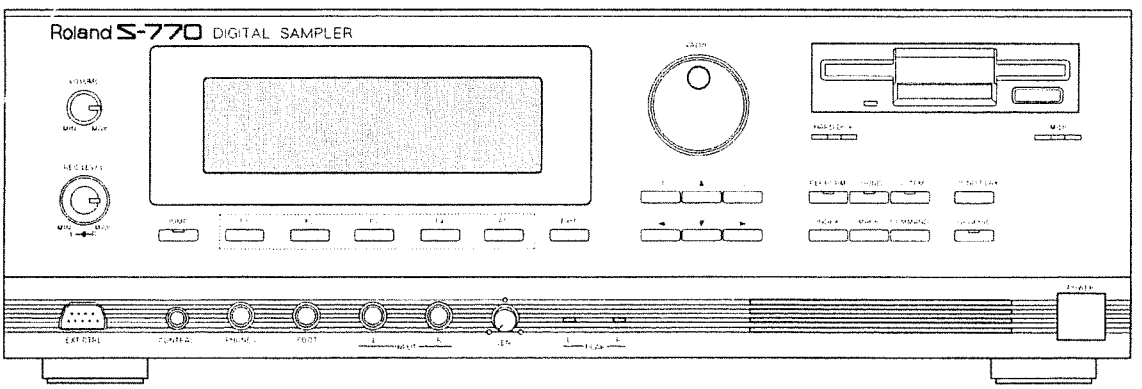
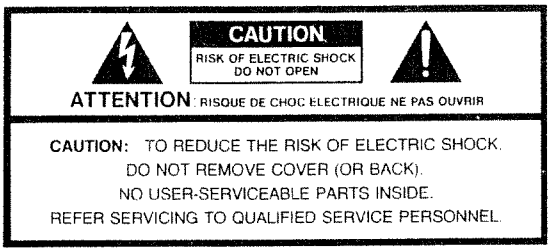
Roland

DIGITAL SAMPLER

S-770

OWNER'S MANUAL





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

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

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

IMPORTANT SAFETY INSTRUCTIONS

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

1. Read all the instructions before using the product.
2. Do not use this product near water — for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
3. This product should be used only with a cart or stand that is recommended by the manufacturer.
4. This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be located so that its location or position does not interfere with its proper ventilation.
6. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.
7. Avoid using the product where it may be effected by dust.
8. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
9. The power-supply cord of the product should be unplugged from the outlet when left unused for a long period of time.
10. Do not tread on the power-supply cord.
11. Do not pull the cord but hold the plug when unplugging.
12. When setting up with any other instruments, the procedure should be followed in accordance with instruction manual.
13. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
14. The product should be serviced by qualified service personnel when:
    A. The power-supply cord or the plug has been damaged; or
    B. Objects have fallen, or liquid has been spilled into the product; or
    C. The product has been exposed to rain; or
    D. The product does not appear to operate normally or exhibits a marked change in performance; or
    E. The product has been dropped, or the enclosure damaged.
15. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

SAVE THESE INSTRUCTIONS

For the U.K.

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 coloured GREEN or GREEN-AND-YELLOW.

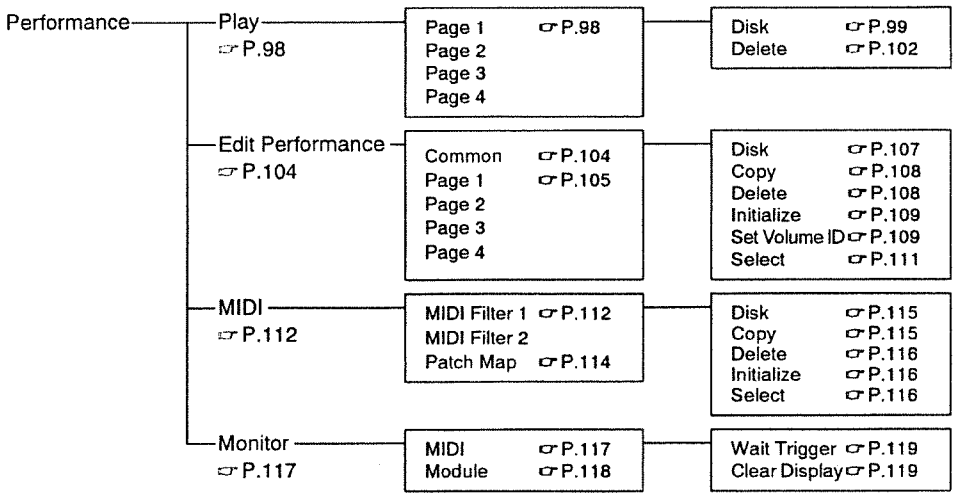
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

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

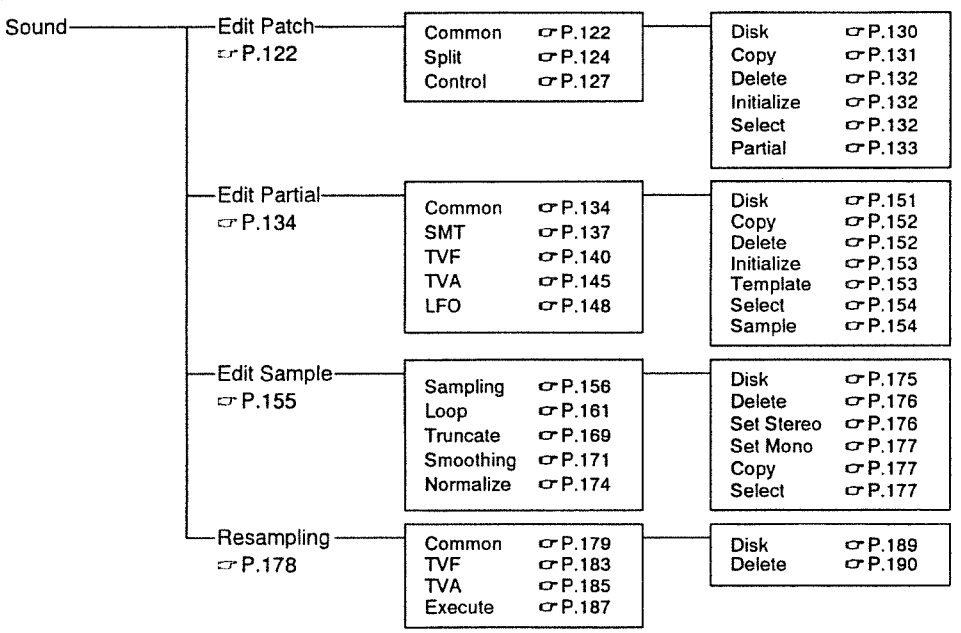
The product which is equipped with a THREE WIRE GROUNDING TYPE AC PLUG must be grounded.

S-770 MODE CHART

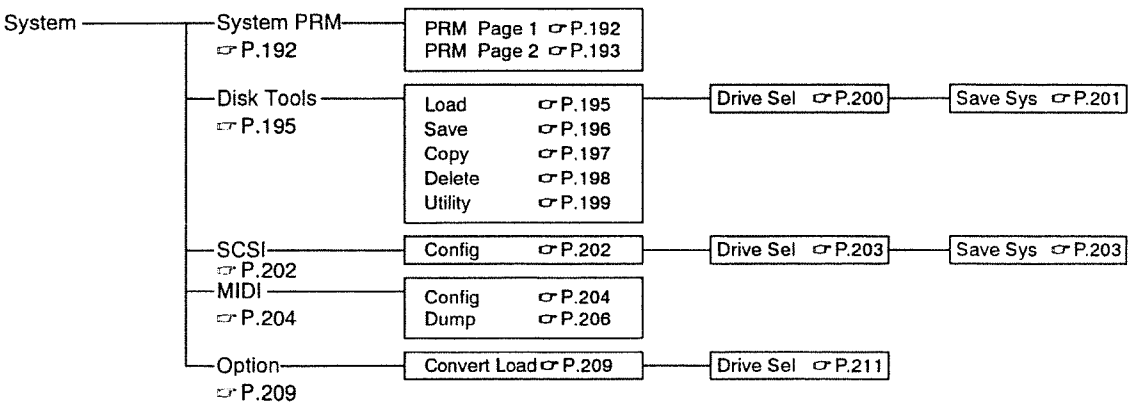
Performance Mode



Sound Mode



System Mode



INDEX WINDOW MENU LIST

Menu	Key Words	Windows	
Sound	Amp	Edit Patch Common	(P.122)
		Edit Patch Controller	(P.127)
		Edit Partial Common	(P.134)
		Edit Partial TVA	(P.145)
		Edit Partial LFO	(P.148)
	Filter	Edit Patch Common	(P.122)
		Edit Patch Controller	(P.127)
		Edit Partial TVF	(P.140)
		Edit Partial LFO	(P.148)
	Key Range	Edit Performance parallel	(P.104~106)
		Edit Patch Split	(P.124)
	LFO	Edit Patch Controller	(P.127)
		Edit Partial LFO	(P.148)
	Loop	Edit Sample parallel	(P.156~174)
	Output	Play	(P.98)
		Edit Patch Common	(P.122)
		Edit Partial Common	(P.134)
	Panning	Edit Patch Common	(P.122)
		Edit Partial Common	(P.134)
		Edit Partial SMT	(P.137)
	Part	Play parallel	(P.98)
		Edit Performance parallel	(P.104~106)
	Partial	Edit Partial parallel	(P.134~151)
	Patch	Edit Patch parallel	(P.122~129)
	Performance	Play parallel	(P.98)
		Edit Performance parallel	(P.104~106)
		MIDI Filter parallel	(P.112~114)
	Pitch (Tune)	Edit Patch Common	(P.122)
		Edit Patch Controller	(P.127)
		Edit Partial Common	(P.134)
		Edit Partial TVF	(P.140)
		Edit Partial LFO	(P.148)
		Edit Sample Loop	(P.161)
		System PRM 1	(P.192)
	Resampling	Resample parallel	(P.178~189)
	Sample	Edit Sample parallel	(P.155~174)
	Sampling	Edit Sample	(P.155)
	Split	Edit Patch Split	(P.124)
	Velocity	Performance MIDI	(P.112)
		Edit Patch Common	(P.122)
		Edit Partial Common	(P.134)
		Edit Partial SMT	(P.137)
		Edit Partial TVF	(P.140)
		Edit Partial TVA	(P.145)

Menu	Key Words	Windows	
MIDI	After Touch	Performance MIDI parallel	(P.112~114)
		Edit Patch Controller	(P.127)
	Bender	Performance MIDI parallel	(P.112~114)
		Edit Patch Controller	(P.127)
	Exclusive	System MIDI Dump	(P.206)
	MIDI Ch	Play parallel	(P.98)
		Edit Performance parallel	(P.104~106)
	Modulation	Performance MIDI parallel	(P.112~114)
		Edit Patch Controller	(P.127)
	Program Change	Performance MIDI parallel	(P.112~114)
		Edit Patch Controller	(P.127)
System	Convert Load Current Drive Disk	Convert Load Drive Select Disk parallel	(P.209) (P.200) (P.195~199)
	LCD	System PRM 2	(P.193)
	Mouse	System PRM 2	(P.193)
	Sampling Rate	System PRM 2	(P.193)
	Save Sys	Save System	(P.201)
	SCSI	SCSI Config	(P.202)
	Sound Play	System PRM 1	(P.192)

Roland DIGITAL SAMPLER
S - 770

Owner's Manual

INTRODUCTION

Thank you for purchasing the Roland S-770 Digital Sampler.
The S-770 is a 16 bit linear digital sampling module that can record long stereo samples of exceptional sound quality.
SCSI interface, Digital I/O and a 40 Mbyte internal hard disk are standard, allowing the S-770 to meet the demands of professional use. A CRT display and mouse can be added to provide enhanced operation, allowing the S-770 to function as a creative tool in all areas of music production.
To enjoy long and trouble-free service, please read this manual carefully.

The S-770 can be connected to a CRT display, external Hard Disks, a CD-5 (CD-ROM player), an MO-7 (Magneto Optical disk drive system), and to various MIDI devices. In order for these devices to function correctly with the S-770, the correct settings must be made for the S-770 and for each device. Please refer to the manuals for each device in conjunction with this manual.

FEATURES

- Stereo samples can be made at any one of four sampling frequencies: 48 KHz (DAT and satellite broadcast standard), 44.1 KHz (CD standard), 24 KHz and 22.05 KHz.

- The 2 Mbytes of RAM can be expanded to a maximum of 16 Mbytes with the RAS - 770, an optional memory expander. Sampling rate/time is as follows:

2 Mbyte : Standard		Expandable to 16 Mbyte	
48 KHz :	20.7sec	48 KHz :	167.0sec
44.1 KHz :	22.5sec	44.1 KHz :	181.8sec
24 KHz :	41.3sec	24 KHz :	334.1sec
22.05 KHz :	45sec	22.05 KHz :	363.6sec

- A 40 Mbyte internal hard disk is provided to store large amounts of sample data. The hard disk can store up to 128 Volumes, 512 Performances, 1024 Patches, 4096 Partials, and 8192 Samples. In addition, the random access memory (RAM) can store 1 Volume, 64 Performances, 128 Patches, 255 Partials, and 512 Samples.

- Digital I/O is standard, allowing sampling to be done directly from the digital output of DAT or CD players. In addition, when effect processors (R - 880, E - 660, etc.) with digital I/O are used, the sound can be processed with no deterioration of the sound quality.
  Analog input is provided by balanced (XLR type) stereo inputs, which can accept a wide range of levels from mic to line level. Advanced Roland digital audio processing technology provides high performance 16 bit A/D and 20 bit D/A conversion. (Internal processing is accomplished with 24 bit precision.)

- Maximum polyphony is 24 notes. In addition to the stereo outputs (L/R), output channels 1—6 can be assigned as individual outputs.

- Both 2HD and 2DD floppy disks can be used in the floppy disk drive. Sound libraries for the S - 550/330 can also be used.

- The S - 770 is compatible with the MIDI sample dump standard (universal exclusive message), and can exchange sample data with any device that is compatible with this standard, regardless of the manufacturer of the device.

- The SCSI connector allows high speed data transfer when the S - 770 is connected to other devices with a SCSI interface, such as hard disks, CD - 5 (CD - ROM player), or MO - 7 (magneto-optical disk drive system).

- The S - 770 can be made even more user-friendly by adding a color CRT display (RGB type, optional), mouse (included), or special controller (RC - 100, optional).

- The Index and Mark functions allow you to move directly to the window of any desired parameter.

- Sample data can be edited using TVF filter (low pass, high pass, band pass), TVA, and LFO parameters, allowing you to modify the sound in synthesizer-like ways. In addition, two samples can be combined (mix) or multiplied (ring) to create a new sample without any D/A conversion.
  MIDI control messages from an external device can control parameters such as TVA, TVA and LFO.

- The Positional Crossfade function allows you to set split points anywhere within a multi-sample.

- The Sample Velocity Mix function allows you to control the mix ratio of up to 4 samples using the velocity function. This function also responds to polyphonic aftertouch, for greater expressive possibilities.

[FRONT PANEL]

LCD (Liquid Crystal Display) :
This type of display consumes little power and does not flicker. It is used in various devices such as a watch or calculator.

CRT (Cathode Ray Tube) display :
CRT is another name for the picture tube in a television. CRTs include color and monochrome types, and color CRTs can be divided into RGB and composite types.

LCD :
The LCD always displays part of the CRT display. You can scroll through the display by moving the cursor.

S1 switch :
This switch has the same function as the left mouse button.

Value dial :
This dial modifies the value at the cursor location.

Exit switch :
This switch closes the currently open window.

S2 switch :
This switch has the same function as the right mouse button.

Function switches (F1—F5) :
Normally, these switches function as page switches. When you press the Jump switch however, they will function as user switches.

Hard Disk indicator :
This indicator will light while the Hard Disk drive is operating or while external SCSI devices are being accessed.

Jump switch :
When you press the JUMP switch, F1—F5 become user switches. When you press a user switch, you will jump directly to the page you have assigned to that switch.

Disk drive indicator :
This indicator will light when the floppy disk drive is operating.

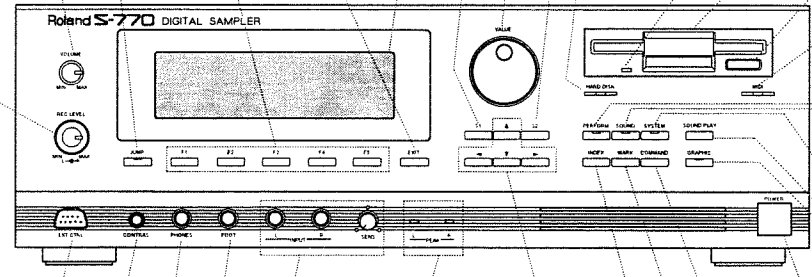
Volume knob :
This knob adjusts the volume of the stereo outputs and headphones. It has no effect on the volume of the individual outputs.

Disk drive :
This disk drive will accommodate 2HD/2DD 3.5" floppy disks.

Recording level knob (stereo) :
When sampling, use this knob to adjust the recording level. This knob has no effect on digital audio signals from the digital audio inputs.

Eject button :
To remove the floppy disk, press this button.

MIDI message indicator :
This indicator will light when a MIDI message is being received.



Performance mode switch :
This switch selects the Performance mode.

Sound mode switch :
This switch selects the Sound mode.

System mode switch :
This switch selects the System mode.

Sound Play switch :
This switch plays the sound with the Velocity and Note Number specified in the System Configuration Parameter window (only while editing).

Graphic switch :
Press this switch to view the graphic display in the LCD.

Power switch :

Auxiliary control connector :
This input can accommodate the mouse (included) or a remote controller (RC-100 optional).

LCD contrast knob :
This knob adjusts the LCD contrast. Adjust it for optimum visibility.

Command window switch :
This switch opens the Command window.

Headphones jack :
A set of stereo headphones can be connected to this jack; the sound output will be the same as that at the rear panel stereo output jacks.

Mark window switch :
This switch opens the Mark window.

Foot switch jack :
A foot switch (DP-2/6, sold separately) can be connected to this jack to control the specified function.

Index window switch :
This switch opens the Index window.

Input jacks [L (MONO), R] :
These 1/4" jacks front panel accept the audio signal to be sampled. The rear panel also has XLR inputs. If both sets of inputs have cables connected to them, the 1/4" jacks will have signal priority. When connecting a monaural source, use the L (MONO) jack.

Input sensitivity adjustment knob :
Use this knob to adjust the input sensitivity to match line or mic input sources. For mic level signals (−50 dBm), rotate the knob completely to the right. For line level signals (+4 dBm), rotate the knob completely to the left.

Cursor switches :
These switches move the cursor (the reversed area indicating position) in the display.

Peak indicators [L, R] :
These indicators will light to indicate that the analog inputs have been distorted (clipped).

【REAR PANEL】

DIGITAL IN/OUT connectors (OPTICAL/COAXIAL) :
These connectors allow digital data exchange. When the S-770 is connected to another device with digital I/O connectors, data can be exchanged without going through D/A conversion.
When using an optical cable, connect it to the OPTICAL. When using a coaxial cable, connect it to the COAXIAL.

* The digital I/O format is compatible with the standard format for consumer digital equipment.

OPTICAL/COAXIAL switch :
The OPTICAL and COAXIAL digital audio inputs cannot be used simultaneously. Set this switch to the format you wish to use.

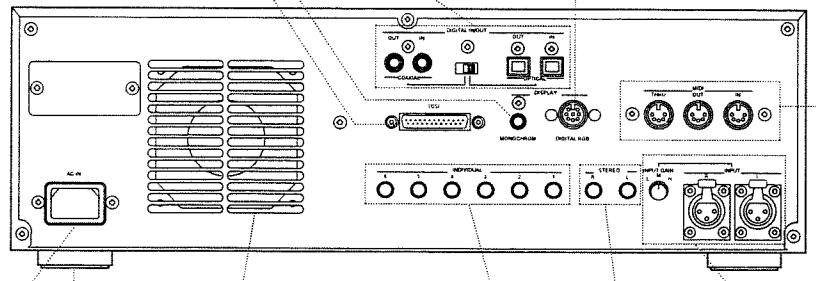
CRT DIGITAL RGB output jack :
A 200 line digital RGB color monitor can be connected to this output (refer to page 00 of this manual).

CRT video monochrome jack :
A monochrome video display or home television (the display will be black and white even with color TVs) that has a video input can be connected to this jack.

SCSI connector :
This is a standard 25 pin SCSI connector. It can be used to connect additional hard disks (Apple, CMS), CD-ROM players (CD-5), MO disks (MO-7), etc.

MIDI connectors [IN, OUT, THRU] :
Connect MIDI devices to these connectors.

OUT : This connector transmits MIDI messages. The S-770 uses this mainly to transmit exclusive messages (sample dump etc.).
IN : This connector receives MIDI messages, allowing external MIDI devices such as a sequencer or keyboard controller to control the S-770.
THRU : The messages received by the MIDI IN connector are re-transmitted unchanged from this connector. This allows you to connect several devices so that they receive the same stream of MIDI messages.



AC inlet :
Connect the AC power supply cable to this inlet.

Insulators :
When installing the S-770 into a 19 inch rack, remove these insulators.

Hard Disk cooling fan :
This fan cools the internal Hard Disk.

Caution !!
Hard Disks generate heat. If they are not kept cool, disk errors can occur, or disks can be damaged. Never cover the fan or obstruct the airflow in any way.

Input connectors :
These are balanced XLR input jacks. When recording a mono signal, use the L (MONO) jack. When the input jacks on the front panel are also used, the input signal to these jacks will not be heard.

Input gain select switch
Set this switch to match the source level.
L : +4 dBm ··· line input level
M : −10 dBm ··· audio input level
H : −50 dBm ··· mix input level

STEREO out jacks :
These jacks are for stereo output. For mono output, use the L (MONO) jack.

INDIVIDUAL out jacks [INDIVIDUAL OUT 1—6] :
Patches can be assigned to these 6 output jacks.

CONTENTS

Sound Mode

System Mode

HOW TO USE THIS MANUAL

This manual is organized in the following manner:

Chapter 1 : Before you use the S - 770

Terminology, basic organization and operation of the S - 770 are explained in this chapter. Please read this entire chapter carefully before operating the unit.

Chapter 2 : Starting out

This chapter takes you step by step through the actual editing process. Please read it carefully.

Chapter 3 : Basic procedures

This chapter provides step-by-step explanations of the operational procedures of the S - 770. Refer to this chapter as you create and edit sounds of your own.

Chapter 4 : Reference

The commands and operations for each window are explained in this chapter. Refer to this chapter when necessary.

Chapter 5 : Appendix

This chapter contains troubleshooting information, data memo charts, and other material. Refer to this chapter when necessary.

* An index of terms and an index of functions are included at the end of the manual, allowing you to quickly find the explanation for any desired function.

Control References

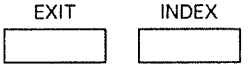
Panel and display switches are indicated as follows:

Panel switches

EXIT switch → [EXIT]

INDEX switch → [INDEX]

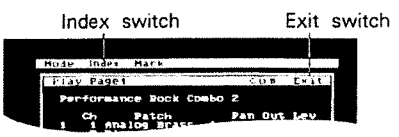
EXIT INDEX



Display switches

Exit switch → **Exit**

Index switch → **Index**



PRECAUTIONS

In addition to the precautions listed on page 2, please observe the following:

☐ Power supply

- If the power supply to the S - 770 is interrupted, all memory data will be lost. Take care not to hit the power switch or accidentally pull out the AC cord.
- Be sure to use only an AC outlet of the correct voltage.
- Do not connect the S - 770 to the same outlet as other devices which produce noise (motors, lighting dimmers, etc.) or devices which consume large amounts of power.

☐ Location

- Operating the S - 770 near devices containing large transformers (eg. power amplifiers) may induce hum.
- Operating the S - 770 near CRT displays or radios may cause interference. Do not use this unit near such devices.
- If the room is rapidly heated, or if the S - 770 is brought from a cold location into a warm room, condensation may form on the Hard Disk and other electronic components, which can cause damage. Wait for one hour or more before operating the S - 770.
- Install the unit on a solid, level surface in an area free from vibration.

☐ Care

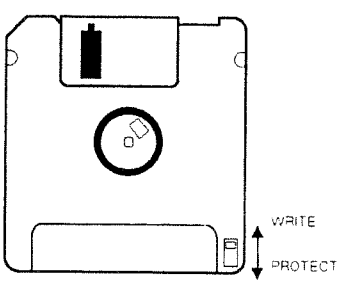
- For everyday cleaning, wipe the unit with a soft dry cloth, (or one that has been slightly dampened with water). To remove stubborn dirt use a mild neutral detergent. Afterwards be sure to wipe the unit throughly with a soft, dry cloth.
- Never use benzene, thinner, alcohol, or solvents of any kind to avoid the risk of discoloration and/or deformation.

☐ Other

- Do not subject the S - 770 to strong shocks.
- Do not press hard on the LCD or allow it to be hit. During operation, some sound may be produced, but this is normal.
- The S - 770 may produce some heat when operating normally.
- Before using the S - 770 in a foreign country, contact a nearby Roland service center.

☐ Floppy disk handling

- Floppy disks are very delicate. Observe the following points when handling them.
  - ○Do not touch the surface of the magnetic sheet.
  - ○Do not bend disks, or place heavy objects on them.
  - ○Do not store disks in dusty locations.
  - ○Do not leave disks in direct sunlight, near heating or cooling equipment, or in a closed automobile.
  - ○Do not allow disks to come near magnets or speakers, or devices which produce strong magnetic fields.
- Floppy disks have a protect tab that can be used to keep valuable data from accidentally being overwritten. When not writing data to the disk, leave the protect tab in the protected position.



- Remove the floppy disk from the disk drive before turning the power on or off.
- Never remove the floppy disk while the disk drive is operating (while the indicator is lit). Doing so could not only damage the data, but also make the disk unusable.
- As a precaution against emergency, remember to save your important data in the internal Hard Disk onto a floppy disk.
- When attaching a label to a disk, make sure that the label is firmly attached. If the label comes off while the disk is in the drive, you may be unable to remove the disk.

☐ Hard Disk handling

- A Hard Disk is a very delicate storage device. Do not subject it to shock or vibration of any kind. Be especially careful not to move or bump the unit while the power is ON.

- When transporting the unit, be sure to use the Park Head command to park the Hard Disk heads. And pack the unit in the shipping carton or a special flight case.

- It will take about 30 seconds for the Hard Disk to "boot up" after the power is turned on.

- Never turn the power off while the Hard Disk is operating (when the Hard Disk indicator is lit).

- After turning the power off, wait approximately 30 seconds before moving the S - 770.

- If the Hard Disk cooling fan is obstructed, overheating may cause data to be lost or malfunctions to occur. The cooling fan should always be running. (except when sampling)

- When handling external Hard Disks, refer to the manual for each device.

- Roland cannot be responsible for any data lost while using the S - 770. It is strongly suggested that you use floppy disks to make backup copies of Hard Disk data.

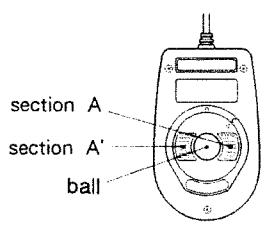
☐ Mouse handling

- If the ball becomes dirty, use a soft dry cloth to wipe the ball and the interior of the mouse clean as explained below. (Do not attempt to disassemble the mouse except as shown below.)

①Press sections A and A' of the bottom cover, and rotate it counterclockwise to align the "△" with the "O".

②Turn the mouse over and remove the bottom cover and ball. After wiping clean, turn the mouse over again and reinsert the ball.

③Re-install the bottom cover so that the "△" and "O" are aligned. Press sections A and A', and rotate it clockwise to align "△" with "C".



☐ Transportation

Since the S - 770 contains a built in Hard Disk, please handle it with great care. Before moving the unit, execute the HD Park Head function to move the Hard Disk heads to a safe location. Hard Disk parking is executed in software.

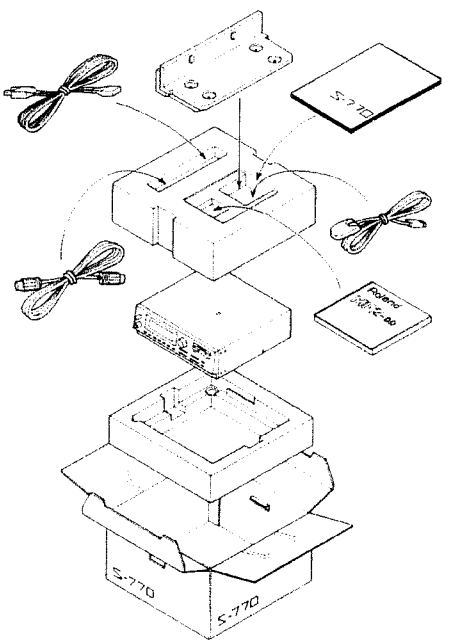
①Open the Utility page in the Disk Tool window.
Mode → **System** → **Disk Tools** → **Util**

②Click on **HD Park Head**, and the Hard Disk heads will be moved.

③Turn the power off.

* After turning the power off, wait about 30 seconds before moving the S - 770.
* The heads will remain parked until you turn the power on again.

④Pack the S - 770 in its original shipping carton as shown in the following diagram.



* Keep the shipping carton for future use.

Chapter 1

Before you use the S-770

Please be sure to read this section before you turn the power on. This will help you take full advantage of the S-770 and minimize problems.

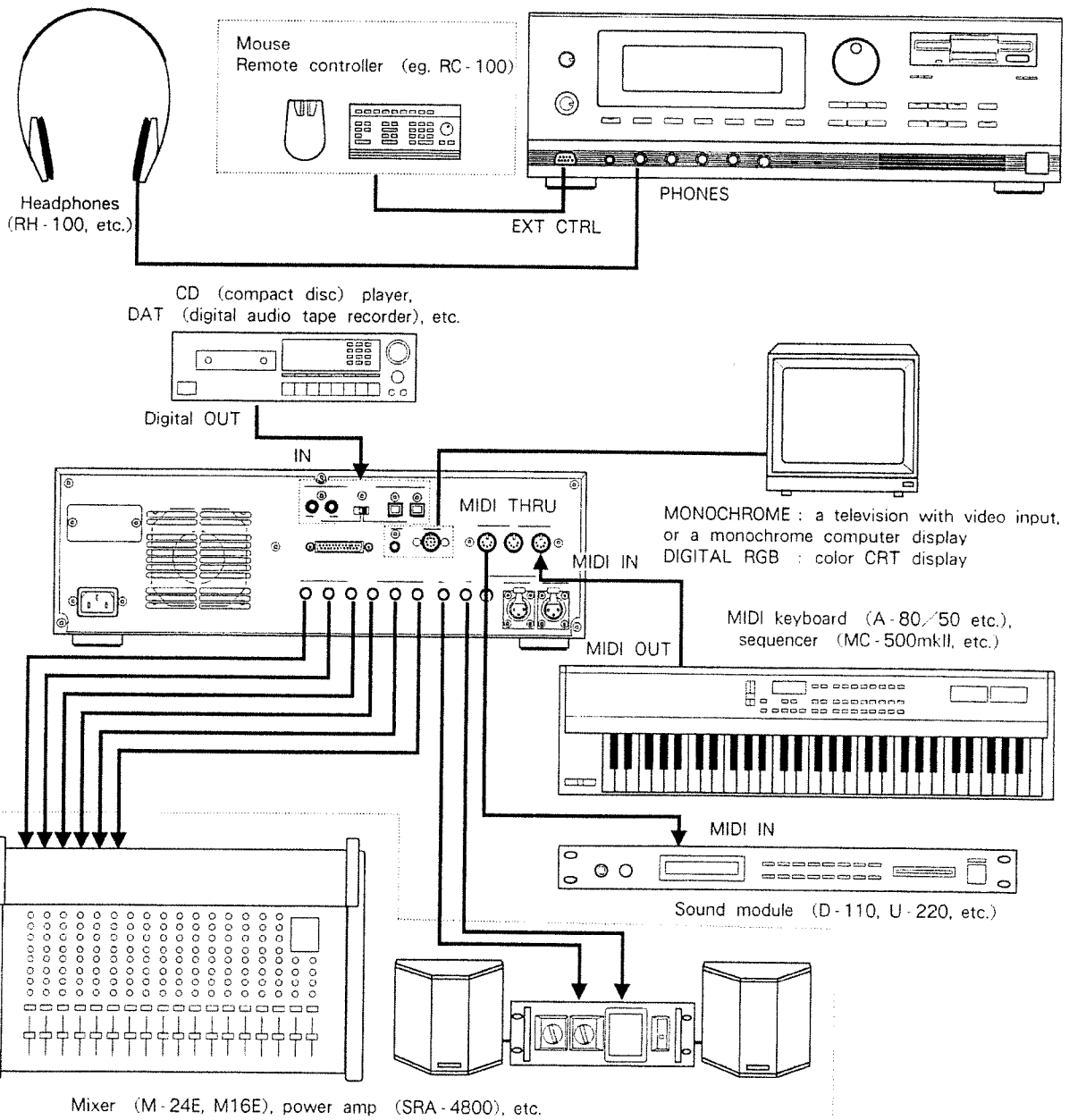
1 CONNECTIONS

In order to use the S - 770 you will need the following equipment.

○MIDI controller (keyboard controller, sequencer, etc.)
○Mixer/amp and speakers, or headphones
○Mouse (included)

* This manual will explain how to use the S - 770 with a CRT display. Although it is possible to use the S - 770 with only the built-in LCD, we recommend that you connect a CRT color display (☞ P.18) for more efficient operation.

Before you make connections, be sure that the power is off. Making connections while the power is turned on can damage the speakers or other devices.



● Connecting MIDI equipment

The S - 770 produces sound in response to MIDI messages received from external devices. Use a MIDI cable to connect the MIDI OUT connector of a MIDI keyboard (A - 50/80, etc.) or a sequencer (MC - 500MK Ⅱ, etc.) to the MIDI IN connector of the S - 770.

When using the S - 770 in conjunction with other MIDI sound modules, connect them using the MIDI THRU connector (A - 880, etc.). Several MIDI sound modules can be connected in the following way: MIDI THRU → MIDI IN/MIDI THRU → MIDI IN/MIDI THRU. If you use MIDI THRU to connect several MIDI sound modules, message delays may occur. When you need to connect four or more MIDI sound modules, please use a MIDI Thru Box (eg. A - 880) to distribute the MIDI signal.

● Mixer and amp connections

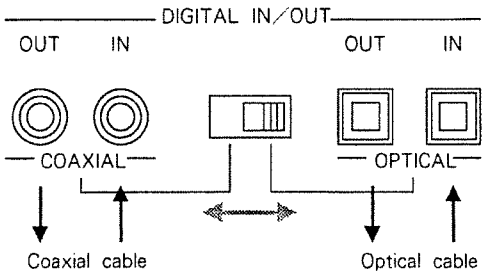
Connect the rear panel Stereo Out or Individual Out jacks to the inputs of the amp or mixer. When using headphones, connect them to the PHONES jack at the lower left of the front panel. Headphone volume can be regulated using the Volume knob.

In order to take full advantage of the high sound quality of the S - 770, please use amps, effect units, and speakers with a wide frequency response and dynamic range.

* The S - 770 will produce the widest dynamic range when the volume knob is at maximum. Therefore, you should leave the volume as high as possible, and adjust the sound level from the mixer or amp.
* If both the rear panel inputs and the front panel inputs are used, the front panel inputs will take priority.

● Digital audio connections with DAT (digital audio tape recorder) or CD (compact disc)

When using a coaxial cable to make connections, set the OPTICAL/COAXIAL switch to COAXIAL.
When using a fibre optic cable to make connections, set the OPTICAL/COAXIAL switch to OPTICAL.



* The digital I/O of the S - 770 is compatible with the CP - 340 standard.

Important ! !

When sampling from CDs, etc., please be aware of copyright laws. Refrain from copying and/or distributing copyrighted material in any way.

■ Mouse/Remote controller (RC - 100)

● Using the mouse

By connecting the mouse to the auxiliary controller connector, you can operate the S - 770 while viewing the CRT display (or front panel LCD), without having to use the front panel buttons very often.

【Using the mouse】

① Connect the mouse. Turn the power on while pressing the [F2] button. The S - 770 can now be operated using the mouse.

* This mouse is only for use with the S-series of products. Do not connect it to other devices, since this may cause malfunctions.
* By changing the "Controller" parameter setting in "System PRM Page2", you can set the S - 770 for use with an RC - 100, or cancel the mouse operation mode (☞ see page 00).

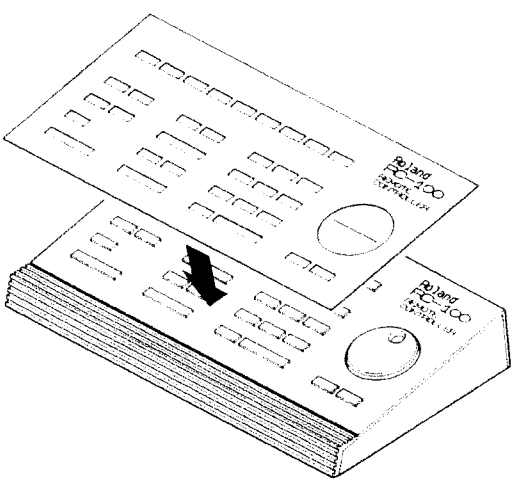
● Using the mouse and remote controller (RC - 100)

By connecting a remote controller to the EXT CTRL connector, you can edit more efficiently while viewing the display. In this case, be sure that the mouse is connected to the RC - 100 jack. If the mouse is not connected, you will not be able to use the Drag operation (☞ see page 28).

* Never connect any device other than the mouse or RC - 100 to the EXT CTRL connector.
* The RC - 100 buttons correspond to S - 550 functions. Therefore, when using the RC - 100 with the S - 770, affix the function switch overlay sheet to the RC - 100.

【Using the RC - 100】

① Align the overlay sheet with the switches of the RC - 100 and fix it in place using the double-sided tape provided.



② Connect the RC - 100 to the EXT CTRL connector. Turn on the S - 770 while pressing the [F3] button. The S - 770 can now be controlled using the RC - 100.

* By changing the "Controller" parameter setting in "System PRM Page2", you can specify how the auxiliary controller is to be used (☞ see page 00).

Important ! !

By turning the power on while pressing a function switch, you can change the control operation mode.

[F1]: when not using an auxiliary controller

[F2]: when using only the mouse

[F3]: when using both the mouse and RC - 100

■ Using a CRT display

The S - 770 is a professional sampling module and has a large number of functions. We recommend that you connect a CRT color display so that large amounts of information can be displayed at one time.

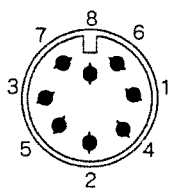
When using a color display that has a digital RGB connector, connect it to the digital RGB connector. When using a standard television (with video input) or a 200 line personal computer monochrome monitor, connect it to the MONOCHROME monitor jack.

Caution ! !

Do not place a CRT display on top of the S - 770, since this can cause noise and/or interference.

When using a CRT color display, please be aware of the following points:

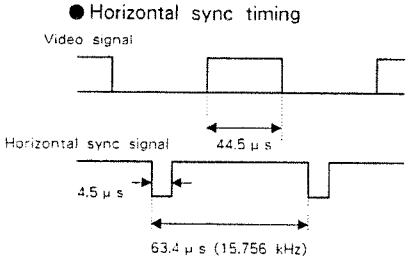
● The DIGITAL RGB connector (output impedance: 100 ohms) is for 200 line TTL RGB displays, with the following specifications. Use only a display of compatible specifications.



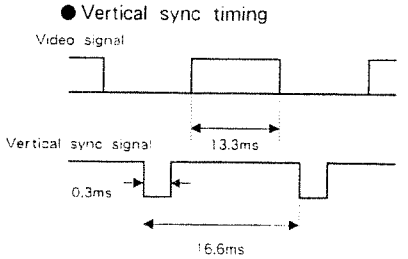
Pin No.	Signal		Specification
1	+ 5V	+ 5V power supply output	
2	GND	ground	
3	open		
4	HSYNC	horizontal sync signal output	
5	VSYNC	vertical sync signal	TTL level negative polarity
6	R	video output (red)	
7	G	video output (green)	TTL level positive polarity
8	B	video output (blue)	

■ Timing chart of S - 770 RGB output

● Horizontal sync timing



● Vertical sync timing



● When connecting a CRT display to the S - 770, please use an RGB cable (RGB - 25N). Never use cables of different shapes, pin numbers, or pin arrangements.

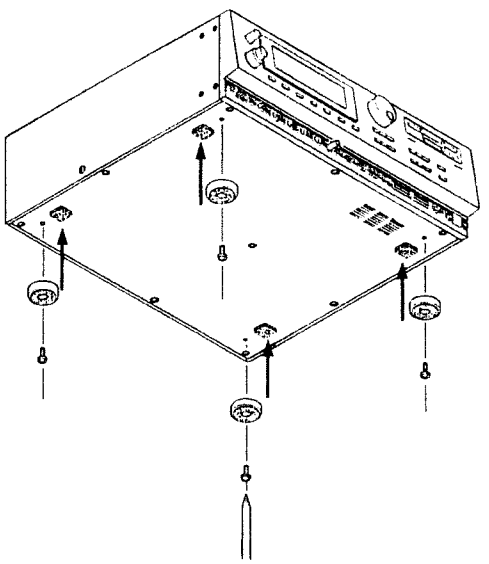
*If you are using a CRT display, turning off the built-in LCD will improve mouse tracking (☞P.**).

■ Rack mount brackets

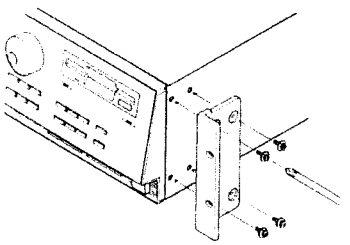
The S - 770 (3U) can be installed in a 19″ rack by attaching the rack mount brackets. Before attaching the brackets, turn the S - 770 off and wait for at least 30 seconds. Moving the unit while the power is on or immediately after turning the power off can cause damage to the hard drive.

[Attach the rack brackets]

① Remove the four attached feet with a philips screwdriver. Attach the four self-adhesive rubber feet.



② Fasten the brackets using the screws provided.



[2] FLOPPY DISKS

The 3.5 inch micro floppy disk drive of the S - 770 will accept both 2HD (double side high density type) and 2DD (double side double density type) floppy disks. When a disk is inserted, the S - 770 automatically detects which type of disk it is. 2HD disks have a capacity of 1.6 Mbytes, and 2DD disks have a capacity of 640 Kbytes.

The S - 770 uses the following types of disk.

● S - 770 system disk

This disk contains the system program (☞ see page 28). The system disk included with the S - 770 is a 2DD type.

● Sound disk

If the amount of sound data is too large to be stored (☞ see page 44) on a single disk, use two or more disks. When loading sound data that has been saved on two or more disks, be sure to load them in the order in which they were saved.
Loading will not be possible if the disks are inserted in the wrong order, or if one disk is missing.

● New disks

New disks cannot be used as they are. They must first be formatted (☞ see page 43) so that the S - 770 can store data on them.

* We recommend that you use Roland MF - 2HD (3.5 inch double side high density type) or Roland MF - 2DD (3.5 inch double side double density type) disks.

● Sound library

In addition to sound library disks (sold separately) created for the S - 770, the S - 770 is also able to use sound library disks (2DD type) created for the S - 550/S - 330. (S - 50 sound library disks cannot be used.) To use S - 550/S - 330 sound library disks, they must be Convert Loaded. (This operation will read data of another format, and convert the parameters into a form suitable for the S - 770.)

* The Convert Load function is in the "Convert Load" page of the "Option window" of the System mode. For details refer to P.209.
* It is not possible for the S - 550/S - 330 to use S - 770 data; i.e., reverse conversion is not possible.

3 S-770 MEMORY

The internal memory and the internal Hard Disk can contain the following data.

Type of data :	Internal memory capacity	Internal hard disk capacity
Volumes :	1	128 maximum
Performances :	64	512 maximum
Patches :	128	1024 maximum
Partials :	255	4096 maximum
Samples :	512	8192 maximum

The S-770 has 2 megabytes of internal memory. A special memory board (RAS-770) and memory expanders (OMS-770) can be combined to expand the memory to a maximum of 16 megabytes.

○Memory board:(RAS-770)

This board allows you to install up to seven sets of memory expanders. The memory board already contains a 2Mbyte memory expander.

○Memory expander:(OMS-770)

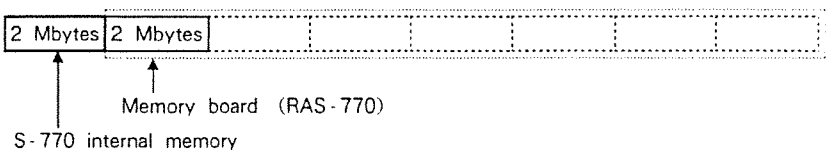
Each memory expander contains 2 Mbytes. To install a memory expander, a memory board must already be installed.

Warning !!

To install additional memory, the S-770 must be opened and the memory units installed on the main circuit board. This is a very delicate operation ; Do not attempt to do this yourself. Refer to qualified service personnel or your dealer for installation.

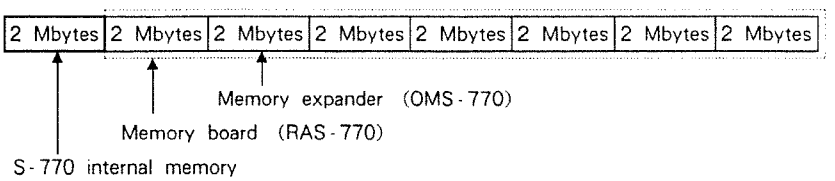
When a memory board is installed

When a memory board is installed, its 2 Mbytes will be added to the internal memory (2 Mbytes) for a total of 4 Mbytes.



When memory is fully expanded

When memory is fully expanded, the memory board (containing 2 Mbytes) and the six memory expanders (2 Mbytes × 6 = 12 Mbytes) will be added to the internal memory (2Mbytes) for a total of 16 Mbytes)

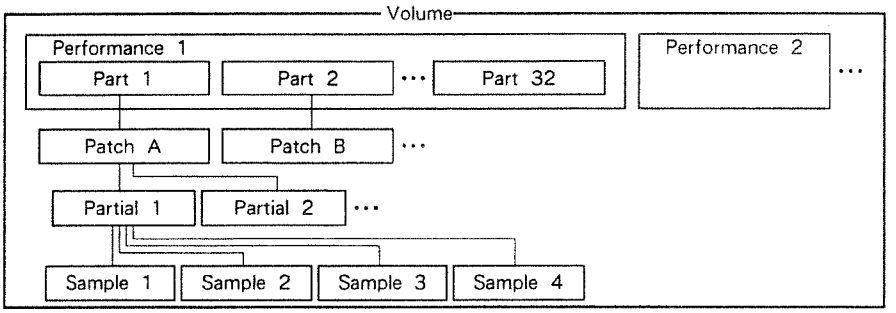


4 S-770 SOUND DATA

This section explains the Sound Data used by the S - 770.

■ Sound data organization

The sound data of the S - 770 is organized as follows.



● Sample

When you sample a sound, it becomes the smallest unit of sound data; a **Sample**, consisting of wave data and parameters (two loop points and the original key).
In other words, a Sample is the basic unit from which a more complex sound is created.

● Partial

Up to four Samples can be combined into a Partial. A complete instrumental sound created in this way is called a **Partial**. To create very complex sounds, it is also possible to use a Partial as part of an instrument sound.

● Patch

By assigning Partials to the 88 notes of the keyboard (note numbers 20 (A0)...108 (C8)) and setting various performance parameters, you can create a **Patch**. For example, several Partials can be combined to create an instrument, or a different Partial can be assigned to each key to create a drum Patch.

● Performance (Multi-timbral Ensemble function)

A Performance has 32 **Parts**, and each Part uses a Patch as an independent MIDI sound source. For each Part, you can assign a Patch, a MIDI channel, a volume level, etc. In other words, the **Performance** is the unit which determines how the Patches are mixed and output, and how MIDI messages are handled.

● Volume

All of the above sound data can be held in the internal memory of the S - 770, and the sum total of all this sound data in internal memory is referred to as a **Volume**. The internal Hard Disk can hold up to 128 Volumes.

* Patches, Performances, and Volumes can be selected by Program Change messages from an external controller.
* When Patches, Performances or Volumes are saved, all sound data within each Patch, Performance or Volume is also saved.

[5] S - 770 ORGANIZATION

The parameters of the S - 770 are organized in a branching structure according to how the sound data is organized. This means that the flow of operation is the same as when actually sampling and constructing a sound.

■ Three modes

The functions of the S - 770 are broadly divided into 3 modes; Performance, Sound, and System. The modes have the following functions:

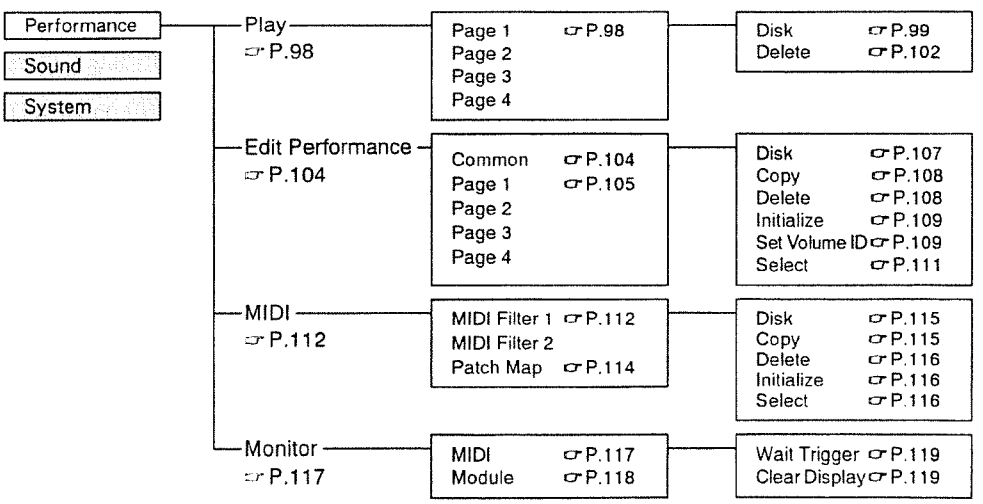
Performance mode :	In this mode you can play the S-770 from a sequencer or external controller.
Sound mode :	In this mode you can create a Sample by setting parameters that determine how a waveform will sound, combine Samples to create Partials, and combine Partials to create Patches.
System mode :	In this mode you can perform operations and make settings related to the disk drive, MIDI, SCSI, etc.

■ Mode Structure

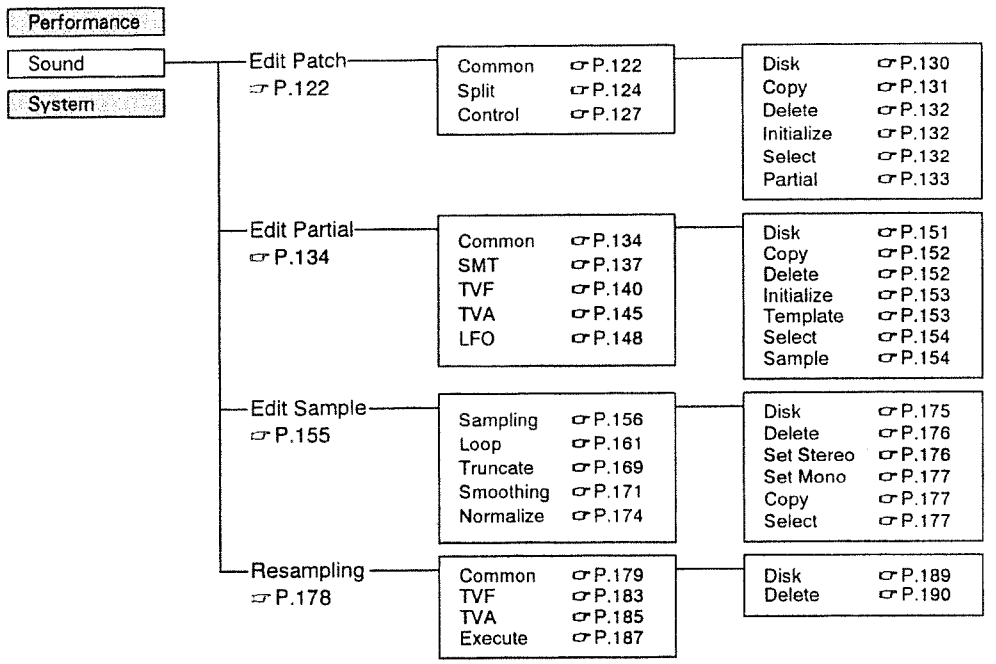
Each mode is organized by function into several windows.

＊Chapter 4 "Reference" will explain the operation of the functions in each window. The numbers in the diagram below refer to the page numbers in the Reference section.

