NS5R
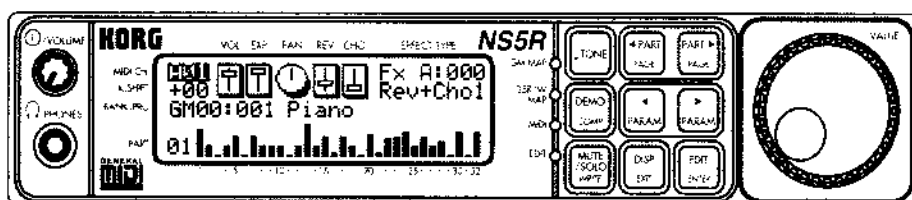
AI² SYNTHESIS MODULE

Owner's Manual

ai² AI² Synthesis System

KORG

Introduction

Main features of the NS5R

High-quality sound with ai-squared synthesis system

The NS5R features the ai-squared synthesis system with all-digital processing. From the high-capacity 12 Mbyte tone generator to the filter, amplifier, and effects, all processing is performed in the digital domain, guaranteeing superb sound.

Ai-squared synthesis is a proprietary Korg tone generator system utilizing cutting-edge PCM technology. This system of tone generation has already received acclaim for its implementation in the Korg 01/W series, X2/X3/X5 and i2/i3 instruments, and is now featured on the NS5R, providing unlimited sonic possibilities with audio quality that exceeds that of a compact disk.

A wide variety of multisamples for infinite variations in sound

The NS5R contains audio waveforms (referred to as "multisamples") which take advantage of today's PCM technology. These provide realistic reproductions of a variety of acoustic instruments, from piano, guitar, and trumpet to drums and percussion. A wide selection of synth sound and sound effect multisamples is also provided, allowing you the freedom to create virtually any type of sound.

The built-in multisamples are not simply played back as they are, but pass through powerful VDF (filter) and VDA (amplifier) sections to become truly playable musical instrument sounds. Keyboard dynamics can be used to add expression, and MIDI modulation messages can adjust brightness or vibrato etc., for a rich assortment of performance possibilities.

Multi-timbral tone generator compatible with multiple formats

The NS5R is not only compatible with GM system level 1, but is also able to effortlessly playback musical data in other formats such as XG and GS. This makes it possible to continue utilizing the vast amount of musical data that is already available in these formats.

Furthermore, each Part can use not only preset programs (as on other tone generator modules), but also user programs and user combinations which can be freely assigned to create your very own sound.

Maximum 64 voice polyphony easily handles even large-scale ensembles

The NS5R has a maximum polyphony of 64 notes, providing plenty of power to handle even complex ensembles or fully orchestrated music. In particular, this can be taken advantage by using a Combination (a set containing multiple program sounds) or in Multi mode.

A generous number of voices are a necessity for piano performances which use the damper pedal and multi-part ensembles, but the NS5R can meet all such needs without interrupting the notes.

1177 different programs in internal memory

Internal ROM contains a total of 1049 different sound programs, including sounds compatible with the Korg X5DR ai-squared synthesis system, and sounds compatible with GM (General MIDI system level 1). Internal RAM can accommodate 128 user programs, providing a vast array of sounds to select from.

On the NS5R, "Programs" are the most basic level of sound data that you can select and play. The built-in programs can be selected and played individually, or you can bring two or more programs together in "Combinations" for even greater possibilities.

Combinations allow programs to be freely combined

Combinations allow you to freely combine programs together for performance. Internal ROM contains 384 combinations, and RAM can accommodate 128 more. Up to 8 programs can be assigned to a combination, and you can make key window or velocity window settings to layer or split sounds across the keyboard.

Since combinations allow you to play two or programs at the same time, they are especially suitable for live performances. You can bring together various programs to create layers, splits, and velocity switched effects.

Drum kits that support a diversity of rhythm performances

The NS5R contains 286 superbly usable drum sounds, including percussion instruments etc. You can create two drum kits, each consisting of a freely-specified mapping of drum sounds to each note of the keyboard. 37 different ROM drum kits are also provided.

These drum kits provide the rhythmic foundation for your music. Since a different drum sound can be mapped to each note, complex rhythm performances are possible. The VDF, VDA and effect units can also be used to add finishing touches to your sound.

Built-in digital multi-effect units for creative sound-making or sound field simulation

The NS5R has two completely independent stereo digital multi-effect units. They provide not only effect types such as delay and reverb, but also effects such as equalizer, distortion, and rotary speaker, covering a range from creative sound-making to sound field simulation. Since some of the effect types actually provide two different effects simultaneously, this means that it is possible to use a maximum of 4 different effects at once.

Sound processing and adjustments that were possible on previous systems only by connecting external effect units can be performed just by the NS5R itself. Effect Placement settings allow you to change the way in which the effect units are connected, so that effect can be used in a variety of ways from aggressive processing of individual sounds to adding depth and spaciousness. Effect unit parameters can be stored independently for each program and combination sound.

Multi mode allows operation as a GM tone generator

In Multi mode, the NS5R is compatible with GM (General MIDI system level 1), allowing you to take advantage of the wide variety of GM music data that is commercially available, and is the ideal tone generator for use with a desktop music system. Not only can you playback GM scores (music data for a GM tone generator), but you can utilize original sounds and key window and velocity window settings to create sophisticated ensembles.

The NS5R can also be used as a GM tone generator. In the same way as when using combinations, you can combine various programs and even use your own original sounds, for diverse applications as a desktop music tone generator.
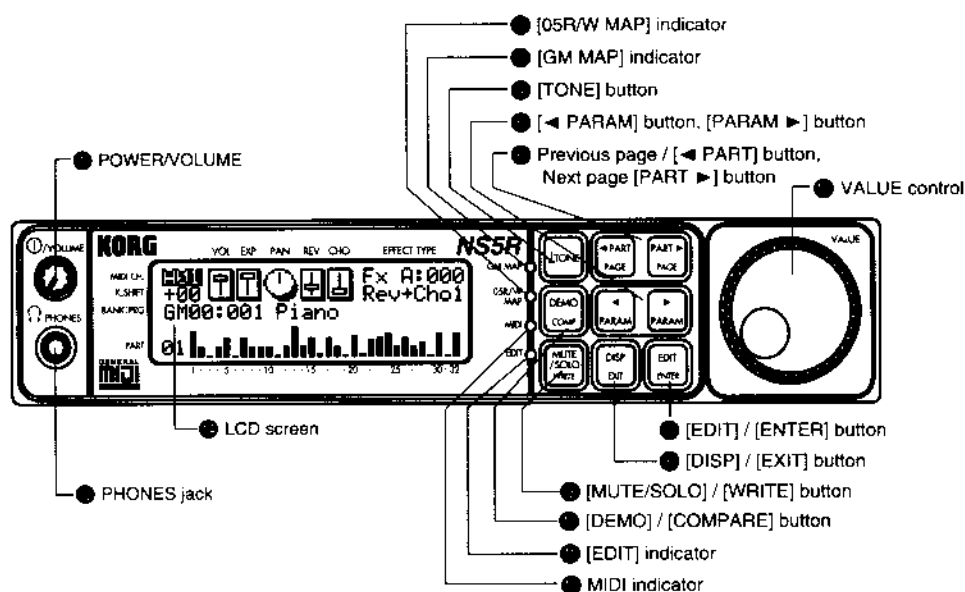
Personal computer interface for direct connection to a personal computer

In addition to allowing conventional MIDI connections, the NS5R provides a personal computer interface which allows it to be easily connected directly to a personal computer using a single cable. The NS5R can be connected directly to an IBM PC (compatible) or an Apple Macintosh.

The NS5R can be connected to a personal computer not only via a MIDI interface, but also directly using a special cable. When the Korg MIDI Driver is used, the NS5R can be controlled independently from the messages transmitted from MIDI OUT, allowing an additional external MIDI device to be controlled simultaneously.

Controls

Front panel

- [05R/W MAP] indicator
- [GM MAP] indicator
- [TONE] button
- [◄ PARAM] button, [PARAM ►] button
- Previous page / [◄ PART] button, Next page [PART ►] button
- VALUE control
- POWER/VOLUME
- LCD screen
- PHONES jack
- [EDIT] / [ENTER] button
- [DISP] / [EXIT] button
- [MUTE/SOLO] / [WRITE] button
- [DEMO] / [COMPARE] button
- [EDIT] indicator
- MIDI indicator

❶ POWER/VOLUME

Each time this knob is pressed, the **NS5R** will alternate between power-on and power-off.

This knob is also used to adjust the overall volume of the entire **NS5R**. When the knob is rotated fully toward the left the volume is at minimum, and when rotated fully right the volume is at maximum. This knob simultaneously adjusts both the volume of the **NS5R** itself and the volume of the external device connected to the INPUT jacks (rear panel). This adjustment affects both the volume of the OUTPUT jacks (rear panel) and the volume of the PHONES jack.

❷ [05R/W MAP] indicator

This indicator will be lit when the arrangement of sounds is the same as the 05R/W (an earlier Korg tone generator). (05/W and **NS5R** compatibility →p.159).

❸ [GM MAP] indicator

This LED will be lit when the arrangement of sounds is compatible with GM System Level 1.

*   The main difference between the sound banks of the GM Map and the 05R/W Map is in the handling of MSB:LSB=00:00 (Capital Bank). In the case of the 05R/W Map, preset program sound are assigned to bank 00:00. Before playing back music data that was created for Korg tone generators such as the 05R/W or the X5DR, you should select the 05R/W Map. Normally you will use the GM Map. (→ Advanced Operation, 3. Global mode, [046] Bank Map type).

❹ [TONE] button

When this button is pressed, the sound of the currently selected part will play. This is a useful way to audition the sound that you have selected. The pitch and velocity of the note which will be played can be specified in Global mode. (→ Advanced Operation, 3. Global mode, [042] Preview Note, [043] Preview Velocity)

❺ [◀ PARAM] button, [PARAM ▶] button

Use these buttons to select an item from a menu, or to select the parameter that you wish to set.

Pressing [PARAM ▶] will move the cursor in the LCD to the right. Pressing [◀ PARAM] will move the cursor to the left.

❻ Previous page/[◀ PART] button, Next page [PART ▶] button

The action of these buttons depends on the mode.

[When in Multi mode (→p.23)]
[PART ▶] will increment the Part number, and [◀ PART] will decrement the Part number.

[When in Combination Edit mode (→p.28)]
[PART ▶] will increment the Timbre number, and [◀ PART] will decrement the Timbre number.

[When in other modes]
[PART ▶] will move to the next page, and [◀ PART] will move to the previous page.

❼ [EDIT]/[ENTER] button

When you press this button, the EDIT MENU screen will appear. If you wish to perform detail editing of a Program sound or a Combination sound, press and hold this button for approximately 2 seconds to enter Program Edit mode (→p.30) or Combination Edit mode (→p.28).

⚠️ *The NS5R automatically determines the appropriate edit mode based on whether the currently selected Part is a Program sound, a Combination sound, or a Drum Kit. This means that, for example, if you wish to enter Combination Edit mode, you must first select a Combination sound. (For details refer to the chapter discussing the applicable Edit mode in the Reference section.)*

❽ [DISP]/[EXIT] button

The action of this button depends on the mode.

[When in Multi mode (→p.43)]
Each time this button is pressed, the screen display format will change. Normally, the lower half of the screen shows a level meter for each part. When this button is pressed so that an indication of [DISP] appears in the right side, the value of the parameter currently selected by the cursor will be displayed for each part 01—32, allowing you to view the values as a bar graph.

[When in other modes]
Use this button to exit the current page.

❾ [MUTE/SOLO]/[WRITE] button

The action of this button depends on the mode.

[When in Multi mode (→p.23)]
Each time this button is pressed, the applicable Part will be switched between Muted (silent), Solo (only that Part will sound), and cancel these settings (normal).

If a part is Muted or Soloed, an indication of M (mute) or S (solo) will appear above the part number in the lower left of the LCD, indicating the mute/solo status of that part.

A bar graph also indicates which of the parts 01—32 are muted.

(When parts 01 and 03 are muted)

(When part 01 is soloed)

[When in Program Edit mode (→p.30) or Combination Edit mode (→p.28)]
When this button is pressed, a screen will appear allowing you to save the currently edited Program (or Combination).

⑩ [DEMO]/[COMPARE] button

The action of this button depends on the mode.

[When in Multi mode (→p.23)]
When this button is pressed, the demo song select screen will appear.

[When in Program Edit mode (→p.30) or Combination Edit mode (→p.28)]
Each time this button is pressed, the sound before editing will alternate with the currently edited sound.

This allows you to compare the sound being edited with the sound that you started with.

⑪ [EDIT] indicator

While you are comparing the currently edited sound with the un-edited sound (Compare), this indicator will blink.

⑫ MIDI indicator

This indicator will light when MIDI playback data is received at the MIDI IN connector or the TO HOST connector.

⑬ VALUE control

This is used mainly to modify parameter values. Rotating it toward the right will increase the value, and rotating it toward the left will decrease the value. Rotating the control rapidly allows you to change the value in larger steps.

⑭ LCD screen

This is a custom two-color backlit 144 x 40 pixel LCD. The NS5R will display necessary information, operation menus, and the status of various parameters in this screen.

⑮ PHONES jack

A set of headphones can be connected to this jack. This is a stereo mini-jack.

Rear panel
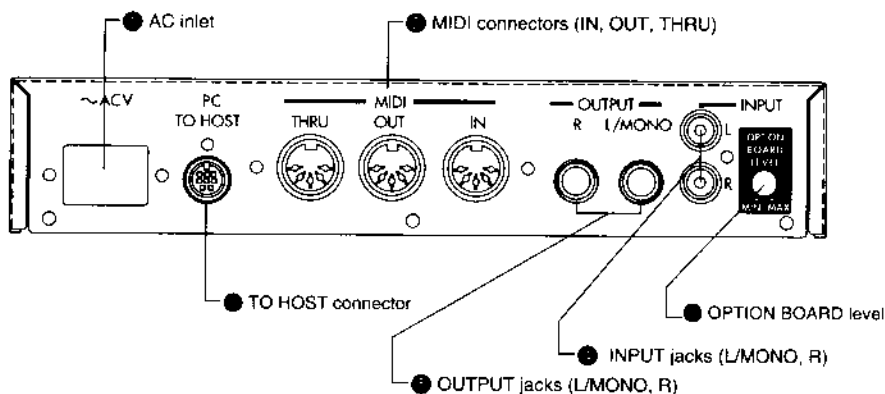
● AC inlet

Connect the included power cable to this inlet.

● MIDI connectors (IN, OUT, THRU)

These connectors allow external MIDI devices to be connected. MIDI IN receives messages from external devices. MIDI OUT transmits messages from the NS5R to external MIDI devices. MIDI THRU re-transmits the messages that are received at MIDI IN.

● OPTION BOARD level

If an optional tone generator expansion board has been installed in the NS5R, this knob adjusts the volume from the tone generator expansion board. If a tone generator expansion board has not been installed, this knob has no function.

● INPUT jacks (L/MONO, R)

These are input jacks (RCA phono jacks x 2). If the appropriate cables are used to connect these jacks to the OUTPUT jacks of another MIDI keyboard etc. that is connected to the NS5R, the sound of the connected keyboard and the sound of the NS5R can be output together from the OUTPUT jacks or PHONES jack of the NS5R.

Use connection cables that are appropriate for the device being connected.

● OUTPUT jacks (L/MONO, R)

These are output jacks (phone jack x 2). These can be connected to a powered monitor speaker system, a stereo amp, a mixer, or a multitrack recorder etc. If you are using a monaural system, connect the L/MONO jack.

● TO HOST connector

A personal computer can be connected here. Use a special cable to make connections directly to your computer. For the correct cable to use, refer to page 2 of the Preparations section, "Computer/sequencer connections."

Table of Contents

Introduction

Preparations

Basic Guide

Reference Guide (Parameter Guide)

How to use the owner's manual

In order to provide you with the information appropriate for your setup and needs, this owner's manual is organized as follows.
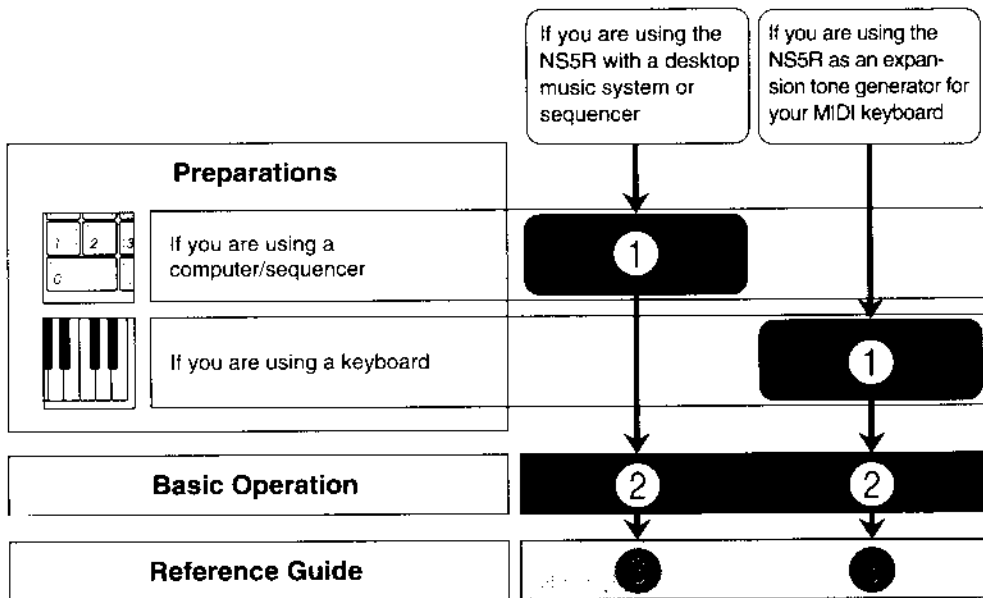
Preparations

This section explains setup of the NS5R and basic operating procedures. This section is divided into two portions: "If you are using a computer/sequencer" and "If you are using a keyboard." If you will be using the NS5R in a desktop music system or MIDI sequencer-based system, first read "If you are using a computer/sequencer." If you will be using the NS5R as an expansion tone generator for your MIDI keyboard, first read "If you are using a keyboard."

Basic Operation

This part of the manual explains the NS5R's organization and modes. Once you have read the Preparations section and gained an understanding of basic operation, be sure to read this section. This section also explains what you will need to know about sound in order to edit your own sounds. Refer to it in order to take advantage of the NS5R's rich functionality and possibilities.

Reference Guide

This section explains all the parameters of each mode of the NS5R. Refer to this section when you need to know about the NS5R's functions in more detail.

	If you are using the NS5R with a desktop music system or sequencer	If you are using the NS5R as an expansion tone generator for your MIDI keyboard
Preparations		
If you are using a computer/sequencer	①	
If you are using a keyboard		①
Basic Operation	②	②
Reference Guide	●	●

⚠ *Please be aware that the names of the programs, combinations and multis which appear in the explanatory LCD screens printed in this manual are provisional, and will not necessarily match the screens that appear on your NS5R.*
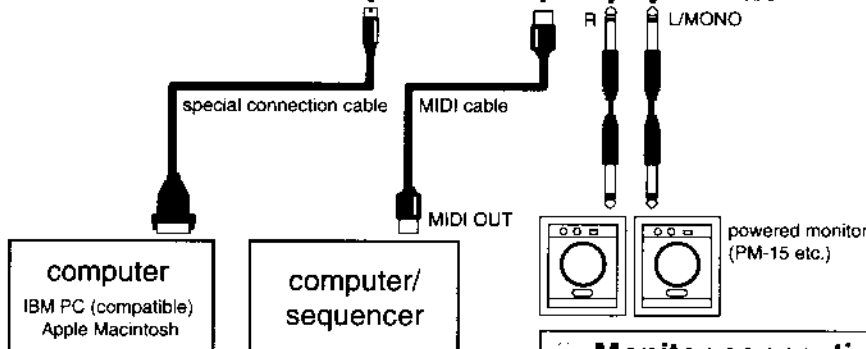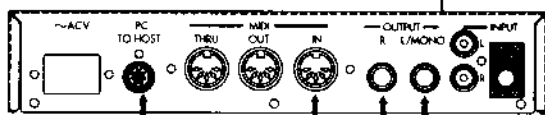
If you will be using a computer/sequencer to play the NS5R

Connections

If you are using headphones, plug them into the front panel PHONES jack.

PHONES

headphone

Power supply

Connect the power cable to the AC inlet, and connect the other end to an AC outlet.

special connection cable | MIDI cable

R | L/MONO

MIDI OUT

| computer | computer/ |
| IBM PC (compatible) Apple Macintosh | sequencer |

powered monitor (PM-15 etc.)
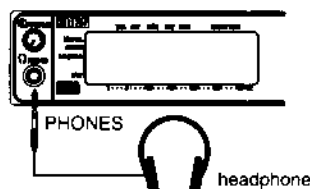
Computer/sequencer connections

There are two ways to connect the NS5R to your computer/sequencer: "Connections using MIDI" or "Connections using a special cable." For details refer to pages 2—7.

Monitor connections

Connect the OUTPUT jacks to a powered monitor or a stereo amp.

* *If making monaural connections, use the L/MONO jack.*

Powered monitor / Stereo amp

In order to faithfully produce the sounds of the NS5R we recommend that you make connections to a powered monitor system (a speaker with built-in amplifier, such as the PM-15 [optional]). If you are using a stereo audio system or a stereo cassette radio that has an external input, make connections to the LINE IN, AUX IN, or "external input" jacks.

⚠ *When using a stereo audio amp to play the NS5R, be careful not to raise the volume excessively, since high volumes can damage your speaker system.*

1

Computer/sequencer connections

There are two ways to connect the NS5R to your computer: connections using MIDI cables via a MIDI interface (Connections using MIDI), and direct connection to your computer via a special cable (Connections using a special cable). Read the explanation that is applicable to your computer and system. If you are using a dedicated (hardware) MIDI sequencer, read the section on connections using MIDI.

- If you are connecting a MIDI sequencer ... "Connections using MIDI" (P.3)
- If you are connecting a computer (using a MIDI interface) ... "Connections using MIDI" (P.3)
- If you are connecting an IBM PC (compatible) (using a special cable) ... "Connecting an IBM PC (compatible)" (P.4)
- If you are connecting an Apple Macintosh (using a special cable) ... "Connecting an Apple Macintosh" (P.5)

Connection to a computer

By using a special cable to connect the NS5R and your computer, you can play the NS5R from your computer. In addition, the NS5R will function as a MIDI interface for your computer, allowing additional MIDI devices to be controlled.

The NS5R can be directly connected to the following computers using a special cable. (p.4, 5)

IBM PC (compatible)   : Connection kit AG-001B (connection cable, "Korg MIDI Driver" driver software) (sold separately)

However, this method of connection cannot be used for non-Windows applications unless they specifically support the NS5R.

Apple Macintosh series : Connection kit AG-002B (connection cable, "Korg MIDI Driver" driver software) (sold separately)

- When using SERIAL2 .... Connection kit AG-001B (connection cable, "Korg MIDI Driver" driver software) [optional].

However, this method of connection cannot be used for non-Windows applications unless they specifically support the NS5R.

* *Depending on the type of your computer and on your application (software), it may not be possible to use a direct connection.*

Connections using MIDI

When connecting the NS5R to a stand-alone MIDI sequencer, or to a computer via a MIDI interface, use a MIDI cable to connect the MIDI OUT connector of the sequencer/computer (MIDI interface) to the MIDI IN connector of the NS5R.
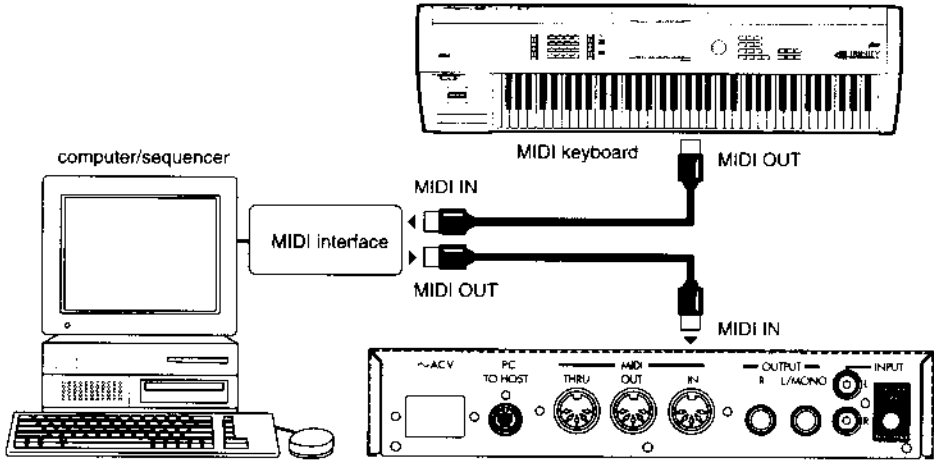
The MIDI OUT connector of the MIDI keyboard that you are using for performance or input can also be connected to the MIDI IN connector of your sequencer/computer (MIDI interface). If you are inputting playback data only from your computer/sequencer, it is not necessary to connect a MIDI keyboard.

If you wish to connect additional MIDI devices, connect them either to the MIDI OUT connector of your sequencer/computer (MIDI interface) or the MIDI THRU of the NS5R.

* For details on connecting your computer and MIDI interface, and on MIDI port settings, refer to the owner's manual for your MIDI interface.

Connecting an IBM PC (compatible)

Use a special connection cable (AG-001B (sold separately)) to connect the serial port (COM port) of your IBM PC (compatible) to the TO HOST connector of the NS5R.

MIDI keyboard   MIDI OUT

IBM PC (compatible)

other MIDI tone generator

COM   special connection cable
(AG-001B)

TO HOST   MIDI OUT   MIDI IN
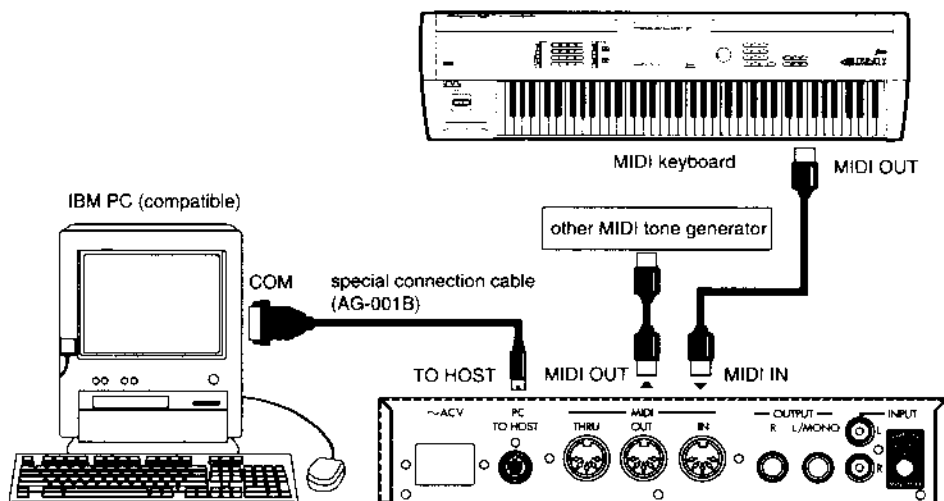
* *Please be aware that depending on the type of your computer or application (sequencer), this method of connection may not be usable. This method of connection cannot be used for non-Windows applications unless they specifically support the NS5R.*
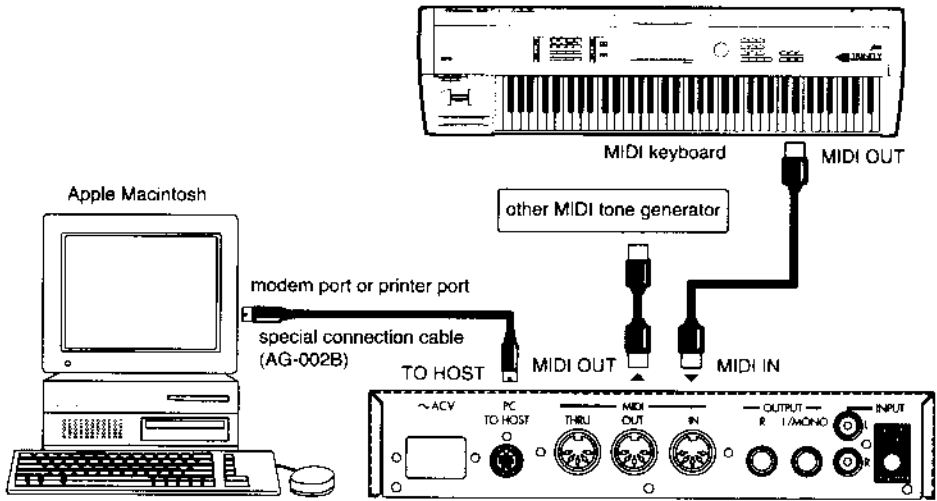
* *If your computer has a 25 pin type serial port, use a 9 pin - 25 pin conversion adapter (AG-004 (sold separately)).*

When connecting the NS5R to an IBM PC (compatible), set the Global mode [041] BPS Select setting to "38.4" (refer to p.68).

If you are using Windows, install the Korg MIDI Driver. For the installation procedure, refer to p.8—11.

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Connecting an Apple Macintosh

Use a special connection cable (AG-002B (sold separately)) to connect the modem port or printer port of your Apple Macintosh to the TO HOST connector of the NS5R.

MIDI keyboard   MIDI OUT

Apple Macintosh

other MIDI tone generator

Using a computer/ sequencer

modem port or printer port

special connection cable
(AG-002B)   TO HOST   MIDI OUT   MIDI IN

* *Depending on the type of your computer or on your application (sequencer software), a direct connection may not be usable.*

* *If your application (sequencer software) has a clock setting, set it to 1 MHz.*

When connecting the NS5R to an Apple Macintosh, set the Global mode [041] BPS Select setting to "31.25" (refer to p.68).

If you install the Korg MIDI Driver, you will be able to use the NS5R tone generator and MIDI OUT as independent MIDI outputs. For details on installing the Korg MIDI Driver, refer to p.11.
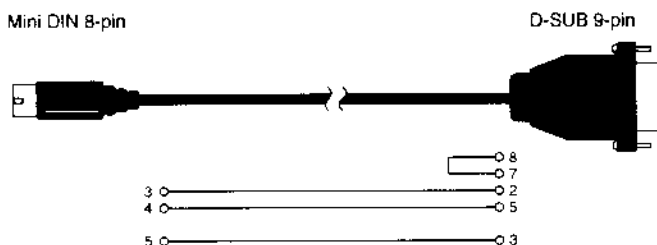
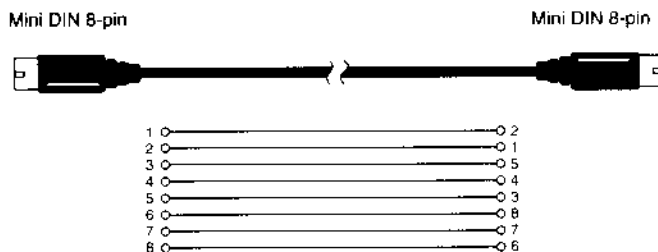# Settings when connecting a computer

[041] BPS Select settings (p.68)

1) Press the [EDIT/ENTER] button to access the Edit menu.

2) In the edit menu, use the [PART/PAGE] buttons to select "Global."

3) Press the [EDIT/ENTER] button to enter Global mode.

4) Use the [PART/PAGE] buttons to access the <GLOBAL> page.

5) Use the [PARAM] buttons to select "BPS."

6) Use the VALUE controller to set the value to either 31.25 or 38.4.

    31.25   when connecting an Apple Macintosh

    38.4   when connecting an IBM PC (compatible)

Wiring diagram for special cables

(1) AG-00 1B (for IBM PC or Compatible)

Mini DIN 8-pin   D-SUB 9-pin

```
                                        8
                                        7
 3 ───────────────────────────────────  2
 4 ───────────────────────────────────  5

 5 ───────────────────────────────────  3
```

(2) AG-002B (for Macintosh)

Mini DIN 8-pin   Mini DIN 8-pin

```
 1 ───────────────────────────────────  2
 2 ───────────────────────────────────  1
 3 ───────────────────────────────────  5
 4 ───────────────────────────────────  4
 5 ───────────────────────────────────  3
 6 ───────────────────────────────────  8
 7 ───────────────────────────────────  7
 8 ───────────────────────────────────  6
```

(3) AG-004 (Adapter for IBM or Compatible)

D-SUB 9-pin male   D-SUB 25-pin female

```
 8 ───────────────  5
 7 ───────────────  4
 2 ───────────────  3
 5 ───────────────  7
 3 ───────────────  2
```
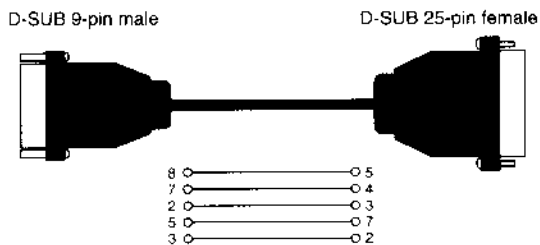
Korg MIDI Driver installation and setup

The separately sold kits for connecting the NS5R directly to a computer (AG-001B, AG-002B) include a Korg MIDI Driver. If you are using an IBM PC (compatible) computer and your application (sequencer) is Windows-compatible, using the Korg MIDI Driver will allow the NS5R connected to the serial port (COM, RS-232C, Serial 2) to be handled as a MIDI device. If you are using an Apple Macintosh and your application (sequencer) is compatible with the Apple MIDI Manager, using the Korg MIDI Driver will allow the Macintosh to exchange data with the NS5R connected to its serial port (modem or printer).

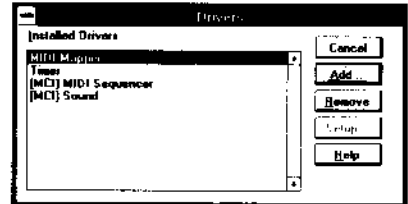# Installing the Korg MIDI Driver into Windows 3.1

⚠️ *Data from MIDI IN may not be received correctly if your computer is not fast enough.*

① **In the Control Panel, double-click the Drivers icon.**
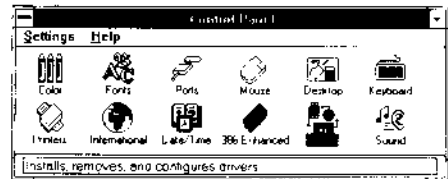
② **Click the [Add] button.**

③ **From the list of drivers, select [New or updated driver], and click the [OK] button.**
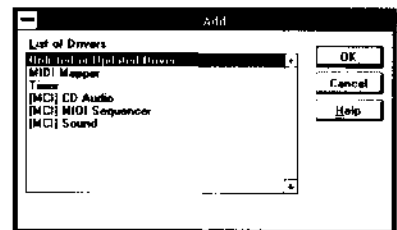
④ **Insert the disk included with AG-001B into the disk drive of your computer. If the disk was inserted into drive A, type "A:\" (or if drive B, type "B:\") and click the [OK] button.**

(The directory "A:\PC98" is for a type of computer sold only in Japan, and cannot be used with your computer.)

