveform memory.
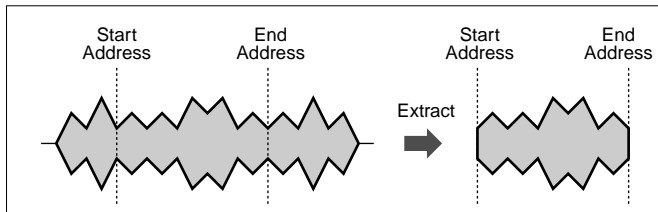
When you push the knob, the A5000/A4000 returns a confirmation screen. Push Knob 5 (>YES) to proceed. Note that the deleted waveform area cannot be recovered (unless you have already saved the data to disk.)

• NORM...

This command adjusts the waveform to its optimal level. Adjustment is made by proportionately raising all levels such that the highest level comes to just below the clip point, as illustrated below. (The "clip point" is the maximum level appropriate for digital processing.)
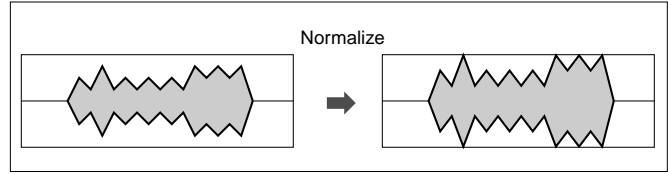
Push Knob 5 (>YES) to proceed.

• VIEW

Alternately switches the waveform display address between the Wave Start Address and Wave End Address.

NOTE • The waveform display will automatically move to the start address area when Knob 2 is used to adjust the start address, and to the end address area when Knob 3 is used to adjust the end address.

• E-CATCH

If this knob is pressed during playback triggered either from an external MIDI device or the [AUDITION] button, the wave address at that precise point (Loop End Address for Cursor ❷) will be entered as the Wave End Address.

[DISPLAY]

① **Waveform Display**
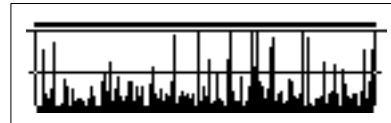
② **VIEWED**..... Displays the number of words shown in the expanded waveform display.

  TOTAL........ Shows the total number of words in the sample.

Cursor ❷

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor/Page	Loop Start Address	Loop End Address	Step	Shortcut Command
	Press action	Tree View	ZOOM IN	ZOOM OUT	S-CATCH	EXECUTE

Knob 1 / Knob 4

Same function as Cursor ❶ (page 120).

Knob 2

[Turn] Loop Start Address

Sets the start point of the loop on the waveform. The concept is illustrated below.

Note that actual loop handling depends on the loop-mode setting

[Range] Wave Start Address — Loop End Address
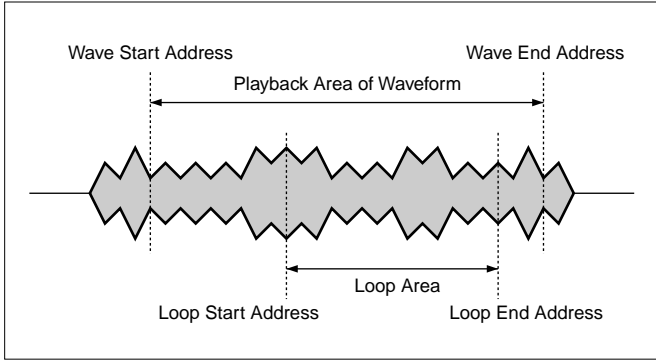
Wave Start Address — Wave End Address
Playback Area of Waveform
Loop Area
Loop Start Address — Loop End Address

[⬆ Press] ZOOM IN

Press this knob to expand the waveform display. This can be repeated until maximum magnification is reached.

Knob 3

[⤵ Turn] Loop End Address

Sets the end point (loop-back point) of the loop.

Note that actual loop handling depends on the loop-mode setting.

[Range] Loop Start Address — End of wave data.

The range of this parameter changes according to the setting of the End Type parameter (page 124).

• **End Type = Address** ... Sets the loop end address (this is the normal function).

• **End Type = Length** ... Specifies the actual loop length (Loop End Address - Loop Start Address).

• **End Type = Time** ... Specifies the actual loop time in seconds (From the Loop Start Address to the Loop End Address at the original pitch of the sample).

• **End Type = Beat** ... Specifies the playback time (Loop Start Address to Loop End Address at the original pitch of the sample) in beats based on the Loop Tempo setting.

[⬆ Press] ZOOM OUT

Reduces the waveform display. This can be repeated until the minimum magnification level is reached.

Knob 5

[⤵ Turn] Shortcut Command

Positions the cursor within the pop-up window to select one of the available shortcut commands.

[Range] LOOP MONITOR, NORM..., VIEW, E-CATCH

(See "Cursor ❷ Shortcut Commands" for details on the commands)

[⬆ Press] EXECUTE

Executes the shortcut command at the current cursor position.

Cursor ❷ Shortcut Commands

• **LOOP MONITOR**

Push this knob to monitor the sound of the loop. This feature lets you hear how the sound of the loop changes as you edit the loop

addresses.

The NORM..., VIEW, and E-CATCH commands are the same as those described for Cursor ❶ (page 121).
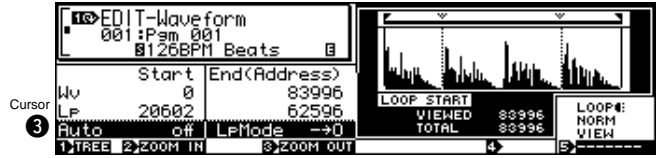
Cursor ❸

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤵	Turn action	Cursor/Page	Auto	Loop Mode	—	Shortcut Command
⬆	Press action	Tree View	ZOOM IN	ZOOM OUT	—	EXECUTE

Knob 1

Same function as Cursor ❶ (page 120).

Knob 2

[⤵ Turn] Auto

Specifies the auto-addressing function to be used for wave editing (Length Lock, Auto Zero, or Auto Snap).

[Range] LengLock, Zero, Snap

• **LengLock (Length Lock)**

This option lets you lock in the waveform's play length (the distance between the wave start and wave end addresses) and loop length (the distance between the loop-start and loop-end addresses).

You enable this option by setting it to lock. If you do this, any change you make to any of these addresses will generate an equal change in the corresponding address — so that you can shift the playback or loop position along the waveform while maintaining constant playback length and loop length.

Wave Start Address — Wave End Address
Playback Area of Waveform
(This length is locked. Changing either address causes an equal change in the opposing address.)
Loop Length
Loop Start Address — (This length is also locked.) — Loop End Address
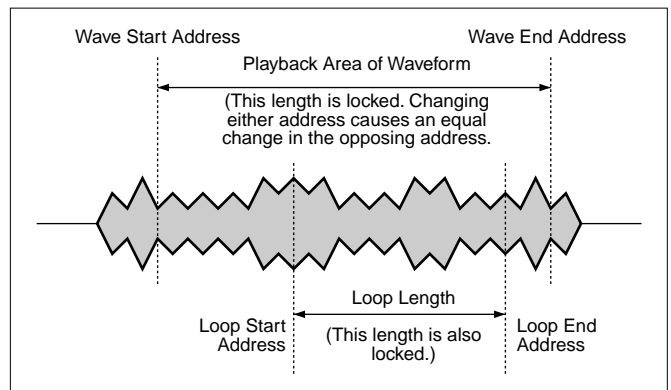
You will want to use this feature, for example, when you need to keep the playback or loop length at some fixed value for timing purposes.

• **Zero (Automatic Zeroing)**

This option is another convenient feature for address editing. If you enable this option, any address change you make will be forced to the nearest zero-point — the address will jump from zero point to zero point as you turn the editing knob. If you disable this option, then you can change addresses continuously over the entire waveform.

If Zero = off:

You can move the address to any location on the waveform.

If Zero = on:

Address always jumps to nearest zero-point on the waveform.

Setting an address on a non-zero point may cause the sample to "click" during playback.

Forcing the address to a zero-point will ensure that you avoid this unwanted click.

• **Snap (Automatic Snap)**

This option is useful when you are editing loop start and loop end addresses. If you enable this option, then you will only be able to change a loop address to those points on the waveform that have the same level as the opposing loop address; the address you are editing will jump from one such point to the next as you turn the knob. If you disable this option, then you can change either address continuously over the waveform.

If Snap = off:

Loop Start Address

You can move the loop end address to any location on the waveform.

If Snap = on:

Loop Start Address

The loop end address always jumps to the nearest point having the same level as the loop start address.

Setting the two loop addresses to different levels on the waveform may cause a "click" sound at the loop point during playback. Forcing the loop start and loop end addresses to the same level will ensure that you avoid this problem.

The following illustration shows how this feature operates during editing of the loop end address.

[⬆ Press] ZOOM IN

Press this knob to expand the waveform display. This can be repeated until maximum magnification is reached.

Knob 3

[↻ Turn] Loop Mode

Sets the loop mode. (Note the you can also use this setting to cause the sample to play back in reverse.)

The six loop modes are illustrated and described on the next page.

[Range] − − →, − →O, →O→, ← − −, One→, One←

[⬆ Press] ZOOM OUT

Reduces the waveform display. This can be repeated until the minimum magnification level is reached.

Address Settings

Wave Start Address | Loop Start Address | Loop End Address | Wave End Address

Do~ Re~ Mi~ Fa~ So—

• "↓" denotes Note On.
• "↑" denotes Note Off.
• Small letters indicate "release" tone as note dies out following Note-Off.
• The length of the release depends on the sample's release-rate setting.

Loop Mode = "— — →" (Forward, No Loop):

• If key is held: ↓ Re~ Mi~ Fa~
• Key hit and release: ↓ Re~ Mi~ ↑Fa-

Loop Mode = "— →O" (Forward Loop, No Exit):

• If key is held: ↓ Re~ Mi~ Mi~ Mi~ Mi~...
• Key hit and release: ↓ Re~ Mi~ Mi~ ↑Mi~ Mi~...

Loop Mode = "→O→" (Forward Loop, Exit at Note-Off)

• If key is held: ↓ Re~ Mi~ Mi~ Mi~ Mi~...
• Key hit and release: ↓ Re~ Mi~ Mi~ Mi~ Mi~ ↑ Fa-...

Loop Mode = "← — —" (Reverse, No Loop):

• If key is held: ↓ -Ꙅꟼ -iM -ɘꙄ
• Key hit and release: ↓ -Ꙅꟼ-iM ↑ -ɘꙄ
  (Sound is reversed.)

Loop Mode = "One→" (One-Shot)

• If key is held: ↓ Re~ Mi~ Fa~
• Key hit and release: ↓ Re~ ↑ Mi~ Fa~
  (Sound is same regardless of key release.)

Loop Mode = "One←"   (Reverse One-Shot)

• If key is held: ↓ -Ꙅꟼ -iM -ɘꙄ
• Key hit and release: ↓ -Ꙅꟼ ↑ -iM -ɘꙄ
  (Sound is reversed.)
  (Sound is same regardless of key release.)

Knob 5

Same function as Cursor ❷ (page 121), except that E-CATCH cannot be executed.

Sample Information

[EDIT] Button → [F1] Button → Knob 1 to select "EDIT-SmpInfo"

Sample Information provides access to a number of parameters related to Trim/Loop editing. Also, the sample frequency of the wave data is shown in Hertz on the left side of the display.

```
┌──────────────────────────────────────┐
│ 1▶EDIT-SmpInfo SOLO      1  │
│   001:Psm 001                          │
│     ↳8_NewSample        B              │
├──────────────────────────────────────┤
│ SamplingFreq                           │
│ ( 44100)                               │
├──────────────────────────────────────┤
│ EndType   LoopMonitor Vel→WvStart LoopTempo│
│  Address        0ms        +0      90.0│
│ 1▶TREE  2       3     4▶QUICK... 5▶CALCULATE│
└──────────────────────────────────────┘
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	End Type	Loop Monitor	Wave Start Address Velocity Sensitivity	Loop Tempo
Press action	Tree View	—	—	QUICK...	CALCULATE

Knob 1

[⌒Turn] Page
Selects display pages.

[▲Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⌒Turn] End Type
Selects the type of indication used to show the end address and the loop end address on the edit screen. (Note that the start address and loop start address are always shown by their absolute address values.)

[Range] address, length, time, beat

- **address** ... End and loop end addresses are indicated by their absolute address values on the waveform. (This is the standard setting.)

- **length** ... Each end address is shown by its distance from the corresponding start address, in address increments.

- **time** ... Playback or loop time from the start address or loop start address.

- **beat** ... Each end address is shown by its distance in beats from the corresponding start address.

NOTE • When editing a sample bank "(---)" will appear and this parameter cannot be edited.

Knob 3

[⌒Turn] Loop Monitor
Specifies the the number of milliseconds before the Loop Start Address that loop monitor playback will begin.

[Range] -500ms — 0ms

HINT • If you set the value to -500ms and then press the knob, for example, the A5000/A4000 begins replay from a point 1/2 second before the loop start. (This lead-in is played only once, and does not recur after the loop is entered.)

NOTE • When editing a sample bank "(---)" will appear and this parameter cannot be edited.

Knob 4

[⌒Turn] Wave Start Address Velocity Sensitivity
This value sets the start-address velocity sensitivity: the degree by which the start point varies in response to the velocity (force) of the played note. This feature gives you added control over the attack part of the playback.

[Range] -63 — +63

NOTE • A value of 0 leaves the start address constant for all velocities. Positive values cause the start-point to move forward (the address to get higher) at higher velocities, and to move backward at lower velocities. Negative settings have the opposite effect.

[▲Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[⌒Turn] Loop Tempo
This knob sets the tempo used to calculate the number of beats between the start address and end address.

[Range] 80.0 — 159.9

[▲Press] CALCULATE
If you push the knob, the A5000/A4000 automatically calculates and displays the tempo value for you, based on the assumption that the number of beats between the current start and end addresses is 4 beats (or an even multiple or dividend of 4 beats).

NOTE • When editing a sample bank "(---)" will appear and this parameter cannot be edited.

Loop Remix

[EDIT] Button → [F1] Button → Knob 1 to select
"EDIT-LoopRmx"

This function divides and randomly re-orders a specified range of "Remix Zones" between the Loop Start Address and Loop End Address, in some cases changing the sound of certain portions, thus creating new "remixed" versions of your samples.

* Make sure the loop is properly setup before using the Loop Remix function.

HINT • This function can be used on a 1 or 2-measure drumm loop, for example, to create a different drum pattern.

NOTE • The Loop Remix function cannot be used when editing a sample bank.

Cursor ❶

Remix Zone   Remix Pattern
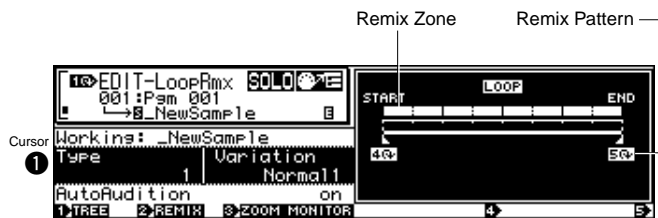
Cursor ❶

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
↷	Turn action	Cursor/Page	Remix Type	Remix Type Variation	Remix Zone Start	Remix Zone End
⬆	Press action	Tree View	REMIX	ZONE MONITOR	REGISTER...	CREATE

Knob 1

[↷ Turn] Cursor/Page
Positions the cursor and selects display pages.

[⬆ Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[↷ Turn] Remix Type
Determines which area of the loop will be affected by the Loop Remix function, and how the remix zones will be re-ordered.

[Range] 1 — 5, User1 — User5

• **1 — 5** ... The effect changes randomly each time the Loop Remix function is executed.

• **User1 — User5** ... These choices use results of a remix operation which have been registered via Knob 4. The registered pattern will appear on the remix pattern display.

[⬆ Press] REMIX
The Loop Remix function is executed when this knob is pressed, and the results are temporarily stored in memory as a "working sample." If the REMIX button is pressed again the Loop Remix function will be executed again and the previous results erased. You can execute the REMIX function as many times as necessary until satisfactory results are achieved. When Remix Type 1 — 5 is selected, different results will be achieved each time REMIX is executed even if the same Remix Type Variation is selected. When satisfactory results have been achieved and the CREATE function is executed (Knob 5), the Working Sample is stored as a normal sample. If the AUTO AUDITION function is on (Knob 3) the result of each remix operation will be automatically played back after REMIX is executed. Further, the Working Sample can be monitored by pressing the [AUDITION] button.

NOTE • This parameter cannot be edited when editing a sample bank.

Knob 3

[↷ Turn] Remix Type Variation
Determines the degree to which the original waveform will be changed by the Loop Remix function.

[Range] Normal1, Normal2, Reverse1, Reverse2, Break, LoFi, Pitch, Gate

• **Normal1** ... The wave is divided and re-ordered.

• **Normal2** ... A variation of Normal1.

• **Reverse1** ... In addition to division and re-ordering, parts of the wave a reversed.

• **Reverse2** ... A variation of Reverse1.

• **Break** ... Silent "breaks" are created in addition to division and re-ordering.

• **LoFi** ... In addition to division and re-ordering, portions of the wave are converted to Lo-Fi sound.

• **Pitch** ... In addition to division and re-ordering, portions of the wave are lowered in pitch and converted to Lo-Fi sound.

• **Gate** ... In addition to division and re-ordering, portions of the wave are shortened.

NOTE • "---" will appear on the display and this parameter cannot be edited when one of the User Remix Types - User1 — User5 - is selected.

[⬆ Press] ZONE MONITOR
Plays back only the remix zone (from the specified Remix Zone Start to Remix Zone End) without playing the rest of the loop.

NOTE • This parameter cannot be edited when editing a sample bank.

Knob 4

[Turn] Remix Zone Start

The Remix Zone to be affected by the Loop Remix function is determined by the settings of the Remix Zone Start parameter (Knob 4) and the Remix Zone End parameter (Knob 5). This allows the Loop Remix function to be applied to only a specified section of the loop within the selected sample.

[Range] The specified loop of the selected sample is divided into 8 "areas," and the Remix Zone Start parameter can be set from the first area up one before the last area.

NOTE • The selected area can be played back by pressing the ZONE MONITOR knob (Knob 3).

[Press] REGISTER...

Allows the currently displayed remix pattern to be registered as a user Remix Type (User1 — User5).

When the REGISTER... knob is pressed the following pop-up window will appear:

Rotate the knob to select User1 — User5, then press the knob to register the remix pattern to that Remix Type. Move the cursor to CANCEL and press the knob to close the pop-up window without registering the remix pattern.

NOTE • If only a portion of a loop has been specified as the remix zone and REMIX executed, the REGISTER function cannot be executed.

• The REGISTER... function cannot be used if the REMIX knob (Knob 2) has not been pressed since the CREATE function was executed or the A5000/ A4000 power was turned on.

Knob 5

[Turn] Remix Zone End

The Remix Zone to be affected by the Loop Remix function is determined by the settings of the Remix Zone Start parameter (Knob 4) and the Remix Zone End parameter. This allows the Loop Remix function to be applied to only a specified section of the loop within the selected sample.

[Range] The selected sample loop is divided into 8 "areas," and any of these from the 2nd to last area can be specified as the Remix Zone End.

NOTE • The selected area can be played back by pressing the ZONE MONITOR knob (Knob 3).

[Press] CREATE

When a satisfactory remix has been achieved by pressing the REMIX knob (Knob 2), press the CREATE knob to actually save temporary "working sample" produced by the remix operation as an normal sample. "Working:" will appear to the left of the name of the new sample created by the CREATE function.

NOTE • The CREATE function cannot be used if the REMIX knob (Knob 2) has not been pressed since the CREATE function was previously executed or the A5000/ A4000 power was turned on.

Cursor ❷
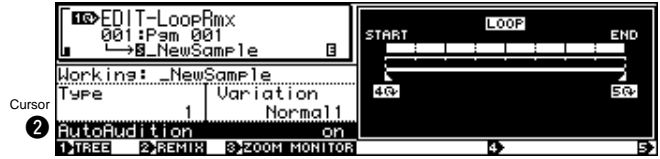
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor/Page	—	Auto Audition	Remix Zone Start	Remix Zone End
	Press action	Tree View	REMIX	ZONE MONITOR	REGISTER	CREATE

Knob 1

Same function as Cursor ❶ (page 125).

Knob 2

[Press] REMIX

The Loop Remix function is executed when this knob is pressed, and the results are temporarily stored in memory as a "working sample." If the REMIX button is pressed again the Loop Remix function will be executed again and the previous results erased.

You can execute the REMIX function as many times as necessary until satisfactory results are achieved. When Remix Type 1 — 5 is selected, different results will be achieved each time REMIX is executed even if the same Remix Type Variation is selected. When satisfactory results have been achieved and the CREATE function is executed (Knob 5), the Working Sample is stored as a normal sample. If the AUTO AUDITION function is on (Knob 3) the result of each remix operation will be automatcially played back after REMIX is executed. Further, the Working Sample can be monitored by pressing the [AUDITION] button.

NOTE • This parameter cannot be edited when a sample bank is being edited.

Knob 3

[Turn] Auto Audition

Determines whether the results of the Loop Remix function will automatically be played back or not.

[Range] off, on

• **off** ... No playback.

• **on** ... Automatic playback.

[Press] ZONE MONITOR

Plays back only the remix zone (from the specified Remix Zone Start to Remix Zone End) without playing the rest of the loop.

NOTE • This parameter cannot be edited when editing a sample bank.

Knob 4, 5

Same function as Cursor ❶ (page 125).

2. MAP/OUT

You use the MAP/OUT function to set the sample's "original key," key range, output destinations, output level, tuning, and related settings.

NOTE • Keep in mind that the [COMMAND/EXIT] button gives you rapid access to a number of helpful commands while you are working with this function. For example, you can use the [COMMAND/EXIT] button when you want to save your edit results to disk, or when you want to cancel your new changes and restore the previously saved data.

Press the [EDIT] button and then the [F2] button to go to the MAP/OUT function.

4 display pages are provided: Mix&Key (Mix & Key Range), Pitch (page 129), Exp&Vel (Expand & Velocity Range — page 131), and LvlScal (Level Scaling — page 132).

NOTE • See the "Basic Operation" section on page 78 for details on switching between display pages.

## Mix & Key Range

[EDIT] Button → [F2] Button → Knob 1 to select "EDIT-Mix&key

Provides settings for sample level, key range, and output.

Cursor ❶ (Level)

|	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	Sample Level	Sample Pan	Velocity Sensitivity	Poly/Mono
Press action	Tree View	QUICK...	QUICK...	QUICK..	—

Knob 1

[Turn] Cursor/Page
Positions the cursor and selects display pages.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] Sample Level
Turn the knob to set the sample's output level.
[Range] 0 — 127

[Press] QUICK...
Calls the quick entry menu (page 83).

Knob 3

[Turn] Sample Pan
Turn the knob to set the sample's pan (stereo position).
[Range] Rnd, -63 — +63

• **Rnd** ... The pan position changes randomly with each note played.

• **-63 — +63** ... Positive values set the pan to the right; negative values move the pan to the left.

[Press] QUICK...
Calls the quick entry menu (page 83).

Knob 4

[Turn] Velocity Sensitivity
This value sets the sample's velocity sensitivity. The velocity sensitivity determines how the sample's output level varies in response to changes in velocity.
[Range] -127 — +127

A value of 0 produces constant output level for all velocities within the velocity range. Positive values causes output level to increase with increasing velocity, while negative settings have the opposite effect.

NOTE • You can use the UTILITY – MIDI Channel page to set the adjustment that the A5000/A4000 applies to received velocity values before transmitting them to the internal tone generator. (page 200)

[Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[Turn] Poly/Mono
Select Mono if you want to limit playback of this sample to one note at a time. Select Poly to enable simultaneous playback of multiple notes.
[Range] Poly, Mono

• **Poly** ... The sample can be played polyphonically (several notes can be played at once).

• **Mono** ... Only one note can be played at a time.

Cursor ❷ (Key Range)

Cursor ❷

```
┌──────────────────────────────────────────────┐
│ •1▶EDIT-Mix&Key          L▶┃◀◀━━━━1━━▣━◀◀▢ST  │
│  001:Pgm 001             R▶┃◀◀━━━2━━◀◀▢─◀◀▢0# │
│    ↓▢_NewSample      ▤                        │
│ Level   100 Pan    +0 VelSens +0 Pol/Mon Poly │
│ ⌨OrgKey C 3 ⌨Low  C-2 ⌨High  G 8 KeyXfade  off│
│ Output1       OutLevel1       Output2  OutLevel2│
│   StereoOut         127          off       127 │
│ 1▶TREE   2▶MIDI       3▶MIDI       4▶MIDI    ▶ │
└──────────────────────────────────────────────┘
```
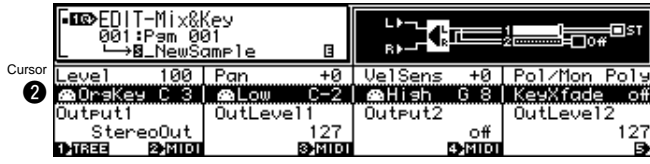
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌢	Turn action	Cursor/Page	Original Key	Low Key	High Key	Key Crossfade
▲	Press action	Tree View	MIDI	MIDI	MIDI	—

Knob 1

Same function as Cursor ❶ (page 127).

Knob 2

[⌢ Turn] Original Key

Turn the knob to set the sample's "original key" — the key that best represents the sample's inherent pitch.

[Range] C-2 — G8

NOTE • If the Note Display Type utility (UTILITY-SYSTEM-Custom) (page 198) is set to "name" the parameter will be displayed as note names such as "C3." If set to "number" the parameter will be displayed as MIDI note numbers such as "60."

• If a sample bank is being edited "(---)" will appear on the display and this parameter cannot be changed.

[▲ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device.

Knob 3

[⌢ Turn] Low Key

Turn the knob to set the low end for the sample's key range.

[Range] =Orig, C-2 — High Key

• **=Orig (Original)** ... the Low Key will always be the same value as the original key of the sample.

• **C-2 — High Key** ... Sets the Low Key to any note up to the High Key.

NOTE • If a sample bank is being edited "(---)" will appear on the display and this parameter cannot be changed.

[▲ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device.

Knob 4

[⌢ Turn] High Key

Turn the knob to set the high end for the sample's key range.

[Range] Low Key — G8, =Orig

• **Low Key — G8** ... Sets the High Key to any note higher than the Low Key.

• **=Orig** ... the Low Key will always be the same value as the original key of the sample.

NOTE • If a sample bank is being edited "(---)" will appear on the display and this parameter cannot be changed.

[▲ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device.

Knob 5

[⌢ Turn] Key Crossfade

Set this parameter on to enable key crossfade, or off to disable.

[Range] on, off

• **on** ... Keys adjacent to the key range also play the sample, with the sample's output level decreasing gradually with increasing distance from the range border. The drawing below illustrates the concept.

• **off** ... The sample plays out over the selected key range only. Keys that are adjacent to but outside of the key range do not produce any sound from this sample.

If Key Crossfade = OFF:
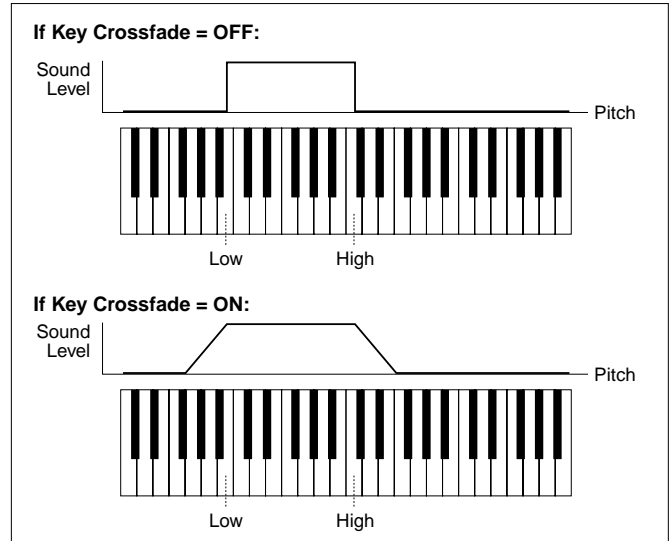
If Key Crossfade = ON:

NOTE • The use of key crossfade allows you to blend adjacent samples into one another, so as to avoid dramatic voice changes at the range borders. This is particularly useful when working with samples that map the same type of sound to different ranges on the keyboard (multisampling).

Cursor ❸ (Output)

```
.🔒▶EDIT-Mix&Key          L▶┫█─────1────────█ST
  001:Psm 001            R▶┫█───────2──────█□#
  └─8_NewSample    🗎
Level    100 │Pan      +0│VelSens   +0│Pol/Mon Poly
🔊OrsKey C 3│🔊Low    C-2│🔊High   G 8│KeyXfade off
Output1      │OutLevel1   │Output2      │OutLevel2
  StereoOut  │       127  │     off     │       127
1}TREE    ❷      ③}QUICK...    ④        5}QUICK...
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⟳	Turn action	Cursor/Page	Output1	Output Level1	Output2	Output Level2
⬆	Press action	Tree View	—	QUICK...	—	QUICK...

Knob 1

Same function as Cursor ❶ (page 127).

Knob 2

[⟳Turn] Output1

Sets the sample's output destination. Samples have two independent output destinations (Output 1 and 2); this parameter sets the Output 1 destination.

[Range] off, StereoOut, AsgnOutL&R, AsgnOut1&2 — AsgnOut5&6, DIG&OPT, Ef1 — Ef6 (Ef1 — Ef3 on the A4000)

- **StereoOut** ... Output is sent to the rear-panel STEREO OUT jacks as well as the front-panel PHONES jack.

- **AsgnOutL&R** ... The rear-panel assignable output jacks.

- **AsgnOut1&2, AsgnOut3&4, AsgnOut5&6** ... The corresponding assignable outputs on the optional AIEB1 I/O expansion board.

- **DIG&OPT** ... The coaxial and optical digital outputs on the optional AIEB1 I/O expansion board.

- **Ef1 — Ef6 (Effect1 — 6) (Ef1 — Ef3 on the A4000)** ... Output is routed to the specified effect.

NOTE • *The AsgnOut1&2, AsgnOut3&4, AsgnOut5&6, and DIG&OPT output destinations cannot be selected unless the optional AIEB1 I/O expansion board is installed.*

Knob 3

[⟳Turn] Output Level1

Specifies the output level of Output1

[Range] 0 — 127

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).

NOTE • *When both the sample and Easy Edit Output1 and Output 2 parameters are set to the same output destination, the higher of the two output level settings (Output Level 1 and Output Level2) will take priority. If reducing the Output Level 1 or Output Level 2 setting has no effect, check the sample and Easy Edit Output1 and Output2 destination settings.*

Knob 4

[⟳Turn] Output2

Sets the sample's output destination. Samples have two independent output destinations (Output 1 and 2); this parameter sets the Output 2 destination.

[Range] off, StereoOut, AsgnOutL&R, AsgnOut1&2 — AsgnOut5&6, DIG&OPT, Ef1 — Ef6 (Ef1 — Ef3 on the A4000)

The settings are the same as for the Output1 parameter, above

Knob 5

[⟳Turn] Output Level2

Specifies the output level of Output2

[Range] 0 — 127

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).

NOTE • *When both the sample and Easy Edit Output1 and Output 2 parameters are set to the same output destination, the higher of the two output level settings (Output Level 1 and Output Level2) will take priority. If reducing the Output Level 1 or Output Level 2 setting has no effect, check the sample and Easy Edit Output1 and Output2 destination settings.*

Pitch

[EDIT] Button → [F2] Button → Knob 1 to select "EDIT-Pitch"

Use this page to set the sample's tuning and pitch characteristics.

Cursor ❶ (Pitch)

```
.🔒▶EDIT-Pitch
  001:Psm 001
  └─8_NewSample    🗎
Pitch (Tempo  90.0)         │FixedPitch│RandomPitch
Coarse    +0│Fine      +0│        off│          0
SmpPortamento
Mode(Poly)            off│Rate/Time        (---)
1}TREE 2}QUICK...    ③}QUICK...    ④        5}QUICK...
```
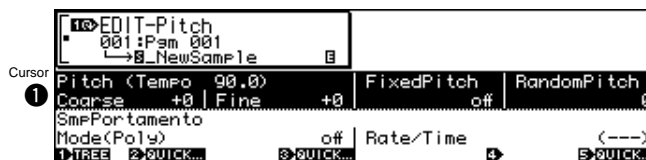
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⟳	Turn action	Cursor/Page	Pitch Coarse	Pitch Fine	Fixed Pitch	Random Pitch
⬆	Press action	Tree View	QUICK...	QUICK...	—	QUICK...

Knob 1

[⟳Turn] Cursor/Page

Positions the cursor and selects display pages.

[⬆ Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[⌒Turn] Pitch Coarse

Turn the knob to adjust the sample's pitch, in semitone increments.

[Range] -127 — +127

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).

Knob 3

[⌒Turn] Pitch Fine

Turn the knob to fine-tune the sample's pitch. Each click adjusts the pitch by 1.171875 cent. (Note: 100 cents = 1 semitone)

[Range] -63 — +63

> **NOTE** • When editing a sample bank "(---)" will appear and this parameter cannot be edited.

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).

Knob 4

[⌒Turn] Fixed Pitch

Set this parameter on if you want the sample to play at the same pitch over its entire key range.

[Range] off, on

- **off** ... The pitch of the sample depends on the note played.
- **on** ... The sample will always play at the same pitch.

Knob 5

[⌒Turn] Random Pitch

Use this setting to impart a slight, random pitch variation to the sample's pitch.

[Range] 0 — 63

> **NOTE** • Set to 0 to eliminate all random variation. Increase the value to produce a greater range of variation.
> • Note that this variation is applied to each note at the start of its playback. This setting does not affect how pitch develops once the note has started playing.

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).

Cursor ❷ (Sample Portament)

```
EDIT-Pitch
001:Pgm 001
 └8_NewSample         E
Pitch (Tempo  90.0)      FixedPitch   RandomPitch
Coarse  +0 | Fine   +0 | off          0
SmpPortamento
Mode(Poly)        off | Rate/Time      (---)
1 TREE      2         3         4        5
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor/Page	—	Sample Portamento Mode	—	Sample Portamento Rate/Time
⬆	Press action	Tree View	—	—	—	QUICK...

Knob 1

Same function as Cursor ❶ (page 129).

Knob 3

[⌒Turn] Sample Portamento Mode

Turn either knob to select the mode. The "rate" settings select a fixed-rate slide, while the "time" settings select a fixed-time slide.

[Range] off, =Pgm, rate (fingered), rate (fulltime), time (fingered), time (fulltime)

- **off** ... No sample portamento.
- **=Pgm** ... The Program Portamento setting (page 91) takes priority.
- **rate (fingered)** ... Slides one note into the next only if the first note (key) is still held when the next note is struck. Slide is at a constant rate; the time required to slide from the first note's pitch to the next note's pitch increases as the difference between the pitches increases.
- **rate (fulltime)** ... Pitch between consecutive notes always slides, even if the first note is released before the second note is struck. Again, pitch slide occurs at a constant rate.
- **time (fingered)** ... Slides one note into the next only if the first note (key) is still held when the next note is struck. The slide time is always the same; the slide rate increases as the difference between the pitches increases.
- **time (fulltime)** ... Pitch between consecutive notes always slides, even if the first note is released before the second note is struck. Again, the slide time is always the same.

> **NOTE** • Note that the "fingered" setting is effective only on samples that are set for one-note-at-a-time replay (samples whose Mono/Poly switch is set to mono; page 127). Samples set to poly always receive "fulltime" portamento.

Knob 5

[⌒Turn] Sample Portamento Rate/Time

This value sets the pitch slide rate or slide time. The setting determines the slide rate (if the mode is set to "rate") or the slide time (if the mode is set to "time").

[Range] 1 — 127

> **NOTE** • This parameter cannot be edited when the Sample Portamento Mode is set to "=Pgm."

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).
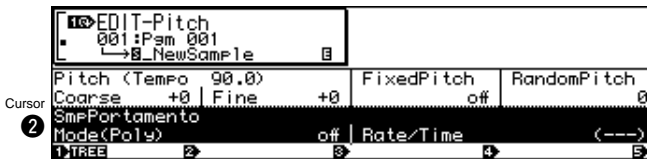
Expand & Velocity Range

[EDIT] Button → [F2] Button → Knob 1 to select
"EDIT-Exp&Vel"

Use Expand page to create a more expansive sound for the sample. This feature makes it possible to broaden the sound of monaural samples, and to generate wider acoustics for your stereo samples.

Use Velocity Range page to set the sample's velocity range, and velocity crossfade.

Cursor ❶ (Expand)

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	Expand Detune	Expand Dephase	Expand Width	—
Press action	Tree View	QUICK...	QUICK...	QUICK...	—

Knob 1

[⌒Turn] Cursor/Page

Positions the cursor and selects display pages.

[⬆Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[⌒Turn] Expand Detune

This feature sets up a tuning differential (discord) between left and right channels.

[Range] -7 — +7

NOTE • Positive values apply the differential in one direction, while negative values apply it in the other. A setting of 0 switches detuning off.

[⬆Press] QUICK...

Calls the quick entry menu (page 83).

Knob 3

[⌒Turn] Expand Dephase

This feature sets up a differential in the playback start address for each channel — resulting in a subtle phase discord.

[Range] -63 — +63

NOTE • Positive values apply the differential in one direction, while negative values apply it in the other. A setting of 0 switches dephasing off.

[⬆Press] QUICK...

Calls the quick entry menu (page 83).

Knob 4

[⌒Turn] Expand Width

This parameter sets the sound's width.

[Range] -63 — +63

NOTE • Negative settings reverse the stereo image.
• A setting of +63 produces normal positioning for stereo samples.

[⬆Press] QUICK...

Calls the quick entry menu (page 83).

Cursor ❷ (Velocity Range)

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	Velocity Low Crossfade	Velocity Low Range	Velocity High Range	Velocity High Crossfade
Press action	Tree View	QUICK...	MIDI	MIDI	QUICK...

Knob 1

Same function as Cursor ❶ (page 131).

Knob 2

[⌒Turn] Velocity Low Crossfade

Determines how the sound fades at velocities below the Velocity Low Range setting. The higher the value the more abrupt the fade.

[Range] 0 — 127

NOTE • The higher the value, the lower the velocity at which the sample will sound.
• The use of velocity crossfade allows you to blend samples that are set for playback at different velocity ranges, so that sound does not change drastically in response to slight velocity changes near the range limit.

[⬆Press] QUICK...

Calls the quick entry menu (page 83).

Knob 3

[⌒Turn] Velocity Low Range

Turn the knob to set the minimum velocity required to produce sound from this sample.

[Range] 0 — Velocity High Range

[⬆Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device.

Knob 4

[Turn] Velocity High Range

Turn the knob to set the maximum velocity that can be used to produce sound from this sample.

[Range] Velocity Low Range — 127

[Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device.

Knob 5

[Turn] Velocity High Crossfade

Determines how the sound fades at velocities higher than the Velocity High Range setting. The higher the value the more abrupt the fade.

[Range] 0 — 127

NOTE • The higher the value, the higher the velocity at which the sample will sound.

• The use of velocity crossfade allows you to blend samples that are set for playback at different velocity ranges, so that sound does not change drastically in response to slight velocity changes near the range limit.

[Press] QUICK...

Calls the quick entry menu (page 83).

Level Scaling

[EDIT] Button → [F2] Button → Knob 1 to select "EDIT-LvlScal"

This page determines how the sample's output level varies across the keyboard.

NOTE • Certain samples seem to get louder as pitch increases, while certain others seem to become softer with rising pitch. The level-scaling feature described here lets you correct for these variations, allowing you to produce an apparently uniform playback level over the entire keyboard.

```
1🞂EDIT-LvlScal
001:Pgm 001
 └─8_NewSample        B

LevelScaling
Level1   127 │🎹BP1   C-2 │🎹BP2   G 8 │Level2   127
1 TREE 2 QUICK...    3 MIDI      4 MIDI     5 QUICK...
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Level1	Breakpoint1	Breakpoint2	Level2
Press action	Tree View	QUICK...	MIDI	MIDI	QUICK...

Knob 1

[Turn] Page

Selects display pages.

[Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[Turn] Level1

Sets the level at the Breakpoint1 note.

[Range] 0— 127

[Press] QUICK...

Calls the quick entry menu (page 83).

Knob 3

[Turn] Breakpoint1

Specifies the lowest note from which the level variation will begin. All notes lower than this will play at the level specified by the Level1 parameter.

[Range] C-2 — G8

(Cannot be set higher than Breakpoint2)

NOTE • If the Note Display Type utility (UTILITY–SYSTEM-Custom) (page 198) is set to "name" the parameter will be displayed as note names such as "C3." If set to "number" the parameter will be displayed as MIDI note numbers such as "60."

[Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device.

Knob 4

[Turn] Breakpoint2

Specifies the high note at which the level variation will end. All notes higher than this will play at the level specified by the Level2 parameter.

[Range] C-2 — G8

(Cannot be set lower than Breakpoint1)

[Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device.

Knob 5

[Turn] Level2

Sets the level at the Breakpoint2 note.

[Range] 0 — 127

[Press] QUICK...

Calls the quick entry menu (page 83).

3. FILTER

You use this function to set the sample's filter type, filter characteristics, and equalization. You can also set the way that filter strength varies with respect to velocity and keyboard location.

NOTE
- *You can use filter-EG settings and LFO settings to create variations in filter cutoff frequency over time. (page 138, 144)*
- *The [COMMAND/EXIT] button gives you rapid access to a number of helpful commands while you are working with this function. For example, you can use the [COMMAND/EXIT] button when you want to save your edit results to disk, or when you want to cancel your new changes and restore the previously saved data.*

Press the [EDIT] button and then the [F3] button to go to the Filter function.

2 display pages are provided: Fltr&EQ (Filter & EQ), and FltrScal (Filter Scaling — page 135).

NOTE
- *See the "Basic Operation" section on page 78 for details on switching between display pages.*

Filter & EQ

[EDIT] Button → [F3] Button → Kjnob 1 to select "EDIT-Fltr&EQ"

This page sets the filter type, cutoff frequency, and Q/width value.

Cursor ❶ (Filter)

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	Filter Type	Cutoff	Q/Width	Cutoff Distance
Press action	Tree View	Effect Type List...	QUICK...	QUICK...	QUICK...

Knob 1

[Turn] Cursor/Page
Positions the cursor and selects display pages.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] Filter Type
Select any one of the following filter types.

[Range] Bypass, LowPass1 — 3, HiPass1 — 2, BandPass, BandElim, Peak1 — 2, 2Peaks, 2Dips, DualLPFs, LPF+Peak, DualHPFs, HPF+Peak, LPF+HPF

- **Bypass** .... No filter.
- **LowPass1** .... Low-pass filter #1. (A low-pass filter blocks out all frequencies above the cutoff frequency.)
- **LowPass2** .... Low-pass filter #2. Offers much higher Q (resonance) than low-pass filter #1.
- **LowPass3** .... The characteristics of this low-pass filter are somewhere between LowPass1 and LowPass2.
- **HiPass1** .... High-pass filter #1. (A high-pass filter blocks out all frequencies below the cutoff frequency.)
- **HiPass2** .... High-pass filter #2. Offers much higher Q (resonance) than high-pass filter #1.
- **BandPass** .... Band-pass filter. (Allows only frequencies near the cutoff frequency to pass; blocks out all higher and lower frequencies.)
- **BandElim** ..... Band-eliminate filter. (Blocks out the frequency range around the cutoff frequency, while allowing higher and lower frequencies to pass.)
- **Peak1** .... A filter with an emphasis peak at the cutoff frequency.
- **Peak2** .... With this filter the original sound is mixed with the sound of the Peak1 filter.
- **2Peaks** .... A combination of two peak filters.
- **2Dips** .... A combination of two band elimination filters.
- **DualLPFs** ..... A combination of two low-pass filters.
- **LPF+Peak** ... A combination of a low-pass filter and a peaking filter.
- **DualHPFs** .... A combination of two high-pass filters.
- **HPF+Peak** .... A combination of a high-pass filter and a peaking filter.
- **LPF+HPF** ..... A combination of a low-pass filter and a high-pass filter.
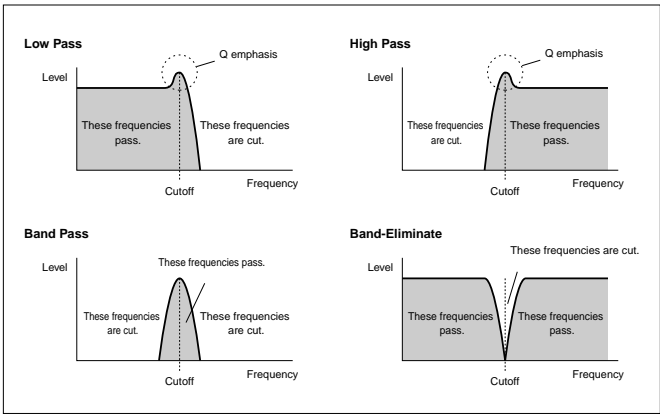
[Press] Filter Type List...
Calls a list of all the available filter types.

Knob 3

[Turn] Cutoff

Use this knob to set the filter's cutoff frequency.

As shown in the filter response graphs on page 133, the cutoff frequency is either the point at which the filter cutoff begins, or it is the center frequency of the pass/elimination band, depending on the filter type.

[Range] 0 — 127

[Press] QUICK...

Calls the quick entry menu (page 83).

Knob 4

[Turn] Q/Width

This knob sets the Q value (resonance) or width setting, depending on the filter type.

[Range] 0 — 31

NOTE • When any filter type other than BandPass, BandElim, or 2Dips is selected, this parameter will vary the size of the emphasis peak near the filter cutoff frequency. With the LowPass2, HiPass2, Peak1, and Peak2 filters, setting this parameter too high can cause the sound to become distorted.

• When the BandPass filter type is selected, higher values increase the width of the filter passband.

• When the BandElim or 2Dips filter is selected, smaller values increase the width of the filter's elimination band.

[Press] QUICK...

Calls the quick entry menu (page 83).

Knob 5

[Turn] Cutoff Distance

For filter types which combine two filters (2Peaks ... LPF+HPF), it is necessary to set the cutoff frequencies for both filters. This parameter specifies the "distance" of the cutoff frequency of the second filter from that of the first filter (specified by Knob 3: Cutoff).

[Range] -63 — +63

NOTE • For the LPF+Peak, HPF+Peak, and LPF+HPF filters, the cutoff frequency of the filter named to the left of the "+" is determined by Knob 3 (Cutoff). The cutoff frequency of the filter named to the right of the "+" is determined by adding the Knob 5 (Cutoff Distance) value to the Cutoff value. When Cutoff Distance is set to "0", both filters will have the same cutoff frequency.

• The Cutoff Distance parameter is only available when a composite filter type is selected.

[Press] QUICK...

Calls the quick entry menu (page 83).

[DISPLAY]

① An approximate graphic representation of the selected filter's response.

Cursor ❷ (Filter Sensitivity)
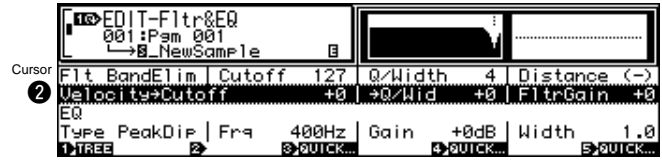
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action		Cursor/Page	—	Cutoff Velocity Sensitivity	Q/Width Velocity Sensitivity	Filter Gain
Press action		Tree View	—	QUICK...	QUICK...	QUICK...

Knob 1

Same function as Cursor ❶ (page 133).

Knob 3

[Turn] Cutoff Velocity Sensitivity

Determines how the cutoff frequency changes in response to velocity. If you set the value to 0, the cutoff frequency remains the same at all velocities.

[Range] -63 — +63

NOTE • Positive values cause the cutoff frequency to move up as velocity increases, while negative values cause the frequency to move down as velocity increases.

[Press] QUICK...

Calls the quick entry menu (page 83).

Knob 4

[Turn] Q/Width Velocity Sensitivity

Determines how the Q/width value changes in response to velocity.

[Range] -63 — +63

NOTE • If you set the value to 0, the Q/width value remains the same at all velocities. Positive values cause the value to increase as velocity increases, while negative values cause the value to decrease as velocity increases.

[Press] QUICK...

Calls the quick entry menu (page 83).

Knob 5

[Turn] Filter Gain

Use this knob to set the filter's output level.

Note that high settings may produce distortion when used with certain sample sounds or when many samples are played together.

[Range] -31 — +31

[Press] QUICK...

Calls the quick entry menu (page 83).

Cursor ❸ (Equalizer)

```
┌─▣EDIT-Fltr&EQ
│ 001:Psm 001
│ └─►▣_NewSample      ▣
│
Flt BandElim│Cutoff 127│Q/Width  4│Distance (-)
Velocity→Cutoff    +0│→Q/Wid   +0│FltrGain +0
EQ
Type PeakDip│Frq  400Hz│Gain  +0dB│Width   1.0
1▸TREE      ②         ③▸QUICK... ④▸QUICK... ⑤▸QUICK...
```
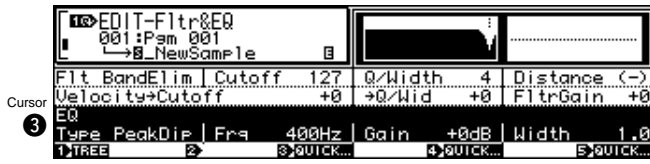
Cursor ❸

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	Sample EQ Type	Sample EQ Frequency	Sample EQ Gain	Sample EQ Width
Press action	Tree View	—	QUICK...	QUICK...	QUICK...

Knob 1

Same function as Cursor ❶ (page 133).

Knob 2

[◠Turn] Sample EQ Type
Specifies the EQ type.

[Range] Peak/Dip, LoShelv, HiShelv

- **Peak/Dip** ... Specifies a peak/dip type filter curve which allows a band of frequencies around the specified EQ frequency to be emphasized or de-emphasized.
- **LoShelv** ... Specifies a low-shelving filter curve which allows frequencies lower than the specified EQ frequency to be emphasized or de-emphasized.
- **HiShelv** ... Specifies a high-shelving filter curve which allows frequencies higher than the specified EQ frequency to be emphasized or de-emphasized.

Knob 3

[◠Turn] Sample EQ Frequency
Turn the knob to set the equalizer's frequency point.

[Range] 32Hz — 16.0kHz

NOTE • The selectable range will depend on the selected EQ type.

[♠ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 4

[◠Turn] Sample EQ Gain
This value sets the gain at the equalizer's frequency point.

[Range] -12dB — +12dB

[♠ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[◠Turn] Sample EQ Width
This value determines the width of the emphasis or attenuation band. Note that smaller values increase the width, while larger values decrease the width.

[Range] 1.0 — 12.0

NOTE • This parameter can only be used when the Peak/Dip EQ type is selected.

[♠ Press] QUICK...
Calls the quick entry menu (page 83).

Filter Scaling

[EDIT] Button → [F3] Button → Knob 1 to select "EDIT-FltrScal"

Filter scaling produces filter cutoff frequency variations over a specified range of notes.

NOTE • No filter cutoff variation beyond the maximum available range will be produced even if the Filter Scaling Cutoff1 (Knob 2) and Filter Scaling Cutoff2 (Knob 5) parameters in this page are set so that this range would be exceeded.

```
┌─▣EDIT-FltrScal
│ 001:Psm 001
│ └─►▣_NewSample      ▣
│
│
FilterScaling
Cutoff1    +0│🎵BP1  C-2│🎵BP2  G 8│Cutoff2  +0
1▸TREE ②▸QUICK...    ③▸MIDI   ④▸MIDI  ⑤▸QUICK...
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Filter Scaling Cutoff1	Filter Scaling Breakpoint1	Filter Scaling Breakpoint2	Filter Scaling Cutoff2
Press action	Tree View	QUICK...	MIDI	MIDI	QUICK...
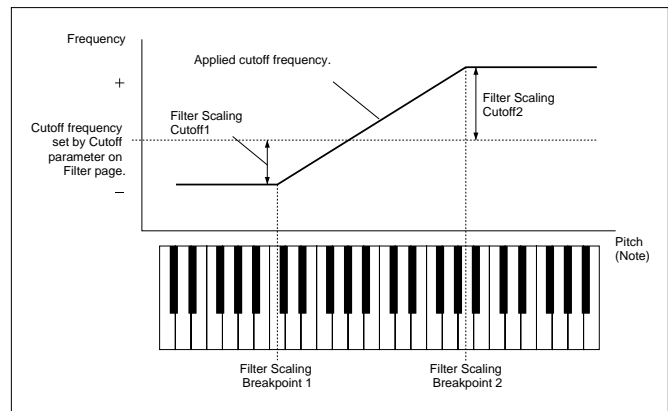
Knob 1

[◠Turn] Page
Selects display pages.

[♠ Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[◠Turn] Filter Scaling Cutoff1
Sets the amount of filter cutoff variation at the Filter Scaling Breakpoint1 note.

[Range] -127 — +127

[♠ Press] QUICK...
Calls the quick entry menu (page 83).
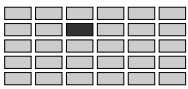
Knob 3

[⌒Turn] Filter Scaling Breakpoint1

Specifies the lowest note from which the filter cutoff varia-
tion will begin. All notes lower than this will play at the cut-
off frequency specified by the Filter Scaling Cutoff1
parameter.

**[Range] C-2 — G8 (Cannot be set higher than Filter Scal-
ing Breakpoint2)**

NOTE • *If the Note Display Type utility (UTILITY–SYSTEM-
Custom) (page 198) is set to "name" the parameter
will be displayed as note names such as "C3." If set
to "number" the parameter will be displayed as MIDI
note numbers such as "60."*

[⬆Press] MIDI

When this knob is pressed the parameter can be directly
set by a MIDI note-on message received from an external
MIDI device.

Knob 4

[⌒Turn] Filter Scaling Breakpoint2

Specifies the high note at which the filter cutoff variation
will end. All notes higher than this will play at the cutoff
frequency specified by the Filter Scaling Cutoff2 parame-
ter.

**[Range] C-2 — G8 (Cannot be set lower than Filter Scal-
ing Breakpoint1)**

[⬆Press] MIDI

When this knob is pressed the parameter can be directly
set by a MIDI note-on message received from an external
MIDI device.

Knob 5

[⌒Turn] Filter Scaling Cutoff2

Sets the amount of filter cutoff variation at the Filter Scal-
ing Breakpoint2 note.

[Range] -127 — +127

[⬆Press] QUICK...

Calls the quick entry menu (page 83).

4. EG

The EG function sets up the sample's envelope generators (EGs). The envelope generators determine how sound develops over time, both while the note is held and after it is released. The A5000/A4000 offers three different EGs: an amplitude EG, a filter EG, and a pitch EG.

NOTE • The [COMMAND/EXIT] button gives you rapid access to a number of helpful commands while you are working with this function. For example, you can use the [COMMAND/EXIT] button when you want to save your edit results to disk, or when you want to cancel your new changes and restore the previously saved data.

Press the [EDIT] button and then the [F4] Button to go to the EG functions.

3 display pages are provided: AmpEG (Amplitude EG), FilterEG (page 138), and PitchEG (page 140).

NOTE • See the "Basic Operation" section on page 78 for details on switching between display pages.

Amplitude EG

[EDIT] Button → [F4] Button → Knob 1 to select "EDIT-AmpEG"

This page sets up the AEG (amplitude envelope generator). The AEG determines how the sound level (amplitude) develops over time. Development begins at Note On, and terminates when the sound dies out. The envelope is defined by four settings, as illustrated below.

Cursor ❶ (Amplitude EG Rate/Level)

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤹	Turn action	Cursor/Page	AEG Attack Rate	AEG Decay Rate	AEG Sustain Level	AEG Release Rate
⬆	Press action	Tree View	QUICK...	QUICK...	QUICK...	QUICK...
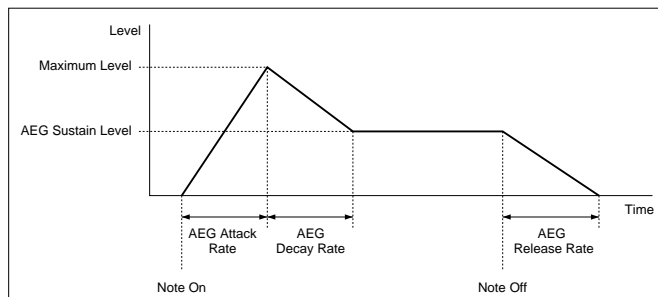
Knob 1

[⤹ Turn] Cursor Position/Page Selection
Positions the cursor and selects display pages.

[⬆ Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⤹ Turn] AEG Attack Rate
Determines the rate at which the sound reaches maximum level from the initial Level 0 (note-on). The higher the value, the faster the attack.

[Range] 0 — 127

NOTE • If the AEG Attack Mode (Cursor ❷, Knob 4) is set to "hold," this parameter determines the length the maximum level is held (actually the inverse of the value — the higher the value the shorter the hold time, page 138).

[⬆ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 3

[⤹ Turn] AEG Decay Rate
This value sets the decay rate: the rate at which the sound drops from its maximum amplitude to its "sustain" level. Higher values produce faster decay.

[Range] 0 — 127

NOTE • Note that this setting is meaningless (there is no decay period) if the AEG Sustain Level (Knob 4) is set to 127.

[⬆ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 4

[⤹ Turn] AEG Sustain Level
This value sets the sustain level. The sustain level is the steady level that begins when decay is completed, and continues until Note Off occurs.

[Range] 0 — 127

[⬆ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[⤹ Turn] AEG Release Rate
This value sets the release rate: the rate at which the amplitude drops from the sustain level to zero following Note Off. Higher values produce faster release. A setting of 127 causes sound to stop immediately when Note Off occurs.

[Range] 0 — 127

[⬆ Press] QUICK...
Calls the quick entry menu (page 83).

Cursor ❷ (Amplitude EG Mode)

Cursor ❷

```
.·I●▶EDIT-AmpEG
  001:Psm 001
    └→■_NewSample        ■
AttackRate  DecayRate   SustainLevel  ReleaseRate
        127        127           127          126
RateScaling  Vel→Rate   AttackMode
        +0          +0       rate
1▶TREE 2▶QUICK...  3▶QUICK...          ■            ▶
```
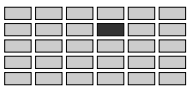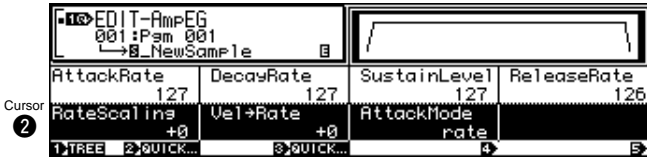
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤻	Turn action	Cursor/Page	AEG Rate Scaling	AEG Rate Velocity Sensitivity	AEG Attack Mode	—
⬆	Press action	Tree View	QUICK...	QUICK...	—	—

Knob 1

Same function as Cursor ❶ (page 137).

Knob 2

[⤻Turn] AEG Rate Scaling

This setting determines how the AEG rates (attack, decay, and release rates) vary according to keyboard location (pitch) of the played note. Set the value to 0 to keep rates the same for all keyboard notes. Positive settings cause rates to increase as you move up the keyboard, while negative settings cause rates to decrease as you move up the keyboard.

[Range] -7 — +7

[⬆Press] QUICK...

Calls the quick entry menu (page 83).

Knob 3

[⤻Turn] AEG Rate Velocity Sensitivity

This value sets the AEG's velocity sensitivity: the amount by which the AEG rates (attack, decay, and release rates) vary in response to the velocity (force) of the played note. Set the value to 0 to keep rates the same for all velocities. Positive settings cause rates to increase as velocity increases, while negative settings cause rates to decrease as velocity increases.

[Range] -63 — +63

[⬆Press] QUICK...

Calls the quick entry menu (page 83).

Knob 4

[⤻Turn] AEG Attack Mode

This value sets the AEG attack mode — the way that amplitude behaves immediately following Note On.

[Range] rate, hold, rate2

- **rate** ... Level starts at 0 (when Note On occurs) and rises to maximum, then begins to drop.

- **hold** ... Level starts immediately at it maximum point and holds steady for a certain interval before beginning to drop (page 137).
  Note that the Attack Rate setting sets the timing for the attack. Higher Attack Rate settings produce a faster attack — so that the level rises more quickly (if the mode is set to rate) or holds steady for a shorter time before dropping (if the mode is set to hold).

NOTE • This function can be useful in cases in which you want the natural attack envelope of the sample to be fully retained: use the hold mode to keep the level at maximum for the required time, then drop to the sustain level.

- **rate2** ... A variation of "rate."
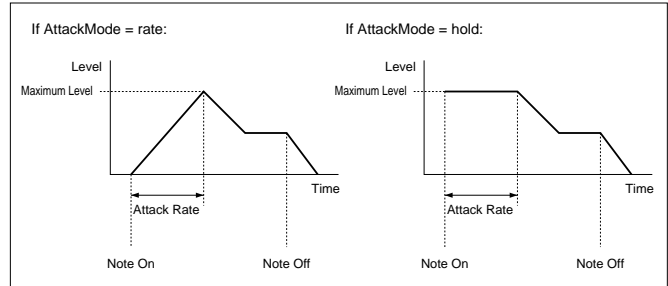
Filter EG

[EDIT] Button → [F4] Button → Knob 1 to select "EDIT-FilterEG"

Use this page to set up the sample's FEG (filter envelope generator). The FEG determines how the filter's cutoff frequency shifts over time as each note plays out.

"Specified Cutoff Frequency" is the value set by the Cutoff parameter (page 134).

NOTE • Filter-EG settings are not effective if the Filter Type parameter on the Fltr&EQ page (page 133) is set to Bypass.

Cursor ❶ (Filter EG Rate)

Cursor ❶