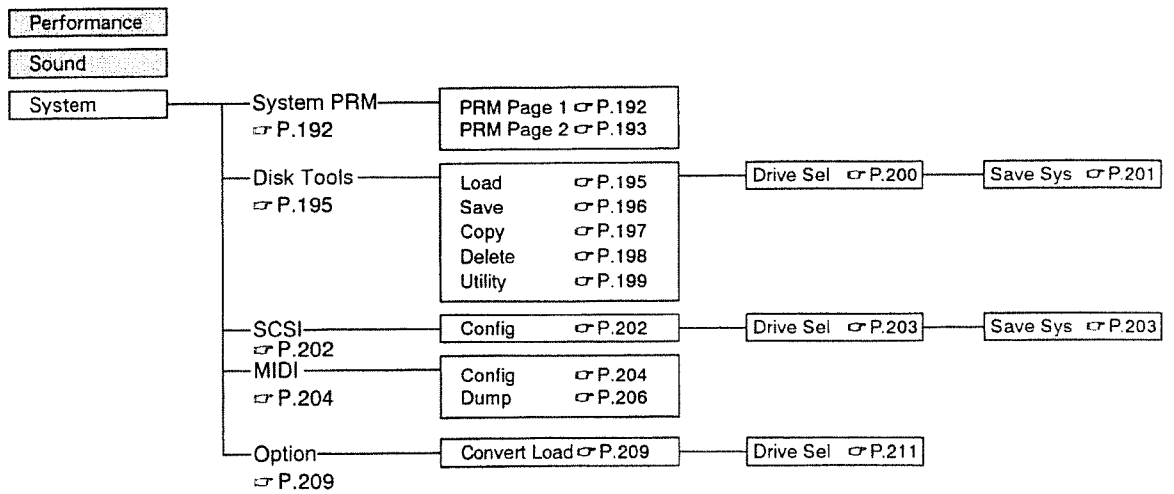
● Performance mode



● Sound mode



● System mode



6 WHAT IS SCSI

The S - 770 uses an SCSI interface to transfer data between memory and the internal Hard Disk (sound data, system). It is also used to transmit or receive data to or from external devices.

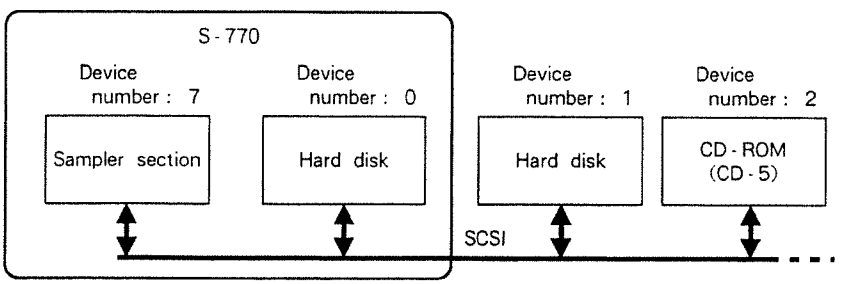
■ What is SCSI

SCSI (Small Computer System Interface) is a standard for high speed exchange of large amounts of data. The S - 770 can be connected to SCSI-compatible external storage devices (Hard Disks, Magneto Optical disks, etc.). (☞ see page 202)

■ SCSI device number

The SCSI interface allows connection of up to 8 devices. Each device has its own device number 0 — 7. The SCSI interface recognizes the S - 770's sampler section and internal Hard Disk as being two independent devices, each with its own device number. (When shipped, the internal Hard Disk has device number 0, and the sampler has device number 7.) The S - 770 can use the remaining six device numbers for external devices (Hard Disks, CD - ROM, etc.).

Hard Disks manufactured by Apple Computer or CMS can be used. We recommend that you use Hard Disks of 40 Mbytes or greater capacity. For CD - ROM, please use the Roland CD - 5. For magneto-optical disk, please use the Roland MO - 7.



* The device number of each external SCSI device is determined by a switch on each device. For details, refer to the manual for each unit.
* Do not set two units to the same number; doing so will cause problems.
* In the Drive Select window, you can assign a name to each device. For details refer to P.203.

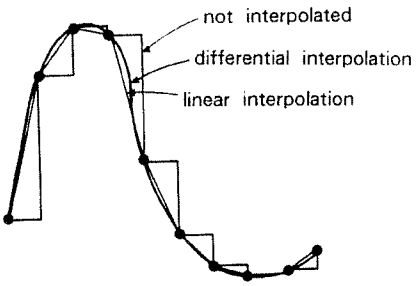
When the S - 770 is powered up, it checks whether there is a floppy disk in the internal drive. If the drive does contain a floppy disk, the system program will be loaded from that disk. If the floppy drive does not contain a disk, then the SCSI devices will be checked beginning with the lowest device number, and the S - 770 will load the first system program it finds. With the factory settings, the system will automatically be loaded from the internal Hard Disk (device number 0).

■Fixed Rate Sampling

All Roland S-series samplers use fixed rate sampling which offers many advantages over the conventional variable rate sampling technique.

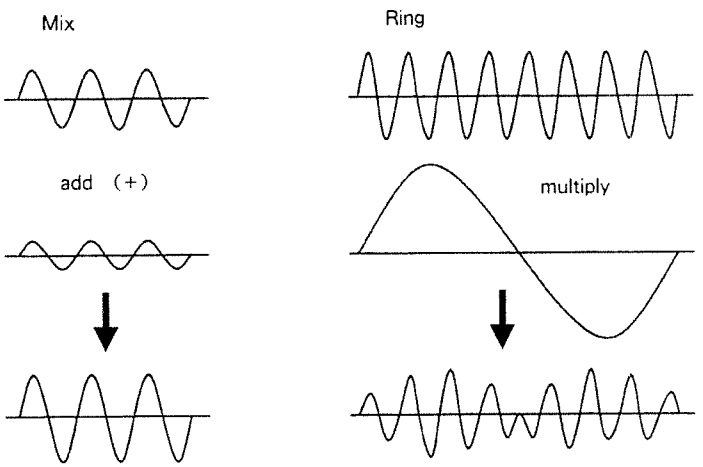
Variable rate sampling alters the pitch by changing the sampling frequency. With this technique, the frequency response characteristics (ie. quality) of the sound is drastically changed. In addition, since the filter cutoff frequency is changed in realtime, the level of noise increases.

Fixed rate sampling creates new data from the original waveform data, expanding or compressing the waveform to change the pitch without changing the sampling frequency. Roland's DI (Differential Interpolation) technology uses this innovative technique to produce high quality sound over a wide pitch range.
DI-type samplers perform realtime high-speed calculations to determine points between actual samples, thus creating data for points which do not actually exist. This technique is called "differential interpolation", and the created points are called "interpolated points".



■Digital sample synthesis (resampling)

The S-770 samples (digitizes and stores) the event to be used as the basic material of the sound. Next, the Sample data is processed through a TVF, a TVA and an LFO. This digitally processed data can then be sampled again (while still in digital form) to create a completely new sound. Internal sampling in this way is called re-sampling. This process allows you to freely add (Mix), or multiply (Ring) two pieces of data. For details refer to P.178 "Resampling".



Chapter 2

Starting out

In explaining the unit's functions, this manual will assume that you are using the most basic setup : the mouse, CRT display, and MIDI keyboard connected to the S-770.

1 STARTING UP THE S-770

The S - 770 needs software to tell it how to function. (This also means that by using different software, the S - 770 can be made to function in many different ways.)
This type of system is known as an open system, and the software that tells the system how to function is known as the system program. In order for the S - 770 to function as a sampler, the system program must be read into the S - 770 from the internal Hard Disk or other device. (With the initial settings, the system will be automatically loaded from the internal Hard Disk when the power is turned on.)

■S-770 start-up procedure

[How to start up the S-770]

① Before turning the power on, check the following points.

- The S - 770 is correctly connected to the peripheral devices.
- The disk drive does not contain a disk.
- The volume of the audio system is turned down.

② Turn on the S - 770 and then the CRT display.

The Hard Disk indicator will light and the system program will be loaded.

A short time after the Hard Disk indicator goes out, the "Play Window" will appear in the display. The unit is now ready for operation. This is known as system program start-up.
In order to produce sound, you will normally need to load a Volume (sound data) into internal memory after starting up the system. With the factory settings, a Volume will automatically be loaded from the internal Hard Disk when the system program is loaded. (☞ see page 192)

*If the system does not start up even after several attempts, please contact qualified service personnel. The internal Hard Disk or its data may be defective.

③ Turn on the peripheral devices with the audio system being last.

*When powering down, turn the audio system power off first, and then the S - 770.
Before turning off the S - 770's power, check the following points.

- Make sure that there is no disk in the floppy disk drive.
- Lower the volume of the audio system.
- Make sure that any data you wish to keep has been Saved (☞ see page 44).

[How to start up the system from floppy disk]

If a floppy disk is inserted before the Hard Disk begins operating (before the Hard Disk indicator lights), the system will start from the floppy disk.
However, in this situation the Volume from the internal Hard Disk will not be loaded automatically.

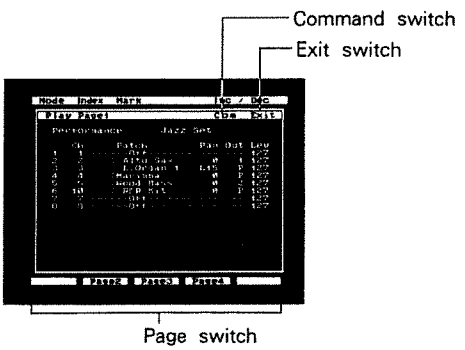
*A new version of the system (which you have started up from floppy disk) can be written into the Hard Disk, etc. For details, refer to "Save System window", P.201.

[2] BASIC OPERATIONS

Before explaining the various functions, it is necessary to clarify the basic operations and the terminology used.

1. How to View the Screen

When the system is started up, the following display will appear. This Play window is the basic display of the S - 770. (The Play window will display the Volume settings that have been loaded.) The screen commands are explained using the Play window as an example.



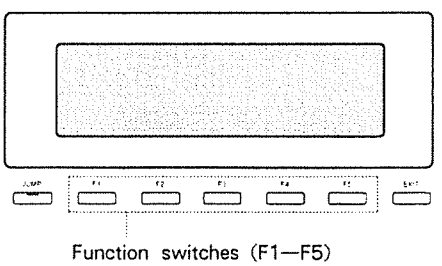
The switches in the display are as follows.

● Command switch — This switch opens a command window.

● Exit switch — This switch closes the currently open window, and moves to the upper level.

● Page switch — This switch selects "pages" in the window. Each window has 1 — 5 pages of parameters, and each page is divided according to function. This Play window has 4 pages.

* The function switches (F1 — F5) on the front panel of the S - 770 duplicate the functions of the on-screen page switches.



2. Using the Mouse

Move the mouse across a flat surface and notice that a "+" mark moves across the screen, following the movement of the mouse. This "+" mark is called the mouse cursor.

■ Clicking and dragging

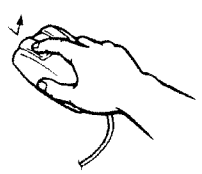
Notice that when the mouse cursor is moved over specific screen items those items becomes reversed. (There are some exceptions.)
Any on-screen item that can be highlighted (reverssed) can be affected by clicking (pressing and releasing) one of the mouse buttons. Clicking on a specific screen item will activate that item.

* The "Cursor" is the flashing square indicating where data will be entered. In this manual, "Cursor" refers to the data entry point, and "mouse cursor" refers to the "+" mark.
* The cursor can also be moved using the cursor switches ([▲][▼][◄][►]) on the front panel.

The following are the two basic mouse operations.

● Click

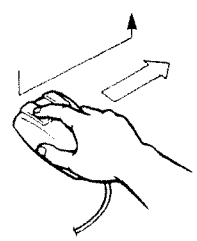
Press and release the mouse button



Click means to press and release the mouse button (usually after selecting (reversing) a screen item). For example, if you are instructed "click on **Page2** ", you would move the mouse cursor to the screen location which displays " **Page2** ", and then press and release the mouse button. In this manual, "click" means to press the left mouse button unless stated otherwise.

● Drag

Move the mouse while holding the mouse button



Drag means to move the mouse while holding the mouse button down. This operation is used when editing envelopes etc. in the graphic display. In this manual, drag means to move the mouse while pressing the left button unless stated otherwise.

■ How to use the mouse

Once you have learned the following four basic operations, you will be able to execute most commands using the mouse.

● Closing a window **Exit**

To close an open window, click **Exit** in the upper right corner of the window. The Command menu can be closed by clicking **Exit** in the upper right corner of the menu screen.

＊To open the Command menu, click **Com** in the upper right corner of the window.

● Change parameter values

To change a parameter value, move the mouse cursor to the desired parameter and press a mouse button. Pressing the left button will decrease the value, and pressing the right button will increase the value. Each click of a button will change the value by one. Holding the mouse button down causes the value to change continuously.

● Confirm important operations with **Start**, **Cancel**, **YES**, **NO**, etc.

Before the S - 770 initiates important operations (eg. major modification of data, saving or loading data) a screen message will appear to ask you to acknowledge the selected operation.

● Use the up/down switches to scroll a list

Some pages in the "Disk Tools" or "Command Select" windows display a list of sound data. If there is a large amount of data, it will not be possible to display all of it at once. In such cases, it is possible to scroll (move) the list up or down to see all of the data.

Position the mouse cursor on the up/down switches (**↓ / ↑**). Press the right mouse button to scroll the list upward, and the left button to scroll the list downward.

3. Panel Switch Operation

With the following six operations, you will be able to perform most functions using the panel switches.

● Closing a window [EXIT]

To close the currently open window, press [EXIT].

● Modifying parameter values with [S1] / [S2] or Value Dial

In most cases, panel switch [S1] corresponds to the left mouse button, and [S2] corresponds to the right mouse button. Use the four cursor buttons to move the cursor.

To change the value of a parameter, use the cursor buttons to move to the desired parameter, and use [S1] and [S2] to modify the value. To increase the value press [S1]. To decrease the value press [S2].

You can also modify parameter values using the VALUE DIAL; rotate clockwise to increase the value, or counterclockwise to decrease the value.

● Function switches

To select different window pages, press the function button (F1 — F5) which corresponds to the displayed page name.

*When you press [JUMP] (the jump switch indicator will blink), the function switches will change to the User switches (☞see page 46).

● For functions which have a dedicated panel switch, press the desired switch

[PERFORM]	selects the Performance mode
[SOUND]	selects the Sound mode
[COMMAND]	selects the Command mode
[INDEX]	opens the Index window
[MARK]	opens the Mark window
[COMMAND]	opens the Command window from the current working window
[JUMP]	changes the Function switches to User switches

● To see the LCD graphic display, press [GRAPHIC]

To see the graphic display, press [GRAPHIC]. The cursor switches on the panel will not control the cursor in the graphic display.

*Since the panel switches do not allow you to perform drag operations, you must use the mouse to edit in the graphic display.

● To hear the sound while editing, press [SOUND PLAY]

To hear the sound you are editing, press [SOUND PLAY]. The sound will be played with the Note Number and Velocity specified in System PRM page 1 (☞see page 192).

Important !!

If you are using only the panel switches to operate the S-770, substitute the words "press [S1]" for "click".

4. How to Enter Names

When naming a Patch, etc., open the Name window and click on the desired character. For upper-case characters, click the left button while holding the right button. Up to 12 characters can be used for each name.

The following example will show how to name a Patch while in the Edit Patch window.

【Naming a Patch】

① Open the Edit Patch window.

Mode → **Sound** → **Edit Patch**

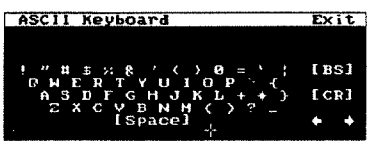
Click on **Mode** to open the Mode Change window. click on **Sound** to open the Sound Menu window. Finally, click on **Edit Patch** to open the Edit Patch window.

② Click **Name** to open the Name window.

After your open the window, an ASCII keyboard (in the lower-case mode) will appear. While you hold the right button, the keyboard will be in the upper-case mode. (In the Name window the right button acts as a keyboard shift key.)

Characters that can be entered in the lower-case mode (lower-case letters, numerals, and some symbols):

Characters that can be entered in the upper-case mode (upper-case letters, and all characters not listed above):



③ Enter characters

When you click on the character you wish to enter in the Name window, the selected character will appear at the position of the auxiliary cursor (the red horizontal line above the ASCII keyboard).

To enter upper-case characters, hold the right button and click the left button.
To enter a space, click **Space**.
If you make a mistake, erase it by clicking **BS** (back space/delete).
To move the auxiliary cursor, use ◀ ▶.

④ When you have entered the desired name, click **CR** to finalize the name.

The Name window will be closed and the name will appear beside the Patch.

* To cancel the specified name, click **Exit** to close the Name window.

[3] PLAY THE SOUNDS

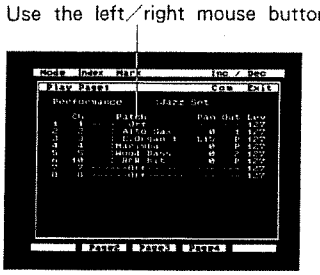
First, make sure that the system has been correctly started up from the internal Hard Disk. Next, set the MIDI controller to transmit on MIDI channel 1.

* Refer to page 28 for the start-up procedure.

Play the sound to Patch using the MIDI controller. You will hear a Piano sound.

To select another Patch, transmit a Program Change message from the controller, or move the mouse to the Patch Select parameter (of the Part which is set to receive MIDI channel 1), and use either mouse button to select a Patch.

Use the left/right mouse buttons to select the Patch.



* If the "Prog" of "Filter1, 2" is OFF (–) in the MIDI window (☞P.112), it will not be possible to use Program Change messages from an external controller to select Patches. (Initially, this function is ON (○).)

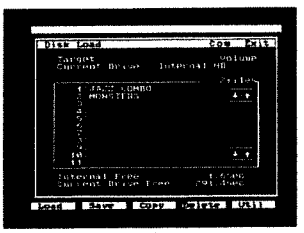
[4] LOADING A VOLUME

When the system starts up, a Volume will automatically be loaded. The following explains how to load a different Volume.

From the Play window (the first window after power up), use the following procedure.

[How to load a Volume]

① Open the Disk Load page.
Com → **Disk** → **Load**



② Make sure that "Current Drive" is set to "Internal HD", use either mouse button to change "Target" to "Volume".

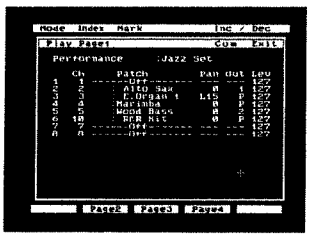
③ Click on the Volume you wish to load.

* If the selected Volume has the same name as the sound data (Sample, Partial, Patch, Performance, Volume) already in the S-770's memory, "Same Name Found !", "Overwrite?" will be displayed (if the Overwrite switch (☞ see page 203) is at the initial setting of Off). If you wish to overwrite the data, click **YES**. (If you wish to cancel, click **No**.)

* By changing the "Target" setting in step ②, you can load other types of sound data (Performances, Patches, Partials, or Samples).

[5] EDITING IN THE PLAY WINDOW

In the Play window (Pages 1 — 4), you can modify the following performance-related settings.



● Set the MIDI channel (Ch : 1 — 16, Off)

You can select a MIDI channel for each Part. Move the cursor to the MIDI channel (ch) of the desired Part and use either mouse button to change the channel. Patches can be layered by setting two or more Parts to the same MIDI channel.

● Select the Patch (Patch : Patch select)

You can select a Patch for each Part. Move the cursor to patch (Patch) of the desired Part and use either mouse button to select a Patch.

If you wish to use a MIDI controller to select S - 770 Patches (via Program Change messages), set "Prog." ON for "Filter 1, 2" in the MIDI window.

● Adjust the Pan settings (Pan : L32 (left) ... 0 (center) ... R32 (right))

The Pan position (stereo field placement) when using the stereo outputs can be set independently for each Part. Move the cursor to the pan (Pan) of the desired Part, and use either mouse button to make the pan setting.

● Output assignments (Out : Off, 1, 2, 3, 4, 5, 6, P)

Independent settings for each Patch determine how it will be output from the individual outputs. Move the cursor to the output setting (Out) for the desired Patch, and use either mouse button to set the output assignment. If you do not wish to use the individual output for a Patch, turn this function Off. When set to "P", the output settings of the Partial (☞see page 134) will be used.

Use the individual outputs when you wish to process the sound of each Patch through a different effect. The S - 770 allows you to set the output (output assign) independently for each Patch, meaning that each Patch can be sent independently from the six individual outputs.

*Patch outputs can also be modified from the Common page in the Edit Patch window (☞ P.122).

● Level adjustment (Lev : 0 — 127)

You can adjust the level of each Part. Move the cursor to level (Lev) of the desired Part and use either mouse button to adjust the level.

If you wish to use control change messages (control number 7: volume data) from a MIDI controller to adjust the level, set "MIDI Vol" ON for MIDI Filter Page 1, 2 (☞ P.112) in the MIDI window. (Initially, this function is ON.)

⑥ PHRASE SAMPLING

Samplers can be used in various ways. They can be used to create and play libraries of instrumental sounds such as contained in the Hard Disk, or they can be used to record and playback entire phrases of a song, just as when using a tape recorder. This second method is known as phrase sampling. In this section, we will take a stereo sample from a CD player, create a Partial, and then create a Patch.

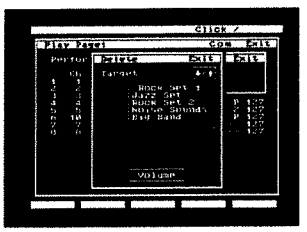
1. Phrase Sampling Procedure

【Before you sample】 When the S - 770 is started up from the Hard Disk, it will automatically load a Volume into the internal memory. In order to ensure enough free memory for long sampling, we will first delete the Volume from internal memory.

＊This operation will not erase the Volume from the Hard Disk.

① Open the Delete window.

Mode → **Performance** → **Edit Performance** → **Com** → **Delete**



② Click on **Volume** to delete it.

【How to record a phrase sample】

① Connect the output jacks of a CD player to the front panel INPUT jacks, making sure that L and R outputs match the L and R inputs.

＊If you will be sampling from the digital input, refer to "Connections with digital I/O DAT or CD" on page 15. Connect the digital output of the CD player to the digital input of the S - 770.

② Open the Sampling page.

Mode → **Sound** → **Edit Sample** → **Smpling**

③ Set the parameters necessary for sampling.

[Examples of parameter settings]

Mode Stereo	Sample in stereo
Orig Key C4	The key to ensure the sample will sound at its recorded pitch : C4 (middle C = note number 60)
Pre - trig 0	When set to 0, recording will begin when the level exceeds the threshold, and pre-triggering will not be used.
Freq (KHz) 44.1	Sampling frequency : 44.1 KHz.
Time 11.2	Sampling time : 11.2 seconds (maximum)
Input Analog	Record from the analog inputs. (When recording from the digital inputs, set this to Digital.)
Type Auto	Automatically begin recording when input begins.
Trigger Level	Audio input will trigger the beginning of recording.
Threshold 5—10	The input level at which recording will begin.
Monitor On	You can monitor the recording from the audio outputs. Analog input is valid.
Digital ATT +3	Normally, set to +3. Digital input is valid.

④ Set a name for the Sample.

Click on **Name**, and the Name window will open, allowing you to name the Sample. In this example, assign the name "TEST".

*If the same name already exists, "Same Name Found" will appear when you attempt to close the window. In this case, assign a different name.

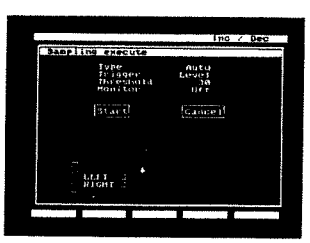
⑤ Adjust the level of the S - 770 input.

Start the CD player. Turn the input sensitivity (SENS) knob completely clockwise to set the input as high as possible. Then adjust the input so that the peak indicators do not light continuosly (this monitors input before digital conversion). Don't worry if they flash periodically.

Next, while watching the screen, rotate the recording level (REC LEVEL) adjustment knob to adjust the recording level. Set the record level as high as possible without having the last segment of the record-level indicators (the red overload segments) light. Since this monitoring display indicates the digital level, distortion will immediately occur if the input level is excessive. If you have rotated the knob completely clockwise, raise the input sensitivity a bit, and try again from the beginning.

*If the sound is distorted when sampling from the digital inputs, adjust the "Digital ATT (Digital Attenuator)" (☞see page 158).

⑥ Click **Ready** to open the Sampling Execute window.

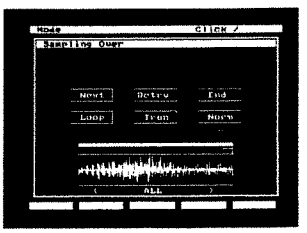


*If you have not assigned a name to the sample, the display will read "Can't Execute. Please Set Name", and you will not be able to open the Sampling Execute window. Click **OK** and try again from step ④.

⑦ Start sampling.

Click **Start**, and the "Wait Trigger" display will appear. Start the CD player, and sampling will begin. When sampling ends, (the monitored sound will stop,) internal processing will begin.

When processing ends, the three switches **Next**, **Retry**, **End** will appear.



Next	Click this to continue recording the next Sample.
Retry	Click this to re-record the Sample.
End	Click this if you have finished sampling.

*The three switches (**Loop**, **Trun**, **Norm**) displayed below the above switches have the same function as the Page switches. Click the desired page to open it, and you can edit the Wave data immediately after sampling.

⑧ Listen to the sampled sound.

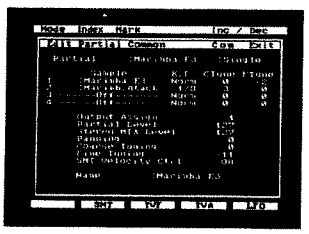
Play the C4 key (middle C) to hear the sampled sound. If the beginning of the Sample has been cut off, increase the Pre-trig setting. If the sound is distorted, lower the recording level (REC LEVEL) adjustment knob to an appropriate level, and click **Retry**. If the Sample is OK, click **End**. If you wish to record another Sample, click **Next** and repeat from step ③.

By following these steps, you have in fact recorded two Samples (L/R, since you sampled in stereo). Be aware, however, that the recorded Sample exists only in the memory, and will be lost if you turn the power off. If you wish to keep the Sample, you must save it (to Hard Disk) as explained in "Save", page 44.

2. Creating a Partial

You can create a Partial by assigning the Sample you just recorded as a phrase sample.

① Open the "Common" page of the Edit Partial window.
Mode → **Sound** → **Edit Partial**



② Select an unused Partial
Move the cursor to **Partial** and use either mouse button to select an unused Partial.

＊Since we deleted the Volume before recording the Sample, you may select any Partial.

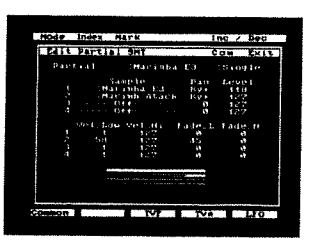
③ Specify a name for the Partial.
Click on **Name**, and the Name window will open. You can now specify a name for the Partial you will be creating.

＊To enter a name, refer to P.33.

④ Assign the Samples to Partials 1 and 2.
Move the mouse cursor to "Off" of Sample 1 and rename it "TEST – L" (the Sample of the left channel). Rename Sample 2 "TEST – R" (the Sample of the right channel). Leave Samples 3 and 4 set to "Off".

＊When you record a stereo Sample, two Samples are actually recorded; L (left) and R (right), and the Samples are automatically given names ending in "- L" and "- R". In this example, we will use these two Samples to create one Partial.

⑤ Make Pan settings for each Sample.
Click **SMT** to select the Sample Mix Table page. Next, move the mouse cursor to "Pan" and set the "Pan" of sample 1 to "L32", and the "Pan" of sample 2 to "R32".



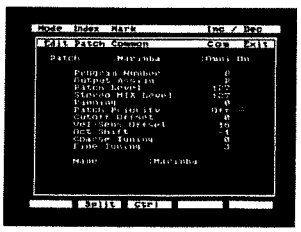
By following these steps you have created a Partial. This data is temporary, and will be lost if you turn the power off. If you wish to keep the data, you must save it (to Hard Disk) as explained in "Save", page 44.

3. Create a Patch

Here's how to use the Partial to create a Patch that can be played from the Play window.

① Open the Common page of the Edit Patch window.

Mode → **Sound** → **Edit Patch**



② Select an unused Patch.

Place the cursor beside "Patch", and use either mouse button to select an unused Patch (a Patch which does not begin with " – :" or end with a numeral). Since we have erased the Volume (and therefore all Patches) before beginning to sample, an unused Patch will already be selected.

③ Specify a name for the Patch.

Click on **Name**, and the Name window will open, allowing you to specify a name for the Patch you will be creating.

＊To assign a name, refer to P.33.

④ Click on **Split** to open the Split page.

＊In this page you can specify the range over which each Partial will sound. This is called the Split function.

⑤ Leave the Partial name displayed, and set "Assign Type" to "Poly".

＊The Partial name is displayed, allowing you to see which Partial is being used.

Partial ***

Assign Type : Poly

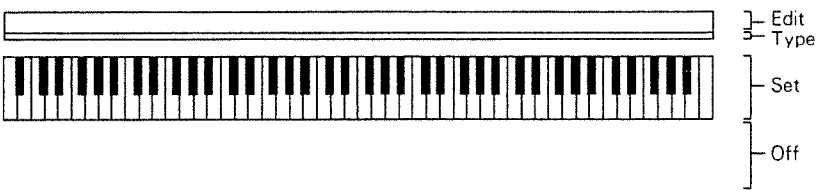
⑥ Specify the keyboard Split (the range over which the Partial will sound).

When you move the cursor onto the keyboard in the display, an auxiliary cursor (red) will appear on the keyboard, and "Info" will be displayed on the lower left of the keyboard.

While holding the right mouse button, move the cursor over the keyboard and "Info" will change to "Set".

While "Set" is displayed (while continuing to hold the right button), move the cursor to the position of the key you wish to specify as one end of the keyboard range, and press the left button. Then, continuing to hold both buttons, move the cursor to the other end of the keyboard range, and release the left button. This will specify the keyboard range over which the Partial will sound. The specified area will be indicated by a red line on the keyboard.

When you move the cursor while pressing the right mouse button, the "Info" display will change to "Edit" above the split display, "Set" on the keyboard, "Off" below the keyboard, and "Type" above the assign type display.



This display indicates the function of the left mouse button. When you hold the right mouse button and press the left mouse button to specify the keyboard range, the currently available operation is displayed as follows.

Set	Sets the keyboard range.
Edit	Increase or decrease the specified keyboard range. To increase the range, begin specifying from inside the current range. To decrease the range, begin specifying from outside the current range.
Off	Decrease or erase the specified keyboard range. If the keyboard range is set Off, there will be no sound.
Type	Broaden or narrow the specified type of assignment (☞P.124).

*If you wish to make split settings for another Partial, change the Partial name in step ⑤ and repeat the procedure of step ⑥. Leave other parameters at their current values.

⑦ When you have finished making Split settings, play the controller to check the results.

Open the Play window, and select the Patch name you just created for Part 1. Set the MIDI channel of Partial 1 to match the MIDI channel transmitted by the controller. When you finish making settings, play the MIDI controller to check the results.

By following these steps you have created a Patch. This data is temporary, and will be lost if you turn the power off. If you wish to keep the data, you must save it (to Hard Disk) as explained in "Save", page 44.

[7] HOW TO FORMAT A FLOPPY DISK

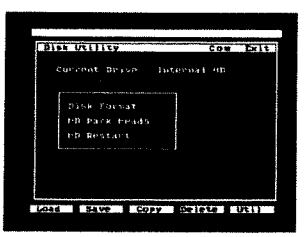
A newly purchased floppy disk or a floppy disk that has been used by another device must be formatted (initialized) before it can be used by the S - 770. When a disk is formatted, all data it may have contained will be erased. Before you erase a floppy disk, please be sure that it does not contain any valuable data.

In order to save edited data, most samplers and computers require a formatted disk. However, the S - 770 is also able to carry out the formatting operation as part of the process of saving data. The save procedure is explained in the following section. Here we will explain how to format a floppy disk.

【How to format a floppy disk】

① Make sure that the protect tab of the floppy disk is set to the WRITE position, and insert the disk into the disk drive (☞see page 10).

② Open the Disk Utility window.
Mode → **System** → **Disk Tools** → **Util**



③ Move the cursor to "Current Drive" and use either mouse button to select [Floppy Disk].

④ Click **Disk Format** to execute formatting.
When formatting is complete, the display will read "Complete".

⑤ Press the eject button and remove the floppy disk.

[8] SAVING SOUND DATA

The sound data you create (or edit) will be lost when the power is turned off. If you wish to keep the data, you must save it to Hard Disk or floppy disk, etc.

It is a good data management practice to save the same data to both floppy disk and Hard Disk, keeping the floppy as a master backup copy and using the Hard Disk for normal use.
Data can be saved either on 2HD or 2DD floppy disks. It is not necessary for the floppy disk to be formatted before saving data; formatting can be done as part of the Save procedure.

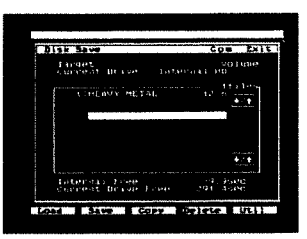
> **Note !!**
> It is only possible to save one piece of sound data (eg. Sample, Patch, Partial, Volume etc.) onto a floppy disk. To save more than one piece of sound data, please prepare a separate disk for each piece. If you attempt to save more than one piece of data to a disk, all existing data on the disk will be overwritten.

*When you Save data, all sound data of levels below the selected type of sound data will also be saved. For example, if you select Patch data to be saved, the Partial and Sample data used by that Patch will also be saved.

[How to save sound data to the current disk]

① Make sure that the protect tab of the floppy disk is set to the WRITE position. Insert the disk into the disk drive (☞see page 10).

② Open the Disk Save window.
Click on **Com** of the page in which you edited the sound data, click on **Disk** of the Command menu, and then click on **Save** .



③ To save the data to floppy disk, move the cursor to "Current Drive" and use either mouse button to select "[Floppy Disk]". To save data to the internal hard disk, select "Internal HD".

④ Move the cursor to "Target" and use either mouse button to select the type of sound data you wish to save.

⑤ From the "Files" area, select the sound data you wish to save.

Click on ↓ / ↑ to scroll the list up or down to display the sound data you wish to save, and click on the desired sound data. The display will indicate the type and number of the sound data being saved. To execute the save process click **YES**. To quit without saving click **NO**. When saving is complete, the display will read "Complete".

*If the amount of data is large and will not fit on a single disk, you will need two or more disks.

If the floppy disk has not been formatted, the following message will appear when you click **YES**. Click **YES** once again and formatting will be executed. After formatting is complete, continue from step ③.

Current Drive is not formatted.

Do you need formatting?

YES **NO**

*To return to the Play window, click the following buttons.

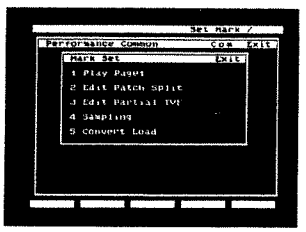
Exit → **Exit** → **Mode** → **Performance** → **Play**

[9] SHORTCUT FUNCTIONS OF THE S-770

The S - 770 has several shortcut functions for speedy and efficient operation.

■ Mark/Jump function

By Marking (assigning) a window for each of the user switches F1 — F5, you can use the Jump function to move directly to a marked (pre-selected) window. By marking windows you use frequently, you can immediately open a marked window regardless of the level you are in.



[How to Mark a window]

① Open the window you wish to mark.
If the window has two or more pages, select the page you wish to mark.

② Click **Mark**, and the Mark Set window will open.

③ Use the mouse to click the User Switch number (F1 — F5) you wish to use for that window.
The marked window name will appear beside the user switch number.

④ When you have finished, click **Exit** to close the user window.

* To mark another window, repeat steps ① — ④
* The marked windows will be stored even when the power is turned off.

[How to Jump to a marked window]

① Move the mouse cursor to a Page switch at the bottom of the display, and press the right mouse button. The window name assigned to that Page switch will appear. (These are called User Switches.)

② Click on the User Switch for the window to which you wish to jump.
When you click, the specified window will open.

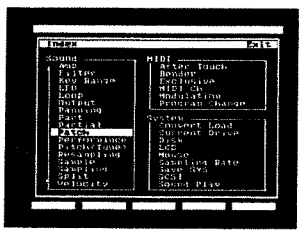
■ Index function

The Index function allows you to open any desired window using a keyword (function name). This is especially convenient when you do not know the directory level in which the desired window is located.

【How to use the Index menu to open a window】

① Click **Index** , and the Index window will open.

A list of alphabetically ordered keywords (classified according to Sound/MIDI/System) will appear.



② Click the keyword of the desired window.

The names of the windows related to the specified keyword will be displayed.

③ Click the desired window name.

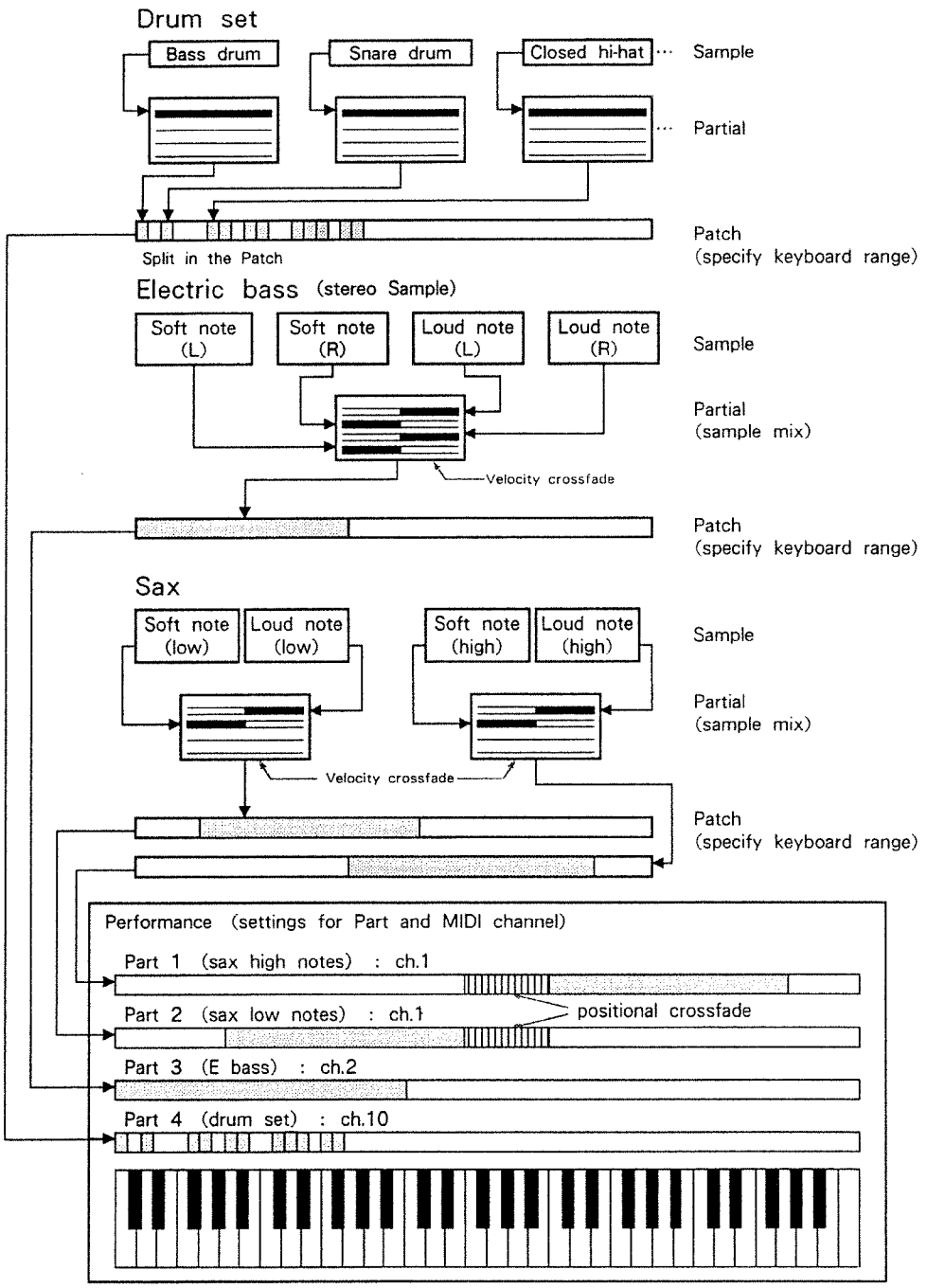
The specified window will open.

* When you close a window that was opened from the Index window, you will return to the window from which the Index window was opened.
* The window names that can be specified by each keyword are listed in the "Index Menu Map" inside the cover of this manual. Remove this sheet from the manual and keep it handy for quick reference.

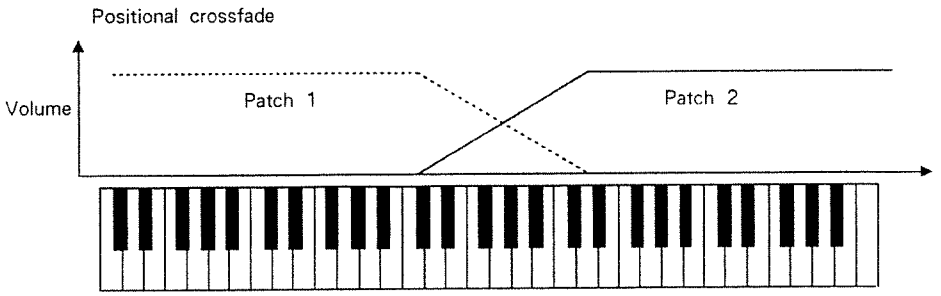
⑩ HOW SOUND DATA IS ORGANIZED

The S - 770 does not simply play back a sampled sound, but allows you to assign two or more multi-sampled sounds to the keyboard, and use key velocity to control the tone of the sounds.

The following diagram shows an example of a Performance using a combination of a drum set, electric bass, and sax. The S - 770 allows you to use two types of split; Normal splits (set by the Patch and Performance) and Positional Crossfades (set by the Performance).



The sax has been created using positional crossfade for two Patches in the Performance. Positional Crossfade is a way of splitting the keyboard range. By crossfading the volume of each Patch around the split point, this makes the tone change smoothly from one Patch to the other.



Splits can be specified in a Patch or in a Performance, but positional crossfades can be specified only in a Performance.

When combining several percussive sounds (such as in a drum set), make split settings in the Patch. When combining sounds of an instruments (such as sax), make positional crossfade settings in the Performance. In this case, make sure to set each Part of the Partial sounds you are combining to the same MIDI channel.

Next we will explain the organization of each type of sound data in more detail.

【Drum set】

Assign each percussive Sample (bass drum, snare, closed hi-hat, etc.) to its own Partial. To create a stereo effect, make pan settings to determine the stereo position of each Partial. Next, specify a keyboard range (a Split) for each of these Partials to create a drum set Patch. Finally, assign the completed drum set Patch to a Part in a Performance.

【Electric bass】

Since the tone of an electric bass differs greatly between soft and loud notes, we will use stereo Samples of both soft and loud notes. (In order to create a richer sound, we will process the output from the bass through a stereo effects device). Next, we assign these four Samples to a Partial. At this time, we use the Sample Mix Table to velocity crossfade (☞ P.137) the loud and soft Samples so that changes in playing velocity will create natural changes in tone. Then we assign this Partial to a Patch and specify the keyboard range, and assign the completed electric bass Patch to a Part in a Performance.

＊If you sample a sound that has already been processed through an effect, you will not need to apply an effect to that sound after it is output from the S - 770. However, if you sample a sound that has been processed through a modulation effect such as chorus or flanger, it will be difficult to get a good loop (☞ P.162). In such cases, sample the unprocessed sound and make loop settings etc., and then add effect processing to the output of the S - 770.

【Sax】

Since the tone of a sax is quite different when played loudly or softly, or in high or low ranges, we will Sample soft and loud sounds for both low and high ranges.
Next, we will assign each set of low and high sounds to a Partial, using a total of two Partials. At this time, we use the Sample Mix Table to velocity crossfade the loud and soft samples so that changes in playing velocity will create natural changes in tone. We assign each Patch to the appropriate keyboard range, and finally combine the two Patches in a Performance. Assign each Patch to a different Part (on the same channel) and positionally crossfade the overlapping range.

＊If the low note Partial and the high note Partial are panned respectively to full left and full right, each note will be heard in a different pan position.

Chapter 3

Basic procedures

Refer to this section as necessary when playing or editing.

① PITCH

The S - 770 allows you to change the pitch using a Pitch Bender (wheel), Aftertouch, or Control Change message. The range of pitch change can be specified for each of these messages. Pitch Bend (up or down) can also be specified independently.

■ To Change the overall pitch (Master tune)

① Open the System PRM 1 window.

Mode → **System** → **System PRM** → **PRM 1**

② Adjust the overall pitch of the S - 770 in steps of 1 cent.

Parameter: Master Tune

Setting: - 50 — +50 (cent)

■ To make incoming note numbers sound in a different octave

① Open the Edit Patch Common window.

Mode → **Sound** → **Edit Patch** → **Common**

② Specify a note shift setting (± 2 octaves).

Parameter: Oct Shift

Setting: - 2 — +2

Application example

For example, if the note shift is set to +1, an incoming note number C4 (note number 60) will sound the pitch of C5 (note number 72). When triggering the S - 770 with sequence data that was originally created using a different sound source, you may find that the sound is an octave too high or low. In such cases, you can use this Octave Shift setting to adjust the pitch without having to edit your sequencer's data.

■ To change the pitch of the Patch

① Open the Edit Patch Common window.

Mode → **Sound** → **Edit Patch** → **Common**

② Adjust the pitch in semi-tone steps.

Parameter: Coarse Tuning

Setting: - 48 — +48

③ Make fine pitch adjustments in 1 cent steps.

Parameter: Fine Tuning

Setting: - 50 — +50

■To adjust the overall pitch of Partials which are included in a Patch

① From the Edit Patch Common Command menu, open the Edit Partial Common window.

Mode → **Sound** → **Edit Patch** → **Common** → **Com** → **Partial** → **Common**

② In order to edit the entire Partial, set the parameter in the upper right of the display to Global (when this is set to Single, you can edit individual Partials)

＊This setting is valid only when this window has been opened from the Patch Command menu.

③ Adjust the overall pitch in semi-tone steps.

Parameter: Coarse Tune

Setting: -48 — +48

④ Make fine pitch adjustments in 1 cent steps.

Parameter: Fine Tune

Setting: -50 — +50

■To adjust the pitch of a Partial

① Open the Edit Partial Common window.

Mode → **Sound** → **Edit Patch** → **Common**

② Adjust the pitch in semi-tone steps. A setting of +1 will raise the pitch a half-step (semi-tone).

Parameter: Coarse Tune

Setting: -48 — +48

③ Make fine pitch adjustments in 1 cent steps.

Parameter: Fine Tune

Setting: -50 — +50 (cent)

■To use Pitch Bend messages to change the pitch

① Open the MIDI Filter Page 1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of Pitch Bend messages on.

Parameter: Bend

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify the Pitch Bend range (Up).

Parameter: Bend Up

Setting: -48 — +48

⑤ Specify the Pitch Bend range (Down).

Parameter: Bend Down

Setting: -48 — +48

The Pitch Bend ranges (up or down) can be set independently. A setting of +48 will result in a pitch change range of 4 octaves.

■To use Aftertouch messages to change the pitch

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn on reception of Aftertouch messages.

Parameter: A.T

Setting: C,P

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify the maximum pitch change to be caused by Aftertouch.

Parameter: A.T Pitch Ctrl

Setting: -48 — +48

■To use Control Change messages to change the pitch

① Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

② Select the desired Control Change number.

Parameter: Ctrl Select

Setting 1 — 95

③ Specify the maximum pitch change to be caused by the Control Change.

Parameter: Ctrl Pitch Ctrl

Setting: -48 — +48

■To correct the pitch difference of a Sample Loop

Occasionally it may happen that the pitch before the loop point is slightly different than the pitch after the loop point. In such cases, you can adjust the Loop Tuning to correct the difference in pitch.

① Open the Edit Sample Loop window.

Mode → **Sound** → **Edit Sample** → **Loop**

② Adjust the Loop Tuning.

Parameter: Loop Tuning

Setting: -50 — +50

③ Adjust the Release Loop Tuning.

Parameter: R-Loop Tuning

Setting: -50 — +50

■To use Aftertouch messages to change the Vibrato depth for a Patch

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn on reception of Aftertouch messages.

Parameter: A.T

Setting ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how much Aftertouch will affect the Pitch Modulation.

Parameter: A.T LFO Pitch Depth

Setting: -63 — +63

■To use Modulation messages to change the Vibrato depth for a Patch

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn on reception of Modulation messages.

Parameter: Mod

Setting ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how much Modulation will affect the Pitch Modulation.

Parameter: Mod LFO Pitch Depth

Setting: -63 — +63

■To use Control Change messages to change the Vibrato depth for a Patch

① Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

② Select the desired Control Change number.

Parameter: Ctrl Select

Setting: 1 — 128

③ Specify how Control Change messages will affect Pitch Modulation depth.

Parameter: Ctrl LFO Pitch Depth

Setting: -63 — +63

Increasingly positive (+) settings will result in increased Pitch Modulation. Increasingly negative (-) settings will result in decreased Pitch Modulation.

■To set the Vibrato depth of a Partial

It is possible to apply Pitch Modulation from the beginning of the sound data.

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of Modulation messages on.

Parameter: Mod

Setting: ○

③ Open the Edit Partial LFO window.

Mode → **Sound** → **Edit Partial** → **LFO**

④ Set the depth of Pitch Modulation.

Parameter: Pitch Mod Depth

Setting: -63 — +63

■To set the Vibrato depth for the entire Patch

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of Modulation messages on.

Parameter: Mod

Setting: ○

③ Open the Edit Partial Common window from the Edit Patch Command menu. (This will allow you to edit the entire Partial)

Mode → **Sound** → **Edit Patch** → **Common** → **Com** → **Partial** → **Common**

＊This setting is valid only when this window has been opened from the Patch Command menu.

④ Change the parameter (setting:Single/Global) in the upper right of the display to read ":Global".

⑤ Set the depth of Pitch Modulation.

Parameter: Pitch Mod Depth

Setting: -50 — +50 (cent)

＊Higher settings will cause deeper modulation. This setting will result in Pitch Modulation being constantly applied to the sound. Negative (-) settings will result in modulation of opposite phase to positive (+) settings.

[2] TONE

■To modify TVF settings to change the tone

① Open the Edit Partial TVF window.

Mode → **Sound** → **Edit Partial** → **TVF**

② You can adjust the each parameter to change the tone (☞P.140).

The S - 770 allows you to select one of three types of filter (Low pass filter, High pass filter, Band pass filter), and make settings for envelope and resonance. This not only allows you to make subtle adjustments in tone, but also to actively create sounds just as on a synthesizer.

■To adjust the Cutoff Frequency for each Patch

① Open the Edit Patch Common window.

Mode → **Sound** → **Edit Patch** → **Common**

② Adjust the Cutoff Frequency of the Patch.

Parameter: Cutoff Offset

Setting: - 63 — 63

This setting allows you to adjust the Cutoff Frequency of the entire Patch without having to adjust the Cutoff Frequency of each Partial. (The Cutoff Frequency is the frequency at which the filter begins to diminish the sound.)

■To use Pitch Bend messages to change the TVF Cutoff Frequency

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn the reception of Pitch Bend messages for each channel on.

Parameter: Bend

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Set the maximum change in the Cutoff Frequency that will be caused by Pitch Bend messages.

Parameter: Bend TVF Ctrl

Setting: - 63 — +63

By applying a Pitch Bend, you can change the tone as well as the pitch.

■To use Aftertouch messages to change the TVF Cutoff Frequency

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Set the Aftertouch parameter of the Part.

Parameter: A.T

Setting: C,P

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Set the maximum change in TVF Cutoff Frequency that will be caused by Aftertouch messages.

Parameter: A.T TVF Ctrl

Setting: -63 — +63

■To use Aftertouch messages to change the TVF Cutoff Frequency

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Set the Aftertouch parameter of the Part.

Parameter: A.T

Setting: C,P

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Set the depth of change in Cutoff Frequency that will be caused by Aftertouch messages.

Parameter: A.T LFO TVF Depth

Setting: -63 — +63

■To use Modulation messages to change the TVF Cutoff Frequency

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of Modulation messages on.

Parameter: Mod

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Set the depth of change in Cutoff Frequency that will be caused by Modulation messages.

Parameter: Mod LFO TVF Depth

Setting: -63 — +63

■To use Control Change messages to change the TVF Cutoff Frequency

① Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

② Select the desired Control Change number.

Parameter: Ctrl Select

Setting: 1 — 95

③ Set the maximum change that will be caused by the selected Control Change message.

Parameter: Ctrl TVF Ctrl

Setting: -63 — +63

■To use Control Change messages to change the depth of the Cutoff Frequency Modulation from the LFO

① Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

② Select the desired Control Change number.

Parameter: Ctrl Select

Setting: 1 — 95

③ Specify the depth of change in Cutoff Frequency Modulation that will be caused by the selected Control Change message.

Parameter: Ctrl LFO TVF Depth

Setting: -63 — +63

[3] VOLUME

Volume can be controlled by Level Envelope settings, or by using a controller while playing. Your playing will be more musically expressive if you change the mixture of sounds to modify the tone.

■ To equalize volume differences between Patches

① Open the Edit Patch Commom window.

Mode → **Sound** → **Edit Patch** → **Common**

② Move the cursor to the right of "Patch" and use the mouse buttons to select the Patch you wish to edit.

③ Adjust the volume of the Patch.