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⑤ Select KORG PC/IF Driver and click the [OK] button. The setup window will appear. Follow the instructions of "Setting up the Korg MIDI Driver (Windows)" to perform the setup.
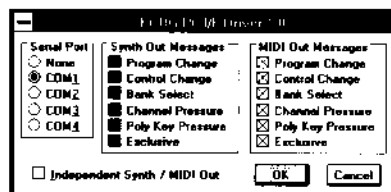
⑥ After setup is complete, remove the disk and select [Restart] to make the newly installed driver available.

Setting up the Korg MIDI Driver (Windows)

① In the Control Panel, double-click the Drivers icon, select [KORG PC/IF Driver], and click the settings button to open the setup window.
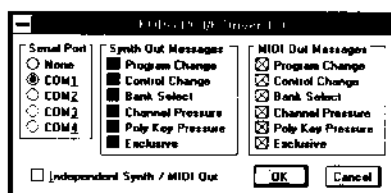
② For the Serial Port setting, select the serial port to which the NS5R is connected ([COM1]–[COM4]).

If you wish to use the serial port for another purpose after installing the Korg MIDI Driver, either Delete the driver or select [None] to cancel the driver.

③ Check [Independent Synth/MIDI Out]. When this is checked, the two ports within the NS5R (port A and port B) can be used independently. If this is not checked, the internal tone generator port B cannot be used.

The function of the data which is output to Default MIDI will differ depending on the NS5R's Global [049] Program Port setting.

When Program Port is set to Native, the data will be output to the port specified by the Part Edit parameter [016] MIDI Channel To Port.

With a setting of Emulate, the data will be output to both port A and port C. The data which is output to MIDI Out will be output to port C, and the internal tone generator of the NS5R will not sound. The data which is output to Synth-A and Synth-B will be sent to port A and port B respectively of the internal tone generator.

If [Independent Synth/MIDI Out] is not checked, only Default MIDI can be used.

④ [MIDI Out Messages] allows you to select the types of message that will be transmitted to the NS5R.

⑤ When you finish making settings, click the [OK] button. If you wish to cancel your settings, click [Cancel].

Installing the Korg MIDI Driver into Windows 95

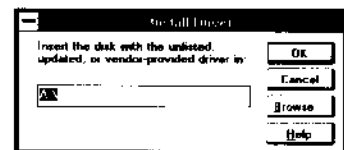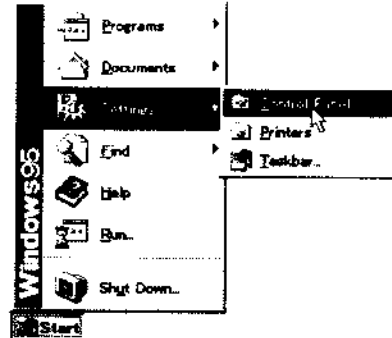⚠️ *Data from MIDI IN may not be received correctly if your computer is not fast enough.*

① **Click the [Start] button in the task bar, and click [Control panel] in [Settings].**

Using a computer/ sequencer

② **Double-click the [Hardware] icon in the control panel, and the hardware wizard will start up. Click the [Next>] button.**
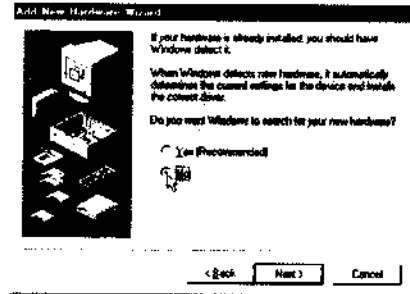
③ **In response to the question "Automatically detect new hardware?" be sure to select [No], and click the [Next>] button.**

④ **Select [Sound, video and game controllers], and click the [Next>] button.**
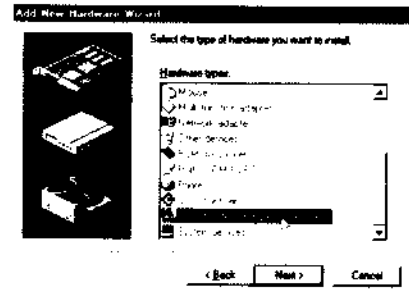
⑤ **Click [Have Disk].**

A dialog box will appear, allowing you to specify the drive and directory.

⑥ **Insert the disk included with AG-001B into the disk drive of your computer. If the disk was inserted into drive A, type "A:\" (or if drive B, type "B:\") and click the [OK] button.**
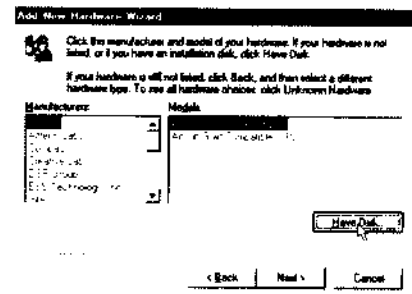
(The directory "A:\PC98"is for a type of computer sold only in Japan, and cannot be used with your computer.)

⑦ Click the [OK] button and click [OK].
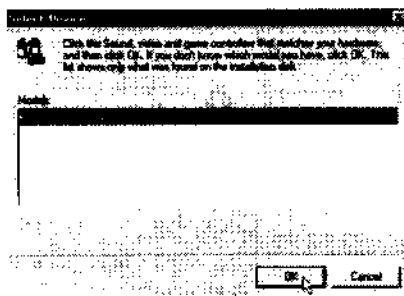
⑧ Perform the setup as directed in [Setting up the Korg MIDI Driver (Windows)" (Page 8 in this manual), and click the [OK] button.

⑨ Be sure to restart your computer so that the driver will take effect.
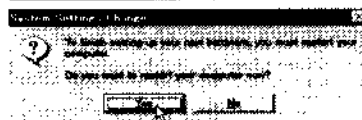
Modifying the Korg MIDI Driver setup for Windows 95

① In the control panel, double-click the [Multimedia] icon, and the multimedia properties dialog box will appear.

② Click the [Advanced] tab located at the upper right.

③ Click the [+] for [MIDI Devices] (the display will change to [–]), and click [KORG PC I/F MIDI Port].

④ Click the [Properties] button.

The KORG PC I/F MIDI Port properties will be displayed.

⑤ Click the [Settings] button.

Perform the setup as directed in "Setting up the Korg MIDI Driver (Windows)" (Page 8 in this manual), and click the [OK] button.

If you have modified the settings, you must re-start Windows.
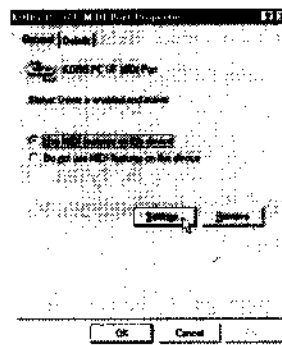
Installing the Korg MIDI Driver into a Macintosh

⚠️ *In order to use the Korg MIDI Driver, the Apple MIDI Manager and PatchBay must already be installed. Use the versions of Apple MIDI Manager and PatchBay that are included with your MIDI application. They are not included with the AG-002B.*
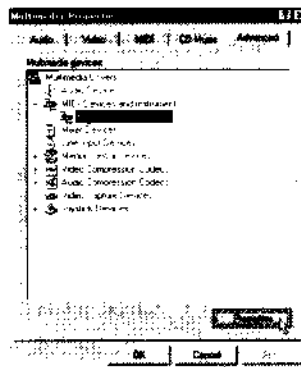
When the Korg MIDI Driver is used, the "Modem MIDI Out/Port setting" dialog box (P.12) will allow you to specify the MIDI channels and types of messages which will be transmitted to the NS5R. If you do not need this functionality, you can simply use the Apple MIDI Driver without the Korg MIDI Driver. When using the Apple MIDI Driver, or when using a MIDI application (sequencer) which does not use the Apple MIDI Manager, refer to page 12.

① **Copy the KORG MIDI Driver from the disk included with the AG-002B into the system folder of your startup disk.**

② **If there is a copy of Apple MIDI Driver in your system folder, either delete it, or move it to another folder. Be careful not to delete or move the Apple MIDI Manager.**
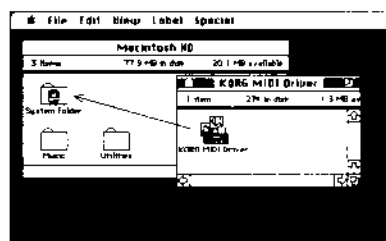
* *The Korg MIDI Driver includes the functionality of the Apple MIDI Driver.*

③ **From the Special menu, select "Restart."**

Setting up the Korg MIDI Driver (Macintosh)

① **Start up PatchBay.**

If installation has been performed correctly, the KORG MIDI Driver icon will appear in the PatchBay window when PatchBay is started up. (The modem and printer ports will be displayed differently depending on the setup condition of each port.)
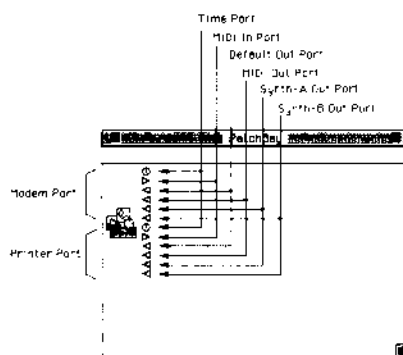
② **In PatchBay, double-click the KORG MIDI Driver icon.**

The setup dialog box will appear.

11
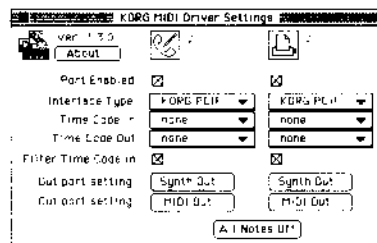
③ **Check Port Enable for the port to which the NS5R is connected, and set Interface Type either to [KORG PCIF] or to [1 MHz].**

When Interface Type is set to "KORG PCIF," Default Out, MIDI Out, Synth-A Out, and Synth-B Out can be used.

The operation of Default Out will differ depending on the NS5R's Global [049] Program Port setting.

When Default Out is selected, data will be output to both port A and port C of the NS5R if the NS5R is set to Emulate mode, or to the port specified by the Part Edit parameter [016] MIDI Channel To Port if the NS5R is set to Native mode.

Regardless of whether the NS5R is set to Native mode or Emulate mode, MIDI Out will output to port C, Synth-A Out will output to port A, and Synth-B Out will output to port B.

(Please also read page 54 and 72 in conjunction with this explanation.)

(Since the NS5R does not contain a KORG PC IF, do not select [KORG PCIF].)

④ **Press the [Out Port Setting] button.**

The following dialog box will appear. Here you can select the MIDI channels/messages which will be output to each port. Only those channels/messages which are checked will be output.

⑤ **After you have made settings, press the [OK] button.**

⑥ **Start up your MIDI application (sequencer), and drag the mouse from the Out Port " ◁ " of the MIDI application to connect it to the MIDI Out of the MIDI Driver.**

| Modem MIDI Out		Port setting
Enable MIDI Ch		Enable MIDI Status
☒ 1	☒ 9	☒ Program Change
☒ 2	☒ 10	☒ Control Change
☒ 3	☒ 11	☒ Bank Select
☒ 4	☒ 12	☒ Channel Pressure
☒ 5	☒ 13	☒ Poly Key Pressure
☒ 6	☒ 14	☒ Exclusive
☒ 7	☒ 15	
☒ 8	☒ 16	(Cancel) [OK]
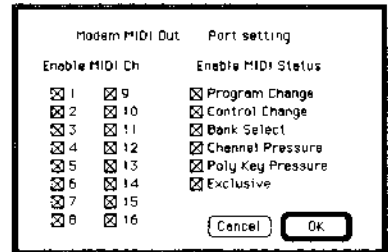
* *For details on using PatchBay, refer to the explanations found in the " ❤ " menu item "About PatchBay..." etc.*

To use the Apple MIDI Driver, you must first delete or move the Korg MIDI Driver if it exists in your system folder. Then start up PatchBay, double-click the Apple MIDI Driver icon that appears, check Enabled for the Port to which the NS5R is connected, set Interface Type to [1 MHz], and close the dialog box. In PatchBay, drag the mouse from the OutPort " ◁ " of the MIDI application (sequencer) to connect it to MIDI Out.

When using a MIDI application (sequencer) which does not use Apple MIDI Manager, select the port to which the NS5R is connected, and if the application has a clock setting, set it to [1 MHz].

About the MIDI File Translator included with the AG-002B

Most commercially available Standard MIDI File (SMF) song data is saved in MS-DOS format. The MIDI File Translator included with the AG-002B is a translator software module for Apple File Exchange which converts MS-DOS Standard MIDI Files (SMF) into a format that Macintosh MIDI applications can recognize as SMF.

① **Put the MIDI File Translator into the same folder as Apple File Exchange.**
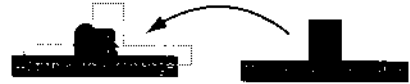
② **Double-click Apple File Exchange to start it up.**

③ **Insert the MS-DOS disk that you wish to convert into the disk drive.**

The MS-DOS format disk must be inserted into the disk drive after Apple File Exchange is started up.

④ **Select the song file that you wish to convert.**

⑤ **Press the "<<Convert<<" (or ">>Convert>>") button located in the center.**

Conversion will begin. When the bar graph reaches 100%, conversion is complete. The converted file will appear in the left-hand box.

⑥ **Exit Apple File Exchange.**

Using a computer/sequencer

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Using PC Exchange to convert an SMF

If Apple File Exchange was not included with your Macintosh system, you can use PC Exchange to make MS-DOS format SMF song files recognizable by the Macintosh.

As an example, here's how to use the MIDI Player included with KORG Audio Gallery [sold separately] to open an MS-DOS SMF song file.

① **In the control panel, open PC Exchange.**

The PC Exchange control panel will appear.

② **Press the [Add...] button.**

The [Specify application associated with DOS extension] window will appear.

③ **Input "MID" into the DOS extension field.**

In order to distinguish different types of file, MS-DOS adds an extension consisting of a period and three characters to the end of the filename. It is customary for SMF data to have an extension of "MID."

④ **From the list that appears in the lower part of the dialog box, select your SMF-compatible MIDI application (sequencer).**

In this example, we will select [MIDI Player v1.0.1]. The selected icon will appear in the Application field.

⑤ **Form the [Document type] popup menu, choose [Midi], and click the [OK] button.**

The item which was added to the PC Exchange window will appear, and has been registered.

Now when an MS-DOS SMF disk is inserted into the disk drive, it can be used immediately.

* *For details refer to the explanation of "Macintosh PC Exchange."*

Listening to the demo songs

The NS5R contains two demonstration songs which take advantage of its features. These demo songs can be played back by the NS5R without requiring any other equipment.

Power on/off

Press the VOLUME/POWER switch to turn the power on. Each time the switch is pressed, the power will alternate on/off.

Adjust the volume

Rotate the VOLUME to adjust an appropriate volume level.

* *This simultaneously adjusts the headphone volume as well.*

⚠️ *Your powered speaker or stereo amp system must be turned off before the NS5R's power is turned on or off.*

Demo songs

Demo song no.1: "2000 Fever" performed by Akihiro Horikoshi
Demo song no.2: "MissionMan" performed by John Lehmkulh
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■ Multi mode
When the power is turned on, the NS5R will be in Multi mode.

▼

■ Enter DEMO mode
Press the [DEMO/COMP.] button.

▼

■ Exit DEMO mode
From the demo song select screen, press the [DISP/EXIT] button.

* You will exit DEMO mode and return to Multi mode.

■ Operations in DEMO mode

Demo song 1: 2000 Fever
Demo song 2: MissionMan

During playback, you can press the [DISP/EXIT] button to stop playback.

Repeatedly playback demo songs 1/2. (continually)

To listen to the playback
Use the VALUE controller, [PART/PAGE] buttons, or [PARAM] buttons to select the song that you wish to hear.
Press the [EDIT/ENTER] button and the selected demo song will begin playback.
* If you select 01 & 02 Chain, demo songs 1/2 will continue to repeat consecutively.

To stop playback
Press the [DISP/EXIT] button during playback, and playback will stop. You will return to the demo song select page.

Listen to the demo playback, and enjoy the versatile sounds and rich expressiveness of the NS5R.

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Playing in Multi mode

In Multi mode the NS5R will function as a multi-timbral (GM) tone generator, with 16 channels for A and B (total of 32 channels). This mode is normally used for when you use a computer/sequencer to play an ensemble on the NS5R.

Multi mode

When the power is turned on, the NS5R will be in multi mode.

The LCD screen will show the sound bank, sound number and sound name for each part.

```
A01 [][][][] Fx A:001
+00                 Rev/Cho
GM-a:001 Piano 1
01|----------------------
```

Sound (program/combination) name
Sound (program/combination) number
Sound bank

■ What is Multi mode?

In Multi mode, the NS5R will function as a 32 channel multi-timbral tone generator. Different sounds (programs) can be played by each of the 32 parts. Since Multi mode will have the initial GM settings when the power is turned on, it will immediately be ready to playback a GM score (musical data for a GM tone generator). To once again restore the GM initial settings, you can either transmit a GM System On message, or execute the Utility mode [053] Preset/Initialize command.

MIDI IN

MIDI OUT

computer/sequencer

Selecting sounds (1)

The sound for each part can be selected using the VALUE controller.

Use the [PARAM] buttons to select the bank or sound that you wish to change (it will be highlighted)

Rotate the VALUE controller to change the bank or sound number

The NS5R has a total of 1049 Program sounds in the GM-a/b banks, r:bank, y:bank, and Prg (program) A, B, and C banks of its internal ROM. It also has a total of 384 Combination sounds in the Cmb (combination) banks A, B, and C of its internal ROM.

Also, the internal RAM area contains 128 user programs in the PrgU bank, and 128 combination sounds in the CmbU bank.

Select different banks and sound numbers, and play the sounds of the NS5R!

Selecting sounds (2)

To select sounds from a computer/sequencer, transmit a program change message (if you wish to change the bank, transmit a bank select message as well).

Program changes 0—127 will select programs/combinations 001—128.

If you have problems

If the NS5R does not produce sound, or if the sounds or response are not what you expect, check the following points.

No sound

- First check whether you can hear the demo playback. If the demo songs cannot be heard, check that the volume is raised appropriately on your powered monitor / stereo amp system, and that audio cables are connected correctly.
- If you can hear the demo songs, check that you are in Multi mode.
- Check MIDI cable connections / special cable connections. Also check that the correct settings have been made on your computer/sequencer. When the NS5R receives MIDI messages, its MIDI indicator will light. If the MIDI indicator does not light, it is possible that the settings on the computer/sequencer are incorrect.
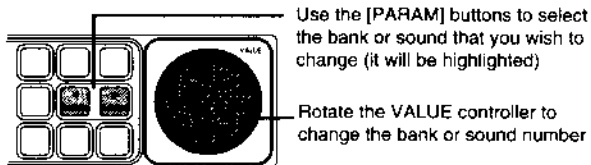- If you are using a special cable to make connections, check that the Global mode "BPS" setting is correct. Select 38.4 kBPS if you are using an IBM PC (compatible), or 31.25 kBPS if you are using an Apple Macintosh.
- If you are using a sequencer program on your computer, you will need to make settings for the MIDI port on which MIDI messages will be transmitted and received. Make sure that you have specified the MIDI port of the MIDI interface to which the NS5R is connected, or the port of the Korg MIDI Driver. Korg MIDI Driver is able to the tone generator of the NS5R itself and the MIDI messages transmitted from its MIDI OUT as separate MIDI ports. If you wish to play the NS5R, specify the NS5R's tone generator (Korg PC I/F Synth Port). (p.7—12)
- Some Windows sequencer programs transmit MIDI messages through the MIDI mapper. If you are using such a program, make settings in the MIDI Mapper (located in the Control Panel) to change the port name for all MIDI channels to Korg PC I/F Synth Port.

Sounds or performance is incorrect

- If the wrong sounds are used when playing back a GM score, it is possible that bank select messages are used within the score. If this is the case, make settings on your computer/sequencer so that bank select messages are not transmitted (p.20, 154). Either transmit a GM System On message from the computer/sequencer, or execute the [053] Preset/Initialize operation to restore the initial GM settings, and then playback the data once again.
- If volume or pan are incorrect, or if they are specified by the music data but are not reflected in the NS5R's playing, it is possible that these messages are being cut by the transmit filter of the sequencer or sequencer program, or by Korg MIDI Driver's filter. Check these settings.
- In Multi mode, the NS5R functions as a 32-part multi-timbral tone generator. Although it is possible to select the sound and specify the volume and pan etc. for each track by making settings on the NS5R, it is best to include such settings in the musical data that you create on your computer/sequencer. (If this is done, the playback conditions will be the same each time.) If you playback musical data which does not contain these settings, the settings that were last played back will still be in effect. For details on creating musical data and on playing each sequencer track, refer to the owner's manual for your sequencer or sequencer program.

Preparations

Using a computer/ sequencer

If you are using a keyboard to play the NS5R

Connections
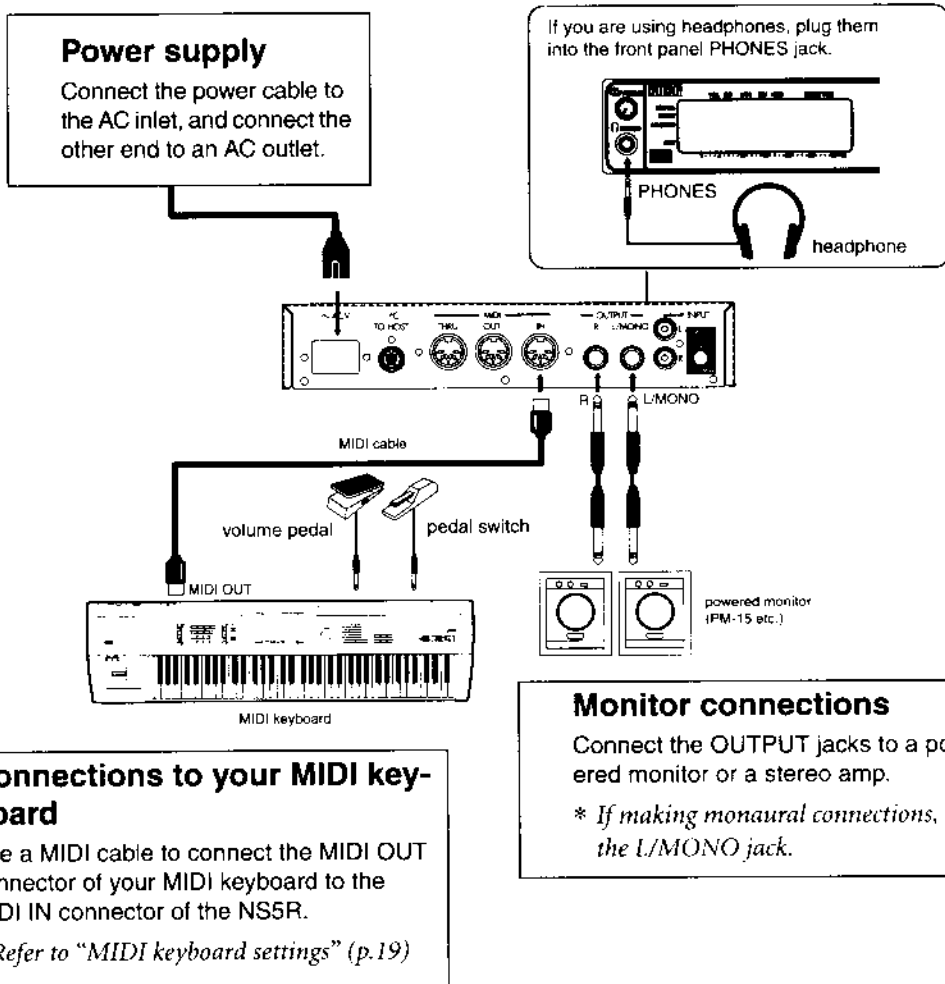
Power supply

Connect the power cable to the AC inlet, and connect the other end to an AC outlet.

If you are using headphones, plug them into the front panel PHONES jack.

PHONES

headphone

MIDI cable

volume pedal   pedal switch

MIDI OUT

R   L/MONO

powered monitor (PM-15 etc.)

MIDI keyboard

Monitor connections

Connect the OUTPUT jacks to a powered monitor or a stereo amp.

* *If making monaural connections, use the L/MONO jack.*

Connections to your MIDI keyboard

Use a MIDI cable to connect the MIDI OUT connector of your MIDI keyboard to the MIDI IN connector of the NS5R.

* *Refer to "MIDI keyboard settings" (p.19)*

Powered monitor / Stereo amp

In order to faithfully produce the sounds of the NS5R we recommend that you make connections to a powered monitor system (a speaker with built-in amplifier, such as the PM-15 [optional]). If you are using a stereo audio system or a stereo cassette radio that has an external input, make connections to the LINE IN, AUX IN, or "external input" jacks.

⚠ *When using a stereo audio amp to play the NS5R, be careful not to raise the volume excessively, since high volumes can damage your speaker system.*

MIDI keyboard settings

If you wish to play the NS5R from a MIDI keyboard, you will need to make MIDI transmission settings on your MIDI keyboard. For the procedure on making these settings, refer to the owner's manual for your MIDI keyboard.

* *The NS5R is a MIDI tone generator module that produces sound in response to the MIDI messages it receives from an external MIDI device (MIDI keyboard, computer, sequencer etc.). If you will be using a computer or sequencer etc. to play the NS5R, refer to "If you are using a computer/sequencer to play the NS5R" (p.1).*

MIDI transmit channel

Set the MIDI transmit channel of your MIDI keyboard to the MIDI receive channel of the NS5R part that you wish to play. If a different MIDI transmit channel is selected, or if it is not possible to change the MIDI transmit channel of your keyboard (i.e., if the transmit channel is fixed), you will need to change the MIDI receive channel of the NS5R ([000] Receive MIDI channel, [044] Exclusive Channel).

MIDI transmit filter

Some MIDI keyboards allow you to select the MIDI messages which are transmitted.

The NS5R is able to receive the following MIDI messages.

- Note-on/off (note messages) .... These messages are the most basic type transmitted by a keyboard.
- Program change.............................. These messages select programs.
- Control change .... These messages convey controller movements and performance gestures.
- Pitch bend...................................... These messages convey movements of the bender (joystick, wheel, level) to control the pitch.
- Aftertouch (channel pressure)........ These messages convey the pressure applied to the keyboard to control various effects.

* *Not all MIDI keyboards will necessarily be able to transmit all of the above types of MIDI messages. When the NS5R is played from a MIDI keyboard, it will respond only to those MIDI messages which can be transmitted from the MIDI keyboard. For example, if you are using a MIDI keyboard (such as a digital piano etc.) which is unable to transmit pitch bend messages, the pitch bend effect cannot be obtained.*

Listening to the demo songs

The NS5R contains two demonstration songs which take advantage of its features. These demo songs can be played back by the NS5R without requiring any other equipment.

Power on/off

Press the VOLUME/POWER switch to turn the power on. Each time the switch is pressed, the power will alternate on/off.

Adjust the volume

Rotate the VOLUME to adjust an appropriate volume level.

* *This simultaneously adjusts the headphone volume as well.*

⚠ *Your powered speaker or stereo amp system must be turned off before the NS5R's power is turned on or off.*
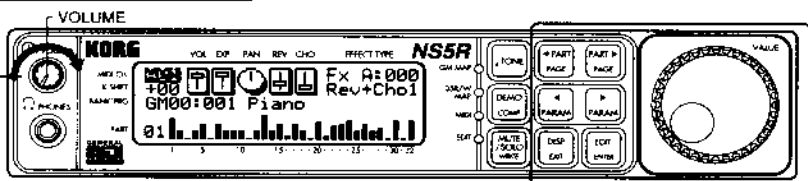
Playback the demo songs

Demo song no.1: "2000 Fever" performed by Akihiro Horikoshi
Demo song no.2: "MissionMan" performed by John Lehmkulh
© 1996 Korg Inc., All Rights Reserved.

■ Multi mode
When the power is turned on, the NS5R will be in Multi mode.

▼

■ Enter DEMO mode
┌ Press the [DEMO/COMP.] button.

▶

■ Exit DEMO mode
From the demo song select screen, press the [DISP/EXIT] button.

* You will exit DEMO mode and return to Multi mode.

■ Operations in DEMO mode
┌── Demo song 1: 2000 Fever
┌── Demo song 2: MissionMan

During playback, you can press the [DISP/EXIT] button to stop playback.

└── Repeatedly playback demo songs 1/2. (continually)

To listen to the playback
Use the VALUE controller, [PART/PAGE] buttons, or [PARAM] buttons to select the song that you wish to hear.
Press the [EDIT/ENTER] button and the selected demo song will begin playback.
* If you select 01 & 02 Chain, demo songs 1/2 will continue to repeat consecutively.

To stop playback
Press the [DISP/EXIT] button during playback, and playback will stop. You will return to the demo song select page.

Listen to the demo playback, and enjoy the versatile sounds and rich expressiveness of the NS5R.

Playing the NS5R from a MIDI keyboard

Now go ahead and play the NS5R from your MIDI keyboard. The NS5R has two levels of sound data: programs/combinations and multi. Here we explain how to play program/combination sounds.

Multi mode

When the power is turned on, the NS5R will be in multi mode.

The LCD screen will show the sound bank, sound number and sound name for each part.

Sound (program/combination) name
Sound (program/combination) number
Sound bank
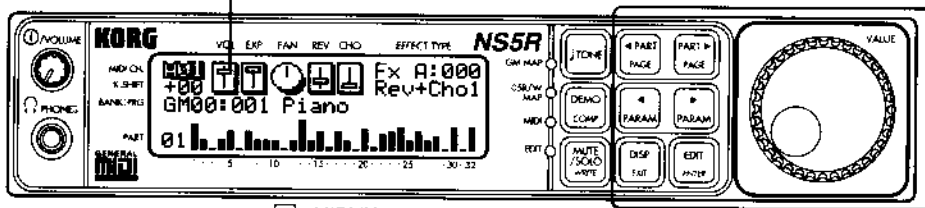
MIDI IN

MIDI OUT

MIDI keyboard

Selecting sounds (1)

The sound for each part can be selected using the VALUE controller.

Use the [PARAM] buttons to select the bank or sound that you wish to change (it will be highlighted)

Rotate the VALUE controller to change the bank or sound number

The NS5R has a total of 1049 Program sounds in the GM-a/b banks, r:bank, y:bank, and Prg (program) A, B, and C banks of its internal ROM. It also has a total of 384 Combination sounds in the Cmb (combination) banks A, B, and C of its internal ROM.

Also, the internal RAM area contains 128 user programs in the PrgU bank, and 128 combination sounds in the CmbU bank.

Select different banks and sound numbers, and play the sounds of the NS5R!

Selecting sounds (2)

To select sounds from a computer/sequencer, transmit a program change message (if you wish to change the bank, transmit a bank select message as well).

Program changes 0—127 will select programs/combinations 001—128.

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If you have problems

If playing a MIDI keyboard does not make the NS5R produce sound, or if you are unable to select programs, check the following points.

If there is no sound

- First check whether you can hear the demo songs. If the demo songs cannot be heard, check that the volume is raised appropriately on your powered monitor / stereo amp system, and that audio cables are connected correctly.
- If you can hear the demo songs, check that you are in Multi mode. Programs cannot be played while you are in DEMO mode.
- Also check MIDI cable connections and the MIDI transmit channel of your MIDI keyboard. The MIDI transmit channel of your MIDI keyboard must be set to the MIDI receive channel of the NS5R part that you wish to play. If it is not possible to change the MIDI transmit channel of the MIDI keyboard that you are using (i.e., if the transmit channel is fixed), specify the MIDI receive channel of the NS5R by setting Multi mode |000| Receive MIDI channel setting and the Global mode [044] Exclusive Channel.

If programs cannot be selected

- If you are unable to select programs from your MIDI keyboard, check the transmission settings on your MIDI keyboard. Some models of MIDI keyboard can be set to disable transmission of program change messages. Also, some types may be unable to transmit bank select messages, or may handle bank select messages differently than the NS5R. Carefully check the transmission functionality of your MIDI keyboard.

About drum kits

Drum kits map different sounds (drum sounds) to each note of the keyboard, instead of playing a pitched sound. This means that a single drum kit can produce a wide variety of drum/percussion sounds. The NS5R has 37 drum kits in ROM and 2 drum kits in RAM. In order to play these, select one of them as a program. (Set the sound bank in Multi mode to yDr1, yD2, rDrm, or kDrm, and then use the VALUE controller; refer to pages 45 and 46). Also, Drum Kit Edit mode allows you to modify the sound and settings for each note of a drum kit (refer to pages 31 and 127).

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1. About modes

Digital instruments such as the NS5R organize their functions into groups known as "modes." The functions of the NS5R can be broadly categorized into the following three groups.

1. Functions that let you select and play sounds
2. Functions affecting connections with external devices and data management
3. Functions that let you modify and create sounds

In order to help you use these functions efficiently, the functions of the NS5R are divided into the following eight modes: Multi mode, Part Edit mode, Global mode, Utility mode, Combination Edit mode, Program Edit mode, Drum Kit edit mode, and Edit Effect mode.

Multi mode

Multi mode is the center for all of the NS5R's functionality. Here you can select from 1177 program sounds, 512 combination sounds, and 31 drum programs, assign these sounds to the 32 parts, play them as a GM tone generator or from a MIDI keyboard, and also make simple modifications to these sounds.

Playing in Multi mode

To play sounds in Multi mode, you must set the MIDI transmit channel of the transmitting device (MIDI keyboard/computer etc.) to the MIDI channel of the NS5R part that you wish to play.

On the NS5R, parts 1—16 are normally assigned channels 1—16 of MIDI port A, and parts 17—32 are assigned channels 1—16 of MIDI port B. (These are the factory settings.)

* *Whether port A or port B is used will be determined by the Part Edit mode [016] MIDI Channel To Port setting.*

* *The factory settings can be recalled by the Utility mode function [053] Preset/Initialize.*

Basic operation for Multi mode

When the NS5R is powered-on, it will be in Multi mode.

In Multi mode you can use the [PART/PAGE] buttons to switch display pages, the [PARAM] buttons to move the cursor (the highlighted area) to select parameters, and the VALUE controller to modify the value.

PART/PAGE buttons   VALUE controller

PARAM buttons
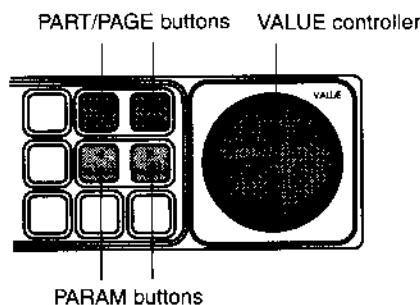
In Multi mode, you can select sounds either from the NS5R's front panel or via MIDI messages from an external device.

Selecting sounds from the NS5R's front panel

- Sound bank: Selects the bank.
- Sound number and name: Selects the program/combination sound.
  Use the [PARAM] buttons to move the cursor to the desired item (highlighted), and rotate the VALUE controller to select a sound.

PARAM buttons   VALUE controller

Sound (program/combination) name
Sound (program/combination) number
Sound bank
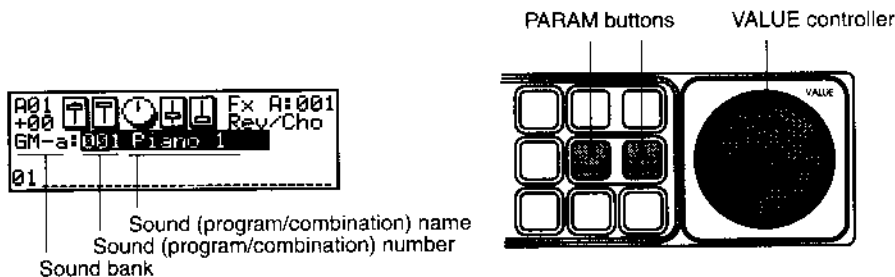
Selecting sounds via MIDI

To select sounds from a MIDI keyboard (external MIDI device), transmit program change messages. When the NS5R receives a program change, it will switch sounds (programs/combinations) within the currently selected bank.