```
.·I●▶EDIT-FilterEG
  001:Psm 001
    └→■_NewSample        ■
        Init      Attack    Decay/Sus    Release
Rate   (--)          127          127         127
Level   +0            +0           +0          +0
RateScal +0  Vel→Rt  +0  →AtkLvl  +0  →Level   +0
1▶TREE  ❷      3▶QUICK...     ■▶QUICK...   ■▶QUICK...
```
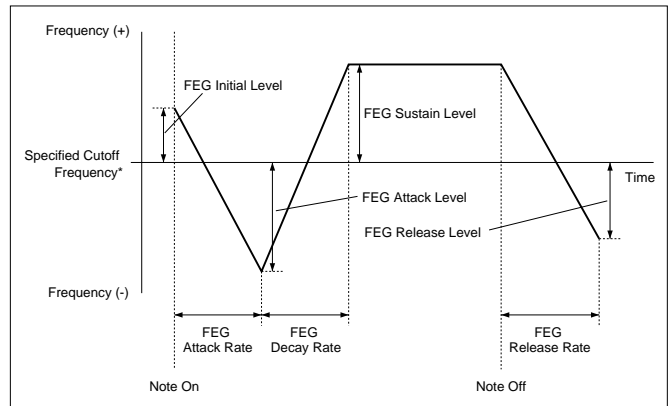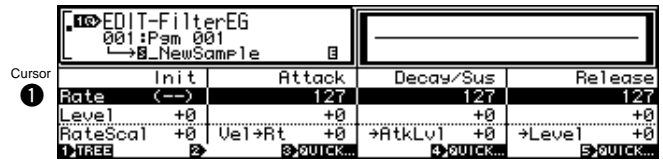
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤻	Turn action	Cursor/Page	—	FEG Attack Rate	FEG Decay Rate	FEG Release Rate
⬆	Press action	Tree View	—	QUICK...	QUICK...	QUICK...
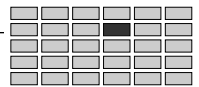
Knob 1

[◠ Turn] Cursor Position/Page Selection

Positions the cursor and selects display pages.

[▲ Press] Tree View

Calls the Tree View display (page 83).

Knob 3

[◠ Turn] FEG Attack Rate

This value sets the rate at which the cutoff frequency moves from its FEG initial level (at Note On) to the attack level. Higher values produce faster rates.

[Range] 0 — 127

[▲ Press] QUICK...

Calls the quick entry menu (page 83).

Knob 4

[◠ Turn] FEG Decay Rate

This value sets the rate at which the cutoff frequency moves from the FEG attack level to the sustain level. Higher values produce faster rates.

[Range] 0 — 127

[▲ Press] QUICK...

Calls the quick entry menu (page 83).

Knob 5

[◠ Turn] FEG Release Rate

This value sets the rate at which the cutoff frequency moves from the FEG sustain level to the FEG release level following Note Off. Higher values produce faster rates.

[Range] 0 — 127

> **NOTE** • Note that the effectiveness of this setting declines at higher AEG release rates (page 137), since the sound dies out before the shift in cutoff frequency can be heard.

[▲ Press] QUICK...

Calls the quick entry menu (page 83).

Cursor ❷ (Filter EG Level)

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
◠ Turn action	Cursor/Page	FEG Init Level	FEG Attack Level	FEG Sustain Level	FEG Release Level
▲ Press action	Tree View	QUICK...	QUICK...	QUICK...	QUICK...

> **NOTE** • It is not possible to set the actual cutoff frequency beyond a certain range. Regardless of settings you make at this page, the cutoff frequency will not shift beyond these limits.

Knob 1

Same function as Cursor ❶ (page 138).

Knob 2

[◠ Turn] FEG Init Level

This value sets the initial level (the cutoff-frequency offset applied at time of Note On).

[Range] -127 — +127

[▲ Press] QUICK...

Calls the quick entry menu (page 83).

Knob 3

[◠ Turn] FEG Attack Level

This value sets the attack level. (See illustration, page 138)

[Range] -127 — +127

[▲ Press] QUICK...

Calls the quick entry menu (page 83).

Knob 4

[◠ Turn] FEG Sustain Level

This value sets the sustain level. (See illustration, page 138)

[Range] -127 — +127

[▲ Press] QUICK...

Calls the quick entry menu (page 83).

Knob 5

[◠ Turn] FEG Release Level

This value sets the release level. (See illustration, page 138)

[Range] -127 — +127

[▲ Press] QUICK...

Calls the quick entry menu (page 83).

Cursor ❸ (Filter EG Mode)

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
◠ Turn action	Cursor/Page	FEG Rate Scaling	FEG Rate Velocity Sensitivity	FEG Attack Level Velocity Sensitivity	FEG Level Velocity Sensitivity
▲ Press action	Tree View	QUICK...	QUICK...	QUICK...	QUICK...

Knob 1

Same function as Cursor ❶ (page 138).

Knob 2

[Turn] FEG Rate Scaling

This setting determines how the FEG rates (FEG attack, FEG decay, and FEG release rates) vary according to keyboard location (pitch) of the played note.

Set the value to 0 to keep rates the same for all keyboard notes. Positive settings cause rates to increase as you move up the keyboard, while negative settings cause rates to decrease as you move up the keyboard.

[Range] -7 — +7

[Press] QUICK...

Calls the quick entry menu (page 83).

Knob 3

[Turn] FEG Rate Velocity Sensitivity

This value sets the velocity sensitivity of the FEG rates: the amount by which the FEG rates (FEG attack, FEG decay, and FEG release rates) vary in response to the velocity (force) of the played note.

Set the value to 0 to keep rates the same for all velocities. Positive settings cause rates to increase as velocity increases, while negative settings cause rates to decrease as velocity increases.

[Range] -63 — +63

[Press] QUICK...

Calls the quick entry menu (page 83).

Knob 4

[Turn] FEG Attack Level Velocity Sensitivity

This parameter sets the first velocity-sensitivity value for the FEG's initial level and attack level. The value operates together with the value set by Knob 5 to determine the amount by which these levels vary in response to the velocity of the played note.

Positive settings cause levels to increase as velocity increases, while negative settings cause levels to decrease as velocity increases.

[Range] -63 — +63

[Press] QUICK...

Calls the quick entry menu (page 83).

Knob 5

[Turn] FEG Level Velocity Sensitivity

This parameter sets the general velocity sensitivity for all FEG levels (FEG initial, FEG attack, FEG sustain, and FEG release). Positive settings cause levels to increase as velocity increases, while negative settings cause levels to decrease as velocity increases.

[Range] -63 — +63

[Press] QUICK...

Calls the quick entry menu (page 83).

Pitch EG

[EDIT] Button → [F4] Button → Knob 1 to select "EDIT-PitchEG"

Use this page to set up the sample's PEG (pitch envelope generator). The PEG determines how the pitch varies over time as each note plays out.

Cursor ❶ (Pitch EG Rate)

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor/Page	—	PEG Attack Rate	PEG Decay Rate	PEG Release Rate
	Press action	Tree View	—	QUICK...	QUICK...	QUICK...

Knob 1

[Turn] Cursor Position/Page Selection

Positions the cursor and selects display pages.

[Press] Tree View

Calls the Tree View display (page 83).

Knob 3

[Turn] PEG Attack Rate

This value sets the rate at which the pitch moves from its initial level (at Note On) to the attack level. Higher values produce faster rates.

[Range] 0 — 127

[Press] QUICK...

Calls the quick entry menu (page 83).

Knob 4

[Turn] PEG Decay Rate

> This value sets the rate at which the pitch moves from the attack level to the sustain level. Higher values produce faster rates.
>
> **[Range] 0 — 127**

[Press] QUICK...

> Calls the quick entry menu (page 83).

Knob 5

[Turn] PEG Release Rate

> This value sets the rate at which the pitch moves from the sustain level to the release level following Note Off. Higher values produce faster rates.
>
> **[Range] 0 — 127**
>
> **NOTE** • Note that the effectiveness of this setting declines at higher AEG release rates (page 137), since the sound dies out before the shift in pitch can be heard.

[Press] QUICK...

> Calls the quick entry menu (page 83).

Cursor ❷ (Pitch EG Level)
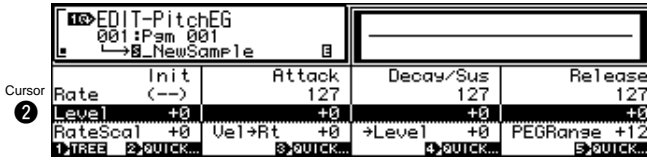
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor/Page	PEG Initial Level	PEG Attack Level	PEG Sustain Level	PEG Release Level
	Press action	Tree View	QUICK...	QUICK...	QUICK...	QUICK...

> **NOTE** • If all levels are set to maximum (+127 or –127), the actual amount of pitch variation range is determined by the PEG Range setting (page 142).

Knob 1

> Same function as Cursor ❶ (page 140).

Knob 2

[Turn] PEG Initial Level

> This value sets the initial level (the pitch offset applied at time of Note On).
>
> **[Range] -127 — +127**

[Press] QUICK...

> Calls the quick entry menu (page 83).

Knob 3

[Turn] PEG Attack Level

> This value sets the attack level. (See illustration, page 140)
>
> **[Range] -127 — +127**

[Press] QUICK...

> Calls the quick entry menu (page 83).

Knob 4

[Turn] PEG Sustain Level

> This value sets the sustain level. (See illustration, page 140)
>
> **[Range] -127 — +127**

[Press] QUICK...

> Calls the quick entry menu (page 83).

Knob 5

[Turn] PEG Release Level

> This value sets the release level. (See illustration, page 140)
>
> **[Range] -127 — +127**

[Press] QUICK...

> Calls the quick entry menu (page 83).

Cursor ❸ (Pitch EG Mode)
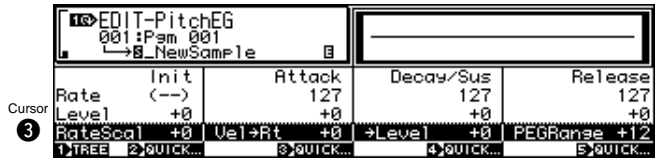
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor/Page	PEG Rate Scaling	PEG Rate Velocity Sensitivity	PEG Level Velocity Sensitivity	PEG Range
	Press action	Tree View	QUICK...	QUICK...	QUICK...	QUICK...

Knob 1

> Same function as Cursor ❶ (page 140).

Knob 2

[Turn] PEG Rate Scaling

> This setting determines how the PEG rates (PEG attack, PEG decay, and PEG release rates) vary according to keyboard location (pitch) of the played note. Set the value to 0 to keep rates the same for all keyboard notes. Positive settings cause rates to increase as you move up the keyboard, while negative settings cause rates to decrease as you move up the keyboard.
>
> **[Range] -7 — +7**

[Press] QUICK...

> Calls the quick entry menu (page 83).

Knob 3

[Turn] PEG Rate Velocity Sensitivity

> This value sets the velocity sensitivity for the PEG rates: the amount by these PEG rates (PEG attack, PEG decay, and PEG release rates) vary in response to the velocity (force) of the played note.
> Set the value to 0 to keep rates the same for all velocities. Positive settings cause rates to increase as velocity increases, while negative settings cause rates to decrease as velocity increases.
>
> **[Range] -63 — +63**

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).

Knob 4

[⌒ Turn]   PEG Level Velocity Sensitivity

This value sets the velocity sensitivity for the PEG levels: the amount by these levels (initial, attack, sustain, and release rates) vary in response to the velocity of the played note.

Set the value to 0 to keep the levels the same for all velocities. Positive settings cause the levels to increase as velocity increases, while negative settings cause the levels to decrease as velocity increases.

[Range] -63 — +63

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).

Knob 5

[⌒ Turn]   PEG Range

This value sets the range for PEG pitch variation, in semi-tones.

This setting works in conjunction with the level settings at the Pitch EG Level page (page 141) to determine how far the PEG levels are from the sample's basic pitch. If you set the PEG Level settings to maximum (+127 or -127), then the distance between each level and the basic pitch will be equal to the number of semitones that you set here.

[Range] -63 — +63

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).

5. LFO

You use the LFO function to set up the sample's LFO (low-frequency oscillator). The LFO applies a low-frequency modulation to the output volume, filter cutoff frequency, and pitch.

NOTE • *The [COMMAND/EXIT] button gives you rapid access to a number of helpful commands while you are working with this function. For example, you can use the [COMMAND/EXIT] button when you want to save your edit results to disk, or when you want to cancel your new changes and restore the previously saved data.*

Press the [EDIT] button and then the [F5] button to go to the LFO functions.

1 display page is provided: LFO.

NOTE • *See the "Basic Operation" section on page 78 for details on switching between display pages.*

LFO

[EDIT] Button → [F5] Button → Knob 1 to select "EDIT-LFO"

You use the LFO function to set up the sample's LFO (low-frequency oscillator).

The LFO applies a low-frequency modulation to the output volume, filter cutoff frequency, and pitch.

Cursor ❶

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌢	Turn action	Cursor/Page	LFO Wave	LFO Speed	LFO Delay	LFO Key On Sync
⬆	Press action	Tree View	—	QUICK...	QUICK...	—

Knob 1

[⌢Turn] Cursor Position/Page Selection
Positions the cursor and selects display pages.

[⬆ Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⌢Turn] LFO Wave
This parameter selects the LFO waveform. The waveform, in turn, determines the type of modulation (oscillation) applied to the sample's filter, pitch, and amplitude.

[Range] Saw, Triangle, Square, S/H

• **Saw (Sawtooth wave)**
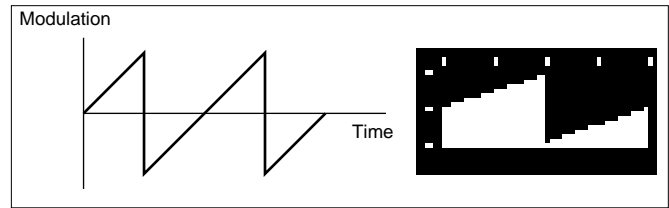
• **Triangle (Triangle wave)**
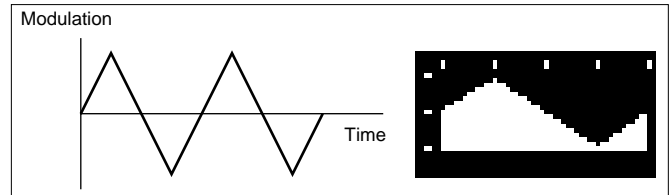
• **Square**
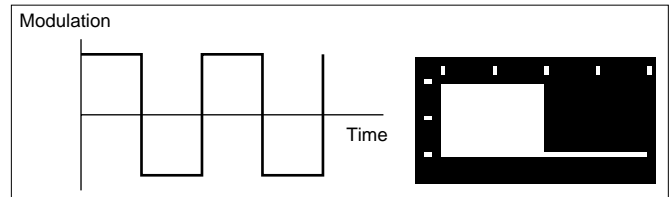
• **S/H ("Sample & hold" : random pattern)**
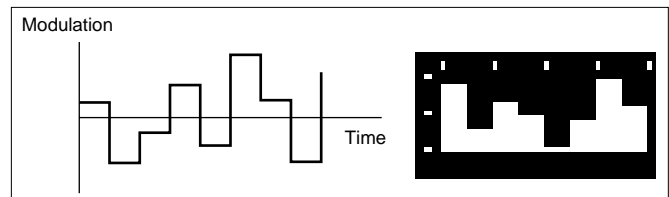
Knob 3

[⌢Turn] LFO Speed
This value sets the modulation speed for the saw, triangle, or square waveform. Higher values produce faster modulation.

[Range] 1 — 127

NOTE • *Modulation speed for the S/H waveform must be set at the program side (page 107). If you have selected the S/H waveform (knob2), the screen displays the current program-side setting. You cannot change the setting from this page.*

[⬆ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 4

[⌢Turn] LFO Delay
This parameter sets the interval between Note On and the onset of LFO modulation. Higher values produce longer delay together with a more gradual buildup of the modulation level.

[Range] 1 — 127

[⬆ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[◠Turn] **LFO Key On Sync**
This setting selects whether LFO oscillation always begins from the same phase (at the same point in the LFO waveform).
If you set the value to on, LFO oscillation will restart from phase 0 (the leftmost point in the preceding illustration) with each new note that you play.

[Range] off, on

Cursor ❷

```
110>EDIT-LFO
    001:Psm 001
    └→8_NewSample      B
```
Cursor ❷

Wave Triansl	Speed	40	Delay	0	KeyOnSync off
CutoffMod		PitchMod		AmpMod
Depth	0	0	0
PhaseInvert	off	off	(−)
1>TREE	2>	3>QUICK...	4>QUICK...	5>QUICK...
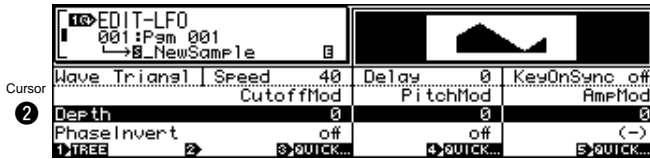
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	—	Cutoff Mod Depth	Pitch Mod Depth	Amp Mod Depth
Press action	Tree View	—	QUICK...	QUICK...	QUICK...

Knob 1

Same function as Cursor ❶ (page 143).

Knob 3

[◠Turn] **Cutoff Mod Depth (Cutoff Modulation Depth)**
This value sets the degree by which the amplitude is modulated by the LFO waveform. Higher values produce stronger modulation.

[Range] 0 — 127

NOTE • This parameter has no effect if the EDIT-FILTER-Fltr&EQ Filter Type is set to "bypass" (page 133).

[▲ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 4

[◠Turn] **Pitch Mod Depth (Pitch Modulation Depth)**
Determines the depth of pitch modulation to be applied by the LFO. Higher values produce deeper modulation.

[Range] 0 — 127

[▲ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[◠Turn] **Amp Mod Depth (Amplitude Modulation Depth)**
Determines the depth of amplitude modulation to be applied by the LFO. Higher values produce deeper modulation.

[Range] 0 — 127

[▲ Press] QUICK...
Calls the quick entry menu (page 83).

Cursor ❸

```
110>EDIT-LFO
    001:Psm 001
    └→8_NewSample      B
```
Cursor ❸

Wave Triansl	Speed	40	Delay	0	KeyOnSync off
CutoffMod		PitchMod		AmpMod
Depth	0	0	0
PhaseInvert	off	off	(−)
1>TREE	2>	3>	4>	5>
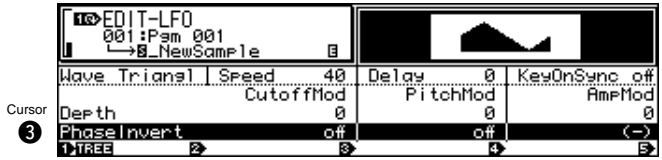
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	—	Cutoff Mod Phase Invert	Pitch Mod Phase Invert	—
Press action	Tree View	—	—	—	—

Knob 1

Same function as Cursor ❶ (page 143).

Knob 3

[◠Turn] **Cutoff Mod Phase Invert (Cutoff Modulation Phase Invert)**
Determines whether the phase of the LFO will be inverted or not.
When "on" the phase of the LFO is inverted so that the "direction" of modulation is reversed.

[Range] off, on

Knob 4

[◠Turn] **Pitch Mod Phase Invert (Pitch Modulation Phase Invert)**
Determines whether the phase of the LFO will be inverted or not.
When "on" the phase of the LFO is inverted so that the "direction" of modulation is reversed.

[Range] off, on

6. MIDI/CTRL

You use the MIDI/CTRL function to set the sample's MIDI Receive Channel, to designate its "alternate group," and to set up its controller handling.

NOTE • *The [COMMAND/EXIT] button gives you rapid access to a number of helpful commands while you are working with this function. For example, you can use the [COMMAND/EXIT] button when you want to save your edit results to disk, or when you want to cancel your new changes and restore the previously saved data.*

Press the [EDIT] button and the the [F4] button to go to the MIDI/CTRL functions.

3 display pages are provided: MIDISet (MIDI Setup), SmpCtrlA (Sample Controller A — page 146), and SmpCtrlB (Sample Controller B — page 146).

NOTE • *See the "Basic Operation" section on page 78 for details on switching between display pages.*

MIDI Set

[EDIT] Button → [F4] Button → Knob 1 to select
"EDIT-MIDISet"

MIDI Set provides access to parameters which allow setting the sample receive channel, and parameters relating to pitch bend and velocity data reception.

Cursor ❶

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor/Page	—	Receive Channel	—	AlternateGroupe
⬆	Press action	Tree View	—	MIDI	—	—

Knob 1

[⌒Turn] Cursor Position/Page Selection
Positions the cursor and selects display pages.

[⬆ Press] Tree View
Calls the Tree View display (page 83).

Knob 3

[⌒Turn] Receive Channel
Turn the knob to select the MIDI channel that drives the sample's playback.

[Range] A01 — A16, B01 — B16,
Bch (01 — 16 on the A4000, Bch)

• **Bch** ... The specified Basic Channel (page 89) is used.

[⬆ Press] MIDI
When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device.

Knob 5

[⌒Turn] Alternate Groupe
Turn the knob to select the "alternate group" for the sample. The A5000/A4000 supports 16 alternate groups. Set the value off if you do not want to place the sample into any of these groups.

[Range] off, 1 — 16

HINT • *You use alternate groups to prevent simultaneous play of samples that do not go well together. Only one note from the group can be in play at any given time; playing any note from any sample in the group automatically switches off any other note already playing from that group.*
As an example, in general you would not want to play a "high-hat close" sound while a "high-hat open" sound is still audible. To prevent accidental overlap of these two sounds, you would place your "high-hat-open" sample and your "high-hat-close" sample into the same alternate group. If you then play the "close" sample while the "open" sample is still sounding, the A5000/A4000 immediately switches off the "open" sample and starts playing the "close" sample.

NOTE • *If you set the value to anything other than off, you will not be able to play more than one note from this sample at any given time.*

Cursor ❷

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor/Page	Pitch Bend Type	Pitch Bend Range	Velocity Low Limit	Velocity Offset
⬆	Press action	Tree View	LIST...	QUICK...	MIDI	QUICK...

Knob 1

Same function as Cursor ❶ (page 145).

Knob 2

[⌒Turn] Pitch Bend Type
This setting determines how strongly the pitchbend wheel controls the sample's pitch. More specifically, it determines how upward and downward wheel movements operate on the sample.

[Range] Normal — Up&Dwn12

For **Up2Dwn3 — Up3Dwn12** refer to the corresponding numbers A and B in the Up[A] Dwn[B] diagrams. **Up&Dwn12** produces an abrupt variation over +/- one octave.

NOTE • *Slow&Rev and Stop&Rev produce reverse playback even with looped samples, with playback stopping when the start address is reached.*

[⬆ Press] LIST...
Calls the pitch bend type list.

Normal

Pitchbend Value   Playback Pitch

127 ⊥ .... Basic Pitch + PB Range

86

64 ⊥ .... Basic Pitch

32

0 ⊥ .... Basic Pitch - PB Range

Slow

Pitchbend Value   Playback Pitch

127 ⊥ .... Basic Pitch + PB Range

86

64 ⊥ .... Basic Pitch

32

0 ⊥ .... Almost stopped (Extremely low, muddy sound, such as produced by manually slowing a record-player turntable to almost a full stop.)

Slow&Rev (Slow & Reverse)

Pitchbend Value   Playback Pitch

127 ⊥ .... Basic Pitch + PB Range

86

64 ⊥ .... Basic Pitch

32 .... Almost stopped (Extremely low, muddy sound, such as produced by manually slowing a record-player turntable to almost a full stop.)

0 ⊥ .... Reverse play at basic pitch. (Sample replay ends at wave-play start address.)

Stop

Pitchbend Value   Playback Pitch

127 ⊥ .... Basic Pitch + PB Range

86

64 .... Almost stopped (Extremely low, muddy sound, such as produced by manually slowing a record-player turntable to almost a full stop.)

32

0 ⊥

Stop&Rev (Stop & Reverse)

Pitchbend Value   Playback Pitch

127 ⊥ .... Basic Pitch + PB Range

86

64 ⊥ .... Almost stopped (Extremely low, muddy sound, such as produced by manually slowing a record-player turntable to almost a full stop.)

32

0 ⊥ .... Reverse play at basic pitch. (Sample replay ends at wave-play start address.)

Up[A] Dwn[B] (UpA DownB)

Pitchbend Value   Playback Pitch

127 ⊥ .... Basic Pitch + x semitones (or: Basic Pitch + z semitones)

86

64 ⊥ .... Basic Pitch

32

0 ⊥ .... Basic Pitch - y semitones (or: Basic Pitch + z semitones)

Knob 3

[⌒Turn] Pitch Bend Range

This setting works together with the Pitch Bend Type value (Knob 2) to determine the pitchbend range for the pitchbend wheel.

To see how the pitch bend range will affect pitch, refer to the pitch bend type diagrams accessible via Knob 2.

[Range] 0 — 24

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).

Knob 4

[⌒Turn] Velocity Low Limit

Turn the knob to select the minimum velocity for note replay. Whenever the A5000/A4000 receives a Note-On message with a lower velocity, it will automatically raise the velocity to the value given here.

[Range] 0 — 127

> HINT • If this parameter is set to 50, for example, notes received with a velocity lower than 50 will actually be played at a velocity of 50.

[⬆ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device.

Knob 5

[⌒Turn] Velocity Offset

Use this value to apply an offset to all received velocities — so as to raise or lower all velocities by the same amount.

[Range] -127 — +127

> HINT • If you set the offset to -25, for example, then a Note-On message with a velocity of 90 will be replayed at a velocity of 65.

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).

[DISPLAY]

① The selected pitch bend type will be shown diagramatically on the left side of the display. For the Normal … Stop&Rev settings, the horizontal axis represents the pitch bend value and the vertical axis represents pitch.

For Up[A] Dwn[B] settings the the pitch bend variation is shown in relation to a keyboard diagram.

② Received velocity (horizontal axis) versus resultant velocity (vertical axis) in accordance with the Velocity Low Limit and Velocity Offset values is show on the right side of the display.

Sample Controller A & B

[EDIT] Button → [F6] Button → Knob 1 to select
"EDIT-SmpCtrlA" or "EDIT-SmpCtrlB"

Sample Controller A & B provides access to parameters relating to the device(s) use to control sample playback and other functions.

Sample Controller A

```
 ◫EDIT-SmpCtrlA
  001:Psm 001
   └→8_NewSample        ▣
─────────────────────────────────────
   ♨Device  │ Function │ Range │    Type
1 074/K2(A 1)│Cutoff Bias│ +32  │ -/+offset
2 071/K3(A 1)│Fltr Q/Width│ +32 │ -/+offset
3 073/K4(A 1)│AEG Atk Rate│ -32 │ -/+offset
1▶TREE  2▶MIDI      3▶LIST...  4▶QUICK...  ▶
```

Sample Controller B

```
 ◫EDIT-SmpCtrlB
  001:Psm 001
   └→8_NewSample        ▣
─────────────────────────────────────
   ♨Device  │ Function │ Range │    Type
4 072/K5(A 1)│AEG Rel Rate│ -32 │ -/+offset
5 000/───────│       off │  +0  │  +offset
6 000/───────│       off │  +0  │  +offset
1▶TREE  2▶MIDI      3▶LIST...  4▶QUICK...  ▶
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor/Page	Device	Sample Control Function	Range	Type
⬆	Press action	Tree View	MIDI	LIST...	QUICK...	—

Knob 1

[◠Turn] Cursor Position/Page Selection

Positions the cursor to select a controller and selects display pages.

[▲ Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[◠Turn] Device

Specifies the external MIDI controller from which control change messages will be received, or the internal Program LFO.

[Range] 000 — 120, AfterTouch, PitchBend, NoteNumber, Velocity, ProgramLFO, KeyOnRandom

- **000 — 120** ... Specifies a MIDI control change number for sample control.

- **AfterTouch** ... Keyboard aftertouch response will be used for sample control.

- **PitchBend** ... Pitch bend data whill be used for sample control.

- **NoteNumber** ... Note-on message note-on numbers will be used for sample control.

- **Velocity** ... Note-on message velocity data wil be used for sample control.

- **ProgramLFO** ... Control/sample change data created by the internal Program LFO is used for sample control.

- **KeyOnRandom** ... A random control value is generated each time a note-on message is received.

NOTE • *When a standard MIDI controller, such as "001/ModWhel (modulation wheel) is selected, the standard controller assignment wil also be displayed.*

HINT • *It is recommended that you do not use controller numbers 000 and 032, as many MIDI devices use these numbers for bank selection purposes.*

[▲ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device.

Knob 3

[◠Turn] Function

Specifies the sample function to be controlled from an external MIDI controller or the Program LFO.

[Range]

Function	Control Target	Page
-----	—	
Start Address	Start address	120
Level	Level	132
Pan Bias	Pan bias	127
Pitch Bias	Pitch control	
Portamento Rate/Time	Portamento rate/time	130
Cutoff Bias	Cutoff bias	134
Cutoff Distance	Cutoff distance	134
Filter Q/Width	Filter Q/width	134
Filter Gain	Filter gain	134
AEG Attack Rate	AEG attack rate	137
AEG Decay Rate	AEG decay rate	137
AEG Sustain Level	AEG sustain level	137
AEG Release Rate	AEG release rate	137
FEG Attack Rate	FEG attack rate	139
FEG Decay Rate	FEG decay rate	139
FEG Release Rate	FEG release rate	139
FEG Init Level	FEG init level	139
FEG Sustain Level	FEG sustain level	139
FEG All Level	FEG all level	
PEG Attack Rate	PEG attack rate	140
PEG Decay Rate	PEG decay rate	141
PEG Release Rate	PEG release rate	141
PEG Init Level	PEG init level	141
PEG Sustain Level	PEG sustain level	141
LFO Speed	LFO speed	143
LFO Delay	LFO delay	143
Cutoff Mod Depth	Cutoff modulation depth	144
Pitch Mod Depth	Pitch modulation depth	144
Amp Mod Depth	Amplitude modulation depth	144
Pitch Bend	Pitch bend	145
Control1 Range	Control 1 range	148
Control2 Range	Control 2 range	148
Control3 Range	Control 3 range	148
Control4 Range	Control 4 range	148
Control5 Range	Control 5 range	148
Control6 Range	Control 6 range	148

[▲ Press] Function List

Calls a list of the available functions.

Knob 4

[⌢Turn] **Range**

Determines the range over which the specified function will be controlled by data from an external MIDI controller on the internal Program LFO.

[Range] -63 — +63

> When set to "0" no controler variation will be applied. The higher the value, the greater the controller range. Negative values reverse the operation of the controller.

[⬆ Press] QUICK...

Calls the quick entry menu (page 83).

Knob 5

[⌢Turn] **Type**

The setting determines how the A5000/A4000 converts and applies the control-change value received from the controller.

When you move a controller at a MIDI device, the controller transmits a control-change value indicating the magnitude of the movement. The transmitted values always range from 0 to 127.

Upon receiving the value, the A5000/A4000 converts it as specified here, and then applies it to the parameter selected by the Function entry. The conversion determines how strongly (and in which direction) the parameter changes in response to the controller's movement.

[Range] +offset, -/+offset, +offset(-exp), +offset(+exp)

> • **+offset** ... The A5000/A4000 converts the received value (0 to 127) to a corresponding value in the range {0 to range}, and adds the result to the target parameter. Notice that the resulting offset is therefore always positive (or always negative, depending on the Range sign). In other words, the controller can offset the target parameter in one direction only.

> • **+offset** ... The A5000/A4000 converts the received value (0 to 127) to a corresponding value in the range {-range to 0 to +range}, and adds the result to the target parameter. Notice that in this case the controller applies 0 offset when at its center position; displacement in one direction generates a negative offset, while displacement in the other generates a positive offset.

> • **+offset(-exp)** ... The received value (0 to 127) is converted to an appropriate value within the available range. The conversion is not linear, however, with greater variation produced at lower values and less variation produced at higher values.

> • **+offset(+exp)** ... The received value (0 to 127) is converted to an appropriate value within the available range. The conversion is not linear, however, with smaller variation produced at lower values and greater variation produced at higher values.

Chapter **6**

RECORD Mode

This mode is used to record new samples.

About the RECORD Mode

This mode is used to record new samples. Press the [REC] button to enter the RECORD mode.

NOTE • A "sample" is the smallest unit of data handled by the A5000/A4000, consisting of the actual wave data and the most basic sample parameters.

Record Mode Functions

The RECORD mode includes the 6 functions listed below (selected via the [F1] — [F6] function buttons, respectively).

■ [F1] RECORD Button

This function is used to actually record new samples (page 151).
This function has only one display page: Record.

■ [F2] SETUP Button

The SETUP function includes parameters which specify the recording source, key range, start/stop method, normalization, and more (page 153).
2 display pages are provided: RecSetup (Record Setup), and Process.

■ [F3] TRIGGER Button

Specifies how recording will be started and stopped (page 158).
Only 1 display page is provided: Trigger.

■ [F4] EFFECT Button

Specifies "record effects" which will be applied to the recorded signal (page 160).
2 display pages are provided: EfSetup (Record Effect Setup), and EfEdit (Record Effect Edit)

■ [F5] EXT CTRL Button

Controls playback of an external audio CD (page 161).
1 display page is provided: CDDACtrl (CD-DA Control).

■ [F6] MONITOR Button

Sets up monitoring of the source signal. Also allows generation of a reference click signal at the specified tempo (page 163).
1 display page is provided: Mon&Click (Monitor & Click).

1. RECORD

This display page is used to actually record new samples.

NOTE • *The REC-Record page provides the controls you need to actually initiate and control recording of new samples. Source selection, key range, level, effects, and other parameters are available via the remaining 5 function buttons, and these parameters should be set up as required before actually recording.*

Press the [REC] button and then the [F1] button to enter the RECORD page.
1 display page is provided: Record.

Record

[REC] Button→ [F1] Button→ "REC-Record"

Records new samples. When this page is entered a display similar to the one shown below will appear. This is the "Record Ready" display.
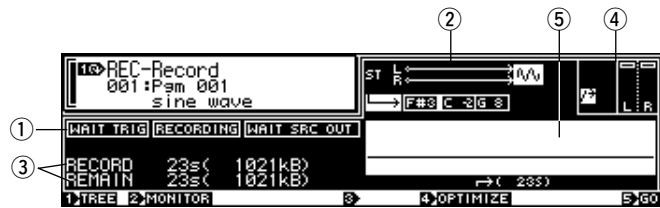
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	—	—	—	—	—
Press action	Tree View	MONITOR	ALLDEL	OPTIMIZE	GO

[DISPLAY]

① Shows the current record status.
   WAIT TRIG ... Record standby: waiting for a record-start trigger signal.
   RECORDING ... Recording in progress.
   WAIT SRC OUT ... Recording stopped; waiting for the source signal to decay completely.

② A number of recording parameters set via the SETUP display are shown here.

③ **RECORD** ... The number of seconds and the corresponding amount of wave memory available for recording.
   REMAIN ... The amount of wave memory and the corresponding number of seconds remaining.

④ An input signal level meter with markers for the start and stop edge levels set via the TRIGGER display.

⑤ Shows the input level variation during recording.

Knob 1

[⬆ Press] Tree View
   Calls the Tree View display (page 83).

Knob 2

[⬆ Press] MONITOR
   Pressing this knob alternately turns the MONITOR function on and off. A speaker icon appears above Knob 2 when the MONITOR function is turned on.

Knob 3

[⬆ Press] ALLDEL (All Delete)
   Pressing this knob deletes all sequentially-recorded samples in memory. This function will only work, however, if the Record Type (page 153) is set to "New+," and a number of samples have been recorded one after another.

Knob 4

[⬆ Press] OPTIMIZE
   The A5000/A4000 can record onto contiguous memory space only. Loading, deleting, and trimming of samples can result in gaps between adjacent samples in memory, reducing the amount of memory available for recording. You can use the >OPTIMIZE command to realign the samples, removing all gaps and leaving a single stretch of free memory — allowing for a longer recording.
   Push the knob to execute the optimization. The A5000/A4000 returns a confirmation screen. Push Knob 5 (>YES) to proceed.

   NOTE • *The following illustration gives an example. Before optimization, the maximum recording length is only 10 seconds (the length of the largest free space). By optimizing, however, you increase the available length to 20 seconds.*

Before optimizing:

Memory | Sample A | | Sample B | | Sample C | | Maximum recording length = 10 seconds.
5-sec. length   10-sec. length   5-sec. length

After optimizing:

Memory | Sample A | Sample B | Sample C | | Maximum recording length = 20 seconds.
20-sec. length
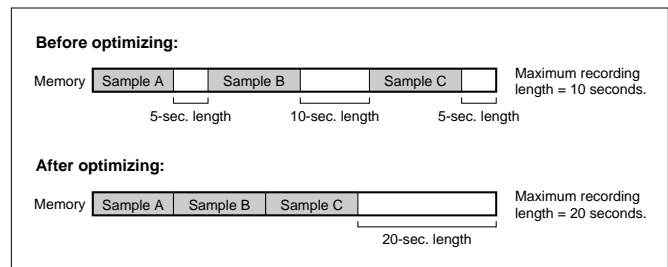
   NOTE • *Notice that the amount of contiguous memory that you can obtain by optimizing is indicated on the screen, directly above Knob 4. There is no need to optimize if this value is equivalent to the time value indicated above Knob 2.*

Knob 5

[⬆ Press] GO
   Engages the record standby mode in which the sampler waits for the trigger signal or command which will initiate actual recording.

■ When the GO Knob (Knob 5) Is Pressed From the Record Ready Display
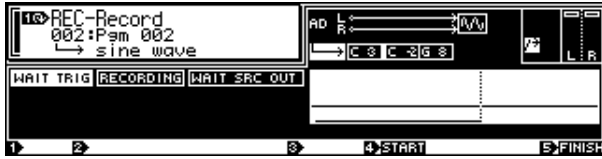
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	—	—	—	—	—
Press action	—	—	PAUSE	START	FINISH

In this state recording will begin the instant Knob 4 (START) is pressed. If "Edge/Manual" triggering has been selected via the TRIGGER page (page 158), recording will start automatically as soon as the input signal exceeds the set start edge trigger level.

> **NOTE** • If you have set up to record from an audio CD loaded into a CD-ROM drive connected to the A5000/A4000 via the EXT CTRL display (page 161), playback of the audio CD will start automatically as soon as Knob 4 (START) is pressed.
> • The Knob 3 (PAUSE) function will only be available if the "New+," Record Type has been selected.

The following display will appear while recording is in progress.

> **When the "New" or "Replc" Record Type is selected.**

If the "Replc" or "New" Record Type has been selected via the SETUP display (page 153), the following display will appear while recording is in progress.

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	—	—	—	—	—
Press action	—	—	ABORT	—	FINISH

In this state recording will stop and the sampler will return to the record ready display when Knob 5 (FINISH) is pressed. If "Edge/Manual" triggering has been selected via the TRIGGER page (page 159), recording will stop automatically as soon as the input signal level drops below the set stop edge trigger level, and the sampler will return to the record ready display.
If you press Knob 3 (ABORT) during recording, recording will be cancelled and the sampler will return to the record ready display.

> **NOTE** • If you have set up to record from an audio CD loaded into a CD-ROM drive connected to the A5000/A4000 via the EXT CTRL display (page 161), playback of the audio CD will stop automatically as soon as Knob 5 (FINISH) or Knob 3 (ABORT) is pressed.

> **When the "New+" Record Type is selected.**

If the "New+" Record Type has been selected via the SETUP display (page 153), the following display will appear while recording is in progress.
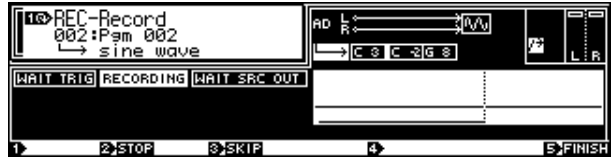
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	—	—	—	—	—
Press action	—	STOP	SKIP	—	FINISH

In this state recording will stop and the sampler will return to the record standby display ready to record the next sample when Knob 2 (STOP) is pressed. If "Edge/Manual" stop triggering has been selected via the TRIGGER page (page 159), recording will stop automatically as soon as the input signal level drops below the set stop edge trigger level, and the sampler will return to the record standby display ready to record the next sample.
If Knob 3 (>SKIP) is pressed during recording, recording of the current sample will be cancelled and the sampler will return to the record standby display ready to record the next sample.
Recording will stop completely and the sampler will return to the record ready mode when Knob 5 (FINISH) is pressed.
If "Edge/Manual" start triggering has been selected via the TRIGGER page (page 158), recording will stop when either Knob 2 (>STOP) or Knob 3 (>SKIP), and the following display will appear while the sampler waits for the input signal to drop below the specified stop trigger level before recording of the next sample can begin.

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	—	—	—	—	—
Press action	—	STOP	SKIP	START	FINISH

When the input signal level has dropped below the stop edge trigger level, the sampler will automaticaly return to the record standby display, ready to record the next sample. While the sampler is waiting for the input signal to decay below the stop trigger level it is possible to immediately force recording of the next sample to start by pressing Knob 4 (>START).

> **NOTE** • Knob 4 (>PAUSE) can be pressed to temporarily pause recording (recording will not re-start even if the input signal level exceeds the specified start trigger level). Press Knob 4 (>CONTINUE) a second time to resume recording.
> • When recording from an audio CD loaded in a CD-ROM drive connected to the A5000/A4000, the next index on the CD is automatically selected when Knob 2 (>STOP) or Knob 3 (>SKIP) is pressed. If there is no index, or recording was stopped during playback of the last index on the track, the next track will be selected for playback. CD playback will stop when Knob 5 (>FINISH) is pressed.

2. SETUP

The SETUP display allows selection of the recording source, key range, record start/stop method, normalization, and other parameters in preparation for recording.

Press the [REC] button and then the [F2] button to go to the SETUP display.

2 display pages are provided: RecSetup (Record Setup), and Process (page 157).

Record Setup

[REC] Button → [F2] → Knob 1 to select "REC-RecSetup"

SETUP is used to select the recording source, key range, and other parameters for recording.

Cursor ❶
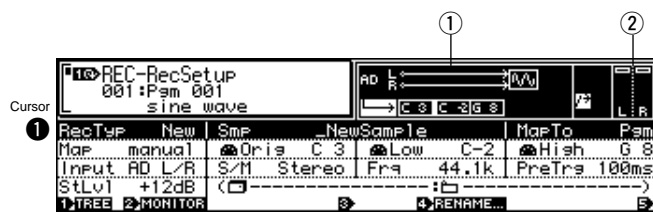
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	Record Type	—	Sample	MapTo
Press action	Tree View	MONITOR	—	RENAME...	—

Knob 1

[⌒Turn] Cursor/Page
Positions the cursor and selects display pages.

[⬆ Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⌒Turn] Record Type
Specifies whether the recorded sample will be a new sample, will replace the selected existing sample, will be automatically saved to disk, etc.

[Range] Replc, New, New+, → Save

- **Replc** ... Record the new sound directly into the currently selected sample, overwriting (completely replacing) its waveform data. But retain all of the existing sample's parameter settings (key range, original key, etc.).
  * Enough memory capacity to record the entire new sample must be available to use the Replc record type.
  * Note that Replc is not available if you have selected a sample bank rather than a sample.
- **New** ... Record a new sample.
- **New+** ... Record a series of new samples.

- → **Save** ... The recorded sample will automatically be saved to disk and erased from memory after recording has finished. This makes it possible to record mono samples longer than 32 megabytes and stereo samples longer than 64 megabytes if enough memory is available.

NOTE • → Save cannot be selected if a floppy disk has been selected in the DISK mode.
- Only the first 32 (mono) or 64 (stereo) megabytes of samples longer than 32 or 64 megabytes saved to disk can be loaded into the sampler's memory at a time.

HINT • When → Save is selected the recordable sample size is limited only by the amount of space available on the disk used. This capability is useful when you want to record a long musical segment or even a complete song to CD using the CD-DA command (page 184).
- If the New+ Record Type is selected and appropriate start and stop edge levels are specified in the TRIGGER page, the sample will automatically record a new sample each time an input signal is detected, and ignore periods of silence.

[⬆ Press] MONITOR
Pressing this knob alternately turns the MONITOR function on and off. A speaker icon appears above Knob 2 when the MONITOR function is turned on.

Knob 4

[⌒Turn] Sample
Specifies the destination sample when the Replc Record Type is selected. When any other Record Type selected a new sample name is created for each new sample.

[Range] All samples in memory.

[⬆ Press] RENAME...
Calls the name entry display for the sample to be recorded. See page 81 for details on character entry.

If a sample with the same name already exists in memory or the New+ Record Type is selected, an incremental numeric suffix will be automatically appended to the sample name.

NOTE • The RENAME function cannot be used if the Replc Record Type is selected.

Knob 5

[⌒Turn] MapTo
This function can be used to automatically assign new samples to a program or sample bank.

[Range] off, Pgm, NewSB

- **off** ... No automatic assignment.
- **Pgm** ... New samples are automatically assigned to the currently selected program. The receive channel assignment is automatically set to =smp (page 94).
  * Pgm can only be selected when the New or New+ Record Type is seleced.

• **NewSB** ... A new sample bank is automatically created and new samples are automatically assigned to that sample bank. The new sample bank is automatically assigned to the currently selected program.

> * NewSB can only be selected when the New+ Record Type is selected.

(HINT) • *This is handy when you want to assign a number of sequentially recorded samples to the same sample bank.*

[DISPLAY]

① A number of recording parameters set via the SETUP display are shown here.

② An input signal level meter with markers for the start and stop edge levels set via the TRIGGER display.

Cursor ❷

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	Key Map	Original Key	Low Key / No function	High Key / Map Key
Press action	Tree View	MONITOR	MIDI	MIDI / No function	MIDI / No function

Knob 1

Same function as Cursor ❶ (page 153).

Knob 2

[⟳Turn] Key Map

Specifies the key mapping method for the new sample.

[Range] Manual, Auto

• **Manual** ... Key mapping for the new sample is setup via Knobs 3 through 5: Original Key, Low Key, and High Key.

• **Auto** ... The original key of the new sample is determined by the Knob 3 (Original Key) setting, and the Key Range Low and High values are set to =Orig (i.e. the same as the original key). When a number of samples are recorded sequentially the originally key is automatically shifted upward by one note for each sample.

(HINT) • *When the New+ Record Type is selected (sequential recording) and Key Map is set to Auto, the original key of each new sample recorded is automatically shifted up one note.*

(NOTE) • *This parameter cannot be set when the Record Type is set to Replc.*

[⬆ Press] MONITOR

Pressing this knob alternately turns the MONITOR function on and off. A speaker icon appears above Knob 2 when the MONITOR function is turned on.

Knob 3

[⟳Turn] Original Key

Turn the knob to set the sample's "original key" — the key that best represents the sample's inherent pitch.

[Range] C-2 — G8

(NOTE) • *If the Note Display Type utility (UTILITY-SYSTEM-Custom) (page 198) is set to "name" the parameter will be displayed as note names such as "C3." If set to "number" the parameter will be displayed as MIDI note numbers such as "60."*

• *The key range cannot be set if the Record Type is set to Replc (the settings of the selected sample are used).*

[⬆ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI message received from an external MIDI device (page 82).

When Key Map (Knob 2) Is Set To Manual

Knob 4

[⟳Turn] Low Key

Turn the knob to set the low end for the sample's key range.

[Range] =Orig, C-2 — G8

• **=Orig** ... The original key value is used.

• **C-2 — G8** ...The Low Key is set to the corresponding note.

> Low Key cannot be set to a note higher than the High Key.

(NOTE) • *The key range cannot be set if the Record Type is set to Replc (the settings of the selected sample are used).*

[⬆ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI message received from an external MIDI device (page 82).

Knob 5

[⟳Turn] High Key

Turn the knob to set the high end for the sample's key range.

[Range] C-2 — G8, =Orig.

• **C-2 — G8** ...The High Key is set to the corresponding note.

> High Key cannot be set to a note lower than the Low Key.

• **=Orig** ... The original key value is used.

(NOTE) • *The key range cannot be set if the Record Type is set to Replc (the settings of the selected sample are used).*

[⬆ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI message received from an external MIDI device (page 82).

When Key Map (Knob 2) Is Set To Auto

Knob 4

No function.

Knob 5

[◠Turn] Map Key

When the Key Map parameter is set to Auto, this parameter determines whether new samples will be mapped to only the white keys or to all keys.

[Range] white, all

Cursor ❸
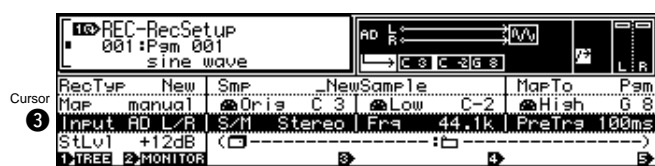
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
◠ Turn action	Cursor/Page	Input	Stereo / Mono	Frequency	Pre Trigger
▲ Press action	Tree View	MONITOR	—	—	—

Knob 1

Same function as Cursor ❶ (page 153).

Knob 2

[◠Turn] Input

This setting selects the input source for the recording. Note that the DIGITAL and OPTICAL settings are effective only if you have installed the optional I/O expansion board (AIEB1 board).

[Range] AD L, AD L/R, StOut, DIGITAL, OPTICAL

• **AD L** ... Record analog signal from the front panel's INPUT-L jack.

• **AD L/R** ... Record analog signal from both front-panel input jacks (INPUT-L and INPUT-R).

• **StOut** ... Record the signal that the A5000/A4000 is producing and transmitting to its own stereo outputs. (A process called resampling: the A5000/A4000 re-records its own signal. You use this setting to record playback that you control from a MIDI keyboard or other such device.)

• **DIGITAL** ... Record the digital signal supplied to the DIGITAL IN connector on the AIEB1 expansion board.

• **OPTICAL** ... Record the digital signal supplied to the OPTICAL IN connector on the AIEB1 expansion board.

NOTE • When StOut, DIGITAL, or OPTICAL is selected the Record Effect on/off parameter (REC-EFFECT-EfType, page 160) will automatically be turned off (record effects cannot be used).

• When DIGITAL or OPTICAL is selected, the Stereo/Mono parameter (Knob 3) will automatically be set to Stereo.

• If you select STOut, then MIDI control-change messages (as well as pitchbend and aftertouch messages) are all disabled during recording. In addition, maximum polyphony (the maximum number of monaural samples that can play at one time) is limited to 4 (so that you cannot record sound from more than 4 monaural or 2 stereo samples at any given moment).

[▲Press] MONITOR

Pressing this knob alternately turns the MONITOR function on and off. A speaker icon appears above Knob 2 when the MONITOR function is turned on.

Knob 3

[◠Turn] Stereo/Mono

Determines whether new samples will be recorded as stereo or mono samples.

[Range] Mono, Stereo

• **Mono** ... New samples will be recorded as mono samples.

When AD L is selected a signal connected to the AD L input will be recorded as a mono sample.

When AD R or StOut is selected, or when recording the stereo output from a record effect, the L and R channel signals will be mixed and recorded as a mono sample.

• **Stereo** ... New samples will be recorded as stereo samples.

When AD L is selected a signal connected to the AD L input will be recorded on both the L and R channels as a stereo sample (the same signal will be recorded on the L and R channels).

When AD R or StOut is selected, or when recording the stereo output from a record effect, the L and R channel signals will be recorded as a stereo sample.

When the DIGITAL or OPTICAL input is selected this parameter will be automatically set to Stereo (Mono cannot be selected).

Knob 4

[◠Turn] Frequency

This setting selects the sampling frequency the A5000/A4000 uses to record the input.

[Range] If Input is set to AD L, AD L/R, or StOut: 44.1k(44.1kHz), 22k(22.05kHz), 22kLoFi, 11k(11.025kHz), 11kLoFi, 5k(5.5125kHz), 5kLoFi

If Input is set to DIGITAL or OPTICAL:
ext, ext/2, ext/4, ext/8

- **ext** ... The sample is recorded at the input sampling frequency.

- **ext/2** ... The sample is recorded at 1/2 the input sampling frequency.

- **ext/4** ... The sample is recorded at 1/4 the input sampling frequency.

- **ext/8** ... The sample is recorded at 1/8 the input sampling frequency.

(HINT)
- *The higher the sampling frequency the higher the sound quality, but samples recorded at higher frequencies use up correspondingly more memory/disk space. For most applications the standard 44.1 kHz sampling frequency is the best choice.*

(NOTE)
- *When converting to 22k, 11k, or 5k, the A5000/A4000 applies a filter to eliminate noise produced by the conversion. The "LoFi" settings switch the filter off, resulting in a rougher sound.*

  - *If you select a frequency other than 44.1, the quality that you hear when monitoring the signal may not match the quality of the actual recording.*

  - *For DIGITAL and OPTICAL inputs, the A5000/A4000 supports the following three clock frequencies only: 48kHz, 44.1kHz, and 32kHz. The A5000/A4000 can not accept input frequencies other than these. Note also that the A5000/A4000 does not filter out noise when reducing the frequency to ext/2, ext/4, or ext/8. Also note that if you reduce the frequency, the quality that you hear when monitoring the signal may not match the recording quality.*

  - *Note that you can not use the DIGITAL OUT connector (on the AIEB1 expansion board) to monitor the input signal. Note also that A5000/A4000's DIGITAL OUT frequency is fixed at 44.1kHz.*

Knob 5

[⌒Turn] Pre Trigger

"Pre-trigger" means that recording actually begins the specified number of milliseconds (a millisecond is 1/1000th of a second) before recording is started, either manually or by automatic triggering.

[Range] 0ms — 500ms

(HINT)
- *This feature ensures that the beginning of samples won't be cut off. Even if you press the (>START) knob a little late when recording a sample, an appropriate amount of pre-trigger time ensures that you'll capture the initial attack of the sample. The maximum setting of 500 milliseconds is actually a half a second, which should be more than enough for most applications.*

  - *Pre-trigger can also be useful when automatically triggering recording with a start edge trigger level setting (TRIGGER functions, page 158). Edge triggering can cut off the initial attack of some sounds, and an appropriate pre-trigger setting can completely avoid this problem, allowing the full attack of the source to be faithfully recorded.*

Cursor ❹
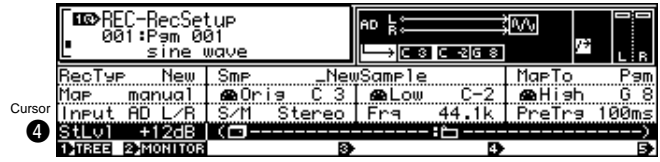
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor/Page	Stereo Level	—	—	—
▲	Press action	Tree View	MONITOR	—	—	—

Knob 1

Same function as Cursor ❶ (page 153).

Knob 2

[⌒Turn] Stereo Level

Sets the recording level when StOut is selected as the recording source.

[Range] -12 — +12

(NOTE)
- *The parameter can only be edited when StOut is selected as the input.*

Knob 3

[Display] Disk, Volume

When the Record Type is set to →Save, the selected disk and volume are displayed.

(NOTE)
- *The actual disk and volume are selected via the DISK mode VOLUME parameter (page 172).*

Process

[REC] Button → [F2] Button → Knob 1 to select
"REC-Process"

Use this page to select whether the A5000/A4000 normalizes samples immediately after recording them.
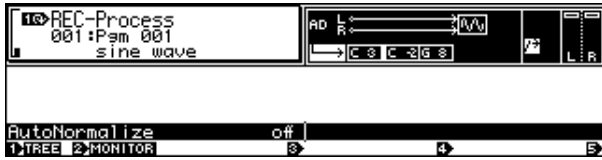
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Page	—	Auto Normalize	—	—
	Press action	Tree View	MONITOR	—	—	—

Knob 1

[Turn] Page

Selects display pages.

[Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[Press] MONITOR

Pressing this knob alternately turns the MONITOR function on and off. A speaker icon appears above Knob 2 when the MONITOR function is turned on.

Knob 3

[Turn] Auto Normalize

Set this on if you want the A5000/A4000 to normalize each new sample immediately after recording it.

If you select on, the A5000/A4000 automatically adjusts the recorded waveform by proportionately raising all levels such that the highest level comes to just below the clip point, as illustrated below. (The "clip point" is the maximum level appropriate for digital processing.)

Recorded sample → Normalize
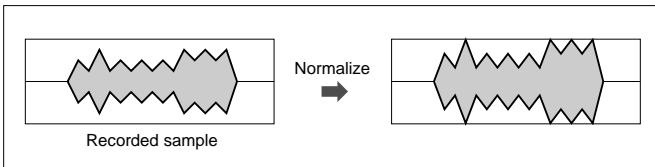
[Range] off, on

NOTE • Since normalization will occur automatically when recording ends, some time may be required for processing.

3. TRIGGER

You use this page to set the type of triggers used to start and stop actual recording.

Press the [REC] button and then the [F3] button to enter the TRIGGER function display.

1 display page is provided: Trigger.

Trigger

[REC]Buttonl → [F3]Button to select "REC-Trigger"

You use this page to set the type of triggers used to start and stop actual recording.

Cursor ❶

Cursor

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	AD Input Gain	—	—
Press action	Tree View	MONITOR	—	—	—

Knob 1

[Turn] Cursor

Positions the cursor.

[Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[Press] MONITOR

Pressing this knob alternately turns the MONITOR function on and off. A speaker icon appears above Knob 2 when the MONITOR function is turned on.

Knob 3

[Turn] AD Input Gain

Selects line or microphone-level sensitivity for the analog input jacks.

[Range] Line, Mic

HINT • If the front-panel REC VOL control is set to maximum (minimum) and the record level as displayed by the level meters is too low (high), set the AD Input Gain parameter to Mic (Line) for optimum level matching.

[DISPLAY]

① Input level meter.
② Start and stop edge level settings.

Cursor ❷

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	Start Trigger	Start Edge Level	—
Press action	Tree View	MONITOR	—	QUICK...	—

Knob 1, 2

Same function as Cursor ❶ (page 158).

Knob 3

[Turn] Start Trigger

Specifies the method to be used to start recording from the record standby display.

[Range] Manual, Edge/Manual

• **Manual** ... Recording can only be started by pressing Knob 4 (>START).

• **Edge/Manual** ... Recording will start automatically when the input signal level exceeds the specified start edge level (Knob 4). Recording can also be started manually by pressing Knob 4 (>START) in the record standby display.

Knob 4

[Turn] Start Edge Level

Specifies the input level at which recording will be automatically started.

Recording will start automaticall the instant the input signal level exceeds the Start Edge Level in the record standby display (but only if the Start Trigger parameter (Knob 3) is set to Edge/Manual).

[Range] 0 — 63

[Press] QUICK...

Calls the quick entry menu (page 83).

Cursor ❸

```
┌─────────────────────────┬──────────────────────────┐
│ 1⏵REC-Trigger           │ ▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀        │
│   001:Pgm 001           │ R▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬          │
│      sine wave          │                          │
├─────────────────────────┴──────────────────────────┤
│ ADInputGain          Line                           │
│                  Trigger      EdgeLevel             │
│ Start         Edge/Manual        20                │
│ Stop             Manual          --                │
│ 1▸TREE 2▸MONITOR      ❸      4▸QUICK...       ⏵    │
└─────────────────────────────────────────────────────┘
```
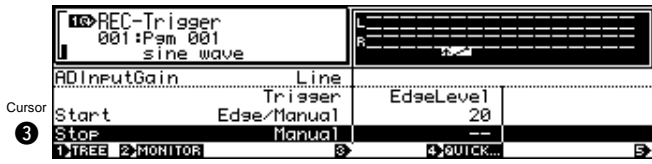
Cursor ❸

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	Stop Trigger	Stop Edge Level	—
Press action	Tree View	MONITOR	—	QUICK...	—

Knob 1, 2

Same function as Cursor ❶ (page 158).

Knob 3

[Turn] Stop Trigger

Specifies the method to be used to stop recording in the record standby display.

[Range] Manual, Edge/Manual

- **Manual** ... Recording can only be stopped by pressing Knob 5 (>FINISH) or Knob 2 (>STOP).

- **Edge/Manua** ... Recording will stop automatically when the input signal level drops below the specified stop edge level (Knob 4). Recording can also be stopped manually by pressing Knob 5 (>FINISH) or Knob 2 (>STOP) in the record standby display.

Knob 4

[Turn] Stop Edge Level

Specifies the input level below which recording will be automatically stopped.
Recording will stop automaticall the instant the input signal level drops below the Stop Edge Level in the record standby display (but only if the Stop Trigger parameter (Knob 3) is set to Edge/Manual).

[Range] 0 — 63

[Press] QUICK...

Calls the quick entry menu (page 83).

4. EFFECT

The EFFECT function sets the recording effect(s). If the recording-effect switch is enabled, the A5000/A4000 passes the incoming signal through the selected effect(s) before recording it into memory.

NOTE • *Most of the settings provided here are identical to those that you use to set up the program effects. The explanations below describe only those parameters that are different. For detailed information, refer to the explanations for the PLAY – EFFECT function.*

Press the [REC] button and then the [F4] button to enter the EFFECT function display.
2 display pages are provided: EfSetup (Effect Setup), and EfEdit (Effect Edit).

Recording Effect Setup

[REC] Button → [F4] → Knob 1 to select
"REC-EfSetup"

In this display page you can select the effect types for Effect 1 — 3, and turn the record effects on or off.

NOTE • *In this display Knob 4 turns record effects on or off rather than selecting effect connections. All other functions are the same as in the PLAY mode EFFECT SETUP display (page 102).*
• *Refer to the Effect List on page 256 for details on the available effect types.*
• *When used as record effects, Effect 1 — 3 are connected in series (1 → 2 → 3), and this arangement cannot be changed.*
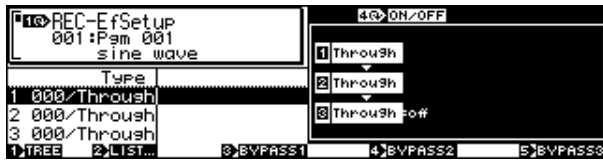
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	Effect Type	—	Rec Effect on/off	—
Press action	Tree View	LIST...	Effect1 BYPASS	Effect2 BYPASS	Effect3 BYPASS

Knob 4

[⌒Turn] **Rec Effect on/off**

Turns record effects on or off. No record effects can be used when this parameter is turned off.

[Range] off, 1>2>3

NOTE • *Record effects cannot be used when the input is set to StOut, DIGITAL, or OPTICAL (page 155).*

Recording Effect Edit

[REC] Button → [F4] → Knob 1 to select "REC-EfEdit"

In this display page it is possible to set the effect parameters for Effect 1 — 3 (all effect parameters are available).

NOTE • *All functions are the same as in the PLAY mode EFFECT EDIT display (page 104).*
• *Refer to the Effect Parameter List on page 258 for details on the parameters available for each effect.*

5. EXT CTRL (External Control)

This display page provides playback control of a CD loaded in a CD-ROM drive connected to the sampler's SCSI port.

NOTE • To record from an audio CD loaded in the CD-ROM drive, be sure to connect the CD-ROM drive's analog audio outputs to the sampler's front-panel analog inputs. Also make sure that the AD L/R inputs are selected via the Record Setup page (REC-SETUP-Rec-Setup) (page 155).

Press the [REC] button and then the [F5] button to enter the EXT CTRL display.

1 display page is provided: CDDACtrl (CD-DA Control).

CD-DA Control

[REC] Button → [F5] → "REC-CDDACtrl"

In this display page you can set the SCSI ID number of the CD-ROM drive, and control playback.

Cursor ❶

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	—	CD-ROM Drive ID	—	—
	Press action	Tree View	MONITOR	—	STOP	PLAY / PAUSE CONTINUE

Knob 1

[Turn] Cursor
Positions the cursor.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Press] MONITOR
Pressing this knob alternately turns the MONITOR function on and off. A speaker icon appears above Knob 2 when the MONITOR function is turned on.

Knob 3

[Turn] CD-ROM Drive ID
Turn the knob to select the SCSI ID of the CD-ROM drive that you want to record from.
The right side of the screen indicates the name (and manufacturer) of the device connected to the currently selected SCSI ID. Turn the knob until you see the name (manufacturer) of the CD-ROM drive that you want to use.

[Range] SCSI 0 — 7

NOTE • After selecting the SCSI ID number for the CD-ROM drive, move the cursor down and select the track/index number(s) from which you want to begin recording.

Knob 4

[Press] STOP
Stops playback of the audio CD.
Also stops playbck from the PAUSE mode.

Knob 5

[Press] PLAY/ PAUSE/ CONTINUE

The function of this knob depends on the current status of the CD-ROM drive (the Knob 5 icon will change accordingly).

• **When Playback is Stopped [PLAY]**
Press the knob to begin playback.

• **During Playback [PAUSE]**
Press the knob to temporarily pause playback.

• **During Pause [CONTINUE]**
Press the knob to continue playback from the point at which it was paused.

[DISPLAY]

① The currently playing CD track and index numbers.
② The PLAY, PAUSE, CONTINUE, and STOP functions are displayed for each knob.

Cursor ❷

```
┌──────────────────────┐  ┌────────────────────┐
│ REC-CDDACtrl         │  │AD L        ⌐᠕᠕᠕    │
│  001:Psm 001         │  │   R                │
│      sine wave       │  │  →⌐ C 8 C -2G 8 EXT │
└──────────────────────┘  └────────────────────┘
                                              L R
Cursor  CDROMDriveID    YAMAHA    4
❷       〈YAMAHA  :CD-ROM C〉               ▶
        Track      1│Index      1
        1▸TREE 2▸MONITOR    ❸       ❹      5▸PLAY
```
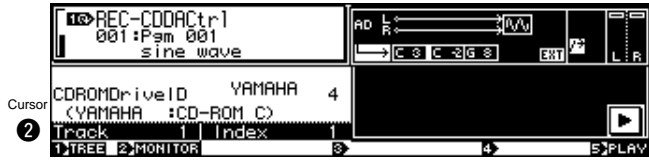
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	Track	Index	—	—
Press action	Tree View	MONITOR	—	STOP	PLAY/PAUSE/ CONTINUE

Knob 1

Same function as Cursor ❶ (page 161).

Knob 2

[⌢Turn] Track

Selects the track at which playback starts.

[⬆ Press] MONITOR

Pressing this knob alternately turns the MONITOR function on and off. A speaker icon appears above Knob 2 when the MONITOR function is turned on.

Knob 3

[⌢Turn] Index

Selects the Index at which playback starts.

> **NOTE**
> • If an index number other than "1" is selected, there may be a short delay before playback begins after Knob 5 is pressed.
> • If an index number other than "1" is selected, the point at which playback begins may be slightly off the actual index point.

Knob 4, 5

Same function as Cursor ❶ (page 161).

6. MONITOR

Sets monitoring of the input signal. Also allows generation of a click signal at a specified tempo.
Press the [REC] button and then the [F6] button to go to the MONITOR display.
1 display page is provided: Mon&Click (Monitor & Click).

Monitor & Click

[REC] Button → [F6] Button → "REC-Mon&Click"

Cursor ❶ (MONITOR) allows the input signal being recorded to be routed to the specified output for monitoring.
Cursor ❷ (CLICK) makes it possible to create a "click track" which can be used as a reference when recording drum, percussion, or similar samples.

NOTE
- When Click is turned on, a special "click" sample is created in memory (this sample will not be created, however, if the "click" sample is already in memory).
- If a sample named "click" is already in memory, that sample will be used to create the click sound, and the sample's output setting will determine the output via which the click sound will be produced.

Cursor ❶ (Monitor)

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor	Monitor Output	Monitor Level	—	—
▲	Press action	Tree View	MONITOR	QUICK...	—	—

Knob 1

[⌒Turn] Cursor
Positions the cursor.

[▲ Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⌒Turn] Monitor Output
Turn the knob to select the output location for the monitor signal.
Note that the AS1&2, AS3&4, AS5&6, and DIG&OPT settings are effective only if you have installed the optional AIEB1 expansion board.

[Range] StereoOut, AsgnOutL&R, AsgnOut1&2 — AsgnOut5&6, DIG&OPT

NOTE
- When the DIGITAL or OPTICAL input is selected via the Record Setup page (REC-SETUP-RecSetup) (page 155), only StereoOut can be selected.

[▲ Press] MONITOR
Pressing this knob alternately turns the MONITOR function on and off. A speaker icon appears above Knob 2 when the MONITOR function is turned on.

Knob 3

[⌒Turn] Monitor Level
Sets the monitor output level. This has no effect on the recording level.

[Range] 0 — 127

NOTE
- When the DIGITAL or OPTICAL input is selected via the Record Setup page (REC-SETUP-RecSetup) (page 155), the monitor level cannot be changed.

[▲ Press] QUICK...
Calls the quick entry menu (page 83).

Cursor ❷ (Click)

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Page	Click Tempo	Click Level	Click Beat	Click On/Off
▲	Press action	Tree View	MONITOR	QUICK...	—	—

Knob 1

Same function as Cursor ❶ (page 163).

Knob 2

[⌒Turn] Click Tempo
Sets the tempo for the click.

[Range] 80.0 — 159.9

[▲ Press] MONITOR
Pressing this knob alternately turns the MONITOR function on and off. A speaker icon appears above Knob 2 when the MONITOR function is turned on.

Knob 3

[⌒Turn] Click Level
Sets the output level for the click.

[Range] 0 — 127

[▲ Press] QUICK...
Calls the quick entry menu (page 83).

Knob 4

[⌒Turn] Click Beat
Sets the number of beats.

[Range] 1 — 15

Knob 5

[⌢ Turn]   Click on/off

Set this on if you want to output the click sound. If the setting is on, the A5000/A4000 continues to generate the click while you are working in RECORDING mode.

[Range] off, on

> **NOTE**   • If the setting is on, the A5000/A4000 will include click information into the samples that you record. The information is set into the sample's parameter data, and does not affect the waveform itself. You can later use the click data as an aid when editing the sample's waveform addresses.
>
> • When click is turned on and a sample is recorded, the specified tempo is automatically memorized as the loop tempo for the sample. The loop tempo can be used when specifying the sample's wave and/or loop end addresses (page 120).
>
> • Be careful if using the click while recording from a microphone, since it is possible for the microphone to pick up the click sound and record it into the waveform.

Chapter **7**

DISK Mode

The DISK mode provides access to functions for loading data from or saving data to floppy disk, hard disk, CD-ROM, and other storage media.

About the DISK Mode

The DISK mode provides acces to functions for loading data from or saving data to floppy disk, hard disk, CD-ROM, and other storage media. A range of functions for managing disks, volumes, and SCSI devices are also provided.

> • The DISK MODE includes several functions — FORMAT, for example — which can irreversibly erase all data from storage media. Use the DISK MODE functions with caution!

DISK Mode Functions & Commands

The DISK MODE consists of the following 6 functions and 1 command selected via the [F1] through [F6] buttons and [COMMAND/EXIT] button.

■ [F1] PROGRAM Button

Loads programs from floppy disk, hard disk, or other media (page 167).
1 display page is provided: PgmLoad (Program Load).

■ [F2] SAMPLE Button

Loads samples and sample banks from floppy disk, hard disk, or other media (page 169).
1 display page is provided: SmpLoad (Sample Load).

■ [F3] SEQUENCE Button

Loads sequences from floppy disk, hard disk, or other media (page 171).
1 display page is provided: SeqLoad (Sequence Load).

■ [F4] VOLUME Button

Selects and creates volumes on floppy or hard disk, and allows loading all data in a volume at once (page 172).
1 display page is provided: Volume.

■ [F5] DISK Button

Functions for selecting disks, renaming disks, mounting and unmounting hard disks and CD-ROM drives, and specifying the A5000/A4000's own SCSI ID number (page 173).
2 display pages are provided: Disk and Setup.

■ [F6] IMPORT Button

Allows importing computer-format wave files as well as sample data originally created for other equipment (page 175).
1 display page is provided: Import.

■ [COMMAND/EXIT] Button

Disk, save, format, volume copy, backup, and other disk-related operations not included in the functions (page 177).
7 display pages are provided: SAVE, FORMAT, COPY VOL (Copy Volume), SYS FILE (System File), BACKUP, CD-DA, and LOAD OS (Load Operating System).

Drives, Disks, & Volumes

Drive .... The internal floppy disk unit, internal or external SCSI hard disks, or internal IDE hard disks are all "drives."

Disk .... The term "disks" refers to removable media such as floppy or ZIP disks, as well as to partitions created on hard disks. With the A5000/A4000, SCSI and IDE hard disks can be formatted with up to 8 partitions (disks). Floppy disks cannot be partitioned.

Volume .... A "volume" is sort of a virtual "container" which can be used to hold a number of programs, samples, etc. Multiple volumes can be created on hard disks.

1. PROGRAM

PROGRAM allows programs to be loaded into the sampler's memory from floppy disk, hard disk, or other media to which they have been saved.

NOTE • See "7. DISK COMMANDS" on page 177 for more information on disks, partitions, and volumes.

Press the [DISK] button and then the [F1] button to go to the PROGRAM display.

1 display page is provided: PgmLoad (Program Load).

PgmLoad

[DISK] Button → [F1]Button → to select "DISK-Pgmload"

Use this page to select and load one or all programs, together with all samples used by these programs.

Cursor ❶

```
┌──┐▶DISK-PgmLoad        ┌PROGRAM──┐
│110│  001:Pgm 001       │001:Pgm 001│
└──┘                     │          │
⬛ATM            FD       │          │
⌂ FD VOLUME              │          │
LoadTo:001:Pgm 001       │          │
1▶TREE    2▶      3▶      4▶LOAD  5▶LOAD ALL
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor	Disk	—	Program	—
⬆	Press action	Tree View	—	—	LOAD	LOAD ALL

Knob 1

[⌒Turn] Cursor
Positions the cursor.

[⬆Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[⌒Turn] Disk
Selects the floppy disk, hard disk, or other storage media from which a program is to be loaded. When a disk is selected, all volumes it contains are listed below the disk name, and all programs contained in the selected volume are listed on the right side of the display. When a hard disk, CD-ROM drive or similar storage device is selected, the SCSI ID number or IDE M/S (Master/Slave) status of the device is shown to the right of the disk name.

[Range] All installed/connected disks.

NOTE • If a connected SCSI device cannot be selected, go to the disk select display (DISK-DISK-Disk) and check the mount/unmount status and SCSI ID settings of the device (page 173).

Knob 4

[⌒Turn] Program
Selects the program to be loaded.
Programs cannot be selected if a non-native disk or a multi-segment floppy disk is selected.

[Range] 001 — 128

[⬆Press] LOAD
Initiates loading of the selected program (as well as all samples used by the program) to the target program number. An existing program with the same program number will be overwritten. A confirmation display will appear when the knob is pressed. Press Knob 5 (>YES) to actually execute the load operation.
If a sample with the same name as one being loaded exists in memory a different display will appear (see page 170).

NOTE • A program existing in the target program number will be erased and overwritten by the newly loaded program, but samples and sample banks used by the replaced program will remain in memory.

Knob 5

[⬆Press] LOAD ALL
All programs in the currently selected volume and their samples and sample banks will be loaded into the corresponding program numbers. Previously exisiting programs in those program numbers will be erased and replaced by the new programs. When the knob is pressed a confirmation display will appear. Press Knob 5 (>YES) to actually execute the load operation.

NOTE • A program existing in the target program number will be erased and overwritten by the newly loaded program, but samples and sample banks used by the replaced program will remain in memory.

Cursor ❷

```
┌──┐▶DISK-PgmLoad        ┌PROGRAM──┐
│110│  001:Pgm 001       │001:Pgm 001│
└──┘                     │          │
⬛ATM            FD       │          │
⌂ FD VOLUME              │          │
LoadTo:001:Pgm 001       │          │
1▶TREE    2▶      3▶      4▶LOAD  5▶LOAD ALL
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor	Volume	—	Program	—
⬆	Press action	Tree View	—	—	LOAD	LOAD ALL

Knob 1

Same function as Cursor ❶ (page 167).

Knob 2

[⌒Turn] Volume
Selects the volume containing the program to be loaded.

[Range] All volumes on the selected disk.

NOTE • When a volume is selected the program list is updated to show all the programs in the selected volume.

Knob 4, 5

Same function as Cursor ❶ (page 167).

Cursor ❸
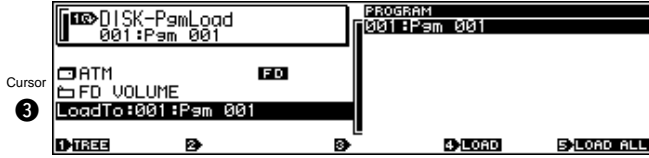
Cursor ❸

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	Load To Program	—	Program	—
Press action	Tree View	—	—	LOAD	LOAD ALL

Knob 1

Same function as Cursor ❶ (page 167).

Knob 2

[⌒Turn] Load To Program

Specifies the program number to which a program will be loaded.

[Range] 001 — 128

HINT • *This function is useful when you want to load a program to a program number which is different from the program number on the disk (e.g. to load program 001 on the disk to program number 003).*

NOTE • *When the LOAD ALL function is used the programs will be loaded from disk to their correponding program numbers regardless of this setting.*

Knob 4, 5

Same function as Cursor ❶ (page 167).