Parameter: Patch Level

Setting: 0 — 127

＊Repeat steps ② and ③ to reduce the volume differences between each Patch.

■ To use Pitch Bend messages to change the volume

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of Pitch Bend messages on.

Parameter: Bend

Setting: ○

③ Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how Pitch Bend messages will affect the overall volume of the Partials used in the Patch.

Parameter: Bend TVA Ctrl

Setting: -63 — +63

■ To use Aftertouch messages to change the volume

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of Aftertouch messages on.

Parameter: A.T

Setting: ○

③ Specify the range of volume change that will be caused by Aftertouch messages.

Parameter: A.T TVA Ctrl

Setting: -63 — +63

■To use Aftertouch messages to change the Tremolo depth

① MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of Aftertouch messages on.

Parameter: A.T

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify the range of change in Tremolo depth that will be caused by Aftertouch messages.

Parameter: A.T LFO TVA Depth

Setting: -63 — +63

■To use Modulation messages to change the Tremolo depth

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of Modulation messages on.

Parameter: Mod

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify the range of change in Tremolo depth that will be caused by Modulation messages.

Parameter: Mod LFO TVA Depth

Setting: -63 — +63

■To use Control Change messages to change the Tremolo depth

① Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

② Specify the Control Change number.

Parameter: Ctrl Select

Setting: 1 — 95

③ Specify the range of change in Tremolo depth that will be caused by Control Change messages.

Parameter: Ctrl LFO TVA Depth

Setting: -63 — +63

■To use Pitch Bend, Modulation, Aftertouch, or Control Change messages to change the way in which Samples are mixed

① Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

② Specify which Controller will be used to mix the Samples.

Parameter: SMT Ctrl Sel

Setting: Bend,A.T,Mod,Ctrl

③ Specify how greatly this will affect SMT (Sample Mix Table).

Parameter: SMT Ctrl Sens

Setting: -63 — +63

④ Open the Edit Partial Common window.

Mode → **Sound** → **Edit Partial** → **Common**

⑤ Turn the Velocity Control of SMT off.

Parameter: Velocity Ctrl

Setting: Off

⑥ Open the Edit Partial SMT window.

Mode → **Sound** → **Edit Partial** → **SMT**

⑦ Use the Sample Mix Table to specify how the tone will change. (For details refer to page 137.)

■To use velocity to change the mixture of Samples assigned to the Partial

① Open the Edit Partial Common window.

Mode → **Sound** → **Edit Partial** → **Common**

② Turn the Velocity Control of SMT on.

Parameter: Velocity Ctrl

Setting: On

③ Open the Edit Partial SMT window.

Mode → **Sound** → **Edit Partial** → **SMT**

④ Use the Sample Mix Table to specify how the tone will change. (For details refer to page 137.)

■To change the volume level of a Partial

① Open the Edit Partial Common window.

Mode → **Sound** → **Edit Partial** → **Common**

② Set the volume level of the Partial.

Parameter: Partial Level

Setting: 0 — 127

■To change Partial volume levels from the STEREO output

① Open the Edit Partial Common window.

Mode → **Sound** → **Edit Partial** → **Common**

② Specify the point at which the two Partial levels will be output from STEREO output.

Parameter: Stereo MIX Level

Setting: 0 — 127

■To set the TVA envelope of a Partial

① Open the Edit Partial TVA window.

Mode → **Sound** → **Edit Partial** → **TVA**

② Specify the volume envelope of the Partial.

Parameter: Time 1,2,3,4

Setting: 0 — 127

Parameter: Level 1,2,3,4

Setting: 0 — 127

■To add Tremolo to a Partial

You can add Tremolo effect by using the LFO.

① Open the Edit Partial LFO window.

Mode → **Sound** → **Edit Partial** → **LFO**

② Specify the depth of Tremolo.

Parameter: TVA Mod Depth

Setting: -63 — 63

LFO

A single LFO can be used to apply Tremolo (amplitude modulation), Wah-wah (filter modulation), and Vibrato (pitch modulation) to a Partial. While playing, you can use controllers to adjust the depth of the various types of modulation, or change the frequency of the LFO. This permits more expressive performances.

[4] PAN

The S - 770 allows you to set the stereo position (pan) independently for each Sample.

■To adjust the Pan of a Patch

You can set the overall Pan position while leaving the Pan settings of a Partial unchanged.

① Open the Edit Patch Common window.

Mode → **Sound** → **Edit Patch** → **Common**

② Specify the overall Pan position.

Parameter: Panning

Setting: L32 — 0 — R32

■To pan the stereo Samples (two Samples) to left and right respectively

① Open the Edit Partial Common window, and give a name to an unused Partial.

Mode → **Sound** → **Edit Partial** → **Common**

② Enter the name.

Parameter: Name

Setting: Specify any name you desire.

③ Specify the Samples (two Samples; L, R) of which the Partial consists.

Parameter: Sample 1

Setting: The Sample name you specified, with an "-L" at the end of the name.

Parameter: Sample 2

Setting: The Sample name you specified, with an "-R" at the end of the name.

＊Leave the remaining two parameters (Samples 3 and 4) as they are.

④ Click on **SMT** to open the Edit Partial SMT page, and specify the Pan position for each Sample. Here you will Pan the stereo Samples to left and right respectively.

Parameter: Pan setting of Sample 1

Setting: L32

Parameter: Pan setting of Sample 1

Setting: R32

■To change the overall Pan position of a Partial

You can adjust the overall Pan position to left, center or right, while leaving the Pan position specified in the Edit Partial SMT for each Sample unchanged.

① Open the Edit Partial Common window.

Mode → **Sound** → **Edit Partial** → **Common**

② Specify the overall panning of the Partial.

Parameter: Panning

Setting: L32 — Center(0) — R32

5 OUTPUT

An INDIVIDUAL output can be specified independently for each Patch or Partial (The sound will be output from the STEREO outputs unless otherwise specified).

■To change the output of a Patch (send it to an INDIVIDUAL output)

① In Edit patch, open the Edit Patch Common window.

Mode → **Mode** → **Sound** → **Edit Patch** → **Common**

② Select the Patch for which you wish to change the output.

Place the cursor to the right of "Patch", and use the mouse buttons to change the setting.

③ Specify the output of the Patch.

Parameter: Output Assign

Setting: Off,1,2,3,4,5,6,P

＊If this parameter is set to "P" (Partial), the output which has been specified for the Partial will be used.

＊If this parameter is set "Off", the sound will be output only from the STEREO output.

■To output each percussive sound of a drum Patch from an INDIVIDUAL output (create a Patch with independent output for each Partial)

If the output of a drum Patch is specified for the entire Patch, the same INDIVIDUAL output will be used for all sounds. This can be inconvenient when you need to process individual sounds through different effects. For such cases, you may assign an output for each individual Partial.

① In Edit Partial, open the Edit Partial Common window.

Mode → **Mode** → **Sound** → **Edit Partial** → **Common**

② Select the Partial for which you wish to set the output.

Place the cursor to the right of "Partial", and use the mouse buttons to change the setting.

③ Specify the output of the Partial.

Parameter: Output Assign

Setting: 1,2,3,4,5,6

Steps ① — ③ alone will not make the sound appear at the INDIVIDUAL output specified by the Partial. You must use the Partials of the Patch (for which you have assigned outputs) to create a split, and set the Output Assign of the Patch to "P" (Partial).

④ In the Patch, split the Partials for which you have assigned the output.

If the Partials assigned to the Patch have already been split, continue to step ⑤.

＊In the Edit Patch Common window, assign a name to the Patch you will be splitting. Use Edit Patch Split to split the Partials. (For details refer to page 124.)

⑤ In Edit Patch, open the Edit Patch Common window.

Mode → **Sound** → **Edit Patch** → **Common**

⑥ Select a drum Patch (for which you have specified an output for each Partial)

Move the cursor to the right of "Patch", and use the mouse buttons to change the setting.

⑦ Set the Output Assign of the Patch to "P" (Partial).

Parameter: Output Assign

Setting: P

■To output a Patch from an INDIVIDUAL output (not from the STEREO output)

① Open the Edit Patch Commom window.

Mode → **Sound** → **Edit Patch** → **Common**

② Move the cursor to the right of "Patch", and use the mouse buttons to select the Patch you wish to edit.

③ Specify the INDIVIDUAL output (1 — 6).

Parameter: Output Assign

Setting: Off,1 — 6,P

＊If this parameter is set to "P", the INDIVIDUAL output specified by the Partial will be used.

＊If this parameter is set to "Off", the STEREO output will be used, and not the specified INDIVIDUAL output.

④ Set the stereo output volume of the Patch. If this is set to "0", the sound will be output from the INDIVIDUAL output only.

Parameter: Stereo MIX Level

Setting: 0 — 127

[6] VELOCITY

Settings can be made to allow keyboard playing dynamics to control the tone by modifying the Filter Cutoff Frequency, or changing the way in which Samples are mixed.

■To use a different velocity curve for each MIDI Channel (to suit the MIDI controlling device)

Some MIDI controllers may differ in the velocity data they transmit according to changes in playing dynamics. In such cases, you can adjust the settings of the S - 770 to accommodate the controller you are using.

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Select the type of Velocity Curve. (When - is selected, there will be no adjustment of velocity.)

Parameter: Vel (Vel Curve Type)

Setting: -,1,2,3,4,5,6,7

③ Open the Edit Patch Common window.

Mode → **Sound** → **Edit Patch** → **Common**

④ Adjust the Velocity Sensitivity of the Patch.

Parameter: Vel - Sens Offset

Setting: -63 — 63

■To use velocity to control the mixing of Samples

① Open the Edit Partial Common window.

Mode → **Sound** → **Edit Partial** → **Common**

② Turn reception of velocity data on.

Parameter: Velocity Ctrl

Setting: ○

③ Open the Edit Partial SMT window.

Mode → **Sound** → **Edit Partial** → **SMT**

④ Make settings for the Sample Mix Table to determine how the sound will change. (For details refer to page 137.)

■To use velocity to change the TVF Cutoff Frequency

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Select the type of Velocity Curve.

Parameter: Vel (Vel Curve Type)

Setting: -,1,2,3,4,5,6,7

③ Open the Edit Patch Common window.

Mode → **Sound** → **Edit Patch** → **Common**

④ Adjust the Velocity Sensitivity.

Parameter: Vel-Sens Offset

Setting: -63 — 63

⑤ From the Edit Patch window, open the Edit Partial TVF.

Mode → **Sound** → **Edit Patch** → **Com** → **Partial** → **TVF**

⑥ Change the ":Single" in the upper right of the display to read ":Global".

⑦ Select the type of Velocity Curve.

Parameter: Vel Curve Type

Setting: 1,2,3,4

⑧ Adjust the velocity response for within a Partial.

Parameter: Vel Curve Ratio

Setting: -63 — 63

⑨ Specify the range over which velocity data will change the Cutoff Frequency.

Parameter: Cutoff Vel Sens

Setting: -63 — +63

《TVF settings for a Partial which has not been split in a Patch》

① Open the Edit Partial TVF window.

Mode → **Sound** → **Edit Partial** → **TVF**

② Specify the Velocity Curve.

Parameter: Vel Curve Type

Setting: 1,2,3,4

③ Adjust the velocity response for within a Partial.

Parameter: Vel Curve Ratio

Setting: -63 — 63

④ Specify the range over which velocity data will change the Cutoff Frequency.

Parameter: Cutoff Vel Sens

Setting: -63 — +63

■To use velocity to change the attack of the TVF envelope

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Select the type of Velocity Curve.

Parameter: Vel (Vel Curve Type)

Setting: -,1,2,3,4,5,6,7

③ Open the Edit Patch Common window.

Mode → **Sound** → **Edit Patch** → **Common**

④ Adjust the velocity response.

Parameter: Vel-Sens Offset

Setting: -63 — 63

⑤ From the Edit Patch window, open the Edit Partial TVF window.

Mode → **Sound** → **Edit Patch** → **Com** → **Partial** → **TVF**

⑥ Change the ":Single" in the upper right of the display to read ":Global".

⑦ Select the type of Velocity Curve.

Parameter: Vel Curve

Setting: 1,2,3,4

⑧ Specify how velocity will affect Cutoff Frequency.

Parameter: Vel Sens

Setting: -63 — 63

⑨ Specify how velocity will affect the attack of the envelope.

Parameter: Time Vel Sens

Setting: -63 — +63

For positive (+) settings, increased velocity will result in a faster envelope attack. For negative (-) settings, increased velocity will result in a slower envelope attack.

《 When making TVF settings for a Partial which has not been split in a Patch》

① Open the Edit Partial TVF window.

Mode → **Sound** → **Edit Partial** → **TVF**

② Select the type of Velocity Curve.

Parameter: Vel Curve Type

Setting: 1,2,3,4

③ Specify how velocity will control the Cutoff Frequency.

Parameter: Vel C.Sens

Setting: -63 — 63

④ Specify how velocity will affect the attack of the envelope.

Parameter: Time Vel Sens

Setting: -63 — +63

■To use velocity to change the Volume

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Specify the type of Velocity Curve.

Parameter: Vel (Vel Curve Type)

Setting: -,1,2,3,4,5,6,7

③ Open the Edit Patch Common window.

Mode → **Sound** → **Edit Patch** → **Common**

④ Adjust the Velocity Sensitivity.

Parameter: Vel-Sens Offset

Setting: -63 — +63

⑤ From the Edit Patch window, open the Edit Partial TVF window.

Mode → **Sound** → **Edit Patch** → **Com** → **Edit Partial** → **TVA**

⑥ Change the ":Single" in the upper right of the display to ":Global".

⑦ Select the type of Velocity Curve.

Parameter: Vel-Curve

Setting: 1,2,3,4

⑧ Adjust the slope of the Velocity Curve.

Parameter: Vel-Sens

Setting: -63 — +63

《When making TVA settings for a Partial which has not been split in a Patch》

① Open the Edit Partial TVA window.

Mode → **Sound** → **Partial** → **TVA**

② Select the type of Velocity Curve.

Parameter: Vel Curve type

Setting: 1,2,3,4

③ Adjust the slope of the Velocity Curve.

Parameter: Vel Curve Sens

Setting -63 — +63

■To use velocity to change the attack of the TVA envelope

① Open the MIDI Filter Page1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Select the type of Velocity Curve.

Parameter: Vel (Vel Curve Type)

Setting: -,1,2,3,4,5,6,7

③ Open the Edit Patch Common window.

Mode → **Sound** → **Edit Patch** → **Common**

④ Adjust the velocity sensitivity.

Parameter: Vel-Sens Offset

Setting: -63 — +63

⑤ From the Edit Patch window, open the Edit Partial TVA window.

Mode → **Sound** → **Edit Patch** → **Com** → **Partial** → **TVA**

⑥ Change the ":Single" in the upper right of the display to ":Global".

⑦ Select the type of Velocity Curve.

Parameter: Vel-Curve

Setting: 1,2,3,4

⑧ Adjust the slope of the Velocity Curve.

Parameter: Vel-Sens

Setting: -63 — +63

⑨ Specify how the speed of the attack will be related to the volume.

Parameter: Time Vel Sens

Setting: -63 — +63

《When making TVA settings for a Partial which has not been split in a Patch》

① Open the Edit Partial TVA window.

Mode → **Sound** → **Partial** → **TVA**

② Select the type of Velocity Curve.

Parameter: Vel Curve

Setting: 1,2,3,4

③ Adjust the slope of the Velocity Curve.

Parameter: Vel Curve Sens

Setting: -63 — +63

④ Specify how the speed of the attack will be related to the volume.

Parameter: Time Vel Sens

Setting: -63 — +63

7 SPLIT

■ To split a Patch

① Open the Edit Patch Split window.

Mode → **Sound** → **Edit Patch** → **Split**

② Move the cursor to "Partial" and use the mouse buttons to select the Partial you wish to split.

③ Specify the Assign Type of the Partial.

Parameter: Assign Type

Setting: Mono,Poly

④ Assign the split (the keyboard range of the Partial) to the keyboard.

Specify the keyboard range of the Partial from "L.P" to "U.P". The Partial will sound between the two specified points.

○To specify the lower limit of the area

Parameter: L.P

Setting: A0 — C8

○To specify the upper limit of the area

Parameter: U.P

Setting: A0 — C8

＊It is also possible to specify splits using the mouse or MIDI keyboard. (For details refer to page 126.)

⑤ Click **Set**.

⑥ Listen to the sound to check whether the split settings are correct.

Place the mouse cursor over the keyboard, and press the left button to sound the note. Or, if a keyboard is connected, you may play the keyboard.

■ To split a Performance to create a velocity crossfade effect

① Open the Edit Performance Page 1 — 4 window (the parameters occupy four pages)

Mode → **Performance** → **Edit Performance** → **Page1 — 4**

② Move the cursor to "Patch" of the Part you wish to be affected by a velocity crossfade, and use the mouse buttons to assign the Patch.

③ Set all Parts specified in ② to the same MIDI Channel.

Parameter: Ch

Setting: 1 — 16,Off

④ Set the keyboard range for each Part.

Specify the keyboard range of the Part from "L.P" to "U.P". Each Part will sound between the two specified points.

○To specify the lower limit of the area

Parameter: L.P

Setting: A0 — C8

○To specify the upper limit of the area

Parameter: U.P

Setting: A0 — C8

⑤ Specify the range over which the crossfade will occur.

This setting allows you to fade the upper and lower limits of the keyboard area. Appropriate settings of this function allow you to create Positional Crossfades between Parts.

○ Set the range from which to fade the Low Point (L.P)

Parameter: L.W

Setting: U.P — L.P (L.W)

○ Set the range from which to fade the Upper Point (U.P)

Parameter: U.W

Setting: U.P — L.P (L.W)

[8] SAMPLING/TRUNCATE

■ To record a Sample

① Connect the output of a CD player (DAT or other signal source) to the front panel inputs, making sure that L and R inputs are correct.

② Open the Sampling window.

Mode → **Sound** → **Edit Sample** → **Sampling**

③ Set the parameters necessary for sampling.

○ Select Stereo or Mono sampling

Parameter: Mode

Setting: Stereo,Mono

○ Specify the key pitch for playback

Parameter: Orig Key

Setting: A0 — C8

○ Select the sampling frequency

Parameter: Freq

Setting: 44.1,22.05,48,24

○ Specify the sampling time

Parameter: Time

Setting: this will depend on the amount of memory available for sampling

○ Pre trigger setting

Parameter: Pre-trig.

Setting: .00 — .10

○ Specify whether to Sample from the analog inputs or from the digital inputs

Parameter: Input

Setting: Analog,Digital

○ Specify the sampling method

Parameter: Type

Setting: Auto,Manual,Prev,1 way

○ Specify how recording will be triggered

Parameter: Trigger

Setting: Level,MIDI,Pedal

＊For auto-sampling, set this to "Level".

○ Specify whether or not to monitor the sound from the analog inputs

Parameter: Monitor

Setting: On,Off

○ Specify the volume level at which to start sampling

Parameter: Threshold

Setting: 0 — 127

○ Specify the input level by Digital Attenuater

Parameter: Digital ATT

Setting: +3,0,-3,-6

④ Assign a name of up to twelve characters to the Sample you will be recording.

⑤ Use the Input Sensitivity knob and the Input Level Adjustment knob to adjust the (analog) input level of the S - 770.

＊Set the Digital ATT to adjust the (digital) input level of the Digital I/O.

⑥ Click **Ready** to open the Sampling Execute window.

⑦ Click **Start**. Sampling will start, and internal processing will begin. When processing ends, the following three commands will be displayed: **Next**, **Retry**, **End**.

⑧ Check the Sampled sound.

Play C4 (middle C) of a connected keyboard controller to check the sound.

＊If you wish to continue sampling, click **Next** and repeat the procedure from step ③. If you wish to re-record the Sample, click **Retry** and repeat the procedure from step ③. If you wish to quit sampling, click **End**.

■To truncate a Sample

① Open the Edit Sample Truncate window.

Mode → **Sound** → **Edit Sample** → **Trun**

② Specify the Editing Mode.

If the Sample has been recorded in stereo, select "Stereo". If you wish to set loop points independently, select "Mono".

③ Specify the Fade Length.

Parameter: Fade Len

Setting: This will depend on the Sample.

④ Click **Execute** and the Sample will be truncated.

＊If you wish to create backup data as a precaution, click **+Backup**.

[9] LOOPING/SMOOTHING

■ To Loop the Sampled wave data

① Open the Edit Sample Loop window.

Mode → **Sound** → **Sample** → **Loop**

② Specify the Looping Mode.

For normal loops, select "Forward". For long loops, select "Alt". For percussive instruments or phrase sampling, select "Oneshot". If you wish to use release looping, select "R-Loop".

③ Specify the Edit Mode.

④ If the Sample has been recorded in stereo, select "Stereo". If you wish to set looping points independently, select "Mono".

⑤ Specify the Key On Mode.

Normally you will select "Start".

⑥ Set the display type to "Point".

⑦ Set both "X, Y-Zoom" to "X1".

⑧ Play the Sample using the [SOUND] button on the front panel or a connected keyboard controller. As you listen to the sound, move the cursor to "End" and press the left mouse button to slide the end point back to a location where the sound becomes stable.

⑨ If Pre-trigger (etc.) has recorded a blank gap at the beginning of the Wave data, move the start point back so that the sound will begin immediately.

At this time, it will be helpful to adjust "X-Zoom" to a suitable ratio.

⑩ Set the display type to "Loop", and set "X-Zoom" to "1".

⑪ Move the cursor to "Loop". Press and hold the left mouse button to move the loop point from the end point towards the start point. While playing the sound, move the loop point to a point where no clicking sound is heard. If looping noise is heard (even though the pitch is the same), move the end point forward or backward.

Parameter: Loop

0 — End Point

■ To Smooth the wave data

Smoothing can be used when the Loop Mode is either FWD or FWD+R.

① Open the Edit Sample Smoothing window.

Mode → **Sound** → **Sample** → **Loop** **Smooth**

② In the case of a stereo sample, select the Edit Mode.

Parameter: Edit Mode

Setting: Stereo,Mono

③ Specify the Key On Mode.

Normally you will select "Start".

④ Set the Loop Smoothing Length.

Parameter: Loop Smoothing Length

Setting: 0 — start point

＊If necessary, smooth the release loop as well. Make fairly long settings for both.

⑤ Click on **Execute**.

＊If you wish to keep a backup in case of accidents, click **+Backup**.

⑩ MIDI CHANNELS

■To change the MIDI Channel of a Part

① Open the Play Page 1 — 4 window (parameters occupy four pages).

Mode → **Performance** → **Play** → **Page1 — 4**

OR

② Open the Edit Performance Page 1 — 4 window (parameters occupy four pages).

Mode → **Performance** → **Edit Performance** → **Page1 — 4**

③ Set the MIDI Channel for each Part.

Parameter: MIDI Ch

Setting: 1 — 16

■To use Program Change messages to select Performances or Volumes

These settings allow you to select a Performance or Volume using a Program Change message transmitted on the Control Channel.

① Open the MIDI Config window.

Mode → **System** → **MIDI** → **Config**

② Select the Control Mode. If you wish to select Performances, select "Perform Only". If you wish to select Performances and Volumes, select "Perform/Volume".

Parameter: Control Mode

Setting: Perform Only,Perform/Volume

③ Specify the Control Channel.

Parameter: Control Channel

Setting: 1 — 16

④ Set the Unit Number to match the MIDI controller.

Parameter: Unit Number

Setting: 1 — 32

⑤ Tranmit a Program Change message from the MIDI controller on the Control Channel.

When Perform Only is selected:

Pg.#	1	2	3	4	···	63	64	65	66	···	128
Sound data	P1	P2	P3	P4	···	P63	P64	–	–		–

P : Performance
– : No use

When Perform/Volume is selected:

Pg.#	1	2	3	4	···	63	64	65	66	···	128
Sound data	P1	P2	P3	P4	···	P63	P64	V1	V2	···	V64

P : Performance
V : Volume

⑪ PITCH BEND

■To use the Pitch bend lever (wheel) to change the volume

① Open the MIDI Filter 1, 2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of Pitch Bend messages on.

Parameter: Bend

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Use Pitch Bend messages to control the overall volume of the Partials used by the patch.

Parameter: Bend TVA Ctrl

Setting: -63 — +63

■To use the Pitch bend lever (wheel) to change the Cutoff Frequency

① Open the MIDI Filter 1, 2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of Pitch Bend messages on.

Parameter: Bend

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how Pitch Bend messages will affect the Cutoff Frequency.

Parameter: Bend TVF Ctrl

Setting: -63 — +63

⑫ AFTERTOUCH

■ To use Aftertouch messages to change the pitch

① Open the MIDI Filter 1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Select either Channel Aftertouch (Channel) or Polyphonic Aftertouch (Poly).

Parameter: A.T

Setting: C,P

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how Aftertouch messages will affect the pitch of the Partial being controlled.

Parameter: Pitch Ctrl (AT.Pitch Contrl)

Setting: -48 — +48

■ To use Aftertouch messages to change vibrato

① Open the MIDI Filter 1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Select either Channel Aftertouch (Channel) or Polyphonic Aftertouch (Poly).

Parameter: A.T

Setting: C,P

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how Aftertouch messages will affect the LFO speed of the Partial being controlled.

Parameter: LFO Rate Ctrl

Setting: -63 — +63

⑤ Specify how Aftertouch messages will affect the depth of vibrato.

Parameter: LFO Pitch Depth (AT.LFO Pitch Depth)

Setting: -63 — +63

■ To use Aftertouch messages to change the volume

① Open the MIDI Filter Page 1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Select either Channel Aftertouch (Channel) or Polyphonic Aftertouch (Poly).

Parameter: A.T

Setting: C,P

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how Aftertouch messages will affect the depth of level modulation.

Parameter: TVA Ctrl (AT.TVA Ctrl)

Setting: -63 — +63

■To use Aftertouch messages to change the depth or speed of Tremolo

① Open the MIDI Filter Page 1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of data on.

Parameter: A.T

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how Aftertouch messages will affect the LFO frequency.

Parameter: LFO Rate Ctrl (AT.LFO Rate Ctrl)

Setting: -63 — +63

⑤ Specify how Aftertouch messages will affect the depth of amplitude modulation.

Parameter: LFO TVA Depth (AT.LFO TVA Depth)

Setting: -63 — +63

■To use Aftertouch messages to controll the filter modulation

① Open the MIDI Filter Page 1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of data on.

Parameter: A.T

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how Aftertouch messages will affect the LFO frequency.

Parameter: LFO Rate Ctrl (AT.LFO Rate Ctrl)

Setting: -63 — +63

⑤ Specify how Aftertouch messages will affect the depth of filter modulation.

Parameter: LFO TVF Depth (AT.LFO TVF Depth)

Setting: -63 — +63

■To use Aftertouch messages to control the TVF Cutoff Frequency

① Open the MIDI Filter 1, 2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of data on.

Parameter: A.T

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how Aftertouch messages will affect the depth of Cutoff Frequency.

Parameter: TVF Ctrl (AT.TVF Ctrl)

Setting: -63 — +63

[13] MODULATION

■To use Modulation messages to change the depth of vibrato

① Open the MIDI Filter Page 1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception for Modulation messages on.

Parameter: Mod (Modulation)

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how Modulation messages will affect the speed of the Partial LFO.

Parameter: LFO Rate Ctrl (Mod LFO Rate Ctrl)

Setting: -63 — +63

⑤ Specify how Modulation messages will affect the depth of viblato for the LFO being controlled.

Parameter: LFO Pitch Depth (Mod LFO Pitch Depth)

Setting: -63 — +63

■To use Modulation messages to change the depth of filter modulation

① Open the MIDI Filter Page 1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception for Modulation messages on.

Parameter: Mod (Modulation)

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how Modulation messages will affect the LFO frequency.

Parameter: LFO Rate Ctrl (Mod LFO Rate Ctrl)

Setting: -63 — +63

⑤ Specify the maximum width of LFO Cutoff Frequency modulation that will be controlled by Modulation messages.

Parameter: LFO TVF Depth (Mod LFO TVF Depth)

Setting: -63 — +63

■To use Modulation messages to change the depth of Tremolo

① Open the MIDI Filter Page 1,2 window.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception for Modulation messages on.

Parameter: Mod (Modulation)

Setting: ○

③ Open the Edit Patch Ctrl window.

Mode → **Sound** → **Edit Patch** → **Ctrl**

④ Specify how Control messages will affect the LFO frequency.

Parameter: LFO Rate Ctrl (Mod LFO Rate Ctrl)

Setting: -63 — +63

⑤ Specify how Modulation messages will affect the depth of Cutoff Frequency for the LFO being controlled.

Parameter: LFO TVA Depth (Mod LFO TVA Depth)

Setting: -63 — +63

⑭ PROGRAM CHANGE

■To use Program Change messages to select Patches

① Make settings in MIDI Filter Page 1,2.

Mode → **Performance** → **MIDI** → **Fil 1,2**

② Turn reception of Program Change messages on.

Parameter: Prog (Program change)

Setting: ○

③ Open the Patch Map.

Mode → **Performance** → **MIDI** → **Map**

④ Specify a Program Change number for the Patch.

Parameter: Program Change #

Setting: 1 — 128

■To use Program Change messages to select Performances

① Open the MIDI Config window.

Mode → **System** → **MIDI** → **Config**

② Specify the Control Channel (Default value:Off).

Parameter: Control Channel

Setting: Off,1 — 16

③ Specify the Control Mode window.

Parameter: Control Mode

Setting: PerformOnly

When Program Change 1 is transmitted on the Control Channel, Performance 1 will be selected. When Program Change 64 is transmitted, Performance 64 will be selected.

■To use Program Change messages to select Volumes

① Open the MIDI Config window.

Mode → **System** → **MIDI** → **Config**

② Specify the Control Channel (Default value:Off).

Parameter: Control Channel

Setting: Off,1 — 16

③ Specify the Control Mode.

Parameter: Control Mode

Setting: Perform/Volume

Program Change messages of 65 and higher will load a Volume from the hard disk.

15 SYSTEM EXCLUSIVE

■ To use System Exclusive messages

① Open the MIDI Config window.

Mode → **System** → **MIDI** → **Config**

② Set the System Exclusive message transmission, and specify the unit number.

Parameter: System Exclusive

Setting: ○

Parameter: Unit Number

Setting: 17 — 32

Application examples

System Exclusive messages can transmit the internal status via MIDI when, for example, you move the cursor or modify a parameter setting. This makes it possible to use an external personal computer with editing software to operate the S - 770. In addition, Wave data can be exchanged via MIDI using the Sample Dump Standard.

16 SOUND DATA

■To load sound data from the current disk

If you wish to load sound data from the S - 550/330,W - 30's Library Disks, refer to Convert Load (page 89).

① Open the Disk Load window.
Mode → **System** → **Disk Tools** → **Load**

② Select the type of sound data.
Parameter: Target
Setting: Sample,Partial,Patch,Performance,Volume

③ For "Current Drive", specify the current drive for loading.
If you wish to load data from the internal hard disk, specify "Internal HD". If you wish to load data from a floppy disk, specify "[Floppy Disk]".

④ Click to specify the name of sound data you wish to load.

■To save sound data to the current disk

① Open the Disk Save window.
Mode → **System** → **Disk Tools** → **Save**

② Select the type of sound data.
Parameter: Target
Setting: Sample,Partial,Patch,Performance,Volume

③ For "Current Drive", specify the current drive for saving.
If you wish to save data to the internal hard disk, specify "Internal HD". If you wish to save data to a floppy disk, specify "[Floppy Disk]".

④ Click to specify the name of sound data you wish to save.

> **Note !!**
> Save only one piece of sound data onto a floppy disk. To save more than one piece of sound data, please prepare as many disks as the number of data. If you save more than one onto a disk, the existing data will be erased and new data will replace it.

■To delete sound data from the current disk

① Open the Disk Delete window.
Mode → **System** → **Disk Tools** → **Delete**

② Select the type of sound data.
Parameter: Target
Setting: Sample,Partial,Patch,Performance,Volume

③ For "Current Drive", specify the current drive from which you wish to delete sound data.
If you wish to delete data from the internal hard disk, specify "Internal HD". If you wish to delete data from a floppy disk, specify "[Floppy Disk]".

④ Click to specify the name of sound data you wish to delete.

■To copy sound data from the current disk to another disk

① Open the Disk Copy window.

Mode → **System** → **Disk Tools** → **Copy**

② Select the type of sound data.

Parameter: Target

Setting: Sample,Partial,Patch,Performance,Volume

③ Specify the "Current Drive" (copy source) and "Destin Drive" (copy destination).

④ Click to specify the name of sound data you wish to copy.

> **Note !!**
>
> It is not possible to copy sound data directly from hard disk to floppy disk. If you wish to copy sound data from Hard Disk to floppy disk, first load it into internal memory. Then set the current disk drive to "[Floppy Disk]" and save it.

■To name the Performance in internal memory

① Open the Edit Performance Common window.

Mode → **Performance** → **Edit Performance** → **Common**

② Name the Performance.

Click on **Name** and the Name window will open.

After entering characters, click on **CR** and the input will be finalized.

■To name the Patch in internal memory

① Open the Edit Patch Common window.

Mode → **Sound** → **Edit Patch** → **Common**

② Name the Patch.

Click on **Name** and the Name window will open.

After entering characters, click on **CR** and the input will be finalized.

■To delete a Performance (Volume) from internal memory

① Open the Delete window.

Mode → **Performance** → **Edit Performance** → **Com** → **Delete**

② Click on the **Source List** to specify the name of the Performance you wish to delete.

When it clicks, the message "Now Working. Please Wait . . . " will appear. When the data has been deleted, the message will disappear.

＊If you click **Volume**, all the Performances (=Volume) will be deleted at one time.

■To delete a Patch from internal memory

① Open the Delete window.

Mode → **Sound** → **Edit Patch** → **Com** → **Delete**

② Click on the Target to specify the name of the Patch you wish to delete.

When deletion is complete, the display will change from "Working" to "Complete".

When it clicks, the message "Now Working. Please Wait . . . " will appear. When the data has been deleted, the message will disappear.

■To delete a Partial from internal memory

① Open the Delete window.

Mode → **Sound** → **Edit Partial** → **Com** → **Delete**

② Click on the Target to specify the name of the Partial you wish to delete.

When deletion is complete, the display will change from "Working" to "Complete".

When it clicks, the message "Now Working. Please Wait . . . " will appear. When the data has been deleted, the message will disappear.

■To delete a Sample from internal memory

① Open the Delete window.

Mode → **Sound** → **Edit Sample** → **Com** → **Delete**

② Click on the Target to specify the name of the Sample you wish to delete.

When deletion is complete, the display will change from "Working" to "Complete".

When it clicks, the message "Now Working. Please Wait . . . " will appear. When the data has been deleted, the message will disappear.

⑰ DISK

■ To format a floppy disk

① Open the Disk Utility window.

Mode → **System** → **Disk Tools** → **Util**

② Select "[Floppy Disk]" as the current drive.

③ Click on **Disk Format**.

This operation is used to prepare a new disk for use, or to erase a used disk so that new data can be stored on it.

■ To format a current disk

① Open the Disk Utility window.

Mode → **System** → **Disk Tools** → **Util**

② Select the drive to be formatted.

③ Click on **Disk Format**.

■ To save the currently running System data to disk

① Open any desired page of the Disk Tools window.

Mode → **System** → **Disk Tools** → **Load** (or any of the other four pages)

② Select the current drive.

If you wish to save the data to floppy disk, select "[Floppy Disk]". If you wish to save the data to hard disk, select "[Internal HD]".

③ Open the Save System window.

Com(Drive Select) → **Com(Save System)**

④ Click on **SaveSys**.

⑱ CONVERT LOAD

■To use S-550/330/50 sound library data with the S-770

① Open the Convert Load page.

Mode → **System** → **Option**

② For "Mode", specify the unit of data which you wish to convert/load (Tone/Patch/entire library disk).

Parameter: Mode

Setting: All,Patch to Patch,Tone to Partial

③ Insert the disk containing the library into the S-770 floppy disk drive.

④ A list of the sound data contained in the disk will be displayed. (If you have selected "All" in step ②, the display will show "All Convert Execute".) Click on the desired sound data in the list.

⑲ SAMPLE DUMP

The S - 770 is able to exchange Wave data (including loop points and loop Modes) with samplers that are compatible with the MIDI Sample Dump Standard.

■To transmit Wave data (to a sampler compatible with the Sample Dump Standard)

① Use two MIDI cables to connect the MIDI IN of each device with the MIDI OUT of the other device.

＊If you are using one-way transmission, use a MIDI cable to connect the MIDI OUT of the S - 770 to the MIDI IN of the other sampler.

② Open the MIDI Sample Dump page.

Mode → **System** → **MIDI** → **Dump**

③ Set the unit number to match the receiving sampler.

Parameter: Unit Number

Setting: 1 — 32

④ Select the Sample to be transmitted.

Parameter: Source

Setting: This will depend on the selected Sample.

⑤ Click on **Execute** to transmit the data.

■To receive Wave data (from a sampler compatible with the Sample Dump Standard)

① Use two MIDI cables to connect the MIDI IN of each device with the MIDI OUT of the other device.

＊If you are using one-way transmission, use a MIDI cable to connect the MIDI IN of the S - 770 to the MIDI OUT of the other sampler.

② Make the necessary settings for the transmitting device, and transmit the data.

＊Use the following procedure to check whether or not the Wave data has been correctly transmitted:

① Open the Sampling window.

Mode → **Sound** → **Edit Sample** → **Smpling**

② Place the cursor on "Sample Name", and use the mouse buttons to find the transmitted Sample name.

20 CONFIGURATION (OVERALL SETTINGS)

■To change the device number of the S-770 or the internal hard disk

① Open the SCSI Config window.
Mode → **System** → **SCSI**

② Set parameters.

○For the S - 770

Parameter: S - 770 self SCSI ID

Setting: 0 — 7

○For the internal hard disk

Parameter: Internal HD SCSI ID

Setting: 0 — 7

③ Make sure that all the necessary data has been saved, switch the unit off, then switch it on again.

■To park the hard disk heads

This allows you to "park" the heads of not only the internal Hard Disk, but also those of any external Hard Disks.

① Open the Disk Format window.
Mode → **System** → **Disk Tools** → **Util**

② Click on **HD Park Heads**.

■To restart (the hard drive)

Since the disk will stop when the HD Park Heads command has been executed, loading or saving will no longer be possible. By clicking this command, you can re-start the disk.

① Open the Disk Format window.
Mode → **System** → **Disk Tools** → **Util**

② Click on **RESTART**.

■To turn off the LCD display (or turn it on again)

If a CRT is connected, turning off the LCD will improve cursor movement when using the mouse.

① Open the System PRM Page 2.
Mode → **System** → **System PRM** → **PRM 2**

② Set the LCD display parameter.

Parameter: LCD Display

Setting: Off/On

*To turn the LCD on, turn the power on while holding F4.

■To change the editing controller

① Open the System PRM Page 2.

Mode → System → System PRM → PRM 2

② Specify the controller.

Parameter: Controller

Setting: Off/Mouse/RC - 100

You can turn the power on while holding F1 to select Off; holding F2 to select Mouse; holding F3 to select RC - 100.

■To change the Master Sampling Frequency

① Open the System PRM Page 2.

Mode → System → System PRM → PRM 2

② Specify the Master Sampling Frequency.

Parameter: Master Freq.

Setting: 44.1KHz,48KHz

■To check the sound being edited by pushing SOUND PLAY switch

When the Sound Mode window is open, the Sound Play switch will play the sound being edited.

① Open the System PRM Page 1.

Mode → System → System PRM → PRM 1

② Specify the pitch (note number) and volume (velocity) to be triggered.

Parameter: Sound Play Prm Note

Setting: A0 — C8

Parameter: Sound Play Prm Velocity

Setting: 0 — 127

21 OTHERS

■ To check available internal memory

① In System Mode, open the Disk Tools window.

Mode → **System** → **Disk Tools** → **Load** (or **Save** or **Delete**)

② The lower part of the opened window will display "Internal Free ** sec.", informing you of the available internal memory.

＊In each display except for Loop in Edit Sample, the "Remaining" display shows the amount of remaining memory in units of one second.

■ To check the MIDI messages being received

① Open the MIDI Monitor window.

Mode → **Performance** → **Monitor** → **MIDI**

② Select the MIDI Channel you wish to monitor.

Parameter: MIDI Ch

Setting: All,16 — 1

③ Specify the type of MIDI message that will make monitoring begin.

Parameter: Trigger

Setting: Note Off,Note On,Poly After, Ctrl,Program,Ch After,Bender,Exclusive

④ Specify whether Realtime messages are to be monitored or not.

Parameter: Real Time MSG

Setting: On,Off

⑤ Click on **Com**.

⑥ Click on **Wait Trigger**.

When you click, the display will show "Waiting for Trigger", and when the MIDI message you specified as the trigger is received, monitoring will begin.

＊If you wish to erase all Realtime messages from the screen, click **Clear Display**.

■ To check the number of voices being used

① Open the Module Monitor window.

Mode → **Performance** → **Monitor** → **Module**

② The indicators located at the right of "Voice" will show the number of voices being used. From the left, each "-" that changes to "＊" indicates that one voice has been used.

＊When all indicators are "＊", 24 or more voices are in use.

Chapter 4

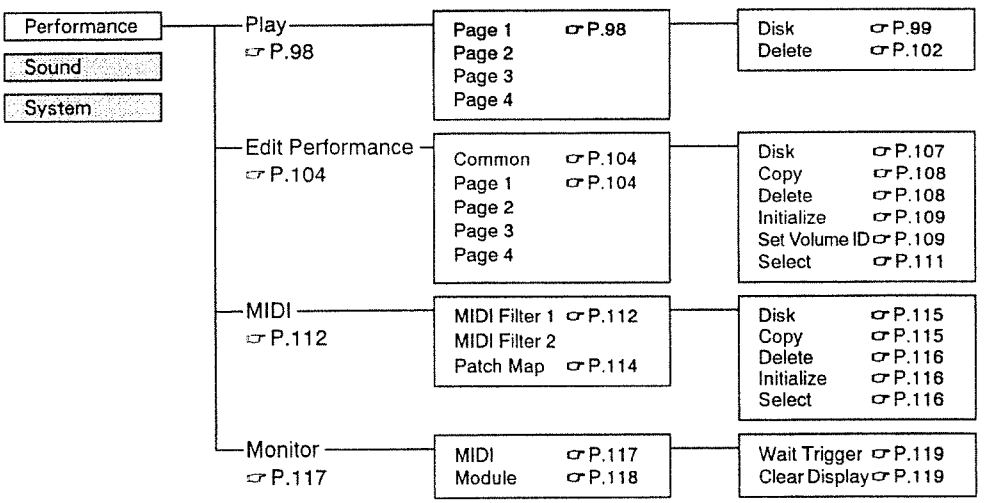
Reference

This chapter explains the contents of each window in the S-770.
The SOUND MODE CHART (inside the back cover) is provided as a index of the functions explained in this chapter.

Performance Mode

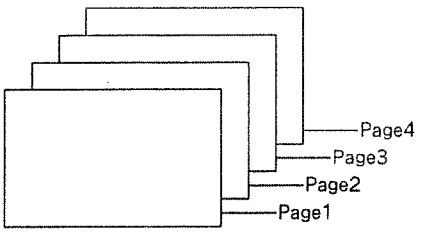
This is the mode in which you will play the S - 770.

The Performance mode is divided into four windows; Play, Edit Performance, MIDI, and Monitor. These windows allow you to edit Performance parameters while playing.

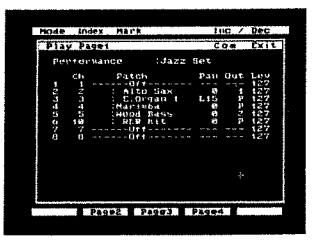


[1] PLAY (Play window)

This window will be open when you play the S - 770. It contains functions dealing with audio signals, and MIDI data. A Performance consists of up to 32 Patches assigned to a Part, and includes parameter settings for MIDI channel, pan, level and key range for each Patch. Here you can edit some of the Performance parameters and Patch parameters. If the same Patch has been assigned to more than one Part, modifying a single Patch parameter will also affect the displayed Patch contents for a Patch assigned to another Part. Parameters in the Play window occupy four pages, and the settings can be made independently for each of the 32 Parts.



In the Play window, you can edit the MIDI channel, Patch select, Pan setting, individual output assignment, and level for each Part.



● Performance (Performance Select)

This function selects a Performance #1-#64. When the S - 770 receives a Program Change message on the MIDI Control channel (☞ P.204), this parameter will be modified and the Performance selection will change.

● Ch (MIDI Channel)

This function specifies the MIDI channel of the Part (Off, 1 — 16). For unused Parts, turn this function Off.

● Patch (Patch Select)

This function selects the Patch to be assigned to the Part.

When the S - 770 receives a Program Change message on the Part channel, this parameter will be modified and the Part selection will change.

● Pan (Total Pan)

This function specifies an overall Pan setting (stereo position) for the Partials used in the Patch (L32 — 0 — R32).

● Out (Output Assign)

This function determines the INDIVIDUAL outputs from which the sound of the Patch (assigned to the Part) will appear (Off, 1, 2, 3, 4, 5, 6, P). Regardless of this setting, the sound will also be output from the STEREO outputs. These settings can be altered in the Edit Patch Commom Page (☞ P.122).

● Lev (Part Level)

This function determines the volume level of each Part (0 — 127).

《The Command menu of the Play window》

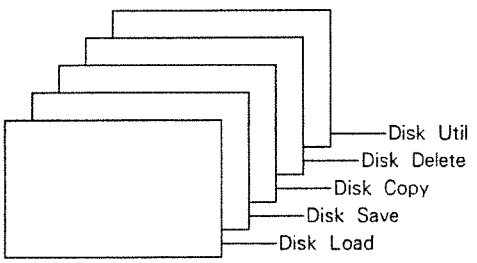
The Command menu will open when you click on **Com** in the upper right corner of each page of the Play window. To close the window, click on **Edit** in the upper right corner of the Command window.

Disk Open the Disk Tools window.

Delete Open the Delete window.

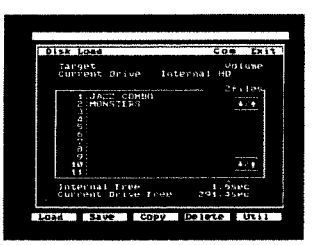
[1] Disk (Disk Tools window)

Disk Tools window occupies five pages (Disk Load/Disk Save/ Disk Copy/Disk Delete/Utility).



Disk Load

This function loads sound data from Hard Disk or floppy disk drive (or an external storage device).



● **Target** Selects the type of sound data you want to load from the current disk (Volume, Performance, Patch, Partial, Sample).

● **Current Drive** Selects the storage device which contains the sound data. To select the internal Hard Disk, select Internal HD. To select the floppy disk, select [Floppy Disk]. If no external (SCSI) storage devices are connected, it will not be possible to access any other devices beside these two.

● Source List

This is a list of the sound data in the current drive. From this list, select the sound data you wish to load. Place the cursor on ↓ / ↑ and use the mouse buttons to scroll the list up or down. The total number of files will be displayed as " * * files" in the upper right corner.

* The lower part of the display indicates the amount of memory available.

Internal Free

This indicates the amount of available internal memory.

Current Drive Free

This indicates the amount of available memory in the current drive.

【To load sound data from the current drive】

① Use Target to select the type of sound data you wish to load.

* The contents of the Source List will change according to the type of sound data you have selected.

② Use current drive to select the storage device.

③ Select the name of the sound data you wish to load.

Place the cursor on the sound data name and click. Loading will begin automatically, and the display will indicate "#File Scanning" and the type and name of the sound data being loaded (e. g. , if Patch data, #File of Patch).

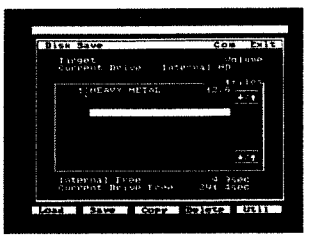
* If the Overwrite switch (☞ P.203) is set to OFF, and new sound data is to be loaded (including that which contains sound data identical to that currently in memory) the display will indicate "Same Name Found!", and ask "Over Write?". If you wish to overwrite the data, click on YES. If you wish to cancel loading, click on NO.

④ When loading has been completed, the lower left corner of the display will indicate "Complete".

* If you wish to continue loading data, repeat steps ① — ④. However, when loading data a second (or subsequent) time, you will be asked whether to "erase" or "keep" the data already in internal memory. If you wish to erase the data, click on "Yes". If you wish to keep the data, click on "No".

Disk Save

This function saves sound data to the Hard Disk or floppy disk (or an external storage device).



● Target

This function selects the type of sound you wish to save to disk (Volume, Performance, Patch, Partial, Sample).

● Current Drive

This function selects the storage device to which you wish to save the sound data. To select the internal Hard Disk, select Internal HD. To select the floppy disk drive, select [Floppy Disk]. If no external (SCSI) storage devices are connected, it will not be possible to access any other devices beside these two.

● Source List

This is a list of the sound data in the internal memory. The total number of files will be displayed as "＊＊ files" in the upper right corner. Click on ↓/↑ and select a sound data name.

＊The lower part of the display indicates the amount of available memory.

Internal Free

This indicates the available internal memory.

Current Drive Free

This indicates the available memory on the current drive.

【To save sound data to the current drive】

① Use Target to select the type of sound data you wish to save.

＊The contents of the Source List will change according to the type of sound data you have selected.

② Use current drive to select the storage device.

③ Select the sound data name you wish to save.

Place the cursor on the sound data name and click; saving will automatically begin.

* If the Overwrite switch (P.203) is set to Off, and a sound data name that has already been saved has been selected, the display will indicate "Same Name Found!", and ask "Over Write?". If you wish to overwrite the data, click on YES. If you wish to cancel saving, click on NO.

④ When saving has been completed, the lower left corner of the display will indicate "Complete".

* If you wish to continue saving data, repeat steps ① — ④.

Note !!

It is only possible to store one piece of sound data (eg. Sample, Partial, Patch, Performance, Volume) on a floppy disk. To save more than one piece of data, prepare a separate disk for each piece. Attempting to save more than one piece of sound data to a floppy disk will overwrite all existing data.

Disk Copy

This function allows you to copy sound data from disk to disk. For the procedure, refer to the explanation for the Disk Tools window (☞P.197).

Disk Delete

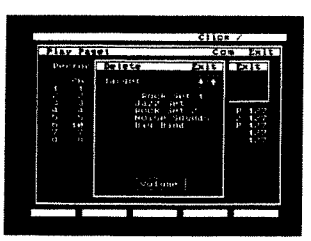
This function allows you to delete sound data. For the procedure, refer to the explanation for the Disk Tools window (☞P.198).

Utility

This function allows you to format a disk or execute (cancel) parking the heads of the Hard Disk drive. For the procedure, refer to the explanation for the Disk Tools window (☞P.199).

[2] Delete (Delete window)

This function deletes Performance/Volume from internal memory (it doesn't affect the sound data on a disk).



● **Target**

Selects the Performance to be deleted.

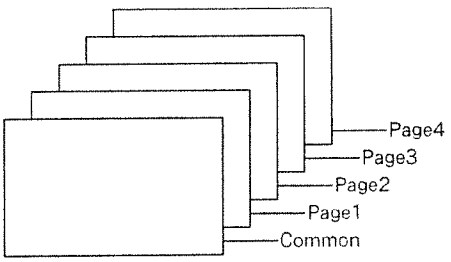
Place the cursor on the Performance and click, and Delete will be executed.

● **Volume** (Volume Switch)

When you click on this switch, the Volume (all sound data in internal memory) will be deleted.

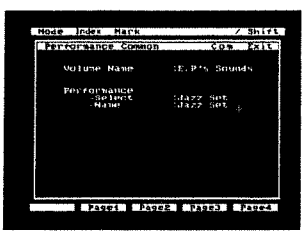
[2] EDIT PERFORMANCE (Edit Performance window)

This is where you make Performance parameter settings. These parameters occupy five pages and include control over Patch assignment (to the 32 Parts), MIDI channels and volume levels. They also allow you to create Positional Crossfade effects. (For details on "Positional Crossfading", refer to page 48.) The internal memory of the S - 770 can contain up to 64 Performances.



1. Edit Performance Common

These parameters specify the names for the Performance and Volume (all sound data in internal memory).



● Volume Name

This function specifies the name of a Volume. This name is used when saving the Volume to Hard Disk, etc. Place the mouse cursor to the right of "Volume", and click.
The ASCII window will open in the lower part of the display, allowing you to enter a name.

● Performance

Select (Performance select)

This function selects a Performance.

Name (Performance name)

This function specifies a Performance name. The one Volume in internal memory can contain up to 64 Performances. Place the mouse cursor to the right of "Name" and click. The ASCII window will open in the lower part of the display, allowing you to enter a name.

【To name a Performance】

① Place the cursor on "- Select" to select a Performance which does not have a name.

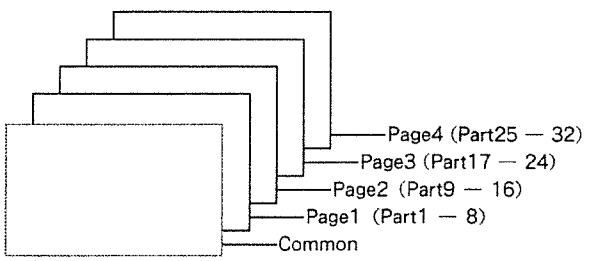
② Place the cursor on "- Name", and click to open the ASCII window.