To switch the program bank, transmit control change #0/32 bank select messages. Even when the NS5R receives a bank select message, the program will not change. When a program change message is transmitted following the bank select message, a program will be selected within newly specified bank.

* *In addition to selecting sounds, Multi mode also allows you to make simple adjustments such as volume, pitch, stereo location, and effect depth for each part. For details refer to Advanced Use, "1. Multi mode."*

Up to four sets of Multi mode settings can be stored in the NS5R's memory. Utility mode [055] Multi Setup lets you save or recall these settings.

Initial settings in Multi mode

When the power is turned on, or when a GM Mode On [F0 7E 7F 09 01 F7] message is received, the Multi mode settings will be as follows.

(Settings will differ depending on whether [046] Bank Map Type is set to "Default" or to "05R/W.").

	Default	05R/W
Rx.MIDI Ch.	Parts 01 ... 16=01 ... A16, Parts 17 ... 32=B01 ... B16,	Parts 01 ... 16=01 ... A16, Parts 17 ... 32=B01 ... B16
Program	GM-a:001 Piano 1 (Other than Parts 10 and 26) rDrm:001 STANDARD (Parts 10 and 26)	GM-b:001 Piano 1 (Other than Parts 10 and 26) kDrm:001 GM Kit (Parts 10 and 26)
Effect	A:001 Rev/Cho	A:001 Rev/Cho
Volume	100	100
Expression	127	127
Panpot	CNT	CNT
Key Shift	+00	+00
Rev.Send	40	40
Cho.Send	0	0
Part Mode	NORM (Other than Parts 10 and 26) MDrm1 (Part 10) MDrm3 (Part 26)	NORM (Other than Parts 10 and 26) MDrm1 (Part 10) MDrm3 (Part 26)
MONO/POLY	POLY	POLY
FineTune	+00	+00
Note Window	C-1 ... G 9	C-1 ... G 9
Velocity Window	001 ... 127	001 ... 127
ModWheel P.ModInt	10	10
PitchBend Range	+02	+02
Portamento Switch	OFF	OFF
Portamento Time	0	0

Settings for each Part via MIDI

Program
The program/combination for each part can be specified by Bank Select and Program Change messages.

Volume
The volume level of each track can be specified by Control Change #7 (Volume) messages and by Control Change #11 (Expression) messages.

Panpot
The panning of each track can be modified by Control Change #10 (Panpot) messages.

Send C/D
The Send C/D of each track can be modified by Control Change #91/93 (Effect Depth) messages.

Transpose, Detune, Pitch Bend Range
The transpose, detune, and bend range of each track can be modified using RPN messages. In order to modify these settings, transmit Control Change #100 or #101 RPN messages to specify the parameter that you wish to adjust, and then use Control Change #6 or #38 (Data Entry) messages to specify the value.

Part Edit mode

In this mode you can set parameters (other than Multi mode parameters) for each of the 32 parts of the NS5R. Unlike the "real" sound editing that you perform in Program Edit mode or Combination Edit mode, the modifications to the sound that you perform in this mode are merely adjustments which are applied to the settings of the program or combination sound. This means that the changes you make in this mode do not actually modify the sound data itself.

Basic operation in Part Edit mode

From Multi mode, press the [EDIT/ENTER] button, and the following edit menu will appear.

```
<EDIT MENU>
   ▓PartEdit 📄Global
   📁Utility
```

Use the [PART/PAGE] buttons and the [PARAM] buttons to move the cursor to PartEdit, and press the [EDIT/ENTER] button once.

The parameters of Part Edit mode are divided into the following four groups: Common, EG (envelope generator), filter/window, and others.

```
<PART EDIT>
   📈Common      📉EG
   📊Fc/Win      📄OTHERS
```

Move the cursor and press the [EDIT/ENTER] button once again, and a page will appear in which you can edit the parameters. The following screen is an example of when EG is selected.

```
<PART-EG>
   EG AttackTime = +██ ▶
01 ████████████████████████████
```

In Part Edit mode, use the [PART/PAGE] buttons to switch parts (or in Common, to switch pages), use the [PARAM] buttons to move the cursor (the highlighted area) to select a parameter, and use the VALUE controller to modify the value.
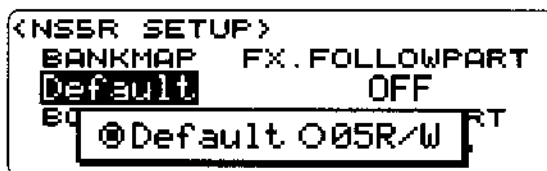
For details on the function of each parameter, refer to Advanced Operation, "2. Part Edit mode."

Global mode

In this mode you can make settings which affect the entire NS5R. Here are settings for the NS5R's display functions, selection of the MIDI messages which are transmitted and received, and settings for protecting the contents of memory.

Basic operation in Global mode.

From Multi mode, press the [EDIT/ENTER] button and an edit menu will appear. In the menu, move the cursor to Global and press the [EDIT/ENTER] button once.

```
<NS5R SETUP>
BANKMAP     FX.FOLLOWPART
Default              OFF
B⎡ ⊙Default ○O5R/W ⎤T
```

In Global mode, use the [PART/PAGE] buttons to switch pages, use the [PARAM] buttons to move the cursor (the highlighted area), and use the VALUE controller to modify the value.

For details on the function of each parameter, refer to Advanced Operation, "3. Global mode."

Utility mode

In this mode you can save various NS5R parameters to an external device or computer, or save/restore Multi mode settings.

Basic operation in Utility mode

From Multi mode, press the [EDIT/ENTER] button and an edit menu will appear. In the menu, move the cursor to Utility and press the [EDIT/ENTER] button once.

```
<UTILITY>
   🖺 Preset   🖾 DumpOut
   🖺 SetupMulti
```

Move the cursor to the desired item and press the [EDIT/ENTER] button once, and the page for the selected setting will appear.

In Utility mode, use the [PART/PAGE] buttons to switch pages, use the [PARAM] buttons to move the cursor (the highlighted area), and use the VALUE controller to modify the value.

For details on the function of each parameter, refer to Advanced Operation, "4. Utility mode."

1

About modes

Combination Edit mode

The NS5R allows you to bring together up to eight program sounds, and use them just as if they were a single program sound. Such a group of programs is referred to as a Combination.

For each part of a Combination sound, you can specify the volume, pan (stereo location), effect send level, the keyboard range and velocity range that will sound, and the effect that MIDI messages will have. This allows you to create extremely complex performances.

In Combination Edit mode you can make settings for combination sounds.

Basic operation in Combination Edit mode

To enter this mode from Multi mode, make sure that a Combination sound is displayed, and press and hold the [EDIT/ENTER] button (approximately 2 seconds).

```
GM00:001 Piano
◄Volume    =    000    ►
01  🔽🔽🔽🔽🔽🔽🔽🔽
```
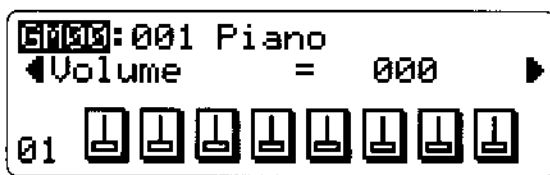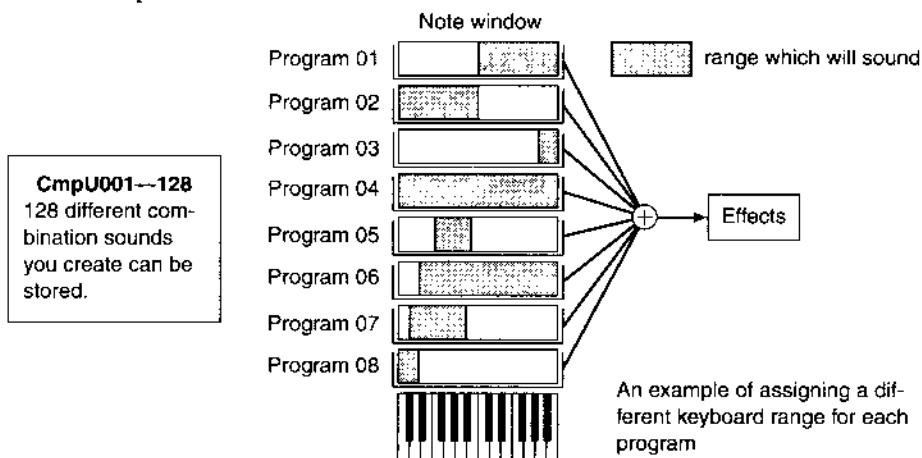
In Combination Edit mode, use the [PART/PAGE] buttons to switch between programs 01 through 08, use the [PARAM] buttons to select a parameter, and use the VALUE controller to modify the value.

For details on the function of each parameter, refer to Advanced Operation "5.Combination Edit mode."

Playing a combination

Since combinations allow you to play up to eight programs, they are especially convenient for live performance.

An example of assigning a different keyboard range for each program

CmpU001~128
128 different combination sounds you create can be stored.

Combination types

Depending on the settings of a combination, programs can be combined in many different ways. For example, you might play different programs in the left and right hand, or make settings so that strongly and softly played notes sounded different programs. This can be a powerful capability for live performance. Here are some examples of the major ways in which combinations can be created.

Layer

Play two or more programs at once. For example you might layer a piano sound with a strings sound.
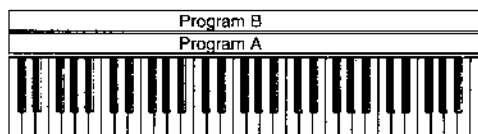
Split

Play different programs in different areas of the keyboard. For example you might play a piano sound in the high range (right hand) and a bass sound in the low range (left hand).

Velocity switch

Play different programs depending on the force with which a note was played (note-on velocity). For example softly played notes might play a strings sound, and strongly played notes might play a brass sound.
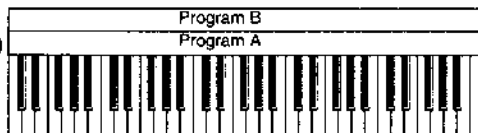
Layer
Program B
Program A
Play multiple programs simultaneously (layered).

Split
Program A | Program B
Play different programs in different areas of the keyboard.

VSw
(Velocity switch)
Program B
Program A
Playing dynamics
Play different programs depending on the force of the note (velocity).

The example combinations shown here contain only two programs. Since the NS5R allows up to 8 different programs to be used, more programs can be used to create highly complex combinations.

* *For each timbre of a combination, an independent MIDI filter is provided for note-on, control change, pitch bend, aftertouch, damper, and portamento MIDI messages.*

Combinations that you create/modify in Combination Edit mode can be written (saved) into Combination bank U (CmbU001—127).

Program Edit mode

Program Edit mode is where you modify program sounds. Programs are organized as follows. In Program Edit mode you can modify these settings to change the sound.
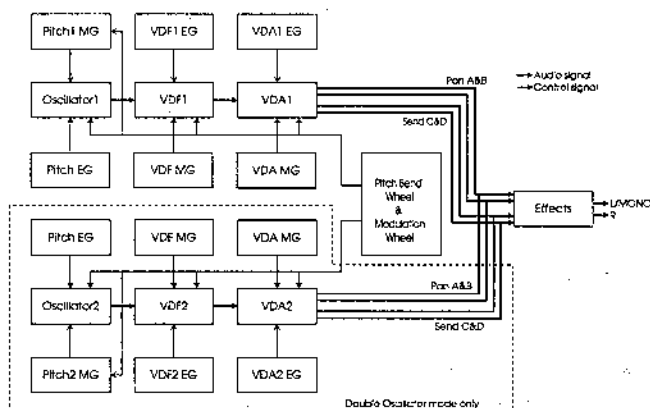
Basic operation in Program Edit mode

To enter this mode from Multi mode, make sure that a Program sound is selected, and then hold down the [EDIT/ENTER] button. In approximately 2 seconds the Program Edit home page will appear.
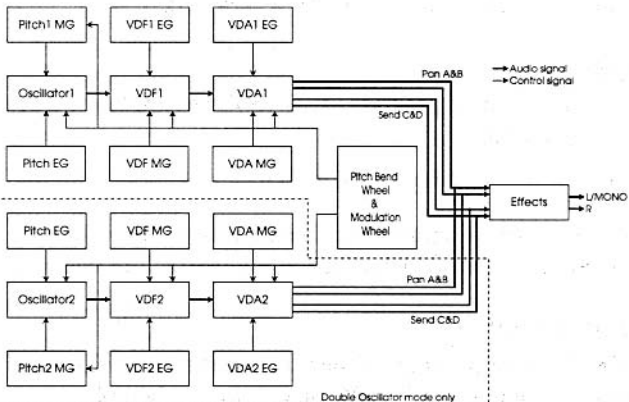

Move the cursor to the desired item and press the [EDIT/ENTER] button, and the editing page for the selected parameter will appear.

In Program Edit mode, use the [PART/PAGE] buttons to move between sections such as OSC, EG, and LFO, use the [PARAM] buttons to select parameters, and use the VALUE controller to modify the value.

For details on the function of each parameter, refer to Advanced Operation "6. Program Edit mode."

Combinations that you create/modify in Program Edit mode can be written (saved) into Program bank U (PrgU001—128).

Pitch1 MG

VDF1 EG

VDA1 EG

Oscillator1

VDF1

VDA1

Pitch EG

VDF MG

VDA MG

Pan A&B

→ Audio signal
⇢ Control signal

Send C&D

Pitch Bend Wheel & Modulation Wheel

Effects

L/MONO

R

Pitch EG

VDF MG

VDA MG

Oscillator2

VDF2

VDA2

Pitch2 MG

VDF2 EG

VDA2 EG

Pan A&B

Send C&D

Double Oscillator mode only

Drum Kit Edit mode

A Drum Kit is a collection of percussion instrument sounds (drum samples) which are assigned to each note number. A sound program which uses a drum kit allows you to play a different drum sound from each note, meaning that you can play drum sounds from your keyboard just as if you were playing a drum set.

Basic operation for Drum Kit Edit mode

To enter this mode, make sure that a drum sound is selected for the oscillator, and from any editing page in Program Edit mode (except for the effect and rename pages) press and hold the [EDIT/ENTER] button (for approximately 2 seconds). A drum sound will be selected for the oscillator if in Multi mode you select a program which uses a drum sound, or if in Program Edit mode you set [074] Oscillator Mode to DRUMS.

```
<DRUMKIT EDIT>
  DrumSample    = 061      ▶
  [C 3 :Tom 1 Hi   ]
  ▁▁▁▁▁▁▁▁▁▁▁▁▁▁▁▁▁▁▁▁▁  1/15
```

In Drum Kit Edit mode, use the [PART/PAGE] buttons to specify a note to which a drum sample is assigned, use the [PARAM] buttons to select a parameter, and use VALUE dial to modify the value of the parameter.

*   If a MIDI keyboard is connected to the NS5R, you can also select a note for editing simply by pressing that note on the keyboard.

For details on the function of each parameter, refer to Advanced Operation "7. Drum Kit Edit mode."

A drum kit that you create/modify in Drum Kit Edit mode can be written (saved) into the drum kit user area (USERKIT) 01 or 02.

31

Effect Edit mode

The NS5R contains two digital effect processors. For each effect (EFFECT 1, 2), you can select one of 47 different Effect Types such as reverb, delay, flanger, distortion, and exciter.

In Effect Edit mode you can change the effect type, and modify the settings.

* *In a combination, the effect settings for each program 01 through 08 are ignored, and the effect settings specified for the combination will be used. Similarly in a Multi, the effect settings for the program of each part will be ignored, and the effect settings specified for that Multi will be used.*

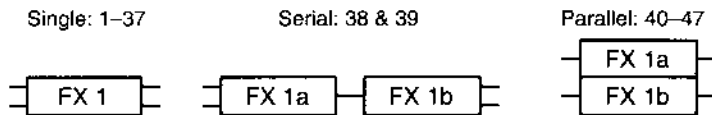## Basic operation for Effect Edit mode

To enter this mode, make sure that either [009] Effect Bank or [010] Effect Program is selected in Multi mode, and press and hold the [EDIT/ENTER] button (approximately 2 seconds).

```
<EDIT EFFECT>
A:000 Rev+Cho    PARA.3
Fx1:01 Hall      SW:ON
Fx2:19 Chorus 1  SW:ON
```

In Effect Edit mode, use the [PART/PAGE] buttons to select pages, the [PARAM] buttons to select parameters, and the VALUE controller to modify the value of the parameter.

The 47 effect types are numbered: 1—37 are single effects, 38—39 are serial-connected effects, and 40—47 are parallel-connected effects. By using a parallel-connected effect, you can simultaneously use up to four independent effects.

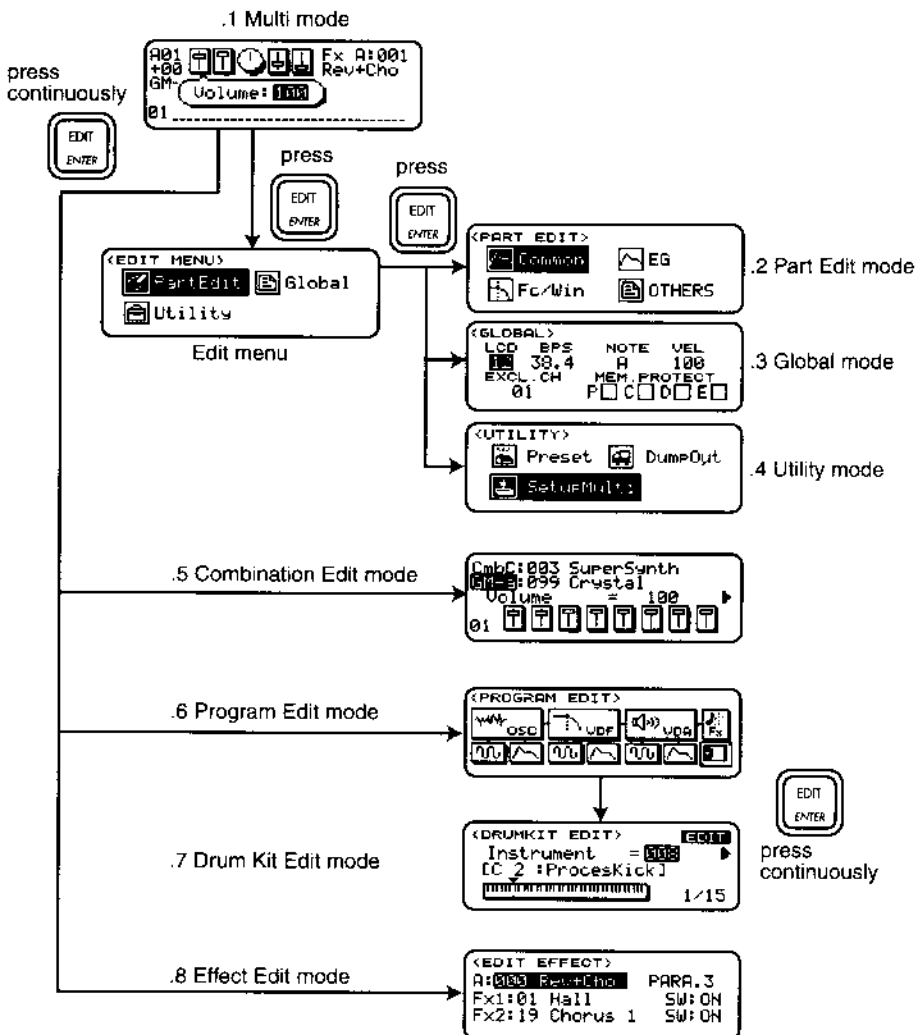Single: 1–37   Serial: 38 & 39   Parallel: 40–47

For details on the function of each effect, refer to Advanced Operation "8. Effect Edit mode."

Effects that you create/modify in Effect Edit mode can be written into effect bank H (H:001—128).

2. How the NS5R is organized

Modes and Pages

Digital musical instruments such as the NS5R organize their numerous functions into groups referred to as "modes." As you have already read, the NS5R has eight modes. The eight modes are related as shown in the following diagram.

.1 Multi mode

press continuously

EDIT
ENTER

A01
+00
GM
Volume: 100
01 -----------------------------

Fx A:001
Rev+Cho

press

EDIT
ENTER

press

EDIT
ENTER

<EDIT MENU>
PartEdit   Global
Utility

Edit menu

<PART EDIT>
Common   EG
Fc/Win   OTHERS

.2 Part Edit mode

<GLOBAL>
LCD   BPS   NOTE   VEL
38.4   A   100
EXCL.CH   MEM.PROTECT
01   P□ C□ D□ E□

.3 Global mode

<UTILITY>
Preset   DumpOut
SetupMulti

.4 Utility mode

.5 Combination Edit mode

CmbC:003 SuperSynth
GM-B:099 Crystal
Volume   =   100   ▶
01

.6 Program Edit mode

<PROGRAM EDIT>
OSC   VDF   VDA   Fx

.7 Drum Kit Edit mode

<DRUMKIT EDIT>   EDIT
Instrument   = 003   ▶
[C 2 :ProcesKick]
                1/15

EDIT
ENTER

press continuously

.8 Effect Edit mode

<EDIT EFFECT>
A:003 Rev+Cho   PARA.3
Fx1:01 Hall   SW:ON
Fx2:19 Chorus 1   SW:ON

2

How the NS5R is organized

Basic Guide

Each mode consists of several "pages." The three modes Part Edit mode, Program Edit mode, and Utility mode have a page containing a menu (referred to as the home page), and from this home page you can select the desired page.

In the page screens of the NS5R, some cursor locations allow you to move to a different mode. For example if you wish to edit effect settings, place the cursor on the effect selection and continue pressing the Edit button.

Parts/Channels/Voices

How Parts and Voices are related

The section in a synthesizer that produces the sound is generally referred to as the oscillator (OSC). On the NS5R, a unit of sound production able to produce one independent sound is referred to as a "voice." The Program sounds of the NS5R are either Single Voice or Double Voice, and these Program sounds can be combined into a Combination to produce a sound that uses up to 16 voices.

Each Part is analogous to a musician in a band. The NS5R has 32 Parts, and therefore is able to emulate a 32-member ensemble. For example, Part 1 might be assigned a piano, Part 2 a bass, Part 3 a trumpet, and so on.

Part	Sound (number of voices)	
1	Piano	(1)
2	Bass	(1)
3	Synth	(2)
4	Guitar	(1)
5	Strings	(2)
Total	**7 voices**	

In this example, five different sounds use seven voices.

In this case you need to be aware that the total number of voices used by all Parts cannot exceed 64. When more than 64 voices are requested of the NS5R, currently-sounding voices will be turned off, beginning with the oldest voice. This means that you must be careful when using Combination sounds which use a large number of voices.

How Parts and MIDI channels are related

A MIDI receive channel can be assigned to each of the 32 Parts of the NS5R. The MIDI channels available on the NS5R are A1—A16 and B1—B16. The MIDI channels of the transmitting device (computer or sequencer) must be set to match the MIDI channels of the receiving device (the NS5R). When the power is turned on, Parts 1—16 are set to A1—A16, and Parts 17—32 are set to B1—B16.

Part no. (sound)	MIDI receive ch.
Part 01 (Piano)	A01
Part 02 (Bass)	A02
Part 03 (Strings)	A01
Part 04 (Brass)	A04

In this case since Parts 1 and 3 are set to the same MIDI receive channel, a single Note message will simultaneously sound both Piano and Strings sounds.

Basic Guide

2

How the NS5R is organized

Program numbers and Bank numbers

The Programs, Combinations, and Drum Kits of the NS5R provide a total of 1177 different sounds (including 256 User sounds). Since the GM numbers 1–128 are insufficient to select the desired sound from this enormous range of possibilities, sounds are selected by a combination of Extension Voice Bank and Program Number.

When selecting a sound from the front panel, move the cursor to the appropriate location and specify the Bank number and Program number directly. (For the available Banks and Programs, refer to the Voice name list included at the end of this manual.)

When selecting a sound from a sequencer or computer via MIDI, you will use three types of MIDI message: Bank Select MSB, Bank Select LSB, and Program Change. For example if you wish to set Part 1 to "GS02" bank (MSB:LSB=02:00) Program number 10, you would transmit the following MIDI messages.

B0, 00, 02, (B0,) 20, 00, C0, 09

⚠️ *MIDI Program Change numbers 0–127 correspond to Program numbers 1–128 of the NS5R. Also, when controlling program changes from an external device via MIDI, you must be sure to transmit Bank Select numbers together with the Program number. Programs of the NS5R will not change when Bank Select numbers are received by themselves.*

3. Editing

What is editing?

Since the NS5R already contains a rich assortment of program sounds and combination sounds, a wide range of musical possibilities are already available to you. However you are free to modify these sounds or even to create completely new sounds. The process of modifying an existing sound or of creating a completely new sound is referred to as "editing."
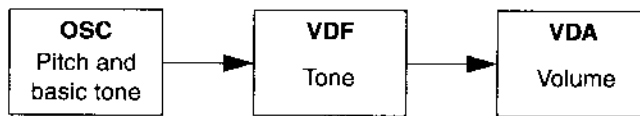
The NS5R is not just a preset tone generator that lets you use only the built-in sounds. It is a full-fledged synthesizer featuring Korg's powerful ai-squared synthesis system, and gives you the freedom to modify sounds or to create completely new ones. In order to bring out the full potential of the NS5R, we encourage you to try your hand at editing.

Editing operations are performed in the corresponding edit mode. For details refer to the Advanced Operation chapter for the relevant mode.

The elements of sound

The NS5R is able to produce an incredible variety of sounds, from instrumental sounds such as piano and guitar, to the sounds of drums and percussion, and even synth sounds and sound effects. In order to modify these sounds or to create new sounds, you must tell the NS5R "how to change the sound." The various aspects of the sound which can be changed are referred to as "parameters." In the NS5R's Program Edit mode and Combination Edit mode, you can edit sounds by modifying the setting or value of these parameters.

In order to edit smoothly and efficiently, it is important that you understand the elements of sound. Sound consists of three elements; pitch, tone, and volume. On the NS5R, the OSC (oscillator), VDF (filter) and VDA (amplifier) which make up a program are what control these elements or aspects of the sound

```
  ┌──────────────┐       ┌──────────────┐       ┌──────────────┐
  │     OSC      │       │     VDF      │       │     VDA      │
  │  Pitch and   │  ──▶  │              │  ──▶  │              │
  │  basic tone  │       │     Tone     │       │    Volume    │
  └──────────────┘       └──────────────┘       └──────────────┘
```

Pitch: OSC (oscillator)
OSC is the section which selects the basic waveform (multisample), and specifies the pitch-related settings. The NS5R contains a huge number of multisamples, and the process of creating a sound begins by selecting of one of these multisamples. Not only instrumental sounds such as piano, but also waveforms unique to synthesizers are also provided.

Tone: VDF (filter)
VDF is the section which adjust the brightness of the sound. The multisample selected in the OSC section contains a wide range of overtones and frequency components. These are what make a sound identifiable as "piano-like" or "guitar-like." By using a type of filter called a low pass filter, the VDF can remove some of the high frequency components to adjust the brightness of the sound. The greater the amount removed by the filter, the darker (softer) the sound will become.

The amount removed by the filter (= brightness) can be made to change over time. For example the sound might be bright in the beginning, and gradually be made darker.
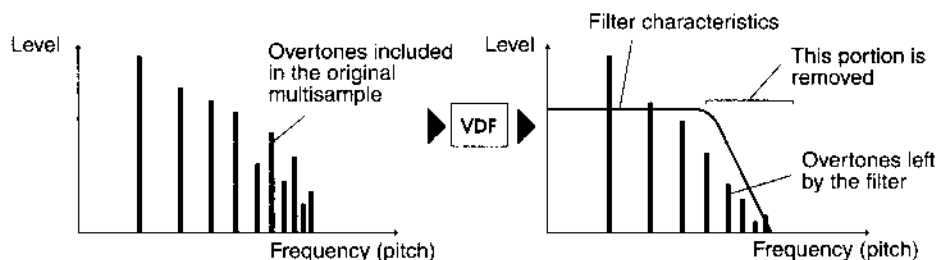
Volume: VDA (amplifier)

VDA is the section that adjusts the volume. The volume referred to here is not the overall volume of the performance, but rather the change in volume that occurs within a single note. For example, a note played on a piano begins loudly, and then gradually decays in volume. On the other hand, a note played on an organ maintains the same volume as long as the key is pressed, and a note played on a violin can change in volume during the note as desired by the performer. This type of volume change is what the VDA creates.
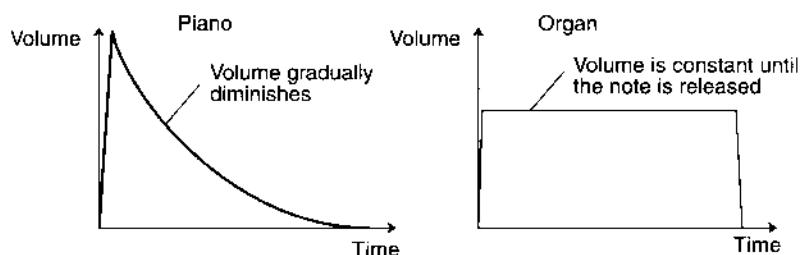
EG and LFO

EG (envelope generator) and LFO (low frequency oscillator) are what enable the OSC, VDF and VDA sections to control the pitch, tone, and volume in ways that change over time.

EG

This is a section that allows various aspects of the sound to be controlled over time. The NS5R provides a Pitch EG, VDF EG, and a VDA EG, respectively allowing pitch, tone, and volume to be controlled over time. For example the volume adjustments performed over time by the VDA discussed in the preceding section are actually specified by the VDA EG.

LFO

This is a section that allows various aspects of the sound to be controlled cyclically. The NS5R provides a Pitch LFO, VDF LFO, and VDA LFO, respectively allowing pitch, tone, and volume to be adjusted cyclically. The Pitch LFO creates cyclic change in pitch = vibrato (pitch). The VDF LFO creates cyclic change in tone = wah (VDF cutoff). The VDA LFO creates cyclic change in volume = tremolo (VDA).

4. Troubleshooting

This section lists various problems you may experience when playing the NS5R from a computer/sequencer or keyboard, and gives the measures that should be taken in each case. If you wish to know about the discussed functions or parameters in more detail, refer to the page references that are given.

Nothing appears in the LCD when the power is turned on

Make sure that the power is connected correctly.

No sound

Make sure that the audio cables or headphones are connected correctly (p.2, 18).

Make sure that the power switch of your powered monitor system or stereo system is turned on, and that the volume is raised.

Make sure that the NS5R's VOLUME is raised (p.v).

Make sure that the power is turned on for any connected MIDI keyboard or computer/sequencer, and that MIDI cables or special cables are connected correctly (p.3—p.5).

When using a special cable for connections: Make sure that the Global mode BPS setting is correct (p.6).

When using a special cable for connections: Make sure that the MIDI driver installation settings match the MIDI port settings (p.7, 11).

Make sure that you are not playing in a keyboard range or velocity range which is silent because of note window or velocity window settings (p.60, 61, 83, 85).

If a program/combination sound is selected: Make sure that the MIDI transmit channel(s) of your computer/sequencer match the MIDI channel of each part (p.44).

The sound does not stop

If the MIDI cable is disconnected or the connection is switched while a note is sounding, the sound will continue (since the note-off message will not be received). If this happens, temporarily switch to a different mode to stop the sound. If a device capable of transmitting Active Sensing messages is connected to the NS5R, notes will stop automatically if the MIDI connection is broken.

Basic Guide

4

Trouble-
shooting

Cannot control via MIDI

Make sure that MIDI cable or special cable connections are correct, and that the transmitting device is set correctly (p.3).

If a combination sound is selected: If control is impossible only for a specific effect, such as pitch bend or aftertouch, it is possible that MIDI filter settings are causing that message to be cut. Check the Combination Edit mode settings. ([066. Receive pitch bend] p86, [067. Receive aftertouch] p86)

Cannot select Programs or Combinations

Programs and Combinations are selected by Program Change messages. Check whether the transmitting device is transmitting these messages.

If a program/combination sound is selected: To select banks, transmit bank select messages (p.35).

The sound or operation is different than when editing

Sounds and effects that you edit in Program Edit mode, Combination Edit mode, Drum Kit Edit mode or Effect Edit mode are not saved unless you perform the Write operation. If you select another program or combination without writing, the sound data that you have been editing will be lost.

When you edit a drum kit, the drum sounds will sound with the settings of the program that is selected in Multi mode. If you use that drum kit with a different program than when you edited it, be aware that the sounds and operation will be different (p.127). Normally, you should first select the program that uses the drum kit that you wish to edit, and then edit the drum kit.

A combination does not contain the program data itself for each part, but contains only the number of the program for each part. If you edit the programs used by a combination, or exchange the locations of the programs, the sound of the combination will be affected.

Cannot write programs or combinations

Check the Global mode Memory Protect setting (p.70). If Memory Protect is ON, data cannot be written.

The wrong drum sounds are played

If transmitting the correct note message for the desired sound causes a different drum sound to play, it is possible that the Transpose setting is set to a value other than 0. Make sure that the Performance Edit mode parameter Master Key Shift is set to +00 (p.52).

When using a computer/sequencer to play the NS5R, make sure that the transpose setting of the transmitting device is set to 0. Sequencers or sequencer programs will not normally transpose MIDI channel 10, but if editing commands have been executed to transpose the data or if you are using a Part other than Part 10 of Multi mode to play the drums, check the settings.

Cannot transmit exclusive messages from the NS5R

If you are unable to transmit exclusive messages from the NS5R (e.g., in order to transmit/save sound data or edit sound data), check the Global mode EXCL.CH setting (p.70).

4

Trouble-shooting

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Parameter Guide

1. Multi mode

In Multi mode you can set parameters for the sound, volume, and panning etc. of each Part of the NS5R. Immediately after the NS5R's power is turned on, it will be in this mode.

Multi mode is also the center for a variety of NS5R operations and functions, and is the starting point from which you can move to various editing modes, or to Global and Utility modes.

The following items can be set in Multi mode.

Button	Parameter	Edit	Refer to
	000 Receive MIDI channel	Set the MIDI channel that each Part will receive	→P.44
	001 Transpose	Set the transposition for each Part	→P.45
	002 Bank select	Select the sound bank for each Part	→P.46
	003 Program number	Select the sound program for each Part	→P.46
	004 Volume	Adjust the volume for each Part	→P.46
	005 Expression	Adjust the depth of Expression for each Part	→P.47
	006 Panpot	Adjust the stereo position for each Part	→P.47
	007 Reverb send level	Adjust the effect depth	→P.48
	008 Chorus send level	Adjust the effect depth	→P.48
	009 Effect bank	Select the effect program bank that will apply to the setup	→P.49
	010 Effect program	Select the effect program that will apply to the setup	→P.49
	[EDIT] (Effect edit mode)		→P.134
	Press (Edit menu)	Move to Part Edit mode	→P.50
		Move to Global mode	→P.67
		Move to Utility mode	→P.75
	Press and hold	Move to Combination Edit mode	→P.79
		Move to Program Edit mode	→P.89
		Move to Drum Kit Edit mode	→P.134

By pressing the [EDIT/ENTER] button from Multi mode, you can move to a variety of modes that allow you to edit parts, programs or combinations. The mode to which you will move will depend on the location of the cursor at that time. Refer to the explanations for each parameter which begin on the following page.