2. SAMPLE

SAMPLE allows samples to be loaded into the sampler's memory from floppy disk, hard disk, or other media to which they have been saved. When a sample on a SCSI disk is selected, the sound of the sample can be directly monitored from disk by pressing the [AUDITION] button (this function may not work properly with some SCSI devices).
Press the [DISK] button and then the [F2] button to go to the SAMPLE display.
1 display page is provided: SmpLoad (Sample Load).

SmpLoad

[DISK] Button → [F2]Button → to select "DISK-SmpLoad"

This function can be used to load a single sample or sample bank (including all the samples it contains), or all samples/sample banks within a selected volume.

Cursor ❶
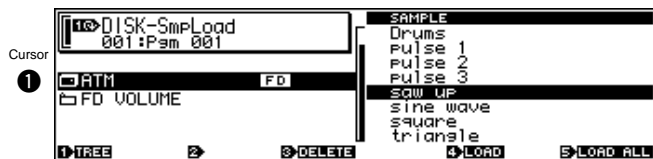
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	Disk	—	Sample	—
Press action	Tree View	—	DELETE	LOAD	LOAD ALL

Knob 1

[Turn] Cursor

Positions the cursor.

[Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[Turn] Disk

Selects the floppy disk, hard disk, or other storage media from which a sample or sample bank is to be loaded. When a disk is selected, all volumes it contains are listed below the disk name, and all samples and sample banks contained in the selected volume are listed on the right side of the display. When a hard disk, CD-ROM drive or similar storage device is selected, the SCSI ID number or IDE M/S (Master/Slave) status of the device is shown to the right of the disk name.

[Range] All installed/connected disks.

> **NOTE** • If a connected SCSI or IDE device (hard disk, ZIP drive, etc.) cannot be selected, go to the disk select display (DISK-DISK-Disk) and check the mount/unmount status and SCSI ID settings of the device (page 173).

Knob 3

[Press] DELETE

Deletes the selected sample from the disk. A confirmation display will appear when the knob is pressed. Press Knob 5 (>YES) to actually execute the delete operation.

Knob 4

[Turn] Sample

Selects the sample or sample bank to be loaded.
Samples cannot be selected if a non-native disk or a multi-segment floppy disk is selected.

[Range] All samples and sample banks in the selected volume.

[Press] LOAD

Initiates loading of the selected sample or sample bank. A confirmation display will appear when the knob is pressed. Press Knob 5 (>YES) to actually execute the load operation.
If a sample with the same name as one being loaded exists in memory a display allowing you to choose how to handle the situation will appear (see page 170).

> **NOTE** • When a sample bank is loaded all samples contained in that sample bank are loaded.

Knob 5

[Press] LOAD ALL

All samples and sample banks in the currently selected volume will be loaded. When the knob is pressed a confirmation display will appear. Press Knob 5 (>YES) to actually execute the load operation.
If a sample with the same name as one being loaded exists in memory a display allowing you to choose how to handle the situation will appear (see page 170).
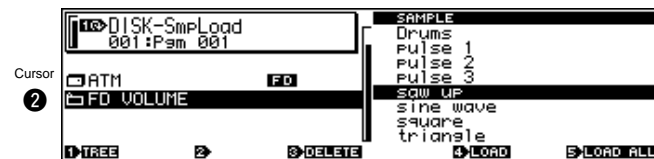
Cursor ❷

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	Volume	—	Sample	—
Press action	Tree View	—	DELETE	LOAD	LOAD ALL

Knob 1

Same function as Cursor ❶ (page 169).

Knob 2

[Turn] Volume

Selects the volume containing the sample to be loaded.

[Range] All volumes on the selected disk.

> **NOTE** • When a volume is selected the program list is updated to show all the programs in the selected volume.

Knob 3 — 5

Same function as Cursor ❶ (page 169).

When a sample with the same name as one being loaded exists in memory.

If you attempt to load a sample (or sequence) that has the same name as one existing in memory, the following display will appear.

The following functions are available from this display.

• **Processing Mode**
  Turn this knob to select "One" or "All." When One is selected and multiple samples are being loaded, this display will appear each time a sample (or sequence) with a duplicate name is loaded. When All is selected the same processing (the first processing applied) is applied to all samples with duplicate names.

• **Change the name of samples (or sequences) in memory.**
  Press Knob 2 (RENAME) to add an asterisk (*) to the names of samples (or sequences) in memory which have the same names as those being loaded.

• **Do not load samples (or sequences) with duplicate names.**
  Press Knob 3 (>SKIP).

• **Overwrite samples (or sequences) in memory with loaded samples (or sequences) having duplicate names.**
  Press Knob 4 (>REPLACE).

• **Abort the load operation.**
  Press Knob 5 (>ABORT). Data loaded prior to pressing the ABORT knob will remain in memory.
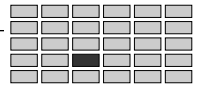
3. SEQUENCE

SEQUENCE allows sequences to be loaded into the sampler's memory from floppy disk, hard disk, or other media to which they have been saved.

Press the [DISK] button and then the [F3] button to go to the SEQUENCE display.

1 display page is provided: SeqLoad (Sequence Load).

SeqLoad

[DISK] Button → [F3]Button → to select "DISK-SeqLoad"

Use this page to load one or all sequences from disk.

Cursor ❶

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤴	Turn action	Cursor	Disk	—	Sequence	—
⬆	Press action	Tree View	—	DELETE	LOAD	LOAD ALL

Knob 1

[⤴Turn] Cursor

Positions the cursor.

[⬆ Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[⤴Turn] Disk

Selects the floppy disk, hard disk, or other storage media from which a sequence is to be loaded. When a disk is selected, all volumes it contains are listed below the disk name, and all sequences contained in the selected volume are listed on the right side of the display. When a hard disk, CD-ROM drive or similar storage device is selected, the SCSI ID number or IDE M/S (Master/Slave) status of the device is shown to the right of the disk name.

[Range] All installed/connected disks.

NOTE • If a connected SCSI or IDE device (hard disk, ZIP drive, etc.) cannot be selected, go to the disk select display (DISK-DISK-Disk) and check the mount/unmount status and SCSI ID settings of the device (page 173).

Knob 3

[⬆ Press] DELETE

Deletes the selected sequence from the disk. A confirmation display will appear when the knob is pressed. Press Knob 5 (>YES) to actually execute the delete operation.

Knob 4

[⤴Turn] Sequence

Selects the sequence to be loaded.

Sequences cannot be selected if a non-native disk or a multi-segment floppy disk is selected.

[Range] All sequences in the selected volume.

[⬆ Press] LOAD

Initiates loading of the selected sequence. A confirmation display will appear when the knob is pressed. Press Knob 5 (>YES) to actually execute the load operation.

If a sequence with the same name as one being loaded exists in memory a display allowing you to choose how to handle the situation will appear (see page 170).

Knob 5

[⬆ Press] LOAD ALL

All sequences in the currently selected volume will be loaded. When the knob is pressed a confirmation display will appear. Press Knob 5 (>YES) to actually execute the load operation.

If a sequence with the same name as one being loaded exists in memory a display allowing you to choose how to handle the situation will appear (see page 170).

Cursor ❷

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤴	Turn action	Cursor	Volume	—	Sequence	—
⬆	Press action	Tree View	—	DELETE	LOAD	LOAD ALL

Knob 1

Same function as Cursor ❶ (page 171).

Knob 2

[⤴Turn] Volume

Selects the volume containing the sequence to be loaded.

[Range] All volumes on the selected disk.

NOTE • When a volume is selected the sequence list is updated to show all the sequence in the selected volume.

Knob 3 — 5

Same function as Cursor ❶ (page 171).

4. VOLUME

VOLUME allows selection and management of volumes on the currently selected disk.

NOTE • See "7. DISK COMMANDS" on page 177 for more information on disks, partitions, and volumes.

Press the [DISK] button and then the [F4] button to go to the VOLUME display.
1 display page is provided: Volume.

Volume

[DISK] Button → [F4]Button → to select "DISK-Volume"

The functions provided here make it possible to select volumes for saving or loading data, rename volumes, create new volumes, and load all data contained in the selected volume.

NOTE • Only 1 volume can be created on a floppy disk. Floppy disk volumes are created automatically when the disk is formatted. Floppy disk volumes have a fixed name — "FD VOLUME" — which cannot be changed.
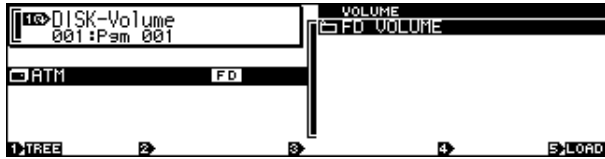
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	—	Disk	—	Volume	—
Press action	Tree View	NEW VOL	DELETE	RENAME...	LOAD

Knob 1

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] Disk
Selects the floppy disk, hard disk, or other storage media on which a volume is to be selected or created. When a disk is selected, all volumes it contains are listed on the right side of the display. When a hard disk, CD-ROM drive or similar storage device is selected, the SCSI ID number or IDE M/S (Master/Slave) status of the device is shown to the right of the disk name.

[Range] All installed/connected disks.

NOTE • If a connected SCSI or IDE device (hard disk, ZIP drive, etc.) cannot be selected, go to the disk select display (DISK-DISK-Disk) and check the mount/unmount status and SCSI ID settings of the device (page 173).

[Press] NEW VOL
Creates a new volume on the currently selected disk. Newly created volumes are automatically given the name "NewVolume (number)." Press Knob 4 to change the volume name.

NOTE • New volumes cannot be created on floppy disks.

Knob 3

[Press] DELETE
Deletes the selected volume and all files it contains from the disk. A confirmation display will appear when the knob is pressed. Press Knob 5 (>YES) to actually execute the delete operation.

Knob 4

[Turn] Volume
Selects a volume.

[Range] All volumes on the selected disk.

[Press] RENAME...
Calls the display which allows entering a new name for the selected volume. see page 81 for details on character entry.

NOTE • The volume on a floppy disk cannot be renamed.

Knob 5

[Press] LOAD
All data in the currently selected volume — programs, samples, sample banks, and sequences — will be loaded. Previously exisiting programs, samples, sample banks, and sequences in the sampler's memory will be erased and replaced by the new data. When the knob is pressed a confirmation display will appear. Press Knob 5 (>YES) to actually execute the load operation.
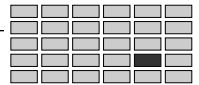
5. DISK

DISK allows disks to be selected, renamed, and mounted or unmounted. The A5000/A4000's own SCSI ID number can also be set via this display page.

NOTE
- To format or partition a disk, press the [COMMAND/EXIT] button to access the disk commands (page 177).
- See "7. DISK COMMANDS" on page 177 for more information on disks, partitions, and volumes.

Press the [DISK] button and then the [F5] button to go to the DISK display.

2 display pages are provided: Disk, and Setup.

Disk Select

[DISK] Button → [F5] Button → Knob 1 to select "DISK-Disk"

With these functions you can select a disk to be loaded from or saved to, or change the name of the selected disk. The amount of available space on the currently selected disk is shown in the upper right corner of the display.
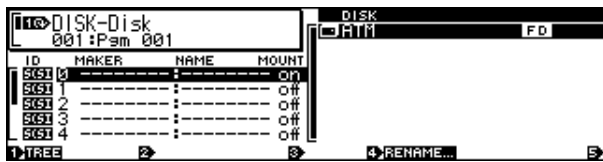
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Drive ID	Mount	Disk	—
Press action	Tree View	—	—	RENAME...	—

Knob 1

[Turn] Page
Selects display pages.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] Drive ID
Selects the drive to be mounted or unmounted via Knob 3.
On the display the drive's manufacturer and product number will appear to the right of the drive ID (SCSI ID 0 — 7, IDE M, IDE S). "------:------" will appear to the right of unused drives. The sampler's own ID is displayed as "YAMAHA: A5000/A4000."

[Range] SCSI 0 — SCSI 7 (SCSI ID 0 — 7),
IDE M (IDE Master), IDE S (IDE Slave).

Knob 3

[Turn] Mount
Mounts (internally connects) or unmounts (internally disconnects) the selected device. All mounted disks in mounted drives will be displayed on the right side of the display. When "off" (unmounted), that device cannot be used by the A5000/A4000 even if it is properly connected and powered up.

[Range] off, on

NOTE
- Mount/Unmount cannot be selected when the A5000/A4000 is selected.

Knob 4

[Turn] Disk
Selects a disk.
When a floppy disk is selected "FD" will appear to the right of the disk name, and when a hard disk, CD-ROM drive or similar device is selected its SCSI ID or IDE type ("M" or "S") will appear to the right of the disk name.

[Range] All disks on all mounted drives.

[Press] RENAME...
Calls the display which allows entering a new name for the selected volume. see page 81 for details on character entry.

Disk Setup

[DISK] Button → [F5] Button → Knob 1 to select "DISK-Setup"

Allows setting the sampler's own SCSI ID number, the Play&Load on/off status, etc.

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Self ID	Top Partition	Play&Load	—
Press action	Tree View	—	—	—	—

Knob 1

[Turn] Page
Selects display pages.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] Self ID
Sets the A5000/A4000's own SCS ID number.

[Range] SCSI 0 — 7

NOTE • *Be sure that the ID that you set here does not match the ID of any other device in your system — since all devices must have different IDs. To check for currently used IDs, use the Disk Select page (DISK-DISK-Disk) (page 173).*

• *The ID that you set here does not become effective until you switch the power off and then back on.*

HINT • *There is generally no need to change the ID from its factory setting (ID 6). You will need to make this change only if you are connecting up another SCSI device that has a fixed (unchangeable) ID of 6.*

Knob 3

[⌒Turn]   Top Partition

When mounting an AKAI format disk, only the 8 partitions following the partition specified by this parameter are mounted.

[Range] 1 — 99

HINT • *When importing data from a disk created on an AKAI S-series sampler which has 9 or more partitions, use the Top Partition parameter to specify the partition containing the data you want to import.*

NOTE • *This parameter only works with AKAI format disks.*

Knob 4

[⌒Turn]   Play&Load

Determines whether data will be played while it is being loaded.

[Range] off, on

• **off** ... No playback during load.

• **on** ... Playback during load is possible. When this feature is on loading will be slower than when it is off, regardless of whether the data is played or not.

6. IMPORT

These functions can be used to import data from the Yamaha EX7/5/5R, SU700, or TX16W, computer sample files, or commercially available sample data. Also, SMF (Standard MIDI File) data can be imported as sequence data.
Press the [DISK] button and then the [F6] button to go to the IMPORT display.
1 display page is provided: Import.

Import

[DISK] Button → [F6] Button → [DISK-Import]

Allows importing sample and sequence data from other equipment and computers.

NOTE
- *The A5000/A4000 is fully compatible with all data created on the Yamaha A3000, and the data can be loaded and managed via the PROGRAM, SAMPLE, SEQUENCE, VOLUME, and DISK functions in the normal way.*
- *The following files are imported with all wave data used in all voices, sample banks, and key mapping parameters ("HD" includes hard disks, ZIP drives, and all orther SCSI/IDE storage devices).*

  EX7/5/5R : Voice (from EX ALL files on FD, HD, non-LPC RAM samples only).
  Wave (from EX WAVE files on FD, HD, non-LPC RAM samples only.)

- *The wave data in the following files are imported as samples ("HD" includes hard disks, ZIP drives, and all orther SCSI/IDE storage devices).*

  SU700 : Sample (from FD, HD)
  * Except segmented data stored on multiple floppy disks.

  TX16W : Sample (from FD)
  WAV File : 8/16-bit linear, mono/stereo, (.WAV) extension (from DOS-format FD, HD, or ISO9660-format CD-ROM)
  AIFF File : 8/16-bit linear, mono/stereo, (.AIF) extension (from DOS-format FD, HD, or ISO9660-format CD-ROM)

- *The following files are imported as sequence data ("HD" includes hard disks, ZIP drives, and all orther SCSI/IDE storage devices).*

  Standard MIDI File : Format 0, ".MID" file-name extension (from DOS-format FD, HD, or ISO9660-format CD-ROM)

- *Import not possible from FAT32 format hard disks.*
- *The following DOS floppy disk formats are supported:*
  2DD : MS-DOS 9 sector format (720 kBytes)
  2Hd : MS-DOS 18 sector format (1.44 MBytes)
- *The pitch and loop points of some samples may change when imported.*
- *A "~" character used in file or directory names on DOS-format disks will appear as "→" on the A5000/A4000 display.*
- *AKAI S1000 or S3000 format programs or samples saved to floppy disk, hard disk, or other media; E-mu EIIIx presets or samples saved to hard disk or other media; and Roland S760 format patches or samples saved to hard disk or other media can be loaded (some types of data may not be loaded correctly).*
  * The product and company names listed above are trademarks or registered trademarks of the respective manufacturers.

Cursor ❶
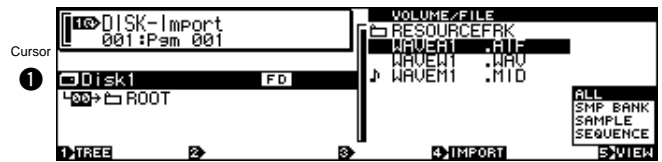
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	Disk	—	File / Directory	View
Press action	Tree View	—	UP	DOWN / IMPORT	VIEW

Knob 1

[Turn] Cursor
Positions the cursor.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] Disk
Selects the floppy disk, hard disk, or other storage media containing the data to be imported. When a disk is selected, the directories and files contained in the upper-most (root) directory are listed on the right side of the display. When a hard disk, CD-ROM drive or similar storage device is selected, the SCSI ID number or IDE M/S (Master/Slave) status of the device is shown to the right of the disk name.

[Range] All installed/connected disks.

NOTE
- *If a connected SCSI or IDE device (hard disk, ZIP drive, etc.) cannot be selected, go to the disk select display (DISK-DISK-Disk) and check the mount/unmount status and SCSI ID settings of the device.*

Knob 3

[Press] UP
Press this knob to move upward from the current disk directory to the next highest directory. The name of the current directory will appear on the left side of the display under the disk name. The contents of the current directory are listed on the right side of the display

NOTE
- *Pressing the UP knob will have no effect if the top (root) directory on the disk is selected.*

Knob 4

[Turn] File/Directory

Selects a file or directory from the list on the right side of the display which contains the data to be imported.

[Range] All files and directories in the current directory.

[Press] DOWN/IMPORT

When a directory is selected the function is "DOWN," opening the selected directory. The name of the newly opened directory will appear on the left side of the display under the disk name, and the files and directories it contains will be listed on the right side of the display.

When a file is selected the function is "IMPORT," and a confirmation display will appear when the knob is pressed. To actually import the selected file press Knob 5 (>YES).

Knob 5

[Turn] View

Specifies what type of files and directories contained in the currently open directory are to be listed on the right side of the display.

[Range] ALL, SMP BANK, SAMPLE, SEQUENCE

- **ALL** ... All importable files and directories.
- **SMP BANK** ... Only files which will be imported as sample banks.
- **SAMPLE** ... Only files which will be imported as samples.
- **SEQUENCE** ... Only files which will be imported as sequences.

[Press] VIEW

The View parameter settings change in sequence each time the knob is pressed.

Cursor ❷
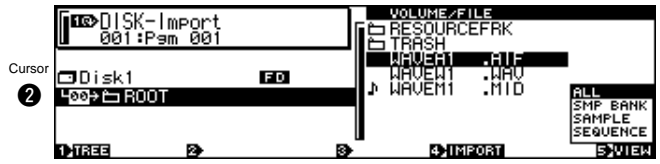
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	Directory	—	File / Directory	View
	Press action	Tree View	—	UP	DOWN / IMPORT	VIEW

Knob 1

Same function as Cursor ❶ (page 175).

Knob 2

[Turn] Directory

Selects a directory on the same level as the currently open directory on the currently selected disk. When a directory is selected all files and directories it contains are listed on the right side of the display.

[Range] All directories on the same level as the currently open directory.

. **NOTE** • Direcories cannot be selected on DOS-format disks. Use Knob 4 or the UP and DOWN functions to move from directory to directory.

Knob 3 — 5

Same function as Cursor ❶ (page 175).

7. DISK COMMANDS

Functions for selecting disks, renaming disks, mounting and unmounting hard disks and CD-ROM drives, and specifying the A5000/A4000's own SCSI ID number.
Press the [DISK] button and then the [COMMAND/EXIT] button to go to the command menu.
Seven pages are provided: SAVE, FORMAT, COPY_VOL (Copy Volume), SYS_FILE (System File), BACKUP, CD-DA, LOAD_OS.

Selecting a Command

[DISK] Button → [COMMAND/EXIT] Button →
COMMAND menu

Select the desired command from the COMMAND menu.

[Operation]

1. Turn Knob 1 to highlight the display line containing the desired command.
2. Press the knob — Knob2 – Knob5 — corresponding to the desired command.

```
DISK Command Select

        SAVE |     FORMAT |   COPY_VOL |     SYS_FILE
        BACKUP |       CD-DA |     LOAD_OS |

1 EXIT     2 GO        3 GO        4 GO        5 GO
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	—	—	—
Press action	—	Command Select	Command Select	Command Select	Command Select

Knob 1

[⟳ Turn] Cursor
Positions the cursor.

Knob 2 — 5

[⬆ Press] Command Select
Selects the corresponding command in the highlighted display line, and display pages.

Command Execution

The command execution procedure is the same for all commands. In all command pages Knob 1 is "EXEC" (EXECUTE) and Knob 5 is "EXEC&CONT" (EXECUTE & CONTINUE). The currently selected command is executed when either Knob 1 (EXEC) or Knob 5 (EXEC&CONT) is pressed.
When Knob 1 (EXEC) is used to execute a command, the display that was showing immediately before executing the command is automatically recalled after execution has finished.
When Knob 5 (EXEC&CONT) is used to execute a command, the same display is retained after command execution so that you can immediately repeat execution of the same command. Press the [COMMAND/EXIT] button to return to the command menu without executing the command.

SAVE

[DISK] Button → [COMMAND/EXIT] Button →
Knob 1 to highlight display line 1 → Press Knob 2

Save specified data in memory to disk.
Refer to "Chapter 9: COMMAND" (page 208) for information about the SAVE command.

FORMAT

[DISK] Button → [COMMAND/EXIT] Button →
Knob 1 to highlight display line 1 → Press Knob 3

This command formats floppy disks, hard disks, ZIP drives, etc. When a hard disk or ZIP drive is formatted you can specify the creation of 2 to 8 partitions.

NOTE • The content of this page will vary depending on the selected Format Type.

Formatting Floppy Disks

2DD or 2HD floopy disks are formatted as follows:
Use Knob 3 (Format Type) to select FD(Quick), FD(2HD), or FD(2DD).

! • When a floppy disk is formatted all data it contains is irreversably erased. Use this function with caution!

NOTE • A floppy disk cannot be formatted if its write-protect tab is open (page 16).
• The floppy disk format used by the A5000/A4000 is MS-DOS compatible.

[Operation]

1. Insert the floppy disk to be formatted into the floppy disk drive.
2. Select the FD(Quick), FD(2HD), or FD(2DD) Format Type.
3. Use Knob 1 (EXEC) or Knob 5 (EXEC&CONT) to initiate execution. When the confirmation display appears, press Knob 5 (YES) to execute the format operation.

`NOTE` • *If Knob 1 (EXEC) is used to execute the command, the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the format display will be retained so you can continue and format other disks.*

Cursor ❶

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	—	Format Type	—	—
	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[Turn] Cursor
Positions the cursor.

[Press] EXEC (Execute)
Press this knob to call the format confirmation display. Press Knob 5 (YES) to actually execute the format operation.

Knob 3

[Turn] Format Type
Specifies the type of disk to be formatted and the type of formatting to be applied.

[Range] Logical, Physical, OnePartition, FD(Quick), FD(2HD), FD(2DD)

• **FD(Quick)** … Applies logical formatting only to a floppy disk which has previously been formatted to MS-DOS format. If a disk which has not been formatted to MS-DOS format is inserted, the choices are automatically limited to FD(2HD) and FD(2DD).

• **FD(2HD)** … Formats a 2HD floppy disk.

• **FD(2DD)** … Formats a 2DD floppy disk.

For information on the Logical, Physical, and OnePartition options, refer to pages 179 and 180, respectively.

Knob 5

[Press] EXEC&CONT (Execute & Continue)
Press this knob to call the format confirmation display. Press Knob 5 (YES) to actually execute the format operation.

Cursor ❷

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	—	—	Drive ID	—
	Press action	EXEC	—	RANAME...	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 178).

Knob 3

[Press] RENAME…
Calls the display which allows entering a new name for the selected floppy disk. See page 81 for details on character entry. The floppy disk name is shown in the "FDName" section of the display.

Knob 5

Same function as Cursor ❶ (page 178).

Formatting Hard Disks, ZIP Disks, and Similar Media

SCSI or IDE hard disks, MO disks, ZIP disks, etc., are formatted as follows:
Use Knob 3 to select the Logical or Physical Format Type.

⊘ • *When a disk is formatted all data it contains is irreversibly erased. Use this function with caution!*

`NOTE` • *When formatting a disk it is possible to specify the creation of 2 to 8 partitions, but the individual size of each partition cannot be specified. The total available disk space is equally divided to make up the number of partitions specified.*

• *The maximum partition size which can be created by the A5000/A4000 is 1 gigabyte. It is therefore necessary to create an appropriate number of partitions when formatting disks larger than 1 gigabyte.*

• *The formatting used by the A5000/A4000 is a special Yamaha format which is directly compatible with the A3000, but not with other computers or devices.*
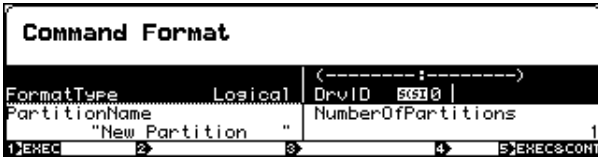
• *The maximum disk size usable by the A5000/A4000 is 8 gigabytes (1 gigabyte x 8 partitions). Even if a larger disk is connected, only 8 gigabytes of the available space will be usable.*

[Operation]

1. Select the Logical or Physical Format Type.
2. Use the Drive ID parameter to select the drive to be formatted.
3. Use Knob 5 (Number of Partitions) to specify the number of partitions to be created.
4. Use Knob 1 (EXEC) or Knob 5 (EXEC&CONT) to initiate execution. When the confirmation display appears, press Knob 5 (YES) to execute the format operation.

`NOTE` • *If Knob 1 (EXEC) is used to execute the command, the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the format display will be retained so you can continue and format other disks.*

Cursor ❶

```
Command Format

FormatType     Logical  DrvID  SCSI0
PartitionName           NumberOfPartitions
       "New Partition "                    1
1)EXEC      2)      3)      4)      5)EXEC&CONT
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	Format Type	Drive ID	—
Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[⌒Turn] Cursor

Positions the cursor.

[⬆Press] EXEC (Execute)

Press this knob to call the format confirmation display. Press Knob 5 (YES) to actually execute the format operation.

Knob 3

[⌒Turn] Format Type

Specifies the type of disk to be formatted and the type of formatting to be applied.

[Range] Logical, Physical, OnePartition, FD(Quick), FD (2HD), FD (2DD)

- **Logical** … Applies logical formatting to a hard disk, ZIP disk, or similar medium. This is the normal choice for formatting such media (page 177).

- **Physical** … Applies physical and logical formatting to a hard disk, ZIP disk, or similar medium. Use this option if logical formatting alone does not succeed with the selected disk (page 177).

For information on the OnePartition, FD (Quick), FD (2HD), and FD (2DD) options, refer to pages 178 and 180, respectively.

Knob 4

[⌒Turn] Drive ID

Specifies the ID of the drive to be formattted.
When a drive ID is selected, the drive's manufacturer and product number will appear immediately above the drive ID.

[Range] SCSI 0 — SCSI 7 (SCSI 0 — 7), IDE M (IDE Master), IDE S (IDE Slave)

Knob 5

[⬆Press] EXEC&CONT (Execute & Continue)

Press this knob to call the format confirmation display. Press Knob 5 (YES) to actually execute the format operation.

Cursor ❷

```
Command Format

FormatType     Logical  DrvID  SCSI0
PartitionName           NumberOfPartitions
       "New Partition "                    1
1)EXEC      2)      3)RENAME...     4)      5)EXEC&CONT
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	—	—	Number of Partitions
Press action	EXEC	—	RENAME...	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 179).

Knob 3

[⬆Press] RENAME…

Calls the display which allows entering a name for a partition to be created. See page 81 for details on character entry. During normal sampler operation the partition name is handled and displayed as a disk name.

If more than one partition has been created, the disk names corresponding to each partition are the partition name followed by a number. The partition name is shown in the "PartitionName" section of the display.

Knob 5

[⌒Turn] Number of Partitions

Specifies the number of partitions to be created on the drive to be formatted.

[Range] 1 — 8

[⬆Press] EXEC&CONT (Execute & Continue)

Press this knob to call the format confirmation display. Press Knob 5 (YES) to actually execute the format operation.

Formatting a Single Partition On a Hard Disk, ZIP Drive, etc.

A single selected partition on a formatted hard disk, ZIP drive, or similar medium can be reformatted (logical format) as follows:
Use Knob 3 to select the OnePartition Format Type.

❗ • When a partition is formatted all data it contains is irreversably erased. Use this function with caution!

NOTE • The formatting used by the A5000/A4000 is a special Yamaha format which directly compatible with the A3000, but not with other computers or devices.

[Operation]

1. Select the OnePartition Format Type.
2. Use the Drive ID parameter to select the drive containing the partition to be reformatted.
3. Use Knob 5 (Partition Number) to specify the partitions to be reformatted.

4. Use Knob 1 (EXEC) or Knob 5 (EXEC&CONT) to initiate execution. When the confirmation display appears, press Knob 5 (YES) to execute the format operation.

NOTE • If Knob 1 (EXEC) is used to execute the command, the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the format display will be retained so you can continue and format other disks.

Cursor ❶

```
Command Format

Cursor  FormatType    OnePartition │DrvID  SCSI0│Partition# 1
❶  PartitionName
              "_____"
    1         2          3          4          5
```
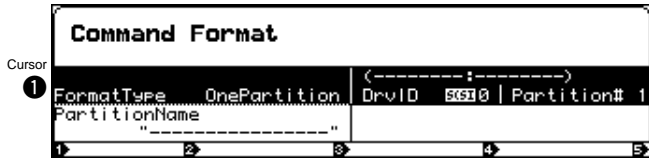
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
↻	Turn action	Cursor	—	Format Type	Drive ID	Partition Number
🔼	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[↻ Turn] Cursor

Positions the cursor.

[🔼 Press] EXEC (Execute)

Press this knob to call the format confirmation display. Press Knob 5 (YES) to actually execute the format operation.

Knob 3

[↻ Turn] Format Type

Specifies the type of disk to be formatted and the type of formatting to be applied.

[Range] Logical, Physical, OnePartition, FD(Quick), FD (2HD), FD (2DD)

• OnePartition … Reformats a single specified partition on a previously formatted hard disk, ZIP disk, or similar medium. Only logical formatting is performed, and other partitions are not affected.

For information on the Logical, Physical, FD (Quick), FD (2HD), and FD (2DD) options, refer to pages 178 and 179, respectively.

Knob 4

[↻ Turn] Drive ID

Specifies the ID of the drive to be formattted.
When a drive ID is selected, the drive's manufacturer and product number will appear immediately above the drive ID.

[Range] SCSI 0 — SCSI 7 (SCSI 0 — 7),
IDE M (IDE Master), IDE S (IDE Slave)

Knob 5

[🔼 Press] EXEC&CONT (Execute & Continue)

Press this knob to call the format confirmation display. Press Knob 5 (YES) to actually execute the format operation.

Cursor ❷

```
Command Format

Cursor  FormatType    OnePartition │DrvID  SCSI0│Partition# 1
❷  PartitionName
              "_____"
    1         2          3          4          5
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
↻	Turn action	Cursor	—	—	—	—
🔼	Press action	EXEC	—	RANAME...	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 180).

Knob 3

[🔼 Press] RENAME...

Calls the display which allows entering a name for a partition to be formatted. See page 81 for details on character entry. During normal sampler operation the partition name is handled and displayed as a disk name.
The partition name is shown in the "PartitionName" section of the display.

Knob 5

Same function as Cursor ❶ (page 180).

COPY VOLUME

[DISK] Button → [COMMAND/EXIT] Button →
Knob 1 to highlight display line 1 → Press Knob 4

Copies all data in a selected volume to a separate volume. Floppy disk volumes cannot be selected as the copy source or destination. Also, volumes on disks which were not formatted by the A5000/A4000 cannot be copied.

[Operation]

1. Use Knob 3 to specify the Copy Type.
2. Use Knob 1 (EXEC) or Knob 5 (EXEC&CONT) to initiate execution. When the confirmation display appears, press Knob 5 (YES) to execute the copy operation.

NOTE • *If Knob 1 (EXEC) is used to execute the command, the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the copy volume display will be retained so you can continue and copy other volumes.*

Cursor ❶

```
Command Copy Volume
CopyType          OneVolume |
                        Disk              Volume
From 〈 ▭A5000 DISK1    〉    〈 ▭ VOLUME    〉
To     ▭A5000 DISK2         ▭ VOLUME
1)EXEC      2)      3)      4)      5)EXEC&CONT
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor	—	Copy Type	—	—
▲	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[⌒Turn] Cursor
Positions the cursor.

[▲ Press] EXEC (Execute)
Press this knob to call the copy volume confirmation display. Press Knob 5 (YES) to actually execute the copy volume operation.

Knob 3

[⌒Turn] Copy Type
Specifies whether one volume is to be copied, or all volumes on the selected disk.

[Range] OneVolume, AllVolume

- **OneVolume** … Only the single specified volume is copied. Any previous data in the destination volume will be erased and overwritten by the copied data.

- **AllVolume** … All volumes on the selected disk will be copied. Any previous data on the destination disk will be erased and overwritten by the copied data.

Knob 5

[▲ Press] EXEC&CONT (Execute & Continue)
Press this knob to call the copy volume confirmation display. Press Knob 5 (YES) to actually execute the copy volume operation.

Cursor ❷

```
Command Copy Volume
CopyType          OneVolume
                        Disk              Volume
From 〈 ▭A5000 DISK1    〉    〈 ▭ VOLUME    〉
To     ▭A5000 DISK2         ▭ VOLUME
1)EXEC      2)      3)      4)      5)EXEC&CONT
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor	—	To Disk	—	To Volume
▲	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 181).

Knob 3

[⌒Turn] To Disk
Selects the destination hard disk, ZIP disk, or similar medium to which the data is to be copied.

[Range] All connected/mounted disks.

Knob 5

[⌒Turn] To Volume
Selects the destination volume to which the data is to be copied.

[Range] A volumes on the disk specified by the To Disk parameter.

NOTE • *This parameter cannot be set when the AllVolume Copy Type is selected.*

[▲ Press] EXEC&CONT (Execute & Continue)
Press this knob to call the copy volume confirmation display. Press Knob 5 (YES) to actually execute the copy volume operation.

SYSTEM FILE

[DISK] Button → [COMMAND/EXIT] Button →
Knob 1 to highligh display line 1, Press Knob 5

Allows saving all system parameters to disk, or loading them from disk (for information on system parameters see MIDI Data Format).
Use this feature when you want to save or load the A5000/A4000 operating environment.

NOTE • Only 1 system data file can be saved to 1 disk or partition.

[Operation]

1. Use Knob 3 to specify whether the system file is to be saved or loaded.
2. Use Knob 4 to select the disk to or from which the system file is to be saved or loaded.
3. Use Knob 1 (EXEC) or Knob 5 (EXEC&CONT) to initiate execution. When the confirmation display appears, press Knob 5 (YES) to execute the system file save or load operation.

NOTE • If Knob 1 (EXEC) is used to execute the command, the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the system file display will be retained so you can continue and execute the save/load operation.

```
Command SystemFile    RAM        FD

Save/Load              Save
1:EXEC    2:          3:        4:        5:EXEC&CONT
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	—	—	Save / Load	Disk	—
Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[⬆ Press] EXEC (Execute)
Press this knob to call the system file confirmation display. Press Knob 5 (YES) to actually execute the save/load operation.

Knob 3

[⤾ Turn] Save/Load
Specifies whether the system file is to be saved or loaded.
[Range] Save, Load

NOTE • The system file can only be loaded from a disk to which it has previously been saved.

Knob 4

[⤾ Turn] Disk
Selects the disk to or from which the system file is to be saved or loaded.
[Range] All connected/mounted disks.

NOTE • If a connected SCSI or IDE device (hard disk, ZIP drive, etc.) cannot be selected, go to the disk select display (DISK-DISK-Disk) and check the mount/unmount status and SCSI ID settings of the device (page 173).

Knob 5

[⬆ Press] EXEC (Execute)
Press this knob to call the system file confirmation display. Press Knob 5 (YES) to actually execute the save/load operation.

BACKUP

[DISK] Button → [COMMAND/EXIT] Button →
Knob 1 to highlight display line 2 → Press Knob 2

Allows the entire contents of a hard disk, ZIP disk, or other disk to be backed up to CD-R or CD-RW. Up to 8 disks can be backed up to a single CD-R or CD-RW disk.

NOTE • In order to use this function an appropriate CD-R or CD-RW drive must be connected to the A5000/A4000 SCSI bus.
• CD-RW disks are written using the "Disk at Once" method, so once a disk has been written, further data cannot be written to that disk.
• CD-R and CD-RW disks can only be written to from disks formatted by the A5000/A4000.
• Use a Yamaha CD-R/CR-RW drive such as the CRW4416SX to write CD-R/CD-RW disks.
• Errors may occur if you attempt to write to a CD-R or CD-RW disk while a computer is connected to the sampler's SCSI bus.
• A sufficient amount of parameter memory must be available in the sampler in order to use this function. Ideally, the BACKUP function should be used after turning the unit's power on, and before any data has been loaded or recorded.

[Operation]

1. Use Knob 4 to specify the CD-R drive ID.
2. Use Knob 5 to set the write speed.
3. Use Knob 4 to specify the disks to be backed up for each backup number in the backup list (Knob 2)
4. Use Knob 1 (EXEC) or Knob 5 (EXEC&CONT) to initiate execution. When the confirmation display appears, press Knob 5 (YES) to execute the backup operation.

NOTE • If Knob 1 (EXEC) is used to execute the command, the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the backup display will be retained so you can continue and execute the backup operation.

Cursor ❶

```
Command Backup
                              (--------:-------->
                              CDR ID SCSI0 SPEED      ×1
                     1        <End of List>
                     2        <End of List>
                     3        <End of List>
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	—	—	CDR DriveID	Write Speed
	Press action	EXEC	—	RW-ERASE	TEST	EXEC&CONT

Knob 1

[Turn] Cursor

Positions the cursor.

[Press] EXEC (Execute)

Press this knob to call the backup confirmation display. Press Knob 5 (YES) to actually execute the backup operation.

Knob 3

[Press] RW-ERASE (CD-RW Erase)

Erase all data from a CD-RW disk to allow further recording.

Knob 4

[Turn] CDR DriveID

Selects the drive ID of the CD-R or CD-RW drive to which the data is to be backed up. When a CD-R or CD-RW drive is selected, the drive's maker and product number will be displayed.

[Range] SCSI 0 — SCSI 7

> **NOTE** • If a connected CD-R or CD-RW drive cannot be selected, go to the disk select display (DISK-DISK-Disk) and check the mount/unmount status and SCSI ID settings of the device (page 173).

[Press] TEST

Executes a data transfer test for the selected CD-R or CD-RW drive. A disk must be loaded in the drive before the test can be initiated, but no data will be written to the disk.

> **HINT** • If the test produces an error, choose the next slowest write speed (Knob 5) and run the test again. The write speed setting is appropriate if the test produces no errors. Use the error-free write speed when actually writing to a disk.

> **NOTE** • The data transfer test will take as long as actually writing to the disk, but since a CD-R disk will become unusable if an error occurs while actually writing to it, it is advisable to run the test to check for potential errors before actually writing the data.

Knob 5

[Turn] Write Speed

Selects the CD-R/CD-RW write speed.

[Range] x1, x2, x4, x6, x8

[Press] EXEC&CONT (Execute & Continue)

Press this knob to call the backup confirmation display. Press Knob 5 (YES) to actually execute the backup operation.

Cursor ❷

```
Command Backup
                              (--------:-------->
                              CDR ID SCSI0 SPEED      ×1
                     1        <End of List>
                     2        <End of List>
                     3        <End of List>
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	Backup#	—	Disk	—
	Press action	EXEC	—	RW-ERASE	TEST	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 183).

Knob 2

[Turn] Backup # (Backup Number)

Selects a line in the disk backup list.

[Range] 1 — 8

> **NOTE** • "End of List" will appear at the first line number for which a disk or volume has not been selected. Line numbers past the "End of List" line cannot be selected. For this reason, line numbers 2 and higher cannot be selected when no disk or volume selections have been made.
>
> • Disks listed up to the "End of List" line will be backed up.

Knob 3

Same function as Cursor ❶ (page 183).

Knob 4

[Turn] Disk

Specifies a disk to be backed up for the currently selected backup number (Knob 2).

[Range] All connected/mounted disks.

> **NOTE** • If a connected SCSI or IDE device (hard disk, ZIP drive, etc.) cannot be selected, go to the disk select display (DISK-DISK-Disk) and check the mount/unmount status and SCSI ID settings of the device (page 173).

[Press] TEST

Executes a data transfer test for the selected CD-R or CD-RW drive. A disk must be loaded in the drive before the test can be initiated, but no data will be written to the disk.

> **HINT** • If the test produces an error, choose the next slowest write speed (Knob 5) and run the test again. The write speed setting is appropriate if the test produces no errors. Use the error-free write speed when actually writing to a disk.

NOTE • *The data transfer test will take as long as actually writing to the disk, but since a CD-R disk will become unusable if an error occurs while actually writing to it, it is advisable to run the test to check for potential errors before actually writing the data.*

Knob 5

[↥ Press] EXEC&CONT (Execute & Continue)

Press this knob to call the backup confirmation display. Press Knob 5 (YES) to actually execute the backup operation.

CD-DA

[DISK] Button → [COMMAND/EXIT] Button →
Knob 1 to highlight display line 2 → Press Knob 3

Writes samples stored on disk to CD-R or CD-RW disk to produce an audio CD.

NOTE • *In order to use this function an appropriate CD-R or CD-RW drive must be connected to the A5000/A4000 SCSI bus.*
• *CD-RW disks are written using the "Disk at Once" method, so once a disk has been written, further data cannot be written to that disk.*
• *CD-R and CD-RW disks can only be written to from disks formatted by the A5000/A4000.*
• *Use a Yamaha CD-R/CR-RW drive such as the CRW4416SX to write CD-R/CD-RW disks.*
• *Errors may occur if you attempt to write to a CD-R or CD-RW disk while a computer is connected to the sampler's SCSI bus.*
• *A sufficient amount of parameter memory must be available in the sampler in order to use this function. Ideally, the CD-DA function should be used after turning the unit's power on, and before any data has been loaded or recorded.*
• *Only samples having a 44.1 kHz sampling frequency can be written to CD-R/CD-RW.*
• *Samples digitally recorded to the A5000/A4000 from commercial CDs in a CD player cannot be written to CD-R/CD-RW.*
• *Use the BACKUP RW-ERASE function to erase data from a recorded CD-RW disk.*

[Operation]

1. Use Knob 4 to specify the CD-R drive ID.
2. Use Knob 5 to set the write speed.
3. Use Knobs 3 and 5 to specify the samples to be backed up for each track (Knob 2)
4. Use Knob 1 (EXEC) or Knob 5 (EXEC&CONT) to initiate execution. When the confirmation display appears, press Knob 5 (YES) to execute the CD-DA operation.

NOTE • *If Knob 1 (EXEC) is used to execute the CD-DA command, the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the CD-display will be retained so you can continue and write to other CD-R/CD-RW disks.*

Cursor ❶

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	—	CDR DriveID	—
Press action	EXEC	—	—	TEST	EXEC&CONT

Knob 1

[⌢Turn] Cursor

Positions the cursor.

[↥ Press] EXEC (Execute)

Press this knob to call the CD-DA confirmation display. Press Knob 5 (YES) to actually execute the CD-DA operation.

Knob 4

[⌢Turn] CDR DriveID

Selects the drive ID of the CD-R or CD-RW drive to which the samples are to be written. When a CD-R or CD-RW drive is selected, the drive's maker and product number will be displayed.

[Range] SCSI 0 — SCSI 7

NOTE • *If a connected CD-R or CD-RW drive cannot be selected, go to the disk select display (DISK-DISK-Disk) and check the mount/unmount status and SCSI ID settings of the device (page 173).*

[↥ Press] TEST

Executes a data transfer test for the selected CD-R or CD-RW drive. A disk must be loaded in the drive before the test can be initiated, but no data will be written to the disk.

HINT • *If the test produces an error, choose the next slowest write speed (Knob 5) and run the test again. The write speed setting is appropriate if the test produces no errors. Use the error-free write speed when actually writing to a disk.*

NOTE • *The data transfer test will take as long as actually writing to the disk, but since a CD-R disk will become unusable if an error occurs while actually writing to it, it is advisable to run the test to check for potential errors before actually writing the data.*

Knob 5

[⌢Turn] Write Speed

Selects the CD-R/CD-RW write speed.

[Range] x1, x2, x4, x6, x8

[↥ Press] EXEC&CONT (Execute & Continue)

Press this knob to call the CD-DA confirmation display. Press Knob 5 (YES) to actually execute the CD-DA operation.

Cursor ❷

```
Command CD-DA
                                  《YAMAHA :CRW4416S》
Cursor ❷  〈🗂Sound Disk   SCSI1 〉 CDR ID SCSI3 │ SPEED    x1
           TR 1: 📁 Audio          Sample     Fill 136 Dry F2
           TR 2: 📁 Audio                      Fill 136 Ef1 C3
           TR 3:   〈End of Track〉          📁 ------------
           1)EXEC 2)INSERT      3)DELETE       4)TEST   5)EXEC&CONT
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤺	Turn action	Cursor	Track#	Volume	—	Sample
⬆	Press action	EXEC	INSERT	DELETE	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 184).

Knob 2

[⤺Turn] Track # (Track Number)

Selects the track number to which the samples are to be written.

[Range] TR1 — TR99

> **NOTE** • "End of List" will appear at the first line number for which a disk or volume has not been selected. Line numbers past the "End of List" line cannot be selected. For this reason, line numbers 2 and higher cannot be selected when no disk or volume selections have been made.
>
> • Disks listed up to the "End of List" line will be backed up.

[⬆ Press] INSERT

Inserts a new track at the currently selected track position. All track numbers following the inserted track will be moved up by one up to a maximum of 99. Any data previously assigned to track 99 will be erased.

Knob 3

[⤺Turn] Volume

Selects the volume which contains the samples which are to be written to the track number specified by Knob 2.

[Range] All volumes on the currently selected disk.

> **NOTE** • Disk selection is carried out via the Disk Select parameter (DISK – DISK – Disk, page 173).
>
> • Samples stored on separate disks cannot be recorded to a single CD-R or CD-RW disk.

[⬆ Press] DELETE

Deletes the selected track. All track numbers following the deleted track are moved back by one, and a new empty track will be created for track 99.

Knob 5

[⬆ Press] EXEC&CONT (Execute & Continue)

Press this knob to call the CD-DA confirmation display. Press Knob 5 (YES) to actually execute the CD-DA operation.

LOAD OS

[DISK] Button → [COMMAND/EXIT] Button → Knob 1 to highlight display line 2 → Press Knob 4

Allows an OS file to be loaded in order to update the sampler's operating system.

> ❗ • When LOAD OS is executed all data in the sampler's memory will be erased!

[Operation]

1. Use Knob 3 to select the OS File Type.
2. Use Knob 4 to select the destination disk.
3. Use Knob 5 (EXEC&CONT) to initiate execution. When the "Load OS? (Param&Wave memory will be erased)" confirmation display appears, press Knob 5 (YES) to execute the load OS operation.
4. When loading has finished, the "Upgrade OS?" confirmation display will appear. Press Knob 4 (NO) if you don't want to upgrade the operating system, or Knob 5 (YES) if you do want to upgrade the operating system.
5. If you choose not to upgrade the operating system, "OS will not be upgraded. Please restart" will appear and you will need to restart the A5000/A4000.

   If you choose to upgrade the operating system "Please wait a few seconds" will appear, then when the operating system has been upgraded "After all [F1] — [F6] red lamp lighting, please restart" will appear and you will need to restart the A5000/A4000.

> **NOTE** • See page 86 for the restart procedure.

```
Command LOAD OS        📁ATA          FD

OS FileType        Main
          〈-- No OS File --〉
        1)      2)      3)      4)      5)
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤺	Turn action	—	—	OS File Type	Disk	—
⬆	Press action	—	—	—	—	EXEC&CONT

Knob 3

[⤺Turn] OS File Type

Selects the type of OS file to be loaded.

[Range] Main, Sub, Boot (Main, Boot on the A4000)

- **Main** … Loads the OS file for the main CPU.
- **Sub** … Loads the OS file for the secondary (sub) CPU.
- **Boot** … Loads the OS file for the boot block of the main and sub CPUs.

Knob 4

[⌒Turn] Disk

Selects the disk from which the OS file is to be loaded.

[Range] All connected/mounted MS-DOS format hard disks and floppy disks, and ISO9660 format CD-ROM disks.

NOTE • *If the OS file is stored in the disk's root directory the OS information will appear on the display.*

• *OS files stored in any directory other than the root directory will not be recognized.*

• *If a connected SCSI or IDE device (hard disk, ZIP drive, etc.) cannot be selected, go to the disk select display (DISK-DISK-Disk) and check the mount/ unmount status and SCSI ID settings of the device (page 173).*

Knob 5

[⬆Press] EXEC&CONT (Execute & Continue)

Press this knob to call the OS load confirmation display. Press Knob 5 (YES) to actually execute the OS load operation.

NOTE • *The LOAD OS operation cannot be executed if the OS file information does not appear on the display.*

Chapter *8*

UTILITY Mode

This mode includes a range of utility functions
as well as sequence recording and playback functions.

About the UTILITY Mode

You use UTILITY mode to set up the system's environment, and to record and play sequences.

NOTE • *Changes that you make in UTILITY mode never cause any changes to the local settings stored in your programs and samples. But some UTILITY settings do affect the way that programs and samples behave, and may effectively disable (or add an offset to) the local settings.*

UTILITY Mode Functions

The UTILITY mode includes the 6 functions listed below (selected via the [F1] — [F6] function buttons, respectively).

■ [F1] TOTAL EQ Button

This function sets up the 4-band equalizer for the stereo output (page 189).
This function has only one page: TotalEQ (Total Equalizer).

■ [F2] PANEL PLAY Button

This function lets you set up knobs so that they operate as MIDI controllers, and function buttons so that they operate as MIDI keyboard keys (page 191).
3 display pages are provided: KnobCtrl (Knob Controller), KnobSet (Knob Controller Setup), and FKeySet (Function Key Play Setup).

■ [F3] SEQUENCE Button

Use this function to record and replay MIDI sequences (page 194).
This function has only one page: Sequence.

■ [F4] MASTER Button

Use this function to adjust the system's output pitch, to adjust the level to the stereo outputs, and to set an assignable-output destination for the stereo output signal (page 195).
2 display pages are provided: Tuning, and Output.

■ [F5] SYSTEM Button

The SYSTEM functions affect overall system operation and display (page 197).
2 display pages are provided: KeysSet, and Custom (Customise).

■ [F6] MIDI Button

This display provides access to a number of functions affecting MIDI operation (page 200).
2 display pages are provided: Channel (Channel Message), and SysEx (System Exclusive).

1. TOTAL EQ

This function sets up the 4-band equalizer applied to the stereo-output signal.
Press the [UTILITY] button and then the [F1] button to go to the TotalEQ function.
This function has only one page: TotalEQ (Total Equalizer).

You set up the equalizer by setting its Gain, Frequency, and Width parameters. The following illustration shows how these parameters operate on the output frequency.
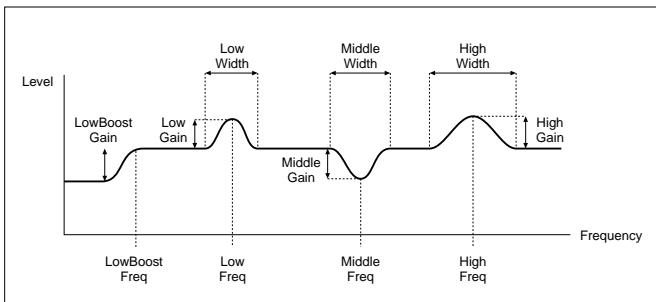
NOTE
- The Total Equalizer does not affect the signal appearing at the assignable outputs. When the Stereo Out To Assignable Out parameter is not set to "off" (UTILITY-MASTER-output, page 195), the Total Equalizer does affect the signal appearing at the specified assignable outputs.
- The equalization you set here applies to all sound directed to the stereo output. If you have set the A5000/A4000 up temporarily in a studio or sound stage, the equalizer offers a convenient way to make final adjustments to match the acoustics of your environment.

Total Equalizer

[UTILITY] Button → [F1] Button → "UTIL-TotalEQ"

This function sets up the 4-band equalizer applied to the stereo-output signal.

NOTE
- Cursor ❶ (Gain): Sets the gain values for the equalizer.
- Cursor ❷ (Frequency): Sets the equalizer frequency points.
- Cursor ❸ (Width): Sets the equalizer band widths.

Cursor ❶ (Gain)

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	Low Boost Gain	Low Gain	Middle Gain	High Gain
	Press action	Tree View	QUICK...	QUICK...	QUICK...	QUICK...

Knob 1

[Turn] Cursor
Positions the cursor.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] Low Boost Gain
Sets the low-frequency boost.

[Range] -12dB — +12dB

[Press] QUICK...
Calls the quick entry menu (page 83).

Knob 3

[Turn] Low Gain
Sets the gain for the low-frequency band.

[Range] -12dB — +12dB

[Press] QUICK...
Calls the quick entry menu (page 83).

Knob 4

[Turn] Middle Gain
Sets the gain for the mid-frequency band.

[Range] -12dB — +12dB

[Press] QUICK...
Calls the quick entry menu (page 83).

Knob 5

[Turn] High Gain
Sets the gain for the high-frequency band.

[Range] -12dB — +12dB

[Press] QUICK...
Calls the quick entry menu (page 83).

Cursor ❷ (Frequency)

```
 ▮◐UTIL-TotalEQ
   001:Pgm 001
      sine wave
          LowBoost        Low       Middle        High
Cursor Gain     +0dB        +0dB       +0dB        +0dB
 ❷   Freq    100Hz       400Hz      3.6kHz      8.0kHz
     Width    (--)         1.0         1.0         1.0
     1:TREE   2:QUICK...  3:QUICK...  4:QUICK...  5:QUICK...
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	Low Boost Frequency	Low Frequency	Middle Frequency	High Frequency
Press action	Tree View	QUICK...	QUICK...	QUICK...	QUICK...

Knob 1

Same function as Cursor ❶ (page 189).

Knob 2

[⌢Turn] **Low Boost Frequency**
Sets the low-boost frequency point.

[Range] 32Hz — 2.0kHz

[⬆ Press] **QUICK...**
Calls the quick entry menu (page 83).

Knob 3

[⌢Turn] **Low Frequency**
Sets the frequency point for the low-frequency band.

[Range] 32Hz — 2.0kHz

[⬆ Press] **QUICK...**
Calls the quick entry menu (page 83).

Knob 4

[⌢Turn] **Middle Frequency**
Sets the frequency point for the mid-frequency band.

[Range] 32Hz — 16.0kHz

[⬆ Press] **QUICK...**
Calls the quick entry menu (page 83).

Knob 5

[⌢Turn] **High Frequency**
Sets the frequency point for the high-frequency band.

[Range] 500Hz — 16.0kHz

[⬆ Press] **QUICK...**
Calls the quick entry menu (page 83).

Cursor ❸ (Width)

```
 ▮◐UTIL-TotalEQ
   001:Pgm 001
      sine wave
          LowBoost        Low       Middle        High
Cursor Gain     +0dB        +0dB       +0dB        +0dB
     Freq    100Hz       400Hz      3.6kHz      8.0kHz
 ❸   Width    (--)         1.0         1.0         1.0
     1:TREE   2:         3:QUICK...  4:QUICK...  5:QUICK...
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	Low Width	Middle Width	High Width
Press action	Tree View	—	QUICK...	QUICK...	QUICK...

Knob 1

Same function as Cursor ❶ (page 189).

Knob 3

[⌢Turn] **Low Width**
Sets the band width for low-frequency equalization.
Note that lower values produce greater width.

[Range] 1.0 — 12.0

[⬆ Press] **QUICK...**
Calls the quick entry menu (page 83).

Knob 4

[⌢Turn] **Middle Width**
Sets the band width for mid-frequency equalization.
Lower values produce greater width.

[Range] 1.0 — 12.0

[⬆ Press] **QUICK...**
Calls the quick entry menu (page 83).

Knob 5

[⌢Turn] **High Width**
Sets the band width for high-frequency equalization.
Lower values produce greater width.

[Range] 1.0 — 12.0

[⬆ Press] **QUICK...**
Calls the quick entry menu (page 83).

2. PANEL PLAY

This function lets you set up and use the A5000/A4000 knobs as "MIDI controllers," and to set up the function keys so that they operate as keys on a MIDI keyboard.

Press the [UTILITY] button and then the [F2] button to go to the PANEL PLAY function.

3 display pages are provided: KnobCtrl (Knob Controller), KnobSet (Knob Controller Setup), and FKeySet (Function Key Play Setup — page 192).

Knob Controller

[UTILITY] Button → [F2] Button → Knob 1 to select "UTIL-KnobCtrl"

MIDI control change data can be produced by turning Knobs 2 — 5. In addition to directly affecting playback of the A5000/A4000, this control change data can also be transmitted via the MIDI out connector to control external equipment. The type of control change data generated is determined by the Knob Controller Setup parameters.

NOTE • The [ASSIGNABLE] button can be engaged (its indicator will light) when any other page than this is being displayed to enable control change transmission by Knobs 2 — 5. In this case, the ASSIGNABLE Key Function parameter (UTILITY-SYSTEM-KeysSet: page 197) must be set to "KnobControl on/off."
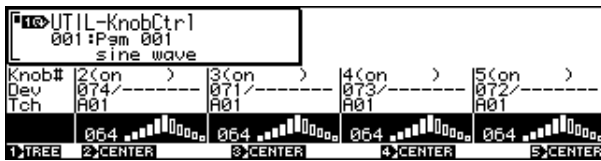
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Control Change	Control Change	Control Change	Control Change
Press action	Tree View	CENTER	CENTER	CENTER	CENTER

Knob 1

[Turn] Page

Selects display pages.

[Press] Tree View

Calls the Tree View display (page 83).

Knob 2 — 5

[Turn] Control Change

Specifies the control change number to be generated by the corresponding knob.

The display shows the control change number, MIDI channel, and current control change value for each knob.

[Range] 000 — 127

> **NOTE** • Knobs for which the Control Type is set to "off" will not transmit any control change data.

[Press] CENTER

"Centers" the control change value to "64." "064" will appear on the display.

Knob Controller Setup

[UTILITY] Button → [F2] Button → Knob 1 to select "UTIL-KnobSet"

Use this page to assign a controller number and transmit channel to each of the knobs you want to use as controller.

Cursor ❶
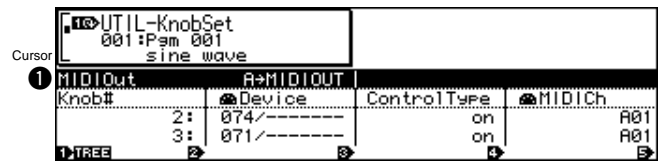
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	—	MIDI Out	—	—
Press action	Tree View	—	—	—	—

Knob 1

[Turn] Cursor/Page

Positions the cursor and selects display pages.

[Press] Tree View

Calls the Tree View display (page 83).

Knob 3

[Turn] MIDI Out

Specifies the MIDI connector via which the knob control change data will be transmitted.

[Range] A→MIDIOUT, B→MIDIOUT

- **A→MIDIOUT** ... The control change data from knobs set to MIDI channels A01 — A16 will be transmitted via MIDI OUT. The control change data from knobs set to MIDI channels B01 — B16 will affect playback of the A5000 only.

- **B→MIDIOUT** ... The control change data from knobs set to MIDI channels B01 — B16 will be transmitted via MIDI OUT. The control change data from knobs set to MIDI channels A01 — A16 will affect playback of the A5000 only.

NOTE • The A4000 does not have this parameter.

Cursor ❷

```
┌10▶UTIL-KnobSet
  001:Pgm 001
      sine wave
MIDIOut        A→MIDIOUT
Knob#     🎹Device      ControlType   🎹MIDICh
      2:  074/-------        on          A01
      3:  071/-------        on          A01
1▶TREE    ❷            ❸▶MIDI  ❹        ❺▶MIDI
```

Cursor ❷

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor/Page	Knob#	Device	Control Type	MIDI Channel
▲	Press action	Tree View	—	MIDI	—	MIDI

Knob 1

Same function as Cursor ❶ (page 191).

Knob 2

[⌒Turn] Knob# (Knob Number)

Selects the knob (2 — 5) to be set up for control change transmission via Knobs 3 — 5, below (Knobs 3 — 5 set the control change number, MIDI channel, etc. for the Knob# selected here).

[Range] 2 — 5

Knob 3

[⌒Turn] Device

This value assigns the knob's controller function (controller number).

[Range] 000 — 120

> **NOTE** • Keep in mind that the MIDI standard defines specific uses for certain controller numbers.

[▲ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device. See page 82.

Knob 4

[⌒Turn] Control Type

This value sets the selected knob's control sensitivity — the amount by which the control value changes per increment of knob rotation. Set to on for minimum sensitivity, or to Step 1, Step 2, or Step 3 for greater sensitivity (where Step 3 gives the highest sensitivity).

Set the value to off if you want to disable use of the selected knob as a controller.

[Range] off, on, Step1 — 3

Knob 5

[⌒Turn] MIDI Channel

Specifies the MIDI channel via which the control change data generated by the knob will be transmitted. When "AUDITION" is selected, the control change data will only affect the sound produced when the [AUDITION] button is pressed.

When "Bch" is selected, the same channel as that set as the MIDI Basic Channel (page 89) will be used.

[Range] AUDITION, A01 — B16 (01 — 16 on the A4000), Bch

> **NOTE** • In order for the generated control change data to affect samples played by the A5000/A4000, the transmission MIDI channel must be set to match the channel set for the sample(s) to be controlled.

[▲ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device. See page 82.

> **NOTE** • When setting the MIDI channel via MIDI on the A5000, receive the appropriate MIDI messages via the MIDI IN-A connector to set channels A01 — A16, and via the MIDI IN-B connector to set channels B01 — B16.

Function Key Play Setup

[UTILITY] Button → [F2] Button → Knob 1 to select
"UTIL-FKeySet"

The 6 function buttons of the A5000/A4000 can be used as a "mini keyboard" to play notes on the sampler itself as well as transmit corresponding MIDI note-on data. The FUNCTION KEY PLAY SETUP parameters can be used to specify the MIDI channel, note number (pitch), and velocity for each function button.

To use the function buttons in this way the ASSIGNABLE Key Function parameter (UTILITY-SYSTEM-KeysSet: page 197) must be set to "Fkey Play on/off." The function keys can then be used to play the specified notes when the [ASSIGNABLE] button is engaged (its indicator will light). The Function Key Play feature will not work, however, during recording or when certain other displays are selected.

Cursor ❶

```
┌10▶UTIL-FkeySet
  001:Pgm 001
      sine wave
MIDIOut        A→MIDIOUT
FKey#    1: 🎹Note  C 3  🎹Vel  127  🎹MIDICh A01
         2:          D 3         127          A01
         3:          E 3         127          A01
1▶TREE   ❷          ❸          ❹          ❺
```

Cursor ❶

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor/Page	—	MIDI Out	—	—
▲	Press action	Tree View	—	—	—	—

Knob 1

[⌒Turn] Cursor/Page

Positions the cursor and selects display pages.

[▲ Press] Tree View

Calls the Tree View display (page 83).

Knob 3

[⌒Turn] **MIDI Out**

Specifies the MIDI connector via which the function button note-on data will be transmitted.

[Range] A→MIDIOUT, B→MIDIOUT

- **A→MIDIOUT** ... The note-on data from function buttons set to MIDI channels A01 — A16 will be transmitted via MIDI OUT. The note-on data from function buttons set to MIDI channels B01 — B16 will affect playback of the A5000 only.

- **B→MIDIOUT** ... The note-on data from function buttons set to MIDI channels B01 — B16 will be transmitted via MIDI OUT. The note-on data from function buttons set to MIDI channels A01 — A16 will affect playback of the A5000 only.

NOTE • The A4000 does not have this parameter.

Cursor ❷

UTIL-KnobSet
001:Pgm 001
sine wave

MIDIOut   A→MIDIOUT
Knob#   Device   ControlType   MIDICh
        2:   074/------   on   A01
        3:   071/------   on   A01
1 TREE   2   3 MIDI   4   5 MIDI

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor/Page	Funktion Key#	Note	Velocity	MIDI Channel
⬆	Press action	Tree View	—	MIDI	MIDI	MIDI

Knob 1

Same function as Cursor ❶ (page 192).

Knob 2

[⌒Turn] **Function Key# (Function Key Number)**

Selects the function button (1 — 6) to be set up for note-on transmission. Values "1" through "6" correspond to function buttons [F1] through [F6].

[Range] 1 — 6

NOTE • After selecting the function button to be set up for note-number transmission, use Knobs 3 — 5 to set the note number, MIDI channel, and velocity, as required.

Knob 3

[⌒Turn] **Note**

Use this knob to set the note to be played by the selected function key. The setting determines the note value that the key transmits when sending a Note-On message.

[Range] C-2 — G8

NOTE • If the Note Display Type utility (UTILITY-SYSTEM-Custom: page 198) is set to "name" the parameter will be displayed as note names such as "C3." If set to "number" the parameter will be displayed as MIDI note numbers such as "60."

[⬆ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device. See page 82.

Knob 4

[⌒Turn] **Velocity**

Use this knob to set the velocity for selected function key. The setting determines the velocity value that the key transmits when sending a Note-On message.

[Range] 1 — 127

[⬆ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device. See page 82.

Knob 5

[⌒Turn] **MIDI Channel**

Use this knob to set the "Transmit" channel for the selected function key. The setting determines the MIDI channel over which the Note-On message is transmitted. Set the value to Bch if you want to use the channel selected by the BasicCh parameter (page 89).

[Range] A01 — B16 (01 — 16 on the A4000), Bch

[⬆ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device. See page 82.

NOTE • When setting the MIDI channel via MIDI on the A5000, receive the appropriate MIDI messages via the MIDI IN-A connector to set channels A01 — A16, and via the MIDI IN-B connector to set channels B01 — B16.

3. SEQUENCE

The SEQUENCE fetaure makes it possible to record and play back performance data from and external MIDI device. It is also possible to import and play back standard MIDI files. These easy-to-use sequencer functions are ideal for "jotting down" breakbeat of sequence phrase ideas. Full-blown sequencer functions such as external MIDI clock synchronization and sequence editing are not implemented.

Press the [UTILITY] button and then the [F3] button to go to the SEQUENCE function.

This function has only one page: Sequence.

NOTE • *MIDI channel message data set to "disable" via the UTILITY-MIDI-Channel display (page 200) will not be recorded.*

Sequence

[UTILITY] Button → [F3] Button → "UTIL-Sequence"

Allows playback of sequence data, and the creation of a new sequence to which data can be recorded.

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	—	Sequence	Shortcut Command	Playback Speed	RecPort& PlayChannel
Press action	Tree View	RENAME	EXECUTE	RECORD / STOP	PLAY / PAUSE / CONTINUE

Knob 1

[⬆ Press] Tree View

Calls the Tree View display (page 83).

Knob 2

[⌢ Turn] Sequence

Turn the knob to select the sequence that you want to play or over-record.

[⬆ Press] RENAME

Press to call the character-entry display for the currently selected sequence name. See page 81 for details on character entry.

Knob 3

[⌢ Turn] Shortcut Command

This knob positions the cursor within the sub-mode window to select one of the available shortcut commands.

[Range] DELETE, SAVE, NEW_SEQ

(See "The Shortcut Commands" below for details on each command)

[⬆ Press] EXECUTE

Executes the the highlighted shortcut command.

The Shortcut Commands

■ DELETE

When DELETE is executed, a confirmation display for deleting the currently selected sequence will appear. Press Knob 5 (>YES) to execute the delete operation.

■ SAVE

When SAVE is executed, the SAVE command display for saving the currently selected sequence to disk will appear. See page 208 for details on the SAVE command (COMMAND-SAVE).

■ NEW_SEQ

When NEW_SEQ is executed a new "blank" sequence is created. New sequences are automatically given the name "NewSeq," followed by a number.

Knob 4

[⌢ Turn] Playback Speed

This value sets the playback speed, relative to the recorded speed.

The setting is by percentage. A value of +0 reproduces the original speed; a setting of +50 increases the speed by a factor of 1.5, while a setting of -50 cuts the speed in half.

[Range] -50 — +50

NOTE • *If you are playing back an imported SMF (standard MIDI file), the available range may be less than shown here.*

[⬆ Press] RECORD/STOP

Press to immediately begin sequence recording. Press a second time during recording to stop.

Knob 5

[⌢ Turn] RecPort & PlayChannel

Specifies the MIDI port to be used for recording, and the MIDI channels to be used for playback.

[Range] A, B

• **A** ... MIDI performance data received via the MIDI IN-A connector will be recorded. MIDI channels A01 — A16 will be used for playback.

• **B** ... MIDI performance data received via the MIDI IN-B connector will be recorded. MIDI channels B01 — B16 will be used for playback.

NOTE • *The A4000 does not have this parameter.*

[⬆ Press] PLAY/PAUSE/CONTINUE

Press to immediately begin playback of the recorded sequence (PLAY).

Press during playback to temporarily pause playback (PAUSE). Press again while paused to resume playback from the point at which it was paused (CONTINUE).

4. MASTER

Use this function to adjust the system's output pitch, to adjust the level to the stereo outputs, and to set an assignable-output destination for the stereo output signal.

Press the [UTILITY] button and then the [F4] button to go to the MASTER function.

2 display pages are provided: Tuning, and Output.

Tuning

[UTILITY] Button → [F4] Button → Knob 1 to select "UTIL-Tuning"

Use this page to adjust the tuning (shift the pitch) of all system output.