③ Specify the name and click on CR ; the name will be entered at the right of "- Select".

④ If you wish to enter additional names, repeat steps ① — ③.

2. Edit Performance Page 1 — 4

This is where you can specify parameters for each of the Parts (up to 32). Parameters for the 32 Parts are displayed in a total of four pages, with 8 Parts on each page.

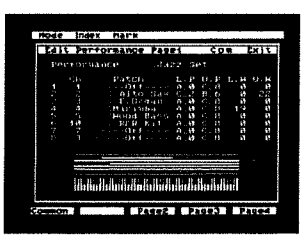


Page 1 . . . Parts 1 — 8

Page 2 . . . Parts 9 — 16

Page 3 . . . Parts 17 — 24

Page 4 . . . Parts 25 — 32



● Channel (MIDI Channel)

Specify the MIDI channel for each Part (*Off, 1 — 16). Set the MIDI channel of unused Parts to Off.

● Patch (Patch Select)

This function allows you to assign a Patch to a Part.

● L. P (Lower Point)
● U. P (Upper Point)

This function specifies the keyboard range of the Part. The Part will sound over the specified range (between the key numbers of the Lower Point (L. P) and Upper Point (U. P)). These points can be set over the range of A0 (21) to C8 (108).

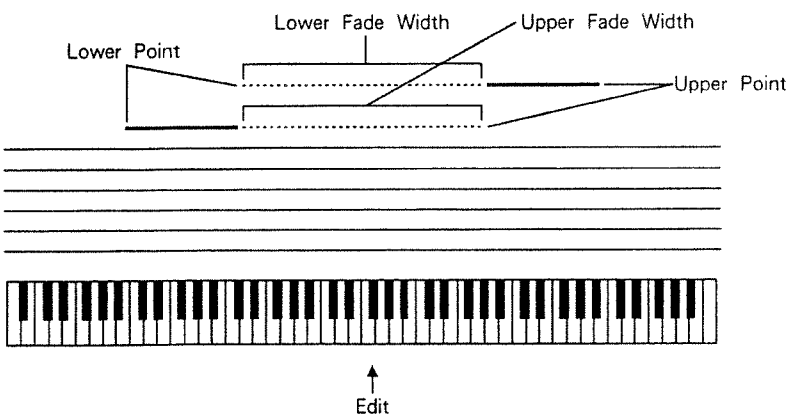
● L. W (Lower Fade width)

This function is used to create Positional Crossfade effects. Specify the area (starting from the Lower Point (L. P)) over which the fade will occur.

● U. W (Upper Fade width)

This function is used to create Positional Crossfade effects. Specify the area (starting from the Upper Point (U. P)) over which the fade will occur.

Positional Crossfade effects (P.48) can also be achieved by combining Parts. To do this, assign Patches to a Part, and make Performance parameter settings for the L. P and U. P of both Parts (to which the Patches were assigned). In this situation, set both Parts to the same MIDI channel.



■ *How to use the mouse in the graphic display*

The keyboard range and Positional Crossfade width of a Part can be set using the mouse.

○ To specify the keyboard range of a Part

Place the mouse cursor on the left or right edge of the desired Part in the graphic display. While holding the left button, move (drag) the mouse to the left or right. As you drag the mouse, the line indicating the keyboard range will turn red, and will become longer or shorter as the mouse is moved. The lower left corner of the display will indicate the name of the parameter being edited. The parameter value will change as the mouse is moved. To modify the "L. P" parameter, drag the left edge. To modify the "U. P" parameter, drag the right edge.

○ To specify the Positional Crossfade area

Place the mouse cursor on the left or right edge of the desired Part in the graphic display. While holding the right button, press and hold the left button and move (drag) the mouse to left or right. As you drag the mouse, the line indicating the crossfade area will become dotted, and become longer or shorter as the mouse is moved. The lower left of the display will indicate the name of the parameter being edited. The parameter value will also change as the mouse is moved. To modify the "L. W" parameter, drag the left edge. To modify the "U. W" parameter, drag the right edge.

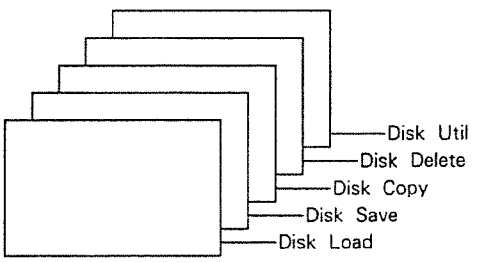
《The Command menu of the Edit Performance window》

To open the Command menu, click on **Com** in the upper right corner of each page of the Edit Performance window. To close the window, click on **Exit** in the upper right corner of the Command window.

Disk	Open the Disk Tools window.
Copy	Open the Copy window.
Delete	Open the Delete window.
Initialize	Open the Initialize window.
Set Volume ID	Open the Set Volume ID window.
Select	Open the Performance Select window.

[1] Disk (Disk Tools window)

Disk Tools window occupies five pages (Disk Load/Disk Save/ Disk Copy/Disk Delete/Utility).



Disk Load

This function loads sound data from the Hard Disk or floppy disk drive (or an external storage device). For the procedure, refer to the explanation for the Disk Tools window (☞P.195).

Disk Save

This function saves sound data to the Hard Disk or floppy disk (or an external storage device). For the procedure, refer to the explanation for the Disk Tools window (☞P.196).

Disk Copy

This function allows you to copy sound data from disk to disk. For the procedure, refer to the explanation for the Disk Tools window (☞P.197).

Disk Delete

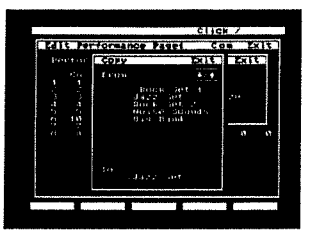
This function allows you to delete sound data. For the procedure, refer to the explanation for the Disk Tools window (☞P.198).

Utility

This function allows you to format a disk or execute (cancel) the Park heads command for the Hard Disk drive. For the procedure, refer to the explanation for the Disk Tools window (☞P.199).

[2] Copy (Copy window)

This function allows you to copy any Performance in internal memory.



● From

Select the Performance name for the copy source. Place the cursor on ↓ / ↑ and use the mouse buttons to scroll the list. Click on the desired Performance name, and the Copy operation will be executed.

● To

This function selects the Performance name for the copy destination. The Performance of the MIDI window (from which the Command window was opened) will be automatically selected.

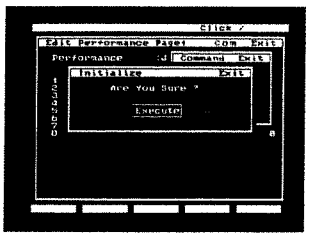
* If the Performance being edited does not have a name, a temporary name beginning with a " – " will be automatically assigned to the copy destination Performance. However, this cannot be saved to disk, so you must assign a new name in Edit Performance Common.
* When this operation is executed, the Performance data in the copy destination will be replaced by the Performance data and Performance name of the copy source.

[3] Delete (Delete window)

This function deletes a Performance/Volume from internal memory. For details of the procedure, refer to the explanation of the Play window (☞P.98).

④Initialize (Initialize window)

This function will restore the initial parameter settings of a specified Performance. All previous settings will be replaced and cannot be recovered. When you open the Initialize window, the display will read "Are you sure?", and the **Execute** button will appear.

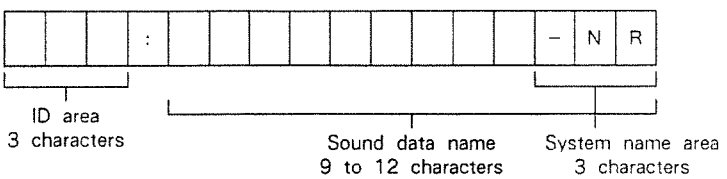


Execute ····· This will initialize all the parameters of the specified Performance.

＊To exit safely without initializing, click **Exit**.

⑤Set Volume ID window

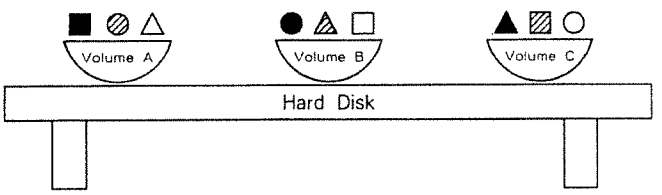
The S - 770 is equipped with a function which organizes sound data into groups suitable for storage on devices such as a Hard Disk. This function is known as "Set Volume ID". When the function is executed, the Volume ID at that time is copied into an area (the ID area) at the very beginning of all sound data contained in internal memory (from Volumes to Samples).



- Characters 1 through 3 are reserved at all times for use as the ID area.
- At the fourth character position there is a colon which acts as a delimiter (between the ID area and the sound data name).
- The Volume ID can be edited at any time.
- The sound data name begins at the 5th character position. It can be composed of from 9 to 12 characters. 1 to 3 characters at the end can at times be used for the System name (used for stereo Samples or for backup of Samples).

■ Sound Data Classification

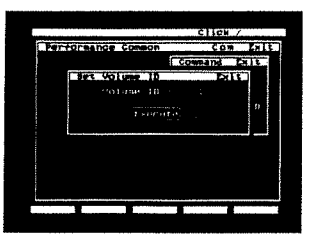
Think of the Hard Disk as a whole as being a table. Then imagine that there are a number of containers, referred to as "Volumes", arranged on top of it. Inside each container there are cookies, representing the sound data (Although there are actually Performances, Patches, Partials and Samples that could be contained there, here the explanation is simplified). With the S - 770, two cookies having the same shape (an identical name) cannot be distinguished from each other, even though their contents are actually different. So, they cannot be put into the container unless they have a different name (they cannot be saved unless they are given a unique name). However, by employing Volume IDs, even though a cookie may have the same shape, the container in which it belongs (the Volume) will be different, so the unit is able to distinguish between them.



Without Volume IDs, ▲▲ and △ cannot properly be distinguished.

This method of organization is similar to the relationship between the root directory and sub-directories in DOS systems used on personal computers.

*Set Volume ID is convenient to use when wishing to organize data on a Hard Disk after it has been loaded into internal memory using Convert Load (P.209) or MIDI Sample Dump (P.206). Even if by chance there should be separate sets of sound data having the same name in a Volume on the Hard Disk, such data can be loaded without changes if a Volume ID has been set.



● Volume ID (Set Volume ID)

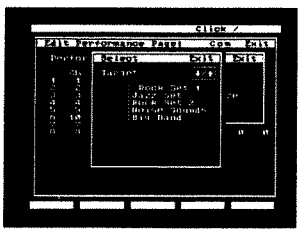
When clicked, the ASCII window opens, allowing entry of the Volume ID, using up to 3 characters.

● Execute (Execute Switch)

When clicked, the Volume ID that has been entered is copied to the ID area in the name for all sound data that is contained in internal memory at that time.

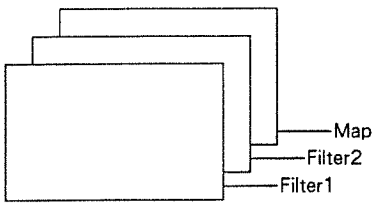
[6] Select (Performance Select window)

The Performance that is to be edited is selected from the Target list. Move the cursor to ↓ / ↑ and using the mouse buttons to scroll the list until you find the name of the desired Performance. The Performance clicked is selected, and the Command menu returns to the open page.



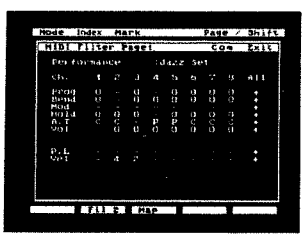
[3] MIDI (MIDI window)

MIDI Filter pages 1 and 2 allow you to make filter settings for MIDI Event messages (Bend, Modulation, Hold, Aftertouch, etc.) for each channel. This allows you to filter out undesired MIDI messages. This will reduce the work load of the S - 770 and avoid any delay which might result from a large amount of incoming MIDI data. A Phase Lock parameter is also provided, which allows you to correct any differences in the note timing of two or more Parts which are receiving the same MIDI channel. In addition, the Patch Map page allows you to specify the Patch which will be selected by each incoming Program Change number.



1. Fil1, Fil2 (Filter 1, Filter 2)

These settings determine which types of MIDI Event messages will be received by each channel.



● Prog (Program Change)

This function determines whether Program Change messages will be received or not (○, −).

* The S - 770 can receive Program Change messages (on MIDI channels 1 — 16) to select Patches. The Patch Map window (P.114) allows you to specify which Patch will be selected by each incoming Program Change number.
* The S - 770 can receive Program Change messages on specified MIDI channel to select Performances. This channel is referred to as the Control channel. The Control channel can be set in the MIDI window of System mode. (☞P.204).

● Bend (Pitch Bend)

This function determines whether Pitch Bend messages will be received or not (○, −).

● Mod (Modulation)

This function determines whether Modulation (Control Change No. 1) messages will be received or not (○, −).

● Hold

This function determines whether Hold (Control Change No. 64) messages will be received or not (○, −).

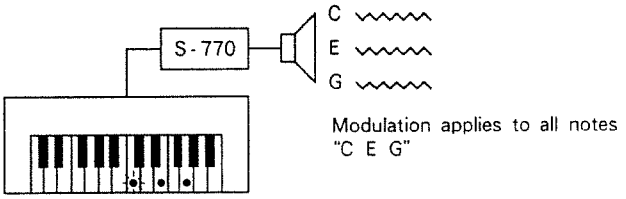
● A. T (Aftertouch)

This function determines whether Polyphonic Aftertouch or Channel Aftertouch messages will be received (P, C, −).

In addition to Channel Aftertouch, the S - 770 is able to receive Polyphonic Aftertouch messages. When controlled by a MIDI keyboard controller (such as the A - 50/80) that is able to transmit Polyphonic Aftertouch messages, the S - 770 provides an additional dimension of musical expressiveness.

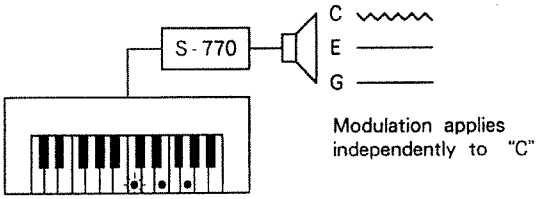
[Channel Aftertouch]

This type of Aftertouch data applies to an entire MIDI channel. If, while playing a C major chord, you press only the "C" key to add modulation, the modulation will be applied to all notes ("C E G").



[Polyphonic Aftertouch]

This type of Aftertouch data is independent for each note. If, while playing a C major chord, you press only the "C" key to add modulation, the modulation will apply only to that "C" note.



● Vol (MIDI Volume) This function determines whether MIDI Volume messages (Control Change no. 7) will be received or not (Off, On).

● P. L (Phase Lock) When Phase Lock is turned On, the note timing of Parts receiving the same MIDI channel will be synchronized.

When two or more Parts are layered, differences in attack timing between the Parts can blur the nuances of the attack.

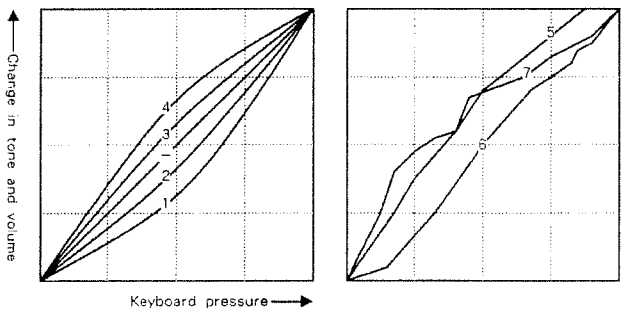
If Phase Lock is turned On, there will be no timing difference between Parts. However, there will be a time delay before the Parts begin sounding. This parameter should be turned off when not needed.

On ····· Parts receiving the same MIDI channel will sound when all have been prepared.

Off ····· Parts receiving the same MIDI channel will sound beginning with the lowest numbered Part.

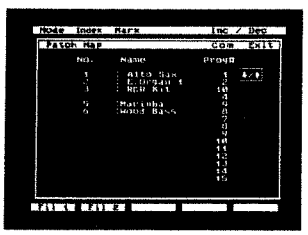
● Vel (Velocity Curve Type)

One of 7 different Velocity Curves (-, 1, 2, 3, 4, 5, 6, 7) may be selected to compensate for the key velocity characteristics (playing dynamics) of your keyboard
controller. If you wish to use the Velocity Curve of your keyboard controller without adjustment, select "-".



2. Patch Map

This page allows you to specify the Patch that will be selected by each incoming Program Change message. Each Volume contains 1 Map.



● Prog # (Program Change Number)

A Program Change number can be set for each Patch (1 through 128). Initially, the unit is set so that Patch numbers are identical to Program Change numbers.

《The Command menu of the MIDI window》

To open the Command menu, click **Com** in the upper right corner of each page of the MIDI window. To close the window, click **Exit** in the upper right corner of the Command window.

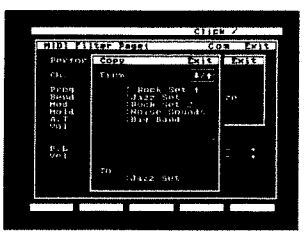
Disk Open the Disk Tools window.
Copy Open the Copy window.
Delete Open the Delete window.
Initialize Open the Initialize window.
Select Open the Performance Select window.

1 Disk (Disk Tools window)

This function allows you to Load, Save. . etc. For details of the procedure, refer to the explanation for the Play window (☞P.99).

2 Copy (Copy window)

This function allows you to copy a selected Performance from internal memory.



● From

Select the data name for the copy source. Place the cursor on **↓ / ↑** and use the mouse buttons to scroll the list. Click on the desired Performance name, and the Copy operation will be executed.

● To

This parameter displays the Performance name for the copy destination. The Performance of the MIDI window (from which the Command window was opened) will automatically be selected.

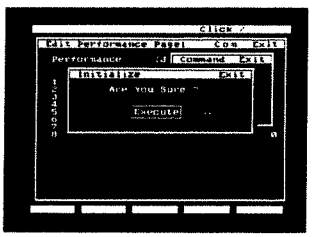
＊When this operation is executed, the sound data in the copy destination will be replaced by the Performance data and Performance name of the copy source.

[3] Delete (Delete window)

This function allows you to Delete sound data from internal memory. For details of the procedure, refer to the explanation for the Play window (☞P.101).

[4] Initialize (Initialize window)

This function will restore the initial parameters settings for a specified Performance. All previous settings will be replaced and cannot be recovered. When you open the Initialize window, the display will read "Are you sure?", and the **Execute** will appear.



Execute ····· This will initialize all parameters of the specified Performance.

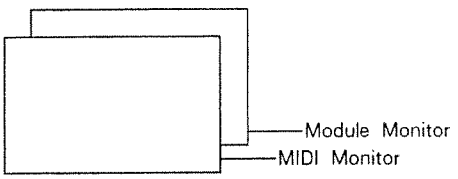
*To exit safely without initializing, click **Exit**.

[5] Select (Performance Select window)

The Performance that is to be edited is selected from the Target list.
For details of the procedure, refer to the explanation for the Edit Performance window (☞P.111).

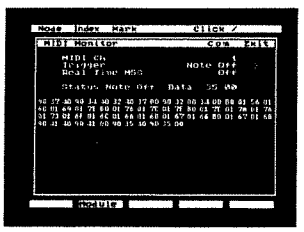
[4] MONITOR (Monitor window)

This window allows you to check the MIDI messages that are being received at the MIDI IN connector. If problems with MIDI arise, this function will help you determine whether the problem is with the transmitting device or with the settings of the S - 770. This window consists of two pages; the MIDI monitor and the Module monitor.



1. MIDI (MIDI Monitor)

This window allows you to view (monitor) the MIDI messages that arrive at the MIDI IN connector. The messages are displayed in real-time as hexadecimal data. This window allows you to specify three monitoring conditions; reception channel, Real-time message reception On/Off, and monitor starting trigger. The settings for reception channel and Real-time message reception On/Off allow you to select only the desired type of message from a large amount of incoming data. You can also specify that monitoring begin when a certain type of message is received. This is convenient when, for example, you want to determine the note that is sounding at the moment a Program Change message selects a new sound.



● MIDI Ch (MIDI Channel)

This function specifies the MIDI channel you wish to monitor (1 — 16/All). When "All" is selected, all channels will be monitored.

● Trigger

This function specifies the type of MIDI message which will trigger monitoring (Note Off/Note On/Poly After/Ctrl/Program/Ch After/Bender/Exclusive).

Note Off ····· Note Off messages
Note On ····· Note On messages
Poly After ····· Polyphonic Aftertouch messages
Ctrl ····· Control Change messages
Program ····· Program Change messages
Ch After ····· Channel Aftertouch messages
Bender ····· Pitch Bend messages
Exclusive ····· Exclusive messages

＊To execute the Trigger function, open the Command menu window, and click on **Wait Trigger**.

● Real Time MSG (Real Time Messages)

This function specifies whether Real time messages will be received or not (On/Off). When monitoring begins, red numbers indicate status bytes and white numbers indicate data bytes. (For details of status and data bytes, refer to the MIDI implementation section at the end of this manual.)
When monitoring data via the LCD, this distinction will not be visible, so the following two parameters are provided.

● Status

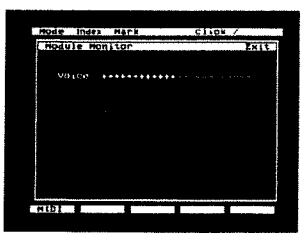
The incoming status data will be displayed. When you begin monitoring, the status display will change in real-time.

● Data

The incoming MIDI data values will be displayed. When you begin monitoring, the data display will change in real-time.

2. Module (Module Monitor)

This display monitors the number of voices being used. If, while playing, some notes fail to sound, use this monitor to check the number of voices being used.



● Voice

The "-" marks will change to " * " to indicate the number of voices being used. When all marks are " * ", 24 voices or more are being used.

《The Command menu in the MIDI Monitor window》

To open the Command menu, click **Com** in the upper right corner of the MIDI Monitor page of the MIDI Monitor window. (It is not possible to open the Command menu from the Module Monitor page.) To close the window, click on **Exit** in the upper right corner of the Command window.

Wait Trigger This switch is used in the MIDI Monitor page.
Clear Display This switch is used in the MIDI Monitor page.

● Wait Trigger (Wait Trigger Switch)

When you click this switch, the display will read "Waiting for Trigger". When the MIDI message specified as the trigger arrives, monitoring will begin.

● Clear Display (Clear Display Switch)

Click this switch to erase all the MIDI messages from the display.

【To monitor the MIDI messages being received by the S-770】

① Open the MIDI Monitor window, and use **MIDI Ch** to specify the MIDI channel you wish to monitor.

② Set the trigger to the type of MIDI message you want to begin monitoring.

③ Specify whether to monitor real-time messages or not.

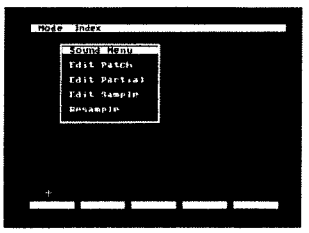
④ Click on **Com** to open the Command window.

⑤ Click on **Wait Trigger**, and the MIDI Monitor will wait for the specified message to appear; the display will read "Waiting for Trigger".

⑥ When the specified MIDI message is received, monitoring will begin.

Sound Mode

In this mode you can edit sound data; Samples, Partials, Patches, etc. This mode also includes a "resampling" function which allows you to manipulate two existing Samples to create a new Sample. The functions in this mode are organized into four windows.



Performance
Sound
System

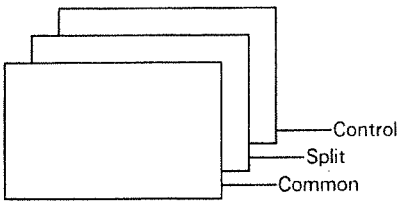
- Edit Patch ☞P.122
  - Common ☞P.122
  - Split ☞P.124
  - Control ☞P.127
    - Disk ☞P.130
    - Copy ☞P.131
    - Delete ☞P.132
    - Initialize ☞P.132
    - Select ☞P.132
    - Partial ☞P.133
- Edit Partial ☞P.134
  - Common ☞P.134
  - SMT ☞P.137
  - TVF ☞P.140
  - TVA ☞P.145
  - LFO ☞P.148
    - Disk ☞P.151
    - Copy ☞P.152
    - Delete ☞P.152
    - Initialize ☞P.153
    - Template ☞P.153
    - Select ☞P.154
    - Sample ☞P.154
- Edit Sample ☞P.155
  - Sampling ☞P.156
  - Loop ☞P.161
  - Truncate ☞P.169
  - Smoothing ☞P.171
  - Normalize ☞P.174
    - Disk ☞P.175
    - Delete ☞P.176
    - Set Stereo ☞P.176
    - Set Mono ☞P.177
    - Copy ☞P.177
    - Select ☞P.177
- Resampling ☞P.178
  - Common ☞P.179
  - TVF ☞P.183
  - TVA ☞P.185
  - Execute ☞P.187
    - Disk ☞P.189
    - Delete ☞P.190

Note !!

When working in the Edit Partial and Edit Sample windows, sound will be produced in accord with the Patch parameters that have been selected under Edit Patch.

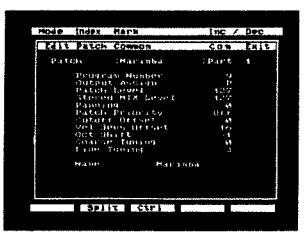
[1] EDIT PATCH (Edit Patch window)

This is where you assign up to 88 Partials to the 88 keys of a keyboard and make Performance parameter settings to create a Patch. In addition, settings in this mode will determine how Controller messages from a Master keyboard (or other controller) will affect the Pitch, Filter Cutoff Frequency, or Level. The Edit Patch window consists of three pages; Common, Split, and Ctrl.



1. Common (Patch Common)

In this page, you can specify a name for the Patch you wish to create. These settings also determine how the Patch will sound when played.



● Patch (Patch Select)

Specify the Patch you wish to edit.

● Part Number

Provides for a setting that determines which Part settings within the Performance will produce sound when editing Patches (Part 1 — 32, Omni On).

● Program Number (Program Change Number)

This function specifies the Program Change number (1 — 128) used in the Performance mode to select the Patch.

● Output Assign

This function selects the INDIVIDUAL output (Off, 1, 2, 3, 4, 5, 6, P).

Off : The sound of the Patch will not be output from an INDIVIDUAL output (the INDIVIDUAL output setting of the Partial will be ignored).

Partial : The output specified by the Partial will be used.
Select this setting for Drum Patches, etc. when you wish to assign each percussion sound to its own INDIVIDUAL output.
In this case, make INDIVIDUAL output settings as part of the Partial parameter settings.

1 — 6 : The sound of the Patch will be output from the specified output jack (the INDIVIDUAL output setting of the Partial will be ignored).

● **Patch Level** This function adjusts the volume of the Patch (0 — 127). If this level is set to 0 there will be no sound.

● **Stereo MIX Level** Adjust the output level for the STEREO output of the Patch (0 — 127).

● **Panning (Total Panning)**

This function sets the final Pan setting used for the output to the STEREO output jacks (L31 — Center — R31). This will adjust (to left, right or center) the overall Pan settings of all Partials included in the Patch.

● **Patch Priority**

The S - 770 is able to produce up to 24 voices simultaneously, but if you layer a large number of Samples or use the S - 770 as a multi-timbral sound source, the number of voices may occasionally be insufficient.

In such cases, a currently sounding voice will be turned off, and the most recently received note will be produced (last-note priority). However, voices will not be "borrowed" from a Patch whose Patch Priority setting is turned On.

When using the S - 770 in a multi-timbral application and there is a possibility of running out of voices, set the Patch Priority On for melody and bass Patches. This will ensure that even though voices may be borrowed from chords, the all-important bass and melody lines will not be interrupted.

*If Patch Priority is turned On for all Patches, first-note priority voice assignment will be used. Incoming notes which would exceed the 24-voice limit will be ignored and not sounded.

● **Cutoff Offset** This parameter adjusts the overall tone of a Patch. The specified value (- 62 — 63) is added to the Cutoff Frequency (☞ P.140) of each Partial used in the Patch. If the Cutoff Frequency of a Partial is 127, positive (+) settings of this parameter will have no effect.

● **Vel-Sens Offset (Velocity Sensitivity Offset)**

This parameter adjust the Velocity Curve Sensitivity of all Partials in the Patch.

● **Oct Shift (Octave Shift)**

This parameter adjusts the pitch of incoming note numbers in units of an octave (- 2 — 2).

● **Coarse Tuning** This parameter adjusts the pitch of the Patch in units of a half-step (- 48 — +48).

● **Fine Tuning** This parameter adjust the fine tuning of the Patch in steps of 1 cent (- 50 — +50). One cent is 1/100th of a half-step.

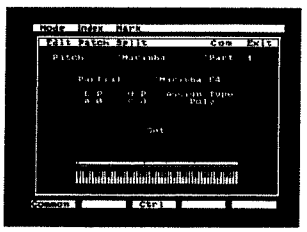
*The S - 770 can play back a Sample up to two octaves higher than the Original Key of the Sample. If settings for Tuning, Pitch Modulation, etc. result in a pitch above this limit, the Sample will be played at the maximum pitch of 2 octaves above the Original Key.

● **Name (Patch Name)** Each Patch can be given a 12-character name. It is not possible to use a name which has already been used by another Patch.

2. Edit Patch Split

Settings in this page determine how Partials are arranged on the 88 note keyboard. The arrangement of each Partial is called a "Split", and you can split up to 88 Partials across the keyboard. You can use a MIDI keyboard as well as the mouse to make split settings.

*To set up a Drum Part, first create Partials for kick, snare, cymbal, etc., and then split them in a Patch.



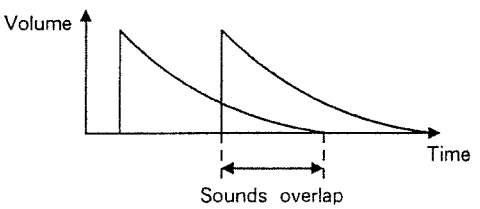
● Partial (Partial Select)

Select a Partial to assign to the Patch.

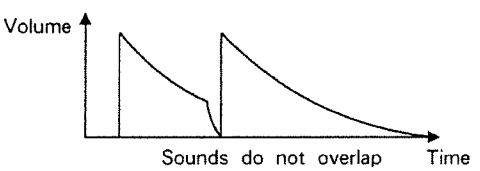
● Assign Type

This function specifies how notes will be sounded when two or more Partials are sounded simultaneously (Poly, Mono, Exc1 — Exc16). The following Assign Types can be selected.

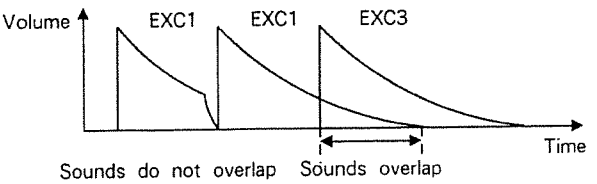
Poly : Sounds in the same Note Number will be layered. Sounds with a long decay (such as crash cymbals) will continue to sound without being affected (turned off) by the following note.



Mono : The same Note Number will produce only one note at a time. If a sound with a long decay is still sounding, it will be turned off by the following note.



Exc1 — Exc16 (Exclusive 1 — 16) :



In the Partial, notes with the same Exclusive number will not be layered. If you do not want certain Partials (for example Closed Hi-Hat and Open Hi-Hat) to sound together, set them to the same Exclusive number (1 — 16).

● Lower, Upper (Lower/Upper Key Range)

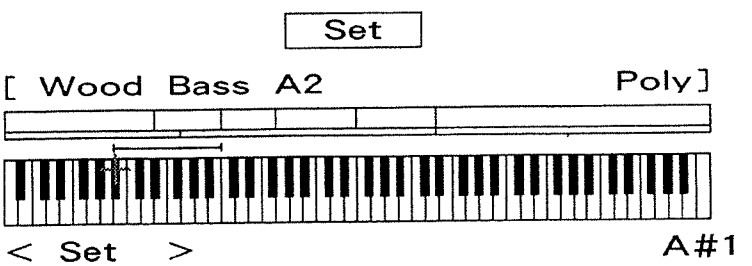
This parameter will be necessary when you wish to make Split settings without using the mouse or a MIDI keyboard. The range you input here will be assigned as the Split when you click on **Set**.

■ *Mouse operations in the graphic Split display*

In the graphic display, if you move the mouse cursor up or down while holding the right button, the data will change depending on the cursor location. This is the Split Set mode, and the lower left portion of the keyboard diagram will show the data currently selected by the mouse. While holding the right button, hold the left button and move the mouse to specify an area. In this way, you can specify, modify, or cancel a Split (the keyboard range of the Partial).

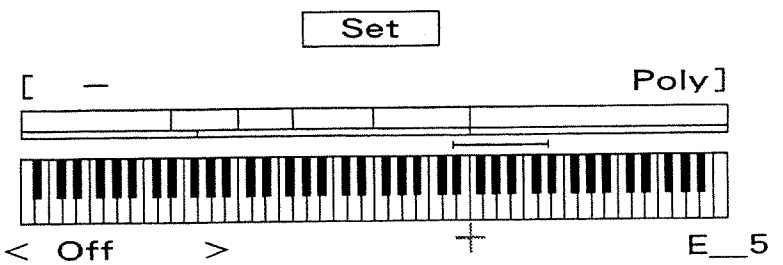
< Set > Set a keyboard area.

The specified area will be displayed when you place the mouse cursor on the keyboard in the display, and press the right button. While holding the right button, use the auxiliary cursor to specify the area.



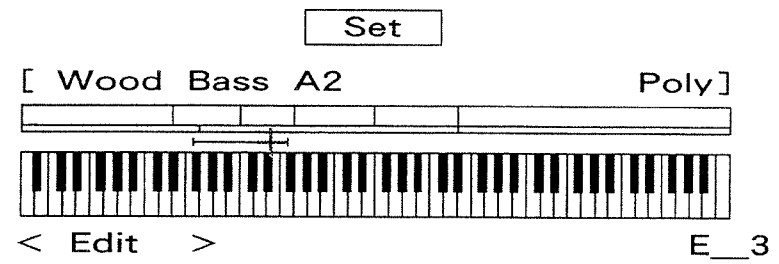
< Off > Narrow the keyboard area.

The area will be displayed when you place the mouse cursor below the keyboard in the display, and press the right button. While holding the right button, press the left button to specify the area over which the Partial will not sound.

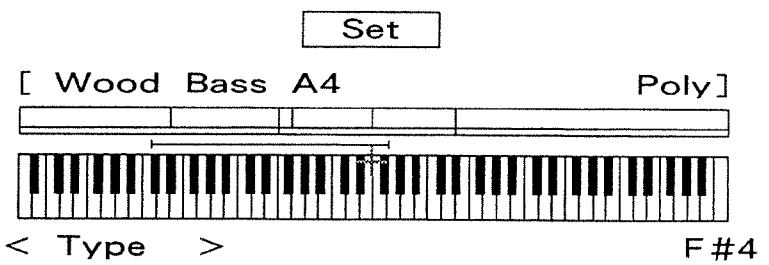


< Edit > Widen the keyboard area.

The area will be displayed when you place the mouse cursor above the keyboard in the display, and press the right button. While holding the right button, press the left button to specify the area in which the Partial will sound.



< Type > This allows you to modify the Assign Type of the Split.



[Using a MIDI keyboard to make Split settings]

① Specify the Partial and Assign mode you wish to Split.

② Enter Split Set mode.

There are two ways to enter the Split Set mode; press the right mouse button, or press a connected foot switch (Optional: DP - 2/6). The Split Set mode is available only while the right button (or foot switch is pressed: the display will read "Set"). Make the desired setting during this time.

③ While in the Split Set mode, press two keys on the keyboard. This will specify a Split (the range over which the Partial will sound) beginning and ending with these two keys.

[Using the panel switches or an RC-100 to make Split settings]

① Specify the Partial and Assign mode you wish to Split.

② Enter two points ("L. P" and "U. P").

③ Click **Set** to specify the Split.

Note ! !

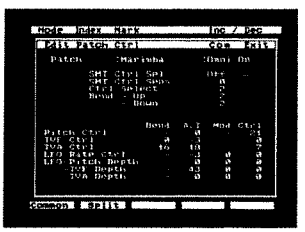
If the Split areas coincide, only the last-specified Split will be valid. It is not possible for Splits to overlap and sound simultaneously.

■ *Checking Split settings*

After specifying a Split, play the keyboard to determine if the Split is correct. Place the mouse cursor on the keyboard and press the left button to trigger the sound. You can also play a connected keyboard to hear the results.

3. Edit Patch Ctrl (Edit Patch Control)

The parameters in this page determine how the S - 770 will produce sound when played.



● SMT Ctrl Sel (Sample Mix Table Control Select)

This setting selects Pitch Bend, Aftertouch, Modulation, or Control Change messages to control an SMT (Sample Mix Table) that is normally controlled by Velocity. (Bend, A. T., Mod. Ctrl)

● SMT Ctrl Sens (Sample Mix Table Control Sensitivity)

Adjust the depth of the effect obtained (- 63 — +63) when controlling the SMT (Sample Mix Table) using the controller set above.

*For each parameter, larger settings will result in a greater effect; 0 will result in no effect, and negative (-) settings will invert the effect.

● Ctrl Select (Controller Select)

You may use messages of another controller (i.e., other than Pitch Bend, Aftertouch, and Modulation) to modulate a parameter. This setting selects the Control number that will be used (0 — 95). For details of Control numbers, refer to "List of MIDI Controllers" (☞P.218) in the Appendix.

*Control Change numbers (of 64 and higher) include On/Off controllers, but these are treated as Off/0 or On/127.

*If you are using a master keyboard which allows you to assign Control Change numbers, use keyboard controllers that match the control change numbers specified in the S - 770.

● Bend-Up (Pitch Bend Up Range)

This function determines how greatly the pitch will rise (0 — 48) when the pitch bender is fully raised. One step represents a half-step increase in pitch.

● Bend-Down (Pitch Bend Down Range)

This function determines how greatly the pitch will fall (0 — 48) when the pitch bender is fully lowered. One step represents a half-step decrease in pitch.

Bend (Pitch Bend)

● Bend TVA Ctrl (Bend TVA Control)

Pitch Bend messages can adjust the overall level of the Partials used in this Patch. (-63 — +63)

● Bend TVF Ctrl (Bend TVF Control)

Pitch Bend messages can adjust the Filter Cutoff Frequency (-63 — +63).

A. T (Aftertouch)

● A. T. Pitch Ctrl (Aftertouch Pitch Control)

This function specifies the range over which Aftertouch messages will affect the pitch (-48 — +48).

● A. T. TVA Ctrl (Aftertouch TVA Control)

This function specifies the range over which Aftertouch messages will affect the TVA level of the Partials (-63 — +63).

● A. T. TVF Ctrl (Aftertouch TVF Control)

This function specifies the range over which Aftertouch messages will affect the TVF Cutoff Frequency of the Partials (-63 — +63).

● A. T. LFO Rate Ctrl (Aftertouch LFO Rate Control)

This function specifies the range over which Aftertouch messages will affect the LFO rate of the Partials (-63 — +63).

● A. T. LFO-Pitch Depth (Aftertouch LFO Pitch Depth)

This function specifies the range over which Aftertouch messages will affect the depth of LFO vibrato (cyclic change in pitch) (-63 — +63).

● A. T. LFO-TVF Depth (Aftertouch LFO TVF Depth)

This function specifies the range over which Aftertouch messages will affect the depth of Cutoff Frequency modulation (-63 — +63).

● A. T. LFO-TVA Depth (Aftertouch LFO TVA Depth)

This function specifies the range over which Aftertouch messages will affect the depth of LFO tremolo (cyclic change in volume) (-63 — +63).

Mod (Modulation)

● Mod LFO Rate Ctrl (Modulation LFO Rate Control)

This function specifies the range over which Modulation messages will affect the LFO rate (-63 — +63).

● Mod LFO-Pitch Depth (Modulation LFO Pitch Depth)

This function specifies the range over which Modulation messages will affect the depth of LFO vibrato (cyclic change in pitch) (-63 — +63).

● Mod LFO-TVF Depth (Modulation LFO TVF Depth)

This function specifies the range over which Modulation messages will affect the depth of the TVF.

● Mod LFO-TVA Depth (Modulation LFO TVA Depth)

Specify the range over which Modulation messages will affect the depth of LFO tremolo (cyclic change in volume) (-63 — +63).

Ctrl (Control Change)

● Ctrl Pitch Ctrl (Control Change Pitch Control)

Specify the range over which Control Change messages will affect the pitch (-48 — +48).

● Ctrl TVF Ctrl (Control Change TVF Control)

Specify the range over which Control Change messages will affect the TVF level (-63 — +63).

● Ctrl TVA Ctrl (Control Change TVA Control)

Specify the range over which Control Change messages will affect the TVA level of the Partials (-63 — +63).

● Ctrl LFO Rate Ctrl (Control Change LFO Rate Control)

Specify the range over which Control Change messages will affect the LFO rate of the Partials (-63 — +63).

● Ctrl LFO-Pitch Depth (Control Change LFO Pitch Depth)

Specify the range over which Control Change messages will affect the depth of LFO vibrato (cyclic change in pitch) (-63 — +63).

● Ctrl LFO-TVF Depth (Control Change LFO TVF Depth)

Specify the range over which Control Change messages will affect the depth of TVF Cutoff Frequency modulation from the LFO (-63 — +63).

● Ctrl LFO-TVA Depth (Control Change LFO TVA Depth)

Specify the range over which Control Change messages will affect the depth of amplitude modulation (-63 — +63).

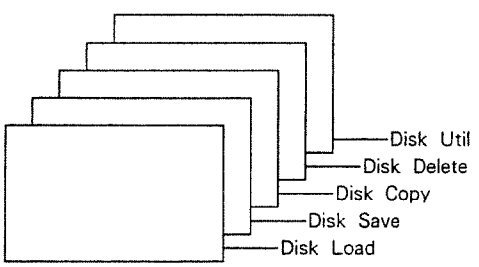
《The Command menu in the Edit Patch window》

To open the Command menu, click on **Com** in the upper right of each page of the Edit Patch window. To close the window, click on **Exit** in the upper right of the Command window.

Disk	Open the Disk Tools window.
Copy	Open the Copy window.
Delete	Open the Delete window.
Initialize	Open the Initialize window.
Select	Open the Select window.
Partial	Open the Edit Partial page.

[1] Disk (Disk Tools window)

Disk Tools window occupies five pages (Disk Load/Disk Save/Disk Copy/Disk Delete/Utility).



Disk Load

This function loads sound data from Hard Disk or floppy disk drive (or an external storage device). For the procedure, refer to the explanation for the Disk Tools window (☞P.195).

Disk Save

This function saves sound data to the Hard Disk or floppy disk (or an external storage device). For the procedure, refer to the explanation for the Disk Tools window (☞P.196).

Disk Copy

This function allows you to copy sound data from disk to disk. For the procedure, refer to the explanation for the Disk Tools window (☞P.197).

Disk Delete

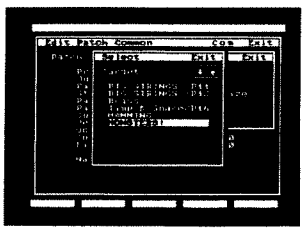
This function allows you to delete sound data. For the procedure, refer to the explanation for the Disk Tools window (☞P.198).

Utility

This function allows you to format a disk or execute (cancel) the Park heads Command for the Hard Disk drive. For the procedure, refer to the explanation for the Disk Tools window (☞P.199).

[2] Copy (Copy window)

This function allows you to copy a selected Patch from internal memory to the Patch being edited. When the Copy operation is executed, the Patch being edited will be lost, and replaced by the Patch data of the copy source.



● From

Select the Patch name for the copy source. Place the cursor on ↓ / ↑ and use the left and right mouse buttons to scroll the list. Click on the desired Patch name, and the Copy operation will be executed.

● To

This parameter displays the Patch name for the copy destination. This will automatically be set to the Patch currently being edited.

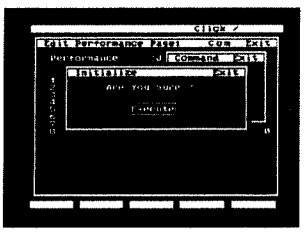
＊If the currently edited Patch does not have a name, the copy destination Patch will be given a temporary name consisting of a hyphen "-" added to the beginning of the copy destination Patch name. However, a Patch with such a name cannot be saved to disk, so you will have to assign a new name in Edit Patch Common.

[3] Delete (Delete window)

This function allows you to delete Patch data from internal memory. (This will not delete the Volume.) For details of the procedure, refer to the explanation for the Play window (☞P.102).

[4] Initialize (Initialize window)

This function will restore the initial parameters settings of the Patch for which the command was executed. All previous settings will be replaced and cannot be recovered. When you open the Initialize window, the display will read "Are you sure?", and the **Execute** button will appear.

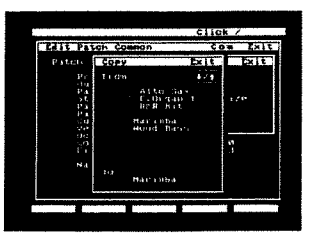


Execute ····· This will initialize all parameters of the Patch for which the command was executed.

＊To exit safely without initializing, click **Exit**.

[5] Select (Patch Select window)

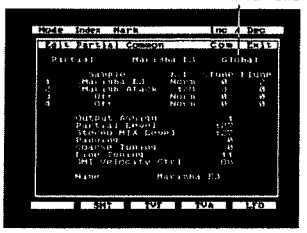
Select the Patch you wish to edit. Place the cursor on **↓ / ↑** and use the left or right mouse buttons to scroll the list, and click on the desired Partial name.



[6] Partial (Partial Edit window)

If you wish to edit only the Partials used by the Patch, click on this Partial command to open the Edit Partial window. Only when this command is opened, you have the option of editing all the Partials used (Global) or editing individual Partials (Single).

Move the cursor here and click to select.



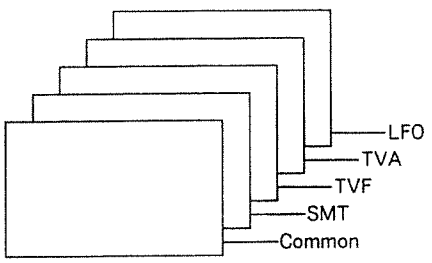
Global: Simultaneously edit the parameters of all Partials used in the Patch.

Single: Edit only the selected Partial.

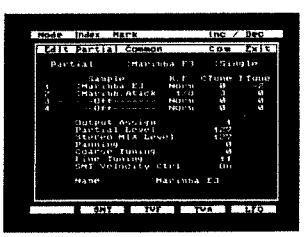
[2] EDIT PARTIAL (Edit Partial window)

Here you can edit parameters which determine how stereo Samples will be panned, how velocity data will mix two or more (up to four) Samples, etc. The TVF, TVA, and LFO allow you to edit the sound.

The parameters of the Edit Partial window occupy five pages; Common, SMT, TVF, TVA, and LFO.



1. Common



● Partial (Partial Select)

Place the cursor on this parameter, and click the left or right mouse buttons to select the Partial you wish to edit.

● Sample (Sample Select)

Assign up to four Samples.

● K.F (Pitch Key Follow)

This determines how the note number (the keyboard position) is related to the pitch which is actually sounded. This parameter can be set in 32 steps (-16/8 — -8/8 — Off — Norm — 16/8).

16/8 ····· When the note number rises 1 octave, the pitch will rise 2 octaves.

⋮

Norm (8/8) ····· When the note number rises 1 octave, the pitch will rise 1 octave.

⋮

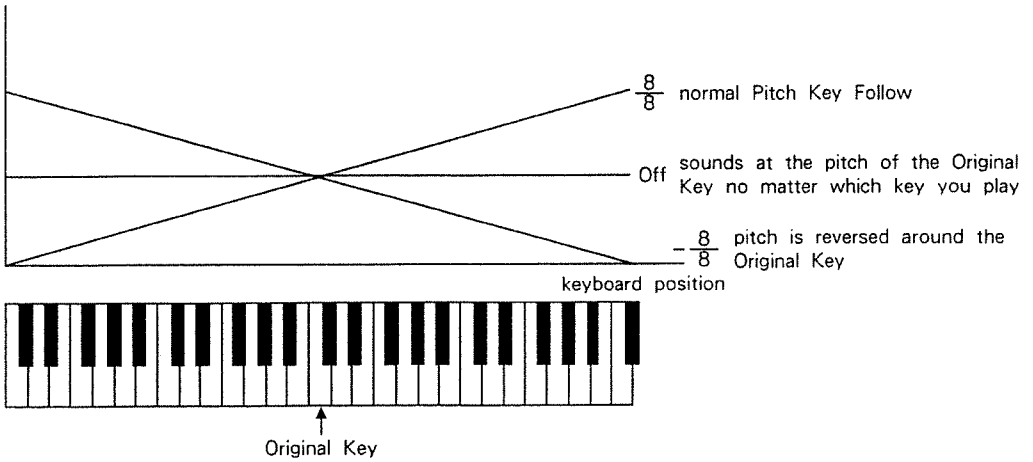
Off (0/8) ····· The pitch will not change even if the note number changes.

⋮

-8/8 ····· When the note number rises 1 octave, the pitch will fall 1 octave.

⋮

-16/16 ····· When the note number rises 1 octave, the pitch will fall 2 octaves.



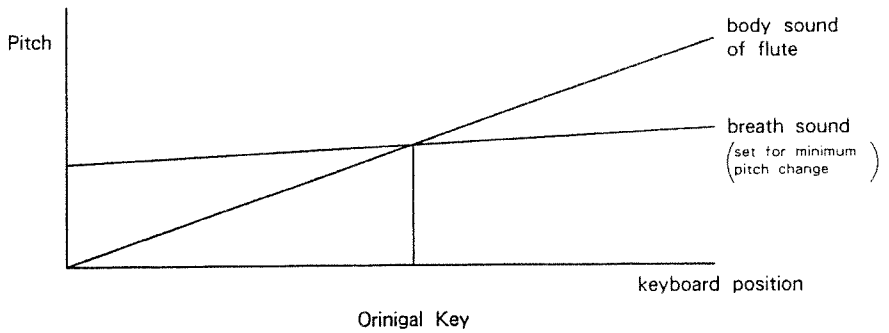
* The pitch change will be centered on the Original Key (☞P.156) of the Sample.

■ Remarks on using Pitch Key Follow

Since the pitch usually changes in half steps as you play the keyboard from low to high notes, you will usually leave this set at "Norm". By assigning Samples which have different Key Follow settings to the same Partial, you can use different detuning effects in different pitch ranges. (The detuning effect is greater as you play higher or lower.) Also, by setting Key Follow to 7/8 — 1/8, you can produce pitch differences of less than a half-step, which can be useful when performing non-western ethnic scales. Negative settings of this parameter will make the pitch decrease as you play higher on the keyboard, which can be an interesting effect.

■ Creating sounds using Pitch Key Follow

Since the S - 770 assigns up to 4 Samples to a Partial, you can use separate Samples for attack and decay in order to create more detailed sounds. For example, the breath sound of a flute or the hammer sound of a piano might be given its own Sample, and the Key Follow parameter for that Sample could be set low so that the sound would not follow a pitch scale. Next, the Sample containing the main body of the sound could be assigned to the same Partial, to create a more realistic acoustic sound. (Another interesting possibility might be to combine parts of different instruments, such as a piano hammer-attack sound with the resonance sound of a stringed instrument.)



In addition, when creating bell-type sounds, by giving each Sample a different Key Follow setting, you can create complex, atonal sounds.

● C Tune (Sample Coarse Tune)

This adjusts the tuning of the Sample in half steps (-48 — 0 — +48).

*With a setting of +48, the pitch will be 4 octaves higher.

● F Tune (Sample Fine Tune)

This adjusts the pitch of the Sample in fine steps of 1 cent (1/100th of a half step) (-50 — 0 — +50).

*A setting of 50 cents will change the pitch by 1/2 half-step.

● Output Assign

This selects the INDIVIDUAL output for each Partial (Off, 1, 2, 3, 4, 5, 6). This setting is valid only if the Patch Output Assign parameter (☞ P.122) has been set to "P". If this parameter is set Off, the sound will be output only from the STEREO outputs.

*When 1 to 6 are selected, the sound will be output from the specified INDIVIDUAL output and from the STEREO outputs. To cancel the output from the STEREO outputs, set the Stereo Mix Level to "0".

● Partial Level

Adjust the volume of each Partial (0 — 127).

● Stereo MIX Level

Adjust the output level from the STEREO outputs (0 — 127).

● Panning

Specify the Pan setting over a range of 32 steps to the left or to the right (L32 — Center (0) — R32).

● Coarse Tuning (Partial Coarse Tuning)

This adjusts the tuning of the Partial in half steps (-48 — 0 — +48).

*With a setting of +48, the pitch will be 4 octaves higher.

● Fine Tuning (Partial Fine Tuning)

This adjusts the pitch of the Partial in fine steps of 1 cent (1/100th of a half step) (- 50 — 0 — +50).

＊A setting of 50 cents will change the pitch by 1/2 half-step.

● Velocity Ctrl (SMT Velocity Control)

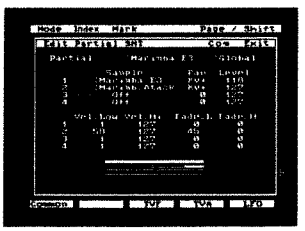
Specify whether the Sample Mix Table will be affected by velocity or not (Off, On).