* *Settings in Multi mode will be lost when the power is turned off. When the power is turned on, these settings will be initialized for GM.*

* *If you wish to save the Multi mode settings, you can use Utility mode [055] Setup Multi (refer to p.78) to store up to four types of settings. Also, the NS5R, X5 and X5DR Multi mode settings are compatible, but the NS5R and 05R/W Multi settings are compatible only in their Effect settings.*
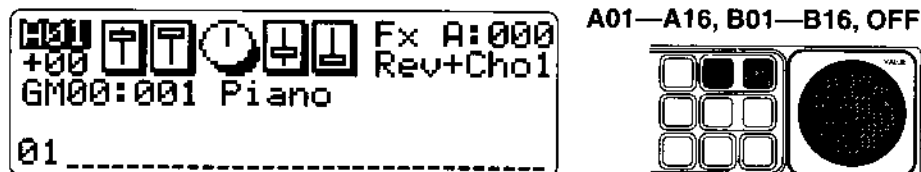
In Multi mode, the LCD will display an indicator which shows the playing status for each of the 32 Parts. When the NS5R is producing sound in response to musical data being received from an external device, the indicator for the corresponding Part will move like a level meter.
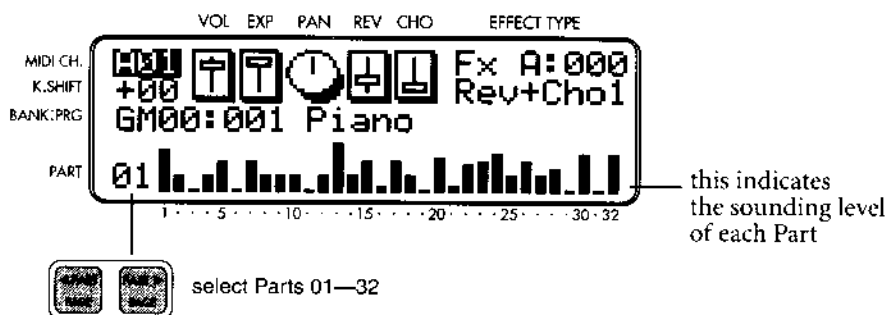
this indicates
the sounding level
of each Part

select Parts 01—32

000. Receive MIDI Channel

↓ 001. Key Shift

Set the MIDI channel that each Part will receive

A01—A16, B01—B16, OFF

If you are using a connected MIDI keyboard to play the NS5R, set the MIDI channel being transmitted by the keyboard to match the MIDI channel of the NS5R Part to which the Program you wish to play is assigned. If you are using a sequencer, set the MIDI channel of each NS5R Part to match the MIDI channel used by each sequencer part.

001. Key Shift

Set the transposition for each Part

-24—0—+24
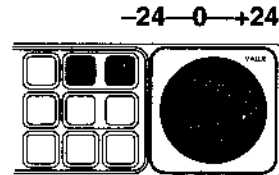
Adjust the pitch of each Part in semitone steps over a range of −24 to +24 (12 steps are one octave).

* *When the power is turned on or when a GM On message is received, this will automatically be set to 00.*
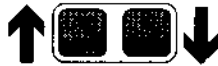
002. Bank Number

Select the sound bank for each Part

GM-a, r:01—r:28, r:CM, y:01—y:65, ySFX, GM-b, PrgU, PrgA—PrgC, CmbU, CmbA—CmbC, yDr1, yDr2, rDrm, kDrm, ****
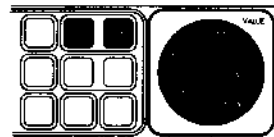
Select the sound program bank for each Part.
Lists of the sound programs contained in each bank can be found in the Program List section at the end of this manual.

* *The program indicated by "****" is a silent program.*

GW If this parameter is set to CmbU, CmbA...CmbC, or yDrm1, pressing and holding the [EDIT/ENTER] button will take you to Combination Edit mode.

003. Program Number

Select the sound program for each Part

001—128
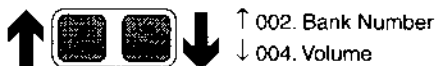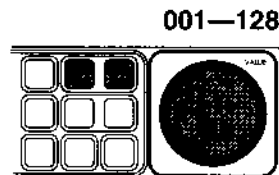
Select the sound program number for each Part.

Lists of the sound programs can be found in the Program List section at the end of this manual.

* *Parts for which the Bank Number specifies a Combination Bank will use the Combination sound of the number you specify here.*

004. Volume

Adjust the volume for each Part

000—127
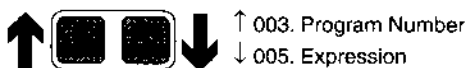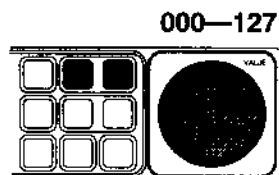
Adjust the volume (MIDI Control Change #07) for each Part.

The volume can also be adjusted by [005] Expression, but to set the overall volume balance of the ensemble you will normally use this Volume parameter.

On the NS5R, parameters which determine the volume of each Part exist separately in each of the three modes Program, Combination, and Multi. The maximum possible value for the Multi mode [004] Volume setting will be the value of the Program Edit mode [078] Oscillator Level. In the case of a Combination sound, the volume will be limited by the [054] Program Volume setting as well.

005. Expression

↑ 004. Volume
↓ 006. Panpot

Adjust the loud/soft dynamics for each Part

```
A01              Fx A:000
+00              Rev+Chol
GM00:
     Express:127
01
```

000—127

Adjust the depth of Expression (MIDI Control Change #11) for each Part.
Like Volume, Expression is a parameter which controls the volume, but the loud/soft
dynamics of an individual instrument are normally created using Expression.

006. Panpot

↑ 005. Expression
↓ 007. Reverb Send Level

Adjust the stereo position for each Part

```
A01              Fx A:000
+00              Rev+Chol
GM00:00
     Panpot:CNT
01
```

RND, L63—CNT—R63
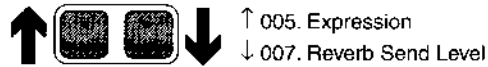
When the sound is output in stereo, this setting determines whether each Part will be
heard from the center (with equal volume from the two outputs L and R) or from one
side (with less volume from either the L or the R output) (MIDI Control Change #10).
With a setting of CNT, the sound of the Part will be heard from the center. As the value is
increased, the sound will move from center toward the left or right. A setting of L63 is far
left, and R63 is far right.
With a setting of RND, the sound of the Part will be heard from a random location each
time a MIDI Note-on message is received. This means that, for example as you play a
MIDI keyboard connected to the NS5R, each note will be heard from a different location,
producing an impression of the sound bouncing here and there.
On the NS5R, parameters which determine the panpot setting exist separately in each of
the three modes Program, Combination, and Multi. The actual pan location at which the
sound is heard is determined by the sum of the settings in these three modes.
For example if for a certain part in Multi mode, [006] Panpot is set to R63 (far right) and
the [144] Oscillator Panpot is set to L63 (far left) in the program selected for that part,
the sound will actually be heard in the location determined as follows:

R63 (far right) + L63 (far left) = (same level for both) = (heard from the center)

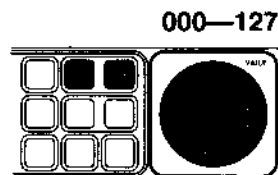Thus, the sound will be heard from the center.
If the sound selected for that part is a combination sound (rather than simply a program
sound), the [055] Program Panpot setting will be added to this equation.
However if even one of these values is set to RND, the sound of that part will be heard
from a random location for each note.

007. Reverb Send Level

↑ ■ ■ ↓ ↑ 006. Panpot
↓ 008. Chorus Send Level
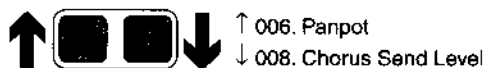
Adjust the Reverb effect depth

```
A01 □□○□□ Fx A:000
+00         Rev+Cho1
GM00:001 P RevSend:040
01 _____
```
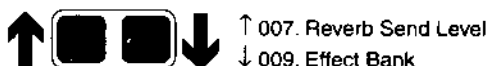
000—127

For each part, adjust the level of the sound that is sent to the reverb effect. As this value is increased, reverb will be applied more strongly to the sound of that part.
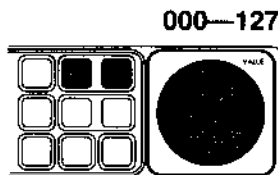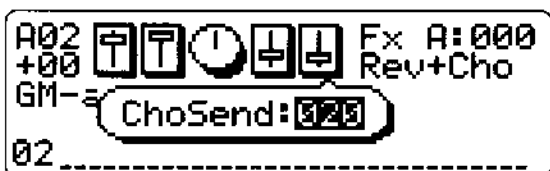
An effect other than reverb can be selected as the effect that is applied here. Also, you can specify the way in which it will be connected to the chorus effect discussed below, and this will affect the function of this parameter. These settings can be saved for each Multi setup. Settings such as this are made in Effect Edit mode. For details refer to the explanation of Effect Edit mode parameters which begins on page 134.

On the NS5R, parameters which determine send levels to the effect processors exist separately in each of the three modes Program, Combination, and Multi. The maximum value of the Multi mode parameters [007] Reverb Send Level and [008] Chorus Send Level will be the values of the Program Edit mode parameters [145] C Send Level and [146] D Send Level. In the case of a combination sound, the send levels will also be limited by the settings of the [058] C Send Level and [059] D Send Level parameters.

008. Chorus Send Level

↑ ■ ■ ↓ ↑ 007. Reverb Send Level
↓ 009. Effect Bank

Adjust the Chorus effect depth

```
A02 □□○□□ Fx A:000
+00         Rev+Cho
GM-  ChoSend:020
02 _____
```

000—127

For each part, adjust the level of the sound that is sent to the chorus effect. As this value is increased, chorus will be applied more strongly to the sound of that part.

An effect other than chorus can be selected as the effect that is applied here. Also, you can specify the way in which it will be connected to the reverb effect discussed above, and this will affect the function of this parameter. These settings can be saved for each Multi setup.

Settings such as this are made in Effect Edit mode. For details refer to the explanation of Effect Edit mode parameters which begins on page 134.
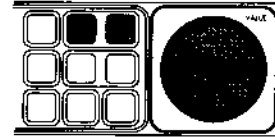
009. Effect Bank

Select the effect program bank that will apply to the setup

```
A02 🔲🔲◯🔲🔲 Fx H:000
+00              Rev+Cho
GM-a:001 Piano 1
02_____
```

A, B, C, D, E, F, G, H

This specifies the effect program bank that will be used for the displayed Multi setup.

GW When this parameter is selected, you can press and hold the [EDIT/ENTER] button to move to Effect Edit mode.

010. Effect Program

Select the effect program that will apply to the setup

```
A01 🔲🔲◯🔲🔲 Fx A:███
+00              Rev+Cho
GM00:001 Piano 1
01_____
```

001—128

This specifies the effect program that will be used for the displayed Multi setup.

GW When this parameter is selected, you can press and hold the [EDIT/ENTER] button to move to Effect Edit mode.

Reference Guide

1

Multi mode

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2. Part Edit mode

In this mode you can make settings for each part which are not covered in Multi mode. To enter this mode from Multi mode, select PartEdit from the edit menu, and press the [EDIT/ENTER] button once.

Unlike the sound editing that you perform in Program Edit mode and Combination Edit mode, the settings you make in Part Edit mode will modify the sound by adding Part Edit values to the sound parameters of the Program or Combination sound. This means that the original sound itself is actually not affected.

Part Edit parameters are organized into four groups: Common, EG (Envelope Generator), Filter/Window, and Others.

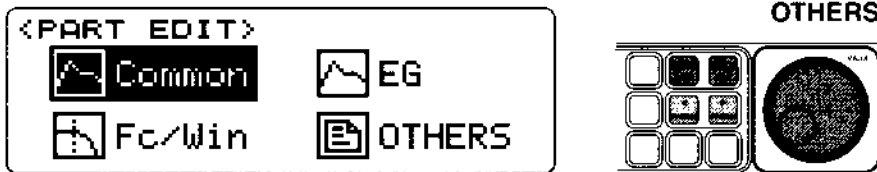| Key	Parameter	Edit	Refer to
	011 (Sub menu)	Common edit	→P.51
		EG edit	→P.55
		Filter/Window edit	→P.60
		Others edit	→P.62
	012 Master Tune	Make fine adjustments to the pitch of the entire setup	→P.52
	013 Master Key Shift	Transpose the pitch of the entire setup	→P.52
	014 Master Volume	Set the volume of the entire setup	→P.53
	015 Master Balance	Set the stereo balance of the entire setup	→P.53
	016 MIDI Channel To Port	Set the output port for each MIDI channel	→P.54
	017 Program Change To Port	Use program changes to select output ports	→P.54
	018 EG Attack Time	Adjust the attack time for the tone/volume of each Part	→P.55
	019 EG Decay Time	Adjust the decay time for the tone/volume of each Part	→P.56
	020 EG Release Time	Adjust the release time for the tone/volume of each Part	→P.56
	021 Pitch EG Start Level	Adjust the pitch at which each Part begins to sound	→P.57
	022 Pitch EG Attack Time	Adjust the attack time for the pitch of each Part	→P.57
	023 Pitch EG Release Time	Adjust the release time for the pitch of each Part	→P.58
	024 Pitch EG Release Level	Adjust the pitch to which each Part returns	→P.58
	025 Cutoff Frequency	Adjust the brightness of each Part	→P.59
	026 Color	Adjust the tonal character of each Part	→P.59
	027 Note Window Bottom	Set the lower note limit for each Part	→P.60
	028 Note Window Top	Set the upper note limit for each Part	→P.60
	029 Velocity Window Top	Set the upper velocity limit for each Part	→P.61
	030 Velocity Window Bottom	Set the lower velocity limit for each Part	→P.61
	031 Part Mode	Set the play mode of each Part	→P.62
	032 Mono/Poly	Set the number of voices for each Part	→P.62
	033 Fine Tune	Make fine adjustments to the pitch of each Part	→P.63
	034 Velocity Sensitivity Depth	Set the sensitivity of each Part to keyboard dynamics	→P.63
	035 Velocity Sensitivity Offset	Specify a value by which velocity data will be offset for each Part	→P.64
	036 Modulation Wheel / Pitch MG Intensity	Set the depth of modulation for each Part	→P.64
	037 Pitch Bend Range	Adjust the pitch bend depth for each Part	→P.65
	038 Portamento Switch	Turn portamento on/off for each Part	→P.65
	039 Portamento Time	Adjust the portamento time for each Part	→P.66

In Part Edit mode as in Multi mode, an indicator showing the edit status of each of the 32 Parts will be shown in the LCD, for all parameters except Common parameters. Use the [PART/PAGE] buttons to select the Part you wish to edit, and then edit its parameters. When you modify the value of a certain parameter, a bar graph-like indicator for the corresponding part will indicate that the setting has been modified.

indicates the setting status of each part

select a Part 01—32

011. Sub menu

↑ 0. Edit menu
↓ (finalize)
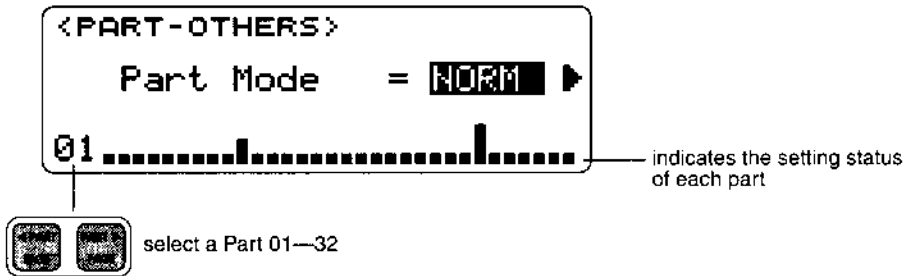
Select the Part Edit parameter group

Common, EG, Fc/Win, OTHERS

The Part Edit parameters are divided into four groups: common (settings common to all parts), EG (envelope generator), filter/window, and others. In this menu screen, select the group of parameters that you wish to edit.

2

Part
Edit
mode

↓ 014. Master Volume
015. Master Balance

012. Master Tune

↓ 013. Master Key
Shift

Make fine adjustments to the pitch of the entire setup

```
<PART-MASTER1>
Master Tune   =+000.0
Master K.Shift=+00
```
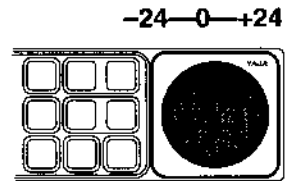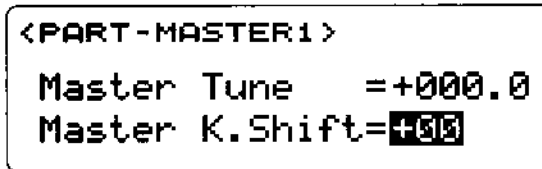
−100.0—+100.0
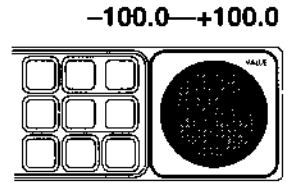
This adjusts the basic pitch (tuning) of the entire NS5R in 0.1 cent steps (1 cent is 1/100th of a semitone), over a range of 100 cents upward or downward.

013. Master Key Shift

↑ 012. Master Tune

Transpose the pitch of the entire setup

```
<PART-MASTER1>
Master Tune   =+000.0
Master K.Shift=+00
```

−24—0—+24

This adjusts the pitch of the entire NS5R in semitone steps. This is a convenient way to transpose the playback.

PART-MASTER 2 ↑ 012. Master Tune
013. Master Key Shift

014. Master Volume

↓ 015. Master Balance

Set the volume of the entire setup

000—127

```
<PART-MASTER2>
Master Volume =127
Master Balance=CNT
```
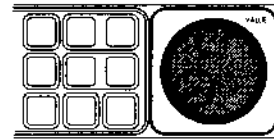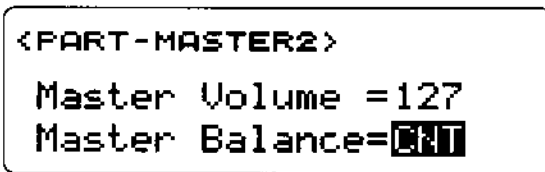
This adjusts the volume of the entire NS5R. This lets you adjust the overall volume while preserving the volume balance between Parts.
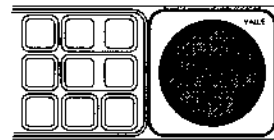
015. Master Balance

↑ 014. Master Volume

Set the stereo balance of the entire setup

L63—CNT—R63

```
<PART-MASTER2>
Master Volume =127
Master Balance=CNT
```

This adjusts the left/right stereo volume balance of the entire NS5R.
With a setting of CNT the volume of the L and R outputs will be equal. The sound will be heard from far left with a setting of L63, and from far right with a setting of R63.

Reference Guide

2

Part
Edit
mode

016. MIDI Channel To Port

Set the output port for each MIDI channel

```
<MIDI TO PORT>
 MIDI Ch.| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
   Port  | A | A | A | A | A | A | A | A |
 MIDI Ch.| 9 |10 |11 |12 |13 |14 |15 |16 |
   Port  | A | A | A | A | A | A | A | A |
```

(ch. select) / A, B, C

For each channel of MIDI messages that is received by the NS5R from an external MIDI device (MIDI keyboard, sequencer, or computer etc.) connected to the NS5R's MIDI IN, these settings determine whether the NS5R itself will sound as the tone generator, or whether an external MIDI tone generator will sound instead.

For example you might assign MIDI channel 01 to the NS5R, channel 02 to the external MIDI tone generator, ... etc., so that the MIDI channels could be divided between two or more MIDI tone generators including the NS5R.

MIDI messages of channels which are set to A or B will be sounded on the NS5R's own tone generator, and MIDI messages of channels which are set to C will be sounded on an external MIDI tone generator.

017. Program Change To Port

Use program changes to select output ports

(program) 001—128 / SET ALL (port:)
A (Int), B (Int), C (Ext), Ignore

```
<PROG TO PORT>
Prg:001 ➧ Ignore
   [Piano        ]
Set All ➧ Ignore
```

The MIDI program change messages received by the NS5R can specify whether the NS5R itself will sound as the tone generator, or whether an external MIDI tone generator connected to the NS5R's MIDI OUT will be sounded.

For example you can specify that Piano (#001) will be sounded by the NS5R and Strings (#049) will be sounded by an external tone generator, in this way using program change messages to switch between several MIDI tone generators including the NS5R.

When a program change message with a program number specified as A (Int) or B (Int) is received, the internal tone generator of the NS5R will sound. When a program change message with a program number specified as C (Ext) is received, the internal tone generator of the NS5R will not sound, and the external tone generator connected to MIDI OUT will sound instead.

Program numbers set to Ignore will not cause program change messages to switch between internal/external tone generators.

By specifying Set All instead of a program number, you can set the same setting (A, B, C, or Ignore) for all program numbers from 001 to 128. This is convenient when you do not need to make individual settings for each of the 128 program numbers.
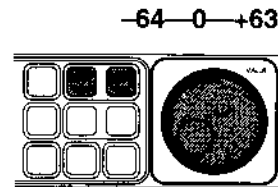
If you select Drum mode, you will be able to choose drum programs, and to select a different drum program for each part.
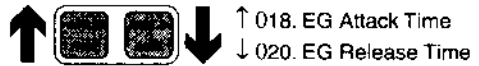
018. EG Attack Time

↓ 019. EG Decay Time

Adjust the attack time for the tone/volume of each Part

```
<PART-EG>

  EG AttackTime  = +00 ▶

01 ▊▊▊▊▊▊▊▊▊▊▊▊▊▊▊▊▊▊▊▊▊▊▊▊
```

−64—0—+63

For each Part, this parameter makes a temporary adjustment to the envelope Attack Time (the time over which the tone or volume rises) that is specified within the Program. When this value is 0, the Attack Time will be as specified by the Program. As this value is increased in the positive (+) direction, the Attack Time will become longer than the original value. As this value is increased in the negative (−) direction, the Attack Time will become shorter than the original value.

Reference Guide

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mode

019. EG Decay Time

↑ 018. EG Attack Time
↓ 020. EG Release Time

Adjust the decay time for the tone/volume of each Part

```
<PART-EG>
◀ EG DecayTime   = +00 ▶
01 |||||||||||||||||||||||||||||||||||||
```
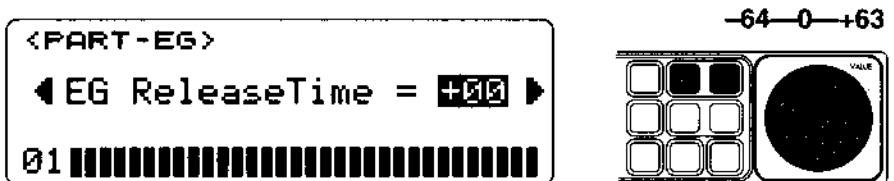
−64—0—+63

For each Part, this parameter makes a temporary adjustment to the envelope Decay Time (the time over which the tone or volume falls) that is specified within the Program. When this value is 0, the Decay Time will be as specified by the Program. As this value is increased in the positive (+) direction, the Decay Time will become longer than the original value. As this value is increased in the negative (−) direction, the Decay Time will become shorter than the original value.
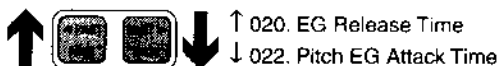
020. EG Release Time
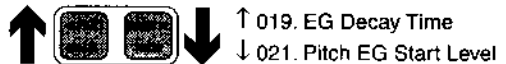
↑ 019. EG Decay Time
↓ 021. Pitch EG Start Level

Adjust the release time for the tone/volume of each Part

```
<PART-EG>
◀ EG ReleaseTime = +00 ▶
01 |||||||||||||||||||||||||||||||||||||
```
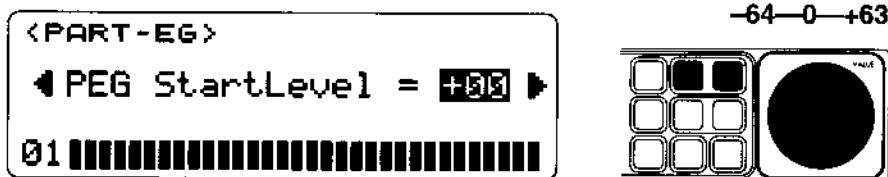
−64—0—+63

For each Part, this parameter makes a temporary adjustment to the envelope Release Time (the time until the tone or volume change is completed) that is specified within the Program.
When this value is 0, the Release Time will be as specified by the Program. As this value is increased in the positive (+) direction, the Release Time will become longer than the original value. As this value is increased in the negative (−) direction, the Release Time will become shorter than the original value.

023. *Pitch EG Release Time*
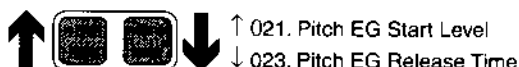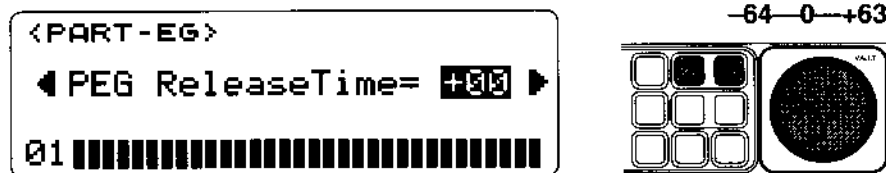
Adjust the release time for the pitch of each Part

```
<PART-EG>
◀ PEG ReleaseTime= +00 ▶
01 ▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌
```

-64—0—+63

For each Part, this parameter makes a temporary adjustment to the pitch envelope Release Time (the time until the pitch change will end) that is specified within the Program.

When this value is 0, the Release Time will be as specified by the Program. As this value is increased in the positive (+) direction, the Release Time will become longer than the original value. As this value is increased in the negative (–) direction, the Release Time will become shorter than the original value.

024. *Pitch EG Release Level*

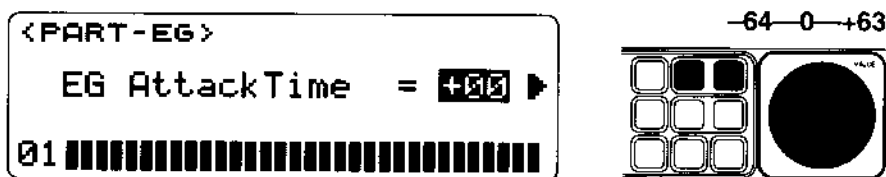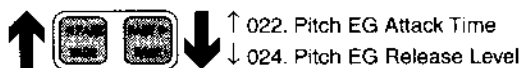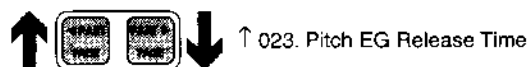### Adjust the pitch to which each Part returns

```
<PART-EG>
◀ PEG ReleaseLvl = +00
01 ▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌
```

-64—0—+63
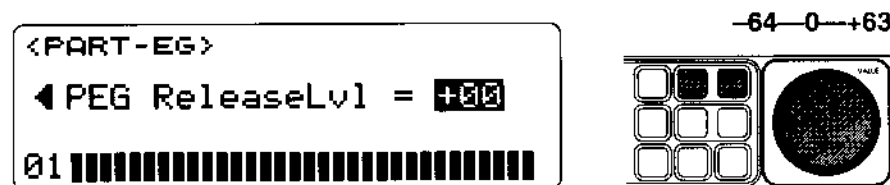
For each Part, this parameter makes a temporary adjustment to the pitch envelope Release Level (the pitch level at which the pitch change ends) that is specified within the Program.

When this value is 0, the Release Level will be as specified by the Program. As this value is increased in the positive (+) direction, the Release Level will become higher than the original value. As this value is increased in the negative (–) direction, the Release Level will become lower than the original value.

025. Cutoff Frequency

↓ 026. Color

Adjust the brightness of each Part

-64—0—+63

```
<PART-FILT/WIN>
  Cutoff Freq    = +00 ▶
01 ▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌
```

For each Part, this parameter makes a temporary adjustment to the filter Cutoff Frequency (brightness) that is specified within the Program.
When this value is 0, the Cutoff Frequency will be as specified by the Program. As this value is increased in the positive (+) direction, the Cutoff Frequency will become higher than the original value. As this value is increased in the negative (–) direction, the Cutoff Frequency will become lower than the original value.

026. Color
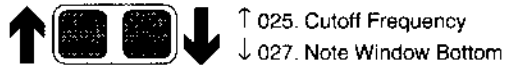
↑ 025. Cutoff Frequency
↓ 027. Note Window Bottom

Adjust the tonal character of each Part

-64—0—+63

```
<PART-FILT/WIN>
◀ Color         = +00 ▶
01 ▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌▌
```
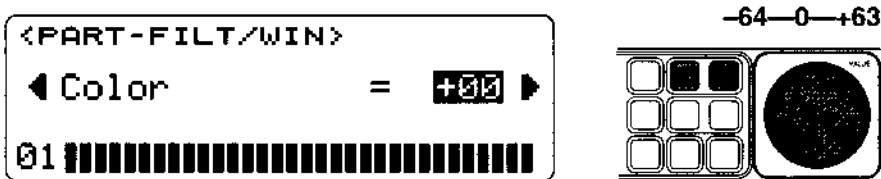
For each Part, this parameter makes a temporary adjustment to the filter Color (tonal character of the sound) that is specified within the Program.
When this value is 0, the Color will be as specified by the Program. As this value is increased in the positive (+) direction, the Color will become stronger than the original value. As this value is increased in the negative (–) direction, the Color will become weaker than the original value.

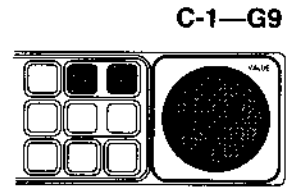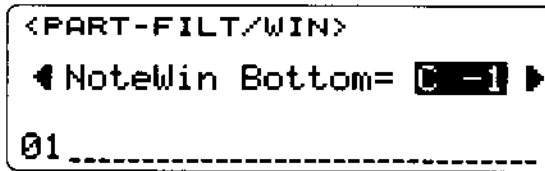* Depending on the program sound which is assigned to the part, changes in the Color parameter may not be noticeable.

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027. Note Window Bottom

↑ 026. Color
↓ 028. Note Window Top

Set the lower note limit for each Part

C-1—G9

```
<PART-FILT/WIN>
◀ NoteWin Bottom= C -1 ▶

01 _____
```
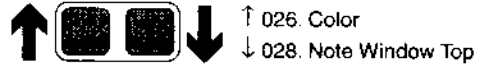
For each Part, this parameter sets the Bottom note of the keyboard area that will be played.

028. Note Window Top

↑ 027. Note Window Bottom
↓ 029. Velocity Window Top

Set the upper note limit for each Part

C-1—G9

```
<PART-FILT/WIN>
◀ NoteWin Top    = G 9 ▶

01 ||||||||||||||||||||||||||||||||||
```
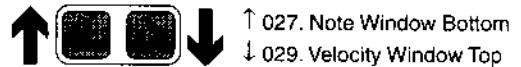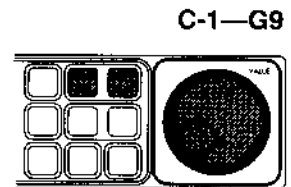
For each Part, this parameter sets the Top note of the keyboard area that will be played.

By setting the Top and Bottom notes of the Note Window, you can cause that Part to play only in the specified area of the keyboard. It will not be sounded by notes of other areas. For example, this allows you to create setups in which the lower half of the keyboard plays a bass Part, and the upper half plays a piano Part.

In the diagram at right, different Note Windows have been set for Parts 1 and 2, and the same Note Window has been set for Parts 3 and 4.

It is not possible to set the Top Note lower than the Bottom Note. If you attempt to set the Top Note lower than the Bottom Note, the Bottom Note will be adjusted to the same value as the Top Note. The opposite also applies.

C2 - B2   C3 - B3   C4 - C7

PART 1   PART2   PARTs 3 and 4
Note Window Note Window   Note Window
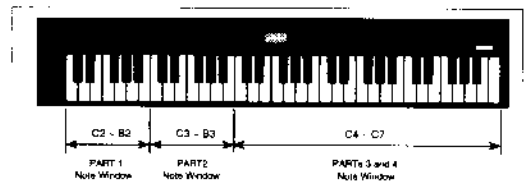
* *When the power is turned on, or when a GM System On message is received, the Top Note of all Parts will be set to G9 and the Bottom Note to C-1.*

60

029. Velocity Window Top ↑▨▨↓

Set the upper velocity limit for each Part

```
<PART-FILT/WIN>
◀ VeloWin Top    = 127 ▶
01 ||||||||||||||||||||||||||||||
```
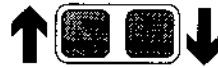
001—127

For each Part, this parameter sets the maximum velocity value for which the Part will sound. (Velocity data is part of a MIDI Note-on message indicating the force with which the note was played.)

030. Velocity Window Bottom ↑▨▨↓

Set the lower velocity limit for each Part

```
<PART-FILT/WIN>
◀ VeloWin Bottom= 001
01 ------------------------------
```
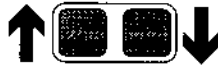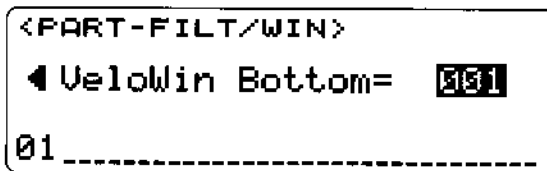
001—127

For each Part, this parameter sets the minimum velocity value for which the Part will sound.

The Velocity Window settings specify the range of velocity values which will sound each Part. By setting the Top and Bottom of the Velocity Window you can cause a Part to play only in response to notes which are played with a certain force.

For example, if you set a low Velocity Window for a "soft strings" Part and a high Velocity Window for a "hard strings" Part, softly played notes will be sounded by the "soft strings" Part, and strongly played notes will be sounded by the "hard strings" Part (Velocity Switch).

Alternatively, you can make settings so that playing dynamics cause additional Parts to be sounded simultaneously in a natural-sounding way (Velocity Layer).

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031. Part Mode ↑ ■ ■ ↓

Set the play mode of each Part

```
<PART-OTHERS>

    Part Mode    = NORM ▶

01 ■■■■■■■■■■■■■■■■■■■■■■■■■
```
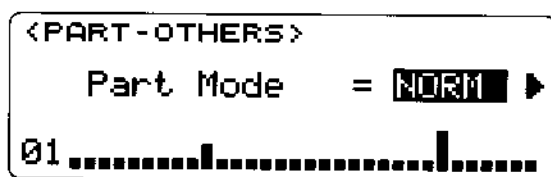
NORM, Drum, MDrum1—4

For each part, specify whether it will function in normal (NORMAL) mode for conventional keyboard playing, or in drum mode where drum sounds will be assigned. If you select Modify Drum (MDrum) mode, MIDI NRPN or system exclusive messages can be used to control the pitch etc. of each drum. In this case, parts for which the identically-numbered Modify Drum (MDrm1–MDrm4) is selected can be controlled simultaneously by the same MIDI messages. In other words, if you control one part, the other parts will also be controlled in the same way.