```
┌─────────────────────────┐
│ UTIL-Tuning             │
│   001:Pgm 001           │
│ L     sine wave         │
│                         │
│ Tuning    (440→4   Hz)  │
│ Coarse    +0 │ Fine  +0 │
│ 1 TREE  2 QUICK...  3 QUICK...  4   5 │
└─────────────────────────┘
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Page	Tuning Coarse	Tuning Fine	—	—
Press action	Tree View	QUICK...	QUICK...	—	—

Knob 1

[Turn] Page
Selects display pages.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 2

[Turn] Tuning Coarse
Turn the knob to adjust the tuning, in semitone increments.

[Range] -127 — +127

[Press] QUICK...
Calls the quick entry menu (page 83).

Knob 3

[Turn] Tuning Fine
Turn the knob to adjust the tuning in increments of 1.171875 cent.
(Note: 100 cents = 1 semitone)

[Range] -63 — +63

NOTE • The pitch of A (standard frequency = 440 Hz) as a result of Master Tuning is displayed in Hertz above the parameter's value.

[Press] QUICK...
Calls the quick entry menu (page 83).

Output

[UTILITY] Button → [F4] Button → Knob 1 to select "UTIL-Output"

This function allows the signal appearing at the STEREO OUTPUT jacks to simultaneously be sent to the assignable outputs, and level offset can be individually applied for each output.

NOTE • The setting that you make at this page takes precedence over the assignable-output settings within samples and programs. If you select AsgnOut2&3 at this page, for example, then AsgnOut2&3 will always produce the same signal as the stereo outputs.

Cursor ❶

```
┌─────────────────────────────────────┐
│ UTIL-Output                          │
│   001:Pgm 001                        │
│ Cursor   sine wave                   │
│ ❶ StereoOut→AssignableOut  off│DIG&OPT  20│
│ Output        StereoOut: Leveloffset  +12dB│
│               AsgnOutL&R:             +12dB│
│               AsgnOut1&2:             +12dB│
│ 1 TREE  2  3  4  5 │
└─────────────────────────────────────┘
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor/Page	—	—	Stereo Out To Assignable Out	DIG&OPT Bit
Press action	Tree View	—	—	—	—

Knob 1

[Turn] Cursor/Page
Positions the cursor and selects display pages.

[Press] Tree View
Calls the Tree View display (page 83).

Knob 4

[Turn] Stereo Out To Assignable Out
You can select an assignable-output destination for the stereo output signal — so that the stereo-output jacks and the selected assignable-output connectors produce exactly the same signal.

[Range] off, AsgnOutL&R, AsgnOut1&2 — AsgnOut5&6, DIG&OPT

• **off** ... The stereo output signal is not simultaneously routed to any assignable output.

• **AsgnOutL&R** ... The stereo output signal is simultaneously routed to the Assignable Out L & R outputs.

• **AsgnOut1&2 — AsgnOut5&6** ... The stereo output signal is simultaneously routed to the specified Assignable Outputs.

• **DIG&OPT** ... The stereo output signal is simultaneously routed to the DIG&OPT (digital coaxial and optical) outputs.

NOTE • The AsgnOut1&2, AsgnOut3&4, AsgnOut5&6, and DIG&OPT outputs cannot be selected unless the optional AIEB1 I/O expansion board is installed.

Knob 5

[Turn]   **DIG&OPT Bit (Digital & Optical Output Bits)**

Specifies 20-bit or 24-bit output for the digital coaxial and optical outputs.

[Range] 20, 24

NOTE • *Set this parameter to "20" when connecting to digital equipment which does not support 24-bit audio data.*

Cursor ❷

```
■▣▶UTIL-Output
  001:Pgm 001
    sine wave
```

Cursor ❷

```
StereoOut→AssignableOut        off│DIG&OPT   20
Output           StereoOut:│Leveloffset      +12dB
                 AsgnOutL&R:              +12dB
                 AsgnOut1&2:              +12dB
1▶TREE        ❷           ❸           ❹           ❺
```
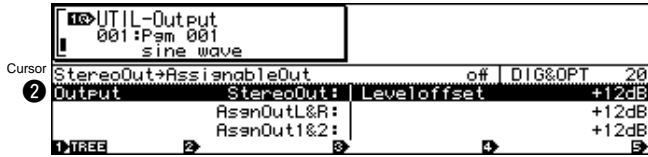
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor/Page	—	Output	—	Level Offset
	Press action	Tree View	—	—	—	—

Knob 1

Same function as Cursor ❶ (page 195).

Knob 3

[Turn]   **Output**

Selects the output for which a level offset will be specified via the Level Offset parameter (Knob 5, below).

[Range] StereoOut, AsgnOutL&R, AsgnOut1&2 — AsgnOut5&6, DIG&OPT (StereoOut, AsgnOutL&R, AsgnOut1&2 on the A4000)

Knob 5

[Turn]   **Level Offset**

Specifies a level offset for the output selected via Knob 3 (Output, above). If set too high this parameter can result in distorted sound, depending on the number of notes being played simultaneously and the type of sound being played.

[Range] -0dB — +24dB

NOTE • *If the stereo output signal has been assigned to an assignable output via the Stereo Out To Assignable Out parameter, the stereo output offset value takes priority.*

5. SYSTEM

Use this function to set up the system's operating environment and screen-display options.

Press the [UTILITY] button and then the [F5] button to go to the SYSTEM function.

2 display pages are provided: KeysSet, and Custom (Customise — page 198).

KeysSet

[UTILITY] Button → [F5] Button → Knob 1 to select "UTIL-KeysSet"

Specifies the function of the [ASSIGNABLE] button, and how the [AUDITION] button will affect playback.

NOTE • *Cursor ❶ provides access to the [ASSIGNABLE] button parameters, and Cursor ❷ provides access to the [AUDITION] button parameters.*

Cursor ❶

```
┌II❿UTIL-KeysSet
   001:Pgm 001
      sine wave
❶ASSIGNABLE Key Function
        Knob Control on/off
AUDITION Key Setup
Effect    on│EasyEdit off│TriggerMode      normal
❶▶TREE       ❷        ❸▶LIST...        ❹          ❺▶
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor/Page	—	ASSIGN-ABLE Key Function	—	—
▲	Press action	Tree View	—	LIST...	—	—

Knob 1

[⌒Turn] Cursor/Page

Positions the cursor and selects display pages.

[▲Press] Tree View

Calls the Tree View display (page 83).

Knob 3

[⌒Turn] ASSIGNABLE Key Function

Specifies the function of the [ASSIGNABLE] button when it is engaged (i.e. when its indicator is lit).

NOTE • *For "on/off" settings, the corresponding function will be "on" when the [ASSIGNABLE] button is engaged (its indicator is lit), and "off" when the [ASSIGNABLE] button is disengaged (its indicator is out).*

[Range] Knob Control on/off, Damp, Controller Reset, Fkey Play on/off, Knob&Fkey on/off, MIDI→Smp on/off

- **Knob Control on/off** ... Turns control by Knobs 2 — 5 on or off. Symbols indicating the knobs for which control is active will flash on the bottom line of the display. In this case the normal functions of the knobs in the current display page are not available. The actual control functions of each knob are determined by the

UTILITY-PANEL PLAY-KnobSet parameters (page 191).

- **Damp** ... Allows the [ASSIGNABLE] button to turn all notes off.

- **Controller Reset** ... Allows the [ASSIGNABLE] button to reset all control change values received by the A5000/A4000.

- **Fkey Play on/off** ... Allows the [ASSIGNABLE] button to turn note-on transmission by the function buttons ([F1] — [F6]) on or off. When engaged the normal functions of the function buttons in the page being displayed are not available. The notes, MIDI channels, and velocity of each function button are determined by the UTILITY-PANEL PLAY-FKeySet parameters (page 192).

- **Knob&Fkey on/off** ... Allows the [ASSIGNABLE] button to turn both control via Knobs 2 — 5 and note-on transmission by the function buttons (F1 — [F6]) on or off.

- **MIDI→Smp on/off** ... Allows the [ASSIGNABLE] button to turn the MIDI To Sample feature (Tree View, page 198) on or off.

[▲ Press] LIST...

Press to call a list of the available [ASSIGNABLE] button functions.

Cursor ❷

```
┌II❿UTIL-KeysSet
■  001:Pgm 001
      sine wave
 ASSIGNABLE Key Function
        Knob Control on/off
❷AUDITION Key Setup
 Effect    on│EasyEdit off│TriggerMode      normal
 ❶▶TREE       ❷        ❸        ❹          ❺▶
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor/Page	AUDITION Key Effect	AUDITION Key EasyEdit	—	AUDITION Key Trigger Mode
▲	Press action	Tree View	—	—	—	—

Knob 1

Same function as Cursor ❶ (page 197).

Knob 2

[⌒Turn] AUDITION Key Effect

Determines whether effects will be applied to the sound produced by pressing the [AUDITION] button.

[Range] off, on

Knob 3

[⌒Turn] AUDITION Key EasyEdit

Determines whether the Easy Edit parameter settings will be applied to the sound produced by pressing the [AUDITION] button.

[Range] off, on

NOTE • *Easy Edit parameter settings will not be applied to samples which are not assigned to a program, regardless of the setting of this parameter.*

Knob 5

[⌢Turn] AUDITION Key Trigger Mode

Selects whether the [AUDITION] button produces sound only while held down, or whether it continues to produce sound until pressed a second time.

[Range] normal, toggle

- **normal** ... The button produces sound only while you hold it down. Sound stops immediately when you release the key.

- **toggle** ... Pressing the button once starts the playback. Pressing the key again stops the sound (if it is still playing) and disengages the key.

Customise

[UTILITY] Button → [F5] Button → Knob 1 to select "UTIL-Custom"

Specifies how pitches will be displayed, which page will be displayed first when switching between modes and functions, and more.

Cursor ❶

```
  ┌─────────────────────────┐
  │ [1] UTIL-Custom         │
  │ 001:Pgm 001             │
  │    sine wave            │
  ├─────────────────────────┤
Cursor │NoteDisplayType      MIDI→LayerSampleSelect
  ❶    │          name              atAllPages
  │ PageBrowsing            │
  │ atModeChange LastFunction│atFunctionChange LastPage
  │ 1>TREE    2          3          4          5
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌢ Turn action	Cursor/Page	—	Note Display Type	—	MIDI>Sample Layer Selection
⬆ Press action	Tree View	—	—	—	—

Knob 1

[⌢Turn] Cursor/Page

Positions the cursor and selects display pages.

[⬆ Press] Tree View

Calls the Tree View display (page 83).

Knob 3

[⌢Turn] Note Display Type

This value selects the note display type.

[Range] Name, Number

- **Name** ... The A5000/A4000 displays note values by name. For example: C3, F4, F#-1

- **Number** ... The A5000/A4000 displays note values by MIDI note number. For example: 60, 77, 18.

Knob 5

[⌢Turn] MIDI → Sample Layer Selection

Determines whether or not multiple samples (sample banks) assigned to a note will be selected sequentially each time a note-on message is received when the MIDI To Sample function is used.

[Range] atAllPages, onlyAtTree

- **atAllPages** ... This function will be active at all times (when any display page is showing). Multiple samples (sample banks) assigned to a note will be selected one after the other each time the corresponding note-on meaasge is received.

- **onlyAtTree** ... This function will be active only when the Tree View dislay is showing (i.e. the display called when Knob 1 is pressed). Multiple samples (sample banks) assigned to a note will be selected one afer the other each time the corresponding note-on meaasge is received. When any other display is showing one of the samples (sample banks) assigned to the received note will be selected, but multiple samples (sample banks) will not be selected in sequence.

NOTE
- *The MIDI To Sample function can be used to select a sample or sample banks to be edited from an external MIDI device. Refer to page 83 for details.*

- *These settings have no effect when the MIDI To Sample function is turned "off."*

Cursor ❷

```
  ┌─────────────────────────┐
  │ [1] UTIL-Custom         │
  │ 001:Pgm 001             │
  │    sine wave            │
  ├─────────────────────────┤
  │NoteDisplayType      MIDI→LayerSampleSelect
Cursor│          name              atAllPages
  ❷    │PageBrowsing            │
  │ atModeChange LastFunction|atFunctionChange LastPage
  │ 1>TREE    2          3          4          5
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌢ Turn action	Cursor/Page	—	Function	—	Page
⬆ Press action	Tree View	—	—	—	—

Knob 1

Same function as Cursor ❶ (page 83).

Knob 3

[⌢Turn] Function

This setting selects whether the A5000/A4000 activates the "first" function or the "last" (most recent) function when you switch to a different mode.

[Range] 1stFunction, LastFunction, HoldFunction

- **1stFunction** ... When you switch to a different mode, the A5000/A4000 automatically moves into the function identified by the first (leftmost) function key.
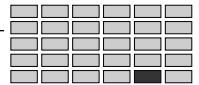
• **LastFunction** ... When you switch to a different mode, the A5000/A4000 automatically re-enters the function that was active when you last exited that mode.

• **HoldFunction** ... The last-used function display will automatically be recalled when a mode button is pressed. When this option is selected, you can go directly to the last-used function simply by pressing either the mode button or function button.

Knob 5

[⌒Turn]   Page

This setting selects whether the A5000/A4000 activates the "first" page or the "last" (most recent) page when you switch to a different function within the current mode.

[Range] 1stPage, LastPage

• **1stPage** ... When you change functions (by pressing a function key), the A5000/A4000 automatically displays the initial page for that function.

• **LastPage** ... When you change functions (by pressing a function key), the A5000/A4000 automatically displays the page that was shown when you last exited that function.

6. MIDI

Use this function to set the various MIDI parameters.
Press the [UTILITY] button and then the [F6] button to go to the MIDI function.
2 display pages are provided: Channel (Channel Message), and SysEx (System Exclusive — page 201).

Channel Message

[UTILITY] Button → [F6] Button → Knob 1 to select "UTIL-Channel"

Determines how received MIDI channel messages wil be internally handled by the A5000/A4000.

NOTE • MIDI performance data which is set to "disable" via the parameters in this section will not be recorded by the sequencer record function.

Cursor ❶

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor/Page	Omni	Transpose	Velocity Curve	—
	Press action	Tree View	—	QUICK...	—	—

Knob 1

[Turn] **Cursor/Page**
Positions the cursor and selects display pages.

[Press] **Tree View**
Calls the Tree View display (page 83).

Knob 2

[Turn] **Omni**
Set this value on to enable reception over all channels. Note that setting the value to on disables the Basic Channel setting, since the A5000/A4000 will accept note messages, program-change messages (if Program Change = receive; see below), and control-change messages over all channels.

[Range] **off, on**

Knob 3

[Turn] **Transpose**
Turn either knob to set the transposition applied to received note values, in semitones. Set to +0 if you do not want to apply any transposition.

[Range] **-127 — +127**

HINT • If you set the value to +1, the A5000/A4000 will transpose all received note values upward by one semitone. If the MIDI device transmits a Note-On for A4, the A5000/A4000 will change the value to A#4 before passing it into the internal tone generator.

[Press] QUICK...
Calls the quick entry menu (page 83).

Knob 4

[Turn] **Velocity Curve**
This setting selects the conversion curve that the A5000/A4000 uses to adjust received velocity values before sending them to the tone generator.

[Range] **normal, soft-1, soft-2, hard-1, hard-2, vel=7 — 127**

• **normal** ... Linear relationship

• **soft-1, soft-2** ... The applied velocity rises more rapidly in the low-velocity range, with the rate becoming flatter at higher range. Use one of these settings if you tend to strike the keyboard lightly when playing. The soft-2 setting is more pronounced than the soft-1 setting.

• **hard-1, hard-2** ... The applied velocity increases relatively slowly in the low-velocity range, with the rate becoming sharper as velocity gets higher. Use one of these settings if you have a relatively strong key attack. The hard-2 setting is more pronounced than the hard-1 setting.

• **vel=7 — 127** ... Uses a single velocity for all notes, regardless of received velocity value. You can set the applied velocity to any velocity value ending in 7 (127, 117,...,17, 7).

Cursor ❷

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor/Page	Program Change	Control Change	After Touch	Pitch Bend
	Press action	Tree View	—	—	—	—

Knob 1

Same function as Cursor ❶ (page 200).

Knob 2

[Turn] **Program Change**
Determines whether received MIDI program change data will be passed on to the sampler or not.

[Range] **receive, disable**

• **receive** ... Received program change data will affect sampler operation.

• **disable** ... Received program change data will not affect sample operation.
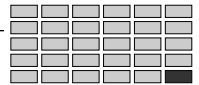
Knob 3

[◠Turn] Control Change

Set this to enable if you want to allow control-change data to pass to the tone generator. Set to disable if you want the A5000/A4000 to ignore (filter out) all control-change data.

[Range] receive, disable

- **receive** ... Received control change data will affect sampler operation.

- **disable** ... Received control change data will not affect sample operation.

Knob 4

[◠Turn] After Touch

Set this to enable if you want to allow aftertouch data to pass to the tone generator. Set to disable if you want the A5000/A4000 to ignore (filter out) all aftertouch data.

[Range] receive, disable

- **receive** ... Received aftertouch data will affect sampler operation.

- **disable** ... Received aftertouch data will not affect sample operation.

Knob 5

[◠Turn] Pitch Bend

Set this to enable if you want to allow pitchbend data to pass to the tone generator. Set to disable if you want the A5000/A4000 to ignore (filter out) all pitchbend data.

[Range] receive, disable

- **receive** ... Received pitchbend data will affect sampler operation.

- **disable** ... Received pitchbend data will not affect sample operation.

System Exclusive

[UTILITY] Button → [F6] Button → Knob 1 to select "UTIL-SysEx"

This page sets parameters related to MIDI bulk dumps.

```
UTIL-SysEx
001:Pgm 001
    sine wave


SystemExclusive
BulkProtect              on|Device# all|ReceivePortA
1)TREE      2)          3)          4)          5)
```
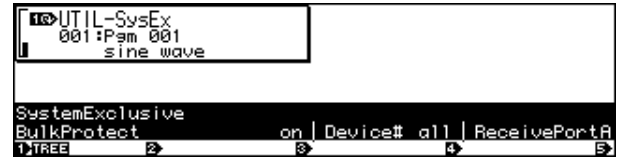
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
◠	Turn action	Page	—	Bulk Protect	Device#	Recieve Port
▲	Press action	Tree View	—	—	—	—

Knob 1

[◠Turn] Page

Selects display pages.

[▲Press] Tree View

Calls the Tree View display (page 83).

Knob 3

[◠Turn] Bulk Protect

This setting selects whether the A5000/A4000 accepts bulk-dump transmissions from connected MIDI devices.

[Range] off, on

- **off** ... The A5000/A4000 will accept and process dumped data as soon as it is received.

- **on** ... The A5000/A4000 ignores all received bulk data.

Knob 4

[◠Turn] Device#

This value sets the A5000/A4000's device number for purposes of bulk dumps.

[Range] off, 1 — 16, all

- **off** ... The A5000/A4000 does not send or receive bulk dumps.

- **1 — 16** ... The A5000/A4000 can receive bulk dumps directed to this device number only. It transmits all bulk dumps to this device number.

- **all** ... The A5000/A4000 accepts all bulk dumps, regardless of device number. It transmits bulk dumps to Device #1 only.

NOTE • The A5000/A4000 can transfer a bulk dump to/from another device only if the two devices have consistent device-number settings.

Knob 5

[⌒Turn] **Recieve Port**

Determines which of the A5000's MIDI ports — MIDI IN-A or MIDI IN-B — will be used for system exclusive data reception.

[Range] A, B

NOTE • *This parameter is not available on the A4000.*

Chapter 9 COMMAND

Program and sample copy, editing, and other operations
not included in the function displays.

About the COMMANDS

The COMMANDS include program and sample copy, edit, and a range of operations not included in the function displays.
Press the [COMMAND/EXIT] button to go to the command menu.

Command Menu

The following 16 commands are available:

■ **COPY**..**page 206**

Copies all or specified programs or samples (sample banks) in memory to different programs or samples
(sample banks).

■ **DELETE**..**page 208**

Deletes the specified sample (sample bank) or sequence from memory.

■ **SAVE** ....**page 208**

Saves data from memory to disk.

■ **ARRANGE**...**page 211**

Automatically remaps the samples assigned to a specified program or sample bank.

■ **FREEZE**...**page 212**

Causes the easy edit settings to be actually applied to the samples or sample banks, or the sample banks set-
tings to the samples it contains.

■ **REGISTER**...**page 214**

Registers the settings of the selected program or sample as the initial values.

■ **BULK DUMP**...**page 216**

Allows bulk transmission of program or sample data in memory via the MIDI OUT connector.

■ **INITIALIZE**...**page 217**

Initializes a single specified program or all programs in memory.

■ **PROCESS**...**page 218**

The PROCESS commands include sample normalization, reverse, fade, loop crossfade, and more.

■ **LOOP DIVIDE**..**page 221**

Divides the wave data between the sample loop start and loop end points into equal segments which
become independent samples.

■ **RESAMPLE**..**page 222**

Applies time stretch and pitch conversion to samples.

Time stretch changes the length of samples without changing their pitch, while pitch convert changes the pitch of samples without changing their length.

■ **STEREO → MONO** ....**page 225**

Converts stereo samples to mono.

■ **MOVE** ....**page 226**

Moves the samples assigned to a program to a sample bank, or the samples in a sample bank to another sample bank or program.

■ **CREATE OSC**...**page 227**

Creates 7 different basic oscillator waveforms: sine wave, saw up, triangle, square, pulse 1, pulse 2, pulse 3.

■ **EXPORT** ....**page 228**

Coverts the selected sample to AIFF or WAV format (audio wave data formats commonly used on personal computers) and saves the result to an MS-DOS format floppy disk or hard disk.

■ **REVERT** ....**page 230**

Restores the selected sample or sample bank to the previously saved version.

Selecting a Command

[COMMAND/EXIT] Button → COMMAND Menu

Select the desired command from the COMMAND menu.

[Operation]

Select a COMMAND as follows:
1. Turn Knob 1 to highlight the display line containing the desired command.
2. Press the knob – Knob 2 — Knob 5 – corresponding to the desired command.

```
Command Select
           COPY |    DELETE |     SAVE |    ARRANGE
         FREEZE |  REG_INIT |  BULKDUMP |       INIT
        PROCESS |  LOOPDIV |  RESAMPLE | STEREO→MONO
           MOVE | CREATE_OSC |   EXPORT |     REVERT
      1▶EXIT    2▶GO        3▶GO      4▶GO      5▶GO
```
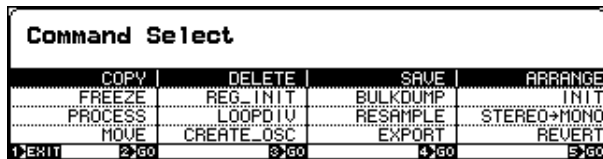
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	—	—	—	—
	Press action	EXIT	Command Select	Command Select	Command Select	Command Select

Knob 1

[⌒Turn] Cursor
Positions the cursor.

[⬆ Press] EXIT
Returns to the display that was showing before the command menu was called.

Knob 2 — 5

[⬆ Press] Command Select
Selects the corresponding command in the highlighted display line, and selects display pages.

Command Execution

The command execution procedure is the same for all commands. In all command pages Knob 1 is "EXEC" (EXECUTE) and Knob 5 is "EXEC&CONT" (EXECUTE & CONTINUE). The currently selected command is executed when either Knob 1 (EXEC) or Knob 5 (EXEC&CONT) is pressed.
When Knob 1 (EXEC) is used to execute a command, the display that was showing immediately before executing the command is automatically recalled after execution has finished.
When Knob 5 (EXEC&CONT) is used to execute a command, the same display is retained after command execution so that you can immediately repeat execution of the same command. Press the [COMMAND/EXIT] button to return to the command menu without executing the command.

COPY

[COMMAND/EXIT] Button →
Knob 1 to highlight display line 1 → Press Knob 2

Copies all or specified programs or samples (sample banks) in memory to different programs or samples (sample banks).

[Operation]

Copy the data as follows:
1. Select the type of data to be copied via the Copy Type parameter.
2. If the selected Copy Type is ProgramParameters, ProgramMerge, or StepWave, also specify the copy source and destination programs.
   If the selected Copy Type is Effect, also specify the copy source and destination programs, and the effect number.
   If the selected Copy Type is SampleParameters, also specify the copy source and destination samples or sample banks.

   NOTE • Copy cannot be executed if the specified copy source and destination are the same.

3. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the copy confirmation display will appear. Press Knob 5 (YES) to execute the copy operation.

   NOTE • If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the copy display will be retained so you can continue and perform further copy operations.

Cursor ❶
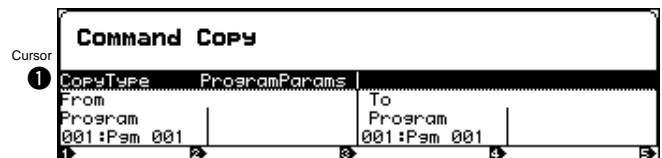
```
Cursor   Command Copy
  ❶      CopyType    ProgramParams |
         From                        To
         Program                     Program
         001:Pgm 001                 001:Pgm 001
         1▶        2▶        3▶        4▶        5▶
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	—	Copy Type	—	—
	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[⌒Turn] Cursor
Positions the cursor.

[⬆ Press] EXEC
Press this knob to call the copy confirmation display. Press Knob 5 (YES) to actually execute the copy operation.

Knob 3

[⌒Turn] Copy Type
Selects the type of data to be copied.

[Range] ProgramParameters, Programerge, Effect, StepWave, SampleParameters

• **ProgramParameters** ... Copies all parameters for a specifed program to a different program.

• **ProgramMerge** ... Allows the samples or sample bank used in the source program to be used by the destination program, and copies all EASY EDIT settings with the merged samples/sample bank.

The samples, sample banks, and sample settings originally used with the destination program will remain unaffected.

• **Effect** ... Copies only the effect settings from a specified program to a different program.

• **StepWave** ... Copies only the StepWave settings from the Program LFO of a specified program to a different program.

• **SampleParameters** ... Copies the parameters from a specifed sample (sample bank) to a different sample (sample bank). The following parameters are NOT copied: Original Key (page 128), Pitch Fine (page 130), Low Key (page 128), High Key (page 128), Loop Mode (page 123), Wave Start Address (page 120), Wave End Address (page 120), Loop Start Address (page 121), Loop End Address (page 122).

Knob 5

[⬆ Press] EXEC&CONT

Press this knob to call the copy confirmation display. Press Knob 5 (YES) to actually execute the copy operation.

Cursor ❷
(when the CopyType is ProgramParameters, Program-Merge, or StepWave/Effect)

```
Command Copy

CopyType      ProgramParams |
From                        | To
Program                     | Program
001:Pgm 001                 | 001:Pgm 001
```
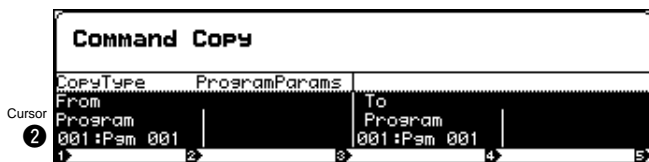
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor	From Program	From Effect	To Program	To Effect
⬆	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 206).

Knob 2

[⌒ Turn] From Program

Selects the source program.

[Range] 001 — 128

Knob 3

[⌒ Turn] From Effect

Selects the source effect. This can only selected when the Copy Type is set to Effect.

[Range] E1 — E6 (E1 — E3 on the A4000)

Knob 4

[⌒ Turn] To Program

Selects the destination program.

[Range] 001 — 128

Knob 5

[⌒ Turn] To Effect

Selects the destination effect. This can only selected when the Copy Type is set to Effect.

[Range] E1 — E6 (E1 — E3 on the A4000)

[⬆ Press] EXEC&CONT

Press this knob to call the copy confirmation display. Press Knob 5 (YES) to actually execute the copy operation.

Cursor ❷
(when the CopyType is SampleParameters)

```
Command Copy

CopyType      SampleParams |
From                       | To
Sample                     | Sample
     "sine wave    "       |      "sine wave    "
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor	—	From Sample	—	To Sample
⬆	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 206).

Knob 3

[⌒ Turn] From Sample

Selects the source sample or sample bank.
All samples (sample banks) in memory can be selected.

Knob 5

[⌒ Turn] To Sample

Selects the destination sample or sample bank.
All samples (sample banks) in memory can be selected.
If a sample has been selected via the From Sample parameter only samples can be selected. If a sample bank has been selected via the From Sample parameter only sample banks can be selected.

[⬆ Press] EXEC&CONT

Press this knob to call the copy confirmation display. Press Knob 5 (YES) to actually execute the copy operation.

DELETE

[COMMAND/EXIT] Button →
Knob 1 to highlight display line 1 → Press Knob 3

Deletes all or specified samples (sample banks) or sequences in memory.

NOTE • Before executing the delete operation make sure the sample you are deleting is not being used in a sample bank or program.

[Operation]

Delete the data as follows:

1. Select the type of data to be copied via the Delete Type parameter.

2. If the selected Delete Type is OneSample or OneSequence, also specify the sample or sequence to be deleted.

3. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the delete confirmation display will appear. Press Knob 5 (YES) to execute the delete operation.

NOTE • If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the delete display will be retained so you can continue and perform further delete operations.

```
Command Delete



DeleteType          │Sample
        OneSample(Bank) │    "sine wave        "
1>EXEC         2        3        4        5>EXEC&CONT
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	—	—	Delete Type	—	Sample / Sequence
Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[▲Press] EXEC

Press this knob to call the delete confirmation display. Press Knob 5 (YES) to actually execute the delete operation.

Knob 3

[↻Turn] Delete Type

Specifies the type of data to be deleted.

[Range] OneSample, AllSamples, AllFreeSamples, OneSequence

• **OneSample** ... Allows a specified sample in memory to be deleted. Select the sample to be deleted via Knob 5.

If a sample contained in a sample bank is selected, a confirmation display asking if you want to delete all other sample in that sample bank will appear when the delete operation is executed. Press Knob 5 (YES) to delete all samples in the sample bank. If you press Knob 4 (NO), the remaining samples are removed from the sample bank, becoming independent samples.

• **AllSamples** ... All samples and sample banks in memory are deleted.

• **AllFreeSamples** ... Deletes all samples and sample banks which are not currently used by a program.

• **OneSequence** ... Allows a specified sequence in memory to be deleted. Select the sequence to be deleted via Knob 5.

Knob 5

[↻Turn] Sample/Sequence

Selects the sample or sequence to be deleted.

When the selected Delete Type is OneSample, Knob 5 selects the sample to be deleted.

When the selected Delete Type is OneSequence, Knob 5 selects the sequence to be deleted.

All samples (sample banks) and sequences in memory can be selected.

[▲Press] EXEC&CONT

Press this knob to call the delete confirmation display. Press Knob 5 (YES) to actually execute the delete operation.

SAVE

[COMMAND/EXIT] Button →
Knob 1 to highlight display line 1 → Press Knob 4.

Saves specified data in memory to disk.

[Operation]

1. Specify the type of data to be saved via the Save Type parameter (page 209).

2. Select the destination disk and volume (page 209).

3. If the Save Type is OneProgram, specify the source program number and the destination program number (page 209). If the Save Type is OneSample or OneSequence select the sample (sample bank) or sequence to be saved (page 210).

4. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the save confirmation display will appear. Press Knob 5 (YES) to execute the save operation.

NOTE • If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the save display will be retained so you can continue and perform further save operations.

Cursor ❶

```
Command Save          📁FD VOLUME
Cursor
❶  SaveType      All(wipe)

  🖥ATM          FD
1▸EXEC      2▸       3▸       4▸   5▸EXEC&CONT
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	Save Type	Volume	—
Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[⌢Turn] Cursor
Positions the cursor.

[🔺Press] EXEC
Press this knob to call the save confirmation display. Press Knob 5 (YES) to actually execute the save operation.

Knob 3

[⌢Turn] Save Type
Specifies the type of data to be saved.

[Range] All(Wipe), AllPrograms(Wipe), AllEdited, AllSamples, OneProgram, OneSample, OneSequence

- **All(Wipe)** ... Saves all memory content to disk. This operation saves all objects currently in memory (all usable programs, all samples, all sample banks, and all sequences) to the destination volume on disk. The operation erases all data already existing in the destination disk volume. [Note: a program is usable if it uses at least one sample or if its "AD In" setting is on.]

- **AllPrograms(Wipe)** ... Saves all usable programs, together with all samples/sample banks used by these programs, to the destination volume on disk. Does not save any sequences. Saves only those samples/sample banks that are used with at least one program (does not save unused samples).
  This operation erases all data already existing in the destination disk volume.

- **AllEdited** ... Saves all new data to disk (all new and all edited objects that have not yet been saved to disk in their current form). Does not save objects that have not been changed since the most recent disk load.

- **AllSamples** ... Saves all samples/sample banks into the destination volume.

- **OneProgram** ... Saves the currently selected program only, together with all samples/sample banks used by that program.
  Note that you can save the program into any "program number" (001 to 128) on the destination side. Note also that the operation deletes any program data already existing in the target

program number on the disk side (in the destination volume).

- **OneSample** ... Allows a single sample or sample bank in memory to be saved.

- **OneSequence** ... Allows a single sequence in memory to be saved.

Knob 4

[⌢Turn] Volume
Selects the destination volume.

Knob 5

[🔺Press] EXEC&CONT
Press this knob to call the save confirmation display. Press Knob 5 (YES) to actually execute the save operation.

Cursor ❷
(when the SaveType is OneProgram)

```
Command Save          📁FD VOLUME
Cursor
❷  SaveType      OneProgram
   From          To
   001:Pgm 001   001:--------
   🖥ATM          FD
1▸EXEC      2▸       3▸       4▸   5▸EXEC&CONT
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	From Program	To Program	Volume	—
Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 209).

Knob 2

[⌢Turn] From Program
Selects the program to be saved.
[Range] 001 — 128

Knob 3

[⌢Turn] To Program
Selects the number of the destination program.
[Range] 001 — 128

Knob 4

[⌢Turn] Volume
Selects the destination volume.

Knob 5

Same function as Cursor ❶ (page 209).

Cursor ❷
(when the SaveType is OneProgram or OneSequence)

```
Command Save          FD VOLUME
SaveType  OneSample(Bank)
Sample
     "triangle         "
ATM              FD
EXEC                              EXEC&CONT
```
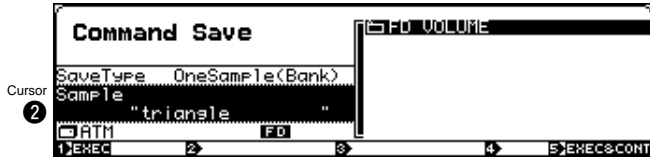
Cursor ❷

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	—	Sample/Sequence	Volume	—
	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 209).

Knob 3

[� Turn]   Sample / Sequence

Selects the sample or sequence to be saved.

When the selected Save Type is OneSample, Knob 3 selects the sample to be saved.

When the selected Save Type is OneSequence, Knob 3 selects the sequence to be saved.

All samples (sample banks) and sequences in memory can be selected.

Knob 4

[⌒ Turn]   Volume

Selects the destination volume.

Knob 5

Same function as Cursor ❶ (page 209).

Cursor ❸

```
Command Save          FD VOLUME
SaveType  OneSample(Bank)
Sample
     "triangle         "
ATM              FD
EXEC                              EXEC&CONT
```

Cursor ❸

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	Disk	—	Volume	—
	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 209).

Knob 3

[⌒ Turn]   Disk

Selects the destination disk.

Knob 4

[⌒ Turn]   Volume

Selects the destination volume.

Knob 5

Same function as Cursor ❶ (page 209).

Name Conflicts

During a save operation, the A5000/A4000 may encounter a sample or sequence that has the same name as a sample or sequence already existing within the destination volume.

The first time the A5000/A4000 encounters this type of name duplication during a save, it displays the command page shown below. You must then determine how to resolve the name conflict, as follows.

```
Command Save          FD VOLUME
SaveType  OneSample(Bank)
Sample
!Same name! "sine wave        "(SMP)
One  RENAME        SKIP     REPLACE     ABORT
```

■ **Select whether to repeat this page display for each duplication**

If you are saving more than one sample, you can use this knob to select whether to handle all sample-name duplications in the same way, or whether to have the A5000/A4000 prompt you for instructions each time it encounters another conflict.

• If you select One, the A5000/A4000 will display the above-shown command page each time it encounters another sample-name duplication. You can decide how to proceed for each such sample.

• If you select All, the A5000/A4000 will apply your instructions to all same-name samples that it encounters during the current save operation.

Note that the One/All selection has no meaning if you are saving a single sample only, or if you are saving a sequence. (It is not possible to save more than one sequence in a single operation.)

■ **Save Methods**

If an object with the same name already exists in the save destination, the data can be saved by either of the following 4 methods.

• **Change the name of the object to be saved.**

Push Knob 2 if you want to rename the object (sample or sequence) in memory before executing the save. This option lets you keep both the original disk object and the newly saved object. If you select this option, the A5000/A4000 appends an asterisk (*) to the memory-resident name before executing the save.

• **Don't save objects with duplicate names.**

Push this knob if you do not want to save the conflicting object to disk. In this case, the original disk-side object will remain unchanged.

• **Overwrite the object on disk with the object from memory.**
Push this knob if you want to overwrite the existing disk object with the object that you are saving. If you select this option, the A5000/A4000 will delete the original disk object and replace it with the object from main memory.

• **Abort the save operation.**
Push this knob to terminate the save operation without executing any further saves. Note that it is not possible to undo any saves that you have already completed.

NOTE

Saving and loading to or from multiple floppy disks.

• *Data which is too large to fit on a single floppy disk can be segmented and saved to multiple floppy disks. A confirmation display allowing you to choose to abort the save operation or save to multiple floppies will appear when saving data too large for a single floppy. Press Knob 5 (OK) to execute a multi-floppy save. You will not need to change disks at this point.*

• *When performing a multi-floppy save, follow the instructions on the display and insert new floppy disks as required. Unformatted disks can be used from the second disk onward (unformatted disks will automatically be formatted without interrupting the save operation).*

• *Multi-floppy data is saved in a special format, and saved programs and samples cannot be verified in the DISK mode. For this reason, single programs or samples cannot be loaded from floppy disks saved in this way, and addition programs or samples cannot be saved to the disks.*

• *Data saved to multiple floppy disks can be loaded by first inserting the first floppy disk and executing the load operation from the DISK-VOLUME display (page 172). Then all you need to do is change floppies as directed by the display.*

• *The disk names for multiple-saved floppy disks are the name of the first disk plus a consecutive numbers. The disks must be changed in the order of their consecutive numbers when loading the data.*

• *Since the contents of floppy disks saved in this way cannot be verified in the disk mode, choose a disk name that clearly reflects the disks' contents.*

ARRANGE

[COMMAND/EXIT] Button → Knob 1 to highlight display line 1 → Press Knob 5

Automatically arranges the mapping of samples assigned to the selected program or sample bank. The samples are arranged in order of their Low Key Range settings, from lowest to highest.

[Operation]

1. Use the Arrange Type parameter to specify whether the samples in a Program or Sample Bank (page 211).

2. Select the Program or Sample Bank which uses the samples to be arranged (page 211).

3. Use Cursor ❷ Knobs 2 and 3 to specify the conditions for the samples to be arranged.

4. Use Cursor ❷ Knobs 4 and 5 to speflicy the arrange conditions.

5. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the arrange confirmation display will appear. Press Knob 5 (YES) to execute the arrange operation.

NOTE • *If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the arrange display will be retained so you can continue and perform further arrange operations.*

Cursor ❶

```
Command Arrange
ArrangeType              Program
    Program             001:Pgm 001
🔊TargetCh   🔊TargetArea  🔊MapFrom    MapKey
     A01      C-2(→G 8)        C 1→      white
1▶EXEC        2▶           3▶          4▶    5▶EXEC&CONT
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
🔄	Turn action	Cursor	Arrange Type	Program	SampleBank	—
⬆	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[🔄 Turn] Cursor
Positions the cursor.

[⬆ Press] EXEC
Press this knob to call the arrange confirmation display. Press Knob 5 (YES) to actually execute the arrange operation.

Knob 2

[🔄 Turn] Arrange Type
Determines whether the mapping of samples assigned to a program or sample bank will be arranged.

[Range] Program, SampleBank

• **Program** ... The mapping of samples assigned to a program will be arranged.

• **SampleBank** ... The mapping of samples assigned to a Sample Bank will be arranged.

Knob 3

[🔄 Turn] Program
Selects the program to which automatic sample remapping (Arrange) is to be applied.
This can only be set when the Arrange Type is set to Program.

[Range] 001 — 128

Knob 4

[🔄 Turn] SampleBank
Selects the sample bank to which automatic sample remapping (Arrange) is to be applied.
This can only be set when the Arrange Type is set to SampleBank.

[Range] All sample banks in memory

Knob 5

[⬆ Press] EXEC&CONT

Press this knob to call the arrange confirmation display. Press Knob 5 (YES) to actually execute the arrange operation.

Cursor ❷

```
Command Arrange

ArrangeType              Program
       Program           001:Psm 001
🔊TargetCh    🔊TargetArea    🔊MapFrom      MapKey
       A01          C-2(→G 8)          C 1→         white
1]EXEC    2]MIDI        3]MIDI       4]MIDI    5]EXEC&CONT
```

Cursor ❷

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	Target Channel	Target Area	Map From	Map Key
Press action	EXEC	MIDI	MIDI	MIDI	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 211).

Knob 2

[⌒ Turn] Target Channel

Specifies the MIDI channel which will be used to select the samples to be arranged.

[Range] A01 — B16 (01 — 16 on the A4000), Bch, all

- • **A01 — B16 (01 — 16 on the A4000)** ... Only samples set to the corresponding receive channel will be arranged.

- • **Bch** ... Only samples set to the basic receive channel (page 94) will be arranged.

- • **all** ... All assigned samples will be arranged.

[⬆ Press] MIDI

Allows setting the Target Channel parameter directly from an external MIDI controller (page 82).

> **NOTE** • When setting the MIDI channel via MIDI on the A5000, receive the appropriate MIDI messages via the MIDI IN-A connector to set channels A01 — A16, and via the MIDI IN-B connector to set channels B01 — B16.

Knob 3

[⌒ Turn] Target Area

Specifies the lowest note in the key area containing samples to be arranged.

[Range] C-2 — G8

- • When the Arrange Type parameter is set to Program, all samples in the range from the specified Target Area note up to G8 will be selected for arrangement.

- • When the Arrange type parameter is set to SampleBank, samples which are both in the SAMPLE parameter Key Range (page 127) and in the range from the Target Area not to G8 will be selected.

[⬆ Press] MIDI

Allows setting the Target Area parameter directly from an external MIDI controller (page 82).

Knob 4

[⌒ Turn] Map From

Sets the base note for sample arrangement. The samples selected for arrangement will be mapped from the specified Map From note upward, key by key.

[Range] C-2 — G8

[⬆ Press] MIDI

Allows setting the Map From parameter directly from an external MIDI controller (page 82).

Knob 5

[⌒ Turn] Map Key

Determines whether samples will or will not be assigned to black keys.

[Range] White, all

- • **White** ... Samples will be assigned only to white keys.

- • **all** ... samples will be assigned to all keys (white and black).

[⬆ Press] EXEC&CONT

Press this knob to call the arrange confirmation display. Press Knob 5 (YES) to actually execute the arrange operation.

FREEZE

[COMMAND/EXIT] Button → Knob 1 to highlight display line 2 → Press Knob 2.

This command actually applies the current Easy Edit or Sample Bank settings directly to the samples. After execution the Easy Edit or Sample Bank settings are initialized.

> **HINT** • If a sample which uses Easy Edit settings or sample bank settings is copied to a different program or sample bank, the sound of the sample will change. The Freeze function can be used to actually apply the Easy Edit or sample bank settings to a sample so that it can be moved to any other program or sample bank with no change in sound. It is also possible to simultaneously change the loop modes of all samples contained in a sample bank.

[Operation]

1. Select the Freeze Type (page 213).
2. Make other settings as required.
3. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the freeze confirmation display will appear. Press Knob 5 (YES) to execute the freeze operation.

> **NOTE** • If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the freeze display will be retained so you can continue and perform further freeze operations.

Cursor ❶

```
Command Freeze

Cursor ❶  FreezeType          EasyEdit→Sample
          From              To
          Program           Type
          001:Pgm 001       AllSamples
          1>EXEC      2>      3>      4>      5>EXEC&CONT
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤵	Turn action	Cursor	Freeze Type	—	—	—
⬆	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[⤵ Turn] Cursor

Positions the cursor.

[⬆ Press] EXEC

Press this knob to call the freeze confirmation display. Press Knob 5 (YES) to actually execute the freeze operation.

Knob 2

[⤵ Turn] Freeze Type

Sets the source of the settings to be applied to the samples.

[Range] EasyEdit → Sample,
SampleBank&LpMode → Samples,
SampleBank → Samples,
LpMode → Samples

- **EasyEdit → Sample** ... The Program mode Easy Edit settings are applied directly to the related samples (Sample Banks). The Easy Edit parameters are initialized after execution, with the exception of the following parameters: MIDI Control (page 101) if the target is samples, or MIDI Control (page 101), Pitch Fine (page 98), Key Range Shift (page 99), and Key Low/High Limit (page 99) if the target is Sample Banks. In some other cases some parameters may not be applied to the samples or Sample Banks. The samples within a target Sample Bank are not affected.

- **SampleBank&LpMode → Samples** ... The Sample Bank settings are directly applied to the samples it contains. The Sample Banks settings are initialized after execution. At the same time the Loop Mode (page 123) settings of all samples within the specified Sample Bank are changed.

- **SampleBank → Samples** ... The Sample Bank settings are directly applied to the samples it contains. The Sample Banks settings are initialized after execution.

- **LpMode → Samples** ... The Loop Mode (page 123) settings of all samples within the specified Sample Bank are changed.

Knob 5

[⬆ Press] EXEC&CONT

Press this knob to call the freeze confirmation display. Press Knob 5 (YES) to actually execute the freeze operation.

Cursor ❷
(when the FreezeType is EasyEdit → Sample)

```
Command Freeze

          FreezeType          EasyEdit→Sample
Cursor    From              To
❷         Program           Type
          001:Pgm 001       AllSamples
          1>EXEC      2>      3>      4>      5>EXEC&CONT
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤵	Turn action	Cursor	From SampleBank	To Type	—	To Sample
⬆	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 213).

Knob 2

[⤵ Turn] From Program

Selects the source Program for the Freeze operation.

[Range] 001 — 128

Knob 3

[⤵ Turn] To Type

Determines whether the Easy Edit settings will be applied to all samples (Sample Bank), or to a single specified sample (Sample Bank).

[Range] AllSamples, OneSample

- **AllSamples** ... All samples (Sample Banks) used by the program will be affected.

- **OneSample** ... Only the specified single sample (Sample Banks) will be affected.

Knob 5

[⤵ Turn] To Sample

Specifies the target sample or sample bank for the Freeze operation.
All samples (Sample Banks) assigned to the Program selected via the From Program parameter can be selected.

NOTE • *This parameter can only be used when the To Type parameter is set to OneSample.*

[⬆ Press] EXEC&CONT

Press this knob to call the freeze confirmation display. Press Knob 5 (YES) to actually execute the freeze operation.

Cursor ❷
(when the FreezeType is SampleBank&LpMode → Samples, SampleBank → Samples, and LpMode → Samples)

Cursor ❷

```
Command Freeze

FreezeType      SampleBank&LpMode→Samples
From
SampleBank                    LoopMode
     "sine wave        "          --→
1)EXEC        2)      3)      4)      5)EXEC&CONT
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor	—	From SampleBank	Loop Mode	—
▲	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 213).

Knob 3

[⌒Turn] From SampleBank
Selects the source Sample Bank for the freeze operation. All Sample Banks in memory can be selected.

Knob 4

[⌒Turn] Loop Mode
Sets the Loop Mode. When the Freeze command is executed the Loop Mode settings of all samples within the target Sample Bank are set accordingly. All Loop Modes can be selected (page 123).

> **NOTE** • This parameter can only be used when the Freeze Type is set to SampleBank&LpMode→Samples or LpMode→Samples.

Knob 5

Same function as Cursor ❶ (page 213).

REGISTER

[COMMAND/EXIT] Button →
Knob 1 to highlioght display line 2 → Press Knob 3.

This command registers the initial EFFECT, SETUP, and CONTROL function settings which will be recalled whenever the power is turned on or when a program is initialized (page 217) from the specified source program. It also registers the initial sample parameters which will be recalled whenever a sample is recorded (page 151) or imported (page 175) from the specified source sample.

> **HINT** • If, for example, you want reverb to be ON whenever the power is turned on or a program is initialized, use the following procedure:
> **1.** Create a program that uses reverb.
> **2.** Go to the REGISTER page and select Program as the Regist Type.
> **3.** Select the program created in step **1** as the Source Program, and set the Regist Source EFFECT parameter to SourcePgm.
> **4.** Execute the Register command.

> **NOTE** • The registered settings are retained even when the power is turned off.
> • When new settings are registered the previously registered settings are erased and overwritten.

[Operation]

1. Select the Regist Type (page 215).
2. Make other settings as required.
3. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the register confirmation display will appear. Press Knob 5 (YES) to execute the register operation.

> **NOTE** • If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the register display will be retained so you can continue and perform further register operations.

Cursor ❶

Cursor ❶

```
Command Register

RegistType        Program
RegistSource
[EFFECT]      [SETUP]      [CONTROL]    SourcePgm
       off          off          off    001:Pgm 001
1)EXEC        2)      3)      4)      5)EXEC&CONT
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor	Regist Type	—	—	—
▲	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[⌒Turn] Cursor
Positions the cursor.

[▲Press] EXEC
Press this knob to call the register confirmation display. Press Knob 5 (YES) to actually execute the register operation.

Knob 2

[Turn] Regist Type
Determines whether Program or Sample initial settings
are to be registered.

[Range] Program, Sample

Knob 5

[Press] EXEC&CONT
Press this knob to call the register confirmation display.
Press Knob 5 (YES) to actually execute the register oper-
ation.

Cursor ❷ (when the RegistType is Program)

```
Command Register

RegistType        Program
RegistSource
[EFFECT]       [SETUP]       [CONTROL]    SourcePgm
          off           off          off  001:Pgm 001
1]EXEC        2]           3]          4]   5]EXEC&CONT
```

Cursor ❷

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	Regist Source EFFECT	Regist Source SETUP	Regist Source CONTROL	Source Program
	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 214).

Knob 2

[Turn] Regist Source EFFECT
Specifies the source of the data to be registered as the
initial effect settings.

[Range] off, SourcePgm, FactorySet

> • **off** ... No initial effect settings will be registered.
> The currently registered settings are retained.

> • **SourcePgm** ...The effect settings of the specified
> Source Program will be registered.

> • **FactorySet** ... The initial factory effect settings will
> be registered.

Knob 3

[Turn] Regist Source SETUP
Specifies the source of the data to be registered as the
initial setup settings.

[Range] off, SourcePgm, FactorySet

> • **off** ... No initial setup settings will be registered.
> The currently registered settings are retained.

> • **SourcePgm** ...The setup settings of the specified
> Source Program will be registered.

> • **FactorySet** ... The initial factory setup settings will
> be registered.

Knob 4

[Turn] Regist Source CONTROL
Specifies the source of the data to be registered as the
initial control settings.

[Range] off, SourcePgm, FactorySet

> • **off** ... No initial control settings will be registered.
> The currently registered settings are retained.

> • **SourcePgm** ...The control settings of the specified
> Source Program will be registered.

> • **FactorySet** ... The initial factory control settings
> will be registered.

Knob 5

[Turn] Source Program
Specifies the source program for the Register operation.

[Range] 001 — 128

> **NOTE** • This setting has no effect if if the Regist Source
> EFFECT, Regist Source SETUP, and Regist Source
> CONTROL parameters are not set to SourcePgm.

[Press] EXEC&CONT
Press this knob to call the register confirmation display.
Press Knob 5 (YES) to actually execute the register
operation.

Cursor ❷ (when the RegistType is Sample)

```
Command Register

RegistType        Sample
RegistSource              SourceSample
          SourceSample    "sine wave    "
1]EXEC        2]           3]          4]   5]EXEC&CONT
```

Cursor ❷

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	—	Regist Source	—	Source Sample
	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 214).

Knob 3

[Turn] Regist Source
Specifies the source of the data to be registered as the
initial sample settings.

[Range] SourceSample, FactorySet

> • **SourceSample** ... The setup settings of the speci-
> fied Source Sample will be registered.

> • **FactorySet** ... The initial factory setup settings will
> be registered.

Knob 5

[⌒Turn] Source Sample

Specifies the source sample for the Register operation. All samples in memory can be selected.

> **NOTE** • If the Regist Source parameter is set to FactorySet, the Source Sample setting will not be used when the command is executed.

[⬆ Press] EXEC&CONT

Press this knob to call the register confirmation display. Press Knob 5 (YES) to actually execute the register operation.

BULK DUMP

[COMMAND/EXIT] Button → Knob 1 to highlight display line 2 → Press Knob 4.

The Bulk Dump command allows program and sample data in memory to be transferred to other MIDI devices as MIDI bulk data.

> **NOTE** • The device numbers of the transmitting and receiving devices must be properly matched for bulk data transfers.

[Operation]

1. Select the Bulk Type (page 216).
2. Make other settings as required.
3. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the bulk dump confirmation display will appear. Press Knob 5 (YES) to execute the bulk dump operation.

> **NOTE** • If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the bulk dump display will be retained so you can continue and perform further bulk dump operations.

```
Command BulkDump



BulkType    |WithRelated |Program
Program     |        on  |001:Pgm 001
1)EXEC     2)          3)          4)          5)EXEC&CONT
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	—	Bulk Type	With Related / Format	Program	Sample
Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[⬆ Press] EXEC

Press this knob to call the bulk dump confirmation display. Press Knob 5 (YES) to actually execute the bulk dump operation.

Knob 2

[⌒Turn] Bulk Type

Specifies the type of data to be transferred via the Bulk Dump operation.

[Range] Program, Sample, System, All

- **Program** ... The single program specified via Knob 4 will be transmitted.
- **Sample** ... The single sample or sample bank specified via Knob 5 will be transmitted.
- **System** ... The system data will be transmitted.
- **All** ... All data, including the system data, will be transmitted.

Knob 3

[⌒Turn] With Related / Format

When "With Related," all samples assigned to the selected program, or all samples within the selected sample bank, can be automatically transmitted at the same time as the specified program/sample bank.

[Range] off, on

- **off** … Sample data is not transmitted.
- **on** … Sample data is also transmitted.

> **NOTE** • The "With Related" setting is possible when the Bulk Type is set to Program or Sample and a sample bank has been selected via Knob 5.

Format determines the type of data to be transmitted.

[Range] normal, parameter, SDS#1 — SDS#1025

- **normal** ... Transmit all data (wave and parameter) in A5000/A4000 format.
- **parameter** ... Transmit parameter data only, in A5000/A4000 format.
- **SDS#1 — SDS#1025** ... Transmit all data (wave and parameter data) in "sample-dump standard format." The numerical value gives the SDS sample number transmitted along with the dumped data.

> **NOTE** • The "Format" setting is possible when the Bulk Type is set to Sample and a sample has been selected via Knob 5.

Knob 4

[⌒Turn] Program

Specifies the program to be transmitted via the Bulk Dump operation.

[Range] 001 — 128

> **NOTE** • This parameter can only be used when the Bulk Type is set to Program.

Knob 5

[⌢ Turn] Sample

Specifies the sample (sample bank) to be transmitted via the Bulk Dump operation.

All samples (sample banks) in memory can be selected.

NOTE • This parameter can only be used when the Bulk Type is set to Sample.

[⬆ Press] EXEC&CONT

Press this knob to call the bulk dump confirmation display. Press Knob 5 (YES) to actually execute the bulk dump operation.

INITIALIZE

[COMMAND/EXIT] Button → Knob 1 to highlight display line 2 → Press Knob 5.

Use this screen to initialize one or all memory-resident programs.

NOTE • Initialization removes all sample assignments (sets all ToPgm switches to OFF), clears all Easy Edit settings, and returns the EFFECT, SETUP, and CONTROL settings to the initial values selected at the REGISTER page (page 214). (If you have not set any REGISTER values, then EFFECT, SETUP, and CONTROL settings revert to their factory defaults)

[Operation]

1. Select the Init Type (page 217).

2. If the Init Type is OneProgram, specify the program to be initialized (page 217).

3. Specify whether to initialize from the Register settings, or from the factory preset settings (page 217).

4. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the initialize confirmation display will appear. Press Knob 5 (YES) to execute the initialize operation.

NOTE • If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the bulk dump display will be retained so you can continue and perform further bulk dump operations.

```
Command Initialize


InitType              InitTo
AllPrograms                    RegisteredSet
1▶EXEC        2▶       3▶       4▶      5▶EXEC&CONT
```

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌢	Turn action	—	Init Type	Program	—	InitTo
⬆	Press action	EXEC	—	—	—	EXEC&CONT

Knob 2

[⌢ Turn] Init Type

Determines whether a single program or all programs will be initialized.

[Range] AllPrograms, OneProgram

• **AllPrograms** ... Initialize all programs.

• **OneProgram** ... Initialize only the program selected by Knob 3.

Knob 3

[⌢ Turn] Program

Selects a single program to be initialized.

[Range] 001 — 128

NOTE • This parameter can only be used if Init Type is set to OneProgram.

Knob 5

[⌢ Turn] InitTo

Specifies the type of initialization to be performed.

[Range] RegisteredSet, FactorySet

• **RegisteredSet** ... The values registered via the REGISTER command are used for initialization.

• **FactorySet** ... The factory preset values are used for initialization.

[⬆ Press] EXEC&CONT

Press this knob to call the initialize confirmation display. Press Knob 5 (YES) to actually execute the initialize operation.

PROCESS

[COMMAND/EXIT] Button → Knob 1 to highlight display line 3
→ Press Knob 2

The PROCESS commands include sample normalization, reverse, fade, loop crossfade, and more.

[Operation]

1. Select the Process Type to be applied to the sample.
2. Select the sample to be processed.
3. Set other parameters as required.
4. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the process confirmation display will appear. Press Knob 5 (YES) to execute the process operation.

NOTE
- *The content of this display will vary according to the selected Process Type.*
- *If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the process display will be retained so you can continue and perform further process operations.*

Cursor ❶ (the same for all Process Types)

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor	Process Type	—	—	Sample
⬆	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[⌒ Turn] Cursor
Positions the cursor.
The cursor cannot be moved when the Reverse Process Type is selected.

[⬆ Press] EXEC
Press this knob to call the process confirmation display. Press Knob 5 (YES) to actually execute the process operation.

Knob 2

[⌒ Turn] Process Type
Specifies the type of processing to be applied to the sample.

[Range] Normalize, Reverse, Fade, LoopXfade

- **Normalize** ... The peak level of the selected sample is detected, and the overall level of the waveform is adjusted so that the peak level is just below clipping (i.e. the level is maximized). The wave data can also be deliberately clipped or the plus or minus sides of the waveform can be individually adjusted to change the sound as required.
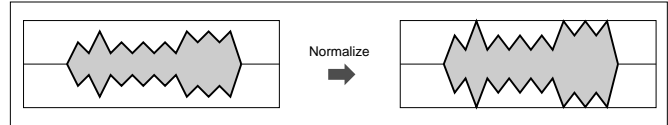
- **Reverse** ... This command reverses the waveform with respect to time, so that the sound is reversed.
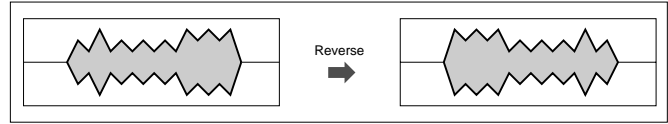
NOTE
- *The command reverses the entire waveform. Operation is not restricted to the area between the start and end addresses.*
- *When Reverse is executed, the wave start and end addresses are automatically adjusted so that the wave sounds over the same region. The same applies to the loop start and end addresses: they are automatically adjustyed so that the loop plays over the same region.*

- **Fade** ... Applies a gradual fade-in from the wave start address or fade-out to the wave end address.
- **LoopXfade** ... produces a smooth transition at the loop crossover point.

Knob 5

[⌒ Turn] Sample
Selects the sample to be processed.

[Range] All samples in memory.

[⬆ Press] EXEC&CONT
Press this knob to call the process confirmation display. Press Knob 5 (YES) to actually execute the process operation.

Cursor ❷ (when the Process Type is Normalize)

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor	—	Plus Side Gain	—	Minus Side Gain
⬆	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 218).

Knob 3

[⌒Turn] Plus Side Gain

Specifies an amount of amplification (in percent) to be applied to only the plus side (the section of the waveform above the center "0" line) of the selected sample's waveform. A setting of "100%" normalizes only the plus side of the waveform. Settings higher than "100%" may produce clipping.

[Range] 0% — 400%
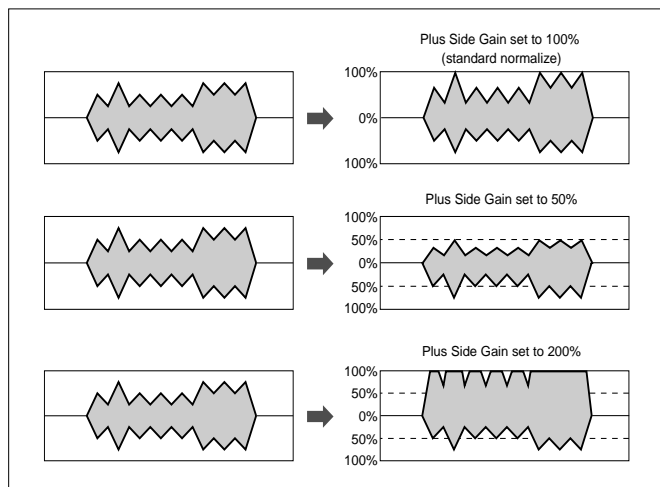
Knob 5

[⌒Turn] Minus Side Gain

Specifies an amount of amplification (in percent) to be applied to only the minus side (the section of the waveform below the center "0" line) of the selected sample's waveform. A setting of "100%" normalizes only the minus side of the waveform. Settings higher than "100%" may produce clipping.

[Range] 0% — 400%
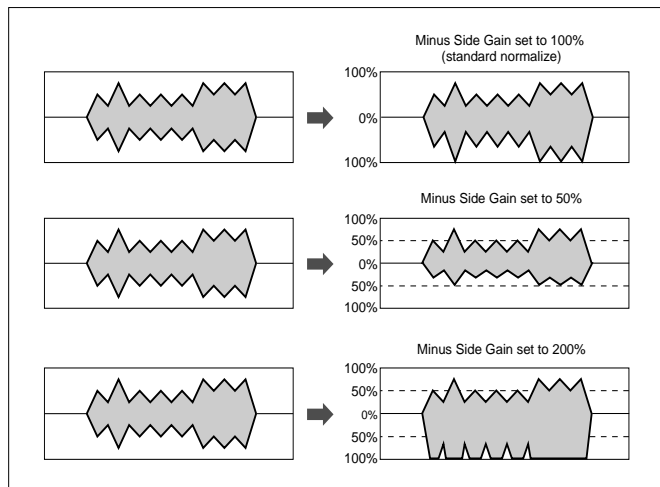
[⬆Press] EXEC&CONT

Press this knob to call the normalize confirmation display. Press Knob 5 (YES) to actually execute the normalize operation.

Cursor ❷ (when the Process Type is Fade)

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌒	Turn action	Cursor	Fade Type	Curve	Length	Length %
⬆	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 218).

Knob 2

[⌒Turn] Fade Type

Specifies the type of fade to be created: fade in or fade out.

[Range] FadeIn, FadeOut

• **FadeIn** ... Produces a fade-in.

• **FadeOut** ... Produces a fade-out.
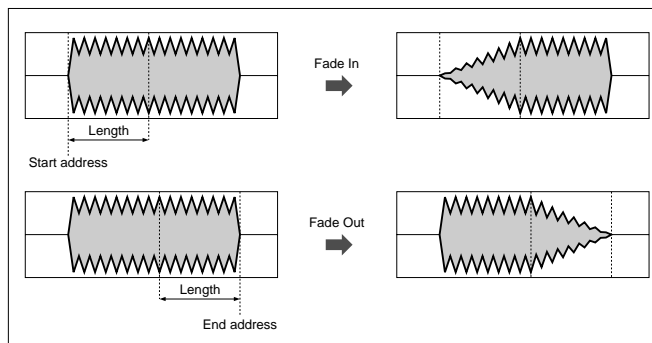
Knob 3

[⌒Turn] Curve

This setting selects the curve type for the fade in/out. Three types are available, as illustrated below.

[Range] -exponent, linear, +exponent
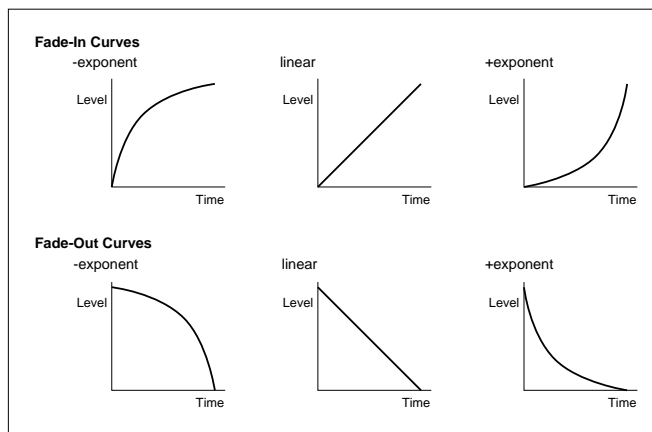
Knob 4

[⟳Turn] length

Turn the knob to set the length for the fade, in "address" units. The minimum length is 0 (no fade). The maximum length is equal to the entire playback length of the wave-form (the length from the start address to the end address).

Note again that fade-in always begins from the start address, while fade-out always ends at the end address.

[Range] 0 — Wave length

Knob 5

[⟳Turn] length %

Specifies the length of the fade in or fade out as a percentage of the wave length. This parameter works in conjunction with the length (Knob 4) parameter.

[Range] 0% — 100%

[⬆ Press] EXEC&CONT

Press this knob to call the fade confirmation display. Press Knob 5 (YES) to actually execute the fade operation.

Cursor ❷ (when the Process Type is LoopXfade)

```
Command Process

ProcessType              Sample
  LoopXfade                "sine wave         "
XFadeArea      Curve                    Width
  sustain       -exponent                      0%
1>EXEC      2        3        4       5>EXEC&CONT
```

Cursor ❷

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⟳	Turn action	Cursor	Crossfade Area	Curve	—	Width
⬆	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 218).

Knob 2

[⟳Turn] Crossfade Area

Selects the area over which crossfade is applied, and determines the segments that are used to generate the crossfade.

[Range] sustain, release

- **sustain** ... Generates the crossfade by merging the end part of the loop with the area just preceding the loop start. This method produces smoother sustained looping, and the crossfade recurs with each iteration.

- **release** ... Generates the crossfade by merging the initial part of the loop with the initial segment following the loop area. This method produces a smoother loop release, and the crossfade occurs only once (as the loop is exited). This method is useful only with the "→O→" loop type.

Processing if Crossfade Area = sustain:

Start Address   Loop Start Address   Loop End Address   End Address

A   B   C   D   E   F

Width (where C — D = 100%)
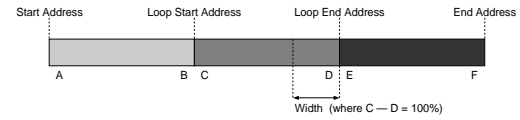
Step 1: Copy waveform piece from end of segment A — B into a buffer. Extract piece of equal length from the end of C — D, and copy into another buffer. The length of these pieces is determined by the Width setting.

Step 2: Apply fade-in processing to the A — B piece, and fade-out processing to the C — D piece.

Step 3: Combine the two resulting waveforms, and write the result into the extraction area at the end of C — D.