● Name (Partial Name)

Assign a 12-character name to the Partial. However, you may not use a name which is already used by another Partial.

2. SMT (Sample Mix Table)

These settings determine the range of velocity data for which the Samples used by the Partial will sound. These settings also determine the left/right panning of each Sample, and allow velocity data to mix two or more Samples.



● Partial (Partial Select)

Place the cursor on this parameter, and click the left or right mouse buttons to select the Partial you wish to edit.

● Sample (Sample Select)

Specify up to 4 Samples for a Partial.

● Pan (Sample Pan)

This function sets the Pan for Samples (L32 — Center (0) — R32, Rnd, Ky+, Ky-). At "0", the sound image will be positioned at the center; at "L32" it will be furthest left, at "R32" it will be furthest right. When set to "Rnd", the sound will pan randomly with each press of a Key. When set to "Ky+" or "Key-", a change in the panning is obtained which reflects the position of the key played (Note number). When set to "Ky+", as you move further toward the upper range, the sound image will move from the left toward the right. When set to "Ky-", as you move further toward the upper range, the sound image will move from the right toward the left.

```
Ky +    A0 ..... C4 ..... C7
        L32 <------- 0 -------> R32
Ky -    A0 ..... C4 ..... C7
        R32 <------- 0 -------> L32
```

● Level (Sample Level)

Specify the volume level for each Sample (0 — 127).

● Vel Low (Velocity Low Point)

Specify the lower limit (velocity low point) which will sound the Sample (0 — 127).

● Vel Hi (Velocity High Point)

Specify the upper limit (velocity high point) which will sound the Sample (0 — 127).

● Fade L (Fade Width Low)

Specify the range over which the volume level will be faded from the velocity low point (0 — low).

● Fade U (Fade Width Upper)

Specify the range over which the volume level will be faded from the velocity high point (0 — Hi).

■ *Using the mouse in the graphic display*

Velocity range and fade width can be specified using the mouse.

○ To specify the velocity range

Place the mouse cursor on the left or right edge of the desired Partial in the graphic display. While holding the left button, move (drag) the mouse to the left or right. As you drag the mouse, the line indicating the velocity range will turn red, and become longer or shorter as the mouse is moved. The lower left of the display will show the name of the parameter being edited, and the parameter value will also change as the mouse is moved. To modify the "Vel Low" parameter, drag the left edge. To modify the "Vel Hi" parameter, drag the right edge.

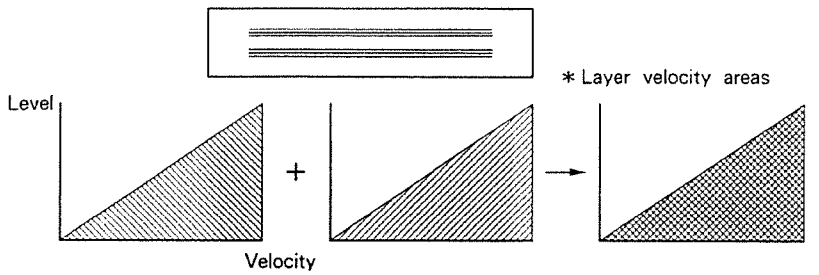
○ To specify the fade area

Place the mouse cursor on the left or right edge of the desired Partial in the graphic display. While holding the right button, press and hold the left button and move (drag) the mouse to the left or right. As you drag the mouse, the middle line will disappear to indicate the fade area. This line will become longer or shorter as the mouse is moved. The lower left of the display will show the name of the parameter being edited, and the parameter value will also change as the mouse is moved. To modify the "Fade.L" parameter, drag the left edge of the velocity range of the partial. To modify the "Fade.H" parameter, drag the right edge.

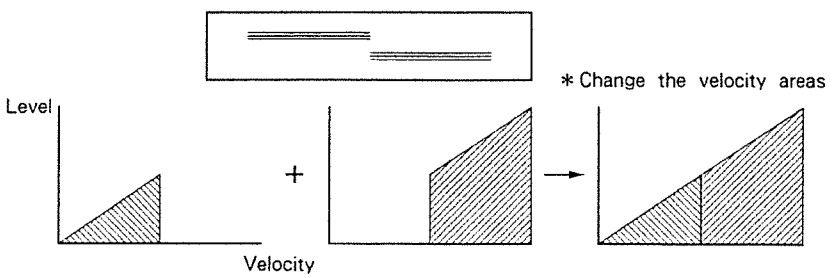
The velocity range and fade width settings of the Sample Mix Table allow you to simultaneously sound different Samples, or to use velocity data to distinguish soft and loud Samples of the same instrument.

■ *Effects using the SMT*

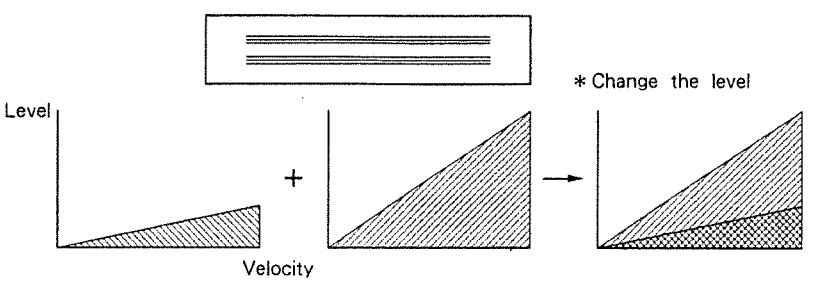
Layer (layer two or more sounds)



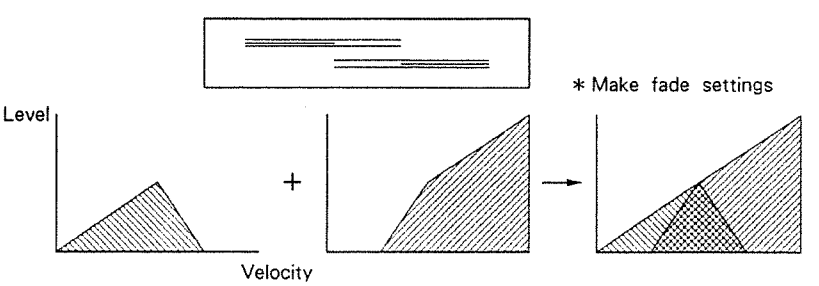
Velocity switch (use velocity to switch between sounds)



Velocity mix (use velocity to change the mixture of sounds)



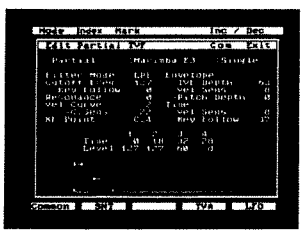
Velocity crossfade (use velocity to change the volume balance of sounds)



*SMT (the Sample Mix Table) is normally controlled by velocity data, but it can also be controlled using Control messages such as bender, aftertouch, etc. For details refer to the Control page of Edit Patch (☞P.127).

3. TVF (Time Variant Filter)

This page contains the parameters that correspond to the VCF of an analog synthesizer. These parameters determine how a filter will be applied to the four Samples mixed by the Sample Mix Table, to control the tone over time. Graphic displays of envelope and TVF cutoff are provided, allowing you to see how the parameters interact as you edit.



● Partial (Partial Select)

Place the cursor on this parameter and click the left or right mouse buttons to select the Partial you wish to edit.

● Filter Mode

Select the type of filter (Off/LPF/BPF/HPF).

Off ····· Filtering will not be used, and the sound will be pass. When this filter mode is selected, the Pitch Envelope will have no effect.

LPF (Low Pass Filter) ····· Frequencies lower than the Cutoff Frequency will pass, and higher frequencies will be cut.

BPF (Band Pass Filter) ···· Frequencies around the Cutoff Frequency will pass. Higher resonance settings will narrow the band.

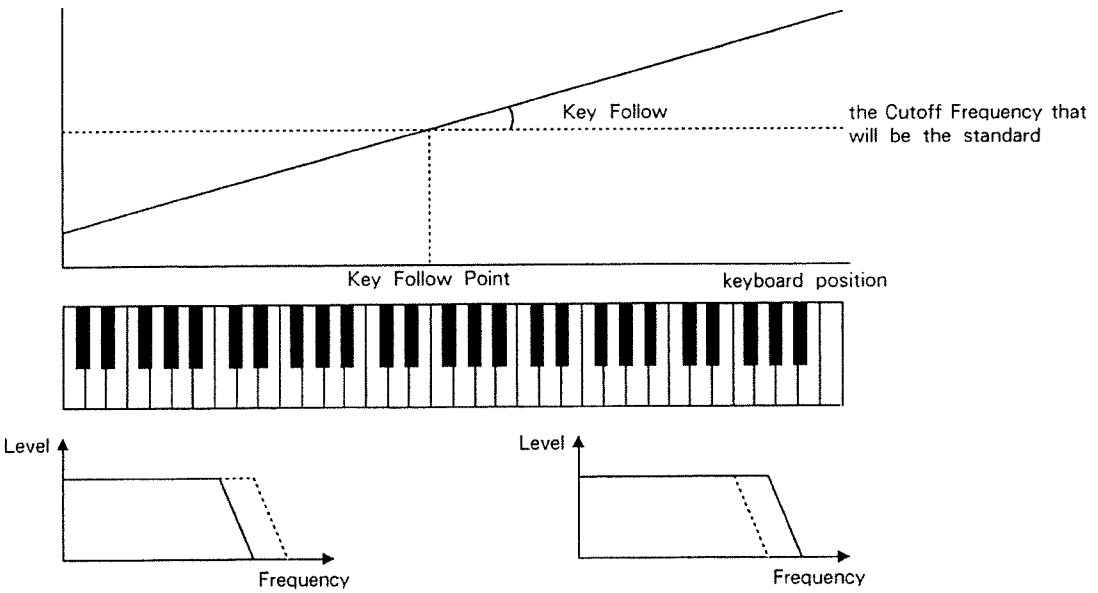
HPF (High Pass Filter) ···· Frequencies higher than the Cutoff Frequency will pass, and lower frequencies will be cut.

● Cutoff Freq (Cutoff Frequency)

Specify the Cutoff Frequency (0 — 127) of the entire TVF. This determines the frequency at which the filter will begin to have an affect. For a Low Pass Filter, lower settings of this parameter will cut the low range more noticeably, making the sound closer to a sine wave. On the other hand, since a High Pass Filter cuts the lower frequencies, higher settings of this Cutoff Freq parameter will result in a lighter, brighter sound. The specified Cutoff Frequency can be controlled in real time by the envelope, by Controller messages, by modulation from the LFO, etc.

● Cutoff Freq-Key Follow (Cutoff Frequency Key Follow)

This parameter specifies how the Cutoff Frequency will be adjusted (-63 — +63) around the specified Key Follow point, relative to the specified Cutoff Freq. This allows the Cutoff Frequency to change according to the note number. If this parameter is set to 0, note number will have no effect on the Cutoff Frequency.



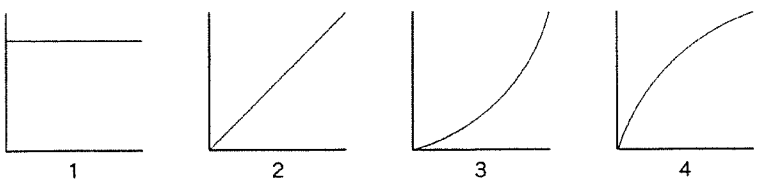
● Resonance

Specify the resonance (0 — 127) at the Cutoff Frequency. Higher settings will cause the frequencies near the Cutoff Frequency to be emphasized, resulting in a sound distinctive of analog synthesizers. Very high settings of this parameter will make the filter oscillate.

● Vel-Curve (Velocity Curve Type)

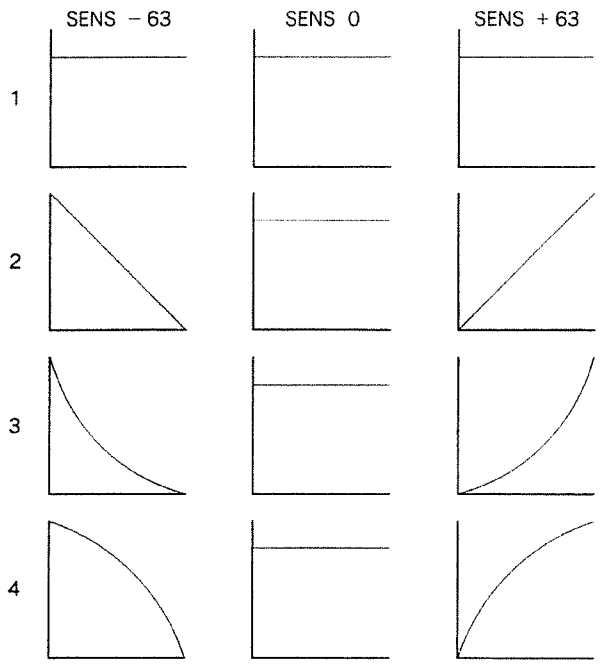
This parameter determines how velocity will affect the Cutoff Frequency of the overall envelope (1, 2, 3, 4). At setting of "1", velocity will have no effect on the Cutoff Frequency of the envelope.

horizontal axis ··· Velocity
vertical axis ··· Cutoff Frequency



● Vel-C.Sens (Velocity Curve Sensitivity)

Provides for adjustment of the depth applied and the polarity for the selected velocity curve (- 63 — +63). At "+63" a fairly standard effect (when the velocity value is high, the cutoff will be great) will be obtained. The further the value is set nearer to "0", the less will be the effect. With values set in the "minus" range, an inverse effect (with large velocity values, the cutoff will be minimal) is obtained.



● KF Point (Key Follow Point)

Specify the key (A0 — C8) around which the Key Follow setting will adjust the Cutoff Frequency. The key follow point specified here is used by the two Key Follow parameters (Cutoff Frequency and envelope time).

● Envelope-TVF Depth

When the envelope is used to modify the Cutoff Frequency over time, this parameter specifies the amount and direction of control (- 63 — +63). For a setting of +63, the envelope will have maximum effect on Cutoff Frequency. For a setting of 0, the envelope will have no effect on Cutoff Frequency. For negative (-) settings, the envelope will have an inverse effect.

● Envelope-Vel Sens (Envelope Velocity Sensitivity)

Specify how velocity will affect the depth of Cutoff Frequency change (- 63 — +63) caused by the TVF Envelope.

● Envelope-Pitch Depth

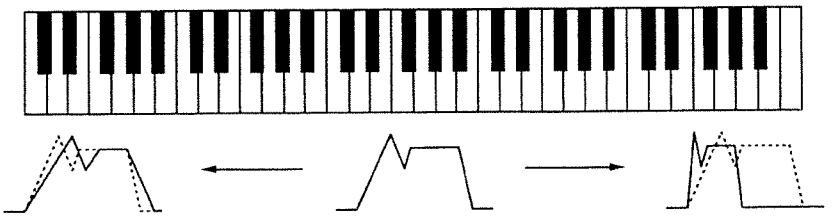
The TVF Envelope of the S - 770 can not only modify the Cutoff Frequency, but also the pitch. If you wish to use the TVF Envelope to modify the pitch over time, use this parameter to specify the depth of the pitch change (- 63 — +63).

● Time-Vel Sens (Time Velocity Sensitivity)

Specify how velocity will affect the length of the envelope parameter Time 1 (-63 — +63). Positive (+) settings allow higher velocity to decrease Time 1 (causing a faster attack). Negative (-) settings allow higher velocity to increase Time 1 (causing a slower attack).

● Time-Key Follow (Envelope Time Key Follow)

Specify how envelope time will be adjusted (-63 — +63) according to key (note number); i.e., how envelope time is "scaled" across the keyboard range.

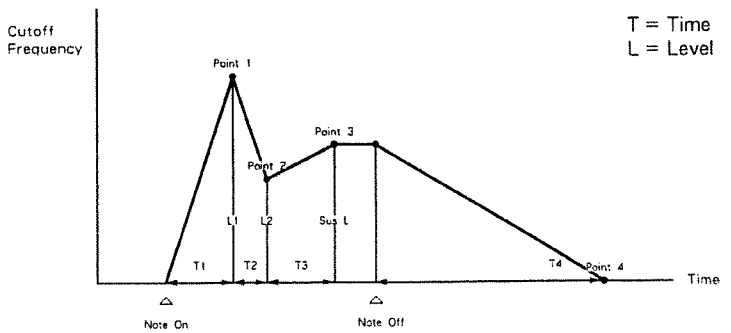


■ *Hints for using Envelope Time Key Follow*

In most acoustic instruments, the envelope time is long for lower notes, and become shorter as you play higher notes. To simulate this, use positive (+) settings of the Time Key Follow parameter. For a setting of 0, envelope times will be the same for every note. For negative (-) settings, envelope time will increase as you play higher notes.

● TVF Envelope

The vertical axis of the display indicates Cutoff Frequency, and the horizontal axis indicates the time from Note On.



Time 1 (Envelope Time 1)

Specify the time (0 — 127) over which the Cutoff Frequency will move to point 1 starting when the key is pressed.

Time 2 (Envelope Time 2)

Specify the time (0 — 127) over which the Cutoff Frequency will change from point 1 to point 2.

Time 3 (Envelope Time 3)

Specify the time (0 — 127) over which the Cutoff Frequency will change from point 2 to point 3.

Time 4 (Envelope Time 4)

Specify the time (0 — 127) over which the Cutoff Frequency will decrease from level L3 to 0 starting when the key is released.

Level 1 (Envelope Level 1)

Specify the Cutoff Frequency level of point 1 (0 — 127).

Level 2 (Envelope Level 2)

Specify the Cutoff Frequency level of point 2 (0 — 127).

Level 3 (Envelope Level 3)

Specify the Cutoff Frequency level of point 3 (0 — 127).

Level 4 (Envelope Level 4)

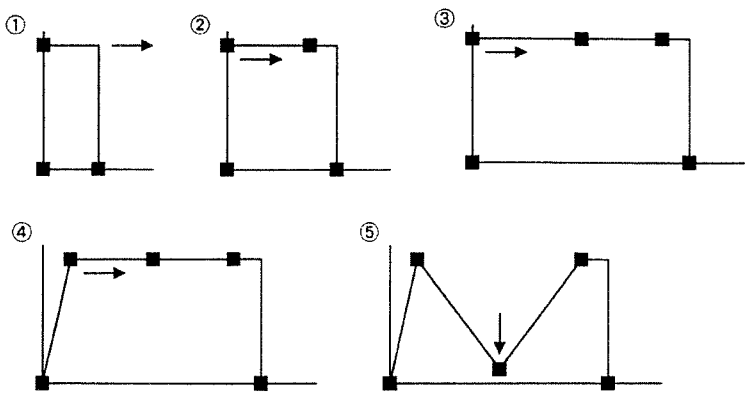
Specify the Cutoff Frequency level of point 4 (0 — 127).

* Level 4 of the TVF Envelope also determines the level at the time of Note On (the level before point 1).

■ *Using the mouse in the graphic display*

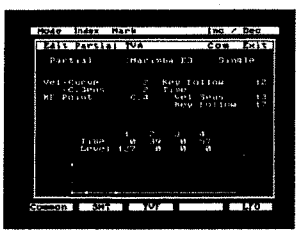
The Cutoff Frequency envelope can be edited using the mouse.

When you first open the window, points 1 — 3 will be on the same vertical line. Place the mouse cursor here and drag with the left button to move each point out to the right (① — ④). As you move the mouse, the lines connecting each point will stretch freely like rubber bands (⑤). The time values and level values indicating each point will also change in realtime.



4. TVA (Time Variant Amplifier)

The parameters in this page correspond to the VCA of an analog synthesizer. These parameters determine how the four Samples mixed by the Sample Mix Table will change in volume over time. The envelope is displayed graphically, allowing you to see how the parameters interact as you edit.



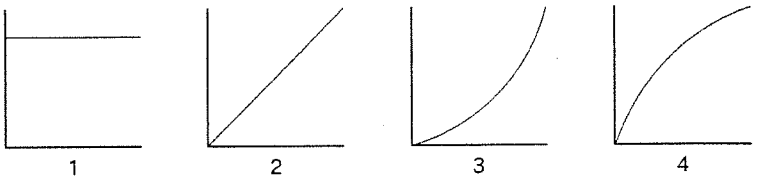
● Partial (Partial Select)

Place the cursor on this parameter and click the left or right mouse buttons to select the Partial you wish to edit.

● Vel-Curve (Velocity Curve Type)

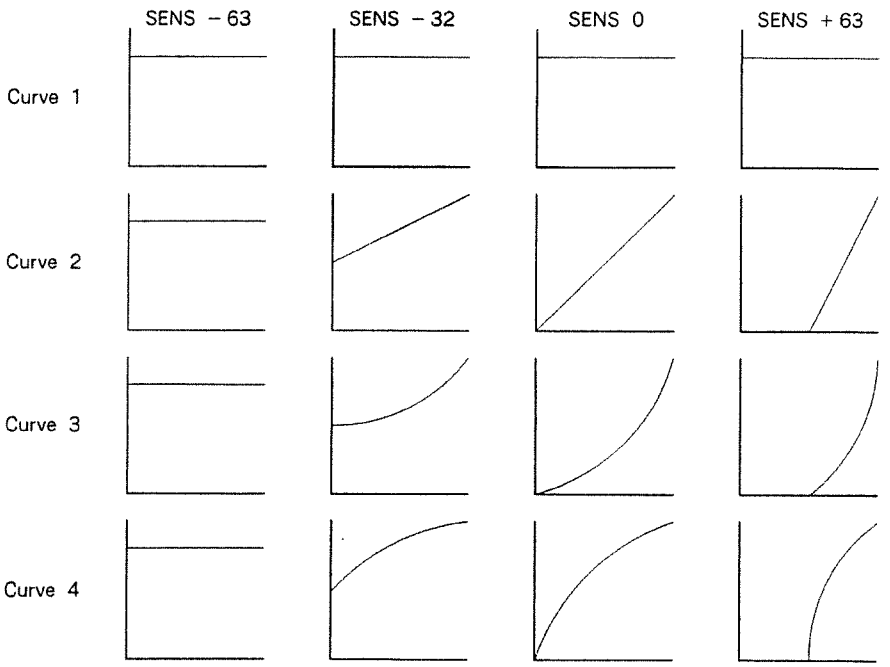
Specify how velocity will affect the overall volume of the entire TVA Envelope (1, 2, 3, 4). With a setting of "1", velocity will have no effect on the volume envelope.

horizontal axis ··· Velocity
vertical axis ··· Volume



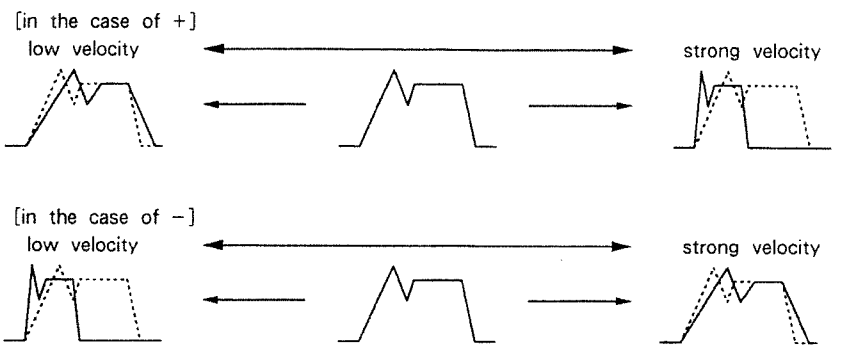
● Vel-C.Sens (Velocity Curve Sensitivity)

This setting determines the depth at which the selected Velocity Curve will be applied (-63 — +63). At "0", the standard effect will be obtained. With values in the positive range, the effect will be emphasized; whereas in the negative range the effect is lessened. At "-63", no amplitude changes at all will be obtained as a result of velocity.



● Time-Vel Sens (Time Velocity Sensitivity)

Specify how velocity will affect the length of the TVA Envelope parameter Time 1 (-63 — +63). Positive (+) settings allow higher velocity to decrease Time 1 (causing a faster attack). Negative (-) settings allow higher velocity to increase Time 1 (causing a slower attack).

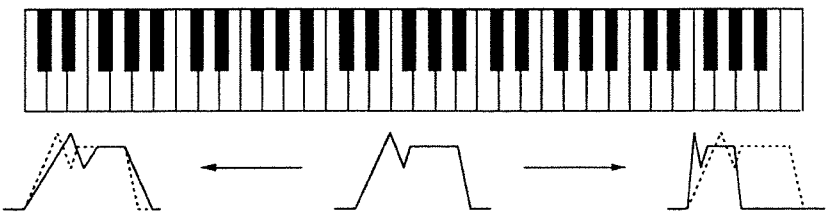


● Key Follow (Level Key Follow)

This parameter changes the relative volume around the Key Follow Point. This parameter will adjust the volume according to the pitch (note data) you play (-63 — +63). When set to 0, Key Follow will not affect the volume. When set to +63, the volume will double as you play 12 notes higher.

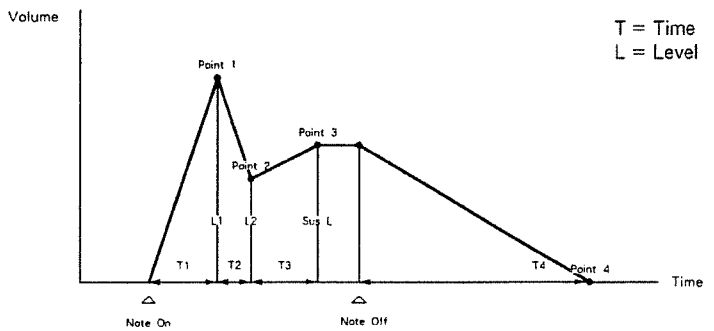
● Time-Key Follow (Envelope Time Key Follow)

Specify how TVA Envelope time will be adjusted (- 63 — +63) according to key (note number). Positive (+) settings will result in a faster envelope attack as you play to the right of the keyboard (i.e., as note numbers become higher). Negative (-) settings will result in a slower envelope attack as you play to the right of the keyboard (i.e., as note numbers become higher). For a setting of "0", keyboard position (note number) will have no effect on envelope time.



● TVA Envelope

The vertical axis of the display indicates volume level, and the horizontal axis indicates the time from Note On.



Time 1 (Envelope Time 1)

Specify the time (0 — 127) over which the level will move to point 1 starting when the key is pressed.

Time 2 (Envelope Time 2)

Specify the time (0 — 127) over which the level will change from point 1 to point 2.

Time 3 (Envelope Time 3)

Specify the time (0 — 127) over which the level will change from point 2 to point 3.

Time 4 (Envelope Time 4)

Specify the time (0 — 127) over which the level will decrease from level L3 to 0 starting when the key is released.

Level 1 (Envelope Level 1)

Specify the volume level of point 1 (0 — 127).

Level 2 (Envelope Level 2)

Specify the volume level of point 2 (0 — 127).

Level 3 (Envelope Level 3)

Specify the volume level of point 3 (0 — 127).

*Level 4 (Envelope Level 4) of the TVA Envelope is fixed at 0.

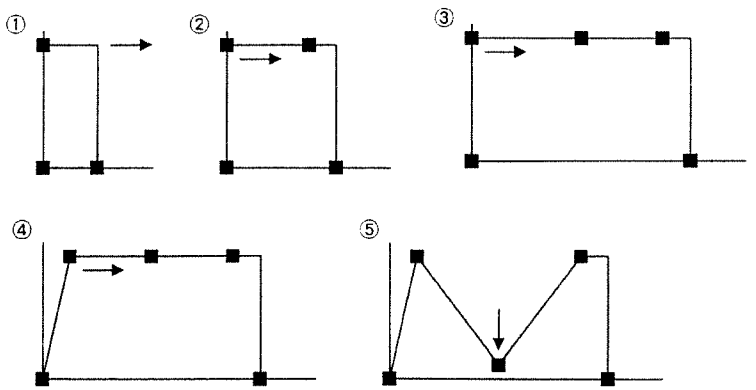
●TVA KF Point (TVA Key Follow Point)

Specify the center key (A0 — C8) for the TVA Key Follow parameters.

■*Using the mouse in the graphic display*

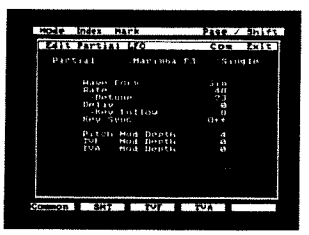
The TVA envelope can be edited using the mouse.

When you first open the window, points 1 — 3 will be on the same vertical line. Place the mouse cursor here and drag with the left button to move each point out to the right (①—④). As you move the mouse, the lines connecting each point will stretch freely like rubber bands (⑤). The time values and level values indicating each point will also change in real time.



5. LFO (Low Frequency Oscillator)

The LFO is an oscillator which always produces a waveform at a very low frequency. This can be used to modulate the pitch (resulting in vibrato), or to control the TVF or TVA.

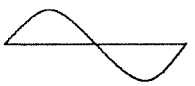
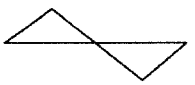
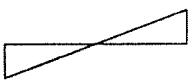
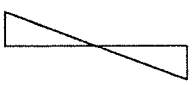
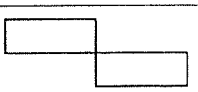
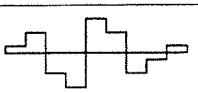
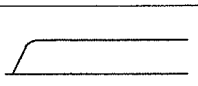
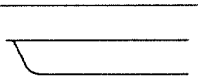


● Partial (Partial Select)

Place the cursor on this parameter, and click the left and right mouse buttons to select the Partial you wish to edit.

● Wave Form

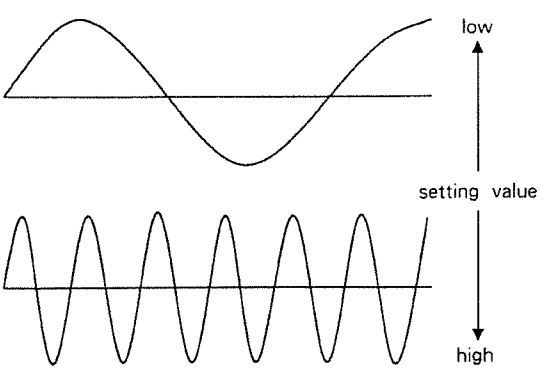
Select the LFO waveform (Sin, Tri, Saw Up, Saw Dwn, Square, Random, Bnd Up, Bnd Dwn).

Sin	Sine		sine wave
Tri	Triangle		triangle wave
Saw Up	Saw Up		sawtooth wave up
Saw Dwn	Saw Down		sawtooth wave down
Square	Square		square wave
Random	Random		sample & hold change the LFO value once each cycle
Bnd Up	Bend Up		the wave will be held when it reaches the peak
Bnd Dwn	Bend down		the wave will be held when it reaches the (negative polarity) peak

*If the waveforms Bnd Up or Bnd Dwn are selected when the LFO is applied to pitch, the effect will be similar to a pitch envelope.

● Rate (LFO Rate)

Specify the speed (0 — 127) of the LFO. Higher settings result in faster modulation.



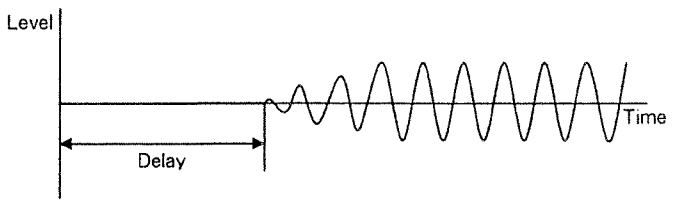
● Detune

Specify the width of change (0 — 127) in LFO rate for each note. Higher settings will cause greater change.

*This parameter is especially useful when playing chords with a string sound, etc., since each note of the chord will have a slightly different vibrato speed, resulting in a more natural effect.

● Delay (LFO delay)

Specify the time from when the key is pressed to when the LFO effect begins (0.01 — 160 sec, equivalent to a setting of 0 — 127).



■ *Using LFO delay (Delayed Vibrato)*

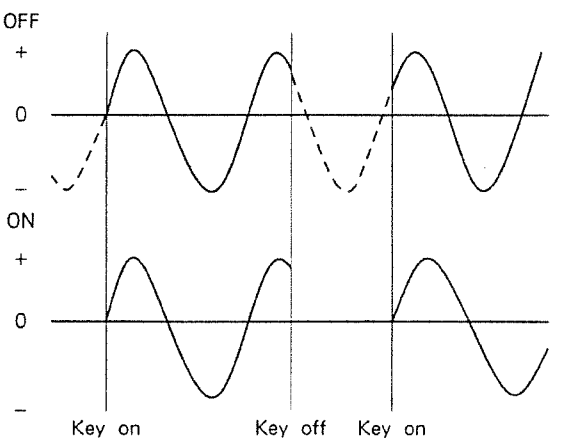
When playing violin or other string instrument sounds, it is effective to add vibrato after the sound has been sustaining for a time. By making appropriate settings for LFO Delay along with Pitch Modulation Depth and LFO Rate, you can make Pitch Modulation (vibrato) begin a certain time after the key is pressed. This is known as "delay vibrato".

● Delay Key Follow

Specify how the LFO Delay time will become shorter for higher notes (0 — 127).

● Key Sync

When this is set On, the LFO will begin from phase 0 each time a key is pressed (Off, On).



● Pitch Mod Depth (Pitch Modulation Depth)

Specify the depth (– 63 — +63) of LFO Pitch Modulation. This will cyclically modify the pitch to create vibrato effects. Negative (–) settings will invert the LFO phase.

●TVF Mod Depth (TVF Modulation Depth)

Specify the depth (-63 — +63) of LFO filter modulation. This will cyclically modify the tone to create "growl" (wah) effects. Negative (-) settings will invert the LFO phase.

●TVA Mod Depth (TVA Modulation Depth)

Specify the depth (-63 — +63) of LFO amplitude modulation. This will cyclically modify the volume to create tremolo effects. Negative (-) settings will invert the LFO phase.

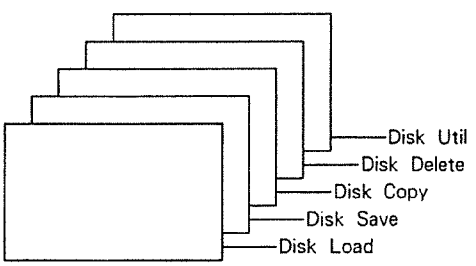
《The Command menu in the Edit Partial window》

To open the Command menu, click on **Com** in the upper right of each page of the Edit Partial window. To close the window, click on **Exit** in the upper right of the Command window.

Disk	Open the Disk Tools window.
Copy	Open the Copy window.
Delete	Open the Delete window.
Initialize	Open the Initialize window.
Template	Open the Template window.
Select	Open the Select window.
Sample	Open the Sampling page of the Edit Sample window.

[1] Disk (Disk Tools window)

Disk Tools window occupies five pages (Disk Load/Disk Save/Disk Copy/Disk Delete/Utility).



Disk Load

This function loads sound data from the Hard Disk or floppy disk drive (or an external storage device). For the procedure, refer to the explanation for the Disk Tools window (☞P.195).

Disk Save

This function saves sound data to the Hard Disk or floppy disk (or an external storage device). For the procedure, refer to the explanation for the Disk Tools window (☞P.196).

Disk Copy

This function allows you to copy sound data from disk to disk. For the procedure, refer to the explanation for the Disk Tools window (☞P.197).

Disk Delete

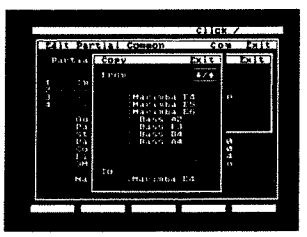
This function allows you to delete sound data. For the procedure, refer to the explanation for the Disk Tools window (☞P.198).

Utility

This function allows you to format a disk or execute (cancel) parking the heads of the Hard Disk drive. For the procedure, refer to the explanation for the Disk Tools window (☞P.199).

[2] Copy (Copy window)

This allows you to copy a selected Partial from internal memory to the Partial being edited.



● From

Select the Partial name for the copy source. Place the cursor on ↓ / ↑ and use the left and right mouse buttons to scroll the list. Click on the desired Partial name, and the Copy operation will be executed.

● To

Select the Partial name for the copy destination. This will automatically be set to the Partial that was in the Edit partial window when this command was executed.

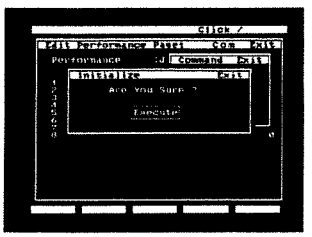
*Note that when this Copy operation is executed, the copy destination Partial will be overwritten by the copy source data, and the previous data will be lost.

[3] Delete (Delete window)

This function allows you to delete a Partial from internal memory. For details of the procedure, refer to the explanation for the Play window (☞P.102).

[4] Initialize (Initialize window)

This function will restore the initial parameter settings for all parameters of the Partial for which the command was executed. The previous data of the Partial will be lost, and cannot be recovered. When you open the Initialize window, the display will show "Are you sure?", and the **Execute** button.

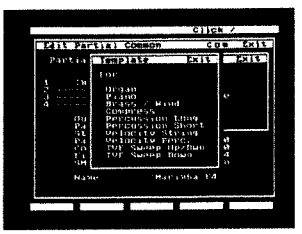


Execute ..... This will initialize all parameters of the Partial for which the command was executed.

＊To exit safely without initializing, click **Exit** .

[5] Template (Template window)

This function rewrites the parameters of the currently edited Partial to the same data as specified preset parameters.

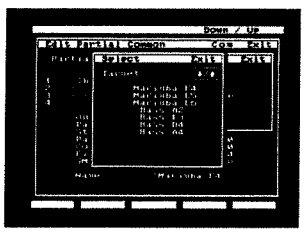


＊Ten types of preset Partial are provided.

To execute, click on the desired preset Partial. You will then be returned to the page from which you opened the Command menu.

[6] Select (Partial Select window)

Select the Partial you wish to edit. Place the cursor on [↓ / ↑] and use the left or right mouse buttons to scroll the list, and click on the desired Partial name. When you click, you will be returned to the page from which you opened the Command menu.

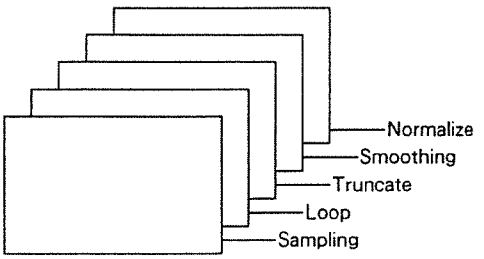


[7] Sample (Sample window)

This function allows you to directly open the Edit Sample window.

[3] EDIT SAMPLE (Edit Sample window)

From this window you can record a sound and process the wave data in various ways to create the basic unit of S - 770 data : a Sample. The parameters of this window occupy five pages.



■ Sampling Frequency

Sounds from the outside world are converted into digital signals, and stored (sampled) into memory as very short intervals of time. The number of intervals per second is called the "sampling rate". For example, when the maximum sampling rate of 48KHz is used, the incoming audio signal is sampled 48,000 times each second. (To give you an idea of the quality this represents, the compact disc (CD) standard is a sampling rate of 44.1KHz.) The S - 770 can use four different sampling rates; 48KHz, 44.1KHz, 24KHz, or 22.05KHz. If you sample at 24KHz, the sound quality will not be as good as a Sample made at 48KHz, but the available Sampling Time will be twice as long for the same amount of memory. As the sampling rate increases, the sound quality will also increase. However, this means that more memory will be used, and therefore the sampling time will be shorter.

■ How to calculate memory consumption

Here's how to calculate memory consumption.

Memory consumption :	"M" Kbyte
Sampling quantization :	"B" bit
Sampling rate :	"F" KHz
Sampling time :	"T" Sec

With these variables, use the following equation;

$$M = \frac{1}{8} BFT$$

For example since the S - 770 uses 16 bit quantization, if we use a sampling rate of 40KHz and record a 10 second Sample, memory consumption will be as follows.

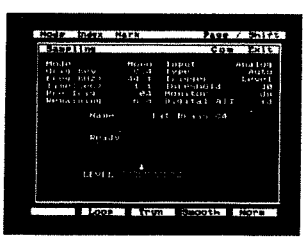
$1/8 \times 16 \times 40 \times 10 = 800$ (Kbyte)

■ *About the Sampling Theorem*

What sampling frequency should you use? In general, the sampling frequency must be approximately twice as high as the highest frequency you wish to record and reproduce. This is known as the Sampling Theorem, and is something you should remember when deciding which sampling frequency to use. DAT (digital audio tape) can use a sampling frequency of 48KHz, and CD (compact disc) uses a sampling frequency of 44.1KHz. Higher sampling frequencies allow a broader frequency range to be reproduced, but lower sampling frequencies allow you to to record longer Samples (or conserve memory).

1. Sampling

"Sampling" means to record a sound from an external source and store it as digital data. Recorded sound is called a "Sample", and is the most basic unit of sound data for the S - 770.



● Mode (Sampling Mode)

Select whether to Sample in stereo or mono (Stereo/Mono).

● Original Key

Specify the key number (keyboard position) at which the Sample will be played back at its recorded pitch (A0 — C8).

● Freq (KHz) (Sampling Frequency)

Select the sampling frequency (Master Freq 48KHz: 48/24, or Master Freq 44.1KHz:44.1/22.05). Stereo sampling is possible at all frequencies, but the selectable frequencies will depend on the Master Sampling Frequency (☞ P.193) you have selected.

When Master Freq is 48KHz ····· 48/24 KHz
When Master Freq is 44.1KHz ····· 44.1/22.05 KHz

● Time (sec) (Sampling Time)

Specify the sampling time. The time available will depend on the amount of available internal memory. If there is sufficient internal memory, it is a good idea to use long sampling times. Later, you can use the Truncate (☞ P.169) function to recover unused memory, in order to compress the wave data to the minimum size.

● Pre-Trig (Pre Trigger)

Specify the pre trigger time (.00 — .10). When using Auto or Manual sampling, this setting allows you to record wave data that occurred before the sampling trigger threshold was exceeded (or, when Threshold = 0, before sampling was executed). This allows you to record sounds that have a slow attack, or avoid losing the first few milliseconds of the attack.
The actual pre trigger time specified by this parameter will depend on the sampling frequency.

● Input

Select whether to Sample from the analog inputs or from the digital inputs. (When Mode=Mono, select from Analog/Digital L/Digital R. When Mode=Stereo, select from Analog/Digital.) When sampling from the digital input, you will be able to select only a sampling frequency which is either identical to or half of the clock of the digital input signal.

● Type (Sampling Type)

Select the type of sampling (Auto/Manual/Prev/1 way).

○ Auto

Sampling will begin when the Sampling Start command occurs. Recording will begin retroactively, starting with the sound that occurred at the specified Pre-Trigger time.

○ Manual

Sampling will begin when the Start switch is clicked. If the Pre-Trigger setting is used, recording will begin the specified time length earlier.

○ Previous

Sampling will end when the Start switch is clicked. Pre-Trigger settings will be ignored.

■ *More about Previous Sampling*

Previous Sampling allows you to record a sound by clicking a switch immediately after the sound ends. For example, when recording live percussive Samples, you may wish to hear the entire sound before deciding whether or not to record it. Previous Sampling is especially useful in such cases, since you can give the sampling command immediately after the desired sound occurs.

○ 1 way

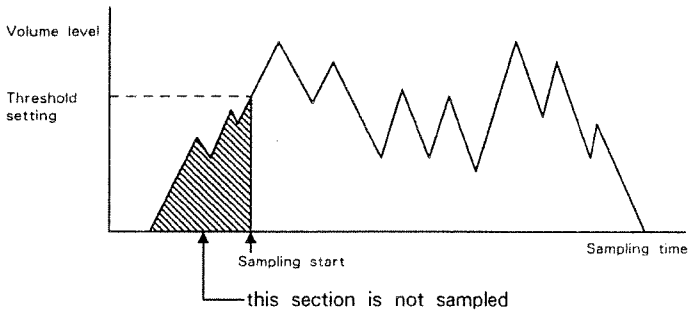
Sampling will begin when you click the Start switch. This differs from Manual in that the Pre-Trigger settings are ignored and that, even for long Samples, there will be no waiting time until the Sample can be played.

● Trigger (Sampling Trigger)

Select the information (trigger) that will start sampling (Level/MIDI/Pedal).

Level: When the level of the input signal exceeds the threshold, sampling will automatically begin.
MIDI: When a Note On message is received, sampling will automatically begin.
Pedal: When a connected pedal switch is pressed, sampling will begin.

*When sampling sounds that have a slow attack, such as horn or strings, the beginning of the sound will not be recorded if you use Level to trigger sampling. In such cases, use another sampling trigger.



● Threshold (Sampling Threshold)

The parameter determines the volume level (0 — 127) at which sampling will be started. When the S - 770 receives a signal above this level, it will automatically begin sampling. If this is set to 0, you can click **Start** to start sampling.

● Monitor (Sampling Monitor)

This determines whether or not (On/Off) the sound received at the analog inputs will be output from the STEREO outputs. By turning this On while sampling from the analog inputs,you will be able to monitor the sound from the STEREO outputs or Headphones out. The sound fed into the digital inputs will always be sent through the digital outputs whether the Sampling Monitor is set to On or Off. In this case, however, the monitor signal is not output through the STEREO out or Headphones out of the S - 770.

● Digital ATT (Digital Attenuator)

If the input signal from the digital input causes distortion, adjust this input gain (+3, 0, - 3, - 6).

● Name (Sample Name)

Specify a 12-character name for the Sample you are going to record. If you attempt to record a Sample without specifying a name, a message of "Can't Execute. Please set Name." will appear, and sampling will not be possible.

● Ready (Ready Switch)

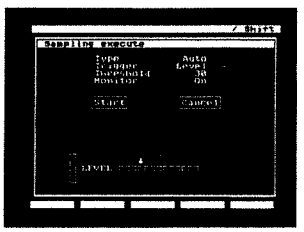
To record a Sample according to the conditions you have specified, click this switch to open the Sampling Execute window.

■ *About the bar level indicator (LEVEL)*

This indicator monitors the input level. While listening to the sound, adjust the recording level knob so that the last segment (red) of the level indicator does not light. If the sound is distorted, check that the peak indicator on the front panel is not lit red. If it is lit, adjust the input sensitivity knob and recording level knob. When recording a Sample, even small amounts of distortion will cause noise. If for some reason the Sample was not recorded at a sufficiently high level, you can use the Edit Sample Normalize (☞P.174) function afterward to expand the level to the full 16 bits.

● Sampling Execute window

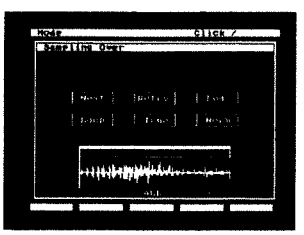
To open this window, click **Ready** on the Sampling page. (Unless you give a name to the Sample you are about to record, you will not be able to proceed to this function.)



In this window you will be asked to confirm whether to record the Sample according to the four parameters you have specified; Type, Trigger, Threshold, and Monitor. (You may modify these settings from this window.) If the settings are satisfactory, click **Start** . If you decide not to sample, click **Cancel** . When sampling begins as specified, the sampling time indicator at the left side of the level (LEVEL) indicator will visually indicate the elased of sampling time.

> **Note ! !**
> If the System parameter Fan Control setting (☞P.193) is On, the Hard Disk cooling fan will stop while the Sampling Execute window is open. If the fan is stopped for long periods of time, the Hard Disk may be damaged and become unusable. Never allow the fan to remain stopped for long periods of time.

Click **Start** , and "Wait Trigger" will appear. When sampling ends, the three switches **Next** , **Retry** , **End** will appear.



Next	Click this to continue recording the next Sample.
Retry	Click this to re-record the Sample. The unwanted Sample will be discarded, and you can Sample again with the same settings.
End	Click this if you have finished sampling.

*The three switches (**Loop** , **Trun** , **Norm**) displayed below the above switches have the same function as the Page switches. Click the desired page to open it, and you can edit the wave data immediately after sampling.

Sampling techniques

Here are some techniques to help you obtain high quality Samples using a limited amount of memory.

○ Use looping

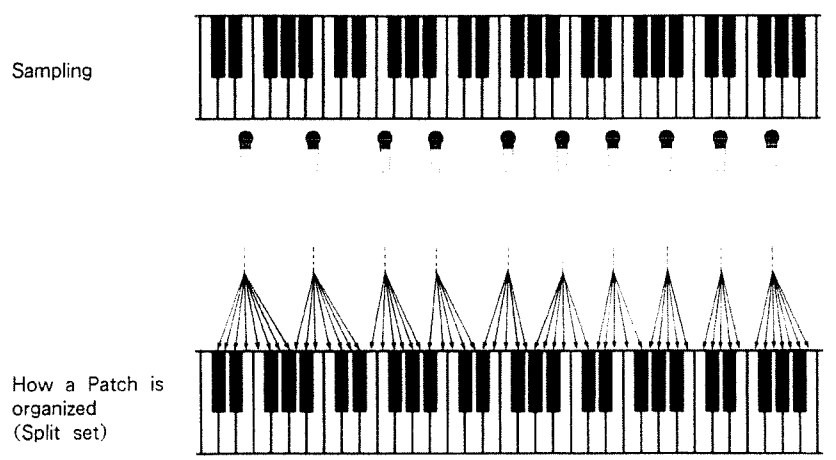
For a detailed explanation of "Looping", please refer to the following pages.

○ Process the sound before sampling

By using a limiter or compressor to control the level of the sound being sampled, you can hold down the attack of the sound and record the entire Sample at a high level to obtain a good S/N ratio. Also, when sampling a long sound, using a compressor to level out the sustain portion will make it easier to get a good Loop (☞ P.161). However, be careful not to overdo the level processing, since this will destroy the original character of the sound.

○ Use multi-sampling

When a sampled sound is played back, notes played back much higher or lower than the original key will be quite unlike the original sound, even though notes near the original key will sound exactly like the original. If you wish to playback a sound over a wide range, record a Sample for each pitch range. Later you can split these Samples across the keyboard to minimize changes in tone due to extreme transposition.



Multi-sampling

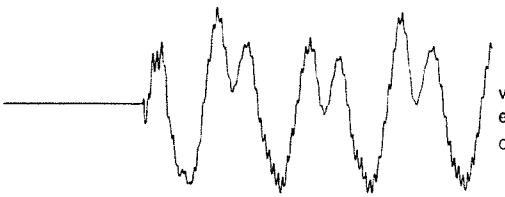
This is known as **multi-sampling**. While multi-sampling allows you to playback sounds (such as piano) over a wide range, it also consumes more memory. If the internal memory or remaining memory of the sampler is insufficient, you may have to lower the sampling frequency to increase the total sampling time, reduce the number of splits, or use a more restricted keyboard range. Since the S-770 provides 2Mbytes of memory in the standard configuration (which can be expanded to 16Mbytes using a separately sold RAS-770 and OMS-770 modules), it is highly suitable for creating complex multi-sampled setups.

2. Loop (Edit Sample Loop)

By specifying the area of the sampled wave to be read, and how the data will be read, this page allows you to loop a recorded Sample.

■ What is Looping

A very important consideration in sampling is how to get maximum results out of a finite amount of memory. The most frequently used method of maximizing memory efficiency is "Looping".
For sounds that have a naturally short duration, such as xylophone, there is no problem. However, for sounds with a long decay, such as a temple gong, sampling the entire decay of the sound can consume very large amounts of memory. Furthermore, it is obviously impossible to record a complete "note" of a sustaining instrument such as an organ. In such cases, look for the point (after the attack) at which the sound becomes relatively stable, and repeat that section for as long as necessary to produce a suitable decay or sustain.

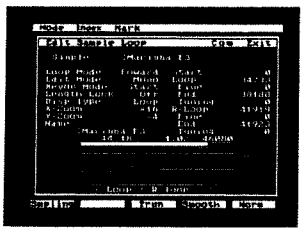


waveform of the attack portion of an electric piano
Complex waveforms are difficult to loop.

waveform of the decay portion 1.5 seconds after the attack of an electric piano
As the sound decays, it becomes closer to a smooth and regular curve, and is easier to loop.

Sounds which use this technique are referred to as being "looped". Sounds which do not use looping are referred to as "one-shots". For very short sounds such as xylophone, one-shot sampling is sufficient. However, by using looping for long decay or sustain sounds, you will save memory, which can then be used for other purposes (such as sampling at a higher frequency, etc.).

*In addition to a normal loop, the S - 770 also allows you to set a Release Loop. If you place a normal loop in the middle of a decaying sound, the looped section will continue repeating while the TVA gradually lowers the volume over time. However, the tone during the looped section will remain essentially constant (although it can be modified by the TVF envelope). By allowing you to specify a separate Release Loop for use after the key is released, the S - 770 lets you create a more natural decaying tone.



● Sample (Sample Select)

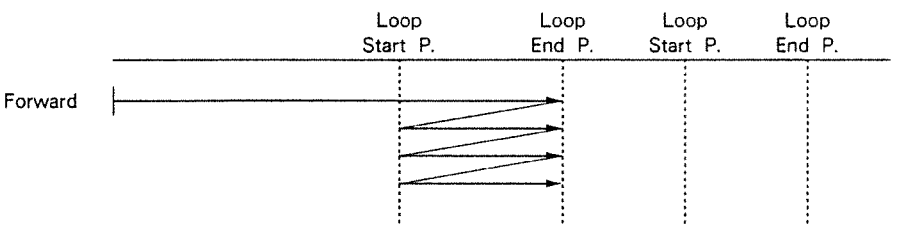
Select the Sample for which to make Loop settings.