Modify Drum can also be controlled not only via MIDI messages, but also from the NS5R itself. If you return to the edit menu (p. 26) with Modify Drum mode selected, a drum icon will be added to the menu.

```
<EDIT MENU>
  ☑ PartEdit  📖 Global
  💼 Utility   ☑ Drum
```
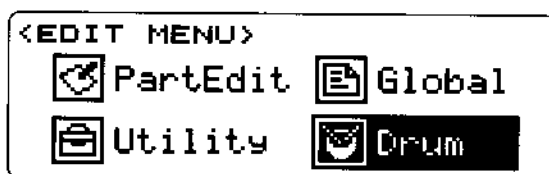
Select this icon and press the [EDIT] button to access the Modify Drum editing screen, and you will be able to make temporary modifications to the drum pitch and volume, effect send levels, and MIDI switches etc.

032. Mono/Poly ↑ ■ ■ ↓

Set the number of voices for each Part

```
<PART-OTHERS>

◀ MONO/POLY     = POLY ▶

01 ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓
```

MONO, POLY

For each Part, specify whether the Program will be played polyphonically (allowing chords to be played) or monophonically (single notes). When POLY is selected, you will be able to play chords of up to the maximum number of simultaneous notes. When MONO is selected, only single notes can be played.

033. Fine Tune

Make fine adjustments to the pitch of each Part

```
<PART-OTHERS>
◀ FineTune      = +00 ▶
01 ████████████████████████████
```

−50—0—+50

For each Part, this parameter provides a fine adjustment to the pitch, in 1 Hz (Hertz) steps.

034. Velocity Sensitivity Depth

Set the sensitivity of each Part to keyboard dynamics

```
<PART-OTHERS>
◀ VelSens Depth = +64 ▶
01 ████████████████████████████
```

001—127
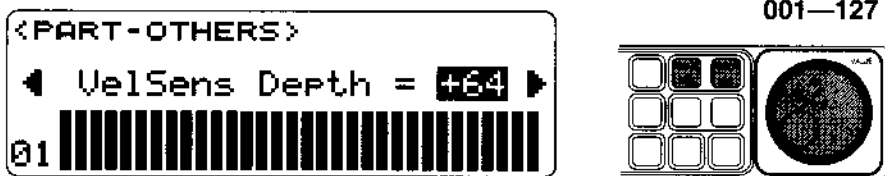
For each Part, this parameter determines how volume will change in response to velocity (MIDI data indicating the force with which a note was played).

Low settings of this value will cause variations in keyboard dynamics to have little effect on the volume. Higher settings of this value will cause volume to change greatly in response to even minor variations in keyboard dynamics.

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035. Velocity Sensitivity Offset ↑ ■ ■ ↓

Specify a value by which velocity data will be offset for each Part

```
<PART-OTHERS>
◀ VelSensOffset = +64 ▶
01 ▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐▐
```

001—127

For each Part, this parameter allows you to add a fixed amount to the velocity values that affect the volume. i.e., the amount that you specify here will be added to (or subtracted from) the velocity data. When you are using several MIDI instruments that vary in their response to velocity data, or when playing back MIDI musical data that was created for several different MIDI instruments, this parameter provides a helpful way to compensate for the unevenness that can occur.

036. Modulation Wheel / Pitch MG Intensity ↑ ■ ■ ↓

Set the depth of modulation for each Part

```
<PART-OTHERS>
◀ MW P.Mod Int = 010 ▶
01 .............................
```

001—127
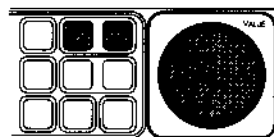
For each Part, this sets the depth of the pitch modulation (vibrato) effect that will occur in response to movements of a modulation wheel on a MIDI keyboard connected to the NS5R, or to MIDI Modulation messages transmitted from a sequencer/computer.
As this value is increased, identical movements of the modulation wheel will produce a deeper pitch modulation effect.

037. Pitch Bend Range

↑ 036. Modulation Wheel /
Pitch MG Intensity
↓ 038. Portamento Switch

Adjust the pitch bend depth for each Part

001—127

```
<PART-OTHERS>
◄  P.Bend Range  = 002 ►
01 ||||||||||||||||||||||||||||||||||
```
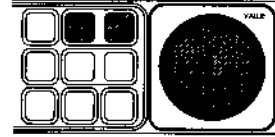
For each Part, this sets the depth of the pitch bend effect that will occur in response to movements of a pitch bend wheel on a MIDI keyboard connected to the NS5R, or to MIDI Pitch Bend messages transmitted from a sequencer/computer.
As this value is increased, identical movements of the pitch bend wheel will produce a deeper pitch bend effect.

* *Depending on the type of multisample used by the selected sound, the pitch may not necessarily rise as far as the value that you specify here.*

038. Portamento Switch
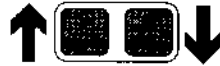
↑ 037. Pitch Bend Range
↓ 039. Portamento Time

2

Part
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mode

Turn portamento on/off for each Part

OFF, ON

```
<PART-OTHERS>
◄  Portament Sw = OFF ►
01 ------------------------------
```
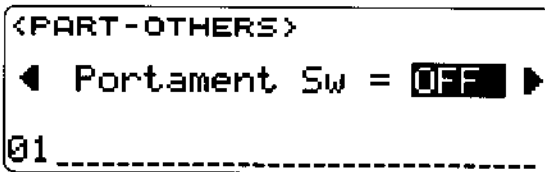
For each Part, this specifies whether the Portamento effect (a smooth change in pitch between two notes) will be enabled or disabled.

* *Portamento Switch settings cannot be made if Drums or MDrm 1—4 are selected in [031] Part Mode. In this case, the parameter will be displayed as "***."*

039. Portamento Time

Adjust the portamento time for each Part

001—127

```
<PART-OTHERS>
◀ Portament Time= 000
01 _____
```
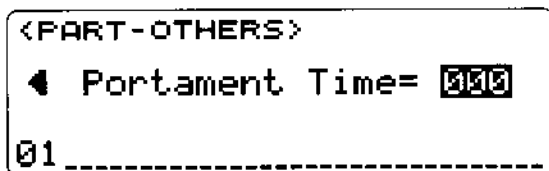
For each Part, this adjusts the time of the Portamento effect (i.e., the time over which the pitch will change from one note to the next).
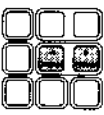
As this value is increased, the Portamento effect will become slower and more pronounced.

* *This parameter setting is valid only for Parts for which the [038] Portamento Switch is ON.*

3. Global mode

In Global mode you can make basic settings that affect the operation and functionality of the entire NS5R. Settings for the LCD display, interfacing with external devices, and memory protect etc. are made in this mode. To enter this mode from Multi mode, choose Global from the edit menu, and press the [EDIT/ENTER] button once.

The following items can be set in this mode.

Key	Parameter	Edit	Refer to
	040 LCD contrast	Adjust the contrast of the LCD screen	→P.68
	041 BPS select	Select the transmission speed of the PC interface	→P.68
	042 Preview note	Specify the pitch of the [TONE] button	→P.69
	043 Preview velocity	Specify the velocity of the [TONE] button	→P.69
	044 Exclusive channel	Specify the transmit/receive channel for exclusive messages	→P.70
	045 Memory protect	Protect/permit writing of data to the user bank	→P.70
	046 Bank map type	Select the arrangement of sounds	→P.71
	047 Effect follow part	Select the part for which the effect will change with the program	→P.71
	048 Boot option	Specify whether a Multi will be loaded at power-on	→P.72
	049 Program port	Specify how MIDI Port Select messages will select ports	→P.72
	050 Rx switch	Control exclusive message reception	→P.74
	051 Rx color	Specify how exclusive messages will switch the LCD color	→P.74

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Global
mode
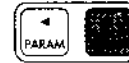
040. LCD contrast

↓ 041. BPS select

Adjust the contrast of the LCD screen

00—31

```
<GLOBAL>
  LCD   BPS     NOTE   VEL
  12   38.4     A      100
  EXCL.CH     MEM.PROTECT
     00      P□ C□ D□ E□
```
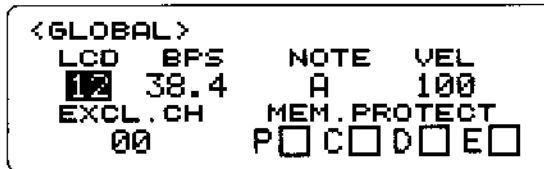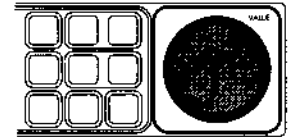
Adjust the contrast of the characters or graphics which appear in the NS5R's LCD. Higher settings are darker, and lower settings are lighter.

041. BPS select
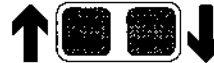
↑ 040. LCD contrast
↓ 042. Preview note

Select the transmission speed of the PC interface

31.25, 38.4
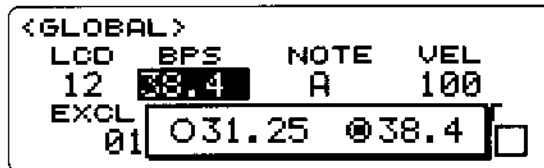
```
<GLOBAL>
  LCD   BPS     NOTE   VEL
  12   38.4     A      100
  EXCL
    01  ○31.25  ◉38.4  □
```

Specify the rate at which data will be transmitted between the NS5R and the computer which is connected to the NS5R's PC interface (the TO HOST connector).

When the NS5R is connected to an Apple Macintosh, select 31.25 (kBPS).

When the IBM PC is connected to an IBM PC (or compatible), select 38.4 (kBPS).

Please also refer to "Computer/sequencer connections" in the "Preparations" section.

042. Preview note

⬆ 🔲 🔲 ⬇ ↑ 041. BPS select
↓ 043. Preview velocity

Specify the pitch of the [TONE] button

```
<GLOBAL>
  LCD   BPS    NOTE   VEL
  12   38.4    G#    100
  EXCL.CH    MEM.PROTECT
    01      P☐ C☐ D☐ E☐
```

**C, C#, D, D#, E, F, F#,
G, G#, A, A#, B**
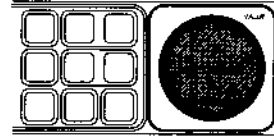
Specify the pitch of the auditioning note that will sound when the [TONE] button is pressed.

043. Preview velocity

⬆ 🔲 🔲 ⬇ ↑ 042. Preview note
↓ 044. Exclusive channel

Specify the velocity of the [TONE] button

```
<GLOBAL>
  LCD   BPS    NOTE   VEL
  12   38.4     A    100
  EXCL.CH    MEM.PROTECT
    01      P☐ C☐ D☐ E☐
```
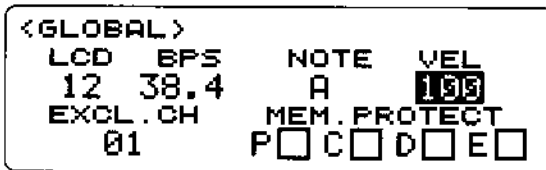
001—127
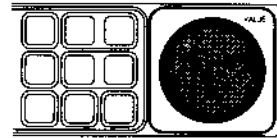
Specify the velocity of the auditioning note that will sound when the [TONE] button is pressed.

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044. Exclusive channel

Specify the transmit/receive channel for exclusive messages

01—16

```
<GLOBAL>
  LCD   BPS     NOTE   VEL
  12   38.4      A     100
  EXCL.CH      MEM.PROTECT
    01         P□ C□ D□ E□
```
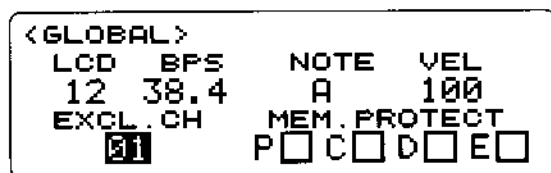
Specify the MIDI channel of the NS5R which will be used when MIDI system exclusive messages are transmitted/received between the NS5R and an external MIDI device connected to the NS5R.

045. Memory protect

Protect/permit writing of data to the user bank

PRG, CMB, DRM, EFF,
OFF, ON

```
<GLOBAL>
    MEM.PROTECT      VEL
  CMB  O OFF ● ON    100
                   ROTECT
    01         P□ ■☑ D□ E□
```

For the Program (PRG), Combination (CMB), Drum Kit (DRM) and Effect (EFF) memories, you can turn memory protect off or on, to specify whether write or save operations which modify the original data will be permitted or prohibited.

When this is ON, it will not be possible to enter the corresponding Edit mode such as Program Edit or Combination Edit even if you press and hold the [EDIT/ENTER] button. This allows you to avoid loss of the original sound or effect settings that would result from accidentally executing a write or save operation.

Of course even if this is ON, you will still be able to temporarily modify the sound in Part Edit mode. Such modifications will not affect the actual settings of the Program, Combination, Drum Kit or Effect itself.

↑ GLOBAL
↓ RX. SWITCH

046. Bank map type

↓ 047. Effect follow part

Select the arrangement of sounds

```
<NSSR SETUP>
 BANKMAP    FX.FOLLOWPART
 Default        OFF
 B ⊚Default ○05R/W  RT
```
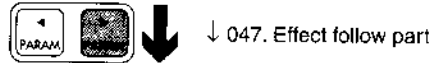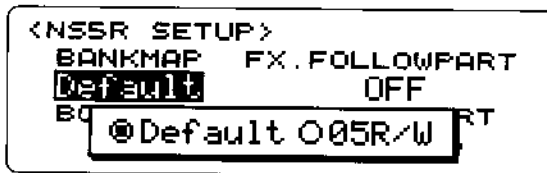
Default, 05R/W

The arrangement of the sound programs in the sound banks of the NS5R can be specified to be the same arrangement as in the Korg 05/RW ai-squared synthesis module. This setting allows musical data that was created for the 05R/W to be used on the NS5R as well.

With a setting of Default, GM-a (GM bank a) will be selected when the power is turned on, or when GM Mode On or bank change [LSB:000, MSB:000] is received.

With a setting of 05R/W, GM-b (GM bank b) will be selected when the power is turned on, or when GM Mode On is received. If at this point, a bank change [000,000] message is received, PrgA (same mapping as 05R/W) will be specified. This allows 05R/W data to be played back on the NS5R.

* *GM-b modifies the arrangement of the GM bank to an arrangement which in particular makes it easier to handle 05R/W data. The normal GM bank arrangement is referred to here as GM-a to differentiate it from this.*

047. Effect follow part

↑ 046. Bank map type
↓ 048. Boot option

Select the part for which the effect will change with the program

```
<NSSR SETUP>
 BANKMAP    FX.FOLLOWPART
 Default         01
 BOOT OPTION   PRG-PORT
 None          Native
```

OFF, 01—32

3

Global mode
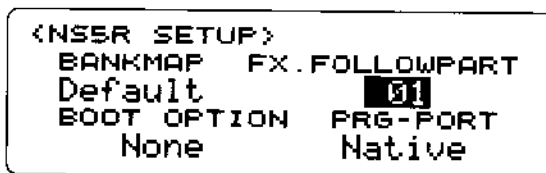
Select the Part for which MIDI Program Change messages will select Effect programs at the same time they select NS5R sound programs.

When a Program Change message is received for the part that you select here, the program number of the Effect will switch at the same time that the sound of that part is switched.

With a setting of OFF, effect programs will not be switched by program change messages.

048. Boot option

Specify whether a Multi will be loaded at power-on

```
<NS5R SETUP>
  BANKMAP   FX.FOLLOWPART
  Default       OFF
  BOOT OPTION   PRG-PORT
  Multi1        Native
```

None, Multi1
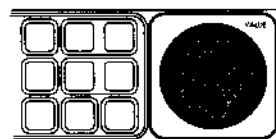
Specify whether previously-saved Multi mode settings will be automatically called up when the NS5R power is turned on, so that they will be ready for immediate use.

If you specify None, powering-on the NS5R will cause it to be initialized in the same way that it is when a GM Mode On message is received. This is the normal setting.

When the power is turned on, Multi Setup 1 will be selected. This is convenient when you wish to be able to immediately start playing with a previously-determined setup.

049. Program port

Specify how MIDI Port Select messages will select ports

```
<NS5R SETUP>
  BANKMAP   FX.FOLLOWPART
  Default       OFF
  BOOT OPTION   PRG-PORT
  None          Emulate
```

Native, Emulate

This setting specifies whether or not MIDI Port Select messages can be used to choose between the NS5R's two MIDI ports A and B.

With a setting of Native, after the NS5R receives a MIDI message of (F5, 00), the musical data of each channel will be played on the port specified by the [16] MIDI Channel To Port setting.

With a setting of Emulate, after the NS5R receives a MIDI message of (F5, 00), the musical data will be transmitted to port A and to MIDI OUT. This will operate in the same way as previous tone generator modules which are not able to use ports to expand the number of channels (Korg X5DR, 05R/W etc.). When musical data that was created for these previous models is to be played back on the NS5R, set this parameter to Emulate.

(Refer to the diagram on the following page.)

MIDI

PC/IF

OUT   IN

OUT   IN

Local
OFF

F5,00

F5,02

F5,03

F5,01

Ch. Select Port

EXCL Thru
(PC/IF only)

A

B

Native

C(DB)

Local
OFF

F5,00
F5,02

F5,03

F5,00
F5,01

A

B

Emulate

C(DB)
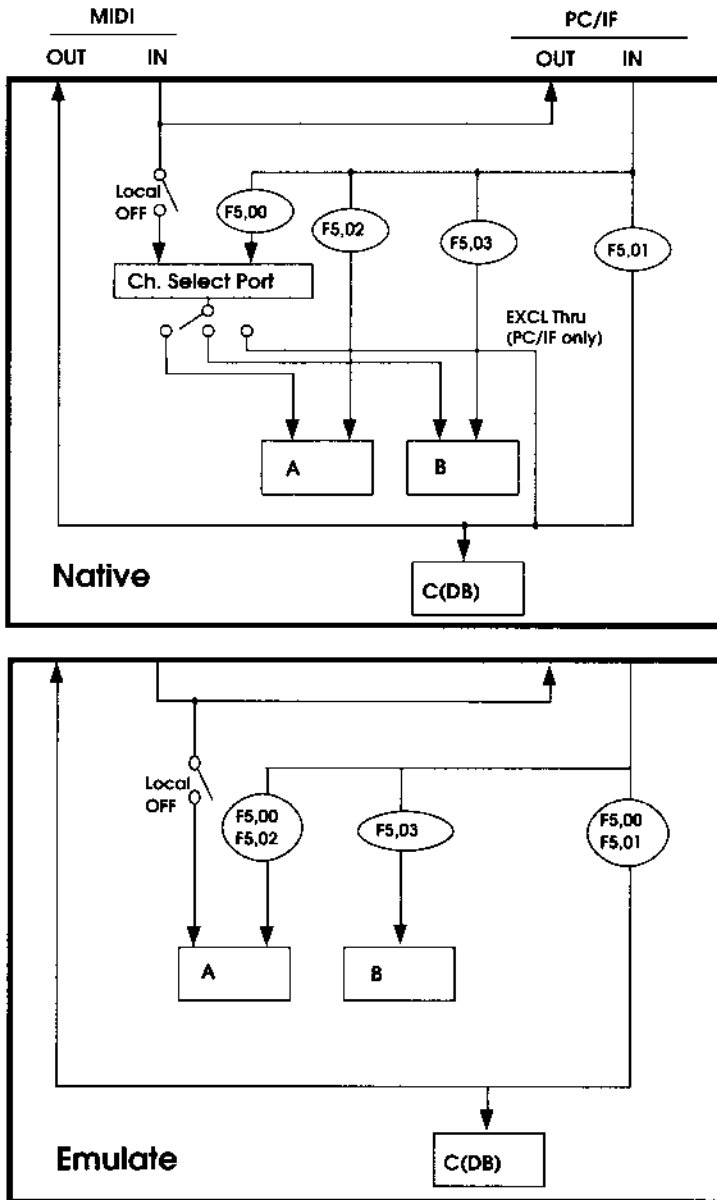
Regardless of whether Native or Emulate is selected, when a MIDI message of (F5, 02) is received, the musical data will be transmitted only to port A, and if (F5, 03) is received the musical data will be transmitted only to port B.

When the MIDI message (F5, 01) is received, the musical data will be transmitted only to MIDI OUT. I.e., the tone generator of the NS5R itself will not sound in this case.

* *When "Native" is selected, the System Common messages (system exclusive messages etc.) within the musical data from an external device received at the MIDI IN connector will not be output from C (DB... expansion tone generator board) or from MIDI OUT. In order for system exclusive messages to be correctly transmitted to a device connected to C or the MIDI OUT connector, the TO HOST connector (PC/IF) must be used, not the MIDI IN connector.*

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050. Rx switch

Control exclusive message reception

**GMOn, GSOn, XGOn,
ON, OFF**

```
<RX.SWITCH>
   Rx.SW:  GMOn   GSOn   XGOn
           ON     ON     ON
   COLOR:  GM     GS     XG
           GRN    ORG    GRN
```
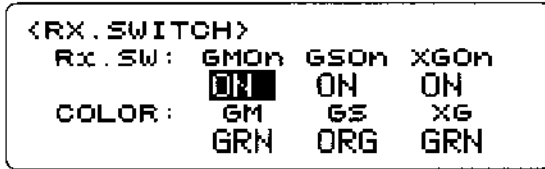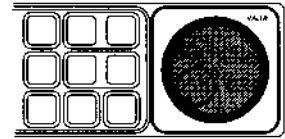
You can specify whether reset messages for the GM, GS, and XG formats will be received or ignored, for each type of message.

When GMOn is ON, the NS5R will receive GM Mode ON messages. When this is OFF, these messages will not be received.

When GSOn is ON, the NS5R will receive GS Reset messages. When this is OFF, these messages will not be received.

When XGOn is ON, the NS5R will receive XG System ON messages. When this is OFF, these messages will not be received.

051. Rx color

Specify how exclusive messages will switch the LCD color

GM, GS, XG, GRN, ORG

```
<RX.SWITCH>
   Rx.SW:  GMOn   GSOn   XGOn
           ON     ON     ON
   COLOR:  GM     GS     XG
           ORG    ORG    GRN
```
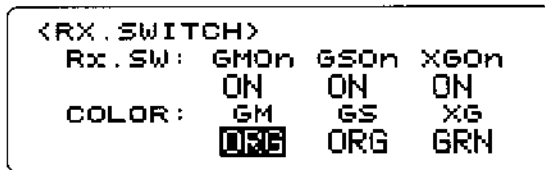
You can specify the backlight color that will be selected by each type of message when a GM, GS, or XG reset message (GM Mode ON, GS Reset, XG System ON) is received.

When an exclusive message for which GRN was specified is received, the LCD backlight will light yellow-green.

When an exclusive message for which ORG was specified is received, the LCD backlight will light orange (amber).

4. Utility mode

In Utility mode you can save various NS5R parameters to an external device or computer, or save/load Multi mode settings. To enter this mode from Multi mode, choose Utility from the edit menu, and press the [EDIT/ENTER] button.

The following items can be set in this mode.

Button	Parameter	Edit	Refer to
	052 (sub menu)	Select the type of Utility operation	→P.75
	053 Preset/Initialize	Initialize internal settings of the NS5R	→P.76
	054 MIDI data dump	Transmit NS5R parameters to an external device	→P.77
	055 Multi setup	Save/load Multi mode settings	→P.78

052. Sub menu

↑ 0.Edit menu
↓ (finalize)

Select the type of Utility operation

Preset, DumpOut, SetupMulti

```
<UTILITY>
  [icon] Preset  [icon] DumpOut
  [icon] SetupMulti
```
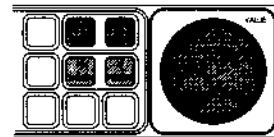
In Utility mode you can execute three operations: Preset (initialize NS5R settings), Dump Out (transmit NS5R parameters to an external device), or Setup Multi (save/load Multi mode settings). In this menu page, select the operation that you wish to execute.

053. Preset/Initialize

Initialize internal settings of the NS5R
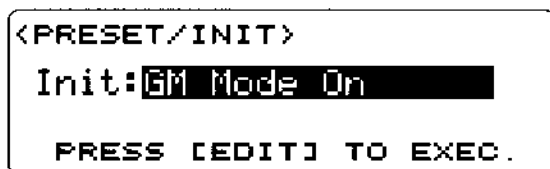
GM Mode On, NS5R Reset(R), NS5R Reset(Y), Factory Preset

```
<PRESET/INIT>

Init:GM Mode On

 PRESS [EDIT] TO EXEC.
```
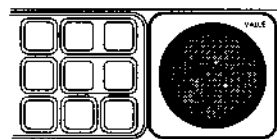
This operation initializes all internal data of the NS5R for GM mode, GS mode, or XG mode.

* *To initialize the data, select the desired mode and then press the [EDIT] button. You will be asked "Are You Sure?" (i.e., "Are you sure you want to execute?").*

  Use the [PARAM] buttons to select either YES (execute initialization) or CNCL (cancel execution), and press the [EDIT] button once again to execute initialization and return to the previous display (or return without executing).

  Approximately one second is required for initialization to be completed. While initialization is being executed, the display will indicate "Executing..."

If GM Mode On is selected, a GM Mode On message will be transmitted. The sound parameters and effect programs within the NS5R will be given settings appropriate for playing GM format data, and the NS5R will function as a GM tone generator.

When NS5R Reset (R) is selected, a GS Reset message will be transmitted. The parameters and effect programs of the NS5R will be initialized to the same state as when a GS Reset message is received.

When NS5R Reset (Y) is selected, a XG System On message will be transmitted. The parameters and effect programs of the NS5R will be initialized to the same state as when an XG System On message is received.

If you select Factory Preset, the parameters and effect programs of the NS5R will be initialized to the factory settings.

054. MIDI data dump
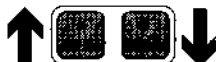
↑ 052. Sub menu
↓ (finalize)

Transmit NS5R parameters to an external device

**ALL Prog, ALL Combi, ALL Multi,
ALL Drumkit, ALL Effect**

```
<MIDI DUMP>
 Item:ALL Prog
 to :PC I/F
 PRESS [EDIT] TO EXEC.
```
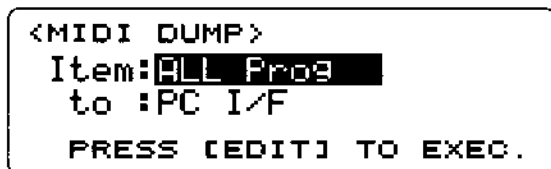
This operation lets you transmit sound parameters or effect programs from the NS5R to an external device such as a MIDI data filer connected to the NS5R.

* *A data filer is a device which receives exclusive data from other devices, and stores this data as a file on a storage medium such as floppy disk. This allows you to store a larger amount of data than can be accommodated in the memory of the NS5R itself, and is also a convenient way to make a backup copy of the programs inside the NS5R.*

  Data filers are sold as independent devices with a built-in disk drive, but their functionality may also be provided by some synthesizers which have a disk drive, or by personal computer software. For details on using a data filer, refer to the owner's manual for your data filer.

If ALL Prog is selected, all User's Program data of the NS5R will be transmitted as exclusive data.

If ALL Combi is selected, all User's Combination data of the NS5R will be transmitted.

If ALL Multi is selected, four Multi Setup data of the NS5R will be transmitted.

If ALL Drumkit is selected, two Drum Kit Program data of the NS5R will be transmitted.

If ALL Effect is selected, all Effect Program data of the NS5R will be transmitted.

* *To execute a data dump, select the desired type of parameter, and press the [EDIT] button. The display will ask "Are You Sure?" (Are you sure that you want to execute?).*

  Use the [PARAM] buttons to select either YES (execute the data dump) or CNCL (cancel the data dump), and press the [EDIT] button once again to execute the data dump and return to the previous display (or return without executing).

  Several seconds will be required for the data dump to be completed. While the data dump is being executed, the display will indicate "Executing..."

```
<MIDI DUMP>
  Item:ALL Prog
  to :PC I/F
  PRESS [EDIT] TO EXEC.
```
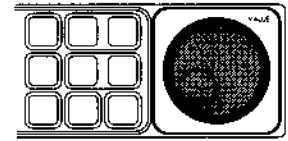
PC I/F, MIDI OUT

If PC I/F is selected, the exclusive data will be transmitted from the TO HOST connector of the NS5R.

If MIDI OUT is selected, the exclusive data will be transmitted from the MIDI OUT connector of the NS5R.

For details on exclusive data, refer to the MIDI implementation at the end of this manual.

055. Multi setup
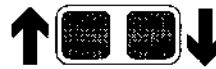
↑ 052. Sub menu
↓ (finalize)

Saving/loading Multi mode settings

```
<MULTI SETUP>
  [1] [2] [3] [4]
  [    ]      LOAD SAVE
```

1, 2, 3, 4, LOAD, SAVE
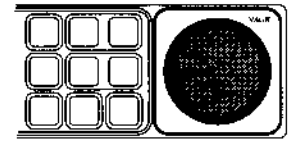
You can save four different sets of the settings modified or adjusted in Multi mode, such as sound banks, programs, and parameters, which can be loaded later when desired.

The four sets that can be saved are numbered from 1 to 4. Use the VALUE controller to select the number of the set that you wish to load or save, and use the [PARAM] buttons to select either SAVE (store the current settings) or LOAD (recall the previously saved settings).

* To load or save the settings, select the desired set, and press the [EDIT] button. The display will ask "Are You Sure?" (Are you sure that you want to execute?).

  Use the [PARAM] buttons to select either YES (execute load/save) or CNCL (cancel load/save), and press the [EDIT] button once again to execute load or save and return to the previous display (or return without executing).

  Several seconds will be required for the load/save operation to be completed. While the operation is being executed, the display will indicate "Executing..."

5. Combination Edit mode

The NS5R allows you to bring together up to eight different program sounds, and use these just as if they were a single program sound. Such a collection of programs is called a Combination.

Since a Combination allows settings to be made independently for each program to specify its volume, pan (stereo position), effect send level, the range of keys and velocities which will be sounded by the program, and how the program will be controlled via MIDI messages, you can create extremely complex musical textures.

Combination Edit mode is where you can make settings such as those listed above for the Combination. To enter this mode from Multi mode, press and hold the |EDIT/ENTER| button for approximately 2 seconds when a Combination sound is displayed.

Key	Parameter	Edit	Refer to
	052 Bank select	Select the bank for each program in the combination	→P.80
	053 Program select	Select the programs for the combination	→P.80
	054 Program volume	Specify the volume of each program	→P.80
	055 Program panpot	Specify the stereo position of each program	→P.81
	056 Program transpose	Adjust the pitch of each program in semitones	→P.81
	057 Program tune	Make fine adjustments to the pitch of each program	→P.82
	058 C send level	Specify the effect send level for each program	→P.82
	059 D send level	Specify the effect send level for each program	→P.83
	060 Note window bottom	Specify the lower note limit of each part	→P.83
	061 Note window top	Specify the upper note limit of each part	→P.84
	062 Velocity window bottom	Specify the lowest velocity that will play each part	→P.84
	063 Velocity window top	Specify the highest velocity that will play each part	→P.85
	064 Receive note on	Allow each program to receive note-on messages	→P.85
	065 Receive control change	Allow each program to receive control change messages	→P.86
	066 Receive pitch bend	Allow each program to receive pitch bend messages	→P.86
	067 Receive aftertouch	Allow each program to receive aftertouch messages	→P.86
	068 Receive damper	Allow each program to receive damper pedal messages	→P.87
	069 Receive portamento	Allow each program to receive portamento messages	→P.87
	070 Effect bank	Select the bank of the effect that you wish to use	→P.87
	071 Effect program	Specify the number of the effect that you wish to use	→P.88
	072 Combination rename	Assign a name to the combination and save it	→P.88

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Combination Edit mode

In Combination Edit mode, use the [PART/PAGE] buttons to step through the eight programs 01 through 08 which make up the combination. When you use the [PARAM] buttons to select a parameter and make settings, the settings will apply to the selected program within the combination.

The display will indicate the selected program 01—08 as follows.

052. Bank select

↓ 053. Program select

Select the bank for each program in the combination

GM-a, r:01—28, r:CM, y:01—65, ySFX,
GM-b, PrgU, PrgA, PrgB, PrgC,
yDr2, rDrm, kDrm

```
CmbC:003 SuperSynth
GM-a:099 Crystal
  Volume    =    100      ▶
01 ⊓ ⊓ ⊓ ⊓ ⊓ ⊓ ⊓ ⊓
```
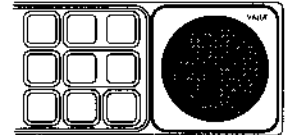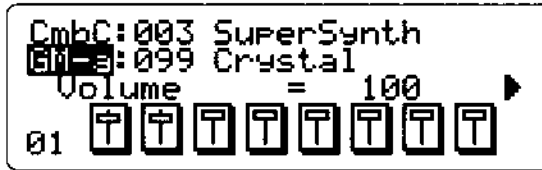
Select the bank of the program in the combination.

053. Program select

↑ 052. Bank select
↓ 054. Program volume

Select the programs for the combination

001—128

```
CmbC:003 SuperSynth
GM-a:099 Crystal
  Volume    =    100      ▶
01 ⊓ ⊓ ⊓ ⊓ ⊓ ⊓ ⊓ ⊓
```
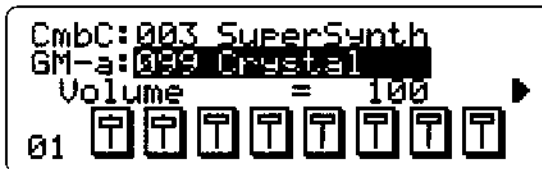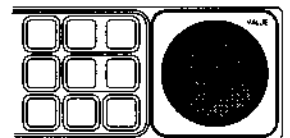
Select the number of the program in the combination.

054. Program volume

↑ 053. Program select
↓ 055. Program panpot

Specify the volume of each program

001—127

```
CmbC:003 SuperSynth
GM-a:099 Crystal
  Volume    =    100      ▶
01 ⊓ ⊓ ⊓ ⊓ ⊓ ⊓ ⊓ ⊓
```
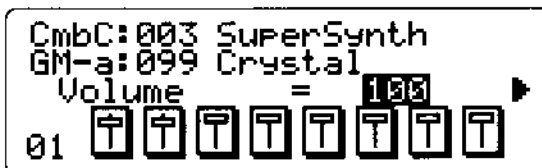
Specify the volume of each program.

On the NS5R, parameters which determine the volume of each Part exist separately in each of the three modes Program, Combination, and Multi. The maximum possible value for the Multi mode [004] Volume setting will be the value of the Program Edit mode [078] Oscillator Level. In the case of a Combination sound, the volume will be limited by the [054] Program Volume setting as well.

055. Program panpot

↑ 054. Program volume
↓ 056. Program transpose

Specify the stereo position of each program

R63—R01, CNT, L01—L63, RND
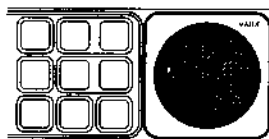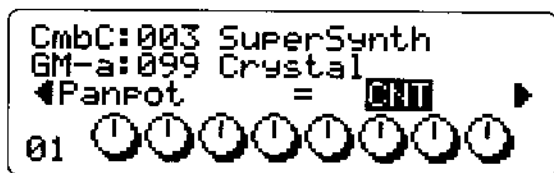
Specify the left/right volume balance of each program when stereo output is used.