Processing if Crossfade Area = release:

Start Address   Loop Start Address   Loop End Address   End Address

A   B   C   D   E   F

Width (where C — D = 100%)
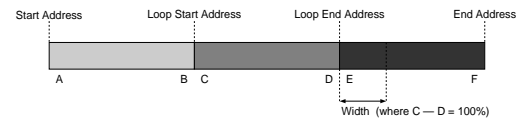
Step 1: Copy waveform piece from start of segment C — D into a buffer. Extract equal piece from the start of E — F, and copy into another buffer. The lengths of these pieces is determined by the Width setting.

Step 2: Apply fade-in processing to the C — D piece, and fade-out processing to the E — F piece.

Step 3: Combine the two resulting waveforms, and write the result into the extraction area at the start of E — F.

Knob 3

[⟳Turn] Curve

This setting selects the curve type for the loop cross fade. Three types are available, as illustrated below.

[Range] -exponent, linear, +exponent

Fade-In Curves

-exponent   linear   +exponent

Level / Time

Fade-Out Curves

-exponent   linear   +exponent

Level / Time
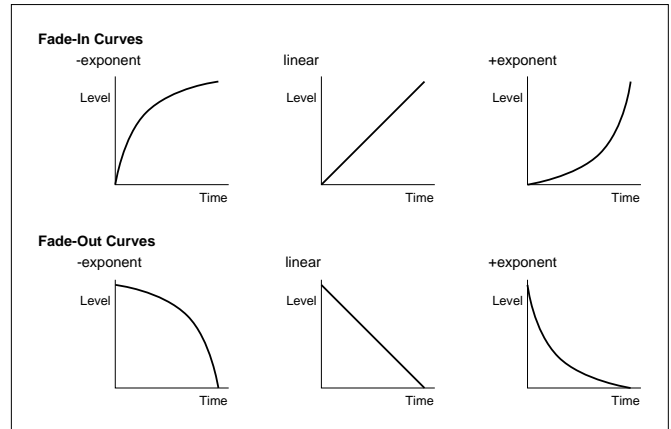
Knob 5

[⟳Turn] Width

Sets the length of the crossfade area, as a percentage of the total loop length.

[Range] 0% — 90%

[⬆ Press] EXEC&CONT

Press this knob to call the loop cross fade confirmation display. Press Knob 5 (YES) to actually execute the loop cross fade operation.

LOOP DIVIDE

[COMMAND/EXIT] Button → Knob 1 to highlight display line 3
→ Press Knob 3

Divides the wave data between the sample loop start and loop end points into equal segments which become independent samples.

This command allows multiple copies of the selected sample to be created and placed in a new sample bank. The actual wave data, however, is not copied. The wave and loop addresses of the new samples are equal divisions of the area between the loop start and end addresses of the original sample. The loop mode for the new samples is automatically set to "– – →". The new samples are stored with consecutive numbers in a sample bank which is automatically named "Div SmpBank."

* **Make sure the sample's loop is properly set up before using this feature.**

> **HINT**
> • This feature can be used to extract individual beats from a drum pattern sample, for example, and save them as individual samples.
> • The individual samples produced by the Loop Divide feature are automatically mapped to consecutive notes, so the resultant samples can be assigned to a program or sample bank and played via MIDI right away.

[Operation]

1. Select the sample to be divided.
2. Set other parameters as required.
3. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the loop divide confirmation display will appear. Press Knob 5 (YES) to execute the loop divide operation.

> **NOTE**
> • If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the loop divide display will be retained so you can continue and perform further loop divide operations.

Cursor ❶

Command LoopDivide

```
                              Sample
                              "sine wave        "
Division     Length     @MapFrom      MapKey
    1/ 8       210%          C 1→       white
1▸EXEC     2▸          3▸         4▸    5▸EXEC&CONT
```
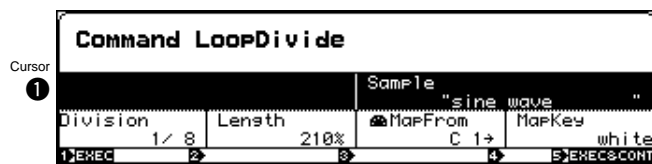
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	—	—	Sample
Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[⤺ Turn] Cursor

Positions the cursor.

[⬆ Press] EXEC

Press this knob to call the loop divide confirmation display. Press Knob 5 (YES) to actually execute the loop divide operation.

Knob 5

[⤺ Turn] Sample

Selects the sample to be divided.

[Range] All samples in memory.

[⬆ Press] EXEC&CONT

Press this knob to call the loop divide confirmation display. Press Knob 5 (YES) to actually execute the loop divide operation.

Cursor ❷

Command LoopDivide

```
                              Sample
                              "sine wave        "
Division     Length     @MapFrom      MapKey
    1/ 8       210%          C 1→       white
1▸EXEC     2▸          3▸         4▸    5▸EXEC&CONT
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	Division	Length	Map From	Map Key
Press action	EXEC	—	—	MIDI	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 221).

Knob 2

[⤺ Turn] Division

Determines the number of segments the sample will be divided into.

The wave data between the sample loop start and loop end points is divided into the corresponding number of equal segments. The address of each segment becomes the wave start address of each new sample.

[Range] 1/2 — 1/32

Knob 3

[⤺ Turn] Length

Specifies the length of the samples produced by the Loop Divide command as a percentage.

[Range] 10% — 800%, ToLoopEnd

> • **10% — 800%** ... The wave length of the resultant samples will be the specified percentage of the segments produced by the Loop Divide command, starting at the new wave start address of each new sample. With a setting of 100% the length of the samples is the same as the segments produced by dividing the loop.
>
> • **ToLoopEnd** ... The loop end address of the original sample becomes the wave end address of the new samples.

Knob 4

[⌒Turn] Map From

Sets the original note for the divided samples. The samples are mapped with the first sample at the specified note and the following samples at successively higher notes.

[Range] C-2 — G8

[⬆Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device. See page 82.

Knob 5

[⌒Turn] Map Key

Determines whether samples will or will not be assigned to black keys.

[Range] white, all

• **white** ... Samples will be assigned only to white keys.

• **all** ... samples will be assigned to all keys (white and black).

[⬆Press] EXEC&CONT

Press this knob to call the loop divide confirmation display. Press Knob 5 (YES) to actually execute the loop divide operation.

RESAMPLE

[COMMAND/EXIT] Button → Knob 1 to highlight display line 3 → Press Knob 4

Applies time stretch and pitch conversion to samples. Time stretch changes the length of samples without changing their pitch, while pitch convert changes the pitch of samples without changing their length.

NOTE
• *The command lengthens or shortens the entire waveform. (Operation is not restricted to the area between the start and end addresses.)*
• *Time conversion may produce unexpected results with some samples. It is recommended that you limit adjustment to 10% in either direction, except in cases where you are trying to achieve an unusual effect.*
• *Following time conversion, the "start address" and "loop start address" reset to the wave-start address (=0), and the "end address" and "loop end address" reset to the wave-end address.*

[Operation]

1. Select the Resample Type.
2. Select the sample to be resampled.
3. Set other parameters as required.
4. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the resample confirmation display will appear. Press Knob 5 (YES) to execute the resample operation.

NOTE
• *The content of this display will vary according to the selected Resample Type.*
• *If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the resample display will be retained so you can continue and perform further resample operations.*

Cursor ❶ (the same for all Resample)

```
Command Resample
ResampleType                 Sample
        TimeStretch(tempo)          "sine wave        "
From ( 88.8)   To ( 88.8)                   Accuracy
    ( 90.0)            90.0           128        normal
1>EXEC        2>          3>     4>AUDITION  5>EXEC&CONT
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	Resample Type	—	Sample
Press action	EXEC	—	—	AUDITION	EXEC&CONT

Knob 1

[⌒Turn] Cursor

Positions the cursor.

[⬆Press] EXEC

Press this knob to call the resample confirmation display. Press Knob 5 (YES) to actually execute the resample operation.

Knob 2

[⌒Turn] Resample Type

Determines the type of resample processing to be applied to the selected sample.

[Range] TimeStretch(tempo), TimeStretch(length), TimeStretch(beat), TimeStretch(time), PitchConvert

• **TimeStretch(tempo)** ... Time stretch with the resultant sample length being based on a specified tempo.

• **TimeStretch(length)** ... Time stretch with the resultant sample length being based on a specified wave-data length.

• **TimeStretch(beat)** ... Time stretch with the resultant sample length being based on a specified beat (beats per playback time).

• **TimeStretch(time)** ... Time stretch with the resultant sample length being based on a specified playback time.

• **PitchConvert** ... Conversion to a specified pitch.

Knob 4

[⬆Press] AUDITION

Press this knob to hear the results of the resample operation before the resample operation is actually executed.

Knob 5

[⌢Turn] Sample

Selects the sample to be processed.

[Range] All samples in memory.

[⬆Press] EXEC&CONT

Press this knob to call the resample confirmation display. Press Knob 5 (YES) to actually execute the resample operation.

Cursor ❷
(when the Resample Type is TimeStretch (length), TimeStretch (beat), or TimeStretch (time))

```
Command Resample

ResampleType                    Sample
       TimeStretch(length)            "sine wave      "
Cursor  From            To                       Accuracy
❷      (      128)    128|         100%              normal
       1)EXEC       2)         3)        4)AUDITION   5)EXEC&CONT
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌢ Turn action	Cursor	—	To length / beat / time	length% / beat% / time%	Accuracy
⬆ Press action	EXEC	—	—	AUDITION	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 222).

Knob 2

[Display] From length / beat / time

Shows the original length, beat, or time values of the sample. The display content will change according to the selected Resample Type.

Knob 3

[⌢Turn] To length / beat / time

Specifies the length the sample is to be "stretched" to.

[Range] 1/4 — 4 times the original sample length.

NOTE • *When this value is changed the Length%/Beat%/ Time% parameter (Knob 4) also changes.*

• *This parameter cannot be set so that as a result of the time stretch operation mono samples are longer than 32 megabytes or stereo samples are longer than 64 megabytes.*

Knob 4

[⌢Turn] length % / beat % / time %

Specifies the length of the time-stretched sample as a percentage of the original sample length.

[Range] 25% — 400%

NOTE • *When this value is changed the Length/Beat/Time parameter (Knob 3) also changes.*

[⬆Press] AUDITION

When this knob is pressed the results of the resample operation with the current settings can be auditioned prior to actually executing the resample operation.

Knob 5

[⌢Turn] Accuracy

Time-stretch conversion does not produce perfect results, and involves a tradeoff between sound and rhythm quality. This setting allows you to give priority to either sound or rhythm quality when making the conversion.

[Range] sound4 — sound1, normal, rhythm1 — rhythm4

• **sound4 — sound1** ... sound4 to give maximum weight to sound quality.

• **rhythm1 — rhythm4** ... rhythm4 to give maximum weight to rhythm quality.

• **normal** ... normal for equal weight. Other values are intermediate settings.

[⬆Press] EXEC&CONT

Press this knob to call the time stretch confirmation display. Press Knob 5 (YES) to actually execute the time stretch operation.

Cursor ❷
(when the Resample Type is TimeStretch(tempo))

```
Command Resample

ResampleType                    Sample
       TimeStretch(tempo)             "sine wave      "
Cursor  From ( 88.8)  To ( 88.8)               Accuracy
❷      ( 90.0)         90.0          128              normal
       1)EXEC       2)         3)        4)AUDITION   5)EXEC&CONT
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⌢ Turn action	Cursor	—	To Tempo	—	Accuracy
⬆ Press action	EXEC	CALC	—	AUDITION	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 222).

Knob 2

[Display] From Tempo

The upper line of the display shows the sample's original loop tempo. The lower line shows the tempo of the selected sample with the Pitch Coarse and Pitch Fine values applied.

NOTE • *Easy Edit values are not applied.*

[⬆Press] CALC

Press this knob to recalculate the loop tempo of the selected sample.

Knob 3

[⌢Turn] To Tempo

Specifies the target tempo of the sample after time stretch is applied.

[Range] 1/4 — 4 times the original loop tempo.

NOTE • *This parameter cannot be set so that as a result of the time stretch operation mono samples are longer than 32 megabytes or stereo samples are longer than 64 megabytes.*

Knob 4

[⬆ Press] AUDITION

When this knob is pressed the results of the resample operation with the current settings can be auditioned prior to actually executing the resample operation.

Knob 5

[⟳ Turn] Accuracy

Time-stretch conversion does not produce perfect results, and involves a tradeoff between sound and rhythm quality. This setting allows you to give priority to either sound or rhythm quality when making the conversion.

[Range] sound4 — sound1, normal, rhythm1 — rhythm4

- **sound4 — sound1** ... sound4 to give maximum weight to sound quality.
- **rhythm1 — rhythm4** ... rhythm4 to give maximum weight to rhythm quality.
- **normal** ... normal for equal weight. Other values are intermediate settings.

[⬆ Press] EXEC&CONT

Press this knob to call the time stretch confirmation display. Press Knob 5 (YES) to actually execute the time stretch operation.

Cursor ❷ (when the Resample Type is PitchConvert)

```
Command Resample

ResampleType                    Sample
          PitchConvert               "triangle      "
🔒From      To   (F#3)              Accuracy
          F#3│Coarse  +0│Fine    +0         normal
1>EXEC   2>MIDI          3>      4>AUDITION 5>EXEC&CONT
```

Cursor ❷

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⟳ Turn action	Cursor	From Pitch	To Pitch Coarse	To Pitch Fine	Accuracy
⬆ Press action	EXEC	MIDI	—	AUDITION	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 222).

Knob 2

[⟳ Turn] From Pitch

Specifies the target pitch for the Pitch Convert operation.

[⬆ Press] MIDI

When this knob is pressed the parameter can be directly set by a MIDI note-on message received from an external MIDI device. See page 82.

Knob 3

[⟳ Turn] To Pitch Coarse

Use this knob to raise or lower the pitch in semitone increments.

[Range] -12 — +12

NOTE • This parameter cannot be set so that as a result of the pitch convert operation mono samples are longer than 32 megabytes or stereo samples are longer than 64 megabytes.

Knob 4

[⟳ Turn] To Pitch Fine

Use this knob to raise or lower the pitch in increments of 1.171875 cents. (Note: 100 cents = 1 semitone.)

[Range] -50 — +50

[⬆ Press] AUDITION

When this knob is pressed the results of the resample operation with the current settings can be auditioned prior to actually executing the resample operation.

Knob 5

[⟳ Turn] Accuracy

Time-stretch conversion does not produce perfect results, and involves a tradeoff between sound and rhythm quality. This setting allows you to give priority to either sound or rhythm quality when making the conversion.

[Range] sound4 — sound1, normal, rhythm1 — rhythm4

- **sound4 — sound1** ... sound4 to give maximum weight to sound quality.
- **rhythm1 — rhythm4** ... rhythm4 to give maximum weight to rhythm quality.
- **normal** ... normal for equal weight. Other values are intermediate settings.

[⬆ Press] EXEC&CONT

Press this knob to call the pitch convert confirmation display. Press Knob 5 (YES) to actually execute the pitch convert operation.

STEREO → MONO

[COMMAND/EXIT] Button → Knob 1 to highlight display line 3
→ Press Knob 5

Converts stereo samples to mono.

[Operation]

1. Select the stereo → mono Type.
2. Select the sample to be converted.
3. Specify the sample name for the new mono sample.
4. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the stereo → mono confirmation display will appear. Press Knob 5 (YES) to execute the stereo → mono operation.

NOTE • If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the stereo → mono display will be retained so you can continue and perform further stereo → mono operations.

Cursor ❶

		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	—	Stereo→Mono Type	—	Sample
	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[Turn] Cursor
Positions the cursor.

[Press] EXEC
Press this knob to call the stereo → mono confirmation display. Press Knob 5 (YES) to actually execute the stereo → mono operation.

Knob 3

[Turn] Stereo→Mono Type
Specifies whether both channels of the original stereo sample or only the left or right channel are to be converted to a mono sample.

[Range] L+R→Mono, L→Mono, R→Mono

- **L+R→Mono** ... The left and right channels of the original sample are mixed and converted to a mono sample.

- **L→Mono** ... Only the left channel of the original stereo sample is converted to a mono sample.

- **R→Mono** ... Only the right channel of the original stereo sample is converted to a mono sample.

Knob 5

[Turn] Sample
Selects the sample to be processed.

[Range] All samples in memory

[Press] EXEC&CONT
Press this knob to call the stereo → mono confirmation display. Press Knob 5 (YES) to actually execute the stereo → mono operation.

Cursor ❷
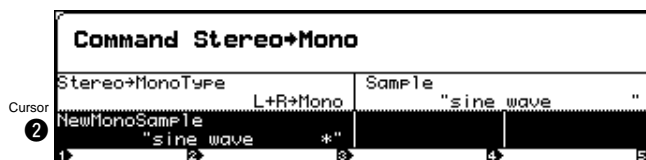
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
	Turn action	Cursor	—	—	—	—
	Press action	EXEC	—	RENAME...	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 225).

Knob 3

[Press] RENAME...
Press to call the character-entry display for the currently selected sample name. See page 81 for details on character entry.

Knob 5

[Press] EXEC&CONT
Press this knob to call the stereo → mono confirmation display. Press Knob 5 (YES) to actually execute the stereo → mono operation.

MOVE

[COMMAND/EXIT] Button → Knob 1 to highlight display line 4
→ Press Knob 2

Moves the samples assigned to a program to a sample bank,
or the samples in a sample bank to another sample bank or
program.

HINT • This command can be used to combine two sample banks into one,
or consolidate all the samples in a program that was created with-
out using sample banks into a sample bank, etc.

[Operation]

1. Select the Move Type.
2. Select the program or sample bank to be moved.
3. Select the destination program or sample bank.
4. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the move
confirmation display will appear. Press Knob 5 (YES) to execute
the move operation.

NOTE • If Knob 1 (EXEC) is used to execute the command, the display pre-
vious to the command menu will be recalled after execution has fin-
ished. If Knob 5 (EXEC&CONT) is used to execute the command,
the move display will be retained so you can continue and perform
further move operations.

Cursor ❶

```
Cursor  ┌ Command Move                            ┐
  ❶     │                                         │
        │MoveType           Program→SampleBank |  │
        │From                 To                  │
        │Program              SampleBank          │
        │          001:Pgm 001        "sine wave" │
        └1        2        3          4          5┘
```
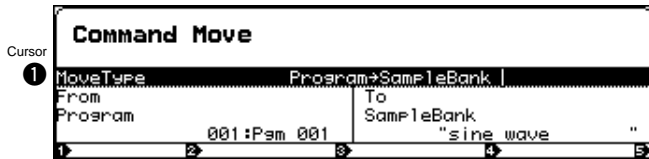
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤴	Turn action	Cursor	—	—	Move Type	—
⬆	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[⤴Turn] Cursor
Positions the cursor.

[⬆Press] EXEC
Press this knob to call the move confirmation display.
Press Knob 5 (YES) to actually execute the move opera-
tion.

Knob 4

[⤴Turn] Move Type
Specifies what type of data is to be moved to what type of
destination, and how Easy Edit parameters are to be han-
dled.

[Range] Program→SampleBank,
Program(Freeze)→SampleBank,
SampleBank→Program,
SampleBank(Freeze)→Program,
SampleBank→SampleBank

• **Program→SampleBank** ... All samples assigned
to the selected program (not including sample
banks or samples contained in sample banks)
are moved to the selected sample bank.

• **Program(Freeze)→SampleBank** ... After applying
the Easy Edit parameters to the samples
(Freeze — page 213), all samples assigned to
the selected program (not including sample
banks or samples contained in sample banks)
are moved to the selected sample bank.

• **SampleBank→Program** ... All samples contained
in the selected sample bank are removed from
the sample bank and assigned to the selected
program.

• **SampleBank(Freeze)→Program** ... After applying
the sample bank parameters to the samples it
contains (Freeze — page 213), all samples
contained in the selected sample bank are
removed from the sample bank and assigned
to the selected program.

• **SampleBank→SampleBank** ... All samples con-
tained in the selected sample bank are moved
to a second selected sample bank.

Knob 5

[⬆Press] EXEC&CONT
Press this knob to call the move confirmation display.
Press Knob 5 (YES) to actually execute the move opera-
tion.

Cursor ❷

```
Cursor  ┌ Command Move                            ┐
  ❷     │MoveType           Program→SampleBank |  │
        │From                 To                  │
        │Program              SampleBank          │
        │          001:Pgm 001        "sine wave" │
        └1        2        3          4          5┘
```
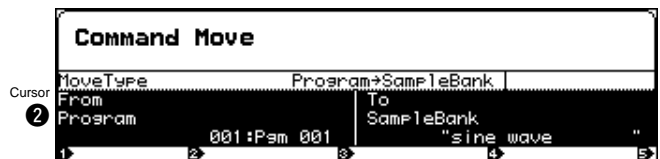
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
⤴	Turn action	Cursor	From Program	From SampleBank	To Program	To SampleBank
⬆	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 226).

Knob 2

[⤴Turn] From Program
Specifies the source program from which samples are to
be moved. This parameter can be used when the Move
Type is set to Program→SampleBank or Pro-
gram(Freeze)→SampleBank.

[Range] 001 — 128

Knob 3

[ꛃTurn] From SampleBank

Specifies the source sample bank from which samples are to be moved. This parameter can be used when the Move Type is set to SampleBank→Program, Sample-Bank(Freeze)→Program, or SampleBank→SampleBank.

[Range] All sample banks in memory.

Knob 4

[ꛃTurn] To Program

Specifies the destination program to which samples are to be moved. This parameter can be used when the Move Type is set to SampleBank→Program or Sample-Bank(Freeze)→Program.

[Range] 001 — 128

Knob 5

[ꛃTurn] To SampleBank

Specifies the destination sample bank to which samples are to be moved. This parameter can be used when the Move Type is set to Program→SampleBank, Pro-gram(Freeze)→SampleBank, or Sample-Bank→SampleBank.

[Range] All sample banks in memory.

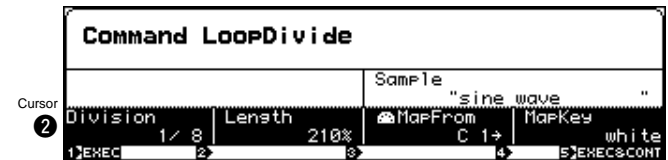**[Press] EXEC&CONT**

Press this knob to call the move confirmation display. Press Knob 5 (YES) to actually execute the move opera-tion.

CREATE OSC

[COMMAND/EXIT] Button → Knob 1 to highlight display line 4 → Press Knob 3

Creates 7 different basic oscillator waveforms: sine wave, saw up, triangle, square, pulse 1, pulse 2, pulse 3.

NOTE • If a sample with the same name already exists in memory, the exist-ing sample is used.

[Operation]

1. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the create oscillator confirmation display will appear. Press Knob 5 (YES) to execute the create oscillator operation.

NOTE • If Knob 1 (EXEC) is used to execute the command, the display pre-vious to the command menu will be recalled after execution has fin-ished. If Knob 5 (EXEC&CONT) is used to execute the command, the create oscillator display will be retained so you can continue and perform further create oscillator operations.

```
Command Create OSC



Samples
        Standard 7 Samples
1:EXEC      2:↕         3:↕         4:↕        5:EXEC&CONT
```
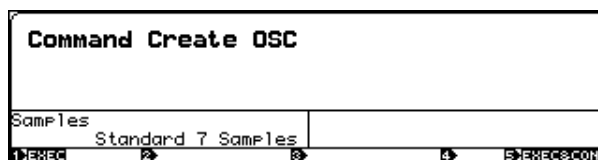
		Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
ꛃ	Turn action	—	—	—	—	—
▲	Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[Press] EXEC

Press this knob to call the create oscillator confirmation display. Press Knob 5 (YES) to actually execute the cre-ate oscillator operation.

Knob 5

[Press] EXEC&CONT

Press this knob to call the create oscillator confirmation display. Press Knob 5 (YES) to actually execute the cre-ate oscillator operation.

EXPORT

[COMMAND/EXIT] Button → Knob 1 to highlight display line 4
→ Press Knob 4

Coverts the selected sample to AIFF or WAV format (audio wave data formats commonly used on personal computers) and saves the result to an MS-DOS format floppy disk or hard disk.

If a sample bank is selected all samples contained in that sample bank are converted and saved.

After conversion an ".AIF" suffix is appended to AIFF format files, and a ".WAV" suffix is appended to WAV format files.

NOTE
• Large samples cannot be exported to multiple floppy disks.
• Most playback settings will be lost when samples are exported. Thus if an exported sample is re-imported the original sample setting may not be reproduced as expected.
• Stereo samples are exported in a stereo file format.

[Operation]

1. Select the Export Type.
2. Select the sample to be exported.
3. Select the destination disk and/or directory.
4. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the export confirmation display will appear. Press Knob 5 (YES) to execute the export operation.

NOTE
• If Knob 1 (EXEC) is used to execute the command, the display previous to the command menu will be recalled after execution has finished. If Knob 5 (EXEC&CONT) is used to execute the command, the export display will be retained so you can continue and perform further export operations.

Cursor ❶
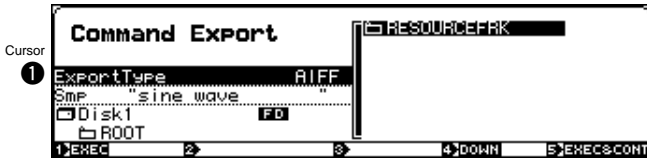
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	Export Type	File/Directory	—
Press action	EXEC	—	UP	DOWN	EXEC&CONT

Knob 1

[Turn] Cursor
Positions the cursor.

[Press] EXEC
Press this knob to call the export confirmation display. Press Knob 5 (YES) to actually execute the export operation.

Knob 3

[Turn] Export Type
Spefícies the format of the exported file.

[Range] AIFF, WAV

• **AIFF** ... A single specified sample is exported as an AIFF file.
• **WAV** ... A single specified sample is exported as a WAV file.

[Press] UP
Press this knob to move upward from the current disk directory to the next highest directory.

NOTE
• Pressing the UP knob will have no effect if the top (root) directory on the disk is selected.

Knob 4

[Turn] File/Directory
Selects the file or directory from the list on the right side of the display to which the data will be exported.

[Range] All files and directories in the current directory.

NOTE
• If a directory is selected from the list the exported data will be saved to that directory.
• If a file is selected from the list the data will be saved to the current directory (the directory shown in the lower left corner of the display)

[Press] DOWN
Opens the selected directory in the list. The name of the newly opened directory will appear on the left side of the display, and the files and directories it contains will be listed on the right side of the display.

NOTE
• This command cannot be executed when a file is selected from the list.

Knob 5

[Press] EXEC&CONT
Press this knob to call the export confirmation display. Press Knob 5 (YES) to actually execute the export operation.

Cursor ❷

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	—	Sample	File/Directory	—
Press action	EXEC	—	UP	DOWN	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 228).

Knob 3

[Turn] Sample

Selects the sample or sample bank to be exported. When a sample bank is selected, all samples contained in that sample bank are exported.

[Range] All samples in memory.

[Press] UP

Press this knob to move upward from the current disk directory to the next highest directory.

NOTE • *Pressing the UP knob will have no effect if the top (root) directory on the disk is selected.*

Knob 4, 5

Same function as Cursor ❶ (page 228).

Cursor ❸

Cursor ❸

```
Command Export            RESOURCEFRK
ExportType        AIFF
Smp    "sine wave   "
 Disk1          FD
 ROOT
1)EXEC      2)        3)      4)DOWN   5)EXEC&CONT
```
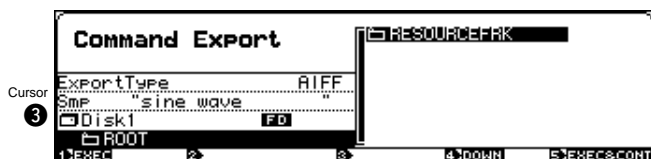
	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	Cursor	Disk	—	File/Directory	—
Press action	EXEC	—	UP	DOWN	EXEC&CONT

Knob 1

Same function as Cursor ❶ (page 228).

Knob 2

[Turn] Disk

Selects the floppy disk, hard disk, or other storage media to which the data is to be exported. When a disk is selected, all directories it contains are listed below the disk name, and all programs contained in the selected volume are listed on the right side of the display. When a hard disk, CD-ROM drive or similar storage device is selected, the SCSI ID number or IDE M/S (Master/Slave) status of the device is shown to the right of the disk name.

[Range] All installed/connected disks.

NOTE • *Data can only be exported to MS-DOS format floppy disks, hard disks, or similar media.*

• *If a connected SCSI device cannot be selected, go to the disk select display (DISK-DISK-Disk) and check the mount/unmount status and SCSI ID settings of the device (page 173).*

Knob 3

[Press] UP

Press this knob to move upward from the current disk directory to the next highest directory.

NOTE • *Pressing the UP knob will have no effect if the top (root) directory on the disk is selected.*

Knob 4, 5

Same function as Cursor ❶ (page 228).

REVERT

[COMMAND/EXIT] Button → Knob 1 to highlight display line 4
→ Press Knob 5

Restores the selected sample or sample bank to the previously saved version.

(HINT)   • You use this operation to cancel "errors" that you make when editing or re-recording a sample. Assume, for example, that you record a sample, immediately save the results to disk (as you should), and then start to edit. If you now make a significant error during editing, you can use the REVERT command to restore the sample to its initial state. You can then begin editing all over again.

(NOTE)   • The Revert command cannot be executed for samples which have been loaded but not edited, samples which have not been saved, or imported samples which have not been saved.
   • The Revert command cannot be executed if the disk to which the sample was saved is not connected or mounted.

[Operation]

1. Select the target sample.
2. Press Knob 1 (EXEC) or Knob 5 (EXEC&CONT), and the revert confirmation display will appear. Press Knob 5 (YES) to execute the revert operation.

```
Command Revert


                        Sample
                         "sine wave        "
1]EXEC        2]         3]         4]      5]EXEC&CONT
```

	Knob 1	Knob 2	Knob 3	Knob 4	Knob 5
Turn action	—	—	—	—	Sample
Press action	EXEC	—	—	—	EXEC&CONT

Knob 1

[⬆ Press] EXEC
> Press this knob to call the revert confirmation display. Press Knob 5 (YES) to actually execute the revert operation.

Knob 5

[⤵ Turn]   Sample
> Selects the sample or sample bank to be reverted.
>
> **[Range] All samples in memory.**

[⬆ Press] EXEC&CONT
> Press this knob to call the revert confirmation display. Press Knob 5 (YES) to actually execute the revert operation.

Appendix

Installing Optional Equipment

The A5000/A4000 features connectors and installation space which can accommodate a range of options for enhanced the performance and functionality — SIMM expansion memory, an I/O expansion board, Internal SCSI and IDE hard disk drives, ZIP drives, etc.

Removing the Top Cover

[Procedure]

1. Be sure that you have the following at hand before starting the installation.
- **Phillips screwdriver:** Magnetic-tipped screwdriver is recommended.
- **Workbench:** Please carry out all work on a stable workbench or table. Spreading a cloth over the work surface will help prevent scratching.
- **Gloves:** Be sure to wear gloves so that your hands are not scratched by the metal cover or other metal parts.

2. Switch off the A5000/A4000 power, and unplug the power cord from the wall outlet.

3. Remove the screws holding the A5000/A4000 top cover in place.
- Set the A5000/A4000 upside down on the workbench and unscrew the 8 screws (①) along the sides of the bottom (see illustration below). Then turn the A5000/A4000 right side up again and unscrew the 3 screws (②) along the top. Then unscrew the 5 screws (③) holding the cover to the rear panel.
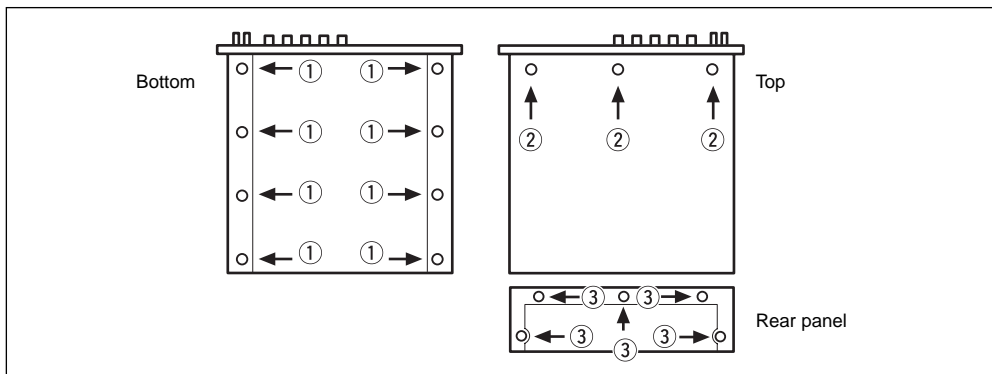
4. Holding both sides of the top cover with both hands, carefully slide the cover straight back (over the rear panel) and off.
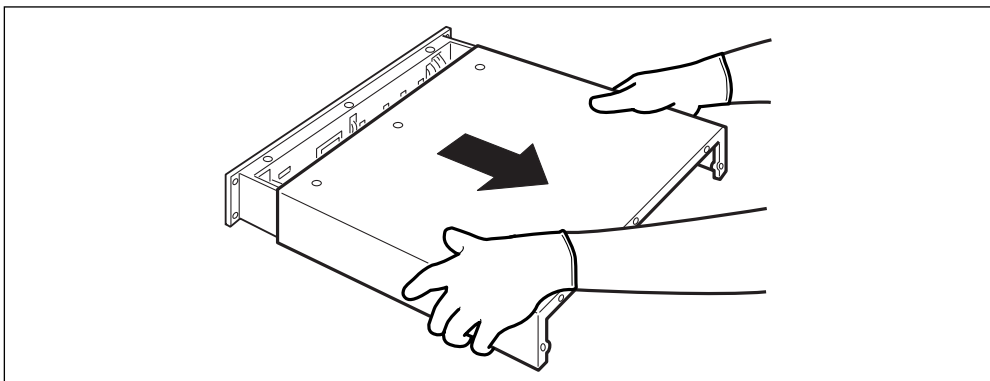
Replacing the Top Cover

Important

• When replacing the top cover be sure that you do not get cables caught between the cover and main unit, or apply unnecessary force to the cables or internal circuitry.

[Procedure]

1. Holding both sides of the top cover with both hands, carefully slide the cover back to its original position.
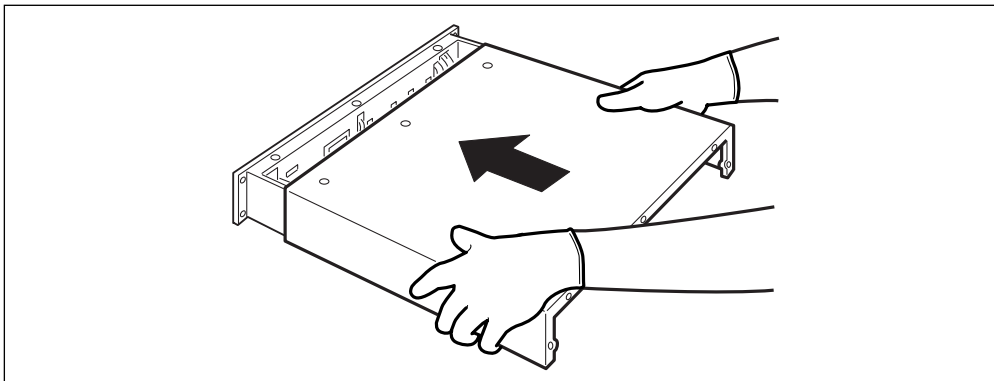
2. Use the original screws to re-attach the top cover.
  • Use a "plus" screwdriver to replace the five screws ① in the rear panel. Tighten the central screw first ("★" in the illustration below).
  • Then, facing the front of the unit attach the three screws across the top ② while applying pressure to the center of the rear-panel side of the top panel to hold it in place.
  • Finally, turn the unit upside down and attach the 8 bottom-panel screws ③.

    NOTE • *Do not use screws other than those removed in step 3 on page 232 (①, ②, ③, are the same screws). Other screws can damage the unit.*
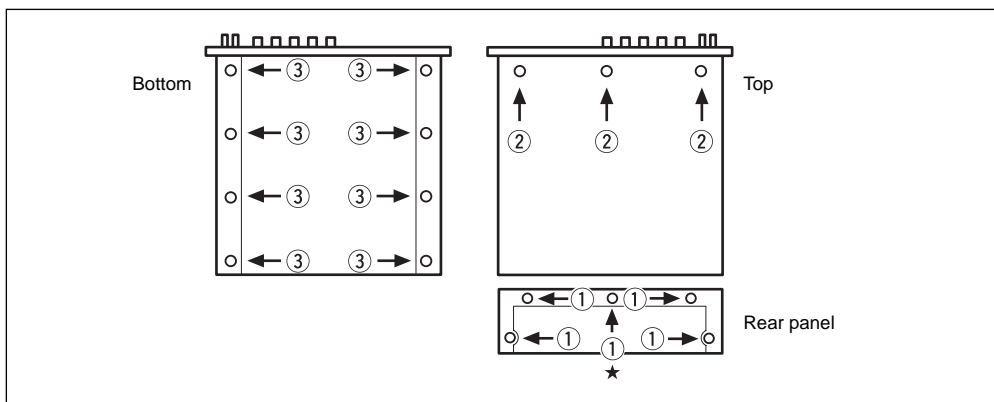
Installing SIMMs

You can increase the A5000/A4000's sampling memory by installing commercially available SIMMs (single in-line memory modules). This section explains how to carry out the installation.
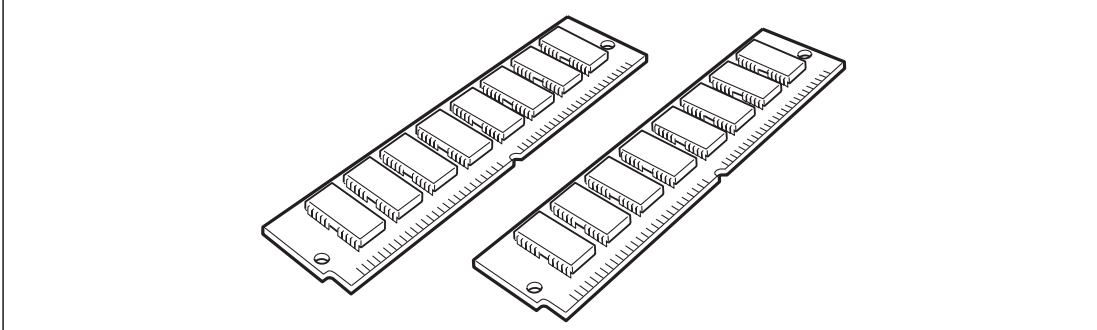
Important Information about Purchase of Expansion SIMMs for the A5000/A4000

The A5000/A4000 does not necessarily support all commercially available SIMMs. Before purchasing SIMMs, please consult your Yamaha dealer or an authorized Yamaha distributor (see list at end of the Owner's Manual) for advice. Note that Yamaha cannot assume responsibility for SIMM malfunctions.

SIMM Type and SIMM Configuration

• Before performing the installation, please read precautions "Handling and Installation of Options," found at the beginning of this manual.

• You need to use 72-pin SIMMs with access time of 70ns or less. The SIMM module size may be 4MB, 8MB, 16MB, or 32MB. The A5000/A4000 is designed for use with 32-bit (parity non-type) SIMMs, but can also accept installation of 36-bit (parity-type) SIMMs.

• When purchasing SIMMs, make sure that the SIMM design does not utilize more than 18 memory chips per module. (SIMMs comprised of more than 18 chips do not operate correctly on the A5000/A4000.)

• SIMMs must be installed in pairs: you can install either two SIMMs or four SIMMs. Both modules in a pair must have the same memory capacity.

• The A5000/A4000 ships with 4MB of sampling memory installed, and is capable of accessing up to 128MB. If you add one pair of 32MB SIMMs, for example, you increase the available sampling memory to a total of (4 + 32 x 2 =) 68MB. If you install four 32MB SIMMs, however, the sampling memory size becomes 128MB (and the original 4MB are effectively disabled).

• Yamaha recommends that you purchase SIMMs that conform to the JEDEC* standard. Please be aware, however, that conformance to this standard does not constitute a guarantee that the SIMMs will operate correctly on the A5000/A4000.

   * JEDEC (Joint Electron Device Engineering Council) sets standards for terminal configurations within electronic devices.

[Procedure]

1. Be sure that you have the following at hand before starting the installation.
   • **SIMMs (One or two pairs: 2 or 4 modules)**
   • **Phillips screwdriver:** Magnetic-tipped screwdriver is recommended.
   • **Workbench:** Please carry out all work on a stable workbench or table. Spreading a cloth over the work surface will help prevent scratching.
   • **Gloves:** Be sure to wear gloves so that your hands are not scratched by the metal cover or other metal parts.

2. Remove the top cover (page 232).

3. Insert the SIMM module into the slot on the circuit board.
- First identify the sockets you will install the SIMMs into.
- There are four sockets, divided into two banks. The two sockets for bank 1 are labeled 1, and the two sockets for bank 2 are labeled 2. Bank 1 must be filled first, and then if necessary you can proceed to fill bank 2. (The labels 1 and 2 are located at the left side of the slot when viewed from the front panel.)
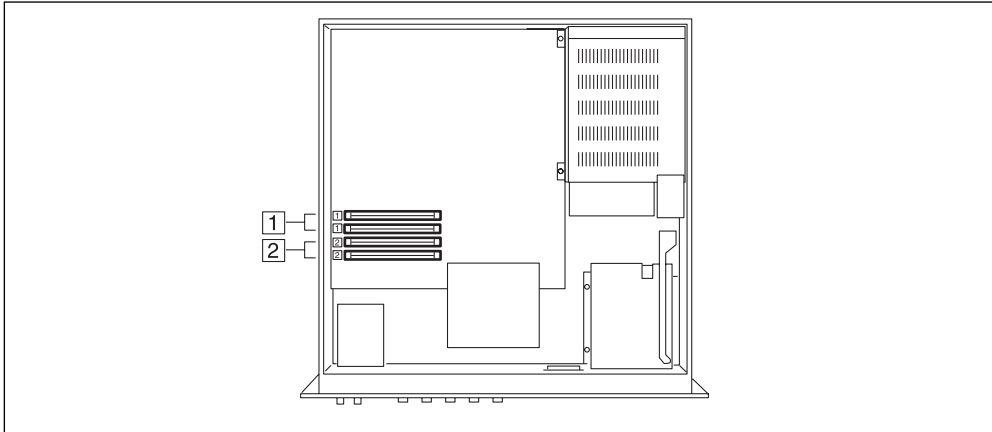
If you are using different SIMM sizes in the two banks, the larger size must be installed into the Bank 1 sockets to ensure that the A5000/A4000 handles the memory correctly. For example, if you are adding one pair of 32MB SIMMs and one pair of 8MB SIMMs, you must install the 32MB SIMMs into Bank 1. If you already have SIMMs installed in Bank 1 and are now adding a larger pair, you will need to move the original pair into Bank 2 and insert the new pair into Bank 1.

NOTE • *When inserting SIMMs, always begin with the free socket furthest from the A5000/A4000 front side. (SIMMs will not fit into the sockets if you reverse this order.)*

- Hold the SIMM with its cutout part facing to the left (as viewed from the front panel), and set it into the socket at an angle as shown in Figure (1). Then push in direction shown in Figure (2) so that it becomes upright and the hook snaps into place.

(1)

(2)
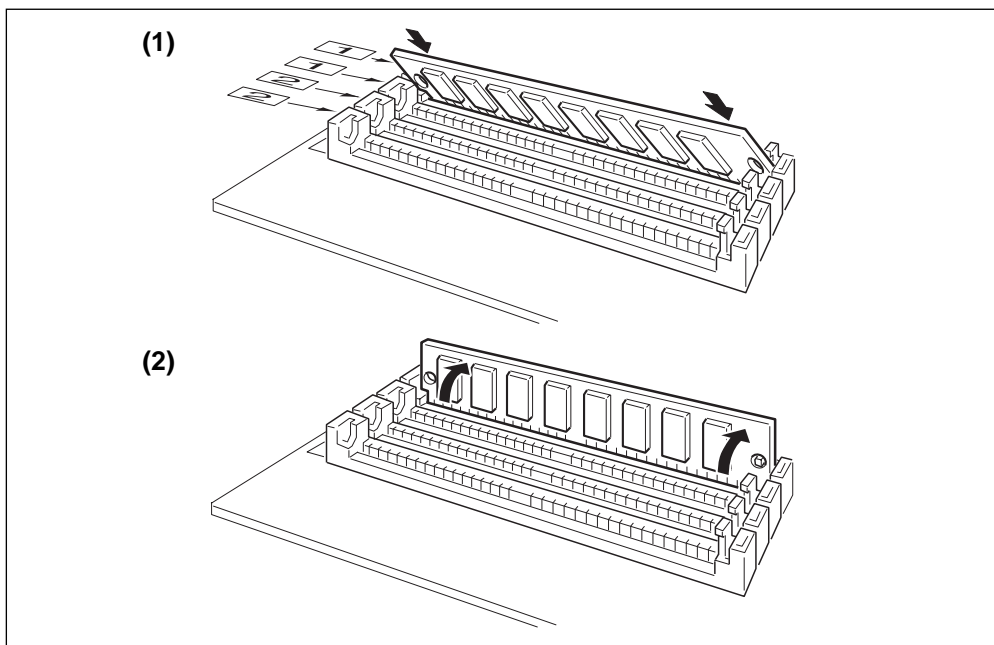
- Repeat this step for each SIMM that you wish to install.
- If you need to remove a SIMM from a socket, hold open the two hooks on the socket (one at each end) and push on the SIMM so that it moves to the opposite angle from that shown in Figure (2) (toward yourself in the diagram), and then pull the SIMM out.

This completes the installation.
There is no need to remove the expansion board when installing other devices.

4. Replace the top cover (page 233).

5. Plug in the power cord.
- Check the FREE MEMORY display in the PLAY-PROGRAM-PgmSel display page (page 89) to ensure that the newly installed SIMM memory is functioning properly.

Installing the AIEB1 I/O Expansion Board

The optional AIEB1 Input/Output expansion board adds digital I/O (both optical and coaxial formats) and six assignable outputs to the A5000/A4000. For information about the board's connectors and general board setup, refer to information elsewhere in this manual.
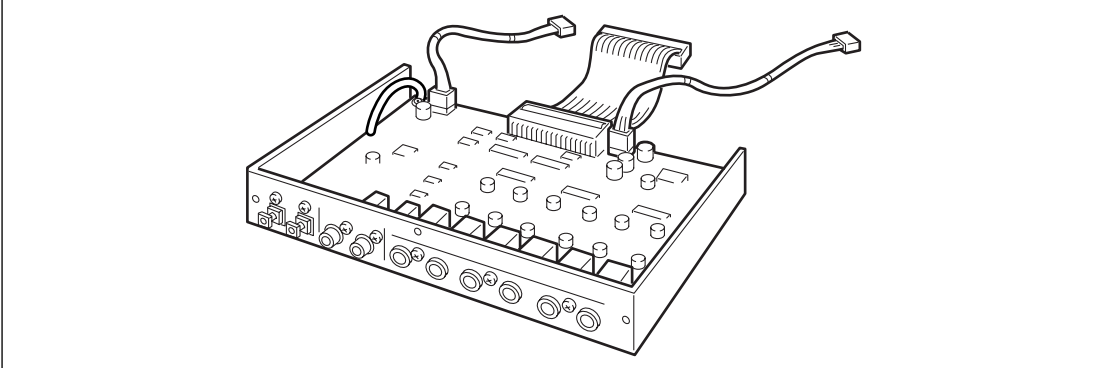
Important

• Before performing the installation, please read precautions "Handling and Installation of Options," found at the beginning of this manual.

[Procedure]

1. Be sure that you have the following at hand before starting the installation.
  • **AIEB1 I/O expansion board:** Confirm that there are 3 cables extending from the board.
  • **Phillips screwdriver:** Magnetic-tipped screwdriver is recommended.
  • **Workbench:** Please carry out all work on a stable workbench or table. Spreading a cloth over the work surface will help prevent scratching.
  • **Gloves:** Be sure to wear gloves so that your hands are not scratched by the metal cover or other metal parts.

2. Remove the top cover (page 232).

3. Now go to the rear panel and remove the 3 screws (A) holding the I/O cover in place. Take the I/O cover out.

> **NOTE** • The I/O cover may fall inside the unit when all 3 screws are removed, so be sure to hold the I/O cover with one hand while removing the screws.
> • The I/O cover will not be needed as long as the AIEB1 is installed, but the screws with which it was attached will be used to attach the AIEB1, so be careful not to misplace them.

I/O cover

A
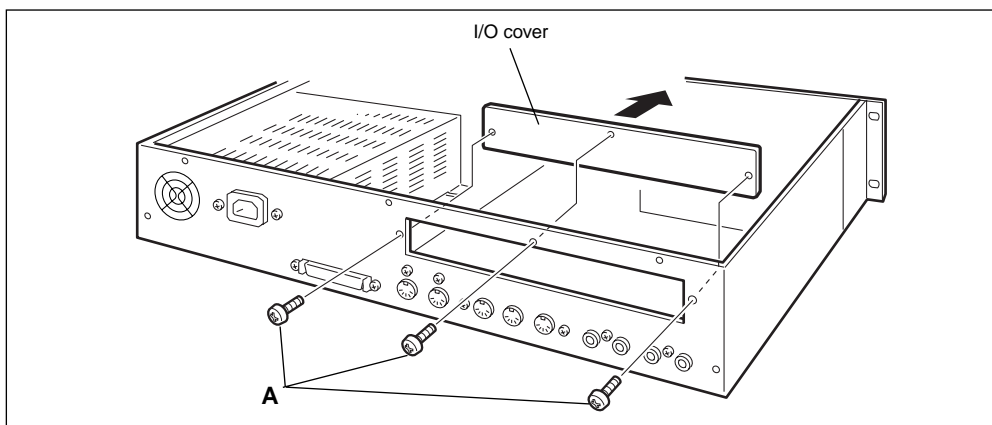
4. Connect the flat cable.

- Connect the flat cable from the I/O expansion board (the flat, thin cable) to the corresponding connector on the sampler's main circuit board (marked "B" in the illustration below, "IO" on the circuit board itself). The connector is "keyed" so that it will only go in one way.
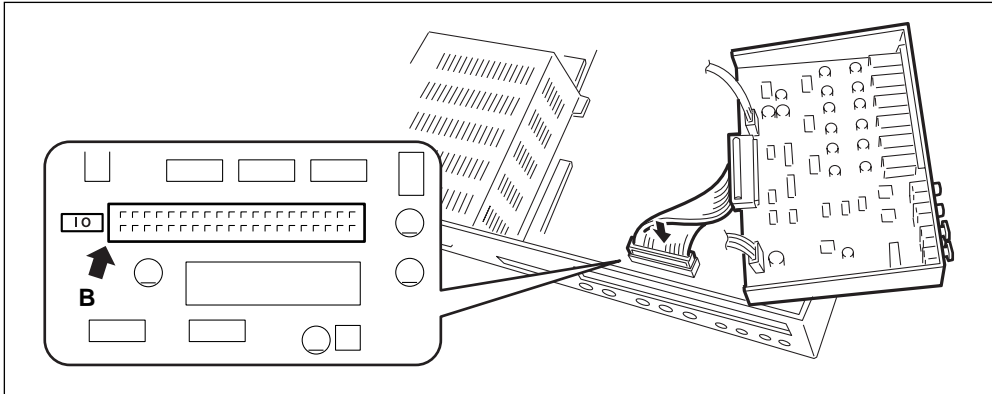
5. Insert the AIEB1 expansion board.

- Support the board as shown in the illustration below, and fasten it in to the rear panel by screwing in the three screws (A) that you removed at Step 3 above.
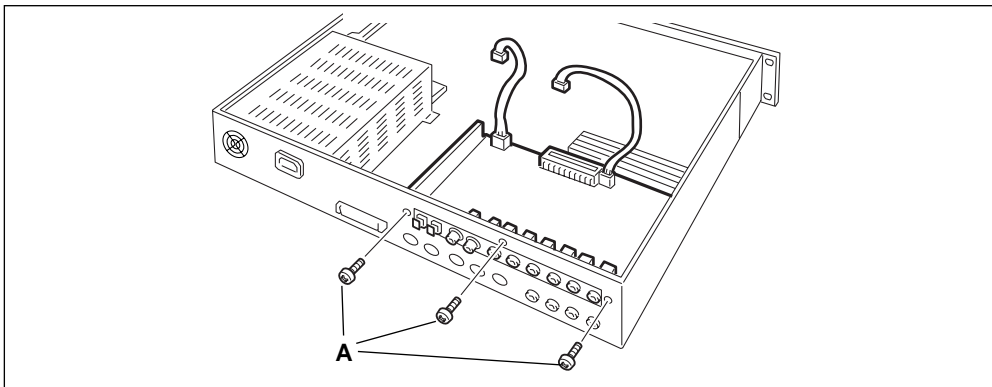
6. Connect the two red/white cables.

- First connect the 3-wire cable into the connector (CN7: 3-pin) indicated in the illustration below. (Note that these connectors can attach in one direction only. Make sure that the direction is correct and do not try to force the connection.)
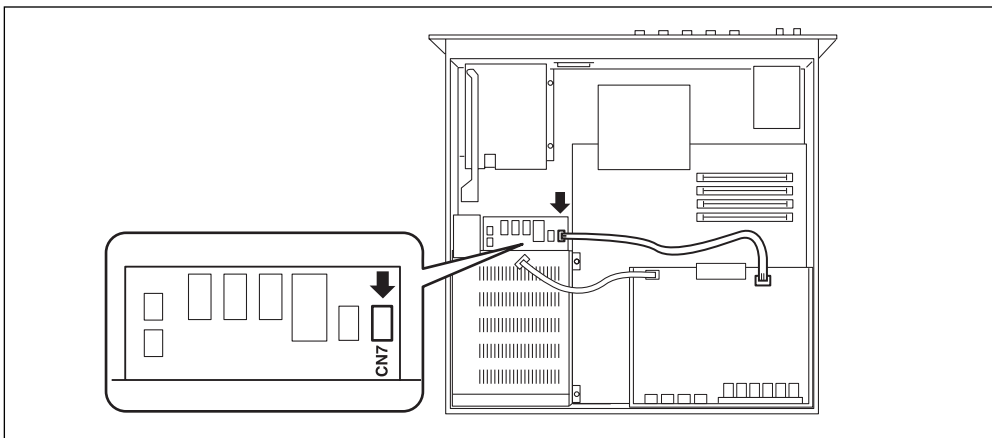
7. In the same way, connect the other red-and-white cable (4-wire) to the CN1, CN2, or
CN4 connector shown in the illustration.

  • If no internal hard disk or ZIP drive is installed, all three connectors will be available. Any of these con-
    nectors can be used.
  • If at any time you need to disconnect any of these connectors, do so while pressing the release clip on the
    plug. Do not apply excessive force.
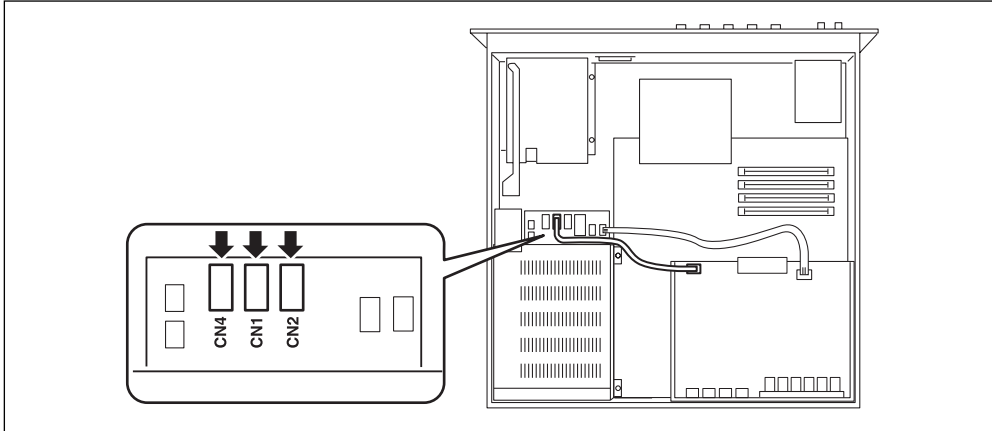
The expansion board is now fully installed.
There is no need to remove the expansion board when installing other devices.

8. Secure the red/white cables and the wide flat cable to the bundle tie.

  • Run the flat cable, the 3-wire cable, and the 4-wire cable through the bundle tie (see illustration below).
    Adjust the tie so that the cables are secure.
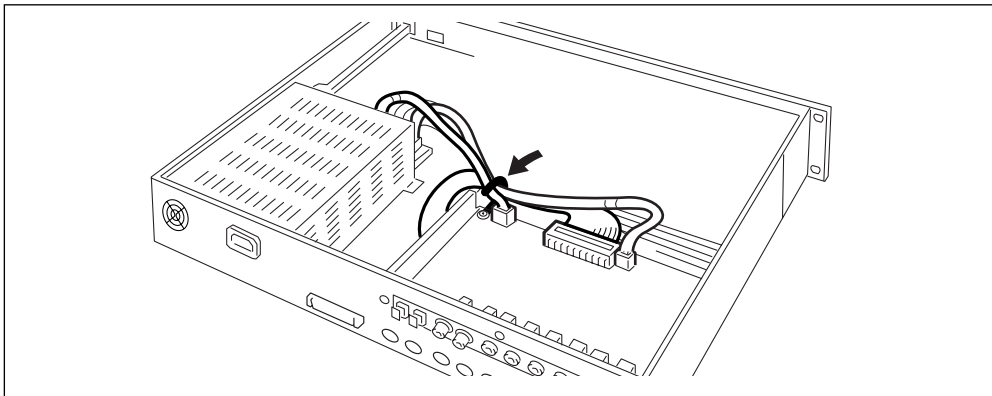
9. Replace the top cover (page 233).

10. Plug in the power cord.

Installing an Internal SCSI Hard Disk

This section explains how to install a standard SCSI hard disk drive (bare drive) into the A5000/A4000.
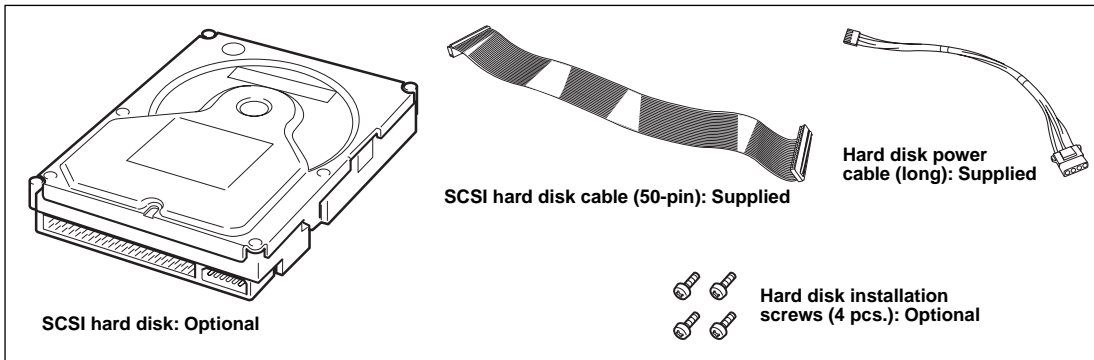
SCSI hard disk cable (50-pin): Supplied

Hard disk power
cable (long): Supplied

Hard disk installation
screws (4 pcs.): Optional

SCSI hard disk: Optional

Important

- Before performing the installation, please read precautions "Handling and Installation of Options," found at the beginning of this manual.
- Consult your Yamaha dealer for information about SCSI hard disk models that have been confirmed as operating correctly with the A5000/A4000.

[Procedure]

1. Be sure that you have the following at hand before starting the installation.
- **Internal SCSI hard disk**
- **Hard disk installation screws (4 pcs.):** Available from your hard disk dealer.
- **SCSI hard disk cable (50-pin):** supplied with the A5000/A4000.
- **Hard disk power cable (long red-and-white 4-wire cable):** supplied with the A5000/A4000.
- **Phillips screwdriver:** Magnetic-tipped screwdriver is recommended.
- **Screwdriver for the hard-disk installation screws:** Note that some hard-disk models do not use Phillips-head screws.
- **Workbench:** Please carry out all work on a stable workbench or table. Spreading a cloth over the work surface will help prevent scratching.
- **Gloves:** Be sure to wear gloves so that your hands are not scratched by the metal cover or other metal parts.

2. Check the hard disk settings.
- Be sure that the hard disk's terminator is set to ON. For information about how to make this setting, refer to the instructions provided with the disk.
- It is recommended that you set the hard disk's SCSI ID to 4, although you are free to set the ID to any value other than 6 (the factory-set ID for the A5000/A4000). For information about how to make this setting, refer to the instructions provided with the disk.

3. Remove the top cover (page 232).

4. Turn the A5000/A4000 SCSI terminator switch "ON."
  • Set the CSCI terminator switch on the A5000/A4000 circuit board ("A" in the illustration, "TERM" on the circuit board itself) to the "ON" position (the terminator is set to "ON" at the factory).
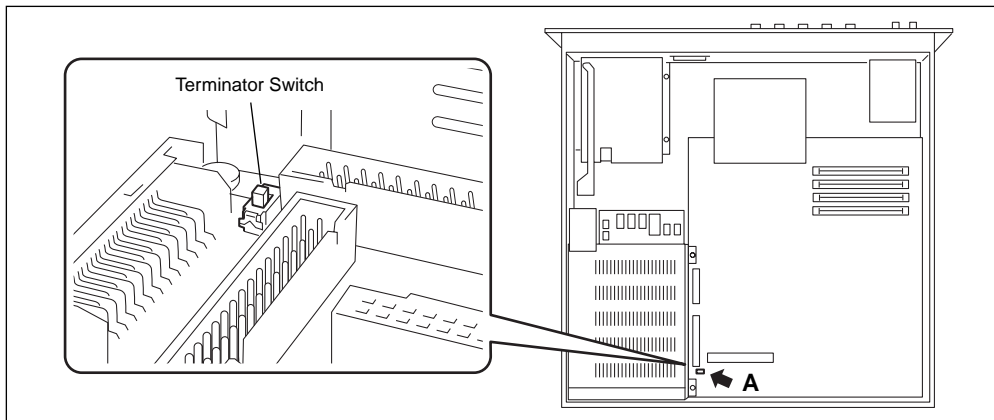
Terminator Switch

A

5. Remove the four gold-colored screws holding the hard disk mount panel, and remove the mount panel from the A5000/A4000.

B

Hard disk mount panel
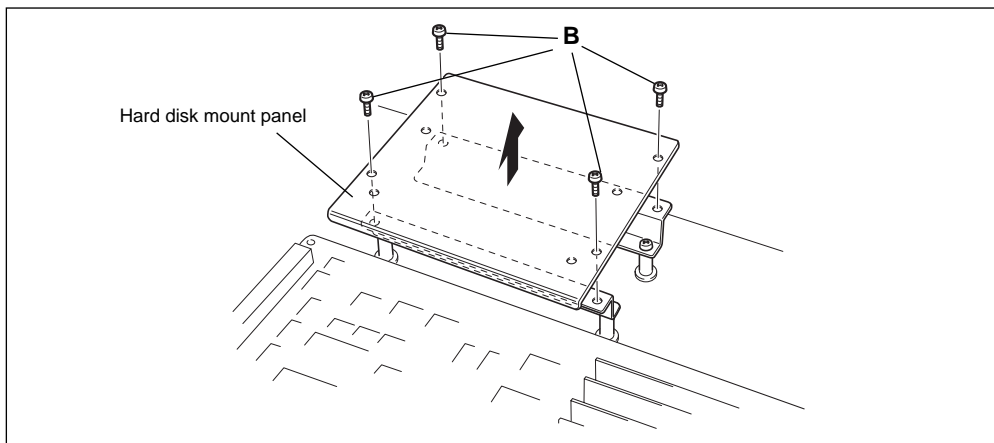
6. Attach the hard disk to the hard disk mount panel with the four hard disk installation screws.

7. Connect the SCSI cable (50-pin) and the power cable (long) to the hard disk unit.
  • The connectors are "keyed" so that they cannot be inserted the wrong way around.

Hard disk installation screws

Power cable (long)
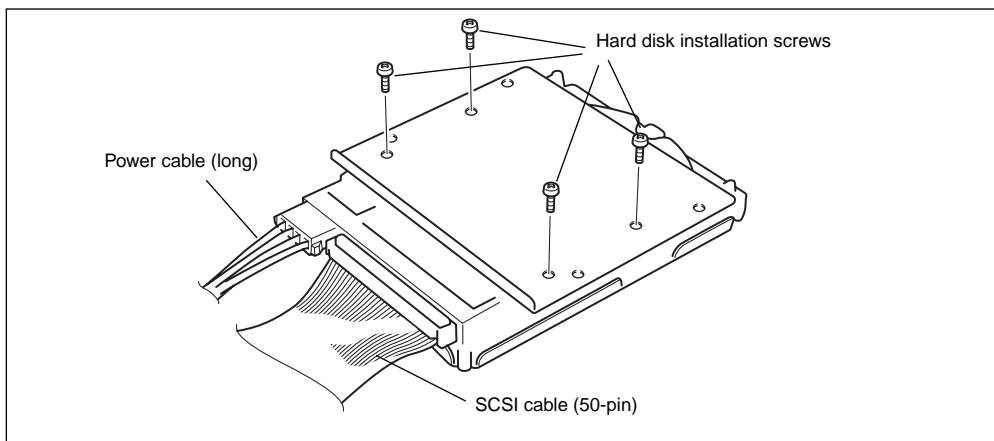
SCSI cable (50-pin)

8. Connect the hard disk SCSI cable (50-pin) to the connector on the A5000/A4000 circuit
board.
• Connect the flat cable from the hard disk (the flat, thin cable) to the corresponding connector on the sam-
pler's main circuit board (marked "C" in the illustration below, "SCSI CN9" on the circuit board itself).
The connector is "keyed" so that it will only go in one way.
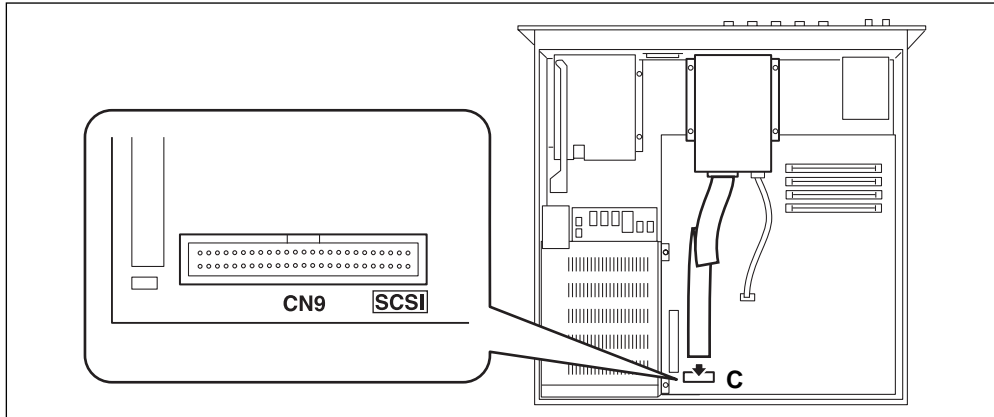
9. Connect the hard disk power cable (long) to one of the power connectors in the A5000/
A4000.
• Connect the hard disk power cable to any of the available power connectors— CN1, CN2, or CN4.
• If no expansion board or ZIP drive is installed, all three connectors will be available. Any of these con-
nectors can be used.
• If at any time you need to disconnect any of these connectors, do so while pressing the release clip on the
plug. Do not apply excessive force.
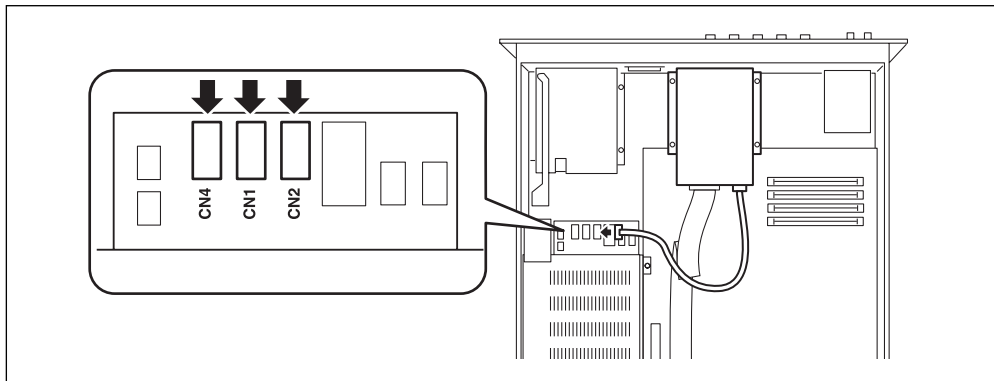
10. Install the hard disk and mount panel assembly in the A5000/A4000.
• Re-install the mount panel in its original location, attaching it with the 4 original screws. Be careful not to catch the cables between the mount panel and mounting brackets when doing this.
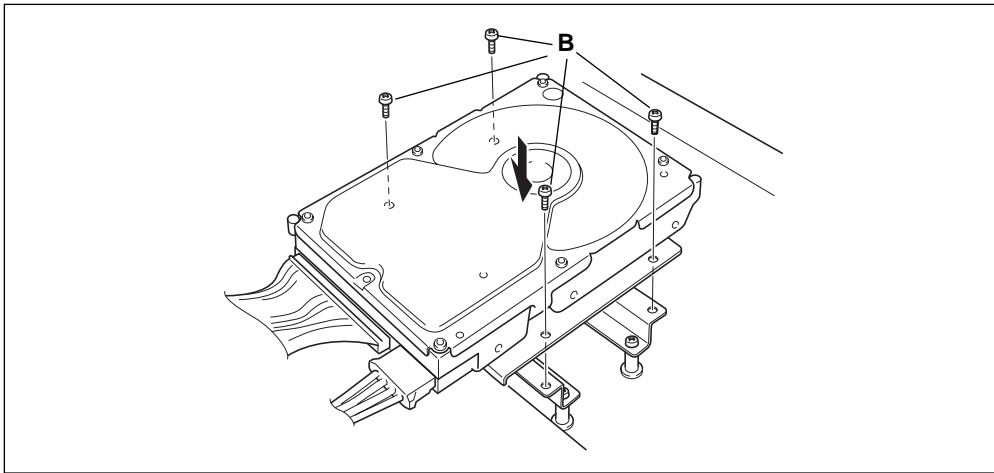
11. Secure the cables with the cable straps.
• Secure the connected power cable with the cable straps as shown in the illustration.
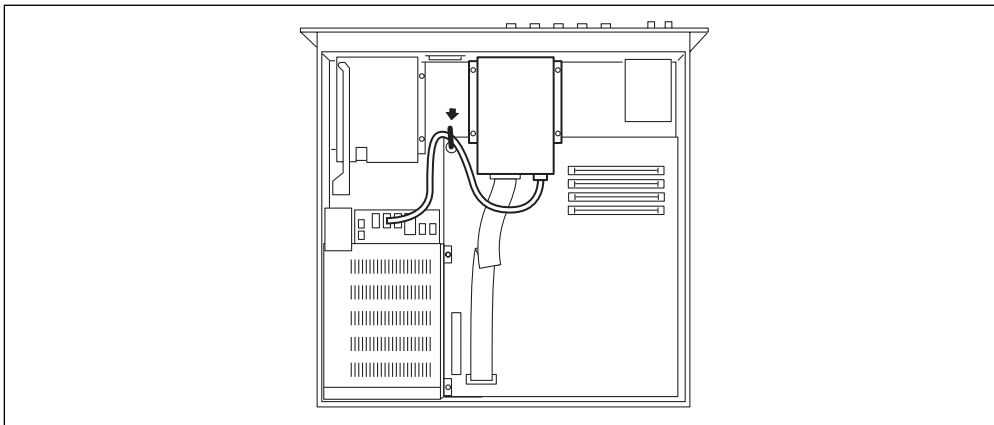
The SCSI hard disk is now fully installed.
There is no need to remove the disk when installing other devices.