● Loop Mode

Specify the type of Loop. Seven types of looping are provided; Forward, Fwd + R, OneShot, Fwd + One, Alt, RevOne, and Rev.

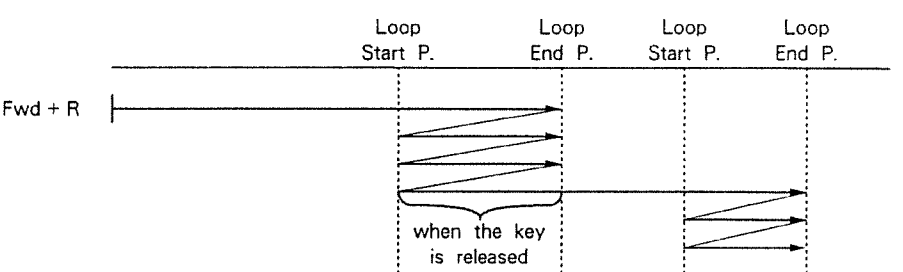
Forward :

After the data has been read from the Start point to the Loop End point, data will be repeatedly read in one direction from the Loop Start point to the Loop End point.



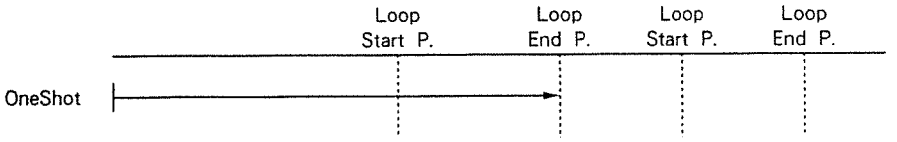
Fwd + R (Forward + Release) :

After the data has been read from the Start point to the Loop End point, data will be repeatedly read in one direction from the Loop Start point to the Loop End point. When the key is released (i.e., when the Note Off message is received), data will be read to the Release Loop End point, and then repeatedly read from the Release Loop Start point to the Release Loop End point.



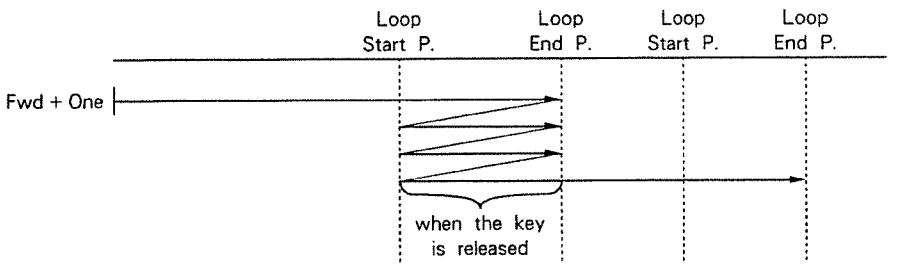
OneShot :

Data will be read once from the Start point to the Loop End point.



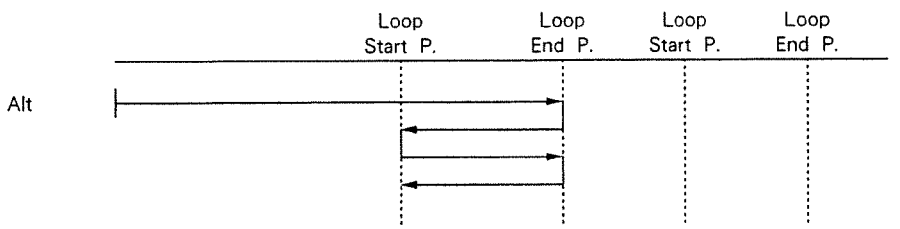
Fwd + One (Forward + One-shot) :

After the data has been read from the Start point to the Loop End point, data will be repeatedly read in one direction from the Loop Start point to the Loop End point. When the key is released (i.e., when the Note Off message is received), data will be read once from the Release Loop Start point to the Release Loop End point.



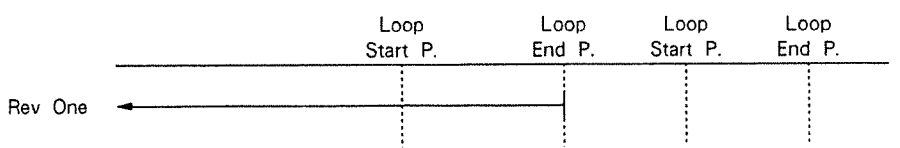
Alt (Alternate) :

After the data has been read from the Start point to the Loop End point, data will be read backwards from the Loop End point. Data will be read back and forth between the Loop End point and the Loop Start point.



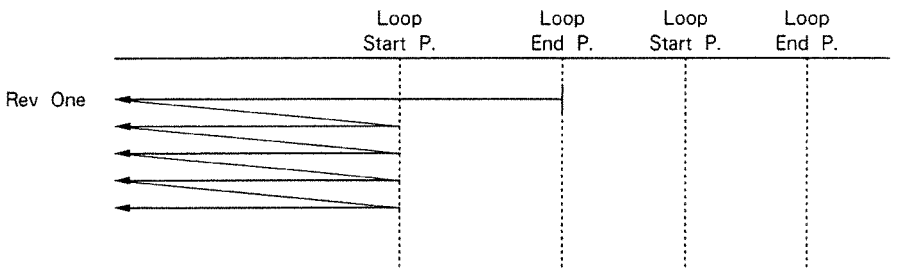
RevOne (Reverse One-shot) :

The data will be read once backwards from the Loop End point to the Start point.



Rev (Reverse) :

After the data has been read from the Loop End point to the Start point, data will be repeatedly read in one direction from the Loop Start point to the Start point.



● Edit Mode

Specify whether to edit a stereo Sample in stereo or in mono (Stereo, Mono). Stereo editing allows you to simultaneously edit "-L" and "-R" Samples. It is not possible to use Stereo editing to edit two Samples which are not named "-L" and "-R" (i.e., mono Samples).

*If necessary, you can use the Set Stereo command in the Command menu to name the Samples "-L" and "-R".

● KeyOn Mode

Only when this page is opened, will playback begin from the specified point (Start, Loop, R-Loop, R-End). This allows you to check the loop settings of each section.

Start:

Playback will begin from the Start point, and loop as specified (i.e., normal playback).

Loop:

Only the loop will be played back.

R-Loop:

Only the release loop will be played back.

R-End:

Playback will begin from the Release End point and play to the end of the data.

● Length Lock

When this function is turned On, you can adjust the location of the looped sections, without affecting the settings of the looped sections (Loop through Loopend/R-loop through R-Loop End).

● Disp Type (Display Type)

Select the type of graphic display (Loop, Point).

Loop:

When forward looping is used, the display will show the region connecting the Loop End point and the Loop Start point.

When alternate looping is used, the display will show the folded back condition of each alternating point (Loop start, end).

Point:

When you move the cursor to a parameter to specify a Point, the region of the waveform nearby that parameter will be graphically displayed.

● X-Zoom (X-Axis Zoom)

This function specifies the time axis magnification of the waveform graphic display (x1, x4, x16, x64, Max). When set to "1" you will be able to view the entire waveform.

● Y-Zoom (Y-Axis Zoom)

This function specifies the level axis magnification of the waveform graphic display (x1, x4, x16, x64, Max). When set to "1" you will be able to view the entire waveform.

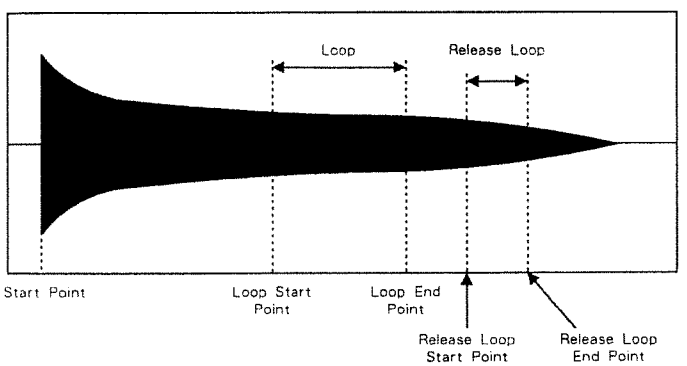
＊As the X-Zoom and Y-Zoom settings are increased, the amount of change caused by each click of a left or right mouse button will automatically decrease, to allow easier editing.

● Name

When you click this, an ASCII window will appear, and you can modify the Sample name. (It will not be possible to add special characters for S - 770 such as "- L" or "- R" to the end of the name.)

● Start (Start Point)

Specify the point from which wave data will be read when a Note message is received.



● Loop (Loop Start Point)

Specify the point from which looping will begin.

● Loop Fine (Loop Start Fine Point)

This parameter allows you to adjust the Loop Start point to an interpolated point finer than the points from which the wave data is read.

● Loop End (Loop End Point)

Specify the point at which the loop will end.

● Loop Tuning

Adjust the pitch (-50 — +50) of the loop. When looping a Sample of unsteady pitch, if the pitch before the loop does not match the pitch of the loop, use this parameter to adjust the loop pitch.

● R-Loop (Release Loop Start Point)

Specify the point at which the release loop will start.

● R-Fine (Release Loop Start Fine Point)

This parameter allows you to adjust the Release Loop Start point to an interpolated point finer than the points from which the wave data is read.

● R-End (Release Loop End Point)

Specify the point at which the release loop will end.

● R-Loop Tuning (Release Loop Tuning)

Adjust the pitch (-63 — +63) of the release loop. When release looping a Sample of unsteady pitch, if the pitch before the release loop does not match the pitch of the release loop, use this parameter to adjust the release loop pitch.

【To specify a normal loop】

① Specify the Loop mode.

For normal looping, use "Forward". If you need a long loop, use "Alt". For percussive sounds or phrase sampling, use "Oneshot".

② Specify the Edit mode.

When editing stereo Samples, specify "Stereo". (To set loop points independently, specify "Mono".)

③ Specify the Key On mode.

Normally you will select "Start".

④ Set the Display Type to "Point".

⑤ Set both "X-Zoom" and "Y-Zoom" to "x1".

⑥ Use the front panel [SOUND] button or a connected keyboard controller to play the Sample. While listening to the sound, place the cursor on "End" and press the left mouse button, and move the End point back to a point where the sound becomes stable.

⑦ If Pre-Trigger etc. has left a space of no sound before the beginning of the wave data, move the Start point back so that the sound will begin immediately.

This operation will be easier if you adjust the "X-Zoom" setting to a magnification ratio suitable for viewing the waveform.

⑧ Set the Display Type to "Loop".

⑨ Place the cursor on "Loop". Press and hold the left mouse button, and move the Loop point from the End point towards the Start point. While playing the sound, move the Loop point to a location which does not produce a pop or crackle.

Looping techniques

Looping is normally easiest with short loops. A musical sound consists of the fundamental frequency which determines the pitch, and higher partial frequencies which determine the timbre. "Short loop" (a 1-cycle loop) refers to a loop at the wavelength of the fundamental frequency, which often sounds unpleasantly artificial, like a buzzer. This means that short loops are not suitable for reproducing sounds (such as piano) that contain large amounts of inharmonic partials. For such sounds, long loops should be used whenever possible.
Decaying sounds of the natural world ultimately decay to a simple waveform that is easily looped, but it may take some time before a simple waveform is reached. In such cases, set the loop point in a complex portion of the waveform, and use the TVF to create a natural decrease in waveform complexity over time. This type of long loop will sound far more natural than a short loop.

* If the harmonic structures of the sound before and during the loop are drastically different, it will be very difficult to get a good loop.

When two or more of the same instrument are being played, the two pitches will be slightly different. This means that for a pitch difference of 1/10th of the fundamental, you will need to loop 10 cycles, and for a pitch difference of 1/20th, 20 cycles.

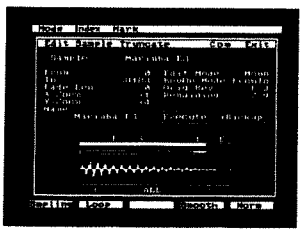
However when many instruments are playing together, as in an orchestra, the harmonic structure is constantly shifting, so even this may not be successful. In this case, use as long a loop as possible, and use Alternate looping when necessary. (Alternate looping provides twice as long a loop as normal looping.)

If you use short looping on an instrument which is being played with vibrato (such as a solo violin), the vibrato will disappear the instant the loop begins. In this case, you can either place the short loop before the vibrato begins, or use a long loop synchronized with the period of the vibrato.

The above three techniques should help cover a variety of looping needs. The sound can be made more natural by using "Smoothing (☞P.171)" afterward.

3. Truncate

This function deletes an unwanted section of the wave data between the specified "From" and "To" points. If you make a mistake with this Truncate function, it is not possible to recover the original wave data, but you can use the **+Backup** switch to leave a backup copy of the data.



● Sample (Sample Select)

Select the Sample you wish to Truncate.

● Edit Mode

Specify whether to edit a stereo Sample in stereo or in mono (Stereo, Mono). Stereo editing allows you to simultaneously edit "-L" and "-R" Samples. It is not possible to use Stereo editing to edit two Samples which are not named "-L" and "-R" (i.e., mono Samples).

*If necessary, you can use the Set Stereo command in the Command menu to name the Samples "-L" and "-R".

● KeyOn Mode

Only when this page is opened, will playback begin from the specified point (Start, Loop, R-Loop, R-End, FromTo, To).

Start:
Playback using the specified looping mode.

Loop:
Playback only the loop.

R-Loop (Release Loop):
Playback only the release loop.

R-End (Release Loop End):
Playback the data after the release loop.

FromTo:
Playback from the From point to the To point.

To:
Playback the data after the To point.

● Orig Key (Original Key)

You can adjust the Original Key (☞P.156) from this page as well.

● X-Zoom (X-Axis Zoom)

This function specifies the time axis magnification of the waveform graphic display (× 1, × 4, × 16, × 64, Max). When set to " × 1" you will be able to view the entire waveform.

● Y-Zoom (Y-Axis Zoom)

This function specifies the level axis magnification of the waveform graphic display (× 1, × 4, × 16, × 64, Max). When set to " × 1" you will be able to view the entire waveform.

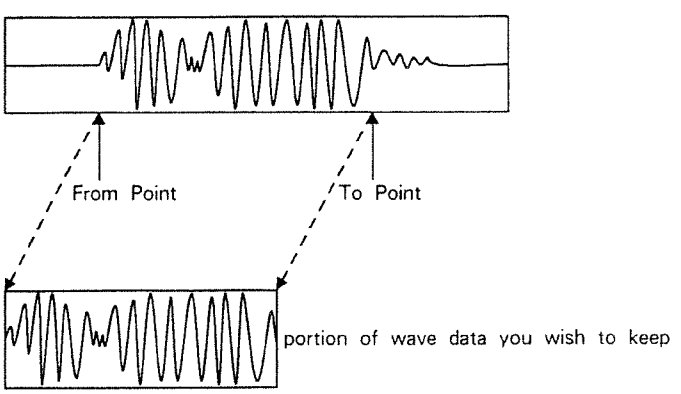
＊As the X-Zoom and Y-Zoom settings are increased, the amount of change caused by each click of a left or right mouse button will automatically decrease, to allow easier editing.

● Name (Sample Name)

The Sample name can be modified from this page as well.

● From (From Point)
● To (To Point)

Specify the "From point" and "To point" of a Sample. All data beyond these points will be cut.



● Fade Len (Fade Length)

When the Truncate operation is executed, a "pop" may occur at the location of the cut. If a Fade Length is specified, the Start point will be faded in and the End point will be faded out. This will avoid creating the pop sound. This parameter sets the length of the faded area from both sides.

＊The "Remaining" shows how many more seconds are left (=maximum sampling time) for the internal memory.

● Execute (Execute Switch)

When this switch is clicked, the specified data will be Truncated.

● +Backup (Backup Switch)

It is not possible to recover the original wave data once the **Execute** switch has been clicked to execute the Truncate function. However if the **+Backup** switch is clicked, a backup copy of the sound data will be made at the same time the Truncate operation is executed.

In this case, new data will be given a name ending in "-N", and new stereo data will be given a name ending in "-NL", "-NR".

【To Truncate a looped Sample】

① Open the Edit Sample Truncate window.
Mode → **Sound** → **Edit Sample** → **Trun**

② Specify the Edit mode.
For stereo Samples select "Stereo". If you wish to set looping points independently, select "Mono".

③ Specify the Fade Length.
Parameter: FadeLen
Setting: will depend on the Sample

④ If you wish to make a backup copy to be safe, click **+Backup**.

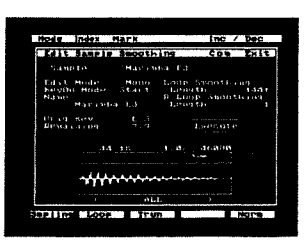
*At this time, "From" will automatically be set to the Start Point, and "To" will automatically be set to the Release End Point or Loop End Point. Modify these settings as necessary.

4. Edit Sample Smoothing

When looping very complex waveforms, it may be difficult to avoid clicks. In such cases, you can use the Smoothing function to rewrite the waveform and reduce the clicking sound. When Smoothing is used, the two loops of the wave (Loop and Release Loop) will be cut out, and the beginning and end of each loop will be crossfaded. Since the click will be covered up by the crossfaded portion, this will result in a smooth loop.

*Smoothing can be used only for Forward Loops and Foward+Release Loops. All other types of loop will be changed to Forward Loops or Foward+Release Loops before being smoothed.

*When Smoothing is executed, the two specified looping points will be automatically adjusted to optimal locations.



● Sample (Sample Select)

Select the Sample you wish to Smooth.

● Loop-Smoothing Length

Specify the length in the Loop over which the data will be smoothed.

● R-Loop-Smoothing Length (Release Loop Smoothing Length)

Specify the length in the Release Loop over which the data will be smoothed.

＊It is best to specify a fairly long Smoothing Length. However, excessively long settings can create a chorus-like effect over the crossfaded area.

● Edit Mode

Specify whether to edit a stereo Sample in stereo or in mono (Stereo, Mono). Stereo editing allows you to simultaneously edit "-L" and "-R" Samples. It is not possible to use Stereo editing to edit two Samples which are not named "-L" and "-R" (i.e., mono Samples).

＊If necessary, you can use the Set Stereo command in the Command menu to name the Samples "-L" and "-R".

● KeyOn Mode

Only when this page is opened, will playback begin from the specified point (Start, Loop, R-Loop, R-End).

Start:
Playback using the specified looping mode.

Loop:
Playback only the loop.

R-Loop (Release Loop):
Playback only the release loop.

R-End (Release Loop End):
Playback the data after the release loop.

● Orig Key (Original Key)

You can adjust the Original Key (☞P.156) in this page as well.

● Name (Sample Name)

You can rename the Sample to be smoothed. For example, if you make a mistake, you can rename the backup data and try again. However, this function does not allow you to add "-L" or "-R" to the Sample name.

＊The "Remaining" shows how many more seconds are left (=maximum sampling time) for the internal memory.

● Execute (Execute Switch)

When you click this switch, the specified Smoothing operation will be executed, and backup data (a copy of the Sample data before editing) will leave.

The smoothed data will be given a name ending in "- N" for mono data, or "- NL" and "- NR" for stereo data.

[To use the Smoothing operation]

① Open the Edit Sample Loop window.
Mode → Sound → Edit Sample → Loop

② Select Forward Looping, and specify the Loop point.

③ Click on Smooth to open the Edit Sample Smoothing window.

④ For a stereo Sample, specify the Edit mode.

Parameter: Edit Mode

Setting: Stereo, Mono

⑤ Specify the KeyOn mode. In general you will use "Start". Select another mode if desired.

Parameter: Key On Mode

Setting: Start, Loop, R-Loop, R-End, FromTo, To

⑥ Specify the Loop Smoothing Length.

Parameter: Loop-Smoothing Length

Setting: 0 — start point

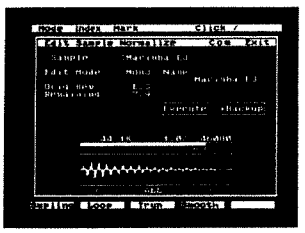
If necessary, specify the Release Loop Smoothing Length as well. Set both to fairly long values.

⑦ Click on Execute.

* Smoothing will always create a backup. If you make a mistake, select the same data again and try from step ①.

5. Edit Sample Normalize

If the sampling level is too low, this "Normalize" operation can be used to expand the data to the full range of 16 bits, increasing the dynamic range.



● Sample (Sample Select)

Select the Sample you wish to Normalize.

● Edit Mode

Specify whether to edit a stereo Sample in stereo or in mono (Stereo, Mono). Stereo editing allows you to simultaneously edit "-L" and "-R" Samples. It is not possible to use Stereo editing to edit two Samples which are not named "-L" and "-R" (i.e., mono Samples).

● Name (Sample Name)

You can rename the Sample to be normalized.

● Orig Key (Original Key)

You can adjust the Original Key (☞P.156) in this page as well.

● Execute (Execute Switch)

When you click this switch, the waveform will be normalized as you specified.

● +Backup (Backup Switch)

When you click this switch, the wave data will be normalized, and backup data (a copy of the Sample data before editing) will remain.

The normalized data will be given a name ending in "-N" for mono data, or "-NL" and "-NR" for stereo data.

*The "Remaining" shows how many more seconds are left (=maximum sampling time) for internal memory.

《The Command menu in the Edit Sample window》

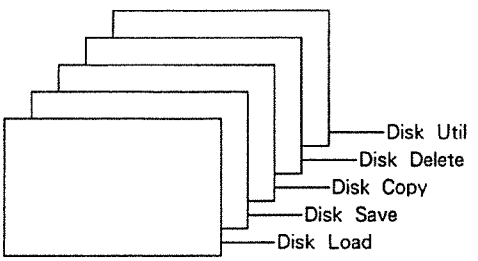
To open the Command menu, click on **Com** in the upper right of each page in the Edit Sample window. To close the window, click on **Exit** in the upper right of the Command window.

Disk	Open the Disk Tools window.
Delete	Open the Delete window.
Set Stereo	Open the Set Stereo window.
Set Mono	Open the Set Mono window.
Copy	Open the Copy window.
Select	Open the Sample Select window.

These two windows are added to each page of Loop, Truncate, Smoothing, and Normalize.

[1] Disk (Disk Tools window)

The Disk Tools window occupies five pages (Disk Load/Disk Save/Disk Copy/Disk Delete/Utility).



Disk Load

This function loads sound data from the Hard Disk or floppy disk drive (or an external storage device). For the procedure, refer to the explanation for the Disk Tools window (☞P.195).

Disk Save

This function saves sound data to the Hard Disk or floppy disk (or an external storage device). For the procedure, refer to the explanation for the Disk Tools window (☞P.196).

Disk Copy

This function allows you to copy sound data from disk to disk. For the procedure, refer to the explanation for the Disk Tools window (☞P.197).

Disk Delete

This function allows you to delete sound data. For the procedure, refer to the explanation for the Disk Tools window (☞P.198).

Utility

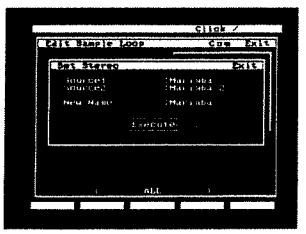
This function allows you to format a disk or execute (cancel) the "Park heads" command for the Hard Disk drive. For the procedure, refer to the explanation for the Disk Tools window (☞P.199).

[2] Delete (Delete window)

This allows you to delete a Sample from internal memory. For details of the procedure, refer to the explanation for the Play window (☞P.102).

[3] Set Stereo (Set Stereo window)

This operation combines two mono Samples into a stereo Sample pair. Data received via Sample dump or from SCSI cannot be edited as a stereo pair as it is. (The data will be treated as two mono Samples.) You must use this window to create a stereo pair before you can edit the Samples in stereo.



● Source1
● Source2

Select the two Samples from which to create a stereo pair.

● New Name

Give the new stereo pair a 12-character name. Place the cursor here and click, and an ASCII keyboard will appear, allowing you to enter the name.

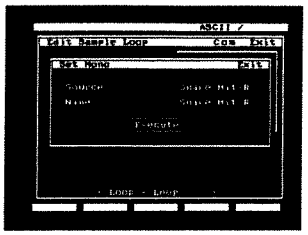
● **Execute** (Execute Switch)

Name the stereo pair as specified.

*If Source1 and Source2 are different lengths, the Set Stereo operation cannot be executed.

[4]Set Mono (Set Mono window)

The "-L" and "-R" at the end of Sample which have been set for stereo can be removed. This allows each Sample to be modified independently (as a monaural Sample).



● Source

Select the stereo Sample from which to create monaural Sample.

● Name

Give the new monaural Sample a 12-character name. Place the cursor here and click, and an ASCII keyboard will appear, allowing you to enter the name.

● **Execute** (Execute Switch)

Name the monaural Sample as required.

[5]Copy (Copy window)

This function allows you to copy a selected Sample from internal memory.

● From

Select the Sample name for the copy source. Place the cursor on **↓ / ↑** and use the left and right mouse buttons to scroll the list. Click on the desired Sample name, and the Copy operation will be executed.

● To

Select the Sample name for the copy destination. This will automatically be set to the Sample that was in the Edit Sample window when this command was executed.

[6]Select (Sample Select window)

Select the Sample you wish to edit. Click on the desired Sample and you will return to the page from which you opened the Command menu.

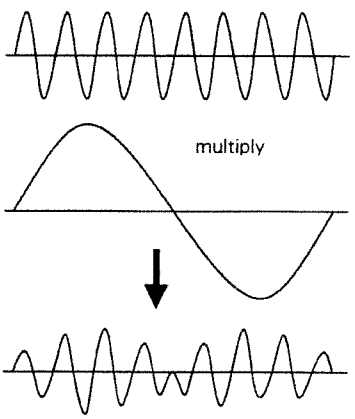
[4] RESAMPLING (Resampling window)

This window allows you to process the Sample waveform itself. Resampling inputs two Samples into a selected algorithm (combination) to create a new Sample. Algorithms include TVF, TVA, and Ring Modulator, allowing synthesizer-like processing.

*Since Resampling is performed on memory data in digital form, it may be repeated without the degradation in sound quality that would occur in repeated cycles of D/A/D conversion.

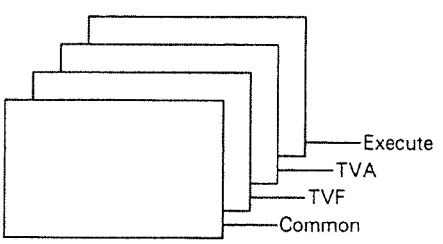
■ What is a Ring Modulator

A Ring Modulator multiplies two sampled waveforms to create inharmonic partials that were not present in either of the original waveforms. (As long as one of the waveforms is not a sine wave, evenly spaced partials will probably not occur.) Since pitch differences between the two Samples will make the overtone structure change, the result will be a metallic, unpitched sound.



■ Resampling procedure

The Resampling window has four pages, and the page switches are arranged from the left in the order of the operating procedure.



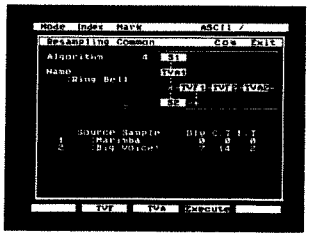
Common → **TVF** → **TVA** → **Execute** (→ **Loop**)

- **Execute**: Execute the specified Resampling operation.
- **TVA**: Make TVA settings according to the algorithm.
- **TVF**: Make TVF settings according to the algorithm.
- **Common**: Make Resampling settings such as Algorithm selection, and give a name to the Sample to be newly created.

*Even if you Resample a looped Sample, the resulting Sample will be one-shot. If necessary, use the Edit Sample window to loop the edited Sample after Resampling. In this case, it will be convenient to use the Mark window (☞P.46) to mark the Edit Sample Loop page so that you can immediately jump to it.

1. Common

Give a name to the Sample to be newly created by Resampling, and select the Algorithm.



● Algorithm

Select the Algorithm (1, 2, 3, 4, 5, 6) to specify how Resampling will take place. The six algorithms can be divided into the following two groups.

Algorithms 1, 2

These algorithms mix (☞P.26)/link (☞P.182) two Samples into one Sample. (This can be used to make good use of the maximum number of simultaneous voices.)

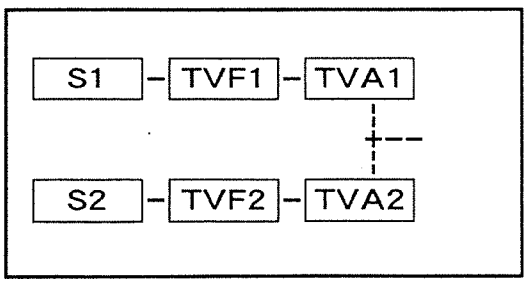
Algorithms 3, 4, 5, 6

These algorithms ring modulate two Samples to create a new Sample which has a complex harmonic structure not found in the original Samples. (This allows you to create totally new sounds.)

Let's look at the six algorithms in sequence.

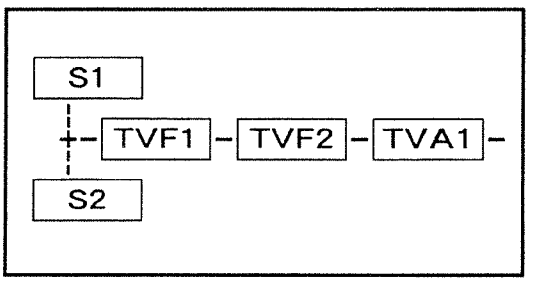
Algorithm 1 :

Samples 1 and 2 will be mixed. The "Depth" parameter of each TVA determines the mixture.



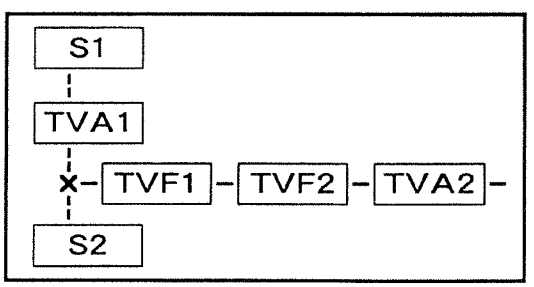
Algorithm 2 :

Since the TVF will be applied twice, this algorithm can be used to create a steeper cutoff slope.



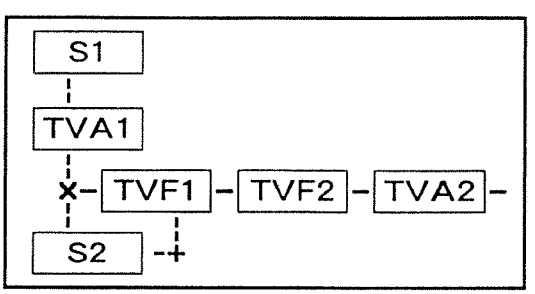
Algorithm 3 :

Samples 1 and 2 will be ring modulated, and the result will be processed through the TVF. The "Depth" parameter of each TVA adjusts the depth of ring modulation.



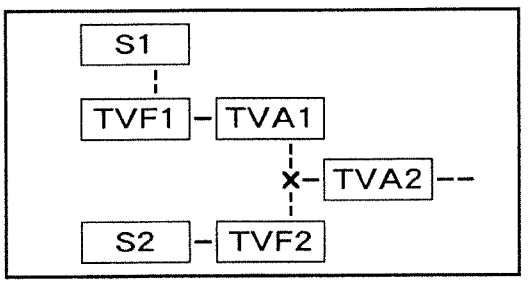
Algorithm 4 :

Samples 1 and 2 will be ring modulated, and the result will be processed through the TVF. This differs from algorithm 3 in that the sound from the ring modulator can be mixed with Sample 2. As the proportion of ring modulated sound increases, the sound will be more metallic and unpitched.



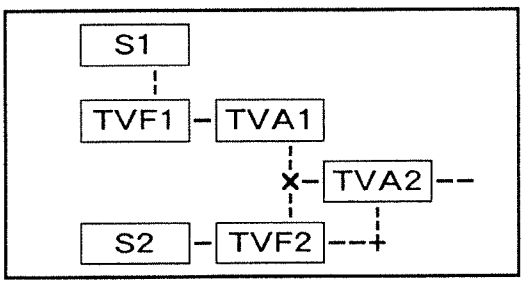
Algorithm 5 :

Samples 1 and 2 will each be processed through the TVF, and then ring modulated. If you wish to create musically useful metallic sounds, filter one of the waveforms until it is nearly a sine wave.



Algorithm 6 :

Samples 1 and 2 will each be processed through the TVF, and then ring modulated. This differs from algorithm 5 in that the sound from the ring modulator can be mixed with Sample 2.



● Name (Resample Name)

Specify a 12-character name for the Sample which will be created by resampling.

● Source Sample

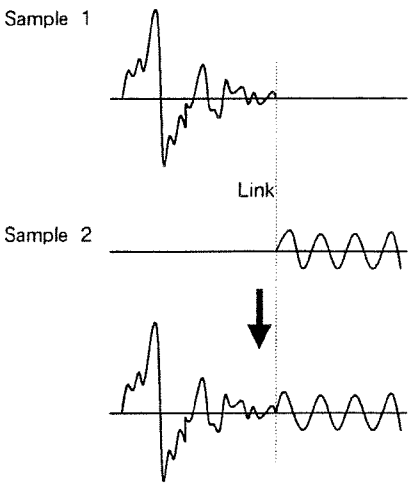
Use the left and right mouse buttons to select the two Samples (Sample1, Sample2) used for resampling.

● Dly (Delay)

Specify a time delay (0 — 127) from when the Key On message is received to when the Samples begin to sound. For a setting of 0, sound will begin simultaneously with the Key On message. For a setting of 120, there will be a delay of approximately 20 seconds. For settings above 120, the delay time will increase rapidly, and will be approximately 5 minutes 20 seconds for the maximum setting of 127.

■ *Using Delay to link two Samples*

By setting Sample 2 to begin sounding after Sample 1 has ended, and then resampling, you can link the two Samples.



● C.T (Coarse Tuning)

Adjust the pitch of the Samples in half step units (-48 — +48). For example you might transpose one of the Samples by a fifth. In such cases, if the interval is not precisely a fifth, use the Fine Tuning parameter to make fine adjustments. If you match the tuning, it will be easier to get a good loop later.

*48 half steps is equivalent to 4 octaves.

● F.T (Fine Tuning)

Adjust the fine pitch of the Samples in units of 1 cent (-50 — +50). This parameter can be used to match the pitches of the two Samples.

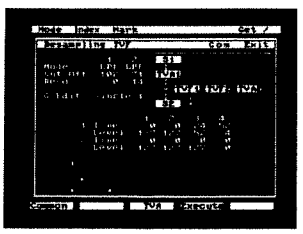
*50 cents is equivalent to 1/2 half step.

Note ! !

When resampling, TVA 1 and TVF 1 will take effect at the moment Sample 1 is sounded. Similarly, TVA 2 and TVF 2 take effect at the moment Sample 2 is sounded. For this reason, with respect to algorithms 2, 3 & 4, if the values that have been set for the Delay parameters for each Sample are not in conformity, one of the TVFs may fail to provide its effect immediately after a Note On event. Whenever using filters in double, and using a sharp cut-off slope, make sure to set the Delay parameters to identical values.

2. Resampling TVF

The TVF is the equivalent of the VCF in an analog synthesizer. This page controls the timbre of the resampled sound. Graphic displays of filter cutoff and envelope are provided, allowing you to see how the parameters interact as you edit. You can also compare the cutoff frequency envelopes of the two Samples.



● Mode (Filter Mode)

Select the type of filter (LPF/BPF/HPF).

LPF (Low Pass Filter) ·····Frequencies lower than the Cutoff Frequency will pass, and higher frequencies will be cut.

HPF (High Pass Filter)·····Frequencies higher than the Cutoff Frequency will pass, and lower frequencies will be cut.

BPF (Band Pass Filter)·····Frequencies around the Cutoff Frequency will pass. Higher resonance settings will narrow the band.

● Cutoff Freq (Cutoff Frequency)

Specify the Cutoff Frequency (0 — 127) of the entire TVF. This determines the frequency at which the filter will begin to take affect. For a Low Pass Filter, lower settings of this parameter will cut the low range more noticeably, making the sound closer to a sine wave. On the other hand, since a High Pass Filter cuts the lower frequencies, higher settings of this Cutoff Freq parameter will result in a lighter, brighter sound. The specified Cutoff Frequency can be controlled in real time by the envelope, by Controller messages, by Modulation from the LFO, etc.

● Reso. (Resonance)

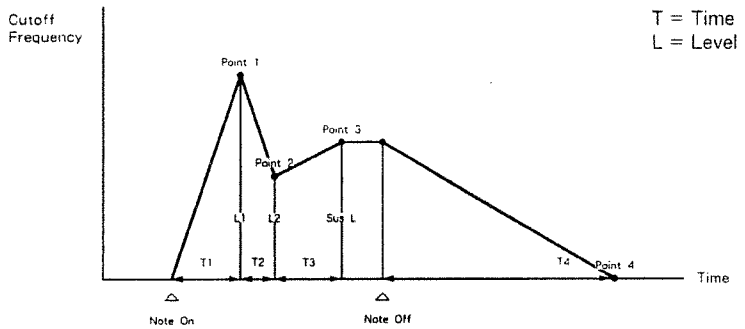
Specify the Resonance (0 — 127) at the cutoff frequency. Higher settings will cause the frequencies near the cutoff frequency to be emphasized, resulting in a sound distinctive of analog synthesizers. Very high settings of this parameter will make the filter oscillate.

● G-Edit (Graphic Edit Switch)

Select the TVF envelope to edit in the graphic display (Sample 1, Sample 2).

● TVF Envelope

The vertical axis of the display indicates cutoff frequency, and the horizontal axis indicates the time from Note On.



Time 1 (Envelope Time 1) :

Specify the time (0 — 127) over which the cutoff frequency will move to point 1 starting when the key is pressed.

Time 2 (Envelope Time 2) :

Specify the time (0 — 127) over which the cutoff frequency will change from point 1 to point 2.

Time 3 (Envelope Time 3) :

Specify the time (0 — 127) over which the cutoff frequency will change from point 2 to point 3.

Time 4 (Envelope Time 4) :

Specify the time (0 — 127) over which the cutoff frequency will decrease from level L3 to 0 starting when the key is released.

Level 1 (Envelope Level 1) :

Specify the cutoff frequency level of point 1 (0 — 127).

Level 2 (Envelope Level 2) :

Specify the cutoff frequency level of point 2 (0 — 127).

Level 3 (Envelope Level 3) :

Specify the cutoff frequency level of point 3 (0 — 127).

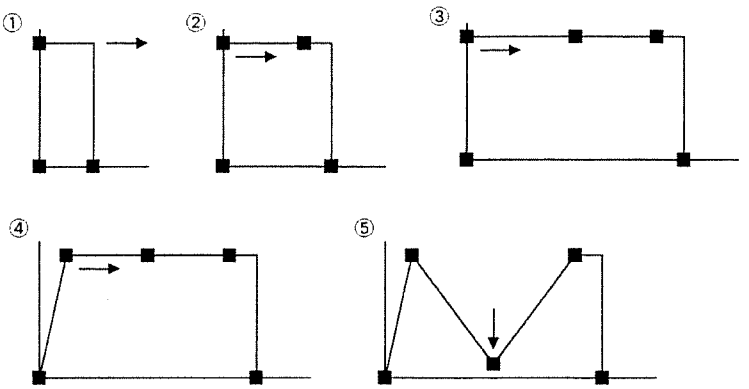
Level 4 (Envelope Level 4) :

Specify the cutoff frequency level of point 4 (0 — 127).

■ *Using the mouse in the graphic display*

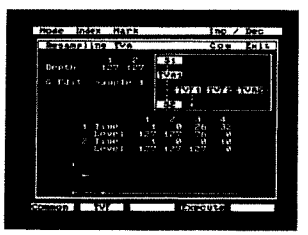
The cutoff frequency envelope can be edited using the mouse.

When you first open the window, points 1 — 3 will be on the same vertical line. Place the mouse cursor here and drag with the left button to move each point out to the right (①—④). As you move the mouse, the lines connecting each point will stretch freely like rubber bands (⑤). The time values and level values indicating each point will also change in real time.



3. Resampling TVA

The parameters in this page correspond to the VCA of an analog synthesizer. These parameters determine how the resampling volume will change over time. The envelope is displayed graphically, allowing you to see how the parameters interact as you edit.



● Depth (TVA Depth)

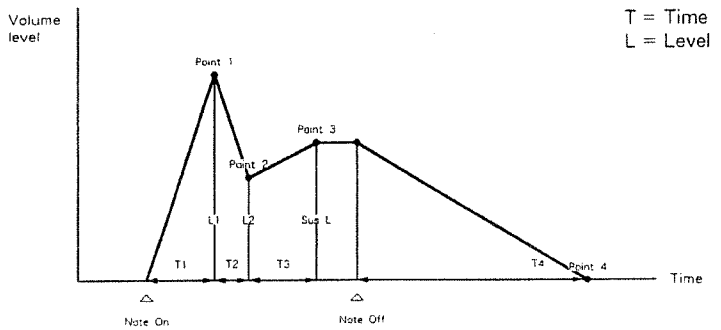
This determines the effect of the two TVAs (1 — 127). For algorithms 1 and 2, this will adjust the level balance. For algorithms 3 — 6, this will adjust the level balance and the ring depth.

● G-Edit (Graphic Edit Switch)

Select the TVA envelope to edit in the graphic display (Sample 1, Sample 2).

● TVA Envelope

The vertical axis of the display indicates volume level, and the horizontal axis indicates the time from Note On.



Time 1 (Envelope Time 1) :

Specify the time (0 — 127) over which the level will move to point 1 starting when the key is pressed.

Time 2 (Envelope Time 2) :

Specify the time (0 — 127) over which the level will change from point 1 to point 2.

Time 3 (Envelope Time 3) :

Specify the time (0 — 127) over which the level will change from point 2 to point 3.

Time 4 (Envelope Time 4) :

Specify the time (0 — 127) over which the level will decrease from level L3 to 0 starting when the key is released.

Level 1 (Envelope Level 1) :

Specify the volume level of point 1 (0 — 127).

Level 2 (Envelope Level 2) :

Specify the volume level of point 2 (0 — 127).

Level 3 (Envelope Level 3) :

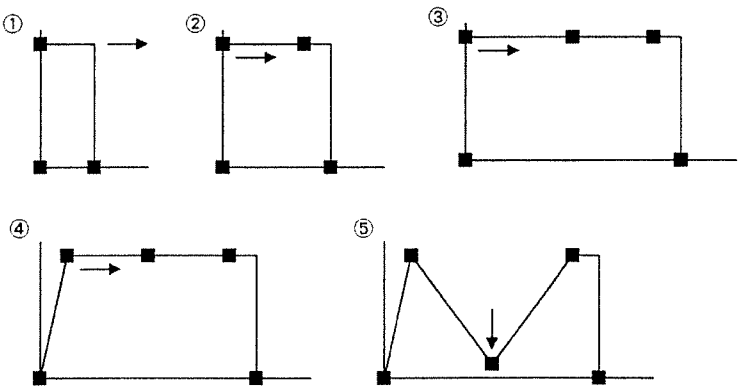
Specify the volume level of point 3 (0 — 127).

* Level 4 (Envelope Level 4) is fixed at 0.

■ *Using the mouse in the graphic display*

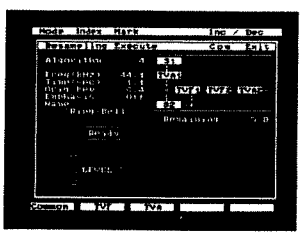
The TVA envelope can be edited using the mouse.

When you first open the window, points 1 — 3 will be on the same vertical line. Place the mouse cursor here and drag with the left button to move each point out to the right (① — ④). As you move the mouse, the lines connecting each point will stretch freely like rubber bands (⑤). The time values and level values indicating each point will also change in real time.



4. Resampling Execute

In this page, you can execute Resampling as specified by the settings in Common, TVF, and TVA.



● Freq (KHz) (Sampling Frequency)

Specify the sampling frequency at which to resample (Master Freq 48KHz:48/24, Master Freq 44.1KHz:44.1/22.05). The available settings will depend on the currently selected Master Sampling Frequency (☞P.193).

If the Master Freq is 48KHz ····· 48/24
If the Master Freq is 44.1KHz ····· 44.1/22.05

● Time (Sec)

Specify the sampling time over which to resample. The available time will depend on the amount of free internal memory.

● Original Key — Specify the original key for resampling. This will be the key for which the resampled Sample will be played back at its original pitch.

● Emphasis (Resampling Emphasis)

When resampling, set this parameter On to boost high frequencies.

● Name (Resampling Name)

Specify a 12-character name for the Sample created by resampling. When you click here, an ASCII window will appear.

*This parameter is also included in the Resampling Common window. Here, the name assigned as a Resampling Common parameter can be modified after resampling if necessary.

● **Ready** (Ready Switch)

When you click this switch, S - 770 will enter the stand by condition for Resampling.

● Bar Level Indicator — If the resampling level is too high, the last segment (red) of the level indicator will light. In this case, decrease the value of the two "Depth" (source Sample level) parameters in the TVA.

【Resampling procedure】

① Open the Common page of the Resampling window.
Mode → **Sound** → **Resample** → **Common**

② Select the two Samples to use for resampling.

③ Enter a name for the Sample which will be newly created.

④ Select the algorithm.

Parameter: Algorithm
Setting: 1 — 6

⑤ In the resampling TVF page, specify how the tone will change over time.
For details refer to "Resampling TVF" (☞P.183).

⑥ In the resampling TVA page, specify how the volume will change over time.
For details refer to "Resampling TVA" (☞P.185).

⑦ Click **Execute** to open the Resampling Execute page.

⑧ Specify the Resampling Frequency, Resampling Time, Original Key, and Emphasis. If necessary, use the Name command to modify the name you assigned in step ③.
For details, refer to the "Resampling Execute page (☞P.187)".

⑨ Adjust the Resampling Level.

If the red bar level lights when you play the keyboard, the level is too high and will cause distortion. In the TVA page, decrease the "Depth" (source Sample level) settings for the two Samples.

⑩ Click **Ready** .

The "Wait Trigger" display will appear.

⑪ Play the keyboard to start Resampling.

When resampling ends, internal processing will begin. When processing ends, the **Next** , **Retry** , and **End** switches will be displayed.

⑫ Play the keyboard to check the resulting new Sample.

If you wish to try again, click **Retry** . If you are satisfied with the result, click **End** . If you wish to continue resampling, click **Next** and start again from step ②.

> **Note ! !**
>
> When resampling, sound will be produced in accord with the parameters of the Patch selected under Edit Patch (☞P.122). Additionally, of the STEREO output, the left channels signal is taken as the source for the purpose internal processing during sampling. For this reason, if Pan for the Patch that is selected at that time is set so sound is panned mainly to the R-side, you will not be able to obtain a signal level that is sufficient for resampling.

《The Command menu in the Resampling window》

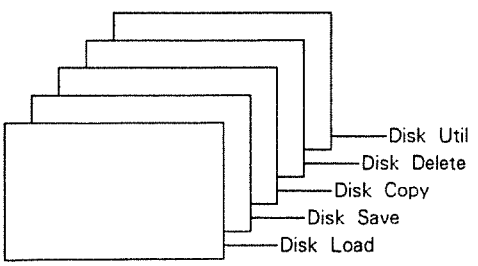
To open the Command menu, click on **Com** in the upper right of each page in the Resampling window. To close the window, click on **Exit** in the upper right of the Command window.

Disk Open the Disk Tools window.

Delete Open the Delete window.

[1] Disk (Disk Tools window)

The Disk Tools window occupies five pages (Disk Load/Disk Save/Disk Copy/Disk Delete/Utility).



Disk Load

This function loads sound data from the Hard Disk or floppy disk drive (or an external storage device). For the procedure, refer to the explanation for the Disk Tools window (☞P.195).

Disk Save

This function saves sound data to the Hard Disk or floppy disk (or an external storage device). For the procedure, refer to the explanation for the Disk Tools window (☞P.196).

Disk Copy

This function allows you to copy sound data from disk to disk. For the procedure, refer to the explanation for the Disk Tools window (☞P.197).

Disk Delete

This function allows you to delete sound data. For the procedure, refer to the explanation for the Disk Tools window (☞P.198).

Utility

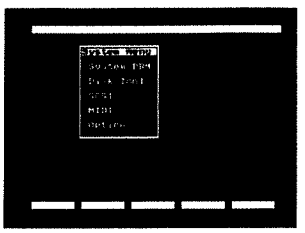
This function allows you to format a disk or execute (cancel) the "Park heads" command for the Hard Disk drive. For the procedure, refer to the explanation for the Disk Tools window (☞P.199).

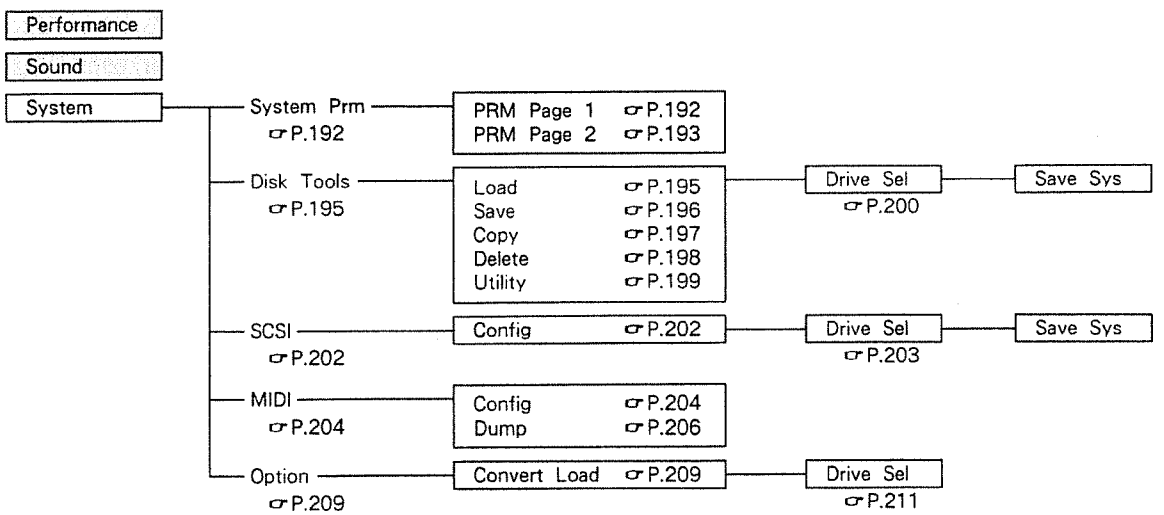
③Delete (Delete window)

This function allows you to delete a Sample from internal memory. For details of the procedure, refer to the explanation for the Play window (☞P.102).

System Mode

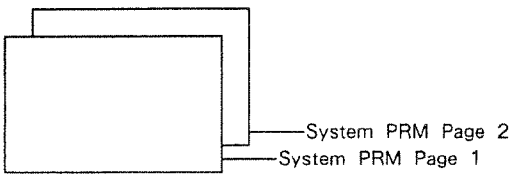
This mode is where you make settings that affect the overall operation of the S - 770 (System PRM), manage sound data (Disk Tools), and exchange data with external devices (SCSI, MIDI, Option).



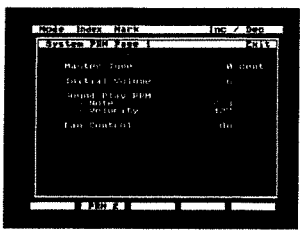


[1] SYSTEM PRM (System Parameters)

This window is where you make settings affecting the overall operation of the S - 770. It has 2 pages.



1. System PRM Page 1 (System Parameter Page 1)



● **Master Tune**

Adjust the overall pitch of the entire S - 770 (- 50 — +50). The included sound library has been created so that A3=440Hz (initialized setting:0).

● **Initial Volume**

Specify the Hard Disk Volume that will be loaded when the system is started up. A Volume will not be loaded if the system is started up from floppy disk (initialized setting:1).

● **Sound Play PRM Note (Sound Play Parameter Note)**

Specify the pitch (A0 — C8) of the note that will be sounded when you press the SOUND PLAY switch (initialized setting:C3).

● **Sound Play PRM Velocity (Sound Play Parameter Velocity)**

Specify the velocity (1 — 127) of the note that will be sounded when you press the SOUND PLAY switch (initialized setting:127).

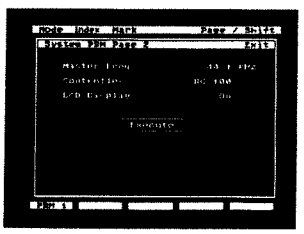
● Fan Control

When using a microphone to record nearby the S - 770, the noise from the cooling fan of the internal Hard Disk may be obtrusive. By turning this parameter On, the cooling fan will stop whenever you are in sampling standby condition or during sampling (only when the Sampling Execute window is opened) (On, Off) (initialized setting:On).

Note !!

If the fan is stopped for long periods of time (especially sampling standby), heat buildup may damage the hard disk and render it inoperable.

2. System PRM Page 2 (System Parameter Page 2)



*Settings you make for these parameters will become effective when you click **Execute** .

● Master Freq. (Master Sampling Frequency)

Specify the operating clock of the S - 770 (44.1KHz, 48KHz). The available settings for Sampling or Resampling will depend on the selected Master Sampling Frequency.