With a setting of CNT, the L and R outputs will be the same volume. A setting of L63 places the sound at far left, and R63 at far right.

With a setting of RND, the sound of the program will be heard from a different location each time a MIDI note-on message is received. Each note will be located at a different stereo position, as if the sound were jumping randomly here and there.

On the NS5R, parameters which determine the panpot setting exist separately in each of the three modes Program, Combination, and Multi. The actual pan location at which the sound is heard is determined by the sum of the settings in these three modes.

For example if for a certain part in Multi mode, [006] Panpot is set to R63 (far right) and the [144] Oscillator Panpot is set to L63 (far left) in the program selected for that part, the sound will actually be heard in the location determined as follows:

R63 (far right) + L63 (far left) = (same level for both) = (heard from the center)

Thus, the sound will be heard from the center.

If the sound selected for that part is a combination sound (rather than simply a program sound), the [055] Program Panpot setting will be added to this equation.

However if even one of these values is set to RND, the sound of that part will be heard from a random location for each note.

056. Program transpose
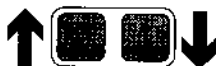
↑ 055. Program panpot
↓ 057. Program tune

Adjust the pitch of each program in semitones

–24—+00—+24
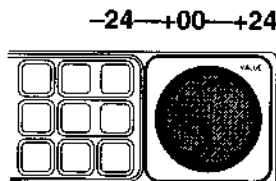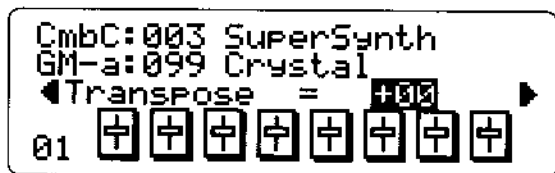
Adjust the pitch of each program in semitone steps.

057. Program tune

↑ 056. Program transpose
↓ 058. C send level

Make fine adjustments to the pitch of each program

-50—000—+50

```
CmbC:003 SuperSynth
GM-a:099 Crystal
◀FineTune    = +05   ▶
01
```
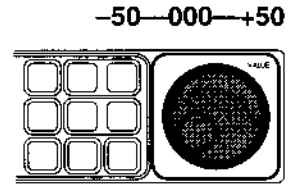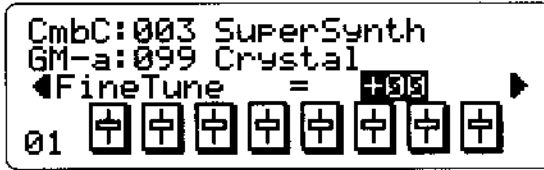
Make fine adjustments to the pitch of each program.

058. C send level

↑ 057. Program tune
↓ 059. D send level

Specify the effect send level for each program
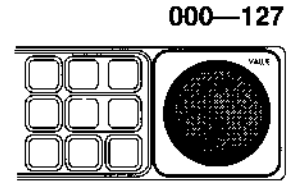
000—127

```
CmbB:001 SolarFlare
PrgB:031 Sputnik
◀C SendLevel=  000   ▶
01
```

Specify the level of the sound that will be sent from each program to the two internal effect processors of the NS5R. As this setting is increased, the effect will be applied more strongly to the sound of that part.

* *The way in which the sound is sent to the two effect processors, and the way in which the C Send Level parameter will affect the level will depend significantly on the Effect Placement parameter. → page 135, "Effect Placement"*

On the NS5R, parameters which determine send levels to the effect processors exist separately in each of the three modes Program, Combination, and Multi. The maximum value of the Multi mode parameters [007] Reverb Send Level and [008] Chorus Send Level will be the values of the Program Edit mode parameters [145] C Send Level and [146] D Send Level. In the case of a combination sound, the send levels will also be limited by the settings of the [058] C Send Level and [059] D Send Level parameters.

059. D send level
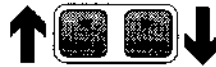
Specify the effect send level for each program

```
CmbB:001 SolarFlare
PrgB:031 Sputnik
◀D SendLevel=  █████  ▶
01 [±][±][±][±][±][±][±][±]
```

000—127
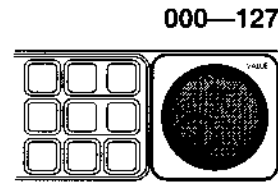
As with C Send Level, this specifies the level of the sound that will be sent from each program to the two internal effect processors. As this setting is increased, the effect will be applied more strongly to the sound of that part.

* *The way in which the sound is sent to the two effect processors, and the way in which the D Send Level parameter will affect the level will depend significantly on the Effect Placement parameter. → page 135, "Effect Placement"*

On the NS5R, parameters which determine send levels to the effect processors exist separately in each of the three modes Program, Combination, and Multi. The maximum value of the Multi mode parameters [007] Reverb Send Level and [008] Chorus Send Level will be the values of the Program Edit mode parameters [145] C Send Level and [146] D Send Level. In the case of a combination sound, the send levels will also be limited by the settings of the [058] C Send Level and [059] D Send Level parameters.

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5

Combination Edit mode

060. Note window bottom

Specify the lower note limit of each part

```
◀Note Btm = █ -1  ▶
[|||||||||||||||||||||||||||||||||||]
01 ═══════════════════════════════
```

C-1—G9

For each program, specify the bottom (lowest) note that will sound.

061. Note window top

↑ 060. Note window bottom
↓ 062. Velocity window bottom

Specify the upper note limit of each part

C-1—G9

```
◀Note Top = G 9    ▶
01
```
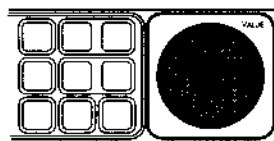
For each program, specify the top (highest) note that will sound.

By setting the Note Window Top and Bottom parameters, you can restrict a program to sound only in a specific area of the keyboard, so that it will not sound in other areas.

For example, this allows you to create a combination in which the keyboard area lower than the center will play a bass program, and the area above the center will play a piano program.

It is not possible to set the Top note lower than the Bottom note. If you attempt to do so, the Bottom note will automatically be adjusted to the same value as the Top note. The opposite is also true.

⚠ *Note Window can be set not only in Combination Edit mode, but also in Part Edit mode. The Note Window settings of Part Edit mode take priority over the settings of Combination Edit mode. → p.60 [027] Note Window Bottom, [028] Note Window Top.*

* *When the power is turned on or when a GM System On message is received, the Top note of all programs will be set to G9, and the Bottom note to C-1.*

062. Velocity window bottom

↑ 061. Note window top
↓ 063. Velocity window top

Specify the lowest velocity that will play each part

001—127

```
<PART-FILT/WIN>
◀VeloWin Bottom=  001
01 ----------------------------------
```

For each program, specify the lowest velocity for which the program will sound. (Velocity is MIDI data which indicates how strongly a note was played on the keyboard or other MIDI instrument.)

063. Velocity window top

↑ 062. Velocity window bottom
↓ 064. Receive note on

Specify the highest velocity that will play each part
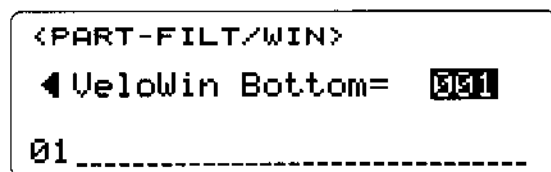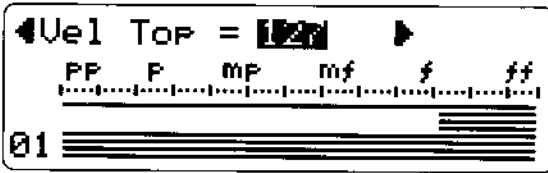
001—127
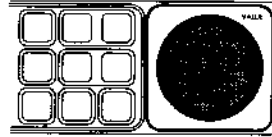
For each program, specify the highest velocity for which the program will sound.

Velocity Window settings specify the range of velocities for which the program will sound. By setting the Velocity Window Top and Bottom, you can restrict a program so that it will sound only in response to the specified range of keyboard dynamics.

For example, you could set a low velocity window for a soft strings program, and a high velocity window for a hard strings program, so that softly-played notes would sound the soft strings, and strongly-played notes would sound the hard strings (Velocity Switch).

Alternatively, you could make settings so that variations in playing dynamics cause the sound of two or more programs to be layered (Velocity Layer).

⚠ *As for Note Window, Velocity Window settings can be made not only in Combination Edit mode but also in Part Edit mode. The Velocity Window settings of Part Edit mode take priority over those in Combination Edit mode. → p.61 [029] Velocity Window Top, [030] Velocity Window Bottom*

064. Receive note on

↑ 063. Velocity window top
↓ 065. Receive control change

Allow each program to receive note-on messages

ON, OFF

```
CmbB:001 SolarFlare
PrgB:031 Sputnik
◀Rx.NoteOn    = ON     ▶
01
```
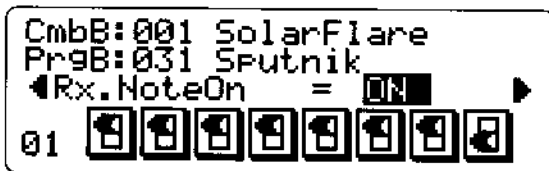
For each program, specify whether or not MIDI Note-on messages will be received. Programs for which this setting is OFF will not sound, regardless of the program or volume settings.

065. Receive control change

Allow each program to receive control change messages

ON, OFF


```
CmbB:001 SolarFlare
PrgB:031 Sputnik
◀Rx.CtrlChg = OFF        ▶
01
```
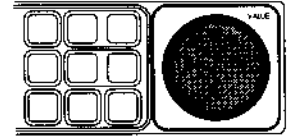
For each program, specify whether or not MIDI Control Change messages will be received. Programs for which this setting is OFF will not receive the Control Change messages used to control a variety of parameters.

066. Receive pitch bend

Allow each program to receive pitch bend messages

ON, OFF


```
CmbB:001 SolarFlare
PrgB:031 Sputnik
◀Rx.PitchBnd = ON        ▶
01
```

For each program, specify whether or not MIDI Pitch Bend messages will be received. Programs for which this setting is OFF will not receive the Pitch Bend messages that are transmitted by a MIDI keyboard etc. connected to the NS5R when its pitch bend wheel is operated.

067. Receive aftertouch

Allow each program to receive aftertouch messages

ON, OFF


```
CmbB:001 SolarFlare
PrgB:031 Sputnik
◀Rx.AftrTouch= ON        ▶
01
```
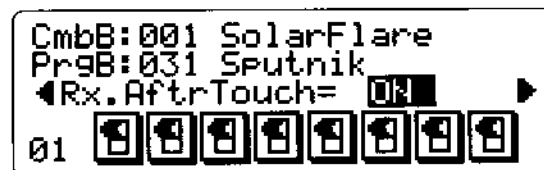
For each program, specify whether or not MIDI Aftertouch messages will be received. Programs for which this setting is OFF will not receive the Aftertouch messages that are transmitted by a MIDI keyboard.

068. Receive damper

Allow each program to receive damper pedal messages

```
CmbB:001 SolarFlare
PrgB:031 Sputnik
◄Rx.Damper   = ON    ►
01 ⬆⬆⬆⬆⬆⬆⬆⬆
```

ON, OFF

For each program, specify whether or not MIDI Damper messages will be received. Programs for which this setting is OFF will not receive the Damper messages that are transmitted when the damper pedal of a connected MIDI keyboard is operated.

069. Receive portamento

Allow each program to receive portamento messages

```
CmbB:001 SolarFlare
PrgB:031 Sputnik
◄Rx.Portament= OFF   ►
01 ◄◄◄◄◄◄◄◄
```
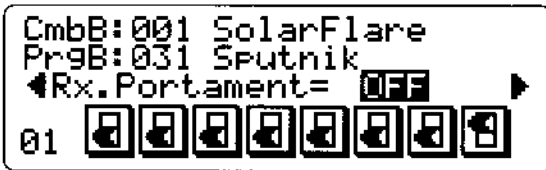
ON, OFF

For each program, specify whether or not MIDI Portamento messages will be received. Programs for which this setting is OFF will not receive Portamento messages to control the portamento effect specified by the [38] Portamento Switch parameter.

070. Effect bank

Select the bank of the effect that you wish to use

```
<COMBI FX.BNK>
           ◄ Fx(Bank)  ►
              F:001
              [Cho-Dly ]
```
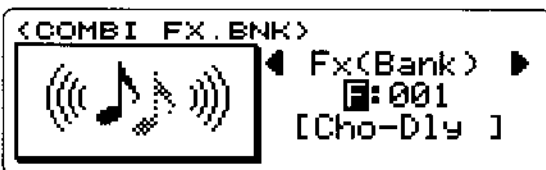
A, B, C, D, E, F, G, H

For the displayed combination, specify the bank of the effect program that will be used.

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Combination Edit mode

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071. Effect program

Specify the number of the effect that you wish to use

001—128

```
<COMBI FX.PATCH>
    ◀ Fx(Name) ▶
      F:001
      [Cho-Dly ]
```

For the displayed combination, specify the effect program that will be used.

* *In order to select an effect program, you must first specify the part by which it will be used. If the Global mode [047] Effect Follow Part setting is OFF, it will not be possible to select an effect program. In this case, the following display will appear.*

```
<VDA 1&2  FX TYPE>
    Unable to Edit.       k ) ▶
    Turn FX.Follow        1
    Part 1~32.           o ]
                            4/5
```

If you wish to select an effect, specify the part number in [047] Effect Follow Part.

072. Combination rename

Assign a name to the combination and save it

```
<COMBI RENAME>
   CmbB:001 SolarFlare
   NewName: SolarFlare
```

You can modify the name of the currently selected combination (if desired), and save it in any memory number of the User Combination bank.

To modify the combination name, use the |PARAM| buttons to move the cursor to the character in the name that you wish to modify, and use the VALUE controller to select the desired character. By repeating this process for each character you can assign any desired name. The following characters can be used.

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

6. Program Edit mode

In this mode you can edit program sounds. To enter this mode from Multi mode, make sure that a Program sound is selected, and then hold down the [ENTER/EDIT] button. In approximately 2 seconds, the home page of Program Edit mode will appear.

Sounds edited in Program Edit mode can be given a name (if desired) and saved in the User program area, which is indicated as "PrgU: (number)."

Program Edit mode consists of OSC (oscillator), VDF (filter), VDA (amplifier), and Pan/ Effect Send, and a page which allows you to save the results of your editing.

Key	Parameter	Edit	Refer to
	073 (home page)	Oscillator	→P.92
		Pitch LFO	→P.98
		Pitch EG	→P.100
		Filter	→P.104
		Filter LFO	→P.108
		Filter EG	→P.110
		Amplifier	→P.115
		Amplifier LFO	→P.117
		Amplifier EG	→P.120
		Pan/effect send	→P.124
		Rename	→P.126
	074 Oscillator mode	Specify the type of oscillator	→P.93
	075 Multisample select	Select a multisample	→P.94
	076 Drum kit select	Select a drum kit	→P.94
	077 Octave select	Specify the pitch in octave units	→P.94
	078 Oscillator level	Specify the oscillator volume	→P.95
	079 Key transpose	Specify the pitch in semitone steps	→P.95
	080 Fine tune	Make fine adjustments to pitch	→P.95
	081 Velocity window bottom	Specify the minimum velocity which will play the sound	→P.96
	082 Velocity window top	Specify the maximum velocity which will play the sound	→P.96
	083 Delay start	Delay the beginning of the note	→P.97
	084 Pitch slope	Specify the relation between pitch and the keyboard location	→P.97
	085 Pitch LFO waveform	Select the vibrato waveform	→P.98
	086 Pitch LFO frequency	Specify the frequency of vibrato	→P.98
	087 Pitch LFO intensity	Specify the depth of vibrato	→P.98
	088 Pitch LFO delay	Specify the time delay before vibrato begins to apply	→P.99
	089 Pitch LFO fade in time	Specify the time over which vibrato reaches its full depth	→P.99

|			
090	Pitch EG start level	Specify the pitch at which the sound will begin	→P.100
091	Pitch EG attack time	Specify the time over which the pitch will reach the attack level	→P.100
092	Pitch EG attack level	Specify the pitch which will be reached after the attack time	→P.100
093	Pitch EG decay time	Specify the time over which the pitch will reach the normal level	→P.101
094	Pitch EG release time	Specify the time over which the pitch will release the release level	→P.101
095	Pitch EG release level	Specify the pitch which will be reached after the release time	→P.101
096	Pitch EG intensity	Specify the depth of the pitch EG effect	→P.102
097	Pitch EG intensity velocity sensitivity	Specify how pitch EG depth will be affected by keyboard dynamics	→P.102
098	Pitch EG time velocity sensitivity	Specify how pitch EG times will be affected by keyboard dynamics	→P.103
099	Cutoff frequency	Adjust the brightness of the sound	→P.104
100	Color intensity	Adjust the tonal character of the sound	→P.104
101	Color velocity sensitivity	Specify how the tonal character will be affected by keyboard dynamics	→P.105
102	VDF keyboard tracking mode	Specify how the brightness will change in relation to the keyboard location	→P.105
103	VDF keyboard tracking key	Specify the note at which the brightness will begin changing	→P.106
104	VDF keyboard tracking intensity	Specify how greatly the brightness will be affected by keyboard location	→P.106
105	VDF keyboard tracking EG time	Specify how greatly tone EG times will be affected by keyboard location	→P.107
106	VDF keyboard tracking EG time switch/polarity	Specify the time and direction of the EG change produced by keyboard location	→P.107
107	VDF LFO waveform	Select the waveform of the wah effect	→P.108
108	VDF LFO frequency	Specify the frequency of the wah effect	→P.108
109	VDF LFO intensity	Specify the depth of the wah effect	→P.109
110	VDF LFO delay	Specify the delay until the wah begins to apply	→P.109
111	VDF LFO fade-in time	Specify the time until the full wah effect is reached	→P.109
112	VDF EG attack time	Specify the time over which the tone will reach the attack level	→P.110
113	VDF EG attack level	Specify the level which the tone will reach after the attack time	→P.110
114	VDF EG decay time	Specify the time over which the tone will reach the break point	→P.110
115	VDF EG break point	Specify the level which the tone will reach after the decay time	→P.111
116	VDF EG slope time	Specify the time over which the tone will reach the normal level	→P.111
117	VDF EG sustain level	Specify the brightness of the tone which will be maintained until the key is released	→P.111
118	VDF EG release time	Specify the time over which the tone will change after the key is released	→P.112
119	VDF EG release level	Specify the brightness level toward which the tone will change after the key is released	→P.112
120	VDF EG intensity	Specify the depth of the VDF EG effect	→P.113
121	VDF EG intensity velocity sensitivity	Specify how the VDF EG will be affected by keyboard dynamics	→P.113
122	VDF EG time velocity sensitivity	Specify how greatly the VDF EG times will be affected by keyboard dynamics	→P.114
123	VDF EG velocity sensitivity switch/ polarity	Specify the direction in which keyboard dynamics will affect the VDF EG times	→P.114

	124 VDA keyboard tracking mode	Specify how volume will be affected by keyboard location	→P.115
	125 VDA keyboard tracking key	Specify the key around which volume will change	→P.115
	126 VDA keyboard tracking intensity	Specify how greatly the volume EG will be affected by keyboard location	→P.116
	127 VDA keyboard tracking EG time	Specify how greatly the volume EG times will be affected by keyboard location	→P.116
	128 VDA keyboard tracking EG time switch/polarity	Specify the direction in which the volume EG will be affected by keyboard location	→P.117
	129 VDA LFO waveform	Select the waveform for the tremolo effect	→P.118
	130 VDA LFO frequency	Specify the frequency of the tremolo effect	→P.118
	131 VDA LFO intensity	Specify the depth of the tremolo effect	→P.118
	132 VDA LFO delay	Specify the time delay until the tremolo effect will begin to apply	→P.119
	133 VDA LFO fade-in time	Specify the time over which the maximum tremolo effect will be reached	→P.119
	134 VDA EG attack time	Specify the time over which the volume will reach the attack level	→P.120
	135 VDA EG attack level	Specify the level which the volume will reach after the attack time	→P.120
	136 VDA EG decay time	Specify the time over which the volume will reach the break point	→P.120
	137 VDA EG break point	Specify the level which the volume will reach after the decay time	→P.121
	138 VDA EG slope time	Specify the time over which the volume will reach the normal level	→P.121
	139 VDA EG sustain level	Specify the volume level which will be maintained until the key is released	→P.121
	140 VDA EG release time	Specify the time over which the volume will decrease to silence after the key is released	→P.122
	141 VDA EG amplitude velocity sensitivity	Specify how greatly the VDA EG will be affected by keyboard dynamics	→P.122
	142 VDA EG time velocity sensitivity	Specify how greatly the VDA EG times will be affected by keyboard dynamics	→P.123
	143 VDA EG velocity sensitivity switch/ polarity	Specify the direction in which the VDA EG will be affected by keyboard dynamics	→P.123
	144 Oscillator panpot	Specify the stereo balance of the send level to the effects	→P.124
	145 C send level	Specify the send level to the effect	→P.125
	146 D send level	Specify the send level to the effect	→P.125
	147 Effect bank	Select the bank of the desired effect	→P.125
	148 Effect number	Select the number of the desired effect	→P.126
	149 Program rename	Assign a name to the program and save it	→P.126

[074] In Program Edit mode if the Oscillator Mode is set to DOUBLE, a display of [1] and [2] in the LCD screen will alternate each time the [EDIT/ENTER] button is pressed when in edit pages [074] through [146]. This indicates for which of the two oscillators the oscillator-related parameter settings are being made. Oscillator, filter or amplifier settings for which either [1] or [2] is displayed are in the same signal flow.
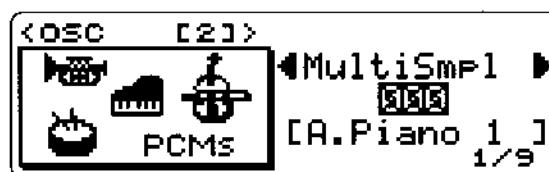
If the Oscillator Mode is not set to DOUBLE, the LCD will show only [1], and it will not be possible to switch this.

6

Program
Edit
mode

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In Program Edit mode, modifying a parameter setting will cause a EDIT symbol to appear in the upper right of the display. When this symbol is displayed, pressing the [DISP/EXIT] button to exit Program Edit mode will cause the following popup window to appear. This menu lets you choose whether to save the current edited program in the User bank, or whether you wish to discard the results of your editing.
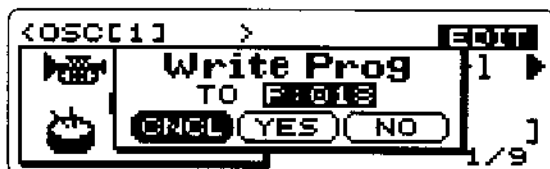
If you select CNCL and press the [ENTER] button, the popup window will disappear, and you can continue editing.

If you select YES and press the [ENTER] button, the program that you modified will be saved in the displayed program number of the User bank. You can use the VALUE controller to select the program number

* *In this case, when you save your edited program to a different program number which already contains another program, the program settings that were previously in that location will be overwritten and lost.*

If you select NO and press the [ENTER] button, the modified program will not be saved, and you will exit Program Edit mode.

073. (home page) ↑↓ (finalize)

Select the item that you wish to edit

OSC, PITCH LFO, PITCH EG, VDF, VDF LFO, VDF EG, VDA, VDA LFO, VDA EG, Fx, PROG RENAME
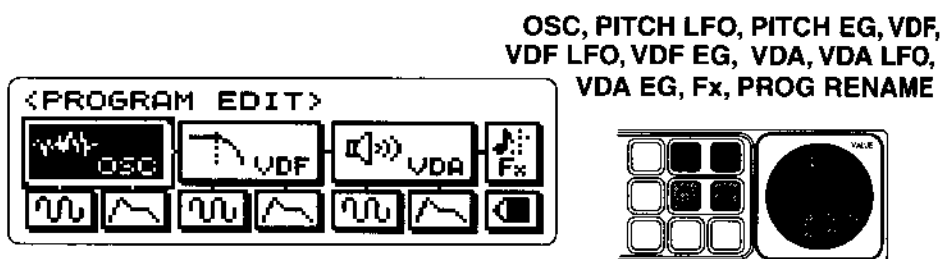
This page is a menu that lets you select the item you wish to edit.

Items can be selected using the [PART/PAGE] buttons, the [PARAM] buttons, or VALUE dial.

OSC

074. Oscillator mode

Specify the type of oscillator

<OSC[1]   >

OSC Mode ▶
SINGLE

0/9

SINGLE, DOUBLE, DRUMS
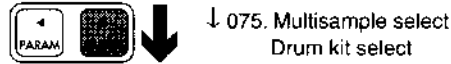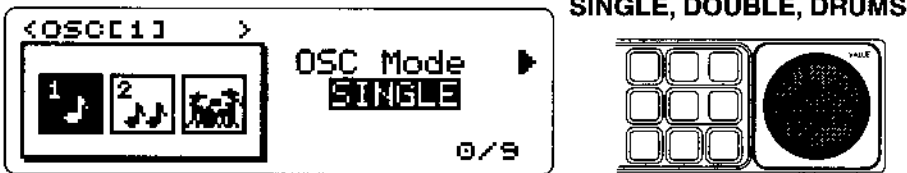
This setting specifies whether the sound will be based on one oscillator alone, two oscillators together, or a drum kit oscillator.

With a setting of SINGLE, a single system of oscillator, filter, and amplifier will be used. In this case, the NS5R will have a maximum polyphony of 64 notes.

With a setting of DOUBLE, two systems of oscillator, filter, and amplifier will be used. This lets two different sounds (or identical sounds) be layered as a single sound, allowing more complex sounds to be created. However in this case, the NS5R will have a maximum polyphony of 32 notes.

If this setting is DOUBLE, subsequent editing pages will show either [1] or [2] in the LCD, which will alternate when you press the [EDIT/ENTER] button. This indicates the oscillator (1 or 2) for which you are editing the oscillator, filter, or amplifier settings. Oscillator, filter, or amplifier settings for which the same number is displayed belong to the same system.

(SINGLE)

<PROGRAM EDIT>
OSC VDF VDA Fx

(DOUBLE)

<PROGRAM EDIT> (2)
Fx

<PROGRAM EDIT> (1)
OSC VDF VDA Fx

With a setting of DRUMS, you will be able to select a drum kit.

GW When this parameter is set to DRUMS, pressing and holding the [EDIT/ENTER] button (regardless of the parameter page which is displayed) will take you to Drum Kit Edit mode, allowing you to make detailed settings for the drum kit. →P.127

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Program
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mode

075. Multisample select/Drum kit select

↑ 074. Oscillator mode
↓ 077. Octave select

Select a multisample
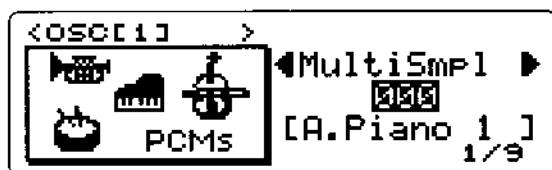
000—527
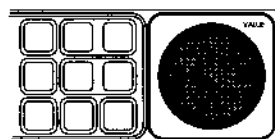
Select the multisample that will be used for the oscillator. This parameter selects the waveform which will be the basis for the sound. A list of the available multisamples is provided in the appendices at the end of this manual.

076. Drum kit select
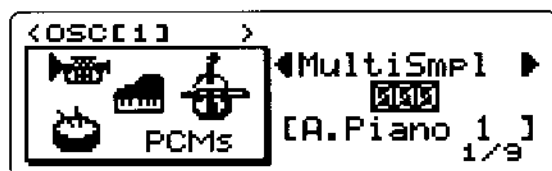
Select a drum kit

000—038
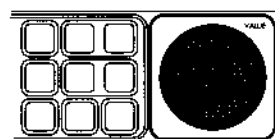
[074] When the Oscillator Mode parameter is set to DRUMS, this drum kit select page will appear instead of the multisample select page. A list of the available drum kits is provided in the appendices at the end of this manual.

077. Octave select

↑ 075. Multisample select
076. Drum kit select
↓ 078. Oscillator level

Specify the pitch in octave units

32', 16', 8', 4'

Specify the pitch of the oscillator in 1-octave units. A setting of 8' is the standard pitch.

078. Oscillator level

↑ 077. Octave select
↓ 079. Key transpose

Specify the oscillator volume

<OSC[1]   >

◀OSC Level ▶
078
[A.Piano 1]
3/9

min   max

000—127
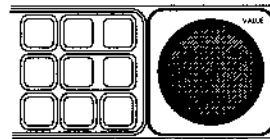
Specify the basic volume of the oscillator.

On the NS5R, parameters which determine the volume of each Part exist separately in each of the three modes Program, Combination, and Multi. The maximum possible value for the Multi mode [004] Volume setting will be the value of the Program Edit mode [078] Oscillator Level. In the case of a Combination sound, the volume will be limited by the [054] Program Volume setting as well.

079. Key transpose

↑ 078. Oscillator level
↓ 080. Fine tune

Specify the pitch in semitone steps

<OSC[1]   >

◀Key Trans ▶
+00
[A.Piano 1]
4/9
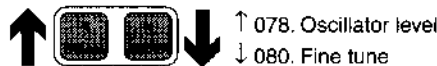
-12—00—+12
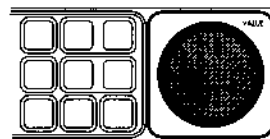
Specify the pitch of the oscillator in semitone steps.

080. Fine tune

↑ 079. Key transpose
↓ 081. Velocity window bottom

Make fine adjustments to pitch

<OSC[1]   >

◀Fine Tune ▶
+00
[A.Piano 1]
5/9

KORG
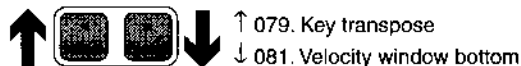
-99—00—+99

Specify a fine adjustment to the pitch of the oscillator.

[074] When the Oscillator Mode is set to DOUBLE, this parameter allows you to create a detuning effect between oscillators [1] and [2]. (Detuning is an effect in which the pitches of two sounds are slightly varied relative to the other, creating a richer sound.)

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081. *Velocity window bottom*

Specify the minimum velocity which will play the sound

001—127

```
<OSC[1]    >
     ♪
 0        127
```
◀VelWin Btm▶
    051
[A.Piano 1]
         7/9

Specify the minimum velocity value for which the oscillator will sound.

With high settings of this parameter, softly played notes will not sound the oscillator. As the value is decreased, the oscillator will sound in response to increasingly softly played notes.

082. *Velocity window top*

Specify the maximum velocity which will play the sound

001—127

```
<OSC[1]    >
     ♪
 0        127
```
◀VelWin Top▶
    127
[A.Piano 1]
         6/9

Set the maximum velocity value for which the oscillator will sound. (Velocity is MIDI data which indicates how strongly a note was played.)

With low values of this parameter, strongly played notes will not sound the oscillator. As the value is increased, the oscillator will sound in response to increasingly strongly played notes.

The velocity window allows you to specify the range of velocities which will sound the oscillator. By setting the velocity window top and bottom, you can cause the sound to play only when notes are played with a specific strength.

083. Delay start

↑ 082. Velocity window top
↓ 084. Pitch slope

Delay the beginning of the note

`<OSC[1]    >`
`◄DelayStart►`
`515`
`[Organ 1  8/9]`
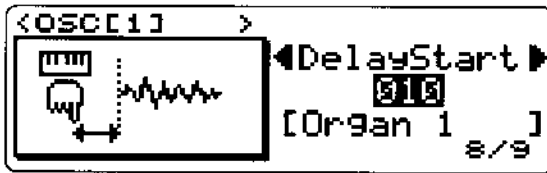
000—127
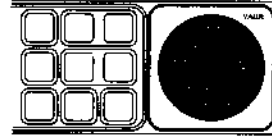
This parameter sets the time from when the NS5R receives a MIDI Note-on message (i.e., when a note is played on the MIDI keyboard) until when the oscillator actually begins to sound.

As this value is increased, there will be an increasing delay from when the note is played until the sound begins.

When another MIDI tone generator which is slower to respond to MIDI messages is used together with the NS5R, this parameter provides a convenient way to match the note timing of the two devices.

084. Pitch slope

↑ 083. Delay start

Specify the relation between pitch and the keyboard location

`<OSC[1]    >`
`◄PitchSlope`
`+1.0`
`[A.Piano 1 ]`
`9/9`
`+1.0`
`-0.5`

-1.0—+0.0—+2.0

When this parameter has a value of +1.0, the oscillator's pitch will rise one octave as the note number increases by 12 (i.e., 12 notes on the keyboard). This is the normal pitch change.
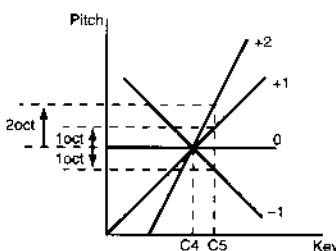
If this parameter is set to a value above 1, the pitch will rise more rapidly. With a setting of +2.0, the oscillator's pitch will rise two octaves as the note number increases by 12. With settings of less than 1, the pitch will rise more slowly, and with a setting of 0.00 all note numbers will produce the same pitch of C4.

Values less than 0 will invert the relation between note numbers and pitch, so that higher note numbers will be sounded at lower pitches. In other words, notes will become lower as you play toward the right edge of the keyboard, and higher as you play toward the left edge. With a setting of −1.0, the oscillator's pitch will fall one octave as the note number increase by 12.

Pitch graph:
Pitch / +2 / +1 / 0 / −1 / 2oct / 1oct / 1oct / C4 C5 / Key

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PITCH LFO ↑ 🎛 🎛 ↓

085. Pitch LFO waveform

[PARAM] 🎛 ↓ ↓ 086. Pitch LFO frequency
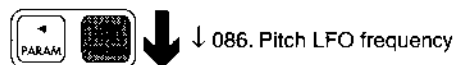
Select the vibrato waveform

TRIANGLE, SAW UP, SAW DOWN, SQUARE 1,
SQUARE 2, RANDOM

```
<PITCH LFO[1]      >
 ∿ ⋀⋀ ⋀      P.LFO Wave▶
 ⊓ ⊓⊔ ⊓⊔      RANDOM
                    1/5
```
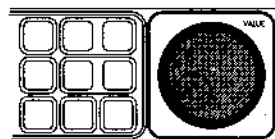
This selects the waveform that will be used for pitch modulation (the vibrato effect that cyclically modifies the pitch).

086. Pitch LFO frequency

↑ 🎛 🎛 ↓ ↑ 085. Pitch LFO waveform
↓ 087. Pitch LFO intensity

Specify the frequency of vibrato

000—127

```
<PITCH LFO[1]      >
 —∿⋁⋀⋁       ◀P.LFO Freq▶
                    064
                    2/5
```
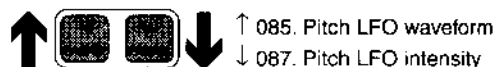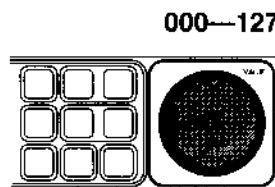
Specify the frequency of the pitch modulation waveform.