12. Replace the top cover (page 233).

13. Plug in the power cord.

Important

• After installing the hard disk, connect your audio and MIDI devices, and turn on the A5000/A4000. Then mount the hard disk (page 173), format it (page 177), and partition it into volumes (page 172).

Installing an Internal IDE Hard Disk

This section explains how to install a standard IDE hard disk drive (bare drive) into the A5000/A4000.
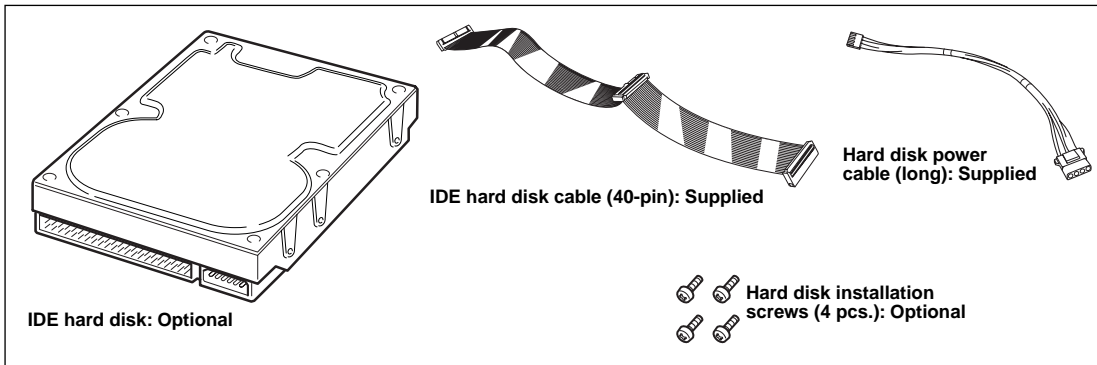
IDE hard disk: Optional

IDE hard disk cable (40-pin): Supplied

Hard disk power cable (long): Supplied

Hard disk installation screws (4 pcs.): Optional

Important

- Before performing the installation, please read precautions "Handling and Installation of Options," found at the beginning of this manual.
- Consult your Yamaha dealer for information about IDE hard disk models that have been confirmed as operating correctly with the A5000/A4000.

[Procedure]

1. Be sure that you have the following at hand before starting the installation.
- **Internal IDE hard disk**
- **Hard disk installation screws (4 pcs.):** Available from your hard disk dealer.
- **IDE hard disk cable (40-pin):** supplied with the A5000/A4000.
- **Hard disk power cable (long red-and-white 4-wire cable):** supplied with the A5000/A4000.
- **Phillips screwdriver:** Magnetic-tipped screwdriver is recommended.
- **Screwdriver for the hard-disk installation screws:** Note that some hard-disk models do not use Phillips-head screws.
- **Workbench:** Please carry out all work on a stable workbench or table. Spreading a cloth over the work surface will help prevent scratching.
- **Gloves:** Be sure to wear gloves so that your hands are not scratched by the metal cover or other metal parts.

2. Check the hard disk settings.
- When using an IDE hard disk alone (i.e. when no ZIP drive is installed), the IDE hard disk must be set to "MASTER" (for information on MASTER/SLAVE settings, see the disk's owner's manual/specification sheet).
- When using an IDE hard disk in conjunction with a ZIP drive, one drive must be set to "MASTER" and the other to "SLAVE" (for information on MASTER/SLAVE settings, see the disk's owner's manual/ specification sheet).

3. Remove the top cover (page 232).

4. Remove the four gold-colored screws holding the hard disk mount panel, and remove the mount panel from the A5000/A4000. Refer to page 240 for "Installing an Internal SCSI Hard Disk."

5. Attach the hard disk to the hard disk mount panel with the four hard disk installation screws.

6. Connect the IDE cable (40-pin) and the power cable (long) to the hard disk unit.
- Connect the center connector on the IDE cable to the hard disk.
- The connectors are "keyed" so that they cannot be inserted the wrong way around.
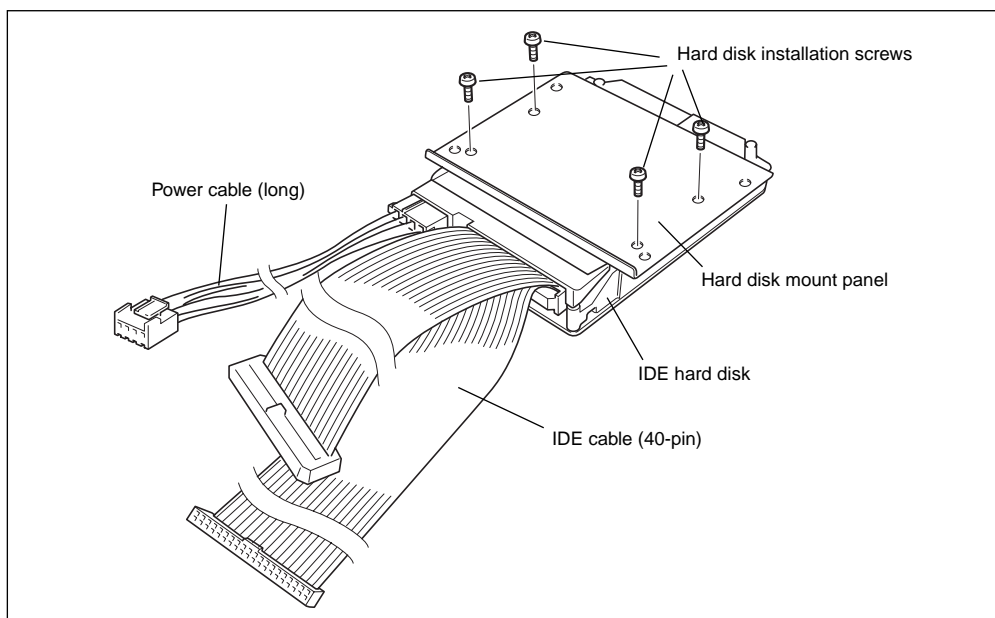
7. Connect the hard disk IDE cable (40-pin) to the connector on the A5000/A4000 circuit board.
- Connect the short end of the flat cable from the hard disk (the flat, thin cable) to the corresponding connector on the sampler's main circuit board (marked "B" in the illustration below, "IDE CN4" on the circuit board itself). The connector is "keyed" so that it will only go in one way.
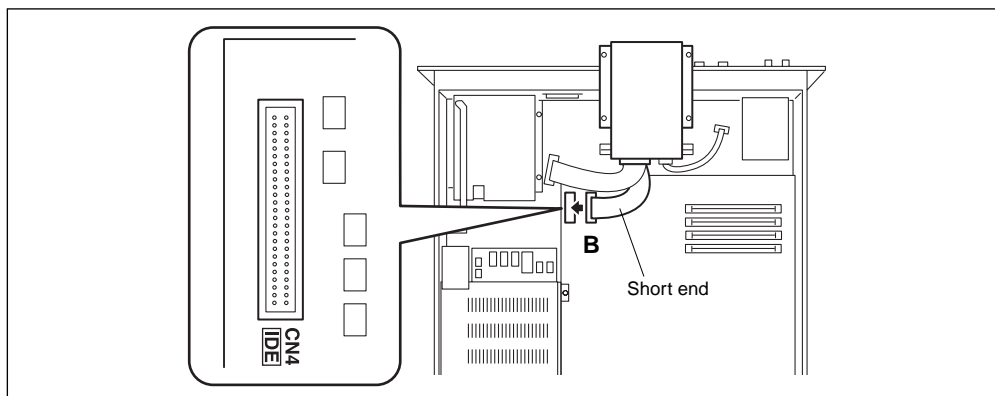
- If a ZIP drive is also installed, the long end of the IDE flat cable from the hard disk should be connected to the ZIP drive connector (page 250).
- If no ZIP drive is installed, secure the long end of the cable with the cable strap as shown in the step 10's illustration on the following page.

  NOTE • *Damage can result if the loose end of the cable is allowed to come in contact with other internal circuitry. Be sure to secure the loose end of the cable with the cable strap.*

8. Connect the hard disk power cable (long) to one of the power connectors in the A5000/
A4000.
- Connect the hard disk power cable to any of the available power connectors— CN1, CN2, or CN4.
- If no expansion board or ZIP drive is installed, all three connectors will be available. Any of these connectors can be used.
- If at any time you need to disconnect any of these connectors, do so while pressing the release clip on the plug. Do not apply excessive force.
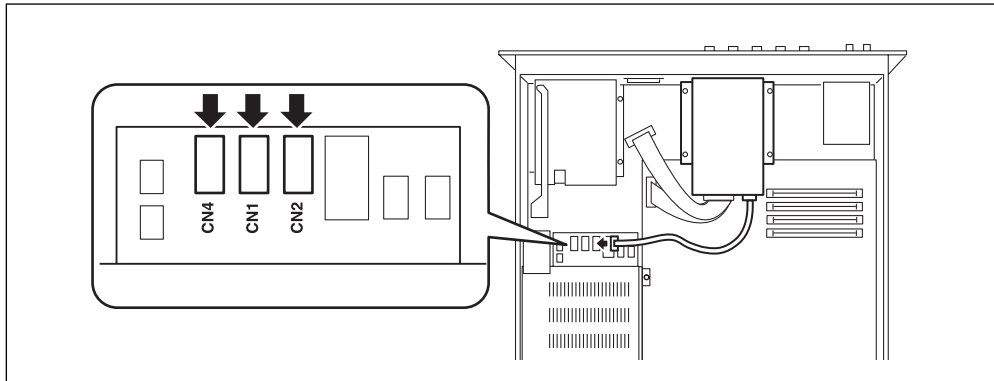
9. Install the hard disk and mount panel assembly in the A5000/A4000. Refer to page 243 for "Installing an Internal SCSI Hard Disk."

10. Secure the cables with the cable straps.
- Secure the connected flat cable and power cable with the cable straps as shown in the illustration.

  NOTE • *Damage can result if the loose end of the cable is allowed to come in contact with other internal circuitry. Be sure to secure the loose end of the cable with the cable strap.*
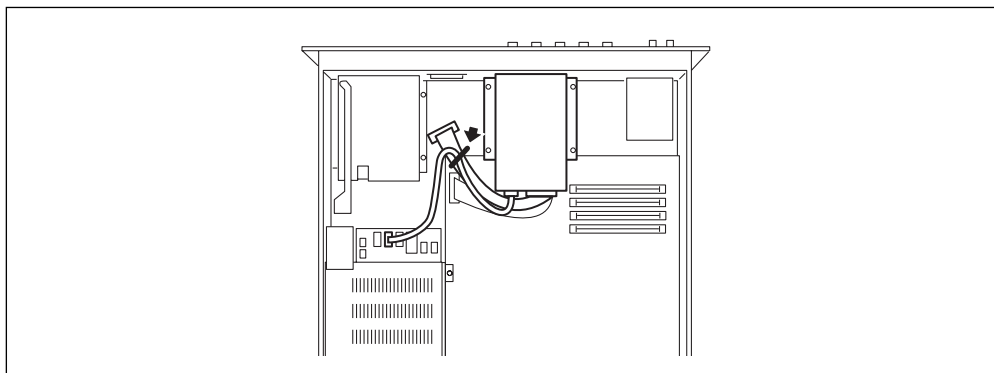
The IDE hard disk is now fully installed.
There is no need to remove the disk when installing other devices.

11. Replace the top cover (page 233).

12. Plug in the power cord.

Important

- After installing the hard disk, connect your audio and MIDI devices, and turn on the A5000/A4000.
  Then mount the hard disk (page 173), format it (page 177), and partition it into volumes (page 172).

Installing an ATAPI ZIP Drive

The procedure for removing the internal floppy disk drive ("FDD" below) and replacing it with a bare ATAPI ZIP drive is explained below.
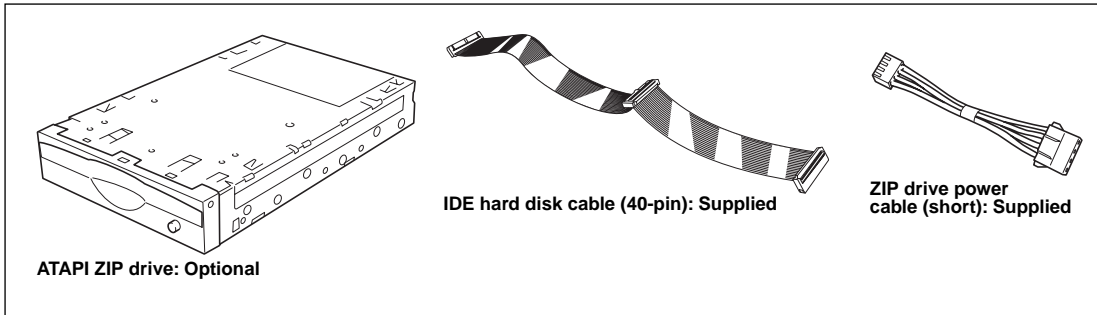
ATAPI ZIP drive: Optional

IDE hard disk cable (40-pin): Supplied

ZIP drive power cable (short): Supplied

Important

• Before performing the installation, please read precautions "Handling and Installation of Options," found at the beginning of this manual.

[Procedure]

1. Be sure that you have the following at hand before starting the installation.
   • **The ZIP drive to be installed.**
   • **An IDE hard disk cable (40-pin):** supplied with the A5000/A4000.
   • **ZIP drive power cable (short red-and-white 4-wire cable):** supplied with the A5000/A4000.
   • **Phillips screwdriver:** Magnetic-tipped screwdriver is recommended.
   • **Workbench:** Please carry out all work on a stable workbench or table. Spreading a cloth over the work surface will help prevent scratching.
   • **Gloves:** Be sure to wear gloves so that your hands are not scratched by the metal cover or other metal parts.

2. Check the ZIP drive settings.
   • When using a ZIP drive alone (i.e. when no IDE hard disk is installed), the ZIP drive must be set to "MASTER" (for information on MASTER/SLAVE settings, see the ZIP drive's owner's manual/specification sheet).
   • When using a ZIP drive in conjunction with an IDE hard disk, one drive must be set to "MASTER" and the other to "SLAVE" (for information on MASTER/SLAVE settings, see the ZIP drive's owner's manual/specification sheet).

3. Remove the top cover (page 232).

4. Disconnect the two FDD cables ("FDD CN5" and power "CN5") from the main circuit board.

• The FDD flat cable is held in place by a cable strap. Remove the cable from the cable strap before installation.
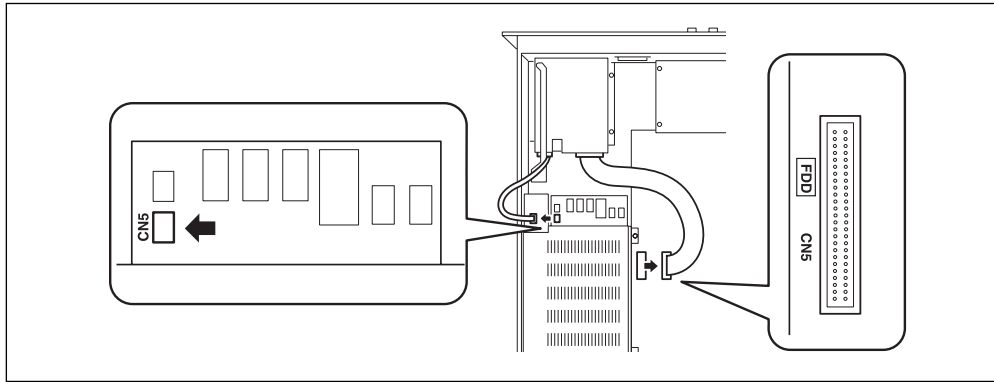
5. Remove the four gold-colored screws with which the FDD is attached, and slide the FDD backward (toward the rear panel) to remove it.
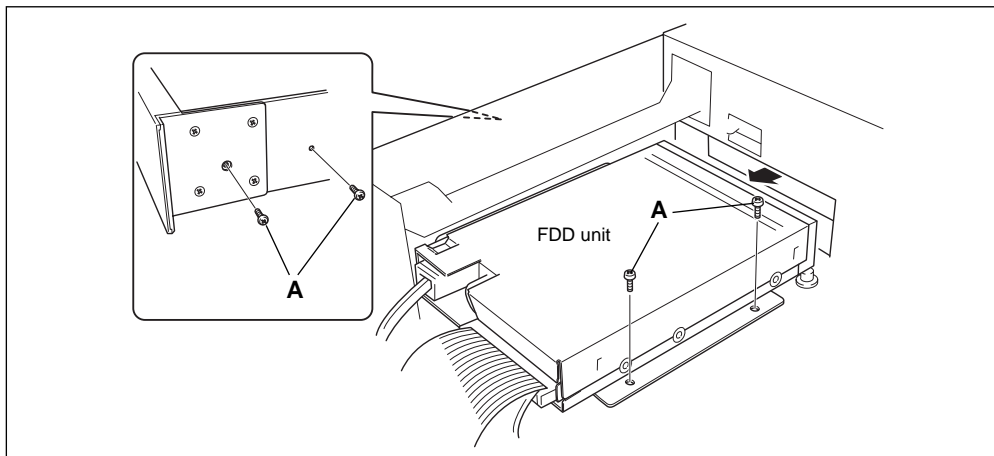
6. Turn the FDD unit over, and remove the mount panel from the drive by removing the four gold-colored screws.

7. Attach the ZIP drive to the mount panel using the screws removed in step 6.

NOTE • *Do not use screws other than those removed in step 6. Other screws can damage the ZIP drive.*
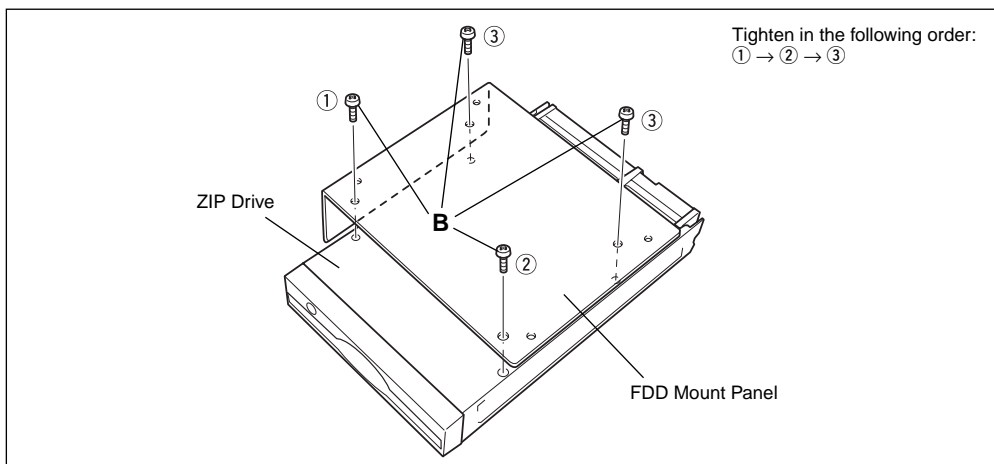
8. Position the ZIP drive inside the A5000/A4000.
- Guide the ZIP drive into place using the groove on the side panel.

9. Attach the ZIP drive using the same four screws removed when removing the FDD unit.

Tighten in the following order: ① → ② → ③
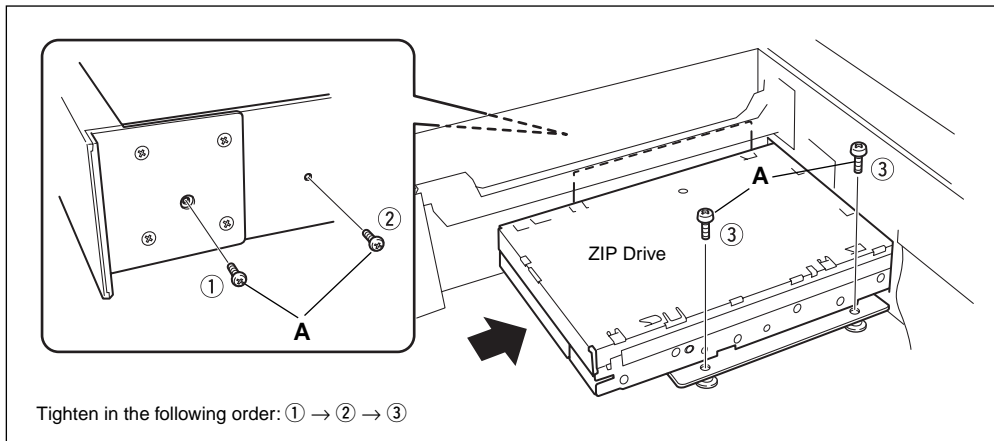
10. Connect the IDE cable (40-pin) and the power cable (short) to the hard disk unit.
- Connect the longer end of the IDE cable from the central connector to the ZIP drive.
- The connectors are "keyed" so that they cannot be inserted the wrong way around.

11. Connect the ZIP drive IDE cable (40-pin) to the connector on the A5000/A4000 circuit board.
- Connect the other end of the flat cable from the ZIP drive (the flat, thin cable) to the corresponding connector on the sampler's main circuit board (marked "C" in the illustration below, "IDE CN4" on the circuit board itself). The connector is "keyed" so that it will only go in one way.
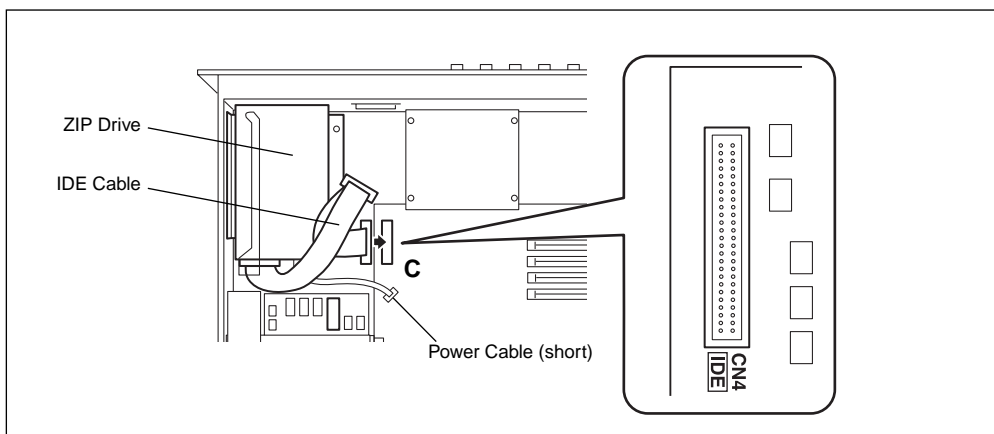
- If an IDE hard drive is also installed, the central connector of the IDE flat cable should be connected to the hard disk connector (See the illustration, below).
- If no IDE hard disk is installed, secure the central connector of the cable with the cable strap as shown in the illustration below.

> **NOTE** • *Damage can result if the loose connector is allowed to come in contact with other internal circuitry. Be sure to secure the loose connector with the cable strap.*

When an IDE hard disk is installed   **When an IDE hard disk is not installed**

ZIP Drive   Internal IDE Hard Disk   ZIP Drive
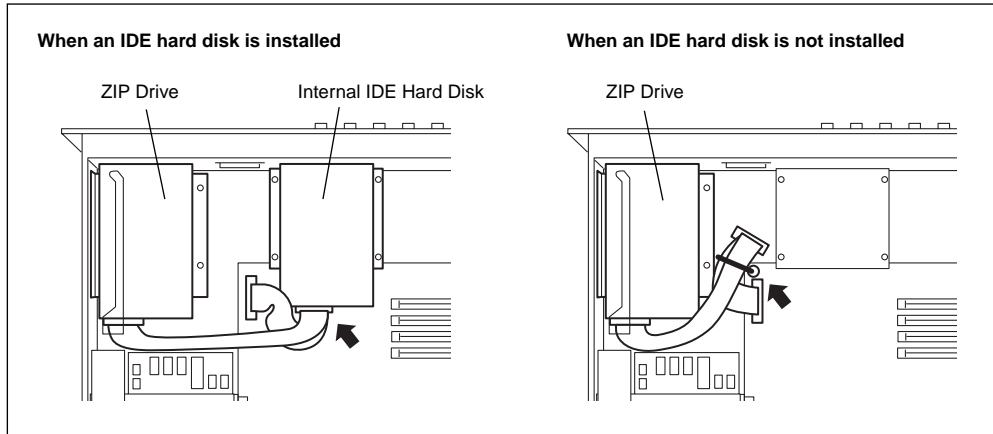
12. Connect the ZIP drive power cable (short) to one of the power connectors in the A5000/A4000.
- Connect the hard disk power cable to any of the available power connectors— CN1, CN2, or CN4.
- If no expansion board or hard disk is installed, all three connectors will be available. Any of these connectors can be used.
- If at any time you need to disconnect any of these connectors, do so while pressing the release clip on the plug. Do not apply excessive force.
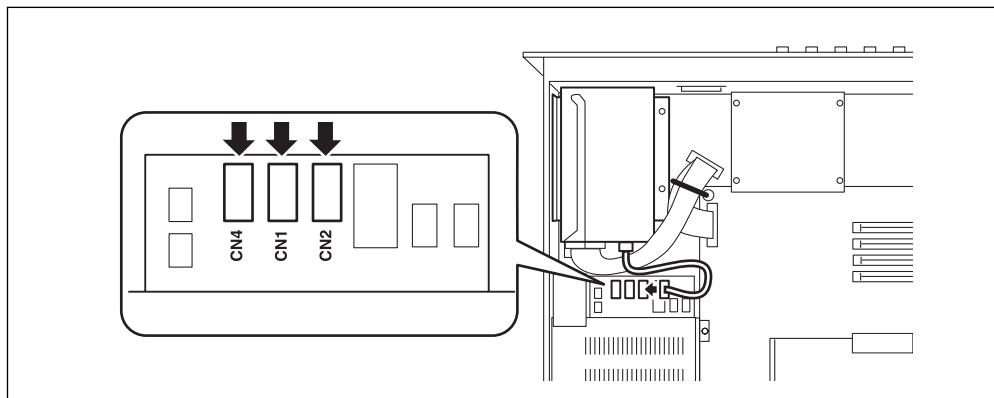
The ZIP drive is now fully installed.
There is no need to remove the disk when installing other devices.

13. Replace the top cover (page 233).

14. Plug in the power cord.

Connecting external SCSI devices

This section explains how to connect external devices such as external hard disk drives, MO drives, or CD-ROM drives.

About SCSI

SCSI (pronounced "scuzzy") stands for Small Computer System Interface, and is a data transmission interface standard used by personal computers and other devices.

The A5000/A4000SCSI interface allows convenient connection of internal and/or external hard disk drives, MOD drives, CD-ROM drives, and other SCSI-compatible devices. Up to 7 devices can be connected to the SCS "bus," including an internal SCSI drive.

Most external SCSI devices have two SCSI terminals, allowing a number of devices to be "chained" together. Devices chained together in this can normally be connected in any order. The last device in the chain must be "terminated," either with a terminator unit plugged into the open SCSI connector, or by turning the device's internal terminator on (if available). The first device in the chain must also be terminated, but in the case of the A5000/A4000 this can be accomplished either with the terminator switch on the main circuit board, or the terminator switch/jumper on an internal hard disk unit.

T indicates the terminator (or a terminator switch that is turned on). Devices which are not indicated by this symbol must not have a terminator attached to them. (Alternatively, their terminator switch must be turned off.)

When an internal hard disk is installed

A5000/A4000 — Internal HD **T** — Main Unit Circuit Board — External SCSI device — External SCSI device — External SCSI device **T**

When an internal hard disk is not installed

A5000/A4000 — Main Unit Circuit Board **T** (Factory default) — External SCSI device — External SCSI device — External SCSI device **T**

Important

- Before connecting SCSI devices, be sure to turn off the power of the A5000/A4000 and all connected equipment. If the power is on while connections are being made, the A5000/A4000 or SCSI devices can be damaged.

- Including the A5000/A4000, each SCSI device is distinguished by a number from 0 — 7, called the SCSI ID. If two or more devices have the same SCSI ID number, the SCSI devices will not function correctly. When shipped from the factory, the A5000/A4000 is set to SCSI ID 6. Be aware that the SCSI ID number of a device has no relation to its position in the daisy-chain.

- Don't forget to attach a terminator to the last SCSI device in the daisy-chain.

- If an external SCSI device is not connected, it is not necessary to attach a terminator to the external SCSI connector of the SCSI interface board.

- Use as short a SCSI cable as possible. Using long cables can cause unreliable operation. (In general, the total cable length including the cables inside the A5000/A4000 should be less than 6 meters (approximately 18 feet).)

- Use good-quality SCSI cables. Poor-quality cables can cause unreliable operation.

- Hard disks, MO disks, and other removable media will be formatted by the A5000/A4000. If you wish to use a hard disk, MO disk, or other removable media that was being used by a computer, you will need to perform the format operation after connecting and powering-on the disk.

- Some SCSI devices have only one SCSI connector. If you are using such a device, connect it at the end of the daisy-chain.

[Procedure]

1. Use SCSI cables to daisy-chain the external SCSI devices.
- There are several types of SCSI connector. Use SCSI cables appropriate for your devices.

2. Connect the power cable of the external SCSI device to an AC outlet.

3. Set the SCSI ID (0 — 7) of the external SCSI device.
- Select a SCSI ID that will not conflict with the other SCSI devices (including the A5000/A4000). When the A5000/A4000 is shipped from the factory, the SCSI ID is set to 6. When installing the internal hard disk, we suggest that you set the internal hard disk to a SCSI ID of 4.

4. Attach the terminator to the SCSI connector (the vacant one of the two SCSI connectors) of the last device in the daisy-chain.
Alternatively, turn on the terminator switch of that device.

5. Make sure that the terminator switch is turned OFF for all other devices in the daisy-chain (i.e., all devices other than the last device).

Important

- When a new hard disk, MO disk, or other removable media (or a disk which was previously used on a computer or other equipment) is connected to the A5000/A4000, it will be necessary to format (page 177), create volumes (page 172), and mount (page 173) the disk after making all necessary audio, MIDI, and SCSI connections to the A5000/A4000 (and, in the case of removable media, after inserting the disk in the appropriate drive).

Note

- Many articles and books concerning SCSI are available. However most of them discuss only the concepts or the specification, and do not tell you what to do if the system does not work when connected as described. The following paragraphs will provide more information about SCSI that will help you correct problems which may occur when SCSI devices are connected. Please read this material if you experience problems. Please be aware that when connecting SCSI devices, problems with termination and cabling can cause valuable data to be damaged. We regret that Yamaha can take no responsibility regarding any data which is lost.

■ **Realities of terminator installation**

Although we have said that a terminator is required at the beginning and end of the SCSI bus, this is a general principle and not a requirement. For example if the bus is extremely short (45 cm or less), there are cases in which it is best for there to be a terminator only on one or the other end. This is something which you should be aware of when using recent ultra-miniature drives. However if other drives are connected in addition to these drives, the situation will again be different.

Also, if the SCSI devices are separated by more than 3 meters, it is said that using a terminator at the 3 meter point is preferable. In this case, three or more terminators will exist within the SCSI bus.

In this way, the theory and practice of SCSI connections can differ widely. Simply changing a drive in a system that had been working correctly can cause operation to become unreliable, or adding a drive to an unreliable system can cause it to start working correctly. In practice, a certain amount of trial and error is necessary.

■ **Reasons for SCSI errors**

A SCSI bus operates stably only if all the connected SCSI devices are operating correctly. If any of the devices are producing noise, the other devices will also produce errors, and in the worst case, the boot block of a drive can be destroyed. (All data in that drive will be lost.)

Also, there are cases in which a system on which data appears to have saved may not have actually saved the data, resulting in data loss.

The following paragraphs will discuss the reasons for such errors, and will provide a sequence for your troubleshooting.

• **Check the SCSI ID**

Make sure that there is no conflict between the SCSI ID of each SCSI device including the A5000/A4000. When shipped from the factory, the A5000/A4000's SCSI ID is set to 6. We suggest that the internal hard disk normally be set to 4. Be sure to turn off the power before changing the SCSI ID setting.

• **Check the terminator**

As discussed above, check the location where the terminator is attached.

• **Check the SCSI cables**

Low-quality SCSI cables will almost always create problems. Always use double-shielded cables. It is also important that the shield be grounded inside the connector. Long SCSI cables frequently cause problems, so use as short a SCSI cable as possible. Bending or twisting a SCSI cable in a confined space can cause conductors to break or pins to be broken, so be careful to avoid this.

Specifications

Tone generation method	AWM2 tone generator		
Maximum Polyphony	126 notes (64 notes on the A4000), 32 multi-timbre parts (16 parts on the A4000).		
A/D conversion	20 bit 64-times oversampling		
D/A conversion	24 bit 8-times oversampling		

Digital I/O (only when AIEB1 I/O expansion board is installed)

	Input/output	DIGITAL connectors	S/P-DIF (coaxial)
		OPTICAL connectors	S/P-DIF (optical)
	Input frequency	48 kHz, 44.1 kHz, 32 kHz	
	Output frequency	44.1 kHz	

Sampling frequency	Analog input	44.1, 22.05, 11.025 kHz, 5.5125 kHz (mono and stereo)
	Digital input (only when AIEB1 I/O expansion board is installed)	
		48 kHz, 44.1 kHz, 32 kHz external synchronized recording (stereo only)
		1/2, 1/4 and 1/8 undersampling is supported
Internal sample memory capacity	Standard	4 Mbytes (installed on-board)
	Maximum	128 Mbytes
		(When four 32 Mbyte 72 pin SIMM modules are installed. The on-board 4 Mbytes are unused only if memory has been expanded to the maximum.)
Sampling time	Maximum sample length	32 Mbytes monaural
		64 Mbytes stereo
	Maximum sampling time (mono or stereo)	
		6 minutes 20 seconds (44.1 kHz)
		12 minutes 40 seconds (22.05 kHz)
		25 minutes 21 seconds (11.025 kHz)
		50 minutes 43 seconds (5.5125 kHz)

Effects	6 effect blocks (3 on the A4000)
	Total equalizer (4 bands)
	Sample equalizer
Program	128 program
Sequencer	Real-time recording and playback
Front panel	POWER switch
	INPUT L,R jacks (phone x 2)
	REC VOLUME (L& R shared)
	MASTER VOLUME (L&R shared, STEREO OUT & PHONES shared)
	PHONES OUTPUT jack
	Knobs (1 — 5)
	Mode buttons (PLAY, EDIT, REC, DISK, UTILITY)
	Function buttons (six buttons)
	COMMAND/EXIT button
	ASSIGNABLE button

	AUDITION button	
	LCD (320 x 80 dot, LED backlight)	
	LCD contrast control	
	3.5" 2HD/2DD dual mode floppy disk drive	

Rear panel	STEREO OUT L/MONO, R (phone jack x 2)
	ASSIGNABLE OUT L, R (phone jack x 2)
	MIDI IN-A/B, OUT, THRU-A/B (IN, OUT, THRU on the A4000)
	SCSI (half-pitch, 50-pin)
	Expansion board slot
	Power supply connector (AC inlet)
	Fan

Dimensions	Two-space rackmount unit
	W 480 mm x D 461 mm x H 90 mm (18-7/8" x 18-1/8" x 3-9/16")

Weight	8.0 kg (17lbs 10oz)

Included items	Power cable	x 1
	CD-ROM set (See the separate "Guide for the Accompanying Disks" booklet)	
	FD	x 4
	Power Cable for Internal Hard Disk (long)	x 1
	Power Cable for ZIP Drive (short)	x 1
	SCSI Cable for Internal Hard Disk	x 1
	IDE Cable for Internal Hard Disk	x 1
	Owner's manual	x 1

Options (made by Yamaha)	AIEB1: I/O expansion board

Internal expansion devices (made by other manufacturers)

Expansion memory (use a pair of identical-size 72pin SIMM modules of the following types)

Access time	70 ns or less
Bit Width	x 32 (no parity) or x 36 bit (parity)
	Fast Page or EDO, JEDEC standard.
Capacity	4 megabyte/8 megabyte/16 megabyte/32 megabyte

Internal hard disk drive (3.5 inch) performance requirements

Interface	50-pin SCSI or 40-pin IDE
Power supply	+5V maximum 840 mA
	+12V maximum 2400 mA

Internal ZIP Drive

Interface	40-pin IDE (ATAPI)
Power supply	+5V 0.8A

Specifications and descriptions in this owner's manual are for information purposes only. Yamaha Corp. reserves the right to change or modify products or specifications at any time without prior notice. Since specifications, equipment or options may not be the same in every locale, please check with your Yamaha dealer.

Effect Type List

This section explains each of the types of effect that are built into the A5000/A4000. For the parameters of each effect, refer to the following section "Effect parameter list."

No.	Effect type	Effect
1	Scratch (DIGITAL SCRATCH)	Adds a scratch sound to the input signal.
2	AutoSyn (AUTO SYNTH)	Processes the input signal into a synthesizer-type sound.
3	TechMod (TECH MODULATION)	Adds a unique feeling of modulation similar to ring modulation.
4	NoisDly (NOISY MOD DELAY)	Adds a modulated delay sound.
5	NoisAmb (NOISE AMBIENT)	Adds noise to the input signal, and uses a delay to broaden the sound.
6	Jump (JUMP)	Cuts apart the input signal and applies extreme modulation to the playback order or speed.
7	BeatChg (BEAT CHANGE)	Modifies the waveform length of the sound in realtime.
8	Pitch1 (PITCH CHANGE 1)	Changes the pitch of the input signal.
9	Pitch2 (PITCH CHANGE 2)	Changes the pitch of the input signal.
10	LoReso (LOW RESOLUTION)	Simulates a lowered resolution for the input signal. The phase of the Rch can be inverted.
11	Noisy (NOISY)	Rch can be inverted.
12	AtkLoFi (ATTACK LOFI)	Creates a somewhat LoFi feeling, and emphasizes the attack of the sound. Also has the feel of a flanger.
13	Radio (RADIO)	Simulates a radio.
14	TurnTbl (DIGITAL TURNTABLE)	Simulates the noise of an analog record.
15	LoFi (LOFI)	Degrades the audio quality of the input signal.
16	LPFiltr (LOW PASS FILTER)	Passes only the low frequencies of the input signal. Cutoff slopes up to 48dB/oct are possible.
17	HPFiltr (HIGH PASS FILTER)	Passes only the high frequencies of the input signal. Cutoff slopes up to 48dB/oct are possible.
18	BPFiltr (BAND PASS FILTER)	Passes only the midrange frequencies of the input signal.
19	AWah+DS (AUTO WAH + DIST)	The output of an Auto Wah can be distorted by Distortion.
20	AWah+OD (AUTO WAH + OVERDRIVE)	The output of an Auto Wah can be distorted by Overdrive.
21	TWah+DS (TOUCH WAH + DIST)	The output of a Touch Wah can be distorted by Distortion.
22	TWah+OD (TOUCH WAH + OVERDRIVE)	The output of a Touch Wah can be distorted by Overdrive.
23	W+DS+DL (WAH + DIST + DELAY)	TOUCH WAH, DISTORTION and DELAY are connected in series.
24	W+OD+DL (WAH + OVERDRIVE + DELAY)	TOUCH WAH, OVERDRIVE and DELAY are connected in series.
25	TalkMod (TALKING MODULATOR)	Adds a vowel sound to the input signal.
26	3BandEQ (3BAND EQ)	An EQ which allows equalization of low, mid and high bands.
27	Isolatr (ISOLATOR)	Controls the level of a specified frequency band of the input signal.
28	Enhance (HARMONIC ENHANCER)	Adds new harmonics to the input signal to make the sound stand out.
29	VceCncl (VOICE CANCEL)	Attenuates the vocal part of a CD or other source.
30	Comp (COMPRESSOR)	Holds down the output level when a specified input level is exceeded. A sense of attack can also be added to the sound.
31	Comp+DS (COMP + DIST)	Since a Compressor is included in the first stage, steady distortion can be produced regardless of changes in input level.
32	C+DS+DL (COMP + DIST + DELAY)	COMPRESSOR, DISTORTION and DELAY are connected in series.
33	C+OD+DL (COMP + OVERDRIVE + DELAY)	COMPRESSOR, OVERDRIVE and DELAY are connected in series.
34	Clip1 (CLIPPER1)	Applies distortion to a specified frequency band of the input signal.
35	Clip2 (CLIPPER2)	Adds a signal in which distortion has been applied to a specified frequency band to the input signal.
36	NoiseGt (NOISE GATE)	Gates the input when the input signal falls below a specified level. This is effective when you wish to decrease the noise at the A/D input.
37	V-Dist (V-DISTORTION)	Distortion which simulates vintage tube and fuzz sounds.
38	Dist (DISTORTION)	Adds distortion with an edge. Since a Noise Gate is included, this is also suitable for A/D input.
39	OverDrv (OVERDRIVE)	Adds mild distortion. Since a Noise Gate is included, this is also suitable for A/D input.
40	AmpSim (AMP SIMULATOR)	Simulates a guitar amp. Since a Noise Gate is included, this is also suitable for A/D input.
41	DistS (STEREO DISTORTION)	Stereo distortion.

No.	Effect type	Effect
42	OvrDrvS (STEREO OVERDRIVE)	Stereo overdrive.
43	AmpSimS (STEREO AMP SIMULATOR)	Stereo amp simulator.
44	Dist+DL (DIST + DELAY)	DISTORTION and DELAY are connected in series.
45	OvDr+DL (OVERDRIVE + DELAY)	OVERDRIVE and DELAY are connected in series.
46	Chorus (CHORUS)	Standard chorus effect.
47	Chorus2 (CHORUS2)	A variation of the standard chorus effect.
48	Celeste (CELESTE)	Uses a three-phase LFO to add more modulation and width to the sound.
49	Sympho (SYMPHONIC)	Adds more stages to the modulation of Celeste.
50	Detune (ENSEMBLE DETUNE)	Chorus effect without modulation, created by adding a slightly pitch-shifted sound.
51	Flanger (FLANGER)	Creates a sound reminiscent of a jet airplane.
52	V-Flang (V-FLANGER)	A simulation on an analog flanger effect. The LFO has a random setting.
53	Phaser1 (PHASER1)	Cyclically modulates the phase to add modulation to the sound.
54	Phaser2 (PHASER2)	Cyclically modulates the phase to add modulation to the sound.
55	Tremolo (TREMOLO)	Cyclically modulates the volume.
56	FlngPan (FLANGING PAN)	Flanger and auto-pan are synchronized.
57	FlowPan (FLOW PAN)	Auto-pan is placed in series, moving the sound image in complex ways.
58	Rotary (ROTARY SPEAKER)	Simulates a rotary speaker.
59	Rot2Way (2WAY ROTARY SPEAKER)	Simulates a rotary speaker.
60	2Rotors (DUAL ROTORS SPEAKER)	Rotary speaker simulation with speed switching.
61	DS+Rot (DIST + ROTARY SPEAKER)	Distortion and rotary speaker connected in series.
62	OD+Rot (OVERDRIVE + ROTARY SPEAKER)	Overdrive and rotary speaker connected in series.
63	Amp+Rot (AMP SIM + ROTARY SPEAKER)	Amp simulator and rotary speaker connected in series.
64	DS+2Way (DIST + 2WAY ROTARY SPEAKER)	Distortion and 2-way rotary speaker connected in series.
65	OD+2Way (OVERDRIVE + 2WAY ROTARY SPEAKER)	Overdrive and 2-way rotary speaker connected in series.
66	Amp+2Wy (AMP SIM + 2WAY ROTARY SPEAKER)	Amp simulator and 2-way rotary speaker connected in series.
67	AutoPan (AUTO PAN)	Cyclically moves the sound between left and right, front and back.
68	Dly+Pan (DELAY + AUTO PAN)	Delayed sound is cyclically moved between left and right.
69	3Delay (DELAY L,C,R)	Produces three delayed sounds: L, R and C (center).
70	2Delay (DELAY L,R)	Produces two delayed sounds: L and R. Two feedback delays are provided.
71	Echo (ECHO)	Two delayed sounds (L and R), and independent feedback delays for L and R.
72	X-Delay (CROSS DELAY)	The feedback of the two delayed sounds is crossed.
73	CtlDly (CONTROL DELAY(MONO))	Delay with delay time controllable in real time.
74	CtlDlyS (CONTROL DELAY(STEREO))	A controller can be assigned to this delay to create scratch-type effects.
75	Ambienc (AMBIENCE)	Blurs the stereo positioning of the sound to add spatial width.
76	Karaoke (KARAOKE)	Echo for karaoke.
77	Eref (EARLY REFLECTION)	This effect isolates only the early reflection components of the reverb.
78	GateRev (GATE REVERB)	Simulation of gated reverb.
79	RvsGate (REVERSE GATE)	Simulation of gated reverb played back in reverse.
80	Hall (HALL)	Reverb simulating the acoustics of a hall.
81	Room (ROOM)	Reverb simulating the acoustics of a room.
82	Stage (STAGE)	Reverb suitable for a solo instrument.
83	Plate (PLATE)	Reverb simulating a plate reverb unit.
84	WhiteRm (WHITE ROOM)	Unique short reverb with a bit of initial delay.
85	Tunnel (TUNNEL)	Simulates a cylindrical space expanding to left and right.
86	Basemnt (BASEMENT)	Reverb with unique reverberation following a slight initial delay.
87	Canyon (CANYON)	Creates the sound of an imaginary space in which the sound expands limitlessly.
88	T-Dly (TEMPO DELAY (MONO))	Tempo-synchronized delay.
89	T-DlyS (TEMPO DELAY (STEREO))	Tempo-synchronized stereo delay.
90	T-XDly (TEMPO CROSS DELAY)	Tempo-synchronized cross delay.
91	T-Flang (TEMPO FLANGER)	Tempo-synchronized flanger.
92	T-Phase (TEMPO PHASER)	Tempo-synchronized phaser.
93	T-AWah (TEMPO AUTO WAH)	Tempo-synchronized auto wah.
94	T-Scrch (TEMPO DIGITAL SCRATCH)	Tempo-synchronized digital scratch.
95	T-ASyn (TEMPO AUTO SYNTH)	Tempo-synchronized auto synth.
96	T-FgPan (TEMPO FLANGING PAN)	Tempo-synchronized flanging pan.

Effect Parameter List

This section explains the meaning of each parameter in each effect.

The tables give the parameter number, the range of settings (or selections), and the explanation.

("@" marked parameters have no effect even if a program controller is assigned to the function)

1: DIGITAL SCRATCH

1	Input Level	0 — 127	Scratch depth
2	Initial Delay	0.1 — 460.0ms	Delay time
3	Scratch Speed	1 — 127	Scratch modulation frequency
4	Scratch Depth	0 — 127	Scratch modulation depth
5	Auto Pan Speed	0.00Hz — 39.7Hz	Autopan frequency
6	Auto Pan Depth	0 — 127	Autopan depth
7	EQ Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
8	EQ Gain	-12 — +12dB	Gain by which the EQ will boost/cut the mid range
9	EQ Width	1.0 — 12.0	Width of the mid range area boosted/cut by the EQ
10	HPF Frequency	thru, 20Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
11	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between dry sound and effect sound

2: AUTO SYNTH

1	Mod Speed	0 — 127	Modulation speed
2	Mod Wave Type	TypeA,TypeB,TypeC,TypeD	Modulation type
3	Mod Depth	0 — 127	Modulation depth
4	Mod Depth Ofst R	-64 — +63	R ch offset relative to modulation depth
5	LPF Frequency	1.0kHz — 18.0kHz,thru	Frequency at which the low pass filter will cut the high range
6	HPF Frequency	thru,22Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
7	Dry Mix Level	0 — 127	Add dry sound before the delay input
8	Delay Time	0.1 — 370.0ms	Delay time
9	Delay Time Ofst R	0 — -884	Delay time offset for the R ch offset
10	Feedback Level	-63 — +63	Feedback amount
11	FB Level Ofst R	-63 — +63	Feedback offset for the R ch
12	Delay Level	0 — 127	Delay level
13	AM Speed	0 — 127	Modulation frequency
14	AM Wave	tri,sine,saw up,saw down	Select modulation waveform
15	AM Depth	0 — 127	Amplitude modulation depth
16	AM Inverse R	normal,inverse	Left/right phase reversal of the amplitude modulation signal

3: TECH MODULATION

1	Mod Speed	0 — 127	Modulation speed
2	Mod Depth	0 — 127	Modulation depth
3	Pre Mod HPF Freq	thru, 20Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
4	Mod Gain	-12 — +12dB	Gain of the modulation signal
5	Mod LPF Frequency	1.0kHz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
6	Mod LPF Resonance	1.0 — 12.0	Resonance of the low pass filter
7	Mod Mix Balance	D63>W — D=W — D<W63	Balance between the effect sound and the dry sound before the delay input
8	Delay Time	0.1 — 740.0ms	Delay time
9	Delay Time Ofst R	0 — -884	Delay time offset for the R ch
10	Feedback Level	-64 — +63	Feedback amount
11	FB Level Ofst R	-64 — +63	Feedback offset for the R ch
12	Feedback High Damp	0.1 — 1.0	Adjust the high range attenuation (lower values will cause the high range to decay faster)
13	FB Hi Damp Ofst R	-0.9 — +0.9	High Damp offset for the R ch
14	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and effect sound

4: NOISY MOD DELAY

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and the effect sound
2	Mod Speed	0 — 127	Delay modulation frequency
3	Mod Wave Type	Type-A, Type-B, Type-C, Type-D	Modulation type
4	Mod Depth	0 — 127	Modulation depth
5	Delay Time	0.1ms — 650.0ms	Delay time
6	Feedback Level	-63 — +63	Feedback amount
7	Mod Mix Balance	1 — 127	Balance between delay sound and delay bypass sound
8	EQ High Gain	-12dB — +12dB	Gain by which the EQ will boost/cut the high range
9	HPF Frequency	thru, 20Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range

5: NOISE AMBIENT

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between dry sound and effect sound
2	Mod Speed	0 — 127	Modulation speed
3	Mod Depth	0 — 127	Modulation depth
4	Noise Level	0 — 127	Level of noise component
5	LPF Frequency	1.0kHz — 18.0kHz,thru	Frequency at which the low pass filter will cut the high range
6	Dry Mix Level	0 — 127	Pre-delay dry level
7	Delay Time	0.1 — 370.0ms	Delay time
8	Delay Time Ofst R	0 — -884	Delay time offset for the R ch
9	Feedback Level	-63 — +63	Feedback amount
10	Dry Level	0 — 127	Delay level
11	AM Speed	0.0Hz — 39.70Hz	Modulation frequency
12	AM Wave	tri,sine,saw up,saw down	Modulation waveform selection
13	AM Depth	0 — 127	Depth of amplitude modulation
14	AM Inverse R	normal,inverse	Invert left/right phase of amplitude modulation signal

6: JUMP

1	Depth	0 — 127	Modulation depth
2	Speed	0 — 127	Modulation speed
3	Direction	L<>R,L>>R	Modulation type
@4	Type	Type-A,Type-B,Type-C	Modulation type
@5	Jump Wave Type	Type-A,Type-B,Type-C,Type-D	Modulation type
@6	Resolution	1/1 — 1/256	Resolution
7	LPF Frequency	1.0kHz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
8	HPF Frequency	thru, 20Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
9	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and effect sound

7: BEAT CHANGE

1	BeatChange(Ctrl)	-63 — +63	A beat change effect
2	Beat Range	0 — 12	Width of variation for sample playback speed
3	PitchChange(Ctrl)	-63 — +63	A pitch change effect
4	Pitch Range	0 — 12	Width of variation for Pitch Change
@5	Accuracy Type	sound4 — normal — rhythm4	Balance between emphasis on sound quality and emphasis on sense of beat
6	EQ Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
7	EQ Gain	-12dB — +12dB	Gain by which the EQ will boost/cut the mid range
8	EQ Width	1.0 — 12.0	Width of the area in which the EQ will boost/cut the mid range
9	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and effect sound

You can use this effect to set up a controller so that the controller will vary the playback speed while leaving the pitch unchanged.
In order to use this effect a controller must first be assigned to "E*-1" ("*" is the effect number used for this effect) in the program controller setup display after selecting the effect. Then "2. BeatRange" must be set as required. "1. BeatChange(Ctrl) and 3. PitchChange(Ctrl are controlled from controllers and should be set to "0."

8: PITCH CHANGE 1, 9: PITCH CHANGE 2

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Pitch	-24 — +24	Pitch change in semitone steps
3	Initial Delay	0.1ms — 200.0ms	Delay length
4	Fine1	-50 — +50	Fine pitch setting for first unit
5	Fine2	-50 — +50	Fine pitch setting for second unit
6	Feedback Level	-63 — +63	Amount of feedback
7	Pan1	-63 — 0 — +63	Panning of first unit
8	Output Level1	0 — 127	Output level of first unit
9	Pan2	-63 — 0 — +63	Panning of second unit
10	Output Level2	0 — 127	Output level of second unit

The Fine1 and Fine2 settings are in cents for the PITCH CHANGE 2 effect only.

10: LOW RESOLUTION

1	Mod Depth	0 — 127	Modulation depth
2	Mod Delay Offset	1 — 127	Modulation delay offset
3	Mod Feedback	-63 — +63	Feedback amount
@4	Resolution	1/1 — 1/128	Resolution
5	Mod Mix Balance	0 — 127	Delay sound and bypass sound balance
6	Phase Inverse R	off,Wet,Wet+Dry	Left/right phase reversal
7	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between dry sound and effect sound

11: NOISY

1	Drive	0 — 127	Degree of distortion
2	Mod Depth	1 — 10	Modulation depth
3	Mod Speed	0 — 127	Modulation speed
4	Mod Feedback	-63 — +63	Feedback amount
5	AM Speed	0.00Hz — 39.7Hz	Amplitude modulation frequency
6	AM Depth	0 — 127	Amplitude modulation depth
7	Mod Mix Balance	1 — 127	Balance between noise modulated sound and bypass sound
8	LPF Frequency	1.0kHz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
9	LPF Resonance	1.0 — 12.0	Resonance of the low pass filter
10	EQ Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
11	EQ Gain	-12 — +12dB	Gain by which the EQ will boost/cut the mid range
12	EQ Width	1.0 — 12.0	Width of the mid range area which the EQ will boost/cut
13	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and effect sound

12: ATTACK LOFI

1	Sensitive	0 — 127	Sensitivity
@2	Resolution	1/1 — 1/32	Resolution
3	Peak Frequency	100Hz — 10.0kHz	Frequency at which a peak will be created in the mid range
4	LPF Frequency	1.1kHz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
5	Flanger Speed	0.00Hz — 39.7Hz	Frequency of delay modulation
6	Flanger LFO Wave	tri,sine,saw up,saw down	Modulation waveform selection
7	Flanger Depth	0 — 127	Modulation depth
8	Fln Depth Ofst R	-64 — +63	R ch offset for depth
9	Flanger Delay	0.1 — 650.0ms	Delay time
10	Fln Delay Ofst R	0 — 884	R ch offset for delay time
11	Flanger Feedback	-63 — +63	Feedback amount
12	Flanger FB Ofst R	-63 — +63	R ch offset for feedback
13	Flanger FB HiDamp	0.1 — 1.0	Adjust the high range attenuation (low values will cause the high range to decay faster)
14	FB HiDamp Ofst R	-0.9 — +0.9	R ch offset for high damp
15	Fln Mix Balance	1 — 127	Balance between flanger sound and bypass sound
16	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between dry sound and effect sound

13: RADIO

1	Noise Level	0 — 127	Degree of noise modulation
2	Tone	0 — 127	Tone of noise modulation
3	Mod LPF Frequency	1.0kHz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
4	Mod LPF Resonance	1.0 — 12.0	Resonance of low pass filter
5	HPF Frequency	thru,22Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
6	LPF Frequency	1.0kHz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
7	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between dry sound and effect sound

14: DIGITAL TURNTABLE

1	Click Density	0 — 5	Frequency with which the click sounds will occur
2	Click Level	0 — 127	Level of the click sounds
@3	Noise Tone	0 — 6	Tone of noise
4	Noise Mod Speed	0.00Hz — 39.7Hz	Amplitude modulation frequency of the noise
5	Noise Mod Depth	0 — 127	Amplitude modulation depth of the noise
6	Dry Send to Noise	0 — 127	Mixture of dry signal into the noise
7	Noise LPF Freq	1.0kHz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
8	Noise LPF Q	1.0 — 12.0	Low pass filter resonance
9	Noise Level	0 — 127	Noise level
10	Dry LPF Frequency	1.0kHz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
11	Dry Level	0 — 127	Level of the dry sound

15: LOFI

1	SamplingFreq Ctrl	44.1kHz — 344Hz	Selects the sampling frequency
2	Word Length	1 — 127	Sets the sound's "roughness"
3	Output Gain	-6dB — +36dB	Output gain
@4	Filter Type	thru,PowerBass,Radio,Telephone,Clean,Low	Selects the type of sound
5	PreLPF CutoffFreq	63Hz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
6	PreLPF Resonance	1 — 12.0	Adds character to the input low-pass filter
7	Emphasis	off/on	Changes the high-frequency characteristics
8	Bit Assign	0 — 6	Adjusts the effect of the Word Length
9	Input Mode	mono/stereo	Mono/stereo input mode selection
10	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between dry sound and effect sound

16: LOW PASS FILTER, 17: HIGH PASS FILTER

1	Cutoff Freq	32Hz — 18.0kHz	Specifies the filter cutoff frequency
2	Q	0 — 113	Sets the Q
@3	Filter Type	-48dB, -24dB	Selects the filter type
4	Q Type	x1, x2	Selects the Q type
5	Output Gain	-12dB — +12dB	Output level

Noise may be produced with some voices when the "1. Cutoff Freq" is varied rapidly.

18: BAND PASS FILTER

1	Cutoff Freq	32Hz — 18.0kHz	Specifies the filter cutoff frequency
2	Band Width	1 — 32	Sets the filter bandwidth
3	Q	0 — 113	Sets the Q
4	Output Gain	-12dB — +12dB	Output level

Noise may be produced with some voices when the "1. Cutoff Freq" is varied rapidly.

19: AUTO WAH + DIST, 20: AUTO WAH + OVERDRIVE

1	LFO Frequency	0.0Hz — 39.70Hz	Frequency at which the wah filter will be controlled
2	LFO Depth	0 — 127	Depth at which the wah filter will be controlled
3	Cutoff Freq Offset	0 — 127	Offset value for the wah filter control frequency
4	Resonance	1 — 12.0	Bandwidth of the wah filter
5	Drive	0 — 127	(Distortion) Degree of distortion
6	PostDrive EQ Low	-12dB — +12dB	(Distortion) Gain by which the EQ will boost/cut the low range
7	PostDrive EQ Mid	-12dB — +12dB	(Distortion) Gain by which the EQ will boost/cut the mid range
8	PostDrive LPF Freq	1.0kHz — 18.0kHz, thru	(Distortion) Frequency at which the filter will cut the high range
9	Drive Output Level	0 — 127	(Distortion) Output level
10	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
11	EQ Low Gain	-12dB — +12dB	Amount of gain by which the EQ will boost/cut the low range
12	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
13	EQ High Gain	-12dB — +12dB	Amount of gain by which the EQ will boost/cut the high range
14	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and effect sound

21: TOUCH WAH + DIST, 22: TOUCH WAH + OVERDRIVE

1	Sensitive	0 — 127	Sensitivity at which the wah filter will change in response to the input level
2	Cutoff Freq Offset	0 — 127	Offset value for the wah filter control frequency
3	Resonance	1 — 12.0	Bandwidth of the wah filter
4	Drive	0 — 127	(Distortion) Degree of distortion
5	PostDrive EQ Low	-12dB — +12dB	(Distortion) Gain by which the EQ will boost/cut the low range
6	PostDrive EQ Mid	-12dB — +12dB	(Distortion) Gain by which the EQ will boost/cut the mid range
7	PostDrive LPF Freq	1.0kHz — 18.0kHz, thru	(Distortion) Frequency at which the filter will cut the high range
8	Drive Output Level	0 — 127	(Distortion) Output leve
9	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
10	EQ Low Gain	-12dB — +12dB	Amount of gain by which the EQ will boost/cut the low range
11	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
12	EQ High Gain	-12dB — +12dB	Amount of gain by which the EQ will boost/cut the high range
13	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and effect sound

23: WAH + DIST + DELAY, 24: WAH + OVERDRIVE + DELAY

1	Wah Sensitive	0 — 127	Sets the wow filter sensitivity to input variation
2	Wah Cutoff Freq Ofst	0 — 127	Offsets the wow filter control frequency
3	Wah Resonance	1 — 12.0	Sets the wah filter bandwidth
4	Wah Release	10ms — 680ms	Sets the time before the wow filter center frequency returns to normal
5	Dist Drive	0 — 127	Degree of distortion
6	Dist Output Level	0 — 127	Output level
7	Dist EQ Low Gain	-12dB — +12dB	Amount of gain by which the EQ will boost/cut the low range
8	Dist EQ Mid Gain	-12dB — +12dB	Amount of gain by which the EQ will boost/cut the mid range
9	Delay Mix	0 — 127	Delay level
10	Delay Time	0.1ms — 1480.0ms	Delay time
11	Dly Feedback Level	-63 — +63	Amount of feedback
12	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound

25: TALKING MODULATOR

1	Vowel	a/i/u/e/o	Vowel select
2	Move Speed	1 — 62	The amount of time it takes to change to the selected vowel
3	Drive	0 — 127	The amount of enhancement applied
4	Output Level	0 — 127	Output level

26: 3BAND EQ

1	EQ Low Frequency	50Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
2	EQ Low Gain	-12dB — +12dB	Amount of gain by which the EQ will boost/cut the low range
3	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the low range
4	EQ Mid Gain	-12dB — +12dB	Amount of gain by which the EQ will boost/cut the mid range
5	EQ Mid Width	1 — 12.0	Width of the area in which the EQ will boost/cut the mid range
6	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
7	EQ High Gain	-12dB — +12dB	Amount of gain by which the EQ will boost/cut the high range
8	Input Mode	mono/stereo	Mono/stereo input mode selection

27: ISOLATOR

1	On/Off SW	off, on	Isolator switch
2	Low Level	0 — 127	Low frequency level
3	Mid Level	0 — 127	Mid frequency level
4	High Level	0 — 127	High frequency level
5	Low Mute SW	off, on	Low frequency mute switch
6	Mid Mute SW	off, on	Mid frequency mute switch
7	High Mute SW	off, on	High frequency mute switch

28: HARMONIC ENHANCER

1	HPF Cutoff Freq	500Hz — 16.0kHz	Frequency at which the high pass filter will cut the low range of the effect sound
2	Drive	0 — 127	Degree with which the enhancer effect will be applied
3	Mix Level	0 — 127	Level at which the effect sound will be mixed into the dry sound

29: VOICE CANCEL

1	Low Adjust	0 — 26	Adjusts the lower frequency of the midrange cancellation
2	High Adjust	0 — 26	Adjusts the upper frequency of the midrange cancellation

30: COMPRESSOR

1	Threshold	-48dB — -6dB	Input level at which compression begins to be applied
2	Attack	1ms — 40ms	Time until when the compressor begins to take effect
3	Release	10ms — 680ms	Time until the compressor effect disappears
4	Ratio	1 — 20.0	Compression ratio of the compressor
5	Output Level	0 — 127	Output level

31: COMP + DIST

1	Drive	0 — 127	Degree of distortion
2	LPF Cutoff Freq	1.0kHz — 18.0kHz, thru	Frequency at which the filter will cut the high range
3	Output Level	0 — 127	Output level
4	Edge	0 — 127	Curve of distortion characteristics (127: distortion begins suddenly; 0: distortion begins gradually)
5	Attack	1ms — 40ms	(Compressor) Time until when the compressor begins to take effect
6	Release	10ms — 680ms	(Compressor) Time until the compressor effect disappears
7	Threshold	-48dB — -6dB	(Compressor) Input level at which compression begins to be applied
8	Ratio	1 — 20.0	(Compression) Compression ratio of the compressor
9	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
10	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
11	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
12	EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
13	EQ Mid Width	1 — 12.0	Width of the mid range area which the EQ will boost/cut
14	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound

32: COMP + DIST + DELAY, 33: COMP + OVERDRIVE + DELAY

1	Comp Threshold	-48dB — -6dB	Input level at which compression begins to be applied
2	Comp Ratio	1 — 20.0	Compression ratio of the compressor
3	Comp Attack	1ms — 40ms	Time until when the compressor begins to take effect
4	Comp Release	10ms — 680ms	Time until the compressor effect disappears
5	Dist. Drive	0 — 127	Degree of distortion
6	Dist Output Level	0 — 127	Output level
7	Dist EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
8	Dist EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
9	Delay Mix	0 — 127	Delay level
10	Delay Time	0.1ms — 1480.0ms	Delay time
11	Dly Feedback Level	-63 — +63	Amount of feedback
12	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound

34: CLIPPER1

1	Drive	0 — 100	Degree of distortion
2	Drive Output Level	0 — 100	Output level
@3	Clip Band	Lo, Hi	The frequency band to be distorted
4	Cutoff Freq	32Hz — 18.0kHz	Distortion band cutoff frequency
5	Clip Type	TypeA,TypeB,TypeC,TypeD	Type of distortion

Noise may be produced with some voices when the "4. Cutoff Freq" is varied rapidly.

35: CLIPPER2

1	Drive	0 — 100	Degree of distortion
2	Drive Output Level	0 — 100	Output level
@3	Clip Band	Lo, Hi, Mid, Lo&Hi	Selects the band to be distorted
4	Cutoff Freq	32Hz — 18.0kHz	Distortion band cutoff frequency
5	Mid Band Width	1 — 32	Mid, Lo&Hi bandwidth
6	Clip Type	TypeA,TypeB,TypeC,TypeD	Type of distortion
7	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound

Noise may be produced with some voices when the "4. Cutoff Freq" is varied rapidly.