If the Master Freq is 48KHz ····· 48/24
If the Master Freq is 44.1KHz ····· 44.1/22.05

Master Sampling Frequency (MSF)

The Master Sampling Frequency is the frequency at which sound data is reproduced. Digital audio devices such as CD players or DAT can reproduce a sound only at the same frequency as when it was recorded (the sampling frequency). However the DI technology of the S - 770 makes it possible to change the MSF for playback.

The S - 770 can also synthesize wave data of differing sampling frequencies. For example, wave data of 44.1kHz and wave data of 48kHz can be resampled or assigned to Partials or Patches. However if the MSF is less than the sampling frequency (except when it is 1/2 the frequency), this may change the tone of the sound. In such cases, set the MSF to the same as (or double) the sampling frequency of the sound.

● Controller

Select the auxiliary controller (Off, Mouse, RC - 100). Normally you will leave this set to Mouse, and use the S - 770 with a mouse. If you wish to use a separately sold RC - 100 and the mouse, set this parameter to RC - 100 (initialized setting:Mouse).

＊You can set the controller mode by turning the power on while pressing a function switch ([F1], [F2], [F3]).

[F1]: when not using a supplemental controller (Off)
[F2]: when using only the mouse (Mouse)
[F3]: when using an RC - 100 and mouse (RC - 100)

● LCD Display

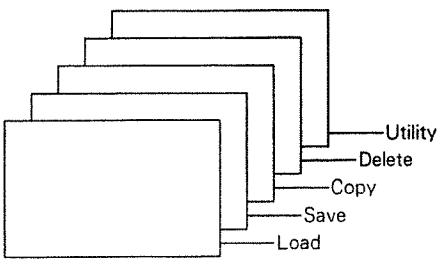
Turn the LCD of the S - 770 off or on. When the LCD is turned off, only the CRT display will be used. This will increase the processing speed and improve mouse tracking (initialized setting:On).

● Execute (Execute Switch)

This will execute all the parameters in the System PRM Page2.

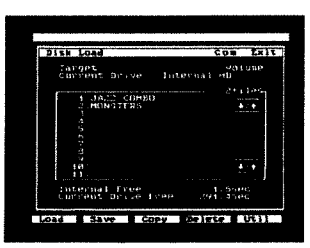
[2] DISK TOOLS (Disk Tools window)

When executing a disk command even with two or more disk drives connected to the S - 770, there is no need to previously specify the disk drive to be accessed. Each time a disk command is executed you have the option of specifying an external disk drive as the current drive. Of course, the floppy disk drive can also be specified as the current drive. This window contains five pages (Load, Save, Copy, Delete, Util) related to disk operations, allowing you to manage and transfer sound data between disk drives.



1. Disk Load

Load data from the current disk into the S - 770.



● **Target** Select the type of sound data to be loaded (Volume, Performance, Patch, Partial, Sample).

● **Current Drive** Specify the current drive. When loading from the Hard Disk, specify "Internal HD". When loading from the floppy disk, specify "[Floppy Disk]".

● **Source File** This is a list of the sound data in the current drive. Click on the desired sound data, and it will be loaded from the current drive into the S - 770's internal memory.

● **Internal Free (Internal Memory Free)**

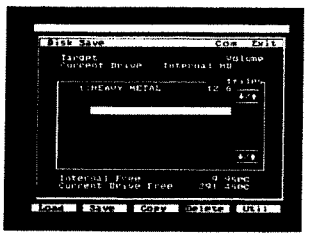
This displays the remaining amount of internal memory.

● **Current Drive Free (Current Drive Memory Free)**

This displays the remaining amount of memory on the current drive.

2. Disk Save

This function saves data from S - 770's internal memory to the current disk. Make a habit of saving important data so that editing mistakes will not destroy irreplaceable Samples.



● **Target** Select the type of sound data to be saved (Volume, Performance, Patch, Partial, Sample).

● **Current Drive** Specify the current drive. When saving to Hard Disk, specify "Internal HD". When saving to the floppy disk, specify "[Floppy Disk]" internal memory.

● **Source File** This is a list of the sound data in the internal memory. Click on the desired sound data, and it will be saved from S - 770's internal memory to the current drive.

● **Internal Free (Internal Memory Free)**

This displays the remaining amount of internal memory.

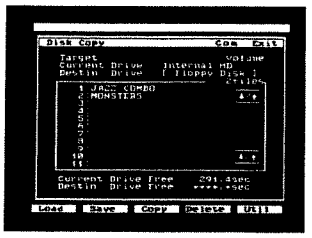
● **Current Drive Free (Current Drive Memory Free)**

This displays the remaining amount of memory on the current drive.

> **Note !!**
> It is only possible to store one piece of sound data on a floppy disk. To save more than one piece of data, prepare a separate disk for each piece. Attempting to save more than one.

3. Disk Copy

This window allows you to copy sound data from one disk to another.



● **Target** Select the type of sound data to be copied (All,Volume, Performance, Patch, Partial, Sample).

● **Current Drive** Specify the current drive for the Copy Source.

● **Destin Drive (Destination Drive)**

Specify the current drive for the Copy Destination.

● **Source File** This is a list of the sound data in the Copy Source current drive. Click on the desired sound data, and it will be copied from the Copy Source current drive to the Copy Destination current drive.

● **Current Drive Free (Current Drive Free)**

This displays the remaining amount of memory on the Copy Source current drive.

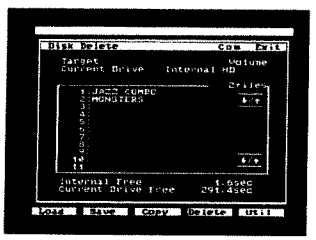
● **Destin Drive Free (Destination Drive Free)**

This displays the remaining amount of memory on the Copy Destination current drive.

> **Note !!**
> It is not possible to copy sound data directly from Hard Disk to floppy disk. To copy sound data from a Hard Disk to floppy disk, you must first load it into internal memory, and then use the Disk Save operation to save it to the floppy disk.

4. Disk Delete

It is a good idea to check the contents of your Hard Disk regularly. Without good management, sound data will soon fill up the disk. In such cases, either transfer important sound data to another disk, or use the Delete command to delete unwanted sound data.



● Target — Select the type of sound data to be deleted (Volume, Performance, Patch, Partial, Sample).

● Current Drive — Select the current drive which contains the sound data you wish to delete.

● Source File — This is a list of the sound data in the current drive. Click on the desired sound data. The contents (total number and type of the sound data) will be displayed, and you will be asked "Are You Sure?". If you are sure you want to delete the data, click **YES**. To exit safely without deleting, click **NO**.

● Internal Free (Internal Memory Free)

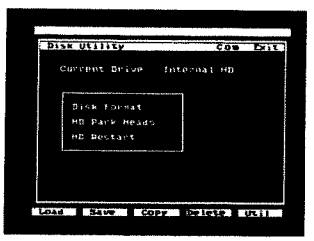
This displays the remaining amount of internal memory.

● Current Drive Free (Current Drive Memory Free)

This displays the remaining amount of memory on the current disk.

5. Utility

Specify the following parameters, and click on the desired switch to execute the operation.



● Disk Format　　This formats the current drive.

【To format the current drive】

① Place the cursor on **Current Drive**, and use the left and right mouse buttons to select the disk you wish to format. To format a floppy disk, select "[Floppy Disk]".

② Click on **Disk Format**.

● HD Park Heads (Hard Disk Park Heads)

Hard disks spin at a very high speed, and the heads are positioned over the disk so that data can be read at any time. This means that if the Hard Disk is subjected to shocks or vibration, the heads may touch the disk surface and damage it. When moving the S - 770 or turning off the power, use this Head Parking function to move the Hard Disk heads to a safe place away from the disk. When you click this command, the S - 770 will park the heads of its internal Hard Disk drive and the heads of any Hard Disks connected via SCSI.

＊For the internal Hard Disk, this command will not only park the heads, but will also stop disk rotation.

● HD Restart (Hard Disk Restart)

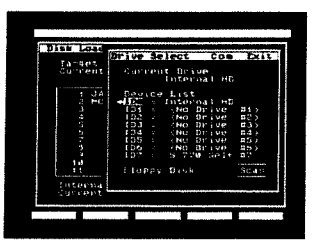
When you execute the HD Park Heads command, the disk will stop rotating, and loading or saving will no longer be possible. When you click this RESTART command, the disk will begin operating once again.

《The Command menu in the Disk Tools window》

To open the Command menu, click on **Com** in the upper right of each page in the Disk Tools window. To close the window, click on **Exit** in the upper right of the Command window.

[1] Drive Sel (Drive Select window)

Specify the current drive connected via SCSI.



● **Current Drive**

This parameter displays the Current Drive.

● **Device List**

This is a list of the floppy disk drive and devices connected via SCSI. When you click the ID number, that drive will be the accessible current drive. If you click to the right of the "=", an ASCII window will appear, and you can give a 12-character name to the drive.

● **Scan (Scan Switch)**

In order for the S - 770 to load or save sound data on an externally connected disk, this **Scan** function must have been previously used to determine what type of device is connected and what the device number is.

Normally, the S - 770 automatically performs the scanning operation when the power is turned on. However, if you have connected additional devices to the S - 770 after the power was turned on, click **Scan** to make the S - 770 aware of other devices. Unless the S - 770 is aware of a newly connected Hard Disk or other SCSI device, it will not be able to issue commands for that device.

【To access an SCSI device as a current drive after the S-770 is turned on】

① Set the SCSI device you wish to connect to a device number between #1 — 6.

＊For details refer to the manual of the device you are connecting.

② Turn on the power of the SCSI device.

③ Click **Scan** to make the S - 770 aware of the newly connected device.

When you click, the "No Drive ~" display beside the ID number you specified for the Hard Disk will disappear.

④ Click to the right of the "=" display (the area that disappeared in step ③), and the ASCII window will appear, allowing you to enter a 12-character drive name. Click on **CR** and the name will be input, and the window will be closed.

A red " → " mark will appear beside the specified ID number, and the "Current Drive:" display will show the specified drive name.

＊If SCSI connections or settings are incorrect, "Can't Communicate." will be displayed in the lower part of the screen.

Note !!

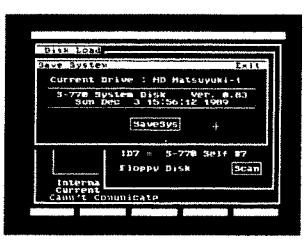
Whenever you make any connections via SCSI, always turn off the power to all devices. This will help in preventing malfunction.

《The Command menu in the Drive Select window》

This Command window has a special command menu. This command menu is able to save the System to the current drive. In the Drive Select window, you can select the desired Current Drive, and save the System to that drive.

[1] Save System (Save System window)

To open this window, click on **Com** in the Drive Select window. This allows you to save the S - 770 System to the current drive specified in the Drive Select window.



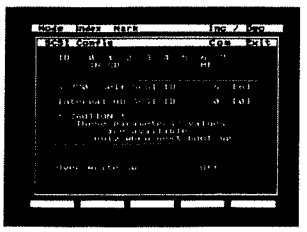
● Current Drive — The current drive name specified in the Drive Select window will be displayed.

● **Save Sys** (Save System Switch)

When you click this switch, the system will be saved to the current drive.

[3] SCSI (SCSI Configuration)

The S - 770 can transfer data (sound data, system, etc.) via its SCSI connector to external storage devices such as Hard Disks. This window allows you to make the S - 770 settings required when connecting SCSI devices. Settings you make for these parameters will become effective the next time you start up the system.



● S - 770 Self SCSI ID (S - 700 self SCSI ID number)

Specify the ID number of the S - 770 itself (0 — 7).

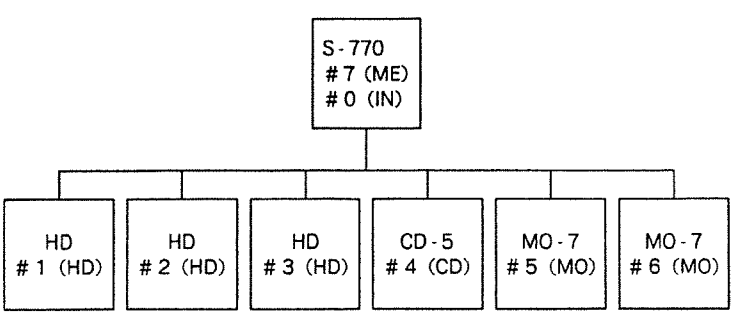
● Internal HD SCSI ID (Internal Hard Disk SCSI ID number)

Specify the ID number of the internal Hard Disk (0 — 7).

Below each ID number "ID=01234567", the connected SCSI device name will be displayed.

ME ····· the S - 770 itself
HD ····· external Hard Disk
CD ····· CD - 5 (Roland CD - ROM player)
MO ····· MO - 7 (Roland Magneto-optical player)
IN ····· internal Hard Disk

Up to six SCSI devices can be connected, and an ID number (0 — 7) assigned for the S - 770 and each device. When connecting devices, make sure that the ID numbers do not overlap, since this will cause problems.



*A single S - 770 requires two device numbers (the unit itself and the internal Hard Disk).

● Over Write SW (Overwrite Switch)

Specify the setting for the Overwrite function (On/Off). If data of the same name already exists when loading or saving sound data, you will be asked whether to overwrite it (erase the old and write the new data) or to cancel the load or save operation. If this parameter is turned Off, data of the same name will be overwritten without asking. (Initial setting: On.)

《The Command menu in the SCSI window》

To open the Command menu, click on **Com** in the upper right of the window. To close the window, click **Exit** in the upper right of the Command window.

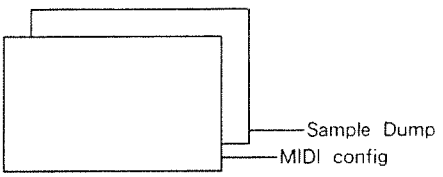
The Drive Sel (drive select) window will open.

[1] Drive Sel (Drive Select window)

Select the current drive connected via SCSI. For the procedure, refer to the explanation of the Disk Tools window (☞ P.200).

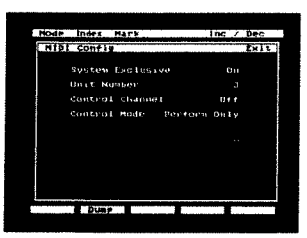
4 MIDI (MIDI window)

This window contains MIDI parameters and Sample Dump settings for the entire S - 770, and is organized into two pages.



1. MIDI Config (MIDI Configuration)

Set MIDI parameters for the entire system.



● **System Exclusive** Specify whether to receive Exclusive messages or not (On/Off). If this is set On, exclusive messages will always be received.

● **Unit Number** Specify the Unit Number for Exclusive messages. If your setup contains two or more S - 770 units, exclusive data can be transferred only between units which have matching Unit Numbers. The Unit Number of the S - 770 is set independently of MIDI channel settings. If you are not using the Control Channel, you can specify a Unit Number of 1 — 32. If you are using the Control Channel, the Unit Number will be the same as the Control Channel (1 — 16). If you wish to set the Control channel and the Unit Number to different values, specify a Unit Number of 17 — 32.

● **Control Channel** While MIDI channel settings determine the reception for each Part, the Control Channel determines reception to control the entire S - 770. The Control Channel (Off, 1 — 16) allows you to use Exclusive messages to adjust the Master Tuning, or use Program Change messages to select S - 770 Performances or Volumes.

● **Control Mode** Specify the Control Mode (PerformOnly, Perform/Volume). This Control Mode setting determines the type of sound data (Volume and Performance) that will be selected in response to an incoming Program Change message (initial setting:Perform Only).

When the Control Mode is PerformOnly, incoming Program Change messages will select Performances as follows.

Pg.#	1	2	3	4	···	63	64	65	66	···	128
Sound data	P1	P2	P3	P4	···	P63	P64	–	–	···	–

P : Performance
– : ignored

When the Control Mode is Perform/Volume, incoming Program Change messages will select Performance and Volumes as follows.

Pg.#	1	2	3	4	···	63	64	65	66	···	128
Sound data	P1	P2	P3	P4	···	P63	P64	V1	V2	···	V64

P : Performance
V : Volume

*When a program change message of number 65 — 128 is received, Volumes 1 — 64 will be loaded from the current drive. When a new Volume is loaded, the old Volume will be overwritten.

Note !!

If the Control Channel setting is the same as a Part channel, an incoming program change message will apply to the Control Channel.

【Using SCSI to connect two S-770s】

① Before connecting cables to any SCSI connectors, turn on power to both of the S-770s.

② Set all of the ID numbers, Self IDs and internal Hard Disk IDs, on both of the S-770s so that each of them has a separate, unique number (☞P.204). Next, set the "Initial Volume" on both of the S-770s to "Off" (☞P.192). Then, turn power off for both of the unit.

③ Using SCSI cable, connect the two S-770s together.

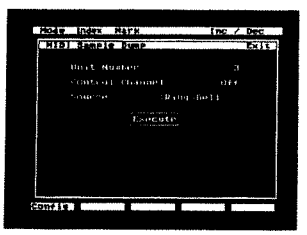
If you then turn them both on again at approximately the same time, the system that resides on the Hard Disk having the lowest ID number will be loaded.

Caution !!

Never attempt to perform any disk accesses such as save/load with both of the S-770s at the same time, when connected as explained above. The data transfer can become unreliable, and may result in the operation being halted, or in damage to sound data.

2. MIDI Sample Dump

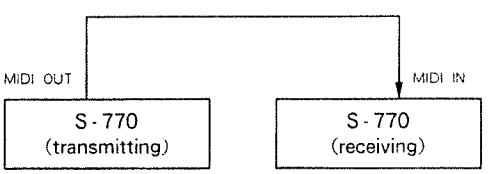
This window allows you to transmit Sample dumps as MIDI Universal Exclusive messages. This will transmit wave data (including loop points and looping modes) to any other sampler which is compatible with the Sample Dump Standard. (This also allows the S - 770 to receive wave data from another sampler.)



There are two methods of Sample dumping; Handshake and One Way. The Handshake method is more reliable, since it allows the two devices to confirm whether the data was correctly received. In addition, since the data is transmitted as soon as the receiving device is ready to receive it, this method is faster than One Way. Especially when large amounts of data are to be transmitted via Sample Dump, we recommend that you use the Handshake method.

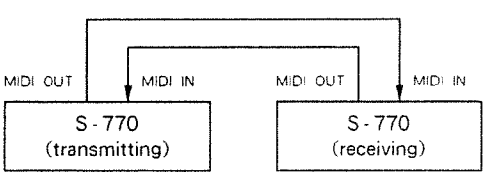
【One Way】

Use a MIDI cable to connect the MIDI OUT of the transmitting device to the MIDI IN of the receiving device.



【Handshake】

Use two MIDI cables to connect the MIDI OUT of each device to the MIDI IN of the other device.



● Unit Number

The transmitting sampler and the receiving sampler must be set to the same Unit Number for Sample Dumping to take place.

● Source (Source Select)

Select the Sample to be transmitted.

[Using Sample Dump to transmit Wave data to another sampler]

① Use two MIDI cables to connect the MIDI OUT of each device to the MIDI IN of the other device.

＊If you use one MIDI cable to connect only the MIDI OUT of the S - 770 to the MIDI IN of the other sampler, One Way Sample dumping will automatically be used.

② Open the MIDI Sample Dump window.
Mode → **System** → **MIDI** → **Dump**

③ Set the S - 770 to match the Unit Number of the receiving sampler.
Parameter: Unit Number
Setting: 1 — 32

④ Select the Sample you wish to transmit.
Parameter: Source
Setting: this will depend on the selected Sample

⑤ Click **Execute** to execute transmission.

[Using Sample Dump to receive Wave data from another sampler]

① Use two MIDI cables to connect the MIDI OUT of each device to the MIDI IN of the other device.

＊If you use one MIDI cable to connect only the MIDI IN of the S - 770 to the MIDI OUT of the other sampler, One Way Sample dumping will automatically be used.

② Operate the transmitting sampler to make it transmit data.
It does not matter which window is open on the S - 770.

[To check whether Wave data was correctly transmitted via Sample Dump]

① Open the Sampling window.
Mode → **Sound** → **Edit Sample** → **Smpling**

② Place the cursor on "Sample Name", and use the left and right mouse buttons to find the name of the received Sample.

Data received via Sample Dump is not distinguished as Stereo or Mono. The S - 770 itself handles stereo data as two Samples. You can use the Edit Sample command Set Stereo to add L/R to the end of two Samples, so that they can be used as a stereo Sample.

【To rename a pair of Samples received via Sample Dump so they can be used as a Stereo Sample】

① Open the Set Stereo window.
Mode → **Sound** → **Edit sample** → **Com** → **Set Stereo**

② Place the cursor at Source1 and Source2, and use the mouse buttons to select each individual data name ("MIDI Sample ＊＊").

③ Click on **New Name** to open the ASCII keyboard, and enter the new name.

④ Click **Execute**, and the two Samples will be renamed with L/R added to the end of each.
For example if you input a name of "Jupiter8" in step ③, the Samples will be named "Jupiter8_L" and "Jupiter8_R".

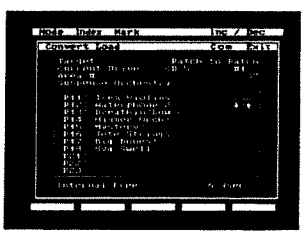
[5] OPTION (Option window)

This window allows the S - 770 to load and use (Convert Load) data from S-series libraries, giving you immediate access to a large selection of already existing data.

1. Convert Load

Since sound data of the S - 550/300 or W - 30 have different parameters and are organized differently than the sound data of the S - 770, such data cannot be loaded into the S - 770 as it is. However, the Convert Load function allows this data to be loaded into the S - 770, with the Wave unchanged, and some parameters converted automatically. Not only an entire floppy disk, but also individual Patches and Tones can also be Convert Loaded.

* Since the playback frequency and analog circuitry are also different, data which has been Convert Loaded may sound slightly different than the original.
* Disks created by the S - 770 cannot be used by other devices (S - 50/550/330, W - 30).



● Convert Mode

Select the unit of data to be converted (All, Patch to Patch, Tone to Partial). The contents of the display will be different, depending on the selected Mode.

All:

The display will show "Convert All Execute". Click this display to Convert Load all sound data from the current disk.

Patch to Patch:

The display will show a list of the Patches in the current disk. Click the desired Patch name, and it will be Convert Loaded.

Tone to Partial:

The display will show a list of the Tones in the current disk. Click the desired Tone name, and it will be Convert Loaded (as a Partial).

* The "Internal Free * * * seg." in the lower part of the display indicates the amount of free internal memory. This allows you to check whether or not the sound data to be loaded will fit into internal memory.

● **Current Drive** Specify the current drive from which data will be Convert Loaded.

● **Area #** When Convert Loading data from Hard Disk or CD - ROM player, specify the Area number. Place the cursor on this parameter and click. The area number will change together with the contents of the list.

＊When Convert Loading from floppy disk, there is no need to use this parameter.

> **Note ! !**
> If when Convert Loading, if the sound data written into internal memory contains a name identical to a data name in the internal Hard Disk, etc., the new data must be renamed before it can be saved. However, by specifying a Volume ID for the ID Area in the Set Volume ID window (☞P.109), you will be able to save the data without renaming it. This also allows sound data saved to disk to be handled as an entire Volume.

【To read S-550/330 or W-30 library data from a floppy disk】

① Open the Convert Load page.
Mode → **System** → **Option**

② Set the Target to specify the data you wish to Convert Load.
Parameter: Target
Setting: All, Patch to Patch, Tone to Partial

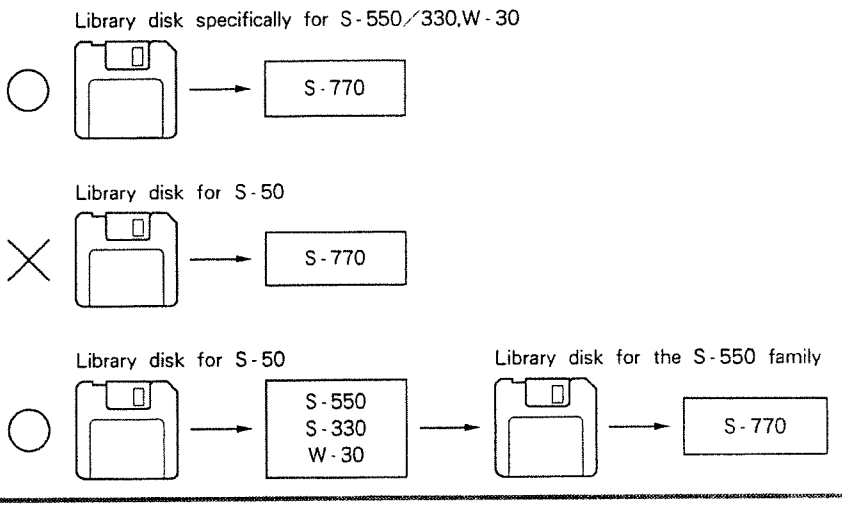
③ Select **Floppy Disk** as the current disk to be Convert Loaded.
When this is selected, a list of the drive contents will appear.
Parameter: Current Drive
Setting: **Floppy Disk**

④ In the list, click on the sound data you wish to Convert Load.
When you click, the specified data will be Convert Loaded.

⑤ If you wish to continue Convert Loading other data, repeat steps ② — ④.
Each time you change the settings, check the "Internal Free ＊＊＊ seg." shown in the lower part of the screen, to make sure that the sound data you wish to load will fit into internal memory.

Note !!

Library data specifically for the S-50 cannot be directly Convert Loaded for use with the S-770. However, if such data is first Convert Loaded using a S-550/330 or W-30, the resulting data can then be Convert Loaded for use with the S-770.



《The Command menu in the Option window》

To open the Command menu, click on **Com** in the upper right of the window. To close the window, click on **Exit** in the upper right of the Command window.

1 Drive Sel (Drive Select window)

Specify the current drive from the SCSI connected devices. For details, refer to the section on the Disk Tools window (☞P.200).

Chapter 5

Appendix

SOUND PARAMETER LIST

Volume		Volume Name		" : It's Volume Name"
Performance	Performance Common	Performance Name Part 1—32		" : Eyes of the mind"
		Patch Sel		Off, 1 — 128 "Piano 1"
		MIDI Ch		Off, 1 — 16
		Part Level		0~127
		Part Zone Lower		A0 (21) — C8 (108)
		Part Zone Upper		A0 (21) — C8 (108)
		Lower Fade Width		0 — Lower
		Upper Fade Width		0 — Upper
	MIDI Filter (each MIDI ch)	Program Change		Off, On
		Pitch Bend		Off, On
		Modulation		Off, On
		Hold Pedal		Off, On
		After Touch		Off, Channel, Poly
		Bend Range		Off, On
		MIDI Volume		Off, On
		Vel Curve Type		—, 1, 2, 3, 4, 5, 6, 7
Patch	Patch Common	Patch Name		" : Piano 1"
		Program Change #		1 — 128
		Stereo MIX Level		0 — 127
		Total Pan		L32 — 0 — R32
		Patch Level		0 — 127
		Output Assign		Off, Partial, 1, 2, 3, 4, 5, 6
		Priority		Off, On
		Cutoff		-63 — 63
		Vel Sens		-63 — 63
		Oct.Shif		-2 — 2
		Coarse Tune		-48 — +48
		Fine Tune		-50 — +50
	Partial Assign	A0	"Partial 1"	Poly, Mono, Exc1 — 16
		A # 0	"Partial 2"	:
		:	:	
		C8	"Partial x"	
	Controller	SMT Ctrl Sel		Bender, After, Mod, Ctrl
		SMT Ctrl Sens		-63 — +63
	Bender	Pitch Ctrl Up		0 — 48
		Pitch Ctrl Down		0 — 48
		TVA Ctrl		-63 — +63
		TVF Ctrl		-63 — +63

Patch	After Touch	Pitch Ctrl	-48 — +48
		TVA Ctrl	-63 — +63
		TVF Ctrl	-63 — +63
		LFO Rate Ctrl	-63 — +63
		LFO Pitch Depth	-63 — +63
		LFO TVA Depth	-63 — +63
		LFO TVF Depth	-63 — +63
	Modulation	LFO Rate Ctrl	-63 — +63
		LFO Pitch Depth	-63 — +63
		LFO TVA Depth	-63 — +63
		LFO TVF Depth	-63 — +63
	Controller	Control #	any control #
		Pitch Ctrl	-48 — +48
		TVA Ctrl	-63 — +63
		TVF Ctrl	-63 — +63
		LFO Rate Ctrl	-63 — +63
		LFO Pitch Depth	-63 — +63
		LFO TVA Depth	-63 — +63
		LFO TVF Depth	-63 — +63
Partial	Common	Partial Name	" : Piano R, ff"
		Stereo MIX Level	0 — 127
		Partial Level	0 — 127
		Output Assign	Off, 1, 2, 3, 4, 5, 6
		Coarse Tune	-48 — +48
		Fine Tune	-50 — +50
		SMT Velocity Ctrl	Off, On
		Pan	L32 — 0 — R32
	TVF	Filter Mode	Off/LPF/BPF/HPF
		CutOff	0 — 127
		Resonance	0 — 127
		Vel Curve Type	1, 2, 3, 4
		Vel Curve Ratio	-63 — +63
		Time Vel Sens	-63 — +63
		Cutoff Vel Sens	-63 — +63
		Level 0, 4	0 — 127
		Level 1	0 — 127
		Level 2	0 — 127
		Level 3 (S)	0 — 127

Partial	TVF	Time 1	0 — 127
		Time 2	0 — 127
		Time 3	0 — 127
		Time 4 (R)	0 — 127
		ENV TVF Depth	-63 — + 63
		ENV Pitch Depth	-63 — + 63
		TVF KF Point	A0 (21) — C8 (108)
		ENV Time KF	-63 — + 63
		ENV Depth KF	-63 — + 63
		Cutoff KF	-63 — + 63
	TVA	Vel Curve type	1, 2, 3, 4
		Vel Curve ratio	-63 — + 63
		Time Vel Sens	-63 — + 63
		Level 0	0
		Level 1	0 — 127
		Level 2	0 — 127
		Level 3 (S)	0 — 127
		Time 1	0 — 127
		Time 2	0 — 127
		Time 3	0 — 127
		Time 4 (R)	0 — 127
		TVA KF Point	A0 (21) — C8 (108)
		ENV Time KF	-63 — + 63
		Level KF	-63 — + 63
	LFO	Wave Form	Sin, Tri, SwUp, SwDwn, Squ, Rnd, BendUp, BendDwn
		Rate	0 — 127
		Key Sync	Off, On
		Delay	0 — 127
		Delay KF	0 — 63
		Detune	0 — 127
		Pitch Mod Depth	-63 — 63
		TVF Mod Depth	-63 — 63
		TVA Mod Depth	-63 — 63
	Sample 1 — 4	Sample Sel	" : Sample "
		Pitch KF	-2 — + 2
		Sample Level	0 — 127
		Pan	L32 — 0 — R32, Rnd, Ky +, Ky-
		Coarse Tune	-48 — + 48
		Fine Tune	-50 — + 50

Partial	Vel Zone (Sample Mix Table)	Vel Lower	1 — 126
		Lower Fade Width	0 — Lower
		Vel Upper	2 — 127
		Upper Fade Width	0 — Upper
Sample	Common	Sample Name	12 characters
		Start Point	0 — 8377322
		Loop Mode	Forward／Fwd + P／Oneshot／Fwd + One／Alt／Rev One／Rev
	S – Loop	Loop Start Point	0 — 8377322
		Loop End Point	4 — 8377326
		Tune	-63 — + 63
	R – Loop	Loop Start Point	14 — 8377336
		Loop End Point	18 — 8377340
		Tune	-63 — + 63
		Orig Key	A0 (21) — C8 (108)
		– Fine	0 — 255

LIST OF MIDI CONTROLLERS

Control Number	Function
1	Modulation depth
2	Breath controller
4	Foot controller
5	Portamento time
6	Data entry (used with RPN/NRPN)
7	Main volume
8	Balance control
10	Pan
11	Expression
32	LSB of 0—31
:	
63	

Control Number	Function
64	Hold 1 (damper pedal)
65	Portamento
66	Sostenuto
67	Soft pedal
69	Hold 2 (freeze)
91	External effect depth
92	Tremolo depth
93	Chorus depth
94	Celeste depth
95	Phaser depth

TROUBLESHOOTING

● No sound

○Are the connections correct?

○Are the volumes of the amp or mixer turned down?

○Is the volume of the S - 770 turned down?

Check the following points.

The position of the Volume knob

The level specified for each Part (☞P.98)

The level specified for each Patch (☞P.123)

The level specified for each Partial (☞P.136)

The level specified for each Sample (☞P.138)

○Are MIDI channel settings correct?

Check the transmit channel of the MIDI controller, and use the S - 770 Play window (☞P.98) to check the receive channels of each Part.

○Are outputs correctly selected?

Check the INDIVIDUAL out (☞P.98) setting.

● Nothing appears in the S - 770's LCD

○Is the LCD turned off in the System PRM Page 2 (☞P.194)?

● The mouse (RC - 100) does not work

○Is the mouse (or RC - 100) selected in the System PRM Page 2 (☞P.193)?

If controller settings are incorrect the mouse will not work.

○Is the mouse correctly connected to the Auxiliary control connector?

Refer to "Connections" (☞P.16) and check.

○Is the mouse ball dirty?

If the ball is dirty, mouse movement will be affected. Clean the ball as explained in "Mouse care" (☞P.11).

○Is the S - 770 processing data (i.e., while Smoothing, Truncating, accessing a disk drive, processing memory, receiving MIDI, etc.)?

The mouse cursor will not move while processing is taking place, but this is not a malfunction.

● The mouse or buttons become inoperative during use

If pressing the panel buttons causes no change to appear in the display, the program has hung up. In such cases the only thing you can do is to turn the power off. (The data being edited will be lost.)

● Accidentally turned the power off while editing

Unsaved data in internal memory will be lost. (There is no way to recover this.) As a precaution against such occurrences, remember to save your data regularly.

● The pitch is wrong

○Is the Master Tuning (☞P.192) setting correct?

○Are the Octave Shift (☞P.123), Coarse Tuning / Fine Tuning (☞P.123) settings for each Patch correct?

○Are the Pitch Key Follow (☞P.134) settings for each Patch correct?

○Are the Coarse Tuning / Fine Tuning (☞P.136) for each Partial correct?

●Controller messages (Pitch Bender, Modulation, Aftertouch, Breath, etc.) do not have the desired effect

○Is the filter (☞P.112) in the MIDI window set to Off?

○Is each Patch correctly set to receive controller messages (☞P.127)?

●Playing dynamics do not have the desired effect

○Does the MIDI controller transmit velocity (or breath) data? Is the Breath control (☞P.128) of each Partial set On?

○Is the Velocity Curve (☞P.114) in the MIDI window set correctly?

○Is the Velocity Sens Offset (☞P.123) of each Patch set correctly?

○Are the TVA, TVF Velocity Curve / Velocity Curve Sensitivity (☞P.140) (☞P.145), Key Rate, and Envelope settings correct?

●Program Change messages do not select Patches

○Is Program Change turned On in the MIDI window (☞P.112)

●Program Change messages do not select Volumes or Performances

○Are the settings in Control mode (☞P.205) correct?

●Cannot record a Sample

○Is the memory sufficient?

If not, you can Delete (☞P.198) unneeded sound data to increase available memory.

●Some notes do not sound or are cut off

○The S-770 can produce up to 24 notes at once. Use the Module Page (☞P.118) of the Monitor window to check the number of sounding notes.

○Are the notes which were cut off set to an Assign Type (☞P.124) of Exc1 — Exc16? Unless the Assign Type is Poly, a newly sounded Partial will turn off the sound for the previously sounding Partial of the same group.

●Note timing is incorrect

○If the Wave data of the Sample contains blank space at the beginning, there will be a delay from when the Note On message is received to when sound is produced. Truncate (☞P.169) unneeded space at the beginning of the Sample.

○Are many MIDI devices connected (via MIDI THRU) between the controller and the S-770? When MIDI data is passed through many THRU connections, it will cause delays or sound deterioration. We recommend that you use a MIDI THRU Box when connecting many MIDI devices.

○Are large amounts of Exclusive data being received? Since Exclusive message handling is given priority over notes, this may cause notes to be delayed.

Set the MIDI Filter (☞P.112) to remove unnecessary Exclusive messages.

○When samplers playback data at a different pitch, the length of the data is affected. When played back at a pitch lower than the Original Key, the attack will be slower. When played back at a higher pitch, the attack will be faster.

This will cause apparent differences in note timing.

This can be reduced somewhat by Multi-sampling (☞P.160). However, when step-time entry is used in a sequencer, you can correct this by adjusting the timing of each individual note according to the subjective attack time.

●Sounds are different than when sampled

○Is the sample being played back at a different frequency than it was sampled at?

If the playback frequency is lower than the sampling frequency, the sound quality will decrease. The playback frequency is set by the Master Sampling Frequency (☞P.193) in System PRM Page 2.

Roland Exclusive Messages

1. Data Format for Exclusive Messages

Roland's MIDI implementation uses the following data format for all exclusive messages (type IV) :

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
CMD	Command ID
[BODY]	Main data
F7H	End of exclusive

MIDI status : F0H, F7H

An exclusive message must be flanked by a pair of status codes, starting with a Manufacturer ID immediately after F0H (MIDI version1.0).

Manufacturer-ID : 41H

The Manufacturer-ID identifies the manufacturer of a MIDI instrument that triggers an exclusive message. Value 41H represents Roland's Manufacturer-ID.

Device-ID : DEV

The Device-ID contains a unique value that identifies the individual device in the multiple implementation of MIDI instruments. It is usually set to 00H – 0FH, a value smaller by one than that of a basic channel, but value 00H – 1FH may be used for a device with multiple basic channels.

Model-ID : MDL

The Model ID contains a value that uniquely identifies one model from another. Different models, however, may share an identical Model ID if they handle similar data.

The Model-ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Model IDs, each representing a unique model :

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

Command-ID : CMD

The Command-ID indicates the function of an exclusive message. The Command-ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Command IDs, each representing a unique function :

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

Main data : BODY

This field contains a message to be exchanged across an interface. The exact data size and contents will vary with the Model-ID and Command-ID.

2. Address-mapped Data Transfer

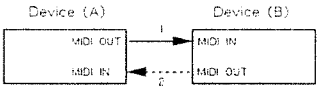
Address mapping is a technique for transferring messages conforming to the data format given in Section 1. It assigns a series of memory-resident records-waveform and tone data, switch status, and parameters, for example-to specific locations in a machine-dependent address space, thereby allowing access to data residing at the address a message specifies.

Address-mapped data transfer is therefore independent of models and data categories. This technique allows use of two different transfer procedures : one-way transfer and handshake transfer.

One-way transfer procedure (See Section 3 for details.)

This procedure is suited for the transfer of a small amount of data. It sends out an exclusive message completely independent of a receiving device status.

Connection Diagram

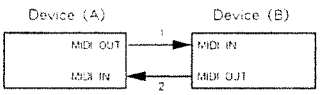


Connection at point 2 is essential for "Request data" procedures. (See Section 3.)

Handshake-transfer procedure (See Section 4 for details.)

This procedure initiates a predetermined transfer sequence (handshaking) across the interface before data transfer takes place. Handshaking ensures that reliability and transfer speed are high enough to handle a large amount of data.

Connection Diagram



Connection at points 1 and 2 is essential.

Notes on the above two procedures

*There are separate Command IDs for different transfer procedures.
*Devices A and B cannot exchange data unless they use the same transfer procedure, share identical Device ID and Model ID, and are ready for communication.

3. One-way Transfer Procedure

This procedure sends out data all the way until it stops and is used when the messages are so short that answerbacks need not be checked.
For long messages, however, the receiving device must acquire each message in time with the transfer sequence, which inserts intervals of at least 20 milliseconds in between.

Types of Messages

Message	Command ID
Request data 1	RQ1 (11H)
Data set 1	DT1 (12H)

Request data # 1 : RQ1 (11H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.
On receiving an RQ1 message, the remote device checks its memory for the data address and size that satisfy the request.

If it finds them and is ready for communication, the device will transmit a "Data set 1 (DT1)" message, which contains the requested data. Otherwise, the device will send out nothing.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
11H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

*The size of the requested data does not indicate the number of bytes that will make up a DT1 message, but represents the address fields where the requested data resides.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The same number of bytes comprises address and size data, which, however, vary with the Model ID.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Data set 1 : DT1 (12H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, a DT1 message can convey the starting address of one or more data as well as a series of data formatted in an address dependent order.

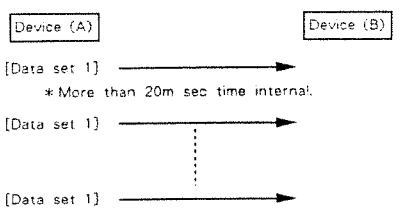
The MIDI standards inhibit non real time messages from interrupting an exclusive one. This fact is inconvenient for the devices that support a "soft through" mechanism. To maintain compatibility with such devices, Roland has limited the DT1 to 256 bytes so that an excessively long message is sent out in separate segments.

Byte	Description
F0H	Exclusive
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
12H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ddH	Data
⋮	⋮
sum	Check sum
F7H	End of exclusive

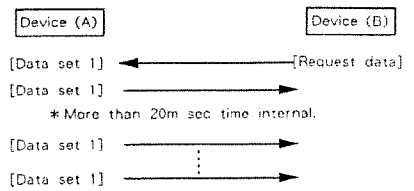
*A DT1 message is capable of providing only the valid data among those specified by an RQ1 message.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The number of bytes comprising address data varies from one Model ID to another.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Example of Message Transactions

● Device A sending data to Device B
Transfer of a DT1 message is all that takes place.



● Device B requesting data from Device A
Device B sends an RQ1 message to Device A. Checking the message, Device A sends a DT1 message back to Device B.



4. Handshake-Transfer Procedure

Handshaking is an interactive process where two devices exchange error checking signals before a message transaction takes place, thereby increasing data reliability. Unlike one-way transfer that inserts a pause between message transactions, handshake transfer allows much speedier transactions because data transfer starts once the receiving device returns a ready signal.

When it comes to handling large amounts of data-sampler waveforms and synthesizer tones over the entire range, for example-across a MIDI interface, handshaking transfer is more efficient than one-way transfer.

Types of Messages

Message	Command ID
Want to send data	WSD (40H)
Request data	RQD (41H)
Data set	DAT (42H)
Acknowledge	ACK (43H)
End of data	EOD (45H)
Communication error	ERR (4EH)
Rejection	RJC (4FH)

Want to send data : WSD (40H)

This message is sent out when data must be sent to a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of the data to be sent.

On receiving a WSD message, the remote device checks its memory for the specified data address and size which will satisfy the request. If it finds them and is ready for communication, the device will return an "Acknowledge (ACK)" message.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
40H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

Otherwise, it will return a "Rejection (RJC)" message.
*The size of the data to be sent does not indicate the number of bytes that make up a "Data set (DAT)" message, but represents the address fields where the data should reside.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The same number of bytes comprises address and size data, which, however, vary with the Model ID.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Request data : RQD (41H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.

On receiving an RQD message, the remote device checks its memory for the data address and size which satisfy the request. If it finds them and is ready for communication, the device will transmit a "Data set (DAT)" message, which contains the requested data. Otherwise, it will return a "Rejection (RJC)" message.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
41H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

* The size of the requested data does not indicate the number of bytes that make up a "Data set (DAT)" message, but represents the address fields where the requested data resides.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The same number of bytes comprises address and size data, which, however, vary with the Model-ID.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Data set : DAT (42H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, the message can convey the starting address of one or more data as well as a series of data formatted in an address-dependent order.

Although the MIDI standards inhibit non-real time messages from interrupting an exclusive one, some devices support a "soft-through" mechanism for such interrupts. To maintain compatibility with such devices, Roland has limited the DAT to 256 bytes so that an excessively long message is sent out in separate segments.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
42H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ddH	Data
⋮	⋮
sum	Check sum
F7H	End of exclusive

* A DAT message is capable of providing only the valid data among those specified by an RQD or WSD message.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The number of bytes comprising address data varies from one model ID to another.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Acknowledge : ACK (43H)

This message is sent out when no error was detected on reception of a WSD, DAT, "End of data (EOD)", or some other message and a requested setup or action is complete. Unless it receives an ACK message, the device at the other end will not proceed to the next operation.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
43H	Command ID
F7H	End of exclusive

End of data : EOD (45H)

This message is sent out to inform a remote device of the end of a message. Communication, however, will not come to an end unless the remote device returns an ACK message even though an EOD message was transmitted.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
45H	Command ID
F7H	End of exclusive

Communications error : ERR (4EH)

This message warns the remote device of a communications fault encountered during message transmission due, for example, to a checksum error. An ERR message may be replaced with a "Rejection (RJC)" one, which terminates the current message transaction in midstream.

When it receives an ERR message, the sending device may either attempt to send out the last message a second time or terminate communication by sending out an RJC message.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
4EH	Command ID
F7H	End of exclusive

Rejection : RJC (4FH)

This message is sent out when there is a need to terminate communication by overriding the current message. An RJC message will be triggered when :

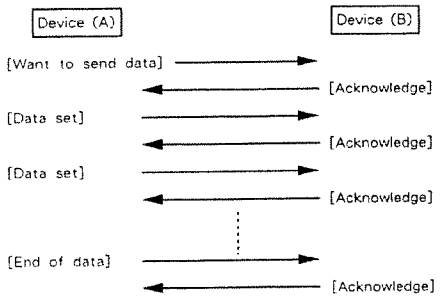
- a WSD or RQD message has specified an illegal data address or size.
- the device is not ready for communication.
- an illegal number of addresses or data has been detected.
- data transfer has been terminated by an operator.
- a communications error has occurred.

An ERR message may be sent out by a device on either side of the interface. Communication must be terminated immediately when either side triggers an ERR message.

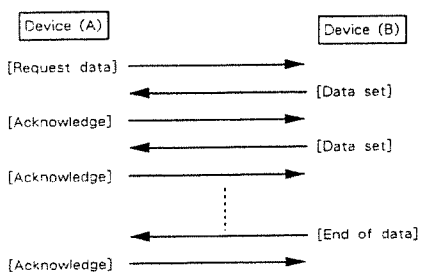
Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
4FH	Command ID
F7H	End of exclusive

Example of Message Transactions

●Data transfer from device (A) to device (B).

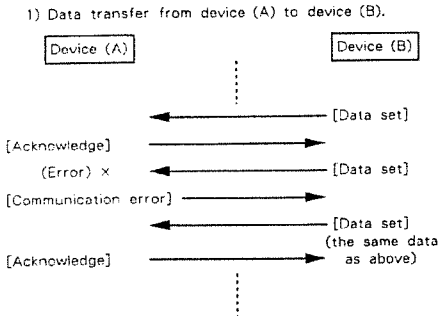


●Device (A) requests and receives data from device (B).

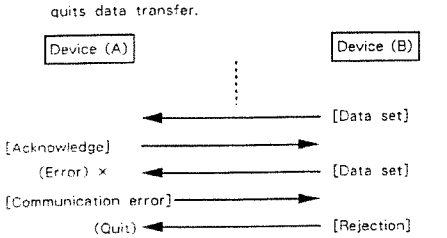


●Error occurs while device (A) is receiving data from device (B).

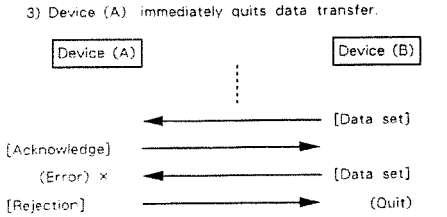
1) Data transfer from device (A) to device (B).



2) Device (B) rejects the data re – transmitied, and quits data transfer.



3) Device (A) immediately quits data transfer.



DIGITAL SAMPLER

Model S-770

MIDI Implementation

Date : Jan. 19 1990

Version : 1.00

1. RECOGNIZED RECEIVE DATA

■ Channel Voice Message

● Note off

Status	Second	Third
8nH	kkH	vvH
9nH	kkH	00H

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
kk = Note number : 15H - 6CH (21 - 108)
vv = Velocity : 00H - 7FH (0 - 127)

* S-770 ignores velocity.

● Note on

Status	Second	Third
9nH	kkH	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
kk = Note number : 15H - 6CH (21 - 108)
vv = Velocity : 01H - 7FH (1 - 127)

● Polyphonic key pressure

Status	Second	Third
AnH	kkH	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
kk = Note number : 15H - 6CH (21 - 108)
vv = Value : 00H - 7FH (0 - 127)

* Received when MIDI aftertouch function is set at POLY.

● Channel prssure

Status	Second
DnH	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
vv = Value : 00H - 7FH (0 - 127)

* Received when MIDI aftertouch function is set at CH.

● Control change

○ Modulation

Status	Second	Third
BnH	01H	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
vv = Modulataion depth : 00H - 7FH (0 - 127)

* Received when MIDI modulation function is set at ON.

○ Breath

Status	Second	Third
BnH	02H	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
vv = Breath : 00H - 7FH (0 - 127)

* Received when MIDI controller select is set at breath.

○ Volume

Status	Second	Third
BnH	07H	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
vv = Volume : 00H - 7FH (0 - 127)

* Used to control the volume of a part in which the received MIDI cannel is defined.
Received when MIDI volume function is ON.

○ Hold 1

Status	Second	Third
BnH	40H	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
vv = Control value : 00H - 7FH (0 - 127)
0 - 63 = OFF
64 - 127 = ON

* Received when MIDI hold function is ON.

○ RPN MSB

Status	Second	Third
BnH	65H	mmH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
mm = The upper byte of a parameter number defined by RPN.

○ RPN LSB

Status	Second	Third
BnH	64H	llH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
ll = The lower byte of a parameter number defined by RPN.

○ Data entry MSB

Status	Second	Third
BnH	06H	mmH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
mm = The upper byte of data of the parameter defined by RPN.

○ Data entry LSB

Status	Second	Third
BnH	26H	llH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
ll = The lower byte of data of the parameter defined by RPN.

** RPN **

The control change includes RPN (registered parameter number) which is a massage accepted and registered by MIDI and can be used to change the parameter of the external device. When using a RPN, define the parameter to be controlled by using the RPN MSB and LSB and then write the parameter value into the data entry field.

The S-770 can receive such RPNs as pitch bend sensitivity and master fine tune.

Pitch bend sensitivity

RPN	Data entry
MSB LSB	MSB LSB
00H 00H	mmH llH

mm = 0 - 48
ll = 0 7FH

LSB must be sent to make the data effective, but the S-770 ignores this byte.

The S 770 can raise the pitch up or down to 4 octaves in semitone steps (ignores fraction specified by llH).
The value is commonly applied to up and down.

Example : Set bend range to 2.

MIDI DATA (HEX)	Description
B0 65 00	: RPN MSB = 00
B0 64 00	: RPN LSB = 00
B0 06 02	: Data entry MSB
B0 26 00	: Data entry LSB

Master fine tune

RPN		Data entry	
MSB	LSB	MSB	LSB
00H	01H	mmH	llH

mm = Upper value of master tune : 00H - 7FH (0 - 127)
ll = Lower value of master tune : 00H - 7FH (0 - 127)

Tune range can be defined up to ± 50 cents in 100/8192 cent steps when notes are centered with respect to the middle A set at 440 Hz. The S-770, however, rounds off received fraction data to a cent. Master tune value can be defined as -50 cent by specifying not only less than 27H, 00H, but more than 59H, 00H.

MSB	LSB	
27H	00H	-50cent
:		
40H	00H	0cent
:		
59H	00H	+50cent

Example: Set master tune to A = 440 Hz.

MIDI DATA (HEX)	Description
B0 65 00	: RPN MSB = 00
B0 64 01	: RPN LSB = 01
B0 06 40	: MSB of the data
B0 26 00	: LSB of the data

** Other Control Changes **

The S-770 can select a controller among the control numbers 0 - 95 by using MIDI controller select function.

Status	Second	Third
BnH	mmH	vvH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
mm = Control number : 00H - 5FH (0 - 95)
vv = Control data : 00H - 7FH (0 - 127)

● Program change

Status	Second
CnH	ppH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
pp = Program number : 00H - 7FH (0 - 127)

Recognized when MIDI program change function is on.

The S-770 regards Program change received on the system control channel as follows:
When the program number is 00H - 3FH (0 - 63): Performance change
When the program number is 40H - 7FH (64 - 127): Volume change

If the system control channel and a part channel is the same, the program change message on the control channel has priority over that on the part channel.
Performance numbers, 0 - 63, are translated as 1 - 64 in the S-770's internal memory. The S-770 loads from the hard disk the volume whose number is the program number minus 63. Volume change is effective only when the control mode, a system parameter, is set at "Performance/Volume".

Program change received on the channel defined in a part serves as a patch change.

Any patch can be assigned to a program number.

● Pitch bend change

Status	Second	Third
EnH	llH	mmH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16
mm, ll = Value : 00H, 00H - 40H, 00H - 7FH, 7FH (-8192 - 0 - +8191)

■ Channel Mode Message

● All notes off

Status	Second	Third
BnH	7BH	00H

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16

On receiving this message, the S-770 releases all sounding notes on the receiving channel. When a Damper on has been received, the message is kept inactive until the next Damper off.

● OMNI on

Status	Second	Third
BnH	7CH	00H

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16

The S-770 handles this message in the same way as with All notes off.

● OMNI off

Status	Second	Third
BnH	7DH	00H

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16

The S-770 handles this message in the same way as with All notes off.