087. Pitch LFO intensity

↑ 🎛 🎛 ↓ ↑ 086. Pitch LFO frequency
↓ 088. Pitch LFO delay

Specify the depth of vibrato

000—127

```
<PITCH LFO[1]      >
 —∿⋀⋁⋀        ◀Intensity  ▶
                    001
                    3/5
```
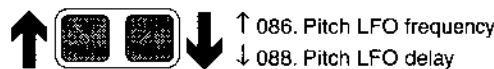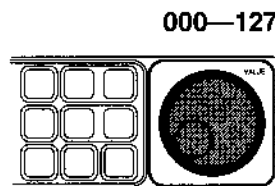
Specify the depth (strength) of the pitch modulation effect.

088. Pitch LFO delay
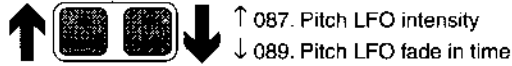
Specify the time delay before vibrato begins to apply

```
<PITCH LFO[1]    >
         ◀LFO Delay ▶
           000
                  4/5
```

000—127

Specify the time from when the Note-on message is received (i.e., from when you play a note) until pitch modulation begins to apply to the sound that is played.

089. Pitch LFO fade in time

Specify the time over which vibrato reaches its full depth

```
<PITCH LFO[1]    >
         ◀LFO FadeIn
           000
                  5/5
```

000—127
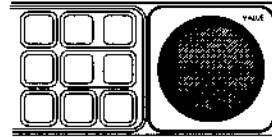
Specify the time from when pitch modulation begins to apply until it reaches the full strength specified by the [087] Pitch LFO Intensity parameter.

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PITCH EG

090. Pitch EG start level

↓ 091. Pitch EG attack time

Specify the pitch at which the sound will begin

−128—000—+127

<PITCH EG [1]   > EDIT
                StartLevel ▶
                -048
                        1/9
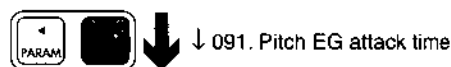
Specify the initial pitch (i.e., the pitch at the moment of Note-on).

091. Pitch EG attack time
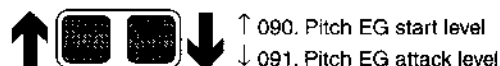
↑ 090. Pitch EG start level
↓ 091. Pitch EG attack level

Specify the time over which the pitch will reach the attack level

000—127

<PITCH EG [1]   > EDIT
                ◀AttackTime▶
                105
                        2/9

Specify the time over which the pitch will change from Note-on until it reaches the pitch specified by the [092] Attack Level parameter.

092. Pitch EG attack level
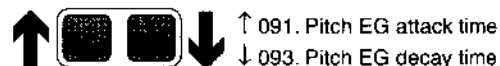
↑ 091. Pitch EG attack time
↓ 093. Pitch EG decay time

Specify the pitch which will be reached after the attack time

−128—000—+127

<PITCH EG [1]   > EDIT
                ◀AttackLvl ▶
                +098
                        3/9

Specify the pitch which will be reached after the time specified by the [091] Attack Time parameter has elapsed.

093. Pitch EG decay time

↑ 092. Pitch EG attack level
↓ 094. Pitch EG release time

Specify the time over which the pitch will reach the normal level

<PITCH EG [1]   >   EDIT
◀DecayTime ▶
102
4/9
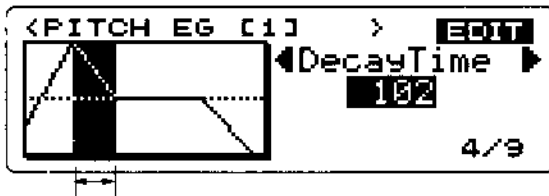
000—127
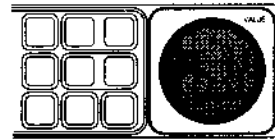
Specify the time over which the pitch will move toward the normal level (the pitch which will continue to sound as long as you continue pressing the key), after the |091| Attack Time has elapsed.

094. Pitch EG release time

↑ 093. Pitch EG decay time
↓ 095. Pitch EG release level

Specify the time over which the pitch will release the release level

<PITCH EG [1]   >   EDIT
◀ReleaseTim▶
110
5/9

000—127
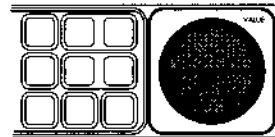
Specify the time over which the pitch will change from Note-off (the moment you release the key) until the pitch specified by the [095] Release Level parameter is reached.

095. Pitch EG release level

↑ 094. Pitch EG release time
↓ 096. Pitch EG intensity

Specify the pitch which will be reached after the release time

<PITCH EG [1]   >   EDIT
◀ReleaseLvl▶
-062
6/9

-128—000—+127
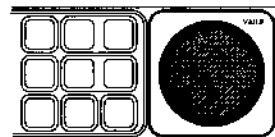
Specify the pitch that will be reached after the [094] Release Time has elapsed.

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096. Pitch EG intensity

↑ 095. Pitch EG release level
↓ 097. Pitch EG intensity velocity sensitivity

Specify the depth of the pitch EG effect

−128—000—+127

```
<PITCH EG [1]    >    EDIT
◀ Intensity ▶
   +060

              7/9
```
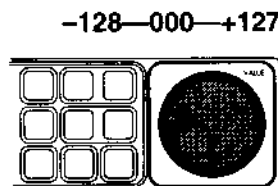
Specify the depth (strength) of the Pitch EG effect.

With a setting of 0, the pitch EG will not cause any change in the pitch. With negative settings, the pitch will change in the opposite direction from the Attack Level and Decay Level specified by the pitch EG parameters.

For example if [092] Attack Level is set higher than the standard pitch, a positive (+) setting for this Intensity parameter will cause the pitch to gradually increase after the note begins, until the highest value (Attack Level) is reached. However if this Intensity parameter has a negative (−) setting, the pitch will gradually decrease after the note begins, until the lowest level (the inverse of the Attack Level) is reached.

097. Pitch EG intensity velocity sensitivity

↑ 096. Pitch EG intensity
↓ 098. Pitch EG time velocity sensitivity

Specify how pitch EG depth will be affected by keyboard dynamics

−128—000—+127

```
<PITCH EG [1]    >    EDIT
◀ IntVelSens ▶
   +032

              8/9
```
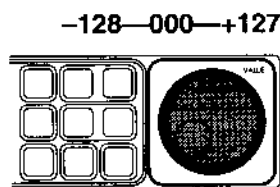
Specify how the pitch EG depth (strength) will be affected by MIDI velocity data.

Increasingly positive (+) settings of this parameter will cause the pitch EG to become deeper as you play the keyboard more strongly, and shallower as you play less strongly. Conversely, increasingly negative (−) settings of this parameter will cause the pitch EG to become shallower as you play the keyboard more strongly, and deeper as you play less strongly.

098. Pitch EG time velocity sensitivity

↑ 097. Pitch EG intensity
velocity sensitivity

Specify how pitch EG times will be affected by keyboard dynamics

```
<PITCH EG [1]    >
               ◀TimeVelSns
                +000
                           9/9
```

–128—000—+127
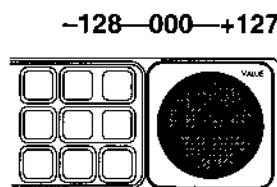
Specify how the Attack Time (091), Decay Time (093) and Release Time (095) of the pitch EG will be affected by MIDI velocity data.

Increasingly positive (+) settings of this parameter will cause each of the pitch EG times to become shorter for strongly played notes, producing more rapid pitch change. For softly played notes, pitch EG times will become longer, producing slower pitch change.

Conversely, increasingly negative (–) settings of this parameter will cause strongly played notes to have slower pitch change, and softly played notes to have faster pitch change.

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VDF COL/TRK   ↑ ■ ■ ↓

099. Cutoff frequency
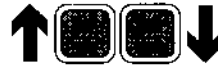
↓ 100. Color intensity
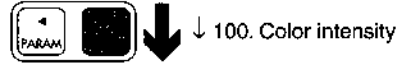
Adjust the brightness of the sound

000—127

```
<VDFE1]      COL/TRK>
                CutoffFre▸
                +095
                        1/8
```
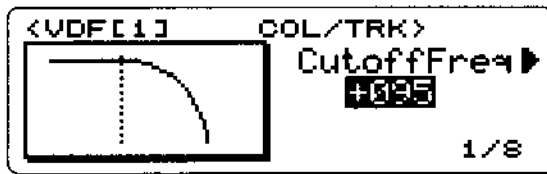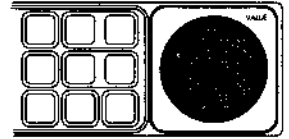
Adjust the VDF cutoff frequency (the brightness of the sound).

100. Color intensity

↑ 099. Cutoff frequency
↓ 101. Color velocity sensitivity
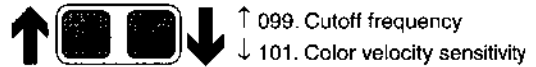
Adjust the tonal character of the sound

000—127

```
<VDFE1]      COL/TRK>
             ◀Color Int ▸
                +054
                        2/8
```
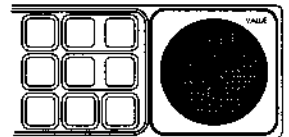
This parameter adds character to the sound by emphasizing the frequency region around the VDF cutoff frequency.

* *The result of this effect will depend on the original sound. For some multisamples, the effect may not be very noticeable.*

101. Color velocity sensitivity
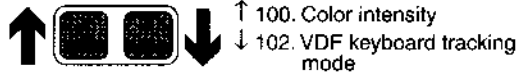
Specify how the tonal character will be affected by keyboard dynamics

-128—000—+127

<VDF[1]   COL/TRK>
◄Col VelSns►
+000
3/8
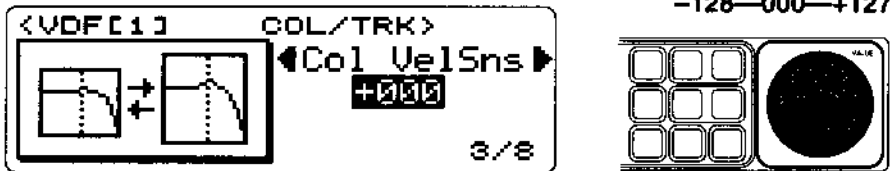
Specify how MIDI velocity data will affect the Color parameter.

Increasingly positive (+) settings of this parameter will cause strongly played notes to have a more pronounced Color effect, and softly played notes to have a weaker effect. Conversely, increasingly negative (–) settings will cause strongly played notes to have a weaker Color effect, and softly played notes to have a stronger effect.

* *The result of this effect will depend on the original sound. For some multisamples, the effect may not be very noticeable.*

102. VDF keyboard tracking mode
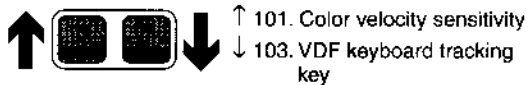
↑ 101. Color velocity sensitivity
↓ 103. VDF keyboard tracking
key

Specify how the brightness will change in relation to the keyboard location

OFF, LOW, HIGH, ALL

<VDF[1]   COL/TRK>
◄K.TRK Mode►
ALL
4/8

Specify how the change in brightness relative to the keyboard location (VDF keyboard tracking) will be applied.

With a setting of LOW, keyboard tracking will occur in the area below the specified[103] Keyboard Tracking Key. With a setting of HIGH, keyboard tracking will occur in the area above the specified key.

With a setting of ALL, keyboard tracking will occur over the entire keyboard. With a setting of OFF, keyboard tracking will not occur. In this case, the [104]Keyboard Tracking Intensity, [105]Keyboard Tracking EG Time, and [106]Keyboard Tracking EG Time Switch/Polarity settings will have no effect.

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103. VDF keyboard tracking key
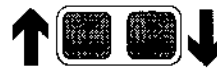
↑ 102. VDF keyboard tracking mode
↓ 104. VDF keyboard tracking intensity

Specify the note at which the brightness will begin changing

C-1—G9

```
<VDF[1]      COL/TRK>
◀K.TRK Key ▶
      C 4
             5/8
```
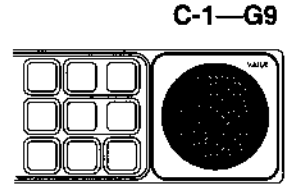
When [102]Keyboard Tracking Mode is set either to HIGH or LOW, keyboard tracking will begin applying at the note specified by this parameter, either to the area above or below.

When the Tracking Mode is set to ALL, this parameter sets the center of keyboard tracking. (Keyboard tracking will not apply to this key.)

104. VDF keyboard tracking intensity
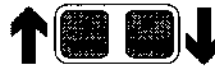
↑ 103. VDF keyboard tracking key
↓ 105. VDF keyboard tracking EG time

Specify how greatly the brightness will be affected by keyboard location

−128—000—+127

```
<VDF[1]      COL/TRK>
fc ◀TRK FcInt ▶
      -000
             6/8
```
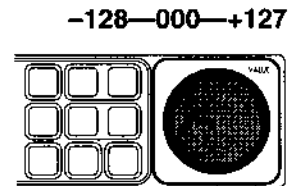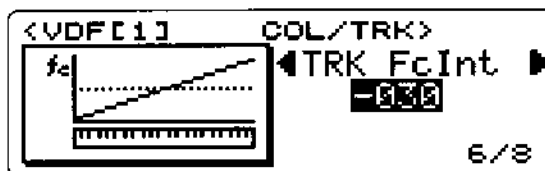
This parameter specifies the strength (depth) with which keyboard tracking will affect the area specified by [102]Keyboard Tracking Mode and [103]Keyboard Tracking Key.

Positive (+) settings will cause the sound to become brighter as increasingly higher notes are played. Negative (−) settings will have the opposite effect.

105. VDF keyboard tracking EG time
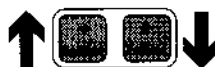
↑ 104. VDF keyboard tracking
  intensity
↓ 106. VDF keyboard tracking
  EG time switch/polarity

Specify how greatly VDF EG times will be affected by keyboard location

−128—000—+127

```
<VDF[1]      COL/TRK>
              ◀TRK EGTime▶
   /\    /\    +50%
  ←‖‖‖‖‖‖‖‖‖‖‖‖→
                      7/8
```

This parameter specifies how the Attack Time (112), Decay Time (114), Slope Time (116), and Release Time (118) of the VDF EG will be affected by keyboard tracking.

Increasingly positive (+) settings of this parameter will cause notes in the area specified by [102] Keyboard Tracking Mode and [103] Keyboard Tracking Key to have shorter VDF EG times as higher notes are played, producing quicker change in tone. As lower notes are played, the various VDF EG times will become longer, producing slower change in tone.

Conversely, increasingly negative (−) settings of this parameter will cause slower tonal change as higher notes are played, and faster tonal change as lower notes are played.

106. VDF keyboard tracking EG time switch/polarity

↑ 105. VDF keyboard tracking
  EG time

Specify the time and direction of the EG change produced by keyboard location

AT, DT, ST, RT,
OFF, ON (+), ON (−)

```
<VDF[1]      COL/TRK>
  AT KBDTRK   ◀Sw/Pol(AT)▶
   /\____      OFF
 ◉OFF ○+ ○−        8a/8
```

Specify the direction in which keyboard tracking will affect each of the VDF EG parameters Attack Time (112), Decay Time (114), Slope Time (116) and Release Time (118).

For each of these times, a setting of "+" will cause times to be shortened as you play notes higher than the [103] Keyboard Tracking Key, and a setting of "−" will cause times to be lengthened. With a setting of 0, keyboard location will not affect VDF EG times.

This parameter sets the directions (±) in which the four Time parameters will be affected, but the amount of the change is specified by the [105] Keyboard Tracking EG Time parameter.

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VDF LFO

107. VDF LFO waveform
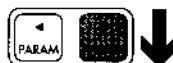
↓ 108. VDF LFO frequency

Select the waveform of the wah effect

<VDF[1]   LFO>

F.LFO Wave ▶
TRIANGLE

1/5

TRIANGLE, SAW UP, SAW DOWN, SQUARE 1, SQUARE 2, RAMDOM

Select the waveform that will be used for VDF modulation (the wah effect produced by cyclically modulating the tone).

108. VDF LFO frequency
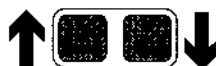
↑ 107. VDF LFO waveform
↓ 109. VDF LFO intensity

Specify the frequency of the wah effect

<VDF[1]   LFO>

◀F.LFO Freq▶
032

2/5
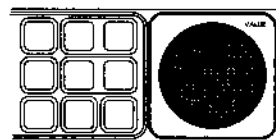
000—127

Specify the frequency of the VDF modulation waveform.

109. VDF LFO intensity

↑ 108. VDF LFO frequency
↓ 110. VDF LFO delay

Specify the depth of the wah effect

000—127

```
<VDF[1]     LFO>
─∿∿∿↕    ◀Intensity ▶
              010
                    3/5
```

Specify the depth (strength) of the VDF modulation effect.

110. VDF LFO delay

↑ 109. VDF LFO intensity
↓ 111. VDF LFO fade-in time

Specify the delay until the wah begins to apply

000—127

```
<VDF[1]     LFO>
├∿∿∿∿    ◀LFO Delay ▶
├┄┄            005
              ↔         4/5
```
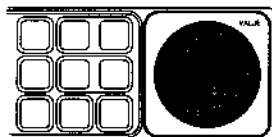
Specify the time delay from when a Note-on message is received (i.e., from when the keyboard is played) until VDF modulation begins to apply to the note that sounds.

111. VDF LFO fade-in time

↑ 110. VDF LFO delay

Specify the time until the full wah effect is reached

000—127

```
<VDF[1]     LFO>
─∿∿∿     ◀LFO FadeIn
              005
    ┆  ┆                 5/5
```

Specify the time from when VDF modulation begins to apply until the full strength specified by [109] VDF LFO Intensity is reached.
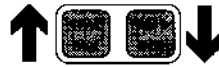
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VDF EG ↑ ▢ ▢ ↓

112. VDF EG attack time
[PARAM ◄] ▢ ↓ ↓ 113.VDF EG attack level

Specify the time over which the tone will reach the attack level

000—127

```
<VDF[1]      EG>   EDIT
              AttackTime▶
              062
                   1/12
```
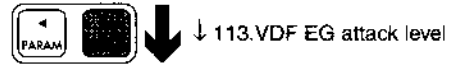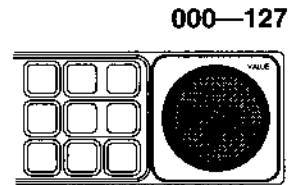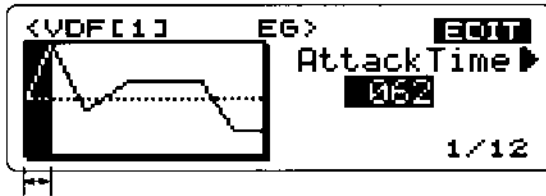
Specify the time from Note-on until the VDF cutoff frequency reaches the value specified by [113] Attack Level.

113. VDF EG attack level
↑ ▢ ▢ ↓ ↑ 112. VDF EG attack time
↓ 114. VDF EG decay time
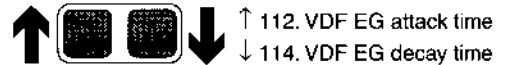
Specify the level which the tone will reach after the attack time

–128—000—+127

```
<VDF[1]      EG>   EDIT
          ◄AttackLvl ▶
              +094
                   2/12
```
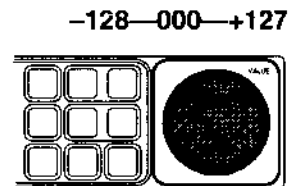
Specify the cutoff frequency level which will be reached after the [112] Attack Time has elapsed.

114. VDF EG decay time
↑ ▢ ▢ ↓ ↑ 113. VDF EG attack level
↓ 115. VDF EG break point
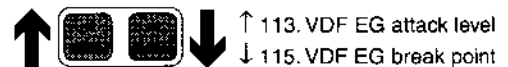
Specify the time over which the tone will reach the break point

000—127

```
<VDF[1]      EG>   EDIT
          ◄DecayTime ▶
              094
                   3/12
```
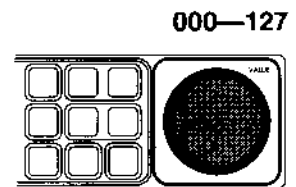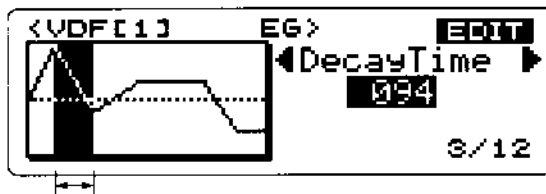
Specify the time over which the cutoff frequency will move to the [115] Break Point (the level of brightness which will be maintained as long as the key is pressed) after the [112] Attack Time has elapsed.

115. VDF EG break point
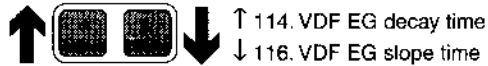
↑ 114. VDF EG decay time
↓ 116. VDF EG slope time

Specify the level which the tone will reach after the decay time

−128—000—+127
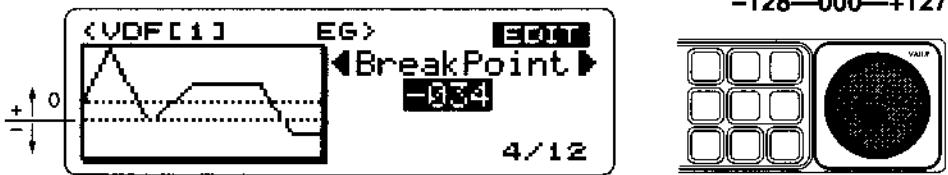
Specify the cutoff frequency which will be reached after the [114] Decay Time has elapsed.

116. VDF EG slope time
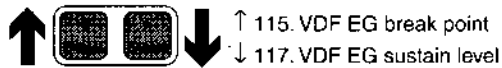
↑ 115. VDF EG break point
↓ 117. VDF EG sustain level

Specify the time over which the tone will reach the normal level

000—127

Specify the time over which the cutoff frequency will move to the normal level (the level of brightness which will be maintained as long as the key is pressed) after the [116] Slope Time has elapsed.

117. VDF EG sustain level
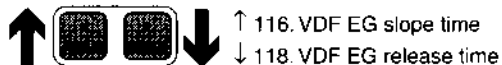
↑ 116. VDF EG slope time
↓ 118. VDF EG release time

Specify the brightness of the tone which will be maintained until the key is released

000—127
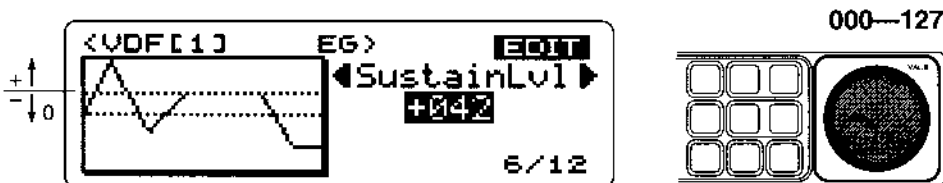
Specify the normal cutoff frequency for the VDF which will be maintained as long as the key is pressed.

118. VDF EG release time

↑ 117. VDF EG sustain level
↓ 118. VDF EG release level

Specify the time over which the tone will change after the key is released

000—127

```
<VDF[1]      EG>    EDIT
     ◄ReleaseTim►
          087
             7/12
```
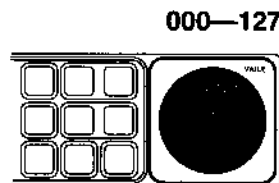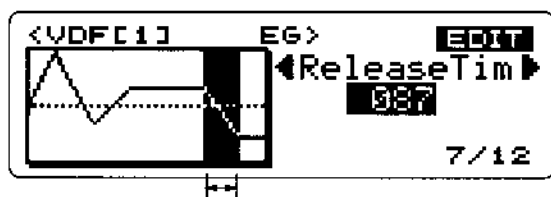
Specify the time over which the VDF cutoff frequency will move to the [119] Release Level after Note-off (i.e., when the key is released).

119. VDF EG release level

↑ 118. VDF EG release time
↓ 120. VDF EG intensity

Specify the brightness level toward which the tone will change after the key is released

−128—000—+127

```
<VDF[1]      EG>    EDIT
     ◄ReleaseLvl►
   0      -078
  +
  −          8/12
```
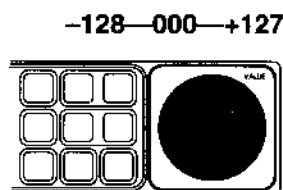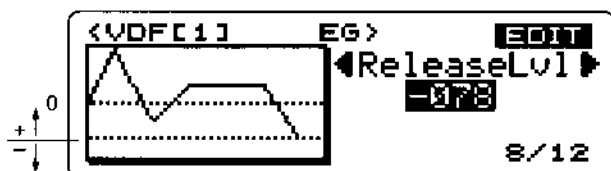
Specify the level at which the cutoff frequency will arrive after the [118] Release Time has elapsed.

120. VDF EG intensity

↑ 119. VDF EG release level
↓ 121. VDF EG intensity
velocity sensitivity

Specify the depth of the VDF EG effect

-128—000—+127
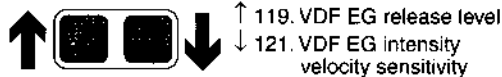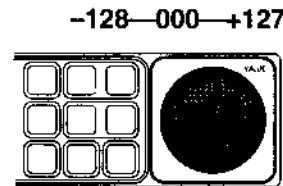
Specify the depth (strength) of the VDF EG effect.

With a setting of 0, the VDF EG will not cause the cutoff frequency to change. With negative (–) settings, the cutoff frequency will change in the direction opposite to the Attack Level and Decay Level etc. specified by the VDF EG.

For example if [113] Attack Level is set higher than the normal cutoff frequency, positive (+) settings of this Intensity parameter will cause the tone to gradually become brighter from the beginning of the sound until it reaches the maximum level (Attack Level). However if Intensity is set to a negative (–) setting, the tone will gradually become darker from the beginning of the sound until it reaches the minimum level (the inverse of the Attack Level).

121. VDF EG intensity velocity sensitivity

↑ 120. VDF EG intensity
↓ 122. VDF EG time velocity
sensitivity

Specify how the VDF EG will be affected by keyboard dynamics

-128—000—+127

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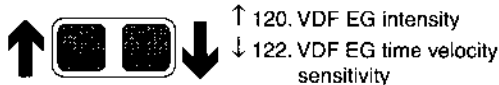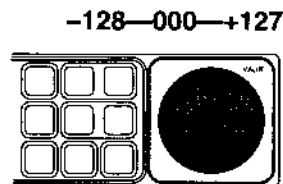
Specify how greatly MIDI velocity data will affect the depth (strength) of the VDF EG effect.

With positive (+) settings of this parameter, the VDF EG effect will be deeper for strongly played notes, and will be less for softly played notes. Conversely, negative (–) settings will cause the VDF EG effect to be less for strongly played notes, and deeper for softly played notes.

122. VDF EG time velocity sensitivity
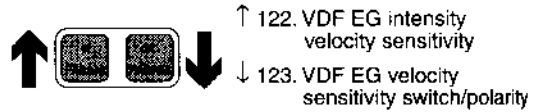
↑ 122. VDF EG intensity velocity sensitivity

↓ 123. VDF EG velocity sensitivity switch/polarity

Specify how greatly the VDF EG times will be affected by keyboard dynamics

−128—000—+127
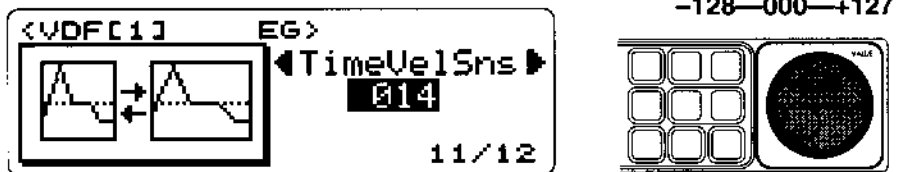
Specify how MIDI velocity data will affect the Attack Time (112), Decay Time (114), Slope Time (116), and Release Time (118) of the VDF EG.

With positive (+) settings of this parameter, the VDF EG times will be shortened for strongly played notes, causing the tone to change more rapidly. Softly played notes will have longer VDF EG times, causing the tone to change more slowly.

Conversely, negative (−) settings will cause the tone to change more slowly when notes are played strongly, and cause the tone to change more quickly as notes when played softly.

Positive/negative polarity is specified by the [123] VDF EG Time Velocity Sensitivity Switch/Polarity setting.

123. VDF EG velocity sensitivity switch/polarity
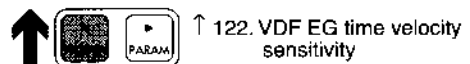
↑ 122. VDF EG time velocity sensitivity

Specify the direction in which keyboard dynamics will affect the VDF EG times

AT, DT, ST, RT, OFF, ON (+), ON (−)

Specify the direction in which MIDI velocity data will affect the VDF EG parameters Attack Time (112), Decay Time (114), Slope Time (116) and Release Time (118).

For each value, a setting of "+" will cause the VDF EG time to be shortened for strongly played notes. A setting of "−" will cause the time to be lengthened for strongly played notes. With a setting of 0 there will be no effect.

These parameters set the direction (±) in which the four Time parameters will be affected, but the amount of the effect is specified by the [122] VDF EG Time Velocity Sensitivity parameter.

⬆🔲🔲⬇

124. VDA keyboard tracking mode

⬇ 125. VDA keyboard tracking key

Specify how volume will be affected by keyboard location

OFF, LOW, HIGH, ALL

```
<VDA[1]      KBDTRK>
             K.TRK_Mode ▶
             LOW
                      1/5
```

Specify how volume change dependent on keyboard location (VDA keyboard tracking) will occur.

When LOW is selected, keyboard tracking will occur in the area below the point specified by [125] Keyboard Tracking Key. When HIGH is selected, keyboard tracking will occur in the area above the specified key.

When ALL is selected, keyboard tracking will occur over the entire keyboard. When OFF is selected, keyboard tracking will not occur. In this case the settings of the [126] Keyboard Tracking Intensity, [127] Keyboard Tracking EG Time, and [128] Keyboard Tracking EG Time Switch/Polarity parameters will be ignored.

125. VDA keyboard tracking key

⬆ 124. VDA keyboard tracking mode
⬇ 126. VDA keyboard tracking intensity

Specify the key around which volume will change

C-1—G9

```
<VDA[1]      KBDTRK>
            ◀K.TRK_Key ▶
             C 4
                      2/5
```

When [124]Keyboard Tracking Mode is set either to LOW or HIGH, keyboard tracking will be applied beginning at the key that is specified here, and extending toward the lower or the upper range of the keyboard.

When the Tracking Mode is set to ALL, this setting specifies the key which will be the center of keyboard tracking. (Keyboard tracking will not apply to this key.)

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126. VDA keyboard tracking intensity

↑ 125. VDA keyboard
tracking key
↓ 127. VDA keyboard tracking
EG time

Specify how greatly the volume EG will be affected by keyboard location

−128—000—+127

```
<VDA[1]    KBDTRK>
          ◄TRK AmpInt►
           +040
                  3/5
```
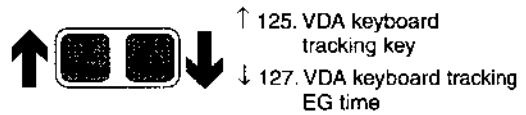
Specify the strength (depth) with which keyboard tracking will apply to the area specified by the [124]Keyboard Tracking Mode and [125]Keyboard Tracking Key parameters.

Positive (+) settings will cause the volume to increase as higher notes are played. Negative (−) settings will have the opposite effect.

127. VDA keyboard tracking EG time
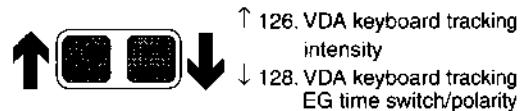
↑ 126. VDA keyboard tracking
intensity
↓ 128. VDA keyboard tracking
EG time switch/polarity

Specify how greatly the volume EG times will be affected by keyboard location

000—127

```
<VDA[1]    KBDTRK>
          ◄TRK EGTime►
           +020
                  4/5
```

Specify how greatly the VDA EG parameters Attack Time (134), Decay Time (136), Slope Time (138) and Release Time (140) will be affected by keyboard tracking.

Increasingly positive (+) settings of this parameter will cause the VDA EG times to become shorter as higher notes are played in the area specified by the [124] Keyboard Tracking Mode and [125] Keyboard Tracking Key parameters, causing faster volume change. As lower notes are played, VDA EG times will become longer, causing slower volume change.

Conversely, increasingly negative (−) settings of this parameter will cause slower volume change as higher notes are played, and faster volume change as lower notes are played.

128. VDA keyboard tracking EG time switch/polarity
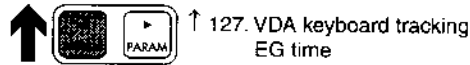
↑ 127. VDA keyboard tracking
EG time

Specify the direction in which the volume EG will be affected by keyboard location

AT, DT, ST, RT
OFF, ON (+), ON (–)

```
<VDA[1]    KBDTRK>
AT KBDTRK  ◀Sw/Pol(AT)▶
              ON +
○OFF ◉+ ○–
              5a/5
```

Specify the direction in which keyboard tracking will affect the VDA EG time parameters Attack Time (134), Decay Time (136), Slope Time (138) and Release Time (140).

For each time parameter, a setting of "+" will cause the time to be shortened as higher notes are played in the area above the [125] Keyboard Tracking Key. A setting of "–" will cause the time to be lengthened. With a setting of 0, there will be no effect.

These parameters set the direction (±) in which the four Time parameters will be affected, but the amount of the effect is specified by the [127] Keyboard Tracking EG Time parameter.

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VDA LFO

129. VDA LFO waveform

PARAM ↓ 130 VDA LFO frequency
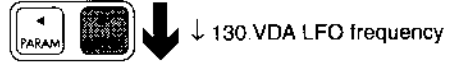
Select the waveform for the tremolo effect

TRIANGLE, SAW UP, SAW DOWN, SQUARE 1, SQUARE 2, RANDOM

```
<VDA[1]      LFO>
              A.LFO Wave ▶
              TRIANGLE
                    1/5
```
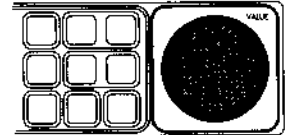
Select the waveform that will be used for VDA modulation (the tremolo effect produced by cyclically modulating the volume).

130. VDA LFO frequency

↑ 129. VDA LFO waveform
↓ 131. VDA LFO intensity

Specify the frequency of the tremolo effect

000—127

```
<VDA[1]      LFO>
            ◀A.LFO Freq▶
              024
                    2/5
```
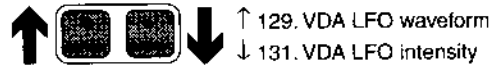
Specify the frequency of the VDA modulation waveform.

131. VDA LFO intensity

↑ 130. VDA LFO frequency
↓ 132. VDA LFO delay

Specify the depth of the tremolo effect

000—127

```
<VDA[1]      LFO>
            ◀Intensity ▶
              010
                    3/5
```
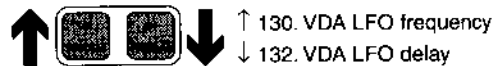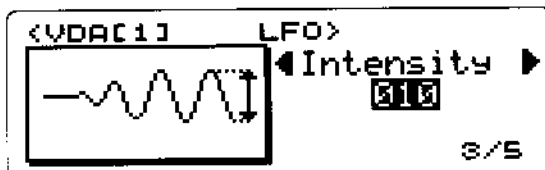
Specify the depth (strength) of the VDA modulation effect.