36: NOISE GATE

1	Threshold	-72dB — -30dB	Input level at which the gate begins to open
2	Attack	1ms — 40ms	Time until when the gate begins to open
3	Release	10ms — 680ms	Time until the gate closes
4	Output Level	0 — 127	Output level

37: V-DISTORTION

1	Over Drive	0 — 100%	Degree of distortion
@2	Device	Transister,Vintage Tube,Dsitortion1,2, Fuzz	Specifies the type of distortion
@3	Speaker Type	Flat, Stack, Combo,Twin,Radio,Megaphone	Speaker simulation type
4	Presence	-10 — 10	High frequency control
5	Output Level	0 — 127	Output level
6	Delay Mix	0 — 127	Delay level
7	Delay Time L	0.1ms — 1480.0ms	Left channel delay time
8	Delay Time R	0.1ms — 1480.0ms	Right channel delay time
9	Feedback Time	0.1ms — 1480.0ms	Feedback delay time
10	Feedback Level	-63 — +63	Amount of feedback
11	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound

38: DISTORTION, 39: OVERDRIVE

1	Drive	0 — 127	Degree of distortion
2	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
3	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
4	LPF Cutoff Freq	1.0kHz — 18.0kHz, thru	Frequency at which the filter will cut the high range
5	Output Level	0 — 127	Output level
6	Edge	0 — 127	Curve of distortion characteristics (127: distortion begins suddenly; 0: distortion begins gradually)
7	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
8	EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
9	EQ Mid Width	1 — 12.0	Width of the area in which the EQ will boost/cut the mid range
10	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and the effect sound

40: AMP SIMULATOR

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and the effect sound
2	Drive	0 — 127	Degree of distortion
@3	AMP Type	Off, Stack, Combo,Tube	Select the type of amp to be simulated
4	LPF Cutoff Freq	315Hz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
5	Edge	0 — 127	Curve of distortion characteristics (127: distortion begins suddenly; 0: distortion begins gradually)
6	Output Level	0 — 127	Output level

41: STEREO DISTORTION, 42: STEREO OVERDRIVE

1	Drive	0 — 127	Degree of distortion
2	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
3	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
4	LPF Cutoff Freq	1.0kHz — 18.0kHz, thru	Frequency at which the filter will cut the high range
5	Output Level	0 — 127	Output level
6	Edge	0 — 127	Curve of distortion characteristics (127: distortion begins suddenly; 0: distortion begins gradually)
7	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
8	EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
9	EQ Mid Width	1 — 12.0	Width of the area in which the EQ will boost/cut the mid range
10	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and the effect sound

43: STEREO AMP SIMULATOR

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and the effect sound
2	Drive	0 — 127	Degree of distortion
@3	AMP Type	Off, Stack, Combo,Tube	Type of amp simulation
4	LPF Cutoff Freq	315Hz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
5	Edge	0 — 127	Curve of distortion characteristics (127: distortion begins suddenly; 0: distortion begins gradually)
6	Output Level	0 — 127	Output level

44: DIST + DELAY, 45: OVERDRIVE + DELAY

1	Dist Drive	0 — 127	Degree of distortion
2	Dist Output Level	0 — 127	Output level
3	Dist EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
4	Dist EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
5	Delay Mix	0 — 127	Delay level
6	Delay Time L	0.1ms — 1480.0ms	Left channel delay time
7	Delay Time R	0.1ms — 1480.0ms	Right channel delay time
8	Dly Feedback Time	0.1ms — 1480.0ms	Feedback delay time
9	Dly Feedback Level	-63 — +63	Amount of feedback
10	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and the effect sound

46: CHORUS, 48: CELESTE

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	LFO Frequency	0.0Hz — 39.70Hz	Delay modulation frequency
3	LFO Depth	0 — 127	Delay modulation depth
4	Feedback Level	-63 — +63	Level at which the delay output is returned to the input (negative values invert the phase)
5	Delay Offset	0.0ms — 50.0ms	Offset value for delay modulation
6	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
7	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
8	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
9	EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
10	EQ Mid Width	1 — 12.0	Width of the mid range area which the EQ will boost/cut
11	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
12	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
13	Input Mode	mono/stereo	Mono/stereo selection for the input

47: CHORUS2

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	LFO Frequency	0.0Hz — 39.70Hz	Delay modulation frequency
3	LFO Depth	0 — 127	Delay modulation depth
4	Feedback Level	-63 — +63	Level at which the delay output is returned to the input (negative values invert the phase)
5	Delay Offset	0.0ms — 50.0ms	Offset value for delay modulation
6	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
7	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
8	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
9	EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
10	EQ Mid Width	1 — 12.0	Width of the mid range area which the EQ will boost/cut
11	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
12	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
@13	Input Mode	mono/stereo	Mono/stereo selection for the input

49: SYMPHONIC

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	LFO Frequency	0.0Hz — 39.70Hz	Frequency of delay modulation
3	LFO Depth	0 — 127	Depth of delay modulation
4	Delay Offset	0.0ms — 50.0ms	Delay modulation offset value
5	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
6	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
7	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
8	EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
9	EQ Mid Width	1 — 12.0	Width of the mid range area which the EQ will boost/cut
10	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
11	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

50: ENSEMBLE DETUNE

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Detune	-50cent — +50cent	Amount by which the pitch will be detuned
3	Initial Delay Lch	0.0ms — 50.0ms	Length of left channel delay
4	Initial Delay Rch	0.0ms — 50.0ms	Length of right channel delay
5	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
6	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
7	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
8	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

51: FLANGER

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	LFO Frequency	0.0Hz — 39.70Hz	Frequency of delay modulation
3	LFO Depth	0 — 127	Depth of delay modulation
4	Feedback Level	-63 — +63	Level at which delay output is returned to the input
5	Delay Offset	0.0ms — 50.0ms	Offset value for delay modulation
6	LFOPhaseDifference	-180deg — +180deg	L/R phase difference of modulation waveform (no difference at 0 deg)
7	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
8	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
9	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
10	EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
11	EQ Mid Width	1 — 12.0	Width of the mid range area which the EQ will boost/cut
12	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
13	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

52: V-FLANGER

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	LFO Frequency	0.0Hz — 39.70Hz	Frequency of delay modulation
@3	LFO Wave	TriAngle,Sine,Random	LFO waveform
4	LFO Depth	0 — 127	Depth of delay modulation
5	Feedback Level	-63 — +63	Level at which delay output is returned to the input
6	Feedback High Damp	0.1 — 1.0	Adjust the high range attenuation (lower values will cause the high range to decay faster)
7	Delay Offset	0.09 — 36.21ms	Offset value for delay modulation
8	Modulation Phase	-180 — +180	Phase difference between the left and right channels waveforms
9	Analog Feel	0 — 10	Adjusts the analog feel
10	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
11	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
12	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
13	EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
14	EQ Mid Width	1 — 12.0	Width of the mid range area which the EQ will boost/cut
15	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
16	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

53: PHASER1

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	LFO Frequency	0.0Hz — 39.70Hz	Frequency of phase modulation
3	LFO Depth	0 — 127	Depth of phase modulation
4	Phase Shift Offset	0 — 127	Phase shift offset value
5	Feedback Level	-63 — +63	Level at which phaser output will be returned to the input (negative values invert the phase)
6	Stage	4, 5, 6, 7, 8, 9, 10, 11, 12	Number of phaser shifter stages
7	Diffusion	mono/stereo	Diffusion
8	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
9	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
10	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
11	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

54: PHASER2

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	LFO Frequency	0.0Hz — 39.70Hz	Frequency of phase modulation
3	LFO Depth	0 — 127	Depth of phase modulation
4	Phase Shift Offset	0 — 127	Phase shift offset value
5	Feedback Level	-63 — +63	Level at which phaser output will be returned to the input (negative values invert the phase)
6	Stage	3, 4, 5, 6	Number of phaser shifter stages
7	LFOPhaseDifference	-180deg — +180deg	L/R phase difference in the modulation waveform (no difference at 0 deg)
8	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
9	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
10	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
11	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

55: TREMOLO

1	LFO Frequency	0.0Hz — 39.70Hz	Modulation frequency
2	AM Depth	0 — 127	Amplitude modulation depth
3	PM Depth	0 — 127	Delay modulation depth
4	LFOPhaseDifference	-180deg — +180deg	L/R phase difference of the modulation waveform (no difference at 0 deg)
5	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
6	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
7	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
8	EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
9	EQ Mid Width	1 — 12.0	Width of the mid range area which the EQ will boost/cut
10	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
11	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
12	Input Mode	mono/stereo	Mono/stereo selection for the input

56: FLANGING PAN

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between the dry sound and the effect sound
2	Flanger&Pan Speed	0.0Hz — 39.70Hz	Delay modulation frequency
3	Flanger Depth	0 — 127	Delay modulation depth
4	Flanger Delay	0.1 — 180.0ms	Delay time
5	Flanger Feedback	-63 — +63	Feedback amount
6	FlgPan Delay	0.1 — 180.0ms	Delay time
7	FlgPan Feedback	-63 — +63	Feedback amount
8	HPF Frequency	thru,22Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
9	LPF Frequency	1.0kHz — 18.0kHz,thru	Frequency at which the low pass filter will cut the high range
10	Delay Time	0.1 — 270.0ms	Delay time
11	Delay Feedback	-63 — +63	Feedback amount
12	Delay Level	0 — 127	Delay level
13	AM Speed	0.0Hz — 39.70Hz	Frequency of amplitude modulation
@14	AM Wave	tri,sine,saw up,saw down	Select amplitude modulation waveform
15	AM Depth	0 — 127	Amplitude modulation depth
@16	AM Inverse R	normal,inverse	Invert left/right phase of amplitude modulation signal

57: FLOW PAN

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance between delay sound and effect sound
2	Delay Time	0.1 — 650ms	Delay time
3	Delay Time Ofst R	0 — -884	Offset of R ch delay time
4	Feedback Level	-63 — +63	Feedback amount
5	FB Level Ofst R	-63 — +63	Offset of R ch feedback
6	Feedback High Damp	0.1 — 1.0	Adjust the high range attenuation (lower values will cause the high range to decay faster)
7	FB Hi Damp Ofst R	-0.9 — +0.9	Offset of R ch high damp
8	Delay Mod Speed	0.0Hz — 39.70Hz	Delay modulation frequency
9	Delay Mod Depth	0 — 127	Delay modulation depth
10	Delay Dry/Wet	1 — 127	Balance between delay sound and effect sound
11	PreDelayPan Speed	0.0Hz — 39.70Hz	Frequency of the pre-delay autopan
12	PreDelayPan Wave	tri,sine	Waveform of the pre-delay autopan
13	PreDelayPan Depth	0 — 127	Depth of the pre-delay autopan
14	Auto Pan Speed	0.0Hz — 39.70Hz	Autopan frequency
15	Auto Pan Wave	tri,sine	Autopan waveform selection
16	Auto Pan Depth	0 — 127	Autopan depth

58: ROTARY SPEAKER

1	LFO Frequency	0.0Hz — 39.70Hz	Rotation frequency of the speaker
2	LFO Depth	0 — 127	Depth of modulation produced by speaker rotation
3	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
4	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
5	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
6	EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
7	EQ Mid Width	1 — 12.0	Width of the mid range area which the EQ will boost/cut
8	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
9	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
10	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound

59: 2WAY ROTARY SPEAKER

1	Rotor Speed	0.0Hz — 39.70Hz	Rotation frequency of the speaker
2	Drive Low	0 — 127	Depth of modulation produced by low-range speaker rotation
3	Drive High	0 — 127	Depth of modulation produced by high-range speaker rotation
4	Low/High Balance	L63>H — L=H — L<H63	Volume balance between high-range speaker and low-range speaker
5	Crossover Frequency	100Hz — 10.0kHz	Crossover frequency between high-range speaker and low-range speaker
6	Mic L-R Angle	0deg — 180deg	L/R angle of mics which pick up the output
7	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
8	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
9	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
10	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

60: DUAL ROTORS SPEAKER

1	Speed Control	Slow/Fast	Speed switch
2	Rotor Speed Slow	0.0Hz — 2.65Hz	The slow speed for the low frequency speaker
3	Horn Speed Slow	0.0Hz — 2.65Hz	The slow speed for the high frequency speaker
4	Rotor Speed Fast	2.69Hz — 39.70Hz	The fast speed for the low frequency speaker
5	Horn Speed Fast	2.69Hz — 39.70Hz	The fast speed for the high frequency speaker
6	Slow-Fast Time of R	0 — 127	The switching speed for the low frequency speaker
7	Slow-Fast Time of H	0 — 127	The switching speed for the high frequency speaker
8	Drive Low	0 — 127	Depth of modulation produced by low-range speaker rotation
9	Drive High	0 — 127	Depth of modulation produced by high-range speaker rotation
10	Low/High Balance	L63>H — L=H — L<H63	Volume balance between high-range speaker and low-range speaker
11	Mic L-R Angle	0deg — 180deg	L/R angle of mics which pick up the output
12	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
13	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
14	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
15	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

61: DIST + ROTARY SPEAKER, 62: OVERDRIVE + ROTARY SPEAKER

1	Drive	0 — 127	Degree of distortion
2	LPF Cutoff Freq	1.0kHz — 18.0kHz, thru	Frequency at which the filter will cut the high range
3	Output Level	0 — 127	Output level
4	LFO Frequency	0.0Hz — 39.70Hz	Rotation frequency of the speaker
5	LFO Depth	0 — 127	Depth of modulation produced by speaker rotation
6	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
7	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
8	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
9	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
10	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound

63: AMP SIM + ROTARY SPEAKER

1	Drive	0 — 127	Degree of distortion
@2	AMP Type	Off, Stack, Combo,Tube	Type of amp simulation
3	LPF Cutoff Freq	1.0kHz — 18.0kHz, thru	Frequency at which the filter will cut the high range
4	Output Level	0 — 127	Output level
5	LFO Frequency	0.0Hz — 39.70Hz	Rotation frequency of the speaker
6	LFO Depth	0 — 127	Depth of modulation produced by speaker rotation
7	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
8	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
9	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
10	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
11	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound

64: DIST + 2WAY ROTARY SPEAKER, 65: OVERDRIVE + 2WAY ROTARY SPEAKER

1	Drive	0 — 127	Degree of distortion
2	LPF Cutoff Freq	1.0kHz — 18.0kHz, thru	Frequency at which the filter will cut the high range
3	Output Level	0 — 127	Output level
4	Rotor Speed	0.0Hz — 39.70Hz	Rotation frequency of the speaker
5	Drive Low	0 — 127	Depth of modulation produced by low-range speaker rotation
6	Drive High	0 — 127	Depth of modulation produced by high-range speaker rotation
7	Low/High Balance	L63>H — L=H — L<H63	Volume balance between high-range speaker and low-range speaker
8	Crossover Frequency	100Hz — 10.0kHz	Crossover frequency between high-range speaker and low-range speaker
9	Mic L-R Angle	0deg — 180deg	L/R angle of mics which pick up the output
10	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
11	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
12	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
13	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
14	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound

66: AMP SIM + 2WAY ROTARY SPEAKER

1	Drive	0 — 127	Degree of distortion
@2	AMP Type	Off, Stack, Combo,Tube	Type of amp simulation
3	LPF Cutoff Freq	1.0kHz — 18.0kHz, thru	Frequency at which the filter will cut the high range
4	Output Level	0 — 127	Output level
5	Rotor Speed	0.0Hz — 39.70Hz	Rotation frequency of the speaker
6	Drive Low	0 — 127	Depth of modulation produced by low-range speaker rotation
7	Drive High	0 — 127	Depth of modulation produced by high-range speaker rotation
8	Low/High Balance	L63>H — L=H — L<H63	Volume balance between high-range speaker and low-range speaker
9	Crossover Frequency	100Hz — 10.0kHz	Crossover frequency between high-range speaker and low-range speaker
10	Mic L-R Angle	0deg — 180deg	L/R angle of mics which pick up the output
11	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
12	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
13	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
14	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
15	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound

67: AUTO PAN

1	LFO Frequency	0.0Hz — 39.70Hz	Auto pan frequency
2	L/R Depth	0 — 127	Left/right depth of panning
3	F/R Depth	0 — 127	Front/rear depth of panning
4	PAN Direction	L<>R, L>>R, L<<R, Lturn, Rturn, L/R	Auto pan type (L<->R is sine wave, L/R is square wave)
5	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
6	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
7	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
8	EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
9	EQ Mid Width	1 — 12.0	Width of the mid range area which the EQ will boost/cut
10	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
11	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

68: DELAY + AUTO PAN

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Delay Time	0.1 — 740.0ms	Delay time
3	Feedback Level	-63 — +63	Amount of feedback
4	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
5	Auto Pan Speed	0.0Hz — 39.70Hz	Auto pan frequency
6	Auto Pan Depth	0 — 127	Panning depth
7	EQ Frequency	90Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
8	EQ Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
9	EQ Width	1.0 — 12.0	Width of the mid range area which the EQ will boost/cut

69: DELAY L,C,R

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Delay Time L	0.1ms — 1480.0ms	Length of left channel delay
3	Delay Time R	0.1ms — 1480.0ms	Length of right channel delay
4	Delay Time C	0.1ms — 1480.0ms	Length of center channel delay
5	Feedback Time	0.1ms — 1480.0ms	Length of feedback delay
6	Feedback Level	-63 — +63	Feedback amount
7	Delay Level C	0 — 127	Volume of center channel
8	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
9	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
10	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
11	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
12	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

70: DELAY L,R

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Delay Time L	0.1ms — 1480.0ms	Length of left channel delay
3	Delay Time R	0.1ms — 1480.0ms	Length of right channel delay
4	Feedback Time 1	0.1ms — 1480.0ms	Length of feedback delay 1
5	Feedback Time 2	0.1ms — 1480.0ms	Length of feedback delay 2
6	Feedback Level	-63 — +63	Amount of feedback
7	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
8	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
9	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
10	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
11	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

71: ECHO

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Delay Time L1	0.1ms — 740.0ms	Length of first delay of left channel
3	Feedback Level L	-63 — +63	Amount of feedback for left channel
4	Delay Time R1	0.1ms — 740.0ms	Length of first delay of right channel
5	Feedback Level R	-63 — +63	Amount of feedback for right channel
6	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
7	Delay Time L2	0.1ms — 740.0ms	Length of second delay of left channel
8	Delay Time R2	0.1ms — 740.0ms	Length of second delay of right channel
9	Delay Level 2	0 — 127	Volume of second delay
10	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
11	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
12	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
13	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

72: CROSS DELAY

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Delay Time L>R	0.1ms — 740.0ms	Delay time from left (input) to right (output)
3	Delay Time R>L	0.1ms — 740.0ms	Delay time from right (input) to left (output)
4	Feedback Level	-63 — +63	Amount of feedback
5	Input Select	L, R, L&R	Input select
6	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
7	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
8	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
9	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
10	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

73: CONTROL DELAY(MONO)

1	Delay Time	0.1ms — 1480.0ms	Delay time
2	Feedback Level	-63 — +63	Amount of feedback
3	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
4	Delay transition rate	1 — 48	Selects the speed of delay time variation
5	Control Type	Normal, Scratch	Normal or scratch type setting
6	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
7	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
8	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
9	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
10	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound

74: CONTROL DELAY(STEREO)

1	Delay Time	0.1ms — 740.0ms	Delay time
2	Feedback Level	-63 — +63	Amount of feedback
3	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
4	Delay transition rate	1 — 48	Selects the speed of delay time variation
5	Control Type	Normal, Scratch	Normal or scratch type setting
6	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
7	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
8	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
9	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
10	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound

75: AMBIENCE

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Delay Time	0.0ms — 50.0ms	Delay time
3	Wet Output Phase	normal/inverse	Inverts the left an right channel effect phase
4	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
5	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
6	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
7	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

76: KARAOKE

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Delay Time	0.1ms — 400.0ms	Sets the karaoke echo reflection time
3	Feedback Level	-63 — +63	Sets the number of reflections
4	HPF Cutoff Freq	thru, 20Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
5	LPF Cutoff Freq	1.0kHz — 18.0kHz, thru	Adds character to the input low-pas filter

77: EARLY REFLECTION

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
@2	Type	S-hall, L-hall, random, reverse, plate, spring	Selects the type of early reflections
3	Room Size	0.1 — 20.0	Sets the room size (higher values for longer reflections)
4	Diffusion	0 — 10	Sets the feeling of "width"
5	Initial Delay	0.1ms — 200.0ms	The delay before the early reflections begin
6	HPF Cutoff Freq	thru, 22Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
7	LPF Cutoff Freq	1.0kHz — 18.0kHz, thru	Adds character to the input low-pas filter
8	Liveness	0 — 10	Sets the ER decay (smaller values for faster decay)
9	Density	0 — 3	Sets the density of the reflections (higher values for higher density)
10	Feedback High Damp	0.1 — 1.0	Adjusts the high-frequency decay (smaller values for faster decay)
11	Feedback Level	-63 — +63	Amount of feedback

78: GATE REVERB, 79: REVERSE GATE

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Type	Type-A, Type-B	Selects the type of early reflections
3	Room Size	0.1 — 20.0	Sets the room size (higher values for longer reflections)
4	Diffusion	0 — 10	Sets the feeling of "width"
5	Initial Delay	0.1ms — 200.0ms	Sets the delay time until the GateReverb or ReverseGate begins
6	HPF Cutoff Freq	thru, 20Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
7	LPF Cutoff Freq	1.0kHz — 18.0kHz, thru	Adds character to the input low-pas filter
8	Liveness	0 — 10	Sets the ER decay (smaller values for faster decay)
@9	Density	0 — 3	Sets the density of the reflections (higher values for higher density)
10	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
11	Feedback Level	-63 — +63	Amount of feedback

80: HALL — 83: PLATE

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Reverb Time	0.3s — 30.0s	Reverb length
3	Diffusion	0 — 10	Spread of the reverb
4	Initial Delay	0.1ms — 99.3ms	Delay time until the early reflections
5	HPF Cutoff Freq	thru, 20Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
6	LPF Cutoff Freq	1.0kHz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
7	Reverb Delay	0.1ms — 99.3ms	Delay time from the early reflections until the reverberation
@8	Density	0 — 4	Density of the reverberation
9	ER/rev Balance	E63>R — E=R — E<R63	Level balance of the early reflections and the reverberation
10	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
11	Feedback Level	-63 — +63	Amount of feedback for the initial delay

84: WHITE ROOM — 87: CANYON

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Reverb Time	0.3s — 30.0s	Reverb length
3	Diffusion	0 — 10	Spread of the reverb
4	Initial Delay	0.1ms — 99.3ms	Delay time until the early reflections
5	HPF Cutoff Freq	thru, 20Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
6	LPF Cutoff Freq	1.0kHz — 18.0kHz, thru	Frequency at which the low pass filter will cut the high range
7	Width	0.5m — 10.2m	Width of the simulated room
8	Height	0.5m — 20.2m	Height of the simulated room
9	Depth	0.5m — 30.2m	Depth of the simulated room
10	Wall Vary	0 — 30	Wall surface of the simulated room (higher values produce more random reflections)
11	Reverb Delay	0.1ms — 99.3ms	Delay time from the early reflections until the reverberation
@12	Density	0 — 4	Density of the reverberation
13	ER/Rev Balance	E63>R — E=R — E<R63	Level balance of the early reflections and the reverberation
14	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
15	Feedback Level	-63 — +63	Amount of feedback for the initial delay

88: TEMPO DELAY (MONO)

1	Dry/Wet	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
@2	Delay Time	32nd note — whole note	Delay length specified by note length
3	Feedback Level	-63 — +63	Amount of feedback
4	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
5	L/R Diffusion	-63ms — +63ms	The feeling of "width" produced by the delay
6	Lag	-63ms — +63ms	Lag in relation to tempo
7	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
8	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
9	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
10	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

Synchronizes to external MIDI clock when Program LFO sync is set to "MIDI," and to the Program LFO tempo when set to "Manual."

89: TEMPO DELAY (STEREO)

1	Dry/Wet	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
@2	Delay Time	32nd note — half note	Delay length specified by note length
3	Feedback Level	-63 — +63	Amount of feedback
4	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
5	L/R Diffusion	-63ms — +63ms	The feeling of "width" produced by the delay
6	Lag	-63ms — +63ms	Lag in relation to tempo
7	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
8	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
9	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
10	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

Synchronizes to external MIDI clock when Program LFO sync is set to "MIDI," and to the Program LFO tempo when set to "Manual."

90: TEMPO CROSS DELAY

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
@2	Delay Time L>R	32nd note — half note	Left (input) to right (output) delay specified by note length
@3	Delay Time R>L	32nd note — half note	Right (input) to left (output) delay specified by note length
4	Feedback Level	-63 — +63	Amount of feedback
5	Feedback High Damp	0.1 — 1.0	High range attenuation (lower values cause the high range to decay faster)
6	Input Select	L, R, L&R	Input selection
7	Lag	-63ms — +63ms	Lag in relation to tempo
8	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
9	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
10	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
11	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range

Synchronizes to external MIDI clock when Program LFO sync is set to "MIDI," and to the Program LFO tempo when set to "Manual."

91: TEMPO FLANGER

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	LFO frequency	32nd note — 1/4 note x 16	Delay modulation frequency specified by note length
3	LFO depth	0 — 127	Delay modulation depth
4	Feedback Level	-63 — +63	Level at which the delay output is returned to the input
5	Delay Offset	0.0ms — 50.0ms	Offset value for delay modulation
6	LFO Phase Difference	-180deg — +180deg	L/R phase difference in the modulation waveform (no difference at 0 deg)
@7	LFO Init Phase	0deg, 90deg, 180deg, 270deg	Sets the initial phase of the LFO waveform
8	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
9	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
10	EQ Mid Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
11	EQ Mid Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the mid range
12	EQ Mid Width	1 — 12.0	Width of the mid range area which the EQ will boost/cut
13	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
14	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
15	LFO Reset (Ctrl)		Reset to initial phase (for MIDI control)

Synchronizes to external MIDI clock when Program LFO sync is set to "MIDI," and to the Program LFO tempo when set to "Manual."
The initial phase of the LFO modulation waveform can be reset from a MIDI controller.
In order to do this the controller to be used must be assigned to "E*-15" ("*" is the effect number used for this effect) via the program controller setup display. The phase is reset when a corresponding MIDI control change message is received, regardless of the control change value.

92: TEMPO PHASER

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	LFO frequency	32nd note — 1/4 note x 16	Phase modulation frequency specified by note length
3	LFO depth	0 — 127	Depth of phase modulation
4	phase shift offset	0 — 127	Phase shift offset value
5	feedback level	-63 — +63	Level at which phaser output will be returned to the input (negative values invert the phase)
6	stage	3, 4, 5, 6	Number of phaser shifter stages
7	LFO phase difference	-180deg — +180deg	L/R phase difference in the modulation waveform (no difference at 0 deg)
@8	LFO Init Phase	0deg, 90deg, 180deg, 270deg	Sets the initial phase of the LFO waveform
9	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
10	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
11	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
12	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
13	LFO Reset (Ctrl)		Reset to initial phase (for MIDI control)

Synchronizes to external MIDI clock when Program LFO sync is set to "MIDI," and to the Program LFO tempo when set to "Manual."
The initial phase of the LFO modulation waveform can be reset from a MIDI controller.
In order to do this the controller to be used must be assigned to "E*-13" ("*" is the effect number used for this effect) via the program controller setup display. The phase is reset when a corresponding MIDI control change message is received, regardless of the control change value.

93: TEMPO AUTO WAH

1	LFO Depth	0 — 127	Wow filter control depth
2	LFO Frequency	32nd note — 1/4 note x 16	Wow filter control frequency (specified by note length)
3	Cutoff Freq Offset	0 — 127	Wow filter control frequency offset
4	Resonance	1 — 12.0	Wow filter bandwidth
@5	LFO Init Phase	0deg, 90deg, 180deg, 270deg	Sets the initial phase of the LFO waveform
6	EQ Low Frequency	32Hz — 2.0kHz	Frequency at which the EQ will boost/cut the low range
7	EQ Low Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the low range
8	EQ High Frequency	500Hz — 16.0kHz	Frequency at which the EQ will boost/cut the high range
9	EQ High Gain	-12dB — +12dB	Gain with which the EQ will boost/cut the high range
10	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
11	LFO Reset (Ctrl)		Reset to initial phase (for MIDI control)

Synchronizes to external MIDI clock when Program LFO sync is set to "MIDI," and to the Program LFO tempo when set to "Manual."
The initial phase of the LFO modulation waveform can be reset from a MIDI controller.
In order to do this the controller to be used must be assigned to "E*-11" ("*" is the effect number used for this effect) via the program controller setup display. The phase is reset when a corresponding MIDI control change message is received, regardless of the control change value.

94: TEMPO DIGITAL SCRATCH

1	Input Level	0 — 127	The degree of scratch effect
2	Initial Delay	0.1 — 460.0ms	Delay time
3	Scratch Speed	32nd note — 1/4 note x 16	Scratch modulation frequency (specified by note length)
4	Scratch Depth	0 — 127	Scratch modulation depth
5	Scrch LFO Init Phase	0deg, 90deg, 180deg, 270deg	Initial phase setting (Scratch LFO)
6	Auto Pan Speed	32nd note — 1/4 note x 16	Auto-pan frequency (specified by note length)
7	Auto Pan Depth	0 — 127	Auto-pan depth
8	Pan LFO Init Phase	0deg, 90deg, 180deg, 270deg	Initial phase setting (Pan LFO)
9	EQ Frequency	100Hz — 10.0kHz	Frequency at which the EQ will boost/cut the mid range
10	EQ Gain	-12 — +12dB	Gain with which the EQ will boost/cut the mid range
11	EQ Width	1.0 — 12.0	Width of the mid range area which the EQ will boost/cut
12	HPF Frequency	thru, 20Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
13	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
14	Scrch LFO Reset (Ctrl)		Reset to initial phase (for MIDI control)
15	Pan LFO Reset (Ctrl)		Reset to initial phase (for MIDI control)

Synchronizes to external MIDI clock when Program LFO sync is set to "MIDI," and to the Program LFO tempo when set to "Manual."
The initial phase of the LFO modulation and pan waveforms can be reset from a MIDI controller.
In order to do this the controller to be used must be assigned to "E*-14" or "E*-15" ("*" is the effect number used for this effect) via the program controller setup display. The phase is reset when a corresponding MIDI control change message is received, regardless of the control change value.

95: TEMPO AUTO SYNTH

1	Mod Speed	0 — 127	Modulation speed
2	Mod Wave Type	TypeA,TypeB,TypeC,TypeD	Modulation type
3	Mod Depth	0 — 127	Modulation depth
4	Mod Depth Ofst R	-63 — +63	Modulation depth in relation to right-channel offset
5	LPF Frequency	1.0kHz — 18.0kHz,thru	Frequency at which the low pass filter will cut the high range
6	HPF Frequency	thru,22Hz — 8.0kHz	Frequency at which the high pass filter will cut the low range
7	Delay Time	0.1 — 370.0ms	Delay time
8	Delay Time Ofst R	0 — -884	Offset of R ch delay time
9	Feedback Level	-63 — +63	Feedback amount
10	Delay Level	0 — 127	Delay level
11	AM Speed	32nd note — 1/4 note x 16	Modulation frequency specified by note length
12	AM Wave	tri,sine,saw up,saw down	Modulation waveform
13	AM Depth	0 — 127	Amplitude modulation depth
14	AM Inverse R	normal,inverse	Inverts the phase of the left and right channels of the modulation waveform
15	AM Init Phase	0deg, 90deg, 180deg, 270deg	Sets the initial phase of the modulation waveform
16	AM Reset (Ctrl)		Reset to initial phase (for MIDI control)

Synchronizes to external MIDI clock when Program LFO sync is set to "MIDI," and to the Program LFO tempo when set to "Manual."
The initial phase of the LFO modulation waveform can be reset from a MIDI controller.
In order to do this the controller to be used must be assigned to "E*-16" ("*" is the effect number used for this effect) via the program controller setup display. The phase is reset when a corresponding MIDI control change message is received, regardless of the control change value.

96: TEMPO FLANGING PAN

1	Dry/Wet Balance	D63>W — D=W — D<W63	Balance of the dry sound and effect sound
2	Flanger&Pan Speed	32nd note — 1/4 note x 16	Delay modulation frequency specified by note length
3	Flanger Depth	0 — 127	Delay modulation depth
4	Flanger Delay	0.1 — 180.0ms	Delay time
5	Flanger Feedback	-63 — +63	Feedback amount
6	FlgPan Delay	0.1 — 180.0ms	Delay time
7	FlgPan Feedback	-63 — +63	Feedback amount
@8	LFO Init Phase	0deg, 90deg, 180deg, 270deg	Sets the initial phase of the LFO waveform
9	LPF Frequency	1.0kHz — 18.0kHz,thru	Frequency at which the low pass filter will cut the high range
10	Delay Time	32th note — 1/4 note	Delay time specified by note length
11	Delay Feedback	-63 — +63	Feedback amount
12	Delay Level	0 — 127	Delay level
13	AM Speed	32nd note — 1/4 note x 16	Amplitude modulation frequency specified by note length
14	AM Depth	0 — 127	Amplitude modulation depth
15	AM Init Phase	0deg, 90deg, 180deg, 270deg	Sets the initial phase of the modulation waveform
16	LFO Reset (Ctrl)		Reset to initial phase (for MIDI control)

Synchronizes to external MIDI clock when Program LFO sync is set to "MIDI," and to the Program LFO tempo when set to "Manual."
The initial phase of the LFO modulation waveform can be reset from a MIDI controller.
In order to do this the controller to be used must be assigned to "E*-16" ("*" is the effect number used for this effect) via the program controller setup display. The phase is reset when a corresponding MIDI control change message is received, regardless of the control change value.

Control Change Number List

A list of the control change numbers used by many MIDI devices (synthesizers, MIDI controllers, MIDI tone generators etc.) is given below. You may find it useful to refer to this when making controller settings for programs or samples.
In the table, the "Controller or function" column lists only the application that is most widely used in Yamaha products and other MIDI devices, and does not indicate that the effect that the controller will have on the sound of the A5000/A4000.

Control change number	Controller or function
000	Bank select MSB
001	Modulation wheel
002	Breath controller
003	Unused
004	Foot controller
005	Portamento time
006	Data entry MSB
007	Volume control
008 — 009	Unused
010	Panpot
011	Expression
012 — 031	Unused
032	Bank select LSB
033 — 037	Unused
038	Data entry LSB
039 — 063	Unused
064	Hold 1
065	Portamento switch
066	Unused
067	Soft pedal
068 — 120	Unused

Troubleshooting

If you experience problems such as "no sound" or "incorrect pitch," refer to this section and make sure that the A5000/A4000 and your other equipment has the correct settings.

No sound

- Is the power of the A5000/A4000 and your external equipment turned on?
- Are MIDI cables and audio cables connected correctly between the A5000/A4000 and the external equipment? (page 20 — 26)
- Is the MASTER VOL knob raised? (page 10)

When there is a problem with the program settings

- Is the program setting RchASSIGN set to other than off for the desired sample in memory? (page 94)
- In the EASY EDIT settings, have you modified the sample keyboard range or velocity range. (page 99 — 100)
- Are the effect settings Input Level or Output Level set to 0? (page 104)
- Is Program Level set to 0? (page 90)
- If an external controller has been set to control program level, is that controller in the 0 position? (page 110)

When there is a problem with the sample settings

- Are the key range settings Low and High set correctly? (page 127)
- Are the velocity range settings Low and High set correctly? (page 131)
- Is Sample Level set to 0? (page 127)
- Is a setting other than off selected for Output1 or Output2? (page 129)
- Is the Output Level1 or Output Level2 parameter set to "0"? (page 129)
- For some samples, strongly applying a filter may mean that the sound cannot be heard at all. (page 133)
- Is the AEG Attack Rate set to an extremely low value? (page 137)
- Is the MIDI receive channel of the sample set correctly? (page 145)
- If an external controller has been set to control sample level, is that controller in the 0 position? (page 146)

Pitch is incorrect

- Has the pitch bend wheel of an external MIDI device been moved?

When there is a problem with the program settings

- Is Transpose set to a value other than 0? (page 90)
- If you are using a sample for which portamento is "=Pgm," is the portamento Rate set extremely low (or is the Time extremely high)? (page 92)

When there is a problem with the sample settings

- Is Original Key set correctly? (page 128)
- Are Pitch Coarse and Pitch Fine set correctly? (page 129)
- Is Fixed Pitch turned on? (page 130)
- Is Random Pitch set to a setting other than 0? (page 130)
- Is the Pitch EG set? (page 140)
- If an external controller has been set to control the Pitch Bias of a sample, is that controller raised (or lowered) ? (page 146)

When there is a problem with the utility settings

- Are the master tuning parameters Coarse and Fine set correctly? (page 195)
- Is the MIDI parameter Transpose set to other than 0? (page 200)

Cannot record

- If you are recording an analog signal, is the REC VOL knob turned up? (page 10)
- Is there free memory? To create contiguous free space, execute the Optimize operation. (page 151)
- Is the Input selected correctly? (page 155)

Cannot save data

- Is the write protect tab of the floppy disk, MO disk, or other in the Protect position?
- Is the floppy disk or hard disk formatted correctly? (page 177 — 180)
- Is the hard disk mounted correctly? (page 209)

Other problems

Cannot use the AD input function

- Is the program's AD Input setting turned on? (page 107)
- Is the AD input Output1 or Output2 set to other than off? (page 108)
- Is the AD input Output Level1 or Output Level2 set to 0? (page 108)

Cannot make fine adjustments to the sample addresses

- Is Auto set to other than off? (page 123)

Cannot play chords

- Is the sample parameter or easy edit parameter Poly/Mono set to Mono? (page 69, 127)
- Does the sample parameter or easy edit parameter Alternate Group have a setting other than off? (page 101, 145)

Volume or tone differs depending on the pitch

- Is level scaling specified for the sample? (page 132)
- Is filter scaling specified for the sample? (page 135)

Tone, pitch or volume changes cyclically

- Is the sample's LFO parameter Cutoff Mod Depth set to 1 or more? (page 144)
- Is the sample's LFO parameter Pitch Mod Depth set to 1 or more? (page 144)
- Is the sample's LFO parameter Amp Mod Depth set to 1 or more? (page 144)
- If an external controller has been set to control the Cutoff Mod Depth, Pitch Mod Depth or Amp Mod Depth of a sample, is that controller raised (or lowered) ? (page 144)

Of the incoming MIDI messages, only specific MIDI messages are not received

- In the utility setting, are any of the settings Program Change, Control Change, After Touch or Pitch Bend set to "disable"? (page 200 — 201)

Error Messages

Here is a list of the error messages that will appear when an incorrect operation is performed or when a setting is incorrect.

Audio CD is required.	An audio CD is not loaded into the external CD-ROM drive.
Audition requires more memory.	There is not enough wave memory available to use the AUDITION function. Direct playback from the disk is not possible.
Bulk data error.	Processing of a bulk dump failed.
Bulk protect switch is ON.	Bulk data or a SCSI message was received when the bulk protect switch was "on."
Cannot copy Volume to FD.	Cannot copy a volume unit to a floppy disk.
Cannot create sample (>16MW).	An attempt was made to create a sample larger than 16 Mwords (32 megabytes).
Cannot find associated file.	The voice file associated with the voice data could not be located.
Cannot find disk.	Not ready for disk operation.
Cannot find CD-R.	Cannot prepare the CD-ROM drive for operation.
Cannot find file.	The specified file does not exist.
Cannot find SCSI or IDE disk.	SCSI or IDE disk could not be found.
Cannot revert this sample.	The revert function cannot be used with newly created samples which have not been saved or imported samples.
Cannot write to this disk.	An attempt has been made to write to an unwriteable CD-ROM or other disk.
CD-R size overflow.	The data to be written exceeds the capacity of the CD-R disk.
DIG or OPT signal input is required.	No digital signal is present at the DIGITAL IN or OPTICAL IN terminal.
Disk drive is not ready.	The disk is not ready for saving or loading.
Disk is duplicated in list.	Duplicate backup source disks have been specified.
Disk is not formatted.	The disk is not formatted for the A5000/A4000.
Disk is write protected.	The disk is write protected, and writing could not be performed.
Disk read/write error.	An error occurred while reading or writing to/from disk.
File is being accessed.	You attempted to access a file which was undergoing some type of processing.
MIDI buffer is full.	The A5000/A4000's processing was not able to keep up with MIDI input.
MIDI is busy.	You attempted to execute a bulk dump from the front panel while a bulk dump or parameter change etc. was being processed.
MIDI receive error.	A MIDI receive error occurred.
Name already exists.	A file on disk or in memory with the specified name already exists.
Non-existent track or index.	The audio CD loaded into the external CD-ROM drive does not have the specified track number or index number.
Not enough disk area or too many items.	There is not enough disk space to complete the operation, or the total number of samples/sample banks which can be saved to disk has been exceeded.
Param memory full or too many samples.	The operation cannot be completed because not enough parameter memory is available, or the number of samples, sample banks, etc., which can be retained in memory has been exceeded.
Please set device number.	Transmission or reception of bulk data was attempted with the device number turned off.
Sample Bank is selected in list.	Sample banks cannot be written to an audio CD.
Sample processing failed.	When executing a waveform processing command, the specified command could not be executed due to insufficient free space in the work area of wave memory, or for some other reason.
SIMM configuration error.	The A5000/A4000 was not able to start up, due to the fact that expansion SIMM's are not installed in pairs, or because the usage order of the expansion slots is incorrect etc.
SCSI terminator or device error.	A SCSI error has occurred. Check terminators and connections and try again.
Some samples are copy protected.	You have attempted to export or write copy-protected samples to an audio CD.
Too many samples.	The operation cannot be completed because the number of target samples is too great. Up to 128 samples can be arranged at one time, and the maximum number of samples that can be contained in a sample bank is 127.
Too many takes.	The sample could not be created, either because the maximum number of 64 was exceeded when consecutively recording with New+, or because an identically-named sample already exists.
Try physical format.	Logical formatting failed. Try physical formatting.
Unknown disk or file format.	Either the contents of the file have been damaged, or it is the wrong format.
Unsupported file format.	The file is corrupted, or has an unsupported format.
Unsupported file name.	The file name could not be detected by the A5000/A4000.
Unsupported sampling frequency.	Samples that do not have a 44.1 kHz sampling rate cannot be written to an audio CD.
Verification error.	A verification error occurred while writing to disk.
Wave memory error.	An error occurred in wave memory.
Wave memory full.	The specified command could not be executed due to insufficient free space in wave memory.

MIDI Data Format

1. MIDI reception/transmission conditions block diagram

< MIDI reception conditions > 1/3

n ....MIDI receive channel
SW ....disable SW.

```
                    Program LFO Sync
                    < SW >                  $F8  Timing Clock
                    Manual/MIDI
                    (*2)                     $FA  Start

                                             $FB  Continue

                                             $FC  Stop

                                             $FE  Active Sensing

                                             $8n  Note Off

                                             $9n  Note On/Off

                    Control Change
                    < SW >                  $Bn,$00 Control Change
                    enable/disable              ⇓         ⇓
                                             $Bn,$78      ⇓

MIDI                Program Change
(*1)                < SW >                  $Cn,$00 Program Change
                    enable/disable              ⇓         ⇓
                                             $Cn,$7F      ⇓

                    After Touch
                    < SW >                  $Dn After Touch
                    enable/disable

                    Pitch Bend
                    < SW >                  $En Pitch Bend
                    enable/disable
```
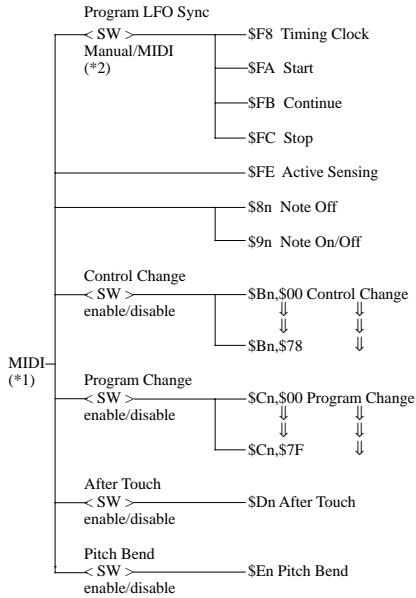
(*1) For the A5000 the same applies to both A/B inputs.
(*2) For the A5000 one of the A/B inputs can be selected.

< MIDI reception conditions > 2/3

SW ....BULK protect SW.
n ....Device Number

```
MIDI                           $F0,$43,$10,$58,$7F,$00,$00,$F7
(*1)                                          Test Entry

                               $F0,$43,$1n,$58,$00        Paramter Change
                                                          (object select)

                               $F0,$43,$1n,$58,$01        Paramter Change
                                                          (object edit)

                               $F0,$43,$1n,$58,$02        Paramter Change
                                                          (system parameter)

                               $F0,$43,$1n,$58,$03        Paramter Change
                                                          (switch remote)

                               $F0,$43,$1n,$58,$04        Paramter Change
                                                          (object link)

                               $F0,$43,$3n,$58,$01        Paramter Value Request
                                                          (object)

                               $F0,$43,$3n,$58,$02        Paramter Value Request
                                                          (system parameter)

                               $F0,$43,$3n,$58,$04        Paramter Value Request
                                                          (object link)

                               $F0,$43,$2n,$7A            Dump Request

Bulk Protect
< SW >                         $F0,$43,$0n,$7A            System Parameter Bulk
enable/disable                 (LM__0474SY) (*2)

                               $F0,$43,$0n,$7A            Program Bulk
                               (LM__0474PG) (*2)

                               $F0,$43,$0n,$7A            Sample Bank Bulk
                               (LM__0474SB) (*2)

                               $F0,$43,$0n,$7A            Sample Bulk
                               (LM__0474SP) (*2)

                               $F0,$43,$0n,$7A            Wave Data Bulk
                               (LM__0474WD) (*2)

                               $F0,$43,$0n,$7A            Sequence Bulk
                               (LM__0474SQ) (*2)
```

(*1) For the A5000 one of the A/B inputs can be selected.
(*2) For the A5000 each is LM 0475**.

< MIDI reception conditions > 3/3

SW .... BULK protect SW.
nn .... Device Number

```
              Bulk Protect
MIDI          < SW >              $F0,$7E,$nn,$01        Dump Header
(*1)          enable/
              disable             $F0,$7E,$nn,$02        Data Packet

                                  $F0,$7E,$nn,$03        Dump Request

                                  $F0,$7E,$nn,$7C        Wait

                                  $F0,$7E,$nn,$7D        Cancel

                                  $F0,$7E,$nn,$7E        NAK

                                  $F0,$7E,$nn,$7F        ACK

                                  $F0,$7E,$nn,$05,$01    Loop Point Transmission

                                  $F0,$7E,$nn,$05,$02    Loop Points Request

                                  $F0,$7E,$nn,$06,$01    Identity Request

                                  $F0,$7E,$nn,$06,$02    Identity Reply
```
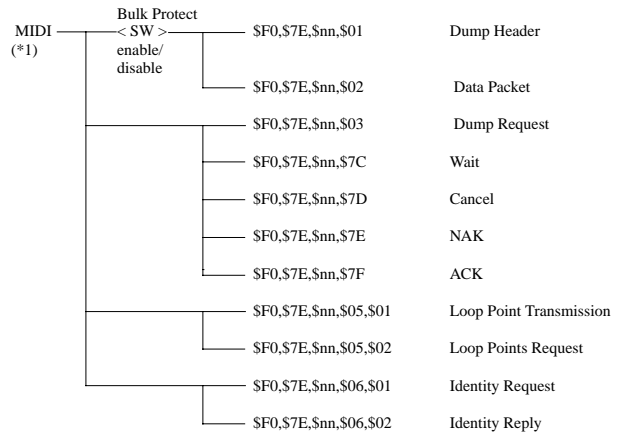
(*1) For the A5000 one of the A/B inputs can be selected.

< MIDI transmission conditions >

```
Note Off
Note On/Off
Control Change
Program Change
After Touch
Pitch Bend

Dump Header                                          <Device Number>        →MIDI
Dump Packet                                          1-16; in the case of All, 1
ACK
NAK
Cancel
Wait

Loop Point Transmission
Identity Reply

System Parameter Bulk
Program Bulk
Sample Bank Bulk
Sample Bulk
Wave Data Bulk
Sequence Bulk
Object List Bulk

Parameter Change
```
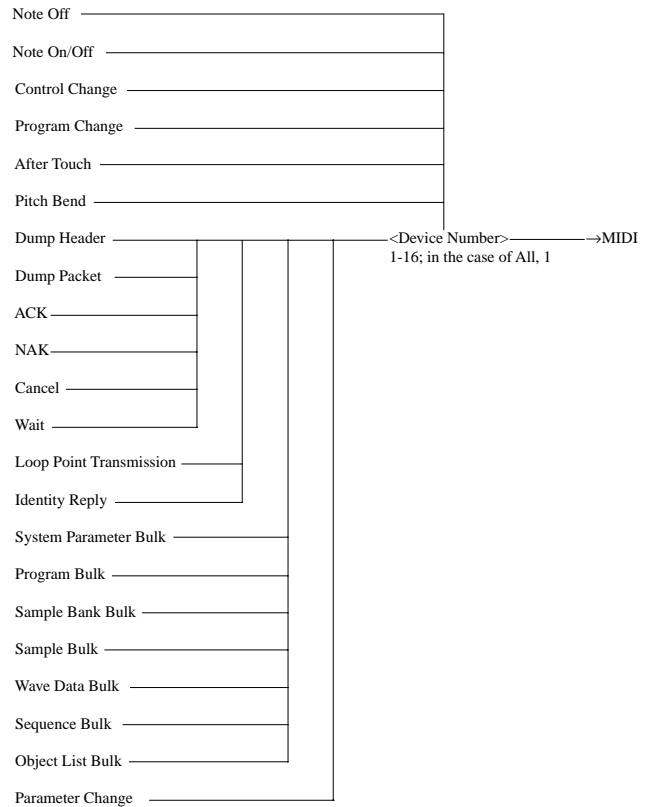
2. Channel messages

Channel messages are received as follows.

When Program Mode = Single and Omni SW is on, The Note ON/OFF, Control Change, Pitch Bend, After Touch, and Program Change channels have no meaning.

When Program Change SW is enabled and Program Mode = Single the Basic Receive Channel is used; when Program Mode = Multi the Part 1 receive channel is used. No program change occurs when off. However, when a program change is received during internal MIDI sequencer recording, the program change is not recorded even if the Program Change SW is off.

Transmission is performed when the internal MIDI sequencer is playing, and when the KNOB Control function and FKey Play function are being used.

When the MIDI sequencer is playing, the MIDI events that are played back are transmitted to the internal tone generator, and also simultaneously transmitted via MIDI OUT.

When Knob control used, a value related to the number of rotations is transmitted for the selected Ch and Control#.

When the FKey Play function is used, Note On/Off messages will be transmitted on the specified channel with the specified note number and velocity. The velocity used when transmitting a Note Off message is fixed. Note Off messages will have a velocity of 0 if the form $8n is used, and if the form $9n is used the velocity will be determined case by case.

2.1. Reception

2.1.1. Note off

     Note range   =   C-2 — G8
     Velocity range =   ignored

2.1.2. Note on/off

     Note range   =   C-2 — G8
     Velocity range =   0 — 127

2.1.3. Polyphonic aftertouch

     Not received.

2.1.4. Control changes

     The following parameters can be controlled.

Parameters which function for each program.

cntrl#	parameter	data range	
5	Program Portamento Time	0 — 127	
0-120	Program Portamento Rate/Time	0 — 127	*
0-120	LFO S/H Speed	0 — 127	*
0-120	AD Input Pan	0 — 127	*
0-120	AD Input Level	0 — 127	*
0-120	AD Input L Pan	0 — 127	*
0-120	AD Input R Pan	0 — 127	*
0-120	AD Input L Level	0 — 127	*
0-120	AD Input R Level	0 — 127	*
0-120	Program Level	0 — 127	*
0-120	EF1 Level	0 — 127	*
0-120	EF1 Pan	0 — 127	*
0-120	EF1 Width	0 — 127	*
0-120	EF1 Parameter 1 — 16	0 — 127	*
0-120	EF2 Level	0 — 127	*
0-120	EF2 Pan	0 — 127	*
0-120	EF2 Width	0 — 127	*
0-120	EF2 Parameter 1 — 16	0 — 127	*
0-120	EF3 Level	0 — 127	*
0-120	EF3 Pan	0 — 127	*
0-120	EF3 Width	0 — 127	*
0-120	EF3 Parameter 1 — 16	0 — 127	*
0-120	EF4 Level	0 — 127	* (A5000 only)
0-120	EF4 Pan	0 — 127	* (A5000 only)
0-120	EF4 Width	0 — 127	* (A5000 only)
0-120	EF4 Parameter 1 — 16	0 — 127	* (A5000 only)
0-120	EF5 Level	0 — 127	* (A5000 only)
0-120	EF5 Pan	0 — 127	* (A5000 only)
0-120	EF5 Width	0 — 127	* (A5000 only)
0-120	EF5 Parameter 1 — 16	0 — 127	* (A5000 only)
0-120	EF6 Level	0 — 127	* (A5000 only)
0-120	EF6 Pan	0 — 127	* (A5000 only)
0-120	EF6 Width	0 — 127	* (A5000 only)
0-120	EF6 Parameter 1 — 16	0 — 127	* (A5000 only)
0-120	Program LFO Depth	0 — 127	*
0-120	Control 1 Range	0 — 127	*
0-120	Control 2 Range	0 — 127	*
0-120	Control 3 Range	0 — 127	*
0-120	Control 4 Range	0 — 127	*

Parameters marked by "*" depend on the Program Control settings.

Parameters which function for each MIDI channel of a program

cntrl#	parameter	data range
7	Volume(Level)	0 — 127
10	Pan	0 — 127
64	Sustain	0 — 127
65	Portament ON/OFF	0 — 127
66	Sostenute	0 — 127

Parameters which function for samples or sample banks

cntrl#	parameter	data range	
0-120	Pitch Mod Depth	0 — 127	*
0-120	Amp Mod Depth	0 — 127	*
0-120	Cutoff Mod Depth	0 — 127	*
0-120	Cutoff Bias	0 — 127	*
0-120	Filter Q/Width	0 — 127	*
0-120	Pan Bias	0 — 127	*
0-120	Pitch Bias	0 — 127	*
0-120	Sample Level	0 — 127	*
0-120	LFO Speed	0 — 127	*
0-120	LFO Delay	0 — 127	*
0-120	AEG Attack	0 — 127	*
0-120	AEG Decay	0 — 127	*
0-120	AEG Sustain Level	0 — 127	*
0-120	AEG Release	0 — 127	*
0-120	PEG Attack	0 — 127	*
0-120	PEG Decay	0 — 127	*
0-120	PEG Release	0 — 127	*
0-120	PEG Init Level	0 — 127	*
0-120	PEG Sustain Level	0 — 127	*
0-120	FEG Attack	0 — 127	*
0-120	FEG Decay	0 — 127	*
0-120	FEG Release	0 — 127	*
0-120	FEG Init Level	0 — 127	*
0-120	FEG Sustain Level	0 — 127	*
0-120	FEG Level	0 — 127	*
0-120	Pitch Bend	0 — 127	*
0-120	Wave Start Address	0 — 127	*
0-120	Cutoff Distance	0 — 127	*
0-120	Filter Gain	0 — 127	*
0-120	Sample Portamento Rate/Time	0 — 127	*
0-120	Sample Control 1 Range	0 — 127	*
0-120	Sample Control 2 Range	0 — 127	*
0-120	Sample Control 3 Range	0 — 127	*
0-120	Sample Control 4 Range	0 — 127	*
0-120	Sample Control 5 Range	0 — 127	*
0-120	Sample Control 6 Range	0 — 127	*

Parameters marked by "*" depend on the Sample Control settings.

2.1.5. Mode messages

Messages which function always

cntrl#	parameter	data range
120	All sound off	0 — 127
121	Reset all controllers	0 — 127
123	All notes off	0 — 127

Messages which function for samples or sample banks

cntrl#	parameter	data range
126	mono mode	0 — 127
127	poly mode	0 — 127

2.1.6. Program changes

When a program change message is received, the corresponding program is selected for playback and editing. Nothing occurs if the Program Change SW is disabled (even when internal sequencer recording is off). If Program Mode = Single, program change is received via the Basic Receive Channel (any receive channel when Omni is on). When Program Mode = Multi the Part 1 receive channel is used.

2.1.7. Pitch bend

The 7 bits of the MSB are used.

For functions marked "* indicates Program (or Sample) control" in "Control Change" of 3.1.4, pitch bend can be used for ctrl#.

2.1.8. Channel aftertouch

Received.

For functions marked "* indicates Program (or Sample) control" in "Control Change" of 2.1.4, channel aftertouch can be used for ctrl#.

3. Realtime messages
3.1. Reception

3.1.1. Active sensing

Once active sensing is received, monitoring will begin, and if no MIDI input appears for an interval longer than approximately 400 msec, the MIDI receive buffer will be cleared, and the tone generator will be damped.

3.1.2 Timing Clock, Start, Continue, Stop

When Program LFO Sync is set to MIDI, the LFO frequency and phase, the frequency of tempo-synchronized effects, and other time settings can be controlled via reception of Timing Clock ($F8), Start ($FA), CONTINUE ($FB) and STOP ($FC) messages.

4. UNIVERSAL SYSTEM EXCLUSIVE
4.1. SAMPLE DUMP STANDARD

Transmission occurs when sample bulk dump is carried out using Format=SDS#nnnn or a Sample Dump Request is received.
The A5000/A4000 will automatically detect whether the MIDI connections are an open loop or a closed loop, and will automatically switch to use or not use hand shaking.
When the channel number and device number matches for each message that message is effective. The message is processed regardless of the device number when the received channel number is $7F.
The sample number is in the range of 0-1024 (displayed as 1-1025), and samples will automatically be assigned to sample objects. For transmission, these numbers or the specified number will be used. For reception, sample numbers in the range of 0-16383 will be recognized, and the sample will be kept as "MIDI nnnnn" where sample number nnnnn is added to the name.

4.1.1. Dump Request

```
0      11110000    $F0
1      01111110    $7E
2      0nnnnnnn    nnnnnnn = Channel Number
3      00000011    $03
4      0sssssss    sssssss = Sample number(LSB first)
5      0sssssss    sssssss =
6      01110111    $F7
```

When this message is received, the A5000/A4000 will search for the correspondingly-numbered sample, and if that sample exists, a dump header will be transmitted. If the corresponding sample does not exist, processing will be terminated.
This message is not transmitted.

4.1.2. ACK

```
0      01110000    $F0
1      01111110    $7E
2      0nnnnnnn    nnnnnnn = Channel Number
3      01111111    $7F
4      0ppppppp    ppppppp = Packet number
5      01110111    $F7
```

This message indicates that the receiving device correctly received a packet. "Packet number" indicates the number of the packet which was received correctly.
This message is transmitted and received.

4.1.3. NAK

```
0      01110000    $F0
1      01111110    $7E
2      0nnnnnnn    nnnnnnn = Channel Number
3      01111110    $7E
4      0ppppppp    ppppppp = Packet number
5      01110111    $F7
```

This message indicates that the receiving device received a packet incorrectly. "Packet number" indicates the number of the packet which was received incorrectly.
This message is transmitted and received.

4.1.4. Cancel

```
0      01110000    $F0
1      01111110    $7E
2      0nnnnnnn    nnnnnnn = Channel Number
3      01111101    $7D
4      0ppppppp    ppppppp = Packet number
5      01110111    $F7
```

This message indicates that a dump is to be terminated. "Packet number" indicates the packet which was terminated.
This message is transmitted and received.

4.1.5. Wait

```
0      01110000    $F0
1      01111110    $7E
2      0nnnnnnn    nnnnnnn = Channel Number
3      01111100    $7C
4      0ppppppp    ppppppp = Packet number
5      01110111    $F7
```

This message indicates a pause during a dump.
This message is transmitted and received.

4.1.6. Dump Header

```
0      11110000    $F0
1      01111110    $7E
2      0nnnnnnn    nnnnnnn = Channel Number
3      00000001    $01
4      0sssssss    sssssss = Sample number(LSB first)
5      0sssssss    sssssss =
6      0eeeeeee    eeeeeee = Sample format
7      0fffffff    fffffff = Sample period(LSB first)
8      0fffffff    fffffff =
9      0fffffff    fffffff =
10     0ggggggg    ggggggg = Sample length(LSB first)
11     0ggggggg    ggggggg =
12     0ggggggg    ggggggg =
13     0hhhhhhh    hhhhhhh = Sustain loop start point(LSB first)
14     0hhhhhhh    hhhhhhh =
15     0hhhhhhh    hhhhhhh =
16     0iiiiiii    iiiiiii = Sustain loop end point(LSB first)
17     0iiiiiii    iiiiiii =
18     0iiiiiii    iiiiiii =
19     0ppppppp    ppppppp = Loop type
20     11110111    $F7
```

This is the header portion of a dump.

Name	Range	Contents
Sample format	8 — 28	Number of bits in one sample word
Sample period	0 — 2097151	Sample rate (nSec units)
Sample length	0 — 2097151	Amount of data (word units)
Sustain Loop start point	0 — 2097151	Loop start address (word units)
Sustain Loop end point	0 — 2097151	Loop end address (word units)
Loop type	$00/$01/$7F	Loop type
	$00=forward only,	
	$01=backward/forward,	
	$7F=Loop off	

This message is transmitted and received.

4.1.7. Data Packet

```
0      11110000    $F0
1      01111110    $7E
2      0nnnnnnn    nnnnnnn = Channel Number
3      00000010    $02
4      0ppppppp    ppppppp = Packet number
5      0ddddddd    ddddddd ⎤
       ⇓           ⇓       | Sample data(120byte)
124    0ddddddd    ddddddd ⎦
125    01111111    lllllll = Checksum
126    11110111    $F7
```

This is the data portion of a dump.
This message is transmitted and received.

4.2. MULTIPLE LOOP POINT MESSAGES

4.2.1. Loop Point Transmission

```
0      01110000    $F0
1      01111110    $7E
2      0nnnnnnn    nnnnnnn = Channel Number
3      00000101    $05
4      00000001    $01
5      0sssssss    sssssss = Sample number(LSB first)
6      0sssssss    sssssss =
7      0bbbbbbb    bbbbbbb = Loop number(LSB first)
8      0bbbbbbb    bbbbbbb =
9      0ccccccc    ccccccc = Loop type
10     0ttttttt    ttttttt = Loop start address(LSB first)
11     0ttttttt    ttttttt =
12     0ttttttt    ttttttt =
13     0eeeeeee    eeeeeee = Loop end address(LSB first)
14     0eeeeeee    eeeeeee =
15     0eeeeeee    eeeeeee =
16     11110111    $F7
```

This is loop point data.

Name	Range	Contents
Loop number	0 — 16383	Loop number
		16383 ($7F, $7F) means to delete all loops
Loop type		$00/$01/$7F Loop type
		$00=forward only,
		$01=backward/forward,
		$7F=Loop off
Loop start address	0 — 2097151	Loop start address (word units)
Loop end address	0 — 2097151	Loop end address (word units)

If the sample contains a release loop, this message is transmitted after the sample dump. Alternatively, this message is transmitted in reply to a Loop Point Request message.

4.2.2. Loop Point Request

```
0    01110000    $F0
1    01111110    $7E
2    0nnnnnnn    nnnnnnn = Channel Number
3    00000101    $05
4    00000010    $02
5    0sssssss    sssssss = Sample number(LSB first)
6    0sssssss    sssssss =
7    0bbbbbbb    bbbbbbb = Loop number(LSB first)
8    0bbbbbbb    bbbbbbb =
9    01110111    $F7
```

This message requests loop points.

Name	Range	Contents
Loop number	0 — 16383	Loop number
		16383($7F,$7F)Loop number
		16383 ($7F, $7F) requests all loops

This message is only received.

4.3. INQUIRY MESSAGE

4.3.1. Identity Request

```
0    01110000    $F0
1    01111110    $7E
2    0nnnnnnn    nnnnnnn = Channel Number
3    00000110    $06
4    00000001    $01
5    01110111    $F7
```

This message requests device-specific information.
This message is only received.

4.3.2. Identity Reply

```
0    11110000    $F0
1    01111110    $7E
2    0nnnnnnn    nnnnnnn = Channel Number
3    00000110    $06
4    00000010    $02
5    01000011    $43 = Manufacturers System Exclusive ID code
6    0fffffff    fffffff = Device family code(LSB first)
7    0fffffff    fffffff =
8    0ddddddd    ddddddd = Device family number code(LSB first)
9    0ddddddd    ddddddd =
10   0vvvvvvv    vvvvvvv = Software revision level.
                          Format device specific
11   0vvvvvvv    vvvvvvv = (LSB first)
12   0vvvvvvv    vvvvvvv =
13   0vvvvvvv    vvvvvvv =
14   11110111    $F7
```

This message is returned in response to an Identity Request message asking for device-specific information.

Name	Range	Contents
Device family code	$0041	LM
Device family number code	$01DA	#0474 (*1)
Software revision level	$nnnn	A5000/A4000 software version

(*1) For the A5000 the range is $01DB, and the content is #0475.

This message is only transmitted in response to an Identity Request message.

5. YAMAHA SYSTEM EXCLUSIVE

5.1. Bulk dump

Transmission occurs when a bulk dump transmit command is executed or a dump request is received.
This message can be received if bulk protect is off.

Data format

```
0    01110000    $F0
1    01000011    $43
2    0000nnnn    nnnn = Device Number
3    01111010    $7A
4    0bbbbbbb    ]byte count
5    0bbbbbbb    ]
6    01001100    $4C(ASCII"L")
7    01001101    $4D(ASCII"M")
8    00100000    $20(ASCII" ")
9    00100000    $20(ASCII" ")
10   00110000    $30(ASCII"0")
11   00110100    $34(ASCII"4")
12   00110111    $37(ASCII"7")
```

```
13   00110100    $34(ASCII"4") (*1)
14   0mmmmmmm    mmmmmmm = data format name ending
15   0mmmmmmm    mmmmmmm = data format name ending
16   0ccccccc    ]
⇓    ⇓          | object name(ASCII 16byte)
31   0ccccccc    ]
32   0ddddddd    ddddddd = data
⇓    ⇓          ⇓
     0sssssss    sssssss = check_sum
     11110111    $F7
```

(*1) 00110101 $35(ASCII"5") for the A5000.

The data format name ending in bytes 14 and 15 specifies the type of bulk data, as follows.

mm	Data type
"SY"	System parameter bulk dump
"PG"	Program bulk dump
"SB"	Sample bank bulk dump
"SP"	Sample bulk dump
"WD"	Wave data bulk dump
"SQ"	Sequence bulk dump
"OL"	Object list bulk dump

Note) mm is ASCII code

object name is a 16-character name for each object. Program object names are the program number of each program (example: "001   "). System parameters and object lists are always "SystemParameters" and "Object List   ", respectively.
The data section is divided into byte 1, which is the upper nibble, and byte 2, which is the lower nibble. See chart 1 for details.
The byte is all data between the byte count and checksum.
The checksum is the exclusive-or value of all bytes between the byte count and checksum.
For each bulk dump, the number of transmitted bytes between the byte count and checksum is less than 4096. When the amount of data to be transmitted is greater than this, it is divided into 4096 byte blocks transmitted between byte count and checksum data. F7 is transmitted when all data has been transmitted. From the second block onward the header from byte 6 to byte 31 is not included.

5.2. Dump request

Bulk dump transmission is performed when a dump request is received.

```
0    01110000    $F0
1    01000011    $43
2    0010nnnn    nnnn = Device Number
3    01111010    $7A
4    01001100    $4C(ASCII"L")
5    01001101    $4D(ASCII"M")
6    00100000    $20(ASCII" ")
7    00100000    $20(ASCII" ")
8    00110000    $30(ASCII"0")
9    00110100    $34(ASCII"4")
10   00110111    $37(ASCII"7")
11   00110100    $34(ASCII"4") (*1)
12   0mmmmmmm    mmmmmmm = data format name ending
13   0mmmmmmm    mmmmmmm = data format name ending
14   0ccccccc    ]
⇓    ⇓          | object name(ASCII 16byte)
29   0ccccccc    ]
30   11110111    $F7
```

(*1) 00110101 $35(ASCII"5") for the A5000.

The data format name ending in bytes 12 and 13 specifies the type of transmitted data, as follows.

mm	Data type
"SY"	System parameter bulk dump
"PG"	Program bulk dump
"SB"	Sample bank bulk dump
"SP"	Sample bulk dump
"WD"	Wave data bulk dump
"SQ"	Sequence bulk dump
"OL"	Object list bulk dump

Note) mm is ASCII code

object name is a 16-character name for each object. Program object names are the program number of each program (example: "001   "). System parameters and object lists do not have an object name, and are recognized by their data format name.

5.3. Parameter change

For changes to the value of an object parameter, first the object is selected via parameter change (object select) reception, then the value is changed via parameter change (object edit) reception. The object selection remains effective until the next object select is received, thus a number of changes to the value of the same object can be carried through successive object edit reception. Transmitted when a parameter value request is received.

5.3.1. Parameter change (object select)

```
0     01110000    $F0
1     01000011    $43
2     0001nnnn    nnnn = Device Number
3     01011000    $58  g=22,h=0
4     00000000    $00
5     0ccccccc    ⌉
⇓        ⇓        │ object name(ASCII 16byte)
20    0ccccccc    ⌋
22    0ttttttt    object type
21    11110111    $F7
```

Functions as an object select message.
This message specifies the object.
object name is a 16-character name for each object. Program object names are the program number of each program (example: "001   ").