● MONO

Status	Second	Third
BnH	7EH	mmH

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16

The S-770 handles this message in the same way as with All notes off.

● POLY

Status	Second	Third
BnH	7FH	00H

n = MIDI channel number : 0H - FH (0 - 15) 0 = ch.1 - 15 = ch.16

The S-770 handles this message in the same way as with All notes off.

■ System Exclusive Message

Status
F0H : System exclusive
F7H : EOX (End Of Exclusive)

For details, refer to Roland Exclusive Messages section and section 3.

■ System Real Time Message

● Active sensing

Status
FEH

Having received this message, the S-770 expects to receive information of any status or data every 300 ms (max.). If the S-770 fails to sense message, it assumes the MIDI bus is disconnected for some reason. Then the S-770 mutes all notes that have been turned on by MIDI and returns to normal operation. After that it will not check interval of messages.

2. TRANSMITTED DATA

■ System Exclusive Message

Status
F0H : System exclusive
F7H : EOX (End Of Exclusive)

For details, refer to Roland Exclusive Messages section and section 3.

3. EXCLUSIVE COMMUNICATIONS

■ Exclusive Information Effecive with the S-770

The S-770 can transimit the following information as exclusive message.

- System exclusive message (in a format established by Roland) Timbre parameter information, etc.
- Universal system exclusive message (in a format defined by MIDI)
- Sample dump standard (sampling data body)

■ System Exclusive Message

● General

The S-770 can transfer parameters for timbre, etc. using exclusive message; either in one way method or handshaking method, each performed in different way.

● Definition

○ Model ID

The model ID of the S-770 is 34H.

○ Control channel

The channel used to carry MIDI controls affecting whole functions of the S-770.

○ Unit number

Since exclusive message is not furnished with MIDI channel as a parameter, additional parameters are employed to control individual functions.

Parameter	Value
Control channel	1 - 16 or OFF
Unit number	17 - 32 or 1 - 32

When the unit number is set at one of 1 - 16, contents in the control channel are duplicated in the unit number, i.e. the contents of the unit number are replaced by those on the control channel. When the unit number is set at 16 - 32, the contents of the unit number can be set individually.

○ Device ID

The device ID is used in exclusive message to identify individual device in the S-770 MIDI group. The device ID is usually set to 00H - 0FH, a value smaller by 1 than that of a basic channel (on which MIDI note information is received) to prevent any confusion from occuring. With the S-770 or the like having multiple basic channels, the device ID can be from 00H to 1FH

● One way Communications

○ Request data RQ1 11H

When the received request data contains, 1) the address that is a part of the parameter base address and 2) address size 1 or more, the S-770 sends a Data set 1 (DT1) message which contains the requested parameter. The S-770 does not send this message.

Byte	Description	
F0H	Exclusive status	
41H	Manufacturer (Roland) ID	
DEV	Device ID	
34H	Model ID	
11H	Command ID (RQ1)	
aa	Address MSB	*3 1
aa	Address	
aa	Address	
aa	Address LSB	
ss	Size MSB	
ss	Size	
ss	Size	
ss	Size LSB	
sum	Checksum	
F7H	EOX (End of exclusive)	

○ Data set DT1 12H

When the S-770 has the unit number that matches the one defined in the incoming Data set message, and the parameter base address that matches the address in the data set, the S-770 loads the data into the memory location starting with that address.

The S-770 sends this message when it has received a Request data (RQ1) and to transfer the parameter defined by the RQ1.

For details of the parameters transferred, refer to the parameter address map in section ????.

Byte	Description	
F0H	Exclusive status	
41H	Manufacturer (Roland) ID	
DEV	Device ID	
34H	Model ID	
12H	Command ID (DT1)	
aaH	Address MSB	*3 - 1
aaH	Address	
aaH	Address	
aaH	Address LSB	
ddH	Data	
:		
sum	Checksum	
F7H	EOX (End of exclusive)	

● Handshaking Communications

○ Want to send data WSD 40H

On receiving a WSD message, the S-770 returns an Acknowledge (ACK) if it is ready for receiving, and waits for the Data set.

When received request data contains, 1) the address that is a part of the parameter base address and 2) address size 1 or more, the S-770 sends a data set (DAT) message which contains the requested data.

Byte	Description	
F0H	Exclusive status	
41H	Manufacturer (Roland) ID	
DEV	Device ID	
34H	Model ID	
40H	Command ID (WSD)	
aaH	Address MSB	*3 - 1
aaH	Address	
aaH	Address	
aaH	Address LSB	
ssH	Size MSB	
ssH	Size	
ssH	Size	
ssH	Size LSB	
sum	Checksum	
F7H	EOX (End of exclusive)	

○ Request data RQD 41H

When received request data contains, 1) the address that is a part of the parameter base address and 2) address size 1 or more, the S-770 sends a data set (DAT) message which contains the requested data. The S-770 does not send this message.

Byte	Description	
F0H	Exclusive status	
41H	Manufacturer (Roland) ID	
DEV	Device ID	
34H	Model ID	
41H	Command ID (RQD)	
aaH	Address MSB	*3 - 1
aaH	Address	
aaH	Address	
aaH	Address LSB	
ssH	Size MSB	
ssH	Size	
ssH	Size	
ssH	Size LSB	
sum	Checksum	
F7H	EOX (End of exclusive)	

○ Data set DAT 42H

When the S-770 finds in its parameter base address the address defined in the incoming Data set, it stores the received data in its memory location starting with that address.

Upon receiving a request data, the S-770, if it finds the data whose address and size match those given in the request data, will send this message together with that data and its parameter base address.

Byte	Description	
F0H	Exclusve status	
41H	Manufacturer (Roland) ID	
DEV	Device ID	
34H	Model ID	
42H	Command ID (DAT)	
aaH	Address MSB	*3 - 1
aaH	Address	
aaH	Address	
aaH	Address LSB	
ddH	Data	
:		
sum	Checksum	
F7H	EOX (End of exclusive)	

○ Acknowledge ACK 43H

When the S-770 receives this message in return for the preceding Data set (DAT), it sends a Data set containing data to follow, if any. The S-770 ends the current handshaking communications upon receiving this message in response to the Data end (END) message.

The S-770 transmits this message upon receiving a Want to send data (WSD), Data set (DAT) or End of data (EOD).

Byte	Description
F0H	Exclusive status
41H	Manufacturer (Roland) ID
DEV	Device ID
34H	Model ID
43H	Command ID (ACK)
F7H	EOX (End of exclusive)

○ End of data EOD 45H

Upon receiving this message, the S-770 transmits an Acknowledg to terminate current handshaking communications.

The S-770 sends this message at the end of data transmission.

Byte	Description
F0H	Exclusive status
41H	Manufacturer (Roland) ID
DEV	Device ID
34H	Model ID
45H	Command ID (EOD)
F7H	EOX (End of exclusive)

○ Communication error ERR 4EH

The S-770 sends this message to warn the transmitting device of a communication fault encounterd during receiving due, for example, to a checksum error.

When the S-770 receives this message, it sends a Rejection message and then immediately terminates the current handshaking.

Byte	Description
F0H	Exclusive status
41H	Manufacturer (Roland) ID
DEV	Device ID
34H	Model ID
4EH	Command ID (ERR)
F7H	EOX (End of exclusive)

○ Rejection RJC 4FH

The S-770 sends this message upon receiving an communication error message. The S-770 immediately terminates the current communication when receiving this message.

Byte	Description
F0H	Exclusive status
41H	Manufacturer (Roland) ID
DEV	Device ID
34H	Model ID
4FH	Command ID (RJC)
F7H	S BEOX (End of exclusive)

● Parameter Address Map

Addresses are represented in hexadecimal, 7 - bit format.

Address	MSB			LSB
Binary	0aaa aaaa	0bbb bbbb	0ccc cccc	0ddd dddd
7 bit Hex	AA	BB	CC	DD

The actual address of a parameter in a block is the sum of the start address of each block and one or more offset address.

*3 - 1
The addresses and the size of address should indicate location where the data reside.

● Parameter Base Address

○ Temporary area

The size of parameter data must be limited so that its address does not share memory location of an adjacent parameter.

Start address	Size	Description
00 00 00 00	64 x 1	Volume Parameter
00 01 00 00	512 x 64	Performance Parameter
00 04 00 00	512 x 128	Patch Parameter
00 08 00 00	256 x 256	Partial Parameter
00 0C 00 00	96 x 512	Sample Parameter
00 0E 7F 7F		End address

○ Table 1 : Volume Parameter

Offset address	Description		
00 00H	0000 aaaa	Volume Name 1	
00 01H	0000 bbbb	aaaa bbbb	32 - 127 (ASCII)
:			
00 1EH	0000 aaaa	Volume Name 16	
00 1FH	0000 bbbb	aaaa bbbb	32 - 127 (ASCII)

○ Table 2 : Performance Parameter

Offset address	Description		
00 00H	0000 aaaa	Performance Name 1	
00 01H	0000 bbbb	aaaa bbbb	32 - 127 (ASCII)
:			
00 1EH	0000 aaaa	Performance Name 16	
00 1FH	0000 bbbb	aaaa bbbb	32 - 127 (ASCII)
00 20H	0000 aaaa	Part 1 Patch Select	
00 21H	0000 bbbb	aaaa bbbb	0 127
:			
00 5EH	0000 aaaa	Part 32 Patch Select	
00 5FH	0000 bbbb	aaaa bbbb	0 - 127

00 60H	0000 aaaa	Part 1 MIDI Ch	
		aaaa	0 - 15
:			
00 7FH	0000 aaaa	Part 32 MIDI Ch	
		aaaa	0 - 15
01 00H	0000 abbb	Part 1 MIDI Ch Sw a	0:Off 1:On
01 01H	0000 cccc	Level 0bbb cccc	0 - 127
:			
01 3EH	0000 abbb	Part 32 MIDI Ch Sw a	0:Off 1:On
01 3FH	0000 cccc	Level 0bbb cccc	0 - 127
01 40H	0000 aaaa	Part 1 Zone Range Lower	
01 41H	0000 bbbb	aaaa bbbb	21 - 108
:			
01 7EH	0000 aaaa	Part 32 Zone Range Lower	
01 7FH	0000 bbbb	aaaa bbbb	21 - 108
02 00H	0000 aaaa	Part 1 Zone Range Upper	
02 01H	0000 bbbb	aaaa bbbb	21 - 108
:			
02 3EH	0000 aaaa	Part 32 Zone Range Upper	
02 3FH	0000 bbbb	aaaa bbbb	21 - 108
02 40H	0000 aaaa	Part 1 Zone Fade Width Lower	
02 41H	0000 bbbb	aaaa bbbb	0 - 86
:			
02 7EH	0000 aaaa	Part 32 Zone Fade Width Lower	
02 7FH	0000 bbbb	aaaa bbbb	0 - 86
03 00H	0000 aaaa	Part 1 Zone Fade Width Upper	
03 01H	0000 bbbb	aaaa bbbb	0 - 86
:			
03 3EH	0000 aaaa	Part 32 Zone Fade Width Upper	
03 3FH	0000 bbbb	aaaa bbbb	0 - 86
03 40H	0000 abcd	Program Change Switch	
03 41H	0000 efgh	a Ch 1	
03 42H	0000 ijkl	:	0:Off 1:On
03 43H	0000 mnop	p Ch 16	
03 44H	0000 abcd	Pitch Bender & Bend Range Switch	
03 45H	0000 efgh	a Ch 1	
03 46H	0000 ijkl	:	0:Off 1:On
03 47H	0000 mnop	p Ch 16	
03 48H	0000 abcd	Modulation Switch	
03 49H	0000 efgh	a Ch 1	
03 4AH	0000 ijkl	:	0:Off 1:On
03 4BH	0000 mnop	p Ch 16	
03 4CH	0000 abcd	Hold Pedal Switch	
03 4DH	0000 efgh	a Ch 1	
03 4EH	0000 ijkl	:	0:Off 1:On
03 4FH	0000 mnop	p Ch 16	
03 50H	0000 abcd	Phase Lock Switch	
03 51H	0000 efgh	a Ch 1	
03 52H	0000 ijkl	:	0:Off 1:On
03 53H	0000 mnop	p Ch 16	
03 54H	0000 abcd	MIDI Volume Switch	
03 55H	0000 efgh	a Ch 1	
03 56H	0000 ijkl	:	0:Off 1:On
03 57H	0000 mnop	p Ch 16	
03 58H	0000 abcd	After Touch Switch	
03 59H	0000 efgh	a Ch 1	
03 5AH	0000 ijkl	:	0:Off 1:On
03 5BH	0000 mnop	p Ch 16	
03 5CH	0000 abcd	After Touch Mode	
03 5DH	0000 efgh	a Ch 1	
03 5EH	0000 ijkl	:	0:Ch 1:Poly
03 5FH	0000 mnop	p Ch 16	(0ExH) (0AxH)
03 60H	0000 aaaa	Vel Curve Type Ch 1	
03 61H	0000 bbbb	aaaa bbbb	0 - 7
:			
03 7EH	0000 aaaa	Vel Curve Type Ch 16	
03 7FH	0000 bbbb	aaaa bbbb	0 - 7
Total size		00 04 00H	

○ Table 3 : Patch Parameter

Offset address		Description	
00 00H	0000 aaaa	Patch Name 1	
00 01H	0000 bbbb	aaaa bbbb	32 - 127 (ASCII)
:			
00 1EH	0000 aaaa	Patch Name 16	
00 1FH	0000 bbbb	aaaa bbbb	32 - 127 (ASCII)
00 20H	0000 aaaa	Program Change #	
00 21H	0000 bbbb	aaaa bbbb	0 - 127
00 22H	0000 aaaa	Stereo MIX Level	
00 23H	0000 bbbb	aaaa bbbb	0 - 127
00 24H	0000 aaaa	Total Panning	
00 25H	0000 bbbb	aaaa bbbb	-32 - -1 : L32 - L1 0 : Center 1 - 32 : R1 - R32
00 26H	0000 aaaa	Patch Level	
00 27H	0000 bbbb	aaaa bbbb	0 - 127
00 28H	0000 aaaa	Output Assign	-1 : Off
00 29H	0000 bbbb	aaaa bbbb	0 - 5 : 1 - 6 6 : Partial
00 2AH	0000 aaaa	Priority	
00 2BH	0000 bbbb	aaaa bbbb	0 : Off 1 : On
00 2CH	0000 aaaa	Cutoff Offset	
00 2DH	0000 bbbb	aaaa bbbb	-63 - +63
00 2EH	0000 aaaa	Velocity Sense offset	
00 2FH	0000 bbbb	aaaa bbbb	-63 - +63
00 30H	0000 aaaa	Octave Shift	
00 31H	0000 bbbb	aaaa bbbb	-2 - +2
00 32H	0000 aaaa	Coarse Tune	
00 33H	0000 bbbb	aaaa bbbb	-48 - +48
00 34H	0000 aaaa	Fine Tune	
00 35H	0000 bbbb	aaaa bbbb	-50 - +50
00 36H	0000 aaaa	SMT Ctrl Select	0 : Off
00 37H	0000 bbbb	aaaa bbbb	1 : Bend 2 : Aft 3 : Mod 4 : Ctrl
00 38H	0000 aaaa	SMT Ctrl Sense	
00 39H	0000 bbbb	aaaa bbbb	-63 - +63
00 3AH	0000 aaaa	Dummy	
00 3BH	0000 bbbb	aaaa bbbb	
:			
00 3EH	0000 aaaa	Dummy	
00 3FH	0000 bbbb	aaaa bbbb	
00 40H	0000 aaaa	Partial Select Key # 21	
00 41H	0000 bbbb	aaaa bbbb	0 - 254
:			
01 6EH	0000 aaaa	Partial Select Key # 108	
01 6FH	0000 bbbb	aaaa bbbb	0 - 254
01 70H	0000 aaaa	Dummy	
01 71H	0000 bbbb	aaaa bbbb	
:			
01 7EH	0000 aaaa	Dummy	
01 7FH	0000 bbbb	aaaa bbbb	
02 00H	0000 aaaa	Assign Type Key # 21	
02 01H	0000 bbbb	aaaa bbbb	
:			
03 2EH	0000 aaaa	Assign Type Key # 108	
03 2FH	0000 bbbb	aaaa bbbb	0 : Poly 1 : Mono 2 - 17 : Exc 1 - Exc 16
03 30H	0000 aaaa	Dummy	

03 31H	0000 bbbb	aaaa bbbb	
:			
03 3EH	0000 aaaa	Dummy	
03 3FH	0000 bbbb	aaaa bbbb	
03 40H	0000 aaaa	Bender Pitch Ctrl Up	
03 41H	0000 bbbb	aaaa bbbb	0 - +48
03 42H	0000 aaaa	Bender Pitch Ctrl Down	
03 43H	0000 bbbb	aaaa bbbb	0 - -48
03 44H	0000 aaaa	Bender TVA Ctrl	
03 45H	0000 bbbb	aaaa bbbb	-63 - +63
03 46H	0000 aaaa	Bender TVF Ctrl	
03 47H	0000 bbbb	aaaa bbbb	-63 - +63
03 48H	0000 aaaa	After Touch Pitch Ctrl	
03 49H	0000 bbbb	aaaa bbbb	-48 - +48
03 4AH	0000 aaaa	After Touch TVA Ctrl	
03 4BH	0000 bbbb	aaaa bbbb	-63 - +63
03 4CH	0000 aaaa	After Touch TVF Ctrl	
03 4DH	0000 bbbb	aaaa bbbb	-63 - +63
03 4EH	0000 aaaa	After Touch LFO Rate Ctrl	
03 4FH	0000 bbbb	aaaa bbbb	-63 - +63
03 50H	0000 aaaa	After Touch LFO Pitch Depth	
03 51H	0000 bbbb	aaaa bbbb	-63 - +63
03 52H	0000 aaaa	After Touch LFO TVA Depth	
03 53H	0000 bbbb	aaaa bbbb	-63 - +63
03 54H	0000 aaaa	After Touch LFO TVF Depth	
03 55H	0000 bbbb	aaaa bbbb	-63 - +63
03 56H	0000 aaaa	Modulation LFO Rate Ctrl	
03 57H	0000 bbbb	aaaa bbbb	-63 - +63
03 58H	0000 aaaa	Modulation LFO Pitch Depth	
03 59H	0000 bbbb	aaaa bbbb	-63 - +63
03 5AH	0000 aaaa	Modulation LFO TVA Depth	
03 5BH	0000 bbbb	aaaa bbbb	-63 - +63
03 5CH	0000 aaaa	Modulation LFO TVF Depth	
03 5DH	0000 bbbb	aaaa bbbb	-63 - +63
03 5EH	0000 aaaa	Dummy	
03 5FH	0000 bbbb	aaaa bbbb	
03 60H	0000 aaaa	Controller Select	
03 61H	0000 bbbb	aaaa bbbb	0 95
03 62H	0000 aaaa	Controller Pitch Ctrl	
03 63H	0000 bbbb	aaaa bbbb	-48 - +48
03 64H	0000 aaaa	Controller TVA Ctrl	
03 65H	0000 bbbb	aaaa bbbb	-63 - +63
03 66H	0000 aaaa	Controller TVF Ctrl	
03 67H	0000 bbbb	aaaa bbbb	-63 - +63
03 68H	0000 aaaa	Controller LFO Rate Ctrl	
03 69H	0000 bbbb	aaaa bbbb	-63 - +63
03 6AH	0000 aaaa	Controller LFO Pitch Depth	
03 6BH	0000 bbbb	aaaa bbbb	-63 - +63
03 6CH	0000 aaaa	Controller LFO TVA Depth	
03 6DH	0000 bbbb	aaaa bbbb	-63 - +63
03 6EH	0000 aaaa	Controller LFO TVF Depth	
03 6FH	0000 bbbb	aaaa bbbb	-63 - +63
03 70H	0000 aaaa	Dummy	
03 71H	0000 bbbb	aaaa bbbb	
:			
03 7EH	0000 aaaa	Dummy	
03 7FH	0000 bbbb	aaaa bbbb	
Total size		00 04 00H	

○ Table 4 : Partial Parameter

Offset address	Description		
00 00H	0000 aaaa	Partial Name 1	
00 01H	0000 bbbb	aaaa bbbb	32 - 127 (ASCII)
:			
00 1EH	0000 aaaa	Partial Name 16	
00 1FH	0000 bbbb	aaaa bbbb	32 - 127 (ASCII)
00 20H	0000 aaaa	Sample 1 Sample Select	
00 21H	0000 bbbb	aaaa bbbb cccc dddd	0 511
00 22H	0000 cccc		
00 23H	0000 dddd		
00 24H	0000 aaaa	Sample 1 Pitch KF	
00 25H	0000 bbbb	aaaa bbbb	-16 - +16 : -2 - +2
00 26H	0000 aaaa	Sample 1 Level	
00 27H	0000 bbbb	aaaa bbbb	0 - 127
00 28H	0000 aaaa	Sample 1 Panning	
00 29H	0000 bbbb	aaaa bbbb	-32 - -1 : L32 - L1 0 : Center 1 - 32 : R1 - R32 33 : Random 34 : Key+ 35 : Key-
00 2AH	0000 aaaa	Sample 1 Coarse Tune	
00 2BH	0000 bbbb	aaaa bbbb	-48 - +48
00 2CH	0000 aaaa	Sample 1 Fine Tune	
00 2DH	0000 bbbb	aaaa bbbb	-50 - +50
00 2EH	0000 aaaa	Sample 1 SMT Vel Lower	
00 2FH	0000 bbbb	aaaa bbbb	1 - 126
00 30H	0000 aaaa	Sample 1 SMT Lower Fade Width	
00 31H	0000 bbbb	aaaa bbbb	0 - 125
00 32H	0000 aaaa	Sample 1 SMT Vel Upper	
00 33H	0000 bbbb	aaaa bbbb	2 - 127
00 34H	0000 aaaa	Sample 1 SMT Lower Fade Width	
00 35H	0000 bbbb	aaaa bbbb	0 - 125
00 36H	0000 aaaa	Dummy	
00 37H	0000 bbbb	aaaa bbbb	
00 38H	0000 aaaa	Number Of Sample	
00 39H	0000 bbbb	aaaa bbbb	0 - 4
00 3AH	0000 aaaa	Stereo MIX Level	
00 3BH	0000 bbbb	aaaa bbbb	0 - 127
00 3CH	0000 aaaa	Partial Level	
00 3DH	0000 bbbb	aaaa bbbb	0 - 127
00 3EH	0000 aaaa	Output Assign	
00 3FH	0000 bbbb	aaaa bbbb	-1 : Off 0 - 5 : 1 - 6
00 40H	0000 aaaa	Sample 2 Sample Select	
00 41H	0000 bbbb	aaaa bbbb cccc dddd	0 - 511
00 42H	0000 cccc		
00 43H	0000 dddd		
00 44H	0000 aaaa	Sample 2 Pitch KF	
00 45H	0000 bbbb	aaaa bbbb	-16 - +16 : -2 - +2
00 46H	0000 aaaa	Sample 2 Level	
00 47H	0000 bbbb	aaaa bbbb	0 - 127
00 48H	0000 aaaa	Sample 2 Panning	
00 49H	0000 bbbb	aaaa bbbb	-32 - -1 : L32 - L1 0 : Center 1 - 32 : R1 - R32 33 : Random 34 : Key+ 35 : Key-
00 4AH	0000 aaaa	Sample 2 Coarse Tune	
00 4BH	0000 bbbb	aaaa bbbb	-48 - +48
00 4CH	0000 aaaa	Sample 2 Fine Tune	
00 4DH	0000 bbbb	aaaa bbbb	-50 - +50
00 4EH	0000 aaaa	Sample 2 SMT Vel Lower	
00 4FH	0000 bbbb	aaaa bbbb	1 - 126
00 50H	0000 aaaa	Sample 2 SMT Lower Fade Width	
00 51H	0000 bbbb	aaaa bbbb	0 - 125
00 52H	0000 aaaa	Sample 2 SMT Vel Upper	
00 53H	0000 bbbb	aaaa bbbb	2 - 127
00 54H	0000 aaaa	Sample 2 SMT Lower Fade Width	
00 55H	0000 bbbb	aaaa bbbb	0 - 125
00 56H	0000 aaaa	Dummy	
00 57H	0000 bbbb	aaaa bbbb	
00 58H	0000 aaaa	Panning	
00 59H	0000 bbbb	aaaa bbbb	-32 - -1 : L32 - L1 0 : Center 1 - 32 : R1 - R32
00 5AH	0000 aaaa	Coarse Tune	
00 5BH	0000 bbbb	aaaa bbbb	-48 - +48
00 5CH	0000 aaaa	Fine Tune	
00 5DH	0000 bbbb	aaaa bbbb	-50 - +50
00 5EH	0000 aaaa	Velocity Ctrl	
00 5FH	0000 bbbb	aaaa bbbb	0 : Off 1 : On

00 60H	0000 aaaa	Sample 3 Sample Select	
00 61H	0000 bbbb	aaaa bbbb cccc dddd	0 - 511
00 62H	0000 cccc		
00 63H	0000 dddd		
00 64H	0000 aaaa	Sample 3 Pitch KF	
00 65H	0000 bbbb	aaaa bbbb	-16 - +16 : -2 - +2
00 66H	0000 aaaa	Sample 3 Level	
00 67H	0000 bbbb	aaaa bbbb	0 - 127
00 68H	0000 aaaa	Sample 3 Panning	
00 69H	0000 bbbb	aaaa bbbb	-32 - -1 : L32 - L1
			0 : Center
			1 - 32 : R1 - R32
			33 : Random
			34 : Key+
			35 : Key-
00 6AH	0000 aaaa	Sample 3 Coarse Tune	
00 6BH	0000 bbbb	aaaa bbbb	-48 - +48
00 6CH	0000 aaaa	Sample 3 Fine Tune	
00 6DH	0000 bbbb	aaaa bbbb	-50 - +50
00 6EH	0000 aaaa	Sample 3 SMT Vel Lower	
00 6FH	0000 bbbb	aaaa bbbb	1 - 126
00 70H	0000 aaaa	Sample 3 SMT Lower Fade Width	
00 71H	0000 bbbb	aaaa bbbb	0 - 125
00 72H	0000 aaaa	Sample 3 SMT Vel Upper	
00 73H	0000 bbbb	aaaa bbbb	2 - 127
00 74H	0000 aaaa	Sample 3 SMT Lower Fade Width	
00 75H	0000 bbbb	aaaa bbbb	0 - 125
00 76H	0000 aaaa	Dummy	
00 77H	0000 bbbb	aaaa bbbb	
:			
00 7EH	0000 aaaa	Dummy	
00 7FH	0000 bbbb	aaaa bbbb	
01 00H	0000 aaaa	Sample 4 Sample Select	
01 01H	0000 bbbb	aaaa bbbb cccc dddd	0 - 511
01 02H	0000 cccc		
01 03H	0000 dddd		
01 04H	0000 aaaa	Sample 4 Pitch KF	
01 05H	0000 bbbb	aaaa bbbb	-16 - +16 : -2 - +2
01 06H	0000 aaaa	Sample 4 Level	
01 07H	0000 bbbb	aaaa bbbb	0 - 127
01 08H	0000 aaaa	Sample 4 Panning	
01 09H	0000 bbbb	aaaa bbbb	-32 -1 : L32 - L1
			0 : Center
			1 - 32 : R1 - R32
			33 : Random
			34 : Key+
			35 : Key-
01 0AH	0000 aaaa	Sample 4 Coarse Tune	
01 0BH	0000 bbbb	aaaa bbbb	-48 - +48
01 0CH	0000 aaaa	Sample 4 Fine Tune	
01 0DH	0000 bbbb	aaaa bbbb	-50 - +50
01 0EH	0000 aaaa	Sample 4 SMT Vel Lower	
01 0FH	0000 bbbb	aaaa bbbb	1 - 126
01 10H	0000 aaaa	Sample 4 SMT Lower Fade Width	
01 11H	0000 bbbb	aaaa bbbb	0 - 125
01 12H	0000 aaaa	Sample 4 SMT Vel Upper	
01 13H	0000 bbbb	aaaa bbbb	2 - 127
01 14H	0000 aaaa	Sample 4 SMT Lower Fade Width	
01 15H	0000 bbbb	aaaa bbbb	0 - 125
01 16H	0000 aaaa	TVF Filter Mode	
01 17H	0000 bbbb	aaaa bbbb	-1 : Off
			0 : LPF
			1 : BPF
			2 : HPF
01 18H	0000 aaaa	TVF Cutoff	
01 19H	0000 bbbb	aaaa bbbb	0 - 127
01 1AH	0000 aaaa	TVF Resonance	
01 1BH	0000 bbbb	aaaa bbbb	0 - 127
01 1CH	0000 aaaa	TVF Vel Curve Type	
01 1DH	0000 bbbb	aaaa bbbb	0 - 3
01 1EH	0000 aaaa	TVF Vel Curve Sense	
01 1FH	0000 bbbb	aaaa bbbb	-63 - +63
01 20H	0000 aaaa	TVF Time Vel Sense	
01 21H	0000 bbbb	aaaa bbbb	-63 - +63
01 22H	0000 aaaa	ENV TVF Vel Sense	
01 23H	0000 bbbb	aaaa bbbb	-63 - +63
01 24H	0000 aaaa	TVF Time 1	
01 25H	0000 bbbb	aaaa bbbb	0 - 127
01 26H	0000 aaaa	TVF Time 2	
01 27H	0000 bbbb	aaaa bbbb	0 - 127
01 28H	0000 aaaa	TVF Time 3	
01 29H	0000 bbbb	aaaa bbbb	0 - 127
01 2AH	0000 aaaa	TVF Time 4	
01 2BH	0000 bbbb	aaaa bbbb	0 - 127
01 2CH	0000 aaaa	TVF Level 0.4	
01 2DH	0000 bbbb	aaaa bbbb	0 - 127
01 2EH	0000 aaaa	TVF Level 1	
01 2FH	0000 bbbb	aaaa bbbb	0 - 127
01 30H	0000 aaaa	TVF Level 2	
01 31H	0000 bbbb	aaaa bbbb	0 - 127
01 32H	0000 aaaa	TVF Level 3	
01 33H	0000 bbbb	aaaa bbbb	0 - 127
01 34H	0000 aaaa	ENV TVF Depth	
01 35H	0000 bbbb	aaaa bbbb	-63 - +63
01 36H	0000 aaaa	ENV Pitch Depth	
01 37H	0000 bbbb	aaaa bbbb	-63 - +63
01 38H	0000 aaaa	TVF KF Point	
01 39H	0000 bbbb	aaaa bbbb	21 - 108
01 3AH	0000 aaaa	ENV Time KF	
01 3BH	0000 bbbb	aaaa bbbb	-63 - +63
01 3CH	0000 aaaa	ENV Depth KF	
01 3DH	0000 bbbb	aaaa bbbb	-63 - +63
01 3EH	0000 aaaa	Cutoff KF	
01 3FH	0000 bbbb	aaaa bbbb	-63 - +63
01 40H	0000 aaaa	TVA Vel Curve Type	
01 41H	0000 bbbb	aaaa bbbb	0 - 3
01 42H	0000 aaaa	TVA Vel Curve Sense	
01 43H	0000 bbbb	aaaa bbbb	-63 - +63
01 44H	0000 aaaa	TVA Time Vel Sense	
01 45H	0000 bbbb	aaaa bbbb	-63 - +63
01 46H	0000 aaaa	TVA Time 1	
01 47H	0000 bbbb	aaaa bbbb	0 - 127
01 48H	0000 aaaa	TVA Time 2	
01 49H	0000 bbbb	aaaa bbbb	0 - 127
01 4AH	0000 aaaa	TVA Time 3	
01 4BH	0000 bbbb	aaaa bbbb	0 - 127
01 4CH	0000 aaaa	TVA Time 4	
01 4DH	0000 bbbb	aaaa bbbb	0 - 127
01 4EH	0000 aaaa	TVA Level 0.4	
01 4FH	0000 bbbb	aaaa bbbb	0 - 127
01 50H	0000 aaaa	TVA Level 1	
01 51H	0000 bbbb	aaaa bbbb	0 - 127
01 52H	0000 aaaa	TVA Level 2	
01 53H	0000 bbbb	aaaa bbbb	0 - 127
01 54H	0000 aaaa	TVA Level 3	
01 55H	0000 bbbb	aaaa bbbb	0 - 127
01 56H	0000 aaaa	Dummy	
01 57H	0000 bbbb	aaaa bbbb	
01 58H	0000 aaaa	TVA KF Point	
01 59H	0000 bbbb	aaaa bbbb	21 - 108
01 5AH	0000 aaaa	TVA ENV Time KF	
01 5BH	0000 bbbb	aaaa bbbb	-63 - +63
01 5CH	0000 aaaa	Dummy	
01 5DH	0000 bbbb	aaaa bbbb	

01 5EH	0000 aaaa	TVA Level KF		
01 5FH	0000 bbbb	aaaa bbbb	-63 - +63	
01 60H	0000 aaaa	LFO Wave Form		
01 61H	0000 bbbb	aaaa bbbb	0 : Sin	
			1 : Tri	
			2 : SawUp	
			3 : SawDown	
			4 : Squ	
			5 : Rnd	
			6 : BendUp	
			7 : BenDown	
01 62H	0000 aaaa	LFO Rate		
01 63H	0000 bbbb	aaaa bbbb	0 - 127	
01 64H	0000 aaaa	LFO Key Sync		
01 65H	0000 bbbb	aaaa bbbb	0 : Off	
			1 : On	
01 66H	0000 aaaa	LFO Delay		
01 67H	0000 bbbb	aaaa bbbb	0 - 127	
01 68H	0000 aaaa	LFO Delay KF		
01 69H	0000 bbbb	aaaa bbbb	0 - 63	
01 6AH	0000 aaaa	LFO Detune		
01 6BH	0000 bbbb	aaaa bbbb	0 - 127	
01 6CH	0000 aaaa	LFO Pitch Mod Depth		
01 6DH	0000 bbbb	aaaa bbbb	-63 - +63	
01 6EH	0000 aaaa	LFO TVF Mod Depth		
01 6FH	0000 bbbb	aaaa bbbb	-63 - +63	
01 70H	0000 aaaa	LFO TVA Mod Depth		
01 71H	0000 bbbb	aaaa bbbb	-63 - +63	
01 72H	0000 aaaa	Dummy		
01 73H	0000 bbbb	aaaa bbbb		
:				
01 7EH	0000 aaaa	Dummy		
01 7FH	0000 bbbb	aaaa bbbb		
Total size		00 02 09H		

○ Table 5 : Sample Parameter

Offset address		Description	
00 00H	0000 aaaa	Sample Name 1	
00 01H	0000 bbbb	aaaa bbbb	32 - 127 (ASCII)
:			
00 1EH	0000 aaaa	Sample Name 16	
00 1FH	0000 bbbb	aaaa bbbb	32 - 127 (ASCII)
00 20H	0000 aaaa	Start Point	
00 21H	0000 bbbb		
00 22H	0000 cccc	aaaa bbbb cccc dddd cccc ffff	
00 23H	0000 dddd		
00 24H	0000 eeee		
00 25H	0000 ffff	0000000000 - 4294967040	
00 26H	0000 0000		
00 27H	0000 0000		
00 28H	0000 aaaa	Sustain Loop Start Point	
00 29H	0000 bbbb		
00 2AH	0000 cccc	aaaa bbbb cccc dddd	
00 2BH	0000 dddd	eeee ffff gggg hhhh	
00 2CH	0000 eeee		
00 2DH	0000 ffff	0000000000 - 4294967295	
00 2EH	0000 gggg		
00 2FH	0000 hhhh		
00 30H	0000 aaaa	Sustain Loop End Point	
00 31H	0000 bbbb		
00 32H	0000 cccc	aaaa bbbb cccc dddd	
00 33H	0000 dddd	eeee ffff gggg hhhh	
00 34H	0000 eeee		
00 35H	0000 ffff	0000000000 - 4294967295	
00 36H	0000 gggg		
00 37H	0000 hhhh		
00 38H	0000 aaaa	Release Loop Start Point	
00 39H	0000 bbbb		
00 3AH	0000 cccc	aaaa bbbb cccc dddd	
00 3BH	0000 dddd	eeee ffff gggg hhhh	
00 3CH	0000 eeee		
00 3DH	0000 ffff	0000000000 - 4294967295	
00 3EH	0000 gggg		
00 3FH	0000 hhhh		
00 40H	0000 aaaa	Release Loop End Point	
00 41H	0000 bbbb		
00 42H	0000 cccc	aaaa bbbb cccc dddd	
00 43H	0000 dddd	eeee ffff gggg hhhh	
00 44H	0000 eeee		
00 45H	0000 ffff	0000000000 - 4294967295	
00 46H	0000 gggg		
00 47H	0000 hhhh		
00 48H	0000 aaaa	Loop Mode	
00 49H	0000 bbbb	aaaa bbbb	0 : Fwd
			1 : Fwd+R
			2 : Oneshot
			3 : Fwd+1
			4 : Alt
			5 : Rev
			6 : Revloop
00 4AH	0000 aaaa	Sustain Loop Enable	
00 4BH	0000 bbbb	aaaa bbbb	0 : Off
			1 : On
00 4CH	0000 aaaa	Sustain Loop Tune	
00 4DH	0000 bbbb	aaaa bbbb	-50 - +50
00 4EH	0000 aaaa	Release Loop Tune	
00 4FH	0000 bbbb	aaaa bbbb	-50 - +50
00 50H	0000 aaaa	Segment Top	
00 51H	0000 bbbb	aaaa bbbb cccc dddd	0 - 1817
00 52H	0000 cccc		
00 53H	0000 dddd		
00 54H	0000 aaaa	Segment Length	
00 55H	0000 bbbb	aaaa bbbb cccc dddd	0 - 1818
00 56H	0000 cccc		
00 57H	0000 dddd		
00 58H	0000 aaaa	Sampling Mode	
		aaaa	0 : Mono
			1 : Stereo
00 59H	0000 aaaa	Sampling Frequency	
		aaaa	0 : 48k
			1 : 44.1k
			2 : 24k
			3 : 22.05k
			4 : 30k
			5 : 15k
00 5AH	0000 aaaa	Original Key	
00 5BH	0000 bbbb	aaaa bbbb	21 - 108
00 5CH	0000 aaaa	Dummy	
00 5DH	0000 bbbb	aaaa bbbb	
00 5EH	0000 aaaa	Dummy	
00 5FH	0000 bbbb	aaaa bbbb	
Total size		00 00 60H	

Adress Map

address	Block	Sub Block	Reference
00-00-00-00	Volume Parameter		Table 1
00-01-00-00	Performance Parameter	Performance #1	Table 2
		Performance #2	
		:	
		Performance #64	
00-04-00-00	Patch Parameter	Patch # 1	Table 3
		Patch # 2	
		:	
		Patch #128	
00-08-00-00	Partial Parameter	Partial # 1	Table 4
		Partial # 2	
		:	
		Partial #256	
00-0C-00-00	Sample Parameter	Sample # 1	Table 5
		Sample # 2	
		:	
		Sample #512	
00-0E-7F-7F			

■ Universal System Exclusive Message

● Sample dump standard

The sample dump standard specifies the following messages to be used for a kind of data transfer.

○ Dump request

This is a dump request command specifying the sample number to be sent from a device at the other end of the interface. When the S-770 receives this command, it checks the sample number if it is in the specified range. When in the range, the S-770 will send the correct sample to the other party for dumping.

The S-770 will not send this message.

Format	
F0	
7E	
cc	Channel number
03	
ss ss	Request sample (LSB first)
F7	EOX

○ Dump header

When the S 770 receives a Dump request, it sends a Dump header and then waits for a response for up to 2 seconds: When the response is a Cancel, the S-770 won't proceed to the subsequent dumpindg procedures. When the response is an ACK, the S-770 starts data packet transmission. When the response is a Wait, the S-770 pauses data transfer until the next message is received.

Each parameter is to be sent LSB first.

V Format	
F0	
7E	
cc	Channel number
01	
ss ss	Sample number (0 - 1023)
10	Sample format (16bit)
ff ff ff	Sample period (1/sample rate, nanoseconds)
gg gg gg	Data (word) length
hh hh hh	Sample loop start point (Wrod number)
ii ii ii	Sustain loop end point (Word number)
jj	Loop time (****)
	00 = Fowards Only (unidirectional)
	01 = Backwards/Forwards (bi - directional)
	7F = Off
F7	EOX

○ Data packet

The Data packet consists of a Header, Packet number, 120 - byte data, Checksum and the End of exclusive (EOX). The packet starts with number 00 up to 7FH and then returns back to 00. The receiving device can judge whether the incoming packet is a new one or retransmitted one by checking the number. Each data is formatted in 3 bytes (7 bits each)/word, left justfied, upper byte first. 40 words comprise a packet with each word containing "0" at lower 5 bits place in the 3rd byte. Checksum is done by an exclusive - OR operation of 7E <channel> 02 (packet number> <120 bytes>. Once the S-770 sends a packet, it monitor the MIDI IN port, and will send out the next packet upon finding an ACK. If NAK instead of ACK, the S-770 retransmits the packet stated in the NAK message.

When the S-770 receives a Wait, it waits for a message: maybe ACK, NAK or Cancel. The above prodecures will be repeated until the bytes to be sent are less than 121. The final packet, therefore, must fill the blanks with "0's" to have 120 data bytes. The receiving device must send a handshaking flag (ACK) at the end of data receiving.

Format	
F0	
7E	
cc	Channel number
02	
kk	Packet number
:	)
:	)
:	) 120 - byte data
:	)
:	)
ll	Checksum
F7	EOX

○ ACK

A handshake flag meaning "Received the last data of the packet, send the next data". The packet number indicates the packet recognized.

Format	
F0	
7E	
cc	Channel number
7F	
pp	Packet number
F7	EOX

○ NAK

A handshake flag warning "Received the last data of the packet incorrectly, Send it again". The packet number indicates that data to be retransmitted.

Format	
F0	
7E	
cc	Channel number
7E	
pp	Packet number
F7	EOX

○ **Cancel**

A handshake flag informing "Stop dumping". The packet number indicates the packet to be rejected. This message will be sent when the memory in the receving unit has no room to accommodate another data.

Format	
F0	
7E	
cc	Channel number
7D	
pp	Packet number
F7	EOX

○ **Wait**

A handshake flag requiring "No more packet until signal". The packet number indicates the packet to be rejected. This message will be sent when the receving unit needs time for being ready for receiving the next data. After that, the receiving unit will send either: 1) an ACK to require the next data transmission or 2) a Cancel, if not want.

Format	
F0	
7E	
cc	Channel number
7D	
pp	Packet number
F7	EOX

DIGITAL SAMPLER
Model S-770

MIDI Implementation Chart

Date : Jan. 19. 1990
Version : 1.00

Function ...		Transmitted	Recognized	Remarks
Basic Channel	Default	×	1 – 16,OFF ＊4	＊2
	Changed	×	1 – 16,OFF ＊4	
Mode	Default	×	3	
	Messages	×	×	
	Alterd	＊＊＊＊＊＊＊＊＊	×	
Note Number		×	21 – 108	
	True Voice	＊＊＊＊＊＊＊＊＊	21 – 108	
Velocity	Note ON	×	＊1	V = 1 – 127
	Note OFF	×	×	
After Touch	Key's	×	＊1	
	Ch's	×	＊1	
Pitch Bender		×	＊1	
Control Change	1	×	＊1	Modulation
	2	×	＊1	Breath
	7	×	＊1	Volume
	64	×	＊1	Hold 1
	0 – 31	×	＊1	＊5
	100,101	×	＊1	RPC LSB,MSB
	6,38	×	＊1	Data Entry LSB,MSB
				Number0:Pitch Bend Sensitivity
				Number1:Master Tune
Prog Change		＊1 0 – 127	0 – 127 ＊1	＊3
	True #	＊＊＊＊＊＊＊＊＊	0 – 127	
System Exclusive		＊1	＊1	
System Common	Song Pos	×	×	
	Song Sel	×	×	
	Tune	×	×	
System Real Time	Clock	×	×	
	Commands	×	×	
Aux Messages	Local ON/OFF	×	×	
	All Notes OFF	×	○ (123 – 127)	
	Active Sense	×	○	
	Reset	×	×	

Notes

＊1 Can be set to ○ or × manually and memorized by disk.
＊2 Memorized by S-770.
＊3 Patch numbers for each program change number can be set in any order.
＊4 MIDI channel of each voice group can be set.
＊5 Can be set to any Control Number and memorized by disk.

Mode 1 : OMNI ON, POLY
Mode 2 : OMNI ON, MONO
Mode 3 : OMNI OFF, POLY
Mode 4 : OMNI OFF, MONO

○ : Yes
× : No

■ How to read a MIDI Implementation Chart

○ : MIDI data that can be transmitted or received.
× : MIDI data that cannot be transmitted or received.

● Basic Channel

The MIDI channel for transmitting (or receiving) MIDI data can be specified over this range. The MIDI channel setting is stored even when the power is turned off.

● Mode

Most recent keyboards use mode 3 (omni off, poly).
Reception : MIDI data is received only on the specified channels, and played polyphonically.
Transmission : All MIDI data is transmitted on the specified MIDI channel.

* "Mode" refers to MIDI Mode messages.

● Note Number

This is the range of note numbers that can be transmitted (or received). Note number 60 is middle C (C4).

● Velocity

This is the range over which velocity can be transmitted (or received) by Note On and Note Off messages.

● Aftertouch

Key's : Polyphonic Aftertouch
Ch's : Channel Aftertouch

● Pitch Bender

The bender range setting of each Tone determines the range of pitch change caused by Pitch Bender messages. When set to 0, Pitch Bender messages will be ignored.

● Control Change

This indicates the control numbers that can be transmitted (or received), and what they will control. For details, refer to the MIDI implementation.

● Program Change

The program numbers in the chart indicate the actual data.(This is one less than the Pitch and Tone program numbers.)

● Exclusive

Exclusive message reception can be turned On/Off.

● Common, Real time

These MIDI messages are used to synchronize sequencers and rhythm machines. The S-770 does not use these messages.

● Aux messages

These messages, such as Active Sensing (check for broken or disconnected MIDI cables) or All Note Off (command to turn off all notes) are used mainly to keep a MIDI system running smoothly.

INPUT AND OUTPUT STANDARD

■ Input Standard

Input Socket		Rated Input Sensitivity	Input Impedance	Type of Connectors
INPUT [REAR]	L	+ 4 dBm	10 k Ω	XLR-3-31 (BALANCED)
	M	- 10 dBm	10 k Ω	
	H	- 50 dBm	10 k Ω	
INPUT [FRONT]		+ 4dBm~50 dBm (variable)	10 k Ω	PHONE (UNBALANCED)

■ Output Standard

Output Socket	Rated Output Sensitivity	Output Impedance	Type of Connectors
STEREO OUT (L, R)	+ 7 dBm * 1	1.6 k Ω	PHONE (UNBALANCED)
	+ 19 dBm * 2		
INDIVIDUAL OUT (1~6)	+ 1 dBm * 1	1.6 k Ω	PHONE (UNBALANCED)
	+ 13 dBm * 2		

* 1 : filter off, when using 1 voice
* 2 : filter off, when using 16 voices

MAIN SPECIFICATIONS

S-770 : Stereo Digital Sampler

● Maximum Voices
24 Voices

● Sound Source
DI (Differential Interpolation) processing

● Sampling frequency (frequencies)
48k, 44.1k, 24k, 22.05kHz

● Data format
Expanded 16 bit

● Signal processing
A/D 16 bit
D/A 20 bit
Internal processing 24 bit linear

● External media interface
Digital I/O (conforms to CP - 340)
SCSI connector

● Display
LCD 64 × 240 dot
RGB CRT Out 200 × 320 dot

● Sound memory
○Internal RAM
Standard 2 Mbyte
Fully expanded 16 Mbyte
○Internal hard disk
40 Mbyte

● Front panel
Volume knob
Recording level knob (stereo)
LCD
Jump switch
Function switch (F1 — F5)
Eject switch
Value dial
Cursor switches
S1, S2 switches
Hard Disk indicator
Disk drive indicator
MIDI message indicator
Performance mode switch
Sound mode switch
System mode switch
Index window switch
Mark window switch
Command window switch
Sound play switch
Graphic switch
Auxiliary control connector
LCD contrast knob
Headphone jack
Foot switch jack
Input jack
Input level adjustment knob
Power switch
3.5 inch 2DD/2HD dual-media disk drive

● Rear panel
AC inlet
Hard Disk cooling fan
Digital I/O (COAXIAL / OPTICAL)
COAXIAL / OPTICAL select switch
SCSI connector
Display out (monochrome / digital RGB)
MIDI terminals (IN / OUT / THRU)
INDIVIDUAL out jacks (1 — 6)
STEREO out jacks (L/R)
Input gain selector (three-stage L/H/M)
Input connector (XLR type)

● Disk drives
40 Mbyte Hard Disk drive
3.5 inch Micro Floppy disk drive (for both 2HD and 2DD)

● Frequency response
20Hz — 20kHz (+0 / − 3dB)

● Residual noise level (input shorted, IFH-A type)
Stereo out (L, R): greater than −80 dBm (all volumes: Max)
Individual out 1 — 6: greater than −85 dBm (all volumes: Max)

● Dynamic range
greater than 87 dB (1 voice at rated output)

● Total harmonic distortion (T.H.D.)
0.01% (A/D/A)

● External dimensions
430 (width) × 132 (height) × 420 (depth) mm
(EIAJ rack: 3 U)

● Power supply
AC 100V (50/60Hz)

● Weight
12 kg (when memory is fully expanded)

● Power consumption

maximum 40 W (when 8 Mword RAM is installed)

● Included items

Owner's manual
What is MIDI
Mouse (MU - 1)
Rack mounting angles (one set)
MIDI cable × 1
3.5 inch (2DD) system disk × 1
Overlay sheet (for RC - 100)

● Options

Foot switch ..... DP - 2/6, FS - 5U
Memory board ..... RAS - 770
Memory expander ..... OMS - 770
CRT cable ..... RGB - 25N
3.5 inch micro floppy disk
2HD ..... MF - 2HD
2DD ..... MF - 2DD
Remote controller ..... RC - 100
CD-ROM player ..... CD - 5
Magneto optical disk unit ..... MO - 7

*Specifications and external appearance of this unit are subject to change without notice for product improvement.

INDEX

The Index consists of the following three sections. Functional Index collects the headlines of chapter 3 as functional category. Operational Index collects the procedures at chapter 1, 2 and 3 in alphabetical order. Terminological Index collects the technical terms of this manual, also in alphabetical order.

[1]Functional Index (Chpter 3)

1. PITCH

2. TONE

3. VOLUME

4. PAN

5. OUTPUT

6. VELOCITY

7. SPLIT

8. SAMPLING/TRUNCATE

9. LOOPING/SMOOTHING

10. MIDI CHANNELS

11. PITCH BEND

12. AFTERTOUCH

13.MODULATION

14.PROGRAM CHANGE

15.SYSTEM EXCLUSIVE

16.SOUND DATA

17.DISK

18.CONVERT LOAD

19.SAMPLE DUMP

20.CONFIGURATION (OVERALL SETTINGS)

21. OTHERS

[2]Operational Index (Chpter 1, 2, 4)

[3] Terminological Index

O

P

R

S

T

U

V

W

X

Y

For West Germany

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das

Roland DIGITAL SAMPLER S - 770

(Gerät, Typ. Bezeichnung)

in Übereinstimmung mit den Bestimmungen der

Amtsbl. Vfg 1046/1984

(Amtsblattverfügung)

funk-entstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Roland Corporation Osaka/Japan

Name des Herstellers/Importeurs

For the USA

RADIO AND TELEVISION INTERFERENCE

WARNING — This equipment has been verified to comply with the limits for a Class B computing device, pursuant to Subpart J, of Part 15, of FCC rules. Operation with non-certified or non-verified equipment is likely to result in interference to radio and TV reception.

The equipment described in this manual generates and uses radio frequency energy. If it is not installed and used properly, that is, in strict accordance with our instructions, it may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J, of Part 15, of FCC Rules. These rules are designed to provide reasonable protection against such a interference in a rasidential installation. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by the following measure:

- Disconnect other devices and their input/output cables one at a time. If the interference stops, it is caused by either the other device or its I/O cable. These devices usually require Roland designated shielded I/O cables. For Roland devices, you can obtain the proper shielded cable from your dealer. For non Roland devices, contact the manufacturer or dealer for assistance.

If your equipment does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures:

- Turn the TV or radio antenna until the interference stops.
- Move the equipment to one side or the other of the TV or radio.
- Move the equipment farther away from the TV or radio.
- Plug the equipment into an outlet that is on a different circuit than the TV or radio. (That is, make certain the equipment and the radio or television set are on circuits controlled by different circuit breakers or fuses.)
- Consider installing a rooftop television antenna with coaxial cable lead-in between the antenna and TV. If necessary, you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet prepared by the Federal Communications Commission:

"How to Identify and Resolve Radio — TV Interference Problems"

This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

For Canada

CLASS B **NOTICE**

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the Radio Interference Regulations of the Canadian Department of Communications.

CLASSE B **AVIS**

Cet appareil numérique ne dépasse pas les limites de la classe B au niveau des émissions de bruits radioélectriques fixés dans le Réglement des signaux parasites par le ministère canadien des Communications.

Roland®

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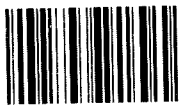
UPC 26033393



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