The object type is shown in the following table.

t	Data type
20($14)	Program
17($11)	Sample Bank
16($10)	Sample
2($02)	Wave data
19($13)	Sequence

5.3.2. Parameter change (object edit)

```
0     11110000    $F0
1     01000011    $43
2     0001nnnn    nnnn = Device Number
3     01011000    $58  g=22,h=0
4     00000001    $01
5     0ppppppp    ⌉
⇓        ⇓        │parameter number P1-P6(6byte)
10    0ppppppp    ⌋
11    0ddddddd    ⌉
⇓        ⇓        │data
      0ddddddd    ⌋
      11110111    $F7
```

Changes the value of the object parameter specified by object select.
The parameters comply with P1, P2 — P6 in chart 2.
The number of data bytes depends on the parameter. The data section is divided into byte 1, which is the upper nibble, and byte 2, which is the lower nibble. See chart 2 for details.

5.3.3. Parameter change (system parameter)

```
0     11110000    $F0
1     01000011    $43
2     0001nnnn    nnnn = Device Number
3     01011000    $58  g=22,h=0
4     00000010    $02
5     0ppppppp    ⌉
⇓        ⇓        │parameter number P1-P6 (6byte)
10    0ppppppp    ⌋
11    0ddddddd    ⌉
⇓        ⇓        │data
      0ddddddd    ⌋
      01110111    $F7
```

This message is a parameter change for system parameters.
The parameters comply with P1, P2 — P6 in chart 2.
The number of data bytes depends on the parameter. The data section is divided into byte 1, which is the upper nibble, and byte 2, which is the lower nibble. See chart 2 for details.

5.3.4. Parameter change (switch remote)

```
0     11110000    $F0
1     01000011    $43
2     0001nnnn    nnnn = Device Number
3     01011000    $58  g=22,h=0
4     00000011    $03
5     0ppppppp    switch number
6     00000000    $00
⇓        ⇓        ⇓
10    00000000    $00
11    0ddddddd    data
27    11110111    $F7
```

This message performs remote control of switches.
For the switch numbers, refer to table 2.
With the exception of switch numbers 123-127, data of $00-$3F turns the switch off, and data of $40-$7F turns the switch on.
For switch numbers 123-127 (knob encoders), a value of 64 less than the data specifies the number of pulses which correspond to rotation (30 pulses per rotation). Positive numbers are rotation toward the right, and negative numbers are rotation toward the left.
This message is received only.

5.3.5. Parameter request (object)

```
0     11110000    $F0
1     01000011    $43
2     0011nnnn    nnnn = Device Number
3     01011000    $58  g=22,h=0
4     00000001    $01
5     0ppppppp    ⌉
⇓        ⇓        │parameter number P1-P6 (6byte)
10    0ppppppp    ⌋
11    11110111    $F7
```

This message requests transmission of the parameter of the specified object as a parameter change.
The parameters comply with P1, P2 — P6 in chart 2.
This message is received only.

5.3.6. Parameter request (system parameter)

```
0     11110000    $F0
1     01000011    $43
2     0011nnnn    nnnn = Device Number
3     01011000    $58  g=22,h=0
4     00000010    $02
5     0ppppppp    ⌉
⇓        ⇓        │parameter number P1-P6 (6byte)
10    0ppppppp    ⌋
11    11110111    $F7
```

This message requests transmission of a system parameter as a parameter change.
The parameters comply with P1, P2 — P6 in chart 2.
This message is received only.

5.3.7. Object Link Change

```
0     11110000    $F0
1     01000011    $43
2     0001nnnn    nnnn = Device Number
3     01011000    $58  g=22,h=0
4     00000100    $04
5     0ccccccc    ⌉
⇓        ⇓        │upper object name(ASCII 16byte)
20    0ccccccc    ⌋
21    0ttttttt    upper object type
22    0ccccccc    ⌉
⇓        ⇓        │lower object name(ASCII 16byte)
37    0ccccccc    ⌋
38    0ttttttt    lower object type
39    0ddddddd    data (0:link off, 1:link on)
40    11110111    $F7
```

Changes the link condition between specified objects (between Program and Sample/Sample Bank Program is upper, and between Sample Bank and Sample is upper). Nothing occurs when an object is selected which is not changeable, or which requires samples to be copied.
object name is a 16-character name for each object. Program object names are the program number of each program (example: "001   ").

The object type is shown in the following table.

t	Data type
20($14)	Program
17($11)	Sample Bank
16($10)	Sample

5.3.8. Object Link Request

```
0     11110000    $F0
1     01000011    $43
2     0011nnnn    nnnn = Device Number
3     01011000    $58  g=22,h=0
4     00000100    $04
5     0ccccccc    ⌉
⇓        ⇓        │upper object name(ASCII 16byte)
20    0ccccccc    ⌋
21    0ttttttt    upper object type
22    0ccccccc    ⌉
⇓        ⇓        │lower object name(ASCII 16byte)
37    0ccccccc    ⌋
38    0ttttttt    lower object type
39    0ddddddd    data (0:link off, 1:link on)
40    11110111    $F7
```

When received the link condition between specified objects (between Program and Sample/Sample Bank Program is upper, and between Sample Bank and Sample is upper) is transmitted in object link change format. This message is receive only.

The object type is shown in the following table.

t	Data type
20($14)	Program
17($11)	Sample Bank
16($10)	Sample

Table1 Bulk Dump

Item	Type	Description	data byte			
			1st	2nd	3rd	4th
offset	decimal	Address offset		—		
data size	UC	1 byte (unsigned 8 bit)	b7-b0	—	—	—
	SC	1 byte (signed 8 bit, 2's complement)	sign,b6-b0	—	—	—
	US	2 byte (unsigned 16 bit)	b15-b8	b7-b0	—	—
	SS	2 byte (signed 16 bit, 2's complement)	sign,b14-b8	b7-b0	—	—
	UL	4 byte (unsigned 32 bit)	b31-b24	b23-16	b15-b8	b7-b0
	SL	4 byte (signed 32 bit, 2's complement)	sign,b30-b24	b23-16	b15-b8	b7-b0
	*n	n bytes of each data type		—		
value	c	All displayable ASCII codes except ¥		—		
	b	Bitmap type Refer to the name column for bit position		—		
	—	Unused or internal use only (0 not appropriate)		—		
name	[ ]	Parameter block Refer to each parameter block for details		—		

Each data byte is divided into the upper and lower 4 bits and received/transmitted as 2 bytes of MIDI data.

original data byte		b7,b6,b5,b4,b3,b2,b1,b0
MIDI data	1st byte	0,0,0,0,b7,b6,b5,b4
	2nd byte	0,0,0,0,b3,b2,b1,b0

1.1 Voice Parameter Bulk Dump

■ 1.1.1 Program Bulk Dump 408+56*(number of samples)byte

offset	data size	value	name
0000	64byte		[Common]
0064	UC*8	c	program name
0072	UC	b	b0:AD in on, b2-1:AD in source, b5-3:effect1-3 connection, b7-6:program LFO sync
0073	UC	b	b2-0:program LFO cycle, b5-3:program LFO wave, b7-6:program LFO initial phase
0074	US	b	b0:MIDI channelA01 controller reset... b15:MIDI channelA16 controller reset
0076	US	b	b0:MIDI channelA01 note on normal/toggle... b15:MIDI channelA16 note on normal/toggle
0078	SC	±63	AD in (L) pan
0079	UC	—	reserved
0080	UC	—	reserved
0081	UC	—	reserved
0082	UC	—	reserved
0083	UC	0-127	program level
0084	SC	—	reserved
0085	SC	—	reserved
0086	SC	±127	program transpose
0087	SC	-2,-1,0-32	program LFO reset MIDI channel (*2)
0088	UC	0-3	program portamento type
0089	UC	0-127	program portamento rate
0090	UC	0-127	program portamento time
0091	UC	0-127	S/H speed
0092	UC	25-250	program LFO tempo
0093	SC	-1,0-127	program LFO reset note (*2)
0094	US	0-999	number of assigned samples (*1)
0096	120byte		[Effect Parameter]*3 (effect1-3)
0216	16byte	—	reserved
0232	120byte		[Effect Parameter]*3 (effect4-6) (A5000 only)
0352	16byte		[Control]*4 (program control1-4)
0368	US	b	b0:MIDI channel B01 controller reset... b15:MIDI channel B16 controller reset (A5000 only)
0370	US	b	b0:MIDI channel B01 note on normal/toggle... b15:MIDI channel B16 note on normal/toggle (A5000 only)
0372	UC	b	b2-0:effect4-6 connection (A5000 only)
0373	UC	0-12	AD in (L) output1 (*4)
0374	UC	0-127	AD in (L) level1
0375	UC	0-12	AD in (L) output2 (*4)
0376	UC	0-127	AD in (L) level2
0377	SC	±63	AD in R pan
0378	UC	0-12	AD in R output1 (*4)
0379	UC	0-127	AD in R level1
0380	UC	0-12	AD in R output2 (*4)
0381	UC	0-127	AD in R level2
0382	UC*16	0-127	program LFO step wave value1-16
0398	UC	b	b2-0:total steps of step wave, b4-3:step wave slope
0399	9byte	—	reserved
0408	56*n byte		[Easy Edit Parameter]*(number of samples)

(*1) Number of samples/sample banks for which ToPgm is on.
(*2) -2:off, -1:AUDITION, 0-15:A01-16, 16:basic receive channel, 17-32:B01-16(A5000 only)
(*3) -1:all
(*4) Refer to *8 of "2.1.1 Program Parameters".

■ 1.1.2 Sample Bank Bulk Dump 312+20*(number of samples)byte

offset	data size	value	name
0000	64byte		[Common]
0064	224byte		[Sample Parameter]
0288	UL	b	sample bank value enable (*1)
0292	UL	b	sample bank value enable (*2)
0296	UL	b	sample bank value enable (*3)
0300	UL	—	reserved
0304	UC	0-127	number of assigned samples
0305	UC*7		reserved
0312	20*n byte		[Sample Bank Member]*(number of samples)

(*1) b31(MSB) — b0(LSB):P2=31 — 0
(*2) b31(MSB) — b0(LSB):P2=63 — 32
(*3) b31(MSB) — b0(LSB):P2=95 — 64
  P2, above, applies to P2 = 0-88 of the "Sample Parameter" block of "2.1.4 Parameter Block."

■ 1.1.3 Sample Bulk Dump 336byte

offset	data size	value	name
0000	64byte		[Common]
0064	UC*16	c	linked wave object name L (*1)
0080	UC*16	c	linked wave object name R (*1)
0096	UL*2	—	reserved
0104	UL*2	—	reserved
0112	224byte		[Sample Parameter]

(*1) No assignment when the first byte is $00.

■ 1.1.4 Wave Data Bulk Dump 72+2*(wave data word size)byte

offset	data size	value	name
0000	64byte		[Common]
0064	SS	—	reserved
0066	US	—	reserved
0068	US	—	reserved
0070	US	—	reserved
0072	US*n		wave data (n='size' in [Common])

■ 1.1.5 Sequence Bulk Dump 72+(sequence data byte size)byte

offset	data size	value	name
0000	64byte		[Common]
0064	US	50-250	original tempo
0066	US	—	reserved
0068	US	—	reserved
0070	US	—	reserved
0072	UC*n		sequence data (n='size' in [Common])

■ 1.1.6 Object List Bulk Dump 17*(number of all objects)byte

offset	data size	value	name
0000	UC		object type (*1)
0001	UC*16	c	name

⋮
Repeat for all objects saved in memory, from obj type to name.
⋮

(*1) sample:16, sample bank:17, sequence:19, program:20"

■ 1.1.7 Parameter Block

[Common] 64byte

offset	data size	value	name
0000	UC		object type (*1)
0001	UC	—	reserved
0002	UC*16	c	name
0018	UC*2	—	reserved
0020	UL		size (*2)
0024	UC*16	—	reserved
0040	UC*16	—	reserved
0056	UC	—	reserved
0057	UC*3	—	reserved
0060	UL	—	reserved

(*1) sample:16, sample bank:17, sequence:19, program:20
(*2) wave data word size for wave data bulk dump,
   sequence data word size for sequence bulk dump,
   0 in all other cases.

[Control] 4byte

offset	data size	value	name
0000	UC	0-126	control device
0001	UC	0-m	control function (íç1Åj
0002	UC	0-3	control type
0003	SC	Å}63	control range

(*1) program:m=71(A4000),128(A5000), sample:m=36
　　Refer to *9 or "2.1.1. Program Parameters," *11 of "2.1.4 Parametere Block."

[Sample Parameter] 224byte

offset	data size	value	name
0000	24byte	—	reserved
0024	UL	b	b0:linked to program001 — b31:program032
0028	UL	b	b0:linked to program033 — b31:program064
0032	UL	b	b0:linked to program065 — b31:program096
0036	UL	b	b0:linked to program097 — b31:program128
0040	UC	b	b0:sample bank member (*8), b1:mono sample, b2:expanded (*1)
0041	UC	b	b0:reserved, b1:mono mode, b2:key x-fade on, b3:reserved, b4:fixed pitch on, b7-6:EQ type
0042	UC	0-32	MIDI receive channel (*5)
0043	UC	0-13	pitch bend type
0044	UC	0-24	pitch bend range
0045	SC	Å}127	coarse tune
0046	UC	0-127	original key L
0047	UC	0-127	original key R (*7)
0048	US	1-65535	sampling frequency L
0050	US	1-65535	sampling frequency R (*7)
0052	SC	±63	fine tune L
0053	SC	±63	fine tune R (*7)
0054	SS*2	—	reserved
0058	UC	0-127,128	key range high (>=low) (*2)
0059	SC	-1,0-127	key range low (<=high) (*3)
0060	UC	—	reserved
0061	UC	0-5	loop mode
0062	US	8000-15999	loop tempo 80.00-159.99
0064	UL	0-16777215	wave start address L
0068	UL	0-16777215	wave start address R (*7)
0072	UL	0-16777215	wave length L
0076	UL	0-16777215	wave length R (*7)
0080	UL	0-16777215	loop start address L
0084	UL	0-16777215	loop start address R (*7)
0088	UL	0-16777215	loop length L (end - start +1)
0092	UL	0-16777215	loop length R (end - start +1) (*7)
0096	SC	±63	start address velocity sensitivity
0097	UC	0-16	filter type (*9)
0098	UC	0-127	filter cutoff frequency
0099	UC	0-127	filter Q/width
0100	UC	0-127	cutoff key scaling break point 1 (<=2)
0101	UC	0-127	cutoff key scaling break point 2 (>=1)
0102	SC	±127	cutoff key scaling level 1
0103	SC	±127	cutoff key scaling level 2
0104	SC	±63,64-68	cutoff velocity sensitivity (*4)
0105	SC	±63,64-68	Q/width velocity sensitivity (*4)
0106	SC	±7	detune
0107	SC	±63	dephase
0108	SC	±63	expand width
0109	UC	0-63	random pitch
0110	UC	0-127	sample level
0111	SC	-64, ±63	pan (*10Åj
0112	UC	0-127	velocity low limit
0113	UC	±127	velocity offset
0114	UC	0-127	velocity range high (>=low)
0115	UC	0-127	velocity range low (<=high)
0116	UC	0-127	level key scaling break point 1 (<=2)
0117	UC	0-127	level key scaling break point 2 (>=1)
0118	UC	0-127	level key scaling level 1
0119	UC	0-127	level key scaling level 2
0120	SC	±127	velocity sensitivity
0121	UC	0-16	alternate group number
0122	UC	4-58	EQ frequency
0123	SC	52-76	EQ gain
0124	UC	10-120	EQ width
0125	SC	±63	cutoff distance
0126	UC	0-127	FEG attack rate
0127	UC	0-127	FEG decay rate
0128	UC	0-127	FEG release rate

offset	data size	value	name
0129	SC	±127	FEG init level
0130	SC	±127	FEG attack level
0131	SC	±127	FEG sustain level
0132	SC	±127	FEG release level
0133	SC	±7	FEG rate key scaling
0134	SC	±63	FEG rate velocity sensitivity
0135	SC	±63	FEG attack level velocity sensitivity
0136	SC	±63	FEG level velocity sensitivity
0137	UC	0-127	PEG attack rate
0138	UC	0-127	PEG decay rate
0139	UC	0-127	PEG release rate
0140	SC	±127	PEG init level
0141	SC	±127	PEG attack level
0142	SC	±127	PEG sustain level
0143	SC	±127	PEG release level
0144	SC	±7	PEG rate key scaling
0145	SC	±63	PEG rate velocity sensitivity
0146	SC	±63	PEG level velocity sensitivity
0147	UC	±63	PEG range
0148	UC	0-127	AEG attack rate
0149	UC	0-127	AEG decay rate
0150	UC	0-127	AEG release rate
0151	UC*2	—	reserved
0153	UC	0-127	AEG sustain level
0154	UC	—	reserved
0155	UC	0-2	AEG attack mode
0156	SC	±7	AEG rate key scaling
0157	SC	±63	AEG rate velocity sensitivity
0158	UC	0-3	LFO wave
0159	UC	0-127	LFO speed
0160	UC	0-127	LFO delay time
0161	UC	b	b0:LFO sync on, b1:cutoff mod phase invert on, b2:pitch mod phase invert on
0162	UC	0-127	cutoff mod depth
0163	UC	0-127	pitch mod depth
0164	UC	0-127	amplitude mod depth
0165	UC*4	—	reserved
0169	SC	±31	filter gain
0170	US*5	—	reserved
0180	UL	0-16777215	wave end address
0184	UL	0-16777215	loop end address
0188	24byte		[Control]*6 (sample control1-6)
0212	UC	0-127	velocity x-fade high
0213	UC	0-127	velocity x-fade low
0214	UC	0-12	output1
0215	UC	0-127	output1 level
0216	UC	0-12	output2
0217	UC	0-127	output2 level
0218	UC	0-5	sample portamento type
0219	UC	0-127	sample portamento rate
0220	UC	0-127	sample portamento time
0221	UC*3	—	reserved

(*1) 1 for mono samples when detune or dephase is not +/-0.
(*2) 128:"=Orig"
(*3) -1:"=Orig"
(*4) 64-68:"Rnd1"-"Rnd5"
(*5) 0-15:A01-16, 16:basic receive channel, 17-32:B01-16(A5000 only)
(*6) -64:"Rnd"
(*7) R=L
(*8) 1: depends on any sample bank.
(*9) Refer to *7 or "2.1.4 Parameter Block."

[Sample Bank Member] 20byte

offset	data size	value	name
0000	UC*16	c	assigned sample name
0016	UL	—	reserved

[Easy Edit Parameter] 56byte

offset	data size	value	name
0000	UC*16	c	assigned sample(bank) name
0016	UL	—	reserved
0020	UC		assigned object type (*1)
0021	SC	-1,0-32	MIDI receive channel assign (*4)
0022	SC	±127	level offset
0023	SC	±127	velocity sensitivity
0024	SC	±127	pan offset
0025	SC	±127	velocity x-fade high offset
0026	SC	±127	fine tune offset
0027	SC	±127	velocity x-fade low offset

0028	SC	±127	coarse tune offset
0029	SC	-1,0-12	output1 (*5)
0030	UC	0-127	key limit high (>=low)
0031	UC	0-127	key limit low (<=high)
0032	SC	±127	key range shift
0033	UC	0-127	velocity limit high (>=low)
0034	UC	0-127	velocity limit low (<=high)
0035	UC	b	b0:portamento, b2:mono mode, b4:key x-fade on, b6:reserved (*3)
0036	SC	-1,0-16	alternate group number (*2)
0037	SC	±127	AEG attack rate offset
0038	SC	±127	AEG decay rate offset
0039	SC	±127	AEG release rate offset
0040	SC	-1,0-12	output2 (*5)
0041	SC	±127	filter cutoff offset
0042	SC	±63	filter gain offset
0043	SC	±31	filter Q/width offset
0044	SC	±127	cutoff distance offset
0045	SC	—	reserved
0046	SC	—	reserved
0047	SC	±127	output1 level offset
0048	SC	—	reserved
0049	SC	—	reserved
0050	SC	±127	output2 level offset
0051	UC	0-1	MIDI control on
0052	UC	—	reserved
0053	UC*3	—	reserved

(*1) sample:16, sample bank:17
(*2) -1:"=sample"
(*3) Each bn and bn+1 is 1:"=sample".
(*4) -1:"=sample", 0-15:A01-A16, 16:basic receive channel, 17-32:B01-16(A5000 only)
(*5) -1:"=sample", Refer to *8 of "2.1.1 Program Parameters".

[Effect Parameter] 40byte

offset	data size	value	name
0000	UC	0-1	bypass
0001	UC	0-127	input level
0002	UC	0-127	output level
0003	SC	±63	output pan
0004	UC	0-5	output
0005	SC	-126-0	width
0006	UC	0-96	effect type
0007	UC	—	reserved
0008	US*16		effect parameter1-16

1.2. System Parameter Bulk Dump

■ 1.2.1 System Parameter Bulk Dump 4064byte

offset	data size	value	name
0000	UC*16	—	reserved

0016	SC	±63	master fine tune
0017	SC	±127	master coarse tune
0018	SC	±127	master transpose
0019	UC	0-17	velocity curve
0020	UC	0-31	MIDI basic receive channel
0021	UC	0-5	stereo to assignable out
0022	UC	b	b0:omni on, b1:program change enable, b2:wave address auto length lock, b3:auto zero, b4:auto snap, b5:audition with easy edit, b6:audition with effect, b7:play/load
0023	UC	-1,0-32	knob2 control MIDI transmit channel (*3)
0024	UC	-1,0-32	knob3 control MIDI transmit channel (*3)
0025	UC	-1,0-32	knob4 control MIDI transmit channel (*3)
0026	UC	-1,0-32	knob5 control MIDI transmit channel (*3)
0027	UC	0-120	knob2 control device
0028	UC	0-120	knob3 control device
0029	UC	0-120	knob4 control device
0030	UC	0-120	knob5 control device
0030	UC	0-32	fkey1 play MIDI transmit channel
0032	UC	0-32	fkey2 play MIDI transmit channel
0033	UC	0-32	fkey3 play MIDI transmit channel
0034	UC	0-32	fkey4 play MIDI transmit channel
0035	UC	0-32	fkey5 play MIDI transmit channel
0036	UC	0-32	fkey6 play MIDI transmit channel
0037	UC	0-127	fkey1 play note number
0038	UC	0-127	fkey2 play note number
0039	UC	0-127	fkey3 play note number
0040	UC	0-127	fkey4 play note number
0041	UC	0-127	fkey5 play note number

0042	UC	0-127	fkey6 play note number
0043	UC	1-127	fkey1 play velocity
0044	UC	1-127	fkey2 play velocity
0045	UC	1-127	fkey3 play velocity
0046	UC	1-127	fkey4 play velocity
0047	UC	1-127	fkey5 play velocity
0048	UC	1-127	fkey6 play velocity
0049	UC	0-4	stereo output level offset
0050	UC	4-40	total EQ low boost frequency
0051	UC	52-76	total EQ low boost gain
0052	UC	b	b3-0:loop remix variation, b7-4:loop remix type
0053	UC	4-40	total EQ low frequency
0054	UC	52-76	total EQ low gain
0055	UC	10-120	total EQ low width
0056	UC	4-58	total EQ mid frequency
0057	UC	52-76	total EQ mid gain
0058	UC	10-120	total EQ mid width
0059	UC	28-58	total EQ high frequency
0060	UC	52-76	total EQ high gain
0061	UC	10-120	total EQ high width
0062	UC	0-1	program mode
0063	UC	b	b0:loop remix auto audition, b1:knob control MIDI out, b2:fkey play MIDI out
0064	UC*32	0-127	multi part A01-B16 program number1-128
0096	360byte		loop remix registered data
0456	UC	0-7	loop remix zone start point
0457	UC	1-8	loop remix zone end point (>start)
0458	UC	0-4	assignable L&R output level offset
0459	UC	0-4	assignable 1&2 output level offset
0460	UC	0-4	assignable 3&4 output level offset
0461	UC	0-4	assignable 5&6 output level offset
0462	UC	0-4	DIG&OPT output level offset
0463	UC	—	reserved

0464	UC	0-7	self SCSI ID
0465	UC*3	—	reserved
0468	UL	b	b9:IDE save mount on b8:IDE master mount on b7-0:SCSI ID7-0 mount on
0472	UL	—	reserved
0473	UC	0-98	top partition 1-99
0474	UC*6	—	reserved

0480	US	—	reserved
0482	US	b	b15-12:effect type1 favorite parameter1 b11-8:effect type1 favorite parameter2 b7-4:effect type1 favorite parameter3 b3-0:effect type1 favorite parameter4
0484	US*95	b	effect type2-96 favorite parameters
0674	US*31	—	reserved

0736	UC	—	reserved
0737	UC	0-1	effect edit type
0738	UC	0-4	knob2 control type
0739	UC	0-4	knob3 control type
0740	UC	0-4	knob4 control type
0741	UC	0-4	knob5 control type
0742	UC	0-5	assignable key function
0743	UC	0-1	audition key function
0744	UC	0-1	page mode at mode change
0745	UC	0-1	page mode at function change
0746	UC	0-1	note display type
0747	UC*4	—	reserved
0751	UC	0-3	end address display type
0752	UC	0-3	import view
0753	UC	0-1	knob1 type
0754	UC*4	—	reserved
0758	UC	0-2	sort type at sample select page
0759	UC	0-2	sort type at tree view page
0760	UC	0-2	sort type at samplebank page
0761	UC	0-7	CD-R SCSI ID
0762	UC	0-4	CD-R write speed
0763	UC*37	—	reserved
0800	120byte		[Effect Parameter]*3 (rec effect1-3)
0920	UC	0-3	record type
0921	UC	0-1	record sample mono/stereo
0922	UC	0-4	record input
0923	UC	0-3	record frequency (*1)
0924	UC	0-5	pre trigger time

0925	UC	0-1	start trigger type
0926	UC	0-1	stop trigger type
0927	UC	0-63	start edge level
0928	UC	0-63	stop edge level
0929	SC	0-2	record map to
0930	UC	-1,0-127	record key range low (*4)
0931	UC	0-127,128	record key range high (*5)
0932	SC	0-127	record original key
0933	UC	0-1	auto normalize on
0934	SC	-1,0-7	external control SCSI ID (*2)
0935	UC	1-99	external control start track
0936	UC	1-99	external control start index
0937	UC	0-5	monitor output
0938	UC	0-127	monitor level
0939	UC	0-127	click level
0940	US	8000-15999	click tempo 80.00-159.99
0942	UC	1-15	click beat
0943	UC	0-1	monitor on
0944	UC	0-1	record map manual/auto
0945	UC	0-127	record map auto original key
0946	UC	0-1	record map key white/all
0947	UC*8	—	reserved
0955	UC*16	—	reserved
0971	UC	0-1	AD input gain line/mic
0972	UC*3	—	reserved
0975	UC*5	—	reserved

0980	UC*8	—	reserved

0988	UC*2	—	reserved
0990	UC	0-1	bulk protect
0991	UC	0-1	after touch disable
0992	UC	0-1	control change disable
0993	UC	0-1	pitch bend disable
0994	UC	—	reserved
0995	UC	0-17	MIDI device number
0996	UC	0-1	SysEx receive port (reserved in A4000)
0997	UC*7	—	reserved
-----Regist. Parameters--------------------
1004	224byte		[Sample Parameter]
1228	120byte		[Effect Parameter]*3 (effect1-3)
1348	16byte		reserved
1364	120byte		[Effect Parameter]*3 (effect4-6) (A5000 only)
1484	16byte		[Control]*4 (program control1-4)
1500	US	b	b0:MIDI channel B01 controller reset... b15:MIDI channel B16 controller reset (A5000 only)
1502	US	b	b0:MIDI channel B01 note on normal/toggle... b15:MIDI channel B16 note on normal/toggle (A5000 only)
1504	UC	b	b2-0:effect connect (effect4-6)
1505	UC	0-12	AD in (L) output1
1506	UC	0-127	AD in (L) level1
1507	UC	0-12	AD in (L) output2
1508	UC	0-127	AD in (L) level2
1509	SC	+/- 63	AD in R pan
1510	UC	0-12	AD in R output1
1511	UC	0-127	AD in R level1
1512	UC	0-12	AD in R output2
1513	UC	0-127	AD in R level2
1514	UC*16	0-127	program LFO step wave value1-16
1530	UC	b	b2-0: step wave total steps, b4-3:step wave slope
1531	UC*9	—	reserved
1540	UC*8	—	reserved
1548	UC	b	b0:AD in on, b2-1:AD in source, b5-3:effect connection(effect1-3), b7-6:program LFO sync
1549	UC	b	b2-0:program LFO cycle, b5-3:program LFO wave, b7-6:program LFO initial phase
1550	US	b	b0:MIDI channel A01 controller reset... b15:MIDI channel A16 controller reset
1552	US	b	b0:MIDI channel A01 note on normal/toggle... b15:MIDI channel A16 note on normal/toggle
1554	SC	±63	AD in (L) pan
1555	UC	—	reserved
1556	UC	—	reserved
1557	UC	—	reserved
1558	UC	—	reserved
1559	UC	0-127	program level
1560	SC	—	reserved

1561	SC	—	reserved
1562	SC	±127	program transpose
1563	SC	-2,-1,0-32	program LFO reset MIDI channel (*6)
1564	UC	0-3	program portamento type
1565	UC	0-127	program portamento rate
1566	UC	0-127	program portamento time
1567	UC	0-127	S/H speed
1568	UC	25-250	program LFO tempo
1569	SC	-1,0-127	program LFO reset note (*7)
1570	UC*10	—	reserved

1580	UC	0-1	sequence MIDI port B/A
1581	UC*15	—	reserved
1596	UC	0-1	DIG&OPT output 20bit/24bit
1597	UC*2467	—	reserved

(*1) In relation to 44.1 kHz for analog in, for digital in the rates are 0:x1, 1:x1/2, 2:x1/4, 3:x1/8.
(*2) -1:off
(*3) -1:AUDITION
(*4) 128:"=Orig"
(*5) -1:"=Orig"
(*6) -2:off, -1:AUDITION, 0-15:A01-A16, 16:basic receive channel, 17-32:B01-16 (A5000 only)
(* 7) -1:all

Table 2 Parameter Change

Item	Type	Description	data byte			
			1st	2nd	3rd	4th
P1 — P6	decimal	Parameter Number	—			
	—	don't care	—			
data size	UC	1 byte (unsigned 8 bit)	b7-b0	—	—	—
	SC	1 byte (signed 8 bit, 2's complement)	sign,b6-b0	—	—	—
	US	2 byte (unsigned 16 bit)	b15-b8	b7-b0	—	—
	SS	2 byte (signed 16 bit, 2's complement)	sign,b14-b8	b7-b0	—	—
	UL	4 byte (unsigned 32 bit)	b31-b24	b23-16	b15-b8	b7-b0
	SL	4 byte (signed 32 bit, 2's complement)	sign,b30-b24	b23-16	b15-b8	b7-b0
	*n	n bytes of each data type	—			
value	c	All displayable ASCII codes except ¥	—			
	b	Bitmap type Refer to the name column for bit position	—			
	—	Unused or internal use only (0 not appropriate)	—			
name	[ ]	Parameter block Refer to each parameter block for details	—			

2.1 Object Edit

Each data byte is divided into the upper and lower 4 bits and received/transmitted as 2 bytes of MIDI data.

	original data byte	b7,b6,b5,b4,b3,b2,b1,b0
MIDI data	1st byte	0,0,0,0,b7,b6,b5,b4
	2nd byte	0,0,0,0,b3,b2,b1,b0

■ 2.1.1 Program Parameter

P1	P2	P3	P4	P5	P6	data size	data value	name
0								[Common]
1	0	—	—	—	—	UC*8	c	program name (read only)
1	1	0-31	—	—	—	UC	0,1	controller reset for MIDI ch A01-B16 (*5)
1	2	0-31	—	—	—	UC	0,1	note on normal/toggle for MIDI ch A01-B16 (*5)
1	3	—	—	—	—	UC	0,1	AD in on
1	4	—	—	—	—	UC	0-2	AD in source
1	5	—	—	—	—	SC	±63	AD in (L) pan
1	6	—	—	—	—	UC	0-12	AD in (L) output1 (*8)
1	7	—	—	—	—	UC	0-127	AD in (L) output1 level
1	8	—	—	—	—	UC	0-12	AD in (L) output2 (*8)
1	9	—	—	—	—	UC	0-127	AD in (L) output2 level
1	10	—	—	—	—	UC	0-127	program level
1	11	—	—	—	—	UC	0-6	program LFO cycle
1	12	—	—	—	—	UC	0,1	program LFO sync
1	13	—	—	—	—	SC	±127	program transpose
1	14	—	—	—	—	UC	25-250	program LFO tempo
1	15	—	—	—	—	UC	0-6	program LFO wave
1	16	—	—	—	—	UC	0-3	program portamento type
1	17	—	—	—	—	UC	1-127	program portamento rate
1	18	—	—	—	—	UC	1-127	program portamento time
1	19	—	—	—	—	UC	0-127	S/H speed
1	20	—	—	—	—	US	0-999	number of assigned samples

P1	P2	P3	P4	P5	P6	data size	data value	name
1	21	0-5	0	—	—	UC	0,1	effect1-6 bypass (*6)
1	21	0-5	1	—	—	UC	0-127	effect1-6 input level (*6)
1	21	0-5	2	—	—	UC	0-127	effect1-6 output level (*6)
1	21	0-5	3	—	—	SC	±63	effect1-6 output pan (*6)
1	21	0-5	4	—	—	UC	0-87	effect1-6 type (*6)
1	21	0-5	5	0-15	—	SS	—	effect1-6 parameter1-16 (*6)
1	21	0-5	6	—	—	UC	0-5	effect1-6 output (*6)
1	21	0-5	7	—	—	SC	-126-0	effect1-6 width (*6)
1	22	0-3	0	—	—	UC	0-126	program control device 1-4
1	22	0-3	1	—	—	UC	0-128	progam control function 1-4 (*9)
1	22	0-3	2	—	—	UC	0-3	program control type 1-4
1	22	0-3	3	—	—	SC	±63	program control range 1-4
1	23	—	—	—	—	UC	0-4	effect1-3 connection
1	24	—	—	—	—	UC	0-3	program LFO initial phase
1	25	—	—	—	—	UC	-2,-1,0-32	program LFO reset MIDI channel (*2)
1	26	—	—	—	—	UC	-1,0-127	program LFO reset note (*3)
1	27	—	—	—	—	SC	±63	AD in R pan
1	28	—	—	—	—	UC	0-12	AD in R output1 (*8)
1	29	—	—	—	—	UC	0-127	AD in R output1 level
1	30	—	—	—	—	UC	0-12	AD in R output2 (*8)
1	31	—	—	—	—	UC	0-127	AD in R output2 level
1	32	—	—	—	—	UC	0-4	effect4-6 connection (A5000 only)
1	33	—	—	—	—	UC	0-6	total steps of program LFO step wave
1	34	—	—	—	—	UC	0-3	program LFO step wave slope
1	35	0-15	—	—	—	UC	0-127	program LFO step wave value1-16

Easy Edit Parameters
P2 x 100 + P3 is the number of the sample (bank) assigned to the program.
P3 = 0-98 only when P2 = 9.

P1	P2	P3	P4	P5	P6	data size	data value	name
2	0-9	0-99	0	—	—	UC*16	c	assigned sample(bank) name (read only) (*10)
2	0-9	0-99	1	—	—	—	—	reserved
2	0-9	0-99	2	—	—	SC	-1,0-32	MIDI receive channel assign (*7)
2	0-9	0-99	3	0	—	SC	±127	level offset
2	0-9	0-99	4	0	—	SC	±127	pan offset
2	0-9	0-99	5	0	—	SC	±127	fine tune offset
2	0-9	0-99	6	0	—	SC	±127	coarse tune offset
2	0-9	0-99	7	—	—	UC	0-127	key limit high (>=low)
2	0-9	0-99	8	—	—	UC	0-127	key limit low (<=high)
2	0-9	0-99	9	—	—	UC	±127	key range shift
2	0-9	0-99	10	—	—	UC	0-127	velocity limit high (>=low)
2	0-9	0-99	11	—	—	UC	0-127	velocity limit low (<=high)
2	0-9	0-99	12	—	—	SC	-1,0,1	portamento (*4)
2	0-9	0-99	13	—	—	SC	-1,0,1	mono mode (*1)
2	0-9	0-99	14	—	—	SC	-1,0,1	key x-fade on (*1)
2	0-9	0-99	15	—	—	—	—	reserved
2	0-9	0-99	16	—	—	SC	-1,0-16	alternate group number (*1)
2	0-9	0-99	17	0	—	SC	±127	AEG attack rate offset
2	0-9	0-99	18	0	—	SC	±127	AEG release rate offset
2	0-9	0-99	19	0	—	SC	±127	filter cutoff offset
2	0-9	0-99	20	0	—	SC	±31	filter Q/width offset
2	0-9	0-99	21	—	—	SC	-1,0-12	output1 (*8)
2	0-9	0-99	22	0	—	SC	±127	output1 level offset
2	0-9	0-99	23	—	—	SC	-1,0-12	output2 (*8)
2	0-9	0-99	24	0	—	SC	±127	output2 level offset
2	0-9	0-99	25	—	—	UC	0,1	MIDI control on
2	0-9	0-99	26	—	—	—	—	reserved
2	0-9	0-99	27	0	—	SC	±127	AEG decay rate offset
2	0-9	0-99	28	0	—	SC	±63	filter gain offset
2	0-9	0-99	29	0	—	SC	±127	cutoff distance offset
2	0-9	0-99	30	0	—	SC	±127	velocity x-fade low offset
2	0-9	0-99	31	0	—	SC	±127	velocity x-fade high offset
2	0-9	0-99	32	0	—	SC	±127	velocity sensitivity
2	0-9	0-99	33	—	—	UC	—	reserved

(*1) -1:"=sample"
(*2) -2:off, -1:AUDITION, 0-15:A01-16, 16:basic receive channel, 17-32:B01-16 (A5000 only)
(*3) -1:all
(*4) -1:"=sample", 0:off, 1:"=program"
(*5) A4000, P3=0-15
(*6) A4000, P3=0-2
(*7) -1:"=sample", 0-15:A01-A16, 16:basic receive channel, 17-32:B01-16 (A5000 only)
(*8)

value	output1	output2	
-1	=sample	=sample	(Easy Edit only)
0	off	off	
1	stereo out	assignL&R	
2	effect1	assign1&2	
3	effect2	assign3&4	
4	effect3	assign5&6	
5	assignL&R	DIG&OPT	
6	assign1&2	stereo out	
7	assign3&4	effect1	
8	assign5&6	effect2	
9	DIG&OPT	effect3	
10	effect4	effect4	(A5000 only)
11	effect5	effect5	(A5000 only)
12	effect6	effect6	(A5000 only)

(*9)

value	function	
0	off	
1	portamento rate/time	
2	LFO S/H speed	
3	AD in L&R pan	
4	AD in L&R level	
5	program level	
6	effect1 output level	
7	effect1 pan	
8	effect1-parameter1	
...	...	
23	effect1-parameter16	
24	effect2 output level	
25	effect2 pan	
26	effect2-parameter1	
...	...	
41	effect2-parameter16	
42	effect3 output level	
43	effect3 pan	
44	effect3-parameter1	
...	...	
59	effect3-parameter16	
60	effect1 width	
61	effect2 width	
62	effect3 width	
63	program LFO depth	
64	AD in L pan	
65	AD in R pan	
66	AD in L level	
67	AD in R level	
68	program control1 range	
...	...	
71	program control4 range	
72	effect4-parameter1	(A5000 only)
...	...	(A5000 only)
87	effect4-parameter16	(A5000 only)
88	effect4 output level	(A5000 only)
89	effect4 pan	(A5000 only)
90	effect4 width	(A5000 only)
91	effect5-parameter1	(A5000 only)
...	...	(A5000 only)
106	effect5-parameter16	(A5000 only)
107	effect5 output level	(A5000 only)
108	effect5 pan	(A5000 only)
109	effect5 width	(A5000 only)
110	effect6-parameter1	(A5000 only)
...	...	(A5000 only)
125	effect6-parameter16	(A5000 only)
126	effect6 output level	(A5000 only)
127	effect6 pan	(A5000 only)

(*10) No assignment when the first byte is $00.

■ 2.1.2 Sample Bank Parameter

P1	P2	P3	P4	P5	P6	data size	data value	name
0								[Common]
1	0	—		—	—	UL*4	—	reserved
1	1	—		—	—	UC	0-127	number of assigned samples
1	2	0-126		—	—	UC*16	c	assigned sample name (read only) (*2)
1	3	0-126		—	—	UL	—	reserved
1	4	0-88		—	—	UC	0,1	sample bank value enable (*1)
2								[Sample Parameter]

(*1) 0-88 of P3 refers to P2 of the "Sample Parameter" block.
(*2) No assignment when the first byte is $00.

■ **2.1.3 Sample Parameter**

P1	P2	P3	P4	P5	P6	data size	data value	name
0								[Common]
1	0	0-1	—	—	—	UC*16	c	linked wave object name L,R (read only) (*1)
1	1	0-1	—	—	—	UL	—	reserved
1	2	0-1	—	—	—	UL	—	reserved
2								[Sample Parameter]

(*1) No assignment when the first byte is $00.

■ **2.1.4 Parameter Block**

[Common]

P1	P2	P3	P4	P5	P6	data size	data value	name
0	0	—	—	—	—	UC	16,17,20	object type (*1) (read only)
0	1	—	—	—	—	UC	—	reserved
0	2	—	—	—	—	UC*16	c	name (read only)
0	3	—	—	—	—	UC	—	reserved
0	4	—	—	—	—	UL	—	reserved

(*1) sample:16, sample bank:17, program:20

[Sample Parameter]

P1	P2	P3	P4	P5	P6	data size	data value	name
2	0	0-127	—	—	—	UC	0,1	linked to program1-128 (read only)
2	1	—	—	—	—	UC	0,1	sample bank member (*5) (read only)
2	2	—	—	—	—	UC	0-2	0:stereo,1:mono,2:expanded (*1) (read only)
2	3	—	—	—	—	UC	0-32	MIDI receive channel (*6)
2	4	—	—	—	—	UC	0-13	pitch bend type
2	5	—	—	—	—	UC	0-24	pitch bend range
2	6	0-1	—	—	—	UC	0-127	original key L,R
2	7	0-1	—	—	—	US	1-65535	sampling frequency L,R (Hz)
2	8	0-1	—	—	—	SC	±63	fine tune L,R
2	9	—	—	—	—	SC	±127	coarse tune
2	10	—	—	—	—	UC	0-127,128	key range high (>=low) (*2)
2	11	—	—	—	—	SC	-1,0-127	key range low (<=high) (*3)
2	12	—	—	—	—	UC	0-5	loop mode
2	13	—	—	—	—	UL	0-16777215	wave start address
2	14	0	—	—	—	UL	0-16777215	wave length (end - start +1)
2	15	—	—	—	—	UL	0-16777215	wave end address (> start)
2	16	—	—	—	—	UL	0-16777215	loop start address
2	17	0	—	—	—	UL	0-16777215	loop length (end -start +1)
2	18	—	—	—	—	UL	0-16777215	loop end address (> start)
2	19	—	—	—	—	SC	±63	start address velocity sensitivity
2	20	—	—	—	—	US	8000-15999	loop tempo 80.00-159.99
2	21	—	—	—	—	UC	0-16	filter type (*7)
2	22	—	—	—	—	UC	0-127	filter cutoff frequency
2	23	—	—	—	—	UC	0-31	filter Q/width
2	24	0-1	—	—	—	SC	0-127	cutoff key scaling break point 1,2 (1<=2)
2	25	0-1	—	—	—	SC	0 ±127	cutoff key scaling level 1,2
2	26	—	—	—	—	SC	±63,64-68	cutoff velocity sensitivity (*4)
2	27	—	—	—	—	SC	±63,64-68	Q/width velocity sensitivity (*4)
2	28	—	—	—	—	UC	0,1	fixed pitch on
2	29	—	—	—	—	SC	±7	detune
2	30	—	—	—	—	SC	±63	dephase
2	31	—	—	—	—	SC	±63	expand width
2	32	—	—	—	—	UC	0-63	random pitch
2	33	—	—	—	—	UC	0-127	sample level
2	34	—	—	—	—	SC	-64,±63	pan (*10)
2	35	—	—	—	—	UC	0-127	velocity low limit
2	36	—	—	—	—	SC	±127	velocity offset
2	37	—	—	—	—	UC	0-127	velocity range high (>=low)
2	38	—	—	—	—	UC	0-127	velocity range low (<=high)
2	39	0-1	—	—	—	UC	0-127	level key scaling break point 1,2 (1<=2)
2	40	0-1	—	—	—	UC	0-127	level key scaling level 1,2
2	41	—	—	—	—	SC	±127	velocity sensitivity
2	42	—	—	—	—	UC	0-5	sample portamento type
2	43	—	—	—	—	UC	0,1	mono mode
2	44	—	—	—	—	UC	0,1	key x-fade on
2	45	—	—	—	—	—	—	reserved
2	46	—	—	—	—	UC	0-127	velocity x-fade low
2	47	—	—	—	—	UC	0-127	velocity x-fade high
2	48	—	—	—	—	UC	0-16	alternate group number (*8)
2	49	—	—	—	—	UC	4-58	EQ frequency
2	50	—	—	—	—	SC	52-76	EQ gain
2	51	—	—	—	—	UC	10-120	EQ width
2	52	—	—	—	—	SC	±63	cutoff distance
2	53	0-2	—	—	—	UC	0-127	FEG rate attack,decay, release
2	54	0-3	—	—	—	SC	±127	FEG level init,attack, sustain,release
2	55	—	—	—	—	SC	±7	FEG rate key scaling
2	56	—	—	—	—	SC	±63	FEG rate velocity sensitivity
2	57	—	—	—	—	SC	±63	FEG attack level velocity sensitivity
2	58	—	—	—	—	SC	±63	FEG level velocity sensitivity
2	59	0-2	—	—	—	UC	0-127	PEG rate attack,decay, release
2	60	0-3	—	—	—	SC	±127	PEG level init,attack, sustain,release
2	61	—	—	—	—	SC	±7	PEG rate key scaling
2	62	—	—	—	—	SC	±63	PEG rate velocity sensitivity
2	63	—	—	—	—	SC	±63	PEG level velocity sensitivity
2	64	—	—	—	—	SC	±63	PEG range
2	65	0-2	—	—	—	UC	0-127	AEG rate attack,decay, release
2	66	0-1	—	—	—	—	—	reserved
2	66	2	—	—	—	UC	0-127	AEG sustain level
2	66	3	—	—	—	—	—	reserved
2	67	—	—	—	—	SC	±7	AEG rate key scaling
2	68	—	—	—	—	SC	±63	AEG rate velocity sensitivity
2	69	—	—	—	—	UC	0-2	AEG attack mode
2	70	—	—	—	—	UC	0-3	LFO wave
2	71	—	—	—	—	UC	0-127	LFO speed
2	72	—	—	—	—	UC	0-127	LFO delay time
2	73	—	—	—	—	UC	0,1	LFO sync on
2	74	—	—	—	—	UC	0,1	LFO pitch mod phase invert on
2	75	—	—	—	—	UC	0,1	LFO cutoff mod phase invert on
2	76	—	—	—	—	UC	0-127	cutoff mod depth
2	77	—	—	—	—	UC	0-127	pitch mod depth
2	78	—	—	—	—	UC	0-127	amplitude mod depth
2	79	—	—	—	—	UC	0-12	output1 (*9)
2	80	—	—	—	—	UC	0-127	output1 level
2	81	—	—	—	—	UC	0-12	output2 (*9)
2	82	—	—	—	—	UC	0-127	output2 level
2	83	0-5	0	—	—	UC	0-126	control device 1-6
2	83	0-5	1	—	—	UC	0-36	control function 1-6 (*11)
2	83	0-5	2	—	—	UC	0-3	control type 1-6
2	83	0-5	3	—	—	SC	±63	control range 1-6
2	84	—	—	—	—	SC	±31	filter gain
2	85	—	—	—	—	UC	0-2	EQ Type
2	86	—	—	—	—	—	—	reserved
2	87	—	—	—	—	UC	1-127	sample portamento rate
2	88	—	—	—	—	UC	1-127	sample portamento time

(*1) mono samples for which 2:detune or dephase is not +/-0.
(*2) 128:"=Orig"
(*3) -1:"=Orig"
(*4) 64-68:"Rnd1"-"Rnd5"
(*5) 1: depends on any sample bank.
(*6) 0-15:A01-16, 16:basic receive channel, 17-32:B01-16 (A5000 only)
(*7)

value	filter type
0	Bypass
1	LowPass1
2	LowPass2
3	HiPass1
4	HiPass2
5	BandPass
6	BandElim
7	LowPass3
8	Peak1
9	Peak2
10	2Peaks
11	2Dips
12	DualLPFs
13	LPF+Peak
14	DualHPFs
15	HPF+Peak
16	LPF+HP

(Note 8) 0:off

(Note 9)

value	output1	output2	
0	off	off	
1	stereo out	assignL&R	
2	effect1	assign1&2	
3	effect2	assign3&4	
4	effect3	assign5&6	
5	assignL&R	DIG&OPT	
6	assign1&2	stereo out	
7	assign3&4	effect1	
8	assign5&6	effect2	
9	DIG&OPT	effect3	
10	effect4	effect4	(A5000 only)
11	effect5	effect5	(A5000 only)
12	effect6	effect6	(A5000 only)

(Note 10) -64:"Rnd"

(Note 11)

value	function
0	off
1	pitch mod depth
2	amp mod depth
3	cutoff mod depth
4	cutoff bias
5	filter Q/width
6	pan bias
7	pitch bias
8	level
9	LFO speed
10	LFO delay
11	AEG attack rate
12	AEG release rate
13	PEG attack rate
14	PEG release rate
15	FEG attck rate
16	FEG release rate
17	pitch bend
18	start address
19	FEG level
20	cutoff distance
21	filter gain
22	portamento rate/time
23	AEG decay rate
24	AEG sustain level
25	FEG decay rate
26	FEG init level
27	FEG sustain level
28	PEG decay rate
29	PEG init level
30	PEG sustain level
31	sample control1 range
...	...
36	sample control6 range

2.2 System Parameter

Each data byte is divided into the upper and lower 4 bits and received/transmitted as 2 bytes of MIDI data.

original data byte		b7,b6,b5,b4,b3,b2,b1,b0
MIDI data	1st byte	0,0,0,0,b7,b6,b5,b4
	2nd byte	0,0,0,0,b3,b2,b1,b0

■ 2.2.1 System Parameter

P1	P2	P3	P4	P5	P6	data size	data value	name
1	1	0	—	—	—	SC	±63	master fine tune
1	1	1	—	—	—	SC	±127	master coarse tune
1	1	2	—	—	—	SC	±127	master transpose
1	1	3	—	—	—	UC	0-17	velocity curve
1	1	4	—	—	—	UC	0-31	MIDI basic receive channel (*3)
1	1	5	—	—	—	UC	0,1	MIDI basic channel omni on
1	1	6	—	—	—	UC	0,1	MIDI program change receive enable
1	1	7	0-3	—	—	UC	-1,0-32	knob2-5 control MIDI transmit channel (*1)
1	1	8	0-3	—	—	UC	0-120	knob2-5 control device
1	1	9	0-5	—	—	UC	0-32	fkey1-6 play MIDI transmit channel (*4)
1	1	10	0-5	—	—	UC	0-127	fkey1-6 play note number
1	1	11	0-5	—	—	UC	0-127	fkey1-6 play velocity
1	1	12	—	—	—	SC	52-76	total EQ low boost gain
1	1	13	—	—	—	UC	4-40	total EQ low boost frequency
1	1	14	—	—	—	SC	52-76	total EQ low gain
1	1	15	—	—	—	UC	4-40	total EQ low frequency
1	1	16	—	—	—	UC	10-120	total EQ low width
1	1	17	—	—	—	SC	52-76	total EQ mid gain
1	1	18	—	—	—	UC	4-58	total EQ mid frequency
1	1	19	—	—	—	UC	10-120	total EQ mid width
1	1	20	—	—	—	SC	52-76	total EQ high gain
1	1	21	—	—	—	UC	28-58	total EQ high frequency
1	1	22	—	—	—	UC	10-120	total EQ high width
1	1	23	—	—	—	UC	0-5	stereo to assignable out
1	1	24	—	—	—	UC	0,1	wave address auto length lock (*2)
1	1	25	—	—	—	UC	0,1	wave address auto zero (*2)
1	1	26	—	—	—	UC	0,1	wave address auto snap (*2)
1	1	27	—	—	—	UC	0-4	stereo output level offset
1	1	28	—	—	—	UC	0,1	audition with easy edit
1	1	29	—	—	—	UC	0,1	audition with effect
1	1	30	—	—	—	UC	0-9	loop remix type
1	1	31	—	—	—	UC	0-7	loop remix variation
1	1	32	—	—	—	UC	0,1	play&load
1	1	33	—	—	—	UC	0,1	progam mode
1	1	34	0-31	—	—	UC	0-127	multi part A01-B16 program number1-128 (*5)
1	1	35	—	—	—	UC	0,1	loop remix auto audition
1	1	36	—	—	—	UC	0-7	loop remix zone start point
1	1	37	—	—	—	UC	1-8	loop remix zone end point (>start)
1	1	38	0-4	—	—	UC	0-4	assignable output level offset (*6)
1	1	39	—	—	—	UC	0,1	knob control MIDI out
1	1	40	—	—	—	UC	0,1	fkey play MIDI out

(*1) -1:AUDIRION, 0-15:A01-16, 16:basic receive channel, 17-32:B01-16(A5000 only)
(*2) Of the three, several will not sound simultaneously.
(*3) 0-15:A01-A16, 16-31:B01-B16 (A5000 only)
(*4) 0-15:A01-A16, 16:basic receive channel, 17-32:B01-16(A5000 only)
(*5) A4000, P4=0-15
(*6) 4000, P4=0-1

2.3 Switch Remote

Data bytes are not divided, but are received as 1 byte of MIDI data.

■ 2.3.1 Switch Remote

P1	P2	P3	P4	P5	P6	data size	data value	name
0	0	0	0	0	0	UC	0-127	FKEY1 (*1)
1	0	0	0	0	0	UC	0-127	FKEY2 (*1)
2	0	0	0	0	0	UC	0-127	FKEY3 (*1)
3	0	0	0	0	0	UC	0-127	FKEY4 (*1)
4	0	0	0	0	0	UC	0-127	FKEY5 (*1)
5	0	0	0	0	0	UC	0-127	FKEY6 (*1)
6	0	0	0	0	0	UC	0-127	[COMMAND/EXIT] (*1)
7	0	0	0	0	0	UC	0-127	[ASSIGNABLE] (*1)
8	0	0	0	0	0	UC	0-127	[AUDITION] (*1)
9	0	0	0	0	0	UC	0-127	[PLAY] (*1)
10	0	0	0	0	0	UC	0-127	[EDIT] (*1)
11	0	0	0	0	0	UC	0-127	[REC] (*1)
12	0	0	0	0	0	UC	0-127	[DISK] (*1)
13	0	0	0	0	0	UC	0-127	[UTILITY] (*1)
14	0	0	0	0	0	UC	0-127	KNOB1 SW (*1)
15	0	0	0	0	0	UC	0-127	KNOB2 SW (*1)
16	0	0	0	0	0	UC	0-127	KNOB3 SW (*1)
17	0	0	0	0	0	UC	0-127	KNOB4 SW (*1)
18	0	0	0	0	0	UC	0-127	KNOB5 SW (*1)
20	0	0	0	0	0	UC	0-127	[COMMAND/EXIT]+ [ASSIGNABLE] (*1)
21	0	0	0	0	0	UC	0-127	[COMMAND/EXIT]+ [AUDITION] (*1)
123	0	0	0	0	0	UC	0-127	KNOB1 ENCODER
124	0	0	0	0	0	UC	0-127	KNOB2 ENCODER
125	0	0	0	0	0	UC	0-127	KNOB3 ENCODER
126	0	0	0	0	0	UC	0-127	KNOB4 ENCODER
127	0	0	0	0	0	UC	0-127	KNOB5 ENCODER

(Note 1) 0-63: Switch off, 64-127: Switch on

Function...		Transmitted	Recognized	Remarks
Basic	Default	1 - 16	1 - 16	memorized
Channel	Changed	1 - 16	1 - 16	
Mode	Default	x	1,2,3,4	memorized
	Messages	x	POLY,MONO(M=1)	
	Altered	**************	x	
Note		0 - 127	0 - 127	
Number	: True voice	**************	0 - 127	
Velocity	Note ON	o v=1-127	o v=1-127	
	Note OFF	x	x	
After	Key's	x	x	
Touch	Ch's	o	o	
Pitch Bender		o	o *1	7 bit resolution
Control	5	o	o *1	portamento time
	7	o	o *1	volume
	10	o	o *1	pan
	64	o	o *1	sustain
	65	o	o *1	portamento
	66	o	o *1	sostenuto
Change	0-120	o	o *1	(assignable)
Prog		x	o 0 - 127 *1	
Change	: True #	**************	o 0 - 127	
System Exclusive		o	o *2	object etc.
Common	: Song Pos.	x	x	
	: Song Sel.	x	x	
	: Tune	x	x	
System :Clock		x	o *3	
Real Time:Commands		x	o *3	
Aux :All Sound OFF		x	o	
:Reset All Cntrls		x	o	
:Local ON/OFF		x	x	
:All Notes OFF		x	o	
Mes- :Active Sense		x	o	
sages:Reset		x	x	

Notes: *1 receive if each receive filter = enable.
          *2 receive if device No is not off.
          *3 receive if program LFO sync = MIDI

Mode 1 : OMNI ON , POLY   Mode 2 : OMNI ON ,MONO   o : Yes
Mode 3 : OMNI OFF, POLY   Mode 4 : OMNI OFF,MONO   x : No

INDEX

S

T

FCC INFORMATION (U.S.A.)

1. **IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!**
   This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2. **IMPORTANT:** When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. **NOTE:** This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

   Relocate either this product or the device that is being affected by the interference.

   Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

   In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to co-axial type cable.

   If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA90620

   The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.

IMPORTANT NOTICE FOR THE UNITED KINGDOM
Connecting the Plug and Cord

WARNING: THIS APPARATUS MUST BE EARTHED
IMPORTANT. The wires in this mains lead are coloured in accordance with the following code:

GREEN-AND-YELLOW	:	EARTH
BLUE	:	NEUTRAL
BROWN	:	LIVE

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

The wire which is coloured GREEN-and-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol or colored GREEN or GREEN-and-YELLOW.

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

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

IMPORTANT SAFETY INSTRUCTIONS

INFORMATION RELATING TO PERSONAL INJURY, ELECTRICAL SHOCK, AND FIRE HAZARD POSSIBILITIES HAS BEEN INCLUDED IN THIS LIST.

WARNING- When using any electrical or electronic product, basic precautions should always be followed. These precautions include, but are not limited to, the following:

1. Read all Safety Instructions, Installation Instructions, Special Message Section items, and any Assembly Instructions found in this manual BEFORE making any connections, including connection to the main supply.

2. Do not attempt to service this product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

3. Main Power Supply Verification: Yamaha products are manufactured specifically for the supply voltage in the area where they are to be sold. If you should move, or if any doubt exists about the supply voltage in your area, please contact your dealer for supply voltage verification and (if applicable) instructions. The required supply voltage is printed on the name plate. For name plate location, please refer to the graphic found in the Special Message Section of this manual.

4. DANGER-Grounding Instructions: This product must be grounded and therefore has been equipped with a three pin attachment plug. If this product should malfunction, the ground pin provides a path of low resistance for electrical current, reducing the risk of electrical shock. If your wall socket will not accommodate this type plug, contact an electrician to have the outlet replaced in accordance with local electrical codes. Do NOT modify the plug or change the plug to a different type!

5. WARNING: Do not place this product or any other objects on the power cord or place it in a position where anyone could walk on, trip over, or roll anything over power or connecting cords of any kind. The use of an extension cord is not recommended! If you must use an extension cord, the minimum wire size for a 25' cord (or less) is 18 AWG. NOTE: The smaller the AWG number, the larger the current handling capacity. For longer extension cords, consult a local electrician.

6. Ventilation: Electronic products, unless specifically designed for enclosed installations, should be placed in locations that do not interfere with proper ventilation. If instructions for enclosed installations are not provided, it must be assumed that unobstructed ventilation is required.

7. Temperature considerations: Electronic products should be installed in locations that do not seriously contribute to their operating temperature. Placement of this product close to heat sources such as; radiators, heat registers etc., should be avoided.

8. This product was NOT designed for use in wet/damp locations and should not be used near water or exposed to rain. Examples of wet /damp locations are; near a swimming pool, spa, tub, sink, or wet basement.

9. This product should be used only with the components supplied or; a cart ,rack, or stand that is recommended by the manufacturer. If a cart, rack, or stand is used, please observe all safety markings and instructions that accompany the accessory product.

10. The power supply cord (plug) should be disconnected from the outlet when electronic products are to be left unused for extended periods of time. Cords should also be disconnected when there is a high probability of lightening and/or electrical storm activity.

11. Care should be taken that objects do not fall and liquids are not spilled into the enclosure through any openings that may exist.

12. Electrical/electronic products should be serviced by a qualified service person when:
   a. The power supply cord has been damaged; or
   b. Objects have fallen, been inserted, or liquids have been spilled into the enclosure through openings; or
   c. The product has been exposed to rain; or
   d. The product does not operate, exhibits a marked change in performance; or
   e. The product has been dropped, or the enclosure of the product has been damaged.

13. This product, either alone or in combination with an amplifier and headphones or speaker/s, may be capable of producing sound levels that could cause permanent hearing loss. DO NOT operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
IMPORTANT: The louder the sound, the shorter the time period before damage occurs.

14. Some Yamaha products may have benches and/or accessory mounting fixtures that are either supplied as a part of the product or as optional accessories. Some of these items are designed to be dealer assembled or installed. Please make sure that benches are stable and any optional fixtures (where applicable) are well secured BEFORE using. Benches supplied by Yamaha are designed for seating only. No other uses are recommended.

PLEASE KEEP THIS MANUAL

For details of products, please contact your nearest Yamaha or the authorized distributor listed below.

Pour plus de détails sur les produits, veuillez-vous adresser à Yamaha ou au distributeur le plus proche de vous figurant dans la liste suivante.

Die Einzelheiten zu Produkten sind bei Ihrer unten aufgeführten Niederlassung und bei Yamaha Vertragshändlern in den jeweiligen Bestimmungsländern erhältlich.

Para detalles sobre productos, contacte su tienda Yamaha más cercana o el distribuidor autorizado que se lista debajo.

NORTH AMERICA

CANADA
Yamaha Canada Music Ltd.
135 Milner Avenue, Scarborough, Ontario,
M1S 3R1, Canada
Tel: 416-298-1311

U.S.A.
Yamaha Corporation of America
6600 Orangethorpe Ave., Buena Park, Calif. 90620,
U.S.A.
Tel: 714-522-9011

CENTRAL & SOUTH AMERICA

MEXICO
Yamaha de Mexico S.A. De C.V.,
Departamento de ventas
Javier Rojo Gomez No.1149, Col. Gpe Del
Moral, Deleg. Iztapalapa, 09300 Mexico, D.F.
Tel: 686-00-33

BRAZIL
Yamaha Musical do Brasil LTDA.
Av. Rebouças 2636, São Paulo, Brasil
Tel: 011-853-1377

ARGENTINA
Yamaha Music Argentina S.A.
Viamonte 1145 Piso2-B 1053,
Buenos Aires, Argentina
Tel: 1-371-7021

**PANAMA AND OTHER LATIN
AMERICAN COUNTRIES/
CARIBBEAN COUNTRIES**
Yamaha de Panama S.A.
Torre Banco General, Piso 7, Urbanización Marbella,
Calle 47 y Aquilino de la Guardia,
Ciudad de Panamá, Panamá
Tel: 507-269-5311

EUROPE

THE UNITED KINGDOM
Yamaha-Kemble Music (U.K.) Ltd.
Sherbourne Drive, Tilbrook, Milton Keynes,
MK7 8BL, England
Tel: 01908-366700

IRELAND
Danfay Ltd.
61D, Sallynoggin Road, Dun Laoghaire, Co. Dublin
Tel: 01-2859177

GERMANY/SWITZERLAND
Yamaha Europa GmbH.
Siemensstraße 22-34, 25462 Rellingen,
F.R. of Germany
Tel: 04101-3030

AUSTRIA
Yamaha Music Austria
Schleiergasse 20, A-1100 Wien Austria
Tel: 01-60203900

THE NETHERLANDS
Yamaha Music Nederland
Kanaalweg 18G, 3526KL, Utrecht, The Netherlands
Tel: 030-2828411

BELGIUM
Yamaha Music Belgium
Keiberg Imperiastraat 8, 1930 Zaventem, Belgium
Tel: 02-7258220

FRANCE
Yamaha Musique France,
Division Professionnelle
BP 70-77312 Marne-la-Vallée Cedex 2, France
Tel: 01-64-61-4000

ITALY
Yamaha Musica Italia S.P.A.,
Combo Division
Viale Italia 88, 20020 Lainate (Milano), Italy
Tel: 02-935-771

SPAIN/PORTUGAL
Yamaha-Hazen Electronica Musical, S.A.
Jorge Juan 30, 28001, Madrid, Spain
Tel: 91-577-7270

GREECE
Philippe Nakas S.A.
Navarinou Street 13, P.Code 10680, Athens, Greece
Tel: 01-364-7111

SWEDEN
Yamaha Scandinavia AB
J. A. Wettergrens Gata 1
Box 30053
S-400 43 Göteborg, Sweden
Tel: 031 89 34 00

DENMARK
YS Copenhagen Liaison Office
Generatorvej 8B
DK-2730 Herlev, Denmark
Tel: 44 92 49 00

FINLAND
F-Musiikki Oy
Kluuvikatu 6, P.O. Box 260,
SF-00101 Helsinki, Finland
Tel: 09 618511

NORWAY
Norsk filial av Yamaha Scandinavia AB
Grini Næringspark 1
N-1345 Østerås, Norway
Tel: 67 16 77 70

ICELAND
Skifan HF
Skeifan 17 P.O. Box 8120
IS-128 Reykjavik, Iceland
Tel: 525 5000

OTHER EUROPEAN COUNTRIES
Yamaha Europa GmbH.
Siemensstraße 22-34, 25462 Rellingen,
F.R. of Germany
Tel: 04101-3030

AFRICA

Yamaha Corporation,
International Marketing Division
Nakazawa-cho 10-1, Hamamatsu, Japan 430-8650
Tel: 053-460-2312

MIDDLE EAST

TURKEY/CYPRUS
Yamaha Europa GmbH.
Siemensstraße 22-34, 25462 Rellingen,
F.R. of Germany
Tel: 04101-3030

OTHER COUNTRIES
Yamaha Music Gulf FZE
LB21-128 Jebel Ali Freezone
P.O.Box 17328, Dubai, U.A.E.
Tel: 971-4-81-5868

ASIA

HONG KONG
Tom Lee Music Co., Ltd.
11/F., Silvercord Tower 1, 30 Canton Road,
Tsimshatsui, Kowloon, Hong Kong
Tel: 2737-7688

INDONESIA
PT. Yamaha Music Indonesia (Distributor)
PT. Nusantik
Gedung Yamaha Music Center, Jalan Jend. Gatot
Subroto Kav. 4, Jakarta 12930, Indonesia
Tel: 21-520-2577

KOREA
Cosmos Corporation
1461-9, Seocho Dong, Seocho Gu, Seoul, Korea
Tel: 02-3486-0011

MALAYSIA
Yamaha Music Malaysia, Sdn., Bhd.
Lot 8, Jalan Perbandaran, 47301 Kelana Jaya,
Petaling Jaya, Selangor, Malaysia
Tel: 3-703-0900

PHILIPPINES
Yupangco Music Corporation
339 Gil J. Puyat Avenue, P.O. Box 885 MCPO,
Makati, Metro Manila, Philippines
Tel: 819-7551

SINGAPORE
Yamaha Music Asia Pte., Ltd.
11 Ubi Road #06-00, Meiban Industrial Building,
Singapore
Tel: 65-747-4374

TAIWAN
Yamaha KHS Music Co., Ltd.
10F, 150, Tun-Hwa Northroad,
Taipei, Taiwan, R.O.C.
Tel: 02-2713-8999

THAILAND
Siam Music Yamaha Co., Ltd.
121/60-61 RS Tower 17th Floor,
Ratchadaphisek RD., Dindaeng,
Bangkok 10320, Thailand
Tel: 02-641-2951

**THE PEOPLE'S REPUBLIC OF CHINA
AND OTHER ASIAN COUNTRIES**
Yamaha Corporation,
International Marketing Division
Nakazawa-cho 10-1, Hamamatsu, Japan 430-8650
Tel: 053-460-2317

OCEANIA

AUSTRALIA
Yamaha Music Australia Pty. Ltd.
17-33 Market Street, South Melbourne, Vic. 3205,
Australia
Tel: 3-699-2388

NEW ZEALAND
Music Houses of N.Z. Ltd.
146/148 Captain Springs Road, Te Papapa,
Auckland, New Zealand
Tel: 9-634-0099

**COUNTRIES AND TRUST
TERRITORIES IN PACIFIC OCEAN**
Yamaha Corporation,
International Marketing Group
Nakazawa-cho 10-1, Hamamatsu, Japan 430-8650
Tel: 053-460-2312

HEAD OFFICE **Yamaha Corporation, Electronic Musical Instrument Division**
Nakazawa-cho 10-1, Hamamatsu, Japan 430-8650
Tel: 053-460-2445

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