132. VDA LFO delay
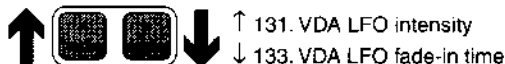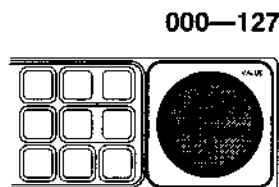
↑ 131. VDA LFO intensity
↓ 133. VDA LFO fade-in time

Specify the time delay until the tremolo effect will begin to apply

000—127

```
<VDA[1]      LFO>
          ◀LFO Delay ▶
              040
                    4/5
```

Specify the time from when the Note-on message is received (i.e., from when the keyboard is played) until VDA modulation begins to apply to the sound.

133. VDA LFO fade-in time
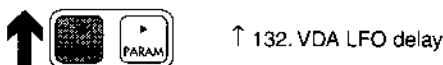
↑ 132. VDA LFO delay

Specify the time over which the maximum tremolo effect will be reached

000—127

```
<VDA[1]      LFO>
          ◀LFO FadeIn
              010
                    5/5
```
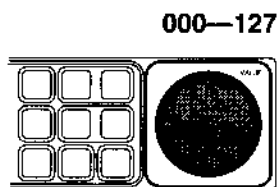
Specify the time from when VDA modulation begins to take effect until the full strength specified by [131] VDA LFO Intensity is reached.
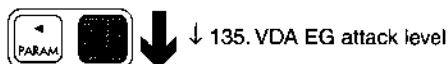
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134. VDA EG attack time

↓ 135. VDA EG attack level

Specify the time over which the volume will reach the attack level

000—127

```
<VDA[1]      EG>    EDIT
             AttackTime ▶
             072
                    1/10
```
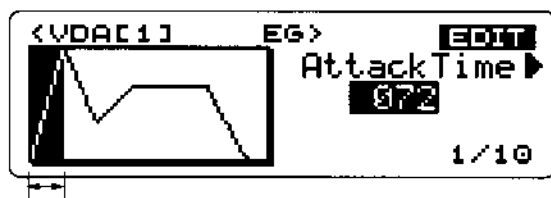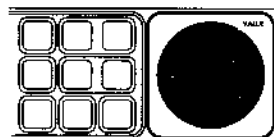
Specify the time over which the VDA volume will change from Note-on until it reaches the [135] Attack Level.

135. VDA EG attack level

↑ 134. VDA EG attack time
↓ 136. VDA EG decay time

Specify the level which the volume will reach after the attack time

000—127

```
<VDA[1]      EG>    EDIT
       ◀AttackLvl ▶
             109
                    2/10
```
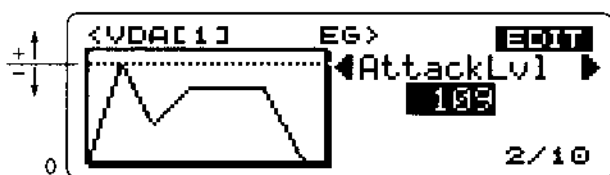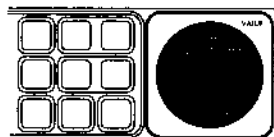
Specify the volume which will be reached when the [134] Attack Time has elapsed.

136. VDA EG decay time

↑ 135. VDA EG attack level
↓ 137. VDA EG break point

Specify the time over which the volume will reach the break point

000—127

```
<VDA[1]      EG>    EDIT
       ◀DecayTime ▶
             075
                    3/10
```
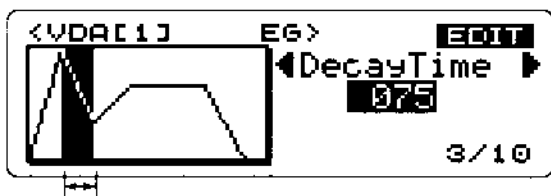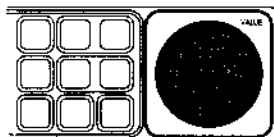
Specify the time over which the volume will change toward the [137] Break Point (the volume which will be maintained as long as the key remains pressed), after the [134] Attack Time has elapsed.

137. VDA EG break point
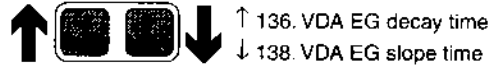
↑ 136. VDA EG decay time
↓ 138. VDA EG slope time

Specify the level which the volume will reach after the decay time

000—127
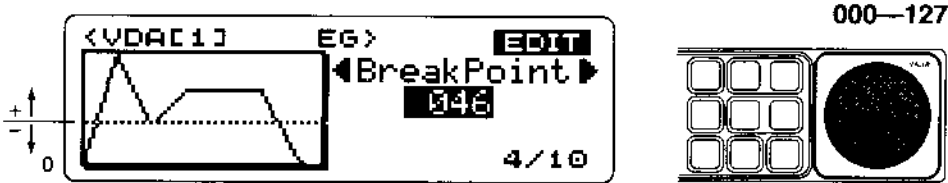
Specify the volume which will be reached when the [136] Decay Time has elapsed.

138. VDA EG slope time
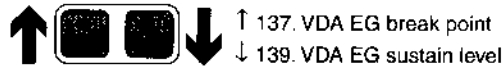
↑ 137. VDA EG break point
↓ 139. VDA EG sustain level

Specify the time over which the volume will reach the normal level

000—127

Specify the time over which the volume will change toward the normal level (the volume which will be maintained as long as the key remains pressed), after the [137] Slope Time has elapsed.

139. VDA EG sustain level
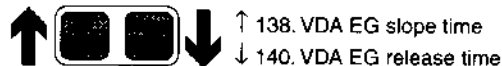
↑ 138. VDA EG slope time
↓ 140. VDA EG release time

Specify the volume level which will be maintained until the key is released

001—127

Specify the normal VDA volume level which will be maintained as long as the key remains pressed.

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140. VDA EG release time

↑ 139. VDA EG sustain level
↓ 141. VDA EG amplitude
velocity sensitivity

Specify the time over which the volume will decrease to silence after the key is released

000—127

```
<VDAC1]       EG>        EDIT
           ◀ReleaseTim▶
             088
                      7/10
```

Specify the time over which the volume will decrease from Note-off (the moment the key is released) until the volume specified by the [**] Release Level is reached.

141. VDA EG amplitude velocity sensitivity

↑ 140. VDA EG release time
↓ 142. VDA EG time velocity
sensitivity

Specify how greatly the VDA EG will be affected by keyboard dynamics

−128—000—+127

```
<VDAC1]       EG>
           ◀AmpVelSens▶
             +078
                      8/10
```

Specify how the strength (depth) of the VDA EG effect will be affected by MIDI velocity data.

With increasingly positive (+) settings of this parameter, strongly played notes will cause the VDA EG to become deeper, and softly played notes will cause the VDA EG to become shallower. Conversely, negative (−) settings will cause the VDA EG to become shallower for strongly played notes, and deeper for softly played notes.

142. VDA EG time velocity sensitivity
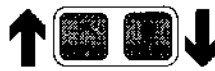
↑ 141. VDA EG amplitude velocity sensitivity
↓ 143. VDA EG velocity sensitivity
switch/polarity

Specify how greatly the VDA EG times will be affected by keyboard dynamics

000—127

```
<VDA[1]    EG>
          ◀TimeVelSns▶
             015
                  9/10
```
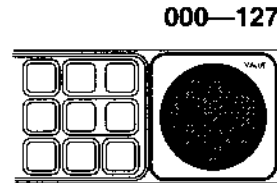
Specify how MIDI velocity data will affect the VDA EG times Attack Time (134), Decay Time (136), Slope Time (138) and Release Time (140).

As this value is increased, strongly played notes will cause the VDA EG times to become shorter, producing more rapid change in volume. Softly played notes will cause the VDA EG times to become longer, producing slower change in volume.

143. VDA EG velocity sensitivity switch/polarity

↑ 142. VDA EG time velocity
sensitivity

Specify the direction in which the VDA EG will be affected by keyboard dynamics

AT, DT, ST, RT
OFF, ON (+), ON (–)

```
<VDA[1]    EG>    EDIT
EG TIMEVEL ◀Sw/Pol(AT)▶
              OFF
●OFF ○+ ○–       10a/10
```
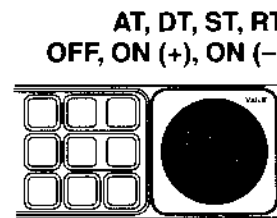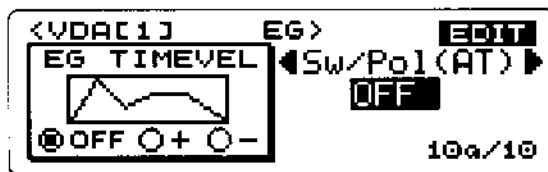
Specify the direction in which MIDI velocity data will affect the VDA EG times Attack Time (134), Decay Time (136), Slope Time (138) and Release Time (140).

For each time parameter, a setting of "+" will cause the time to be shortened as notes are played more strongly. A setting of "–" will cause the time to be lengthened. With a setting of 0, there will be no effect.

These parameters set the direction (+/–) in which the four Time parameters will be affected, but the amount of the effect is specified by the [142] VDA EG Time Velocity Sensitivity parameter.

6
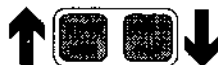
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144. Oscillator panpot

↓ 145, 146. C send level/ D send level

Specify the stereo balance of the send level to the effects
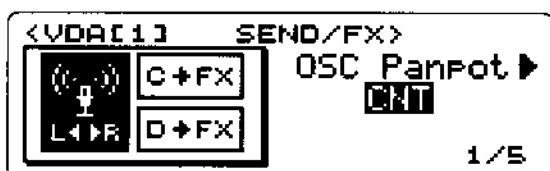
RND, L63—CNT—R63. ***
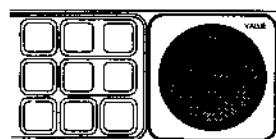
When the program sounds are output from the NS5R in stereo, this parameter specifies the stereo location at which the sound will be heard: from center position (output with identical volume from both L and R outputs) all the way to one or the other side (when either the L or R output will be at minimum volume).

With a setting of CNT, the sound of the part will be heard from the center. As the value is increased, the sound will move toward the left or right edge. A setting of L63 is full left, and R63 is full right.

With a setting of RND, the sound of that part will be heard from a different location each time a MIDI Note-on message is received. This means that (for example) when a MIDI keyboard connected the NS5R is played, each note will be heard from a different location, just as though the sound were jumping here and there.

* *If [074] Oscillator Mode is set to DRUMS, this parameter will be displayed as ***, indicating that in this case the parameter setting is invalid.*

On the NS5R, parameters which determine the panpot setting exist separately in each of the three modes Program, Combination, and Multi. The actual pan location at which the sound is heard is determined by the sum of the settings in these three modes.

For example if for a certain part in Multi mode, [006] Panpot is set to R63 (far right) and the [144] Oscillator Panpot is set to L63 (far left) in the program selected for that part, the sound will actually be heard in the location determined as follows:

R63 (far right) + L63 (far left) = (same level for both) = (heard from the center)

Thus, the sound will be heard from the center.

If the sound selected for that part is a combination sound (rather than simply a program sound), the [055] Program Panpot setting will be added to this equation.

However if even one of these values is set to RND, the sound of that part will be heard from a random location for each note.

145, 146.C send level/D send level

⬆ 🔳 🔳 ⬇ ↑ 144. Oscillator panpot
↓ 147. Effect bank

Specify the send level to the effect

000—127

```
<VDA[1]    SEND/FX>
[((•))]  C→FX  ◄C SendLvl ►
[L◄►R] [D→FX]      127
                    2/5
```
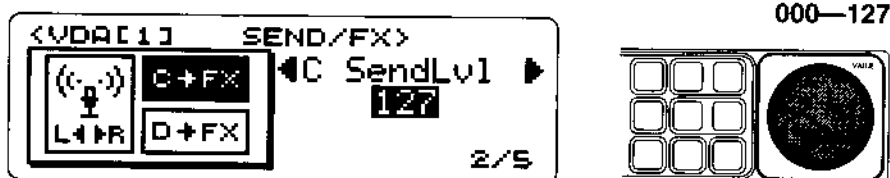
Specify the level of the sound that is sent to the two effect processors inside the NS5R. As this value is increased, the effects will apply more strongly to that part.

* The way in which the sound is sent to the two effect processors, and how the levels are adjusted by the Send Level parameters, differs widely according to the Effect Placement setting. →P.135 "Effect Placement"

On the NS5R, parameters which determine send levels to the effect processors exist separately in each of the three modes Program, Combination, and Multi. The maximum value of the Multi mode parameters [007] Reverb Send Level and [008] Chorus Send Level will be the values of the Program Edit mode parameters [145] C Send Level and [146] D Send Level. In the case of a combination sound, the send levels will also be limited by the settings of the [058] C Send Level and [049] D Send Level parameters.

147. Effect bank

⬆ 🔳 [►PARAM] ↑ 145, 146. C send level/ D send level
↓ 148. Effect number

Select the bank of the desired effect

A, B, C, D, E, F, G, H

```
<VDA[1]    SEND/FX>
[((♪))]  ◄ Fx(Bank) ►
          B:001
         [Rev+Cho ]
                    4/5
```

Specify the bank of the effect program that will be used for the currently selected program sound.

148. Effect number ↑147. Effect bank

Select the number of the desired effect

001—128

```
<VDA[1]    SEND/FX>
((( ♪ ♪ )))   ◀ Fx(Name)
              A:001
              [Rev+Cho ]
                    5/5
```

Specify the effect program number that will be used for the currently selected program sound.

* In order to select an effect program, you must first specify the part by which it will be used. If the Global mode [047] Effect Follow Part is OFF, it will not be possible to select an effect program. In this case, the following display will appear.

```
<VDA 1&2   FX TYPE>
((( | Unable to Edit.   k ) ▶
    | Turn FX.Follow   1
    | Part 1~32.       o ]
                    4/5
```

In order to select an effect, specify the part number in [047] Effect Follow Part.

149. Program rename

Assign a name to the program and save it

```
<PROG RENAME>        EDIT
  GM00:017 Perc Organ
  PrgU:018
  Save as: My Organ █
```

After assigning a program name to the currently selected sound program (if desired), you can save it to the desired program number within the User program bank.

If you wish to modify the program name, use the |PARAM| buttons to move the cursor to the character of the program name that you wish to modify, and use the VALUE controller to select a character. By repeating this process, you can create any desired name. The following characters can be used.

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

Reference Guide

7. Drum Kit Edit mode

A Drum Kit is a waveform in which various percussion instrument sounds are assigned to each note number of the keyboard. Since a sound program which uses a drum kit will arrange many different drum sounds across the keyboard, you can play different notes on your MIDI keyboard to "play the drums," just as if you were playing a set of acoustic drums and percussion instruments.

To enter this mode, make sure that a drum kit is selected for the oscillator, and from any editing page in Program Edit mode (except for the program rename and PAN/FX pages) press and hold the [EDIT/ENTER] button (for approximately 2 seconds). A drum kit will be selected for the oscillator if in Multi mode you select a program which uses a drum kit, or if in Program Edit mode you set [074] Oscillator Mode to DRUMS.

The following items can be set in this mode.

Button	Parameter	Edit	Refer to
	150 Drum sample select	Select the drum sound for each note	→P.128
	151 Drum sample level	Specify the volume of each drum sound	→P.128
	152 Transpose	Adjust the pitch of each drum sound in semitones	→P.128
	153 Fine tune	Make fine adjustments to the pitch of each drum sound	→P.129
	154 Panpot	Specify the stereo location of each drum sound	→P.129
	155 Assign mode	Specify how successive notes will be sounded	→P.130
	156 Exclusive group	Specify drum sounds which will not sound simultaneously	→P.130
	157 Reverb send level	Specify the depth of the reverb effect for each drum sound	→P.131
	158 Chorus send level	Specify the depth of the chorus effect for each drum sound	→P.131
	159 Cutoff	Adjust the brightness of each drum sound	→P.132
	160 Color	Adjust the tonal character of each drum sound	→P.132
	161 Attack time	Adjust the attack time for the volume and tone of each drum sound	→P.132
	162 Decay time	Adjust the decay time for the volume and tone of each drum sound	→P.133
	163 Receive note-on switch	Limit the sounding of each drum sound	→P.133
	164 Receive note-off switch	Limit the silencing of each drum sound	→P.133

In Drum Kit Edit mode, a graphic of the keyboard will appear in the LCD. The small downward pointing triangle graphically indicates the note which is alpha-numerically indicated above the keyboard graphic, and tells you the note for which you are now making settings. Use the [PART/PAGE] buttons to select the note that you wish to edit. If a MIDI keyboard is connected to the NS5R, you can also select a note for editing simply by pressing the corresponding key.

```
<DRUMKIT EDIT>      EDIT
  Instrument  =      ▶
  [C 2 :ProcesKick]
  ▕▏▏▏▏▏▏▏▏▏▏▏▏▏▏▏▏▏▏   1/15
```

127

150. Drum sample select

↓ 151. Drum sample level

Select the drum sound for each note

```
<DRUMKIT EDIT>
 DrumSample  =061  ▶
 [C 3 :Tom 1 Hi  ]
 |||||||||||||||||||||||||||||||||||    1/15
```

000—285

Specify the drum sound which will be assigned to the currently selected note. The drum sounds in the NS5R are numbered from 000 to 285, and are listed in the "Drum Sound" list at the end of this manual.

151. Drum sample level

↑ 150. Drum sample select
↓ 152. Transpose

Specify the volume of each drum sound

```
<DRUMKIT EDIT>
◀D.Smpl Level =127   ▶
 [C 3 :Tom 1 Hi  ]
 |||||||||||||||||||||||||||||||||||    2/15
```

000—127
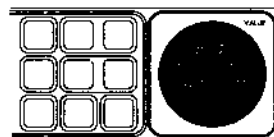
Specify the volume of the drum sound assigned to the currently selected note.

152. Transpose

↑ 151. Drum sample level
↓ 153. Fine tune

Adjust the pitch of each drum sound in semitones

```
<DRUMKIT EDIT>
◀Transpose  =+00   ▶
 [C 3 :Tom 1 Hi  ]
 |||||||||||||||||||||||||||||||||||    3/15
```
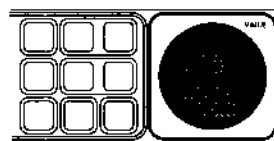
−64—+00—063

Adjust the pitch of the drum sound assigned to the currently selected note, in semitone steps.

153. Fine tune

↑ 152. Transpose
↓ 154. Panpot

Make fine adjustments to the pitch of each drum sound

-64—+00—063

<DRUMKIT EDIT>
◀FineTune   = +00 ▶
[C 3 :Tom 1 Hi]
4/15
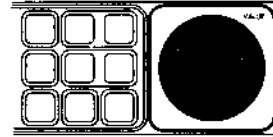
Make fine adjustments to the pitch of the drum sound assigned to the currently selected note.

154. Panpot

↑ 153. Fine tune
↓ 155. Assign mode

Specify the stereo location of each drum sound

RND, L63—CNT—R63

<DRUMKIT EDIT>
◀Panpot   = R28 ▶
[C 3 :Tom 1 Hi]
5/15
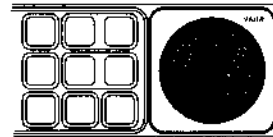
For the drum sound assigned to the currently selected note, specify the location when stereo output is used: center (equal volume from L and R outputs), or toward the left or right (the volume of either the L or R outputs will decrease).

With a setting of CNT, the sound of that Part will be heard from the center. As the setting is increased, the sound will be heard further away from the center and toward the left or right. With a setting of L63 the sound will be fully left, and with a setting of R63 it will be fully right.

When RND is selected, that drum sound will be heard from a different location each time a MIDI note-on message is received.

Drum Kit Edit mode

155. Assign mode

⬆ 🔲 🔲 ⬇ ↑ 154. Panpot
↓ 156. Exclusive group

Specify how successive notes will be sounded

Single, Multi

```
<DRUMKIT EDIT>
◀Assign Mode  =Multi ▶
 [C 3 :Tom 1 Hi   ]
 |||||||||||||||||||||||||||||||  6/15
```
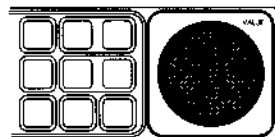
For the currently selected note, specify how the drum sound will be triggered when successive note-on messages are received.

With a setting of Single, note-on messages received for this note while the drum sound is still sounding will cause the note to be forced off, and then re-triggered.

This means that only one instance of the drum sound for this note will play at a given time.

With a setting of Multi, note-on messages received for this note while the drum sound is still sounding will play the note again, without interrupting the already-sounding note.

This means that if additional note-on messages are received, it will be possible for two, three, or more identical drum sounds of the same note number to be sounding at the same time, as determined by the length of the sound and by when note-off messages are received. Of course, the number of notes which can be sounding simultaneously will be limited by the maximum polyphony of the NS5R.

156. Exclusive group
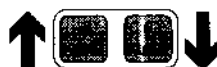
⬆ 🔲 🔲 ⬇ ↑ 155. Assign mode
↓ 157. Reverb send level

Specify drum sounds which will not sound simultaneously

OFF, 001—127

```
<DRUMKIT EDIT>
◀Excl.Group   =OFF ▶
 [C 3 :Tom 1 Hi   ]
 |||||||||||||||||||||||||||||||  7/15
```
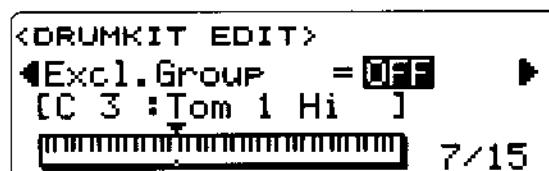
The currently selected note can be assigned an Exclusive Group number between 001 and 127. Drum sounds which are assigned to the same Exclusive Group number will not be able to sound simultaneously.

If a note-on message is received for a note which has the same Exclusive Group number as a different note that is already sounding, the already-sounding note will be forced off, and the newly requested note will sound.

For example, you may wish to specify the same Exclusive Group number for drum sounds which would produce an unnatural effect if they were heard at the same time, such as open hi-hat and closed hi-hat sounds.

157. Reverb send level
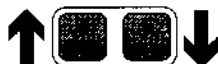
Specify the depth of the reverb effect for each drum sound

000—127

```
<DRUMKIT EDIT>
◀Rel.RevSend  = 047    ▶
 [C 3 :Tom 1 Hi   ]
 |||||||||||||||||||||||||||||||  8/15
```

7

Drum Kit
Edit
mode

For the drum sound of each note, adjust the level of the sound that will be sent to the C input of the two built-in effect processors. As this value is increased, the effect will apply more strongly to that drum sound.

* *The way in which the sound is sent to the two effect processors, and the way in which the level will be adjusted by the Reverb Send Level parameter is greatly dependent on the Effect Placement setting. →P.135 "Effect Placement"*

158. Chorus send level

Specify the depth of the chorus effect for each drum sound

000—127

```
<DRUMKIT EDIT>
◀Rel.ChoSend  = 000    ▶
 [C 3 :Tom 1 Hi   ]
 |||||||||||||||||||||||||||||||  9/15
```

In the same way as for the C Send Level parameter, adjust the level of the sound that will be sent to the D input of the two built-in effect processors, for the drum sound of each note. As this value is increased, the effect will apply more strongly to that drum sound.

* *The way in which the sound is sent to the two effect processors, and the way in which the level will be adjusted by the Chorus Send Level parameter is greatly dependent on the Effect Placement setting. →P.135 "Effect Placement"*

159. Cutoff

⬆🔳🔳⬇ ↑ 158. Chorus send level
↓ 160. Color

Adjust the brightness of each drum sound

```
-64—+00—+63
<DRUMKIT EDIT>
◀Rel.Cutoff   =+00   ▶
 [C 3 :Tom 1 Hi  ]
 ▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆ 10/15
```
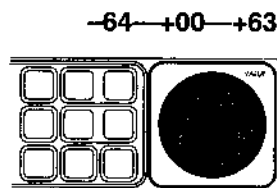
Adjust the cutoff frequency (brightness) of the drum sound for the currently selected note.

160. Color

⬆🔳🔳⬇ ↑ 159. Cutoff
↓ 161. Attack time

Adjust the tonal character of each drum sound

```
-64—+00—+63
<DRUMKIT EDIT>
◀Rel.Color   =+00   ▶
 [C 3 :Tom 1 Hi  ]
 ▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆ 11/15
```
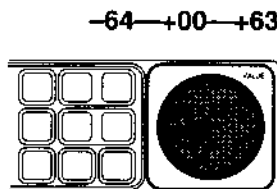
For the drum sound of the currently selected note, this setting adjusts the emphasis applied to the region around the cutoff frequency, adding a unique tonal character to the sound.

* The effect that this will have will depend on the original sound. For some drum sounds, the effect may not be very noticeable.

161. Attack time
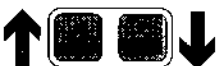
⬆🔳🔳⬇ ↑ 160. Color
↓ 162. Decay time

Adjust the attack time for the volume and tone of each drum sound

```
-64—+00—+63
<DRUMKIT EDIT>
◀Rel.AttackT  =+00   ▶
 [C 3 :Tom 1 Hi  ]
 ▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆ 12/15
```
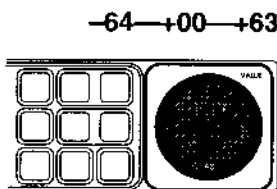
Adjust the attack time (the time over which the tone and volume will rise to their highest point) for the drum sound of the currently selected note.

162. Decay time

↑ 161. Attack time
↓ 163. Receive note-on switch

Adjust the decay time for the volume and tone of each drum sound

−64—+00—+63

```
<DRUMKIT EDIT>
◀Rel.DecayT   =+07 ▶
 [C 3 :Tom 1 Hi  ]
 ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖ 13/15
```

Adjust the decay time (the time over which the tone and volume will diminish) for the drum sound of the currently selected note.

163. Receive note-on switch

↑ 162. Decay time
↓ 164. Receive note-off switch

Limit the sounding of each drum sound

ON, OFF

```
<DRUMKIT EDIT>
◀Rx.NoteOn Sw =ON ▶
 [C 3 :Tom 1 Hi  ]
 ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖ 14/15
```
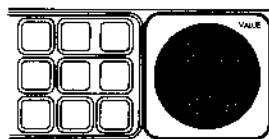
Specify whether or not the currently selected note will receive note-on messages.
If this parameter is turned OFF, the drum sound of the note will not play.

164. Receive note-off switch

↑ 163. Receive note-on switch

Limit the silencing of each drum sound

ON, OFF

```
<DRUMKIT EDIT>
◀Rx.NoteOff Sw=OFF
 [C 3 :Tom 1 Hi  ]
 ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖ 15/15
```

Specify whether or not the currently selected note will receive note-off messages.
You can turn set parameter OFF for drum sounds which you do not want turned off before they complete their decay.

7

Drum Kit Edit mode

8. Effect Edit mode

The NS5R contains two digital effect processors. For each effect (EFFECT 1, 2) you can select one of 47 types of effect (referred to as Effect Type), such as reverb, delay, flanger, distortion, and exciter etc.

The 47 Effect Types are numbered: 1—37 are Single effects, 38—39 are series-connected effects, and 40—47 are parallel-connected effects. By using parallel-connected effects, a maximum of 4 independent effects can be used at once.

Single: 1–37	Serial: 38 & 39	Parallel: 40–47
FX 1	FX 1a — FX 1b	FX 1a / FX 1b
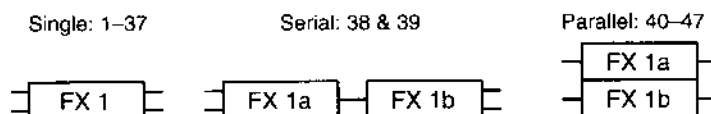
The effect section consists of four inputs (A, B, C, D), the two effects (EFFECT 1,2), two panpots (PAN 3, 4), and two outputs (L/MONO, R).

* *In a Combination, the effect settings of each Program 01—08 are ignored, and the effect settings of the Combination are used. Similarly in a Multi, the effect settings of the Program for each Part are ignored, and the effect settings specified for that Multi will be used.*

To enter this mode, make sure that either [009] Effect Bank or [010] Effect Program are selected in Multi mode, and press and hold the [EDIT/ENTER] button (for approximately 2 seconds).

The following items can be set in this mode.

Key	Parameter	Edit	Refer to
	165 Effect placement	Specify how the two effects will be connected	→P.135
	166 Effect 1 type	Select the type for effect 1	→P.137
	167 Effect 1 switch	Turn effect 1 on/off	→P.137
	168 Effect 2 type	Select the type for effect 2	→P.137
	169 Effect 2 switch	Turn effect 2 on/off	→P.137
	170 Effect 1 balance	Adjust the depth of effect 1	→P.138
	171 Dynamic modulation source 1	Select the controller which will control dynamic modulation	→P.138
	172 Dynamic modulation intensity 1	Adjust the depth of dynamic modulation	→P.139
	173 Effect 1 parameters	Parameters for effect 1	→P.140
	174 Effect 2 balance	Adjust the depth of effect 2	→P.138
	175 Dynamic modulation source 2	Select the controller which will control dynamic modulation	→P.138
	176 Dynamic modulation intensity 2	Adjust the depth of dynamic modulation	→P.139
	177 Effect 2 parameters	Parameters for effect 2	→P.140
	178 Panpot/output level	Adjust the volume/panning of the output signal	→P.140
	179 Effect rename	Assign a name to the effect program	→P.141

When the power is turned on, [053] Initialize has been performed, or when a GM System On MIDI message is received, the Multi mode settings will be initialized for GM: effect 1 will be set to 01 Hall, effect 2 will be set to 19 Chorus 2, and Placement will be set to Parallel 3.

165. Effect placement

◀ PARAM ↓ ↓ 166. Effect 1 type

Specify how the two effects will be connected

SERIAL, PARA.1, PARA.2, PARA.3

```
<EDIT EFFECT>
A:000 Rev+Cho    PARA.3
Fx1:01 Hall      SW:ON
Fx2:19 Chorus 1  SW:ON
```
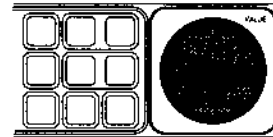
This setting determines how the sound from the four inputs (A, B, C, D) will pass through the effects.

The A and B inputs are controlled by Pan, and C and D by Send. These parameters are located in Program Edit mode [144][145][146], Combination Edit mode [055][058][059], and Multi mode [006][007][008].

SERIAL (Serial placement)
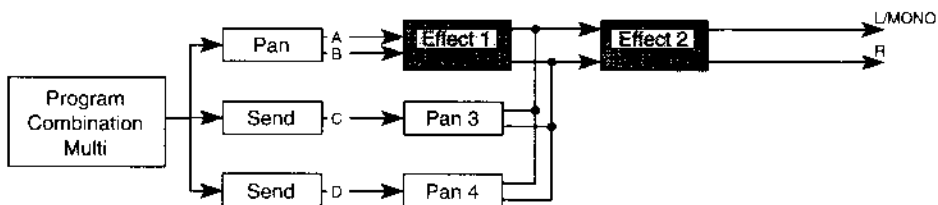
With Serial Placement, effects 1 and 2 will apply to the sound which is input to A and B, and the result will be output from L/MONO and R. The sound which is input to C and D will be mixed with the output of effect 1, and sent through effect 2.

By using the C and D inputs, you can avoid applying effect 1 to specific sounds, or conversely to apply effect 1 only to specific sounds and then apply effect 2 to all of the sound.

Reference Guide

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Effect Edit mode

PARA. 1 (Parallel 1 placement)
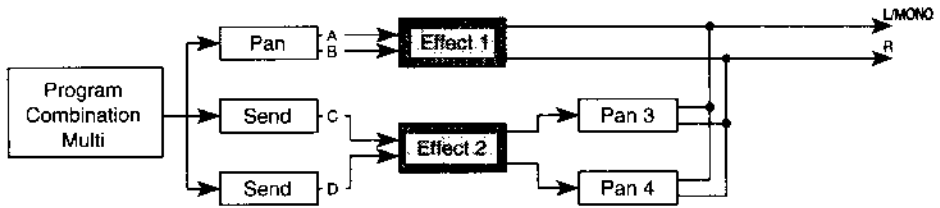
When Parallel 1 is selected, effect 1 will be applied to the sound which is input to A and B. Effect 2 will be applied to the sound which is input to C and D, and the output will be mixed with the output of effect 1. This placement allows effects 1 and 2 to be used independently.

PARA. 2 (Parallel 2 placement)
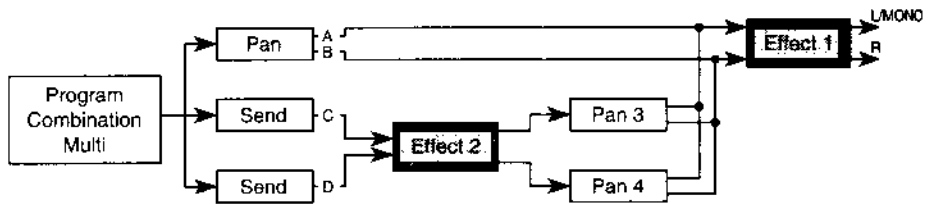
When Parallel 2 is selected, effect 1 will be applied to the sound which is input to A and B. Effect 2 will be applied to the sound which is input to C and D, and the output will be mixed into the input of effect 1.

PARA. 3 (Parallel 3 placement)
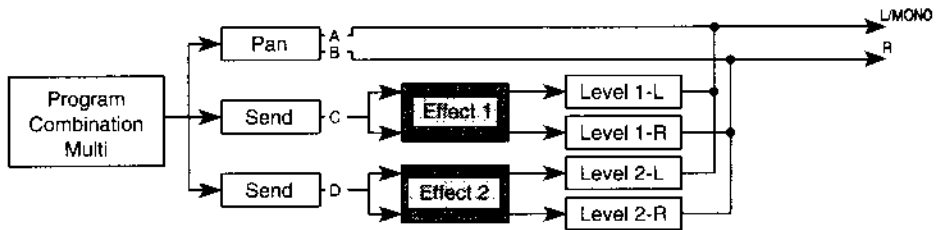
When Parallel 3 is selected, the sound which is input to A and B will be output without being processed. The sound which is input to C and D will be sent respectively to effects 1 and 2, and then each is adjusted separately and mixed into the L/MONO and R outputs. GM will normally use this placement.

166. Effect 1 type
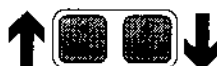
↑ 165. Effect placement
↓ 167. Effect 1 switch

168. Effect 2 type
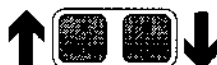
↑ 167. Effect 1 switch
↓ 169. Effect 2 switch

Select the type for effect 1 and effect 2.

(P.148)

```
<EDIT EFFECT>
A:000 Rev+Cho    PARA.3
Fx1:01 Hall          SW: ON
Fx2:19 Chorus 1   SW: ON
```
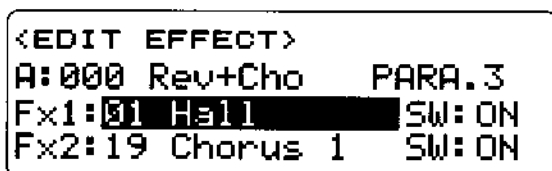
Select the effects which will be used by effect 1 and effect 2. When you select the effect type, the effect parameters [173][174] will be set to their default values.

⚠️ *If effect type 24 (Symphonic Ensemble) is selected for either [166] or [167], certain other effects will become unavailable for selection for the other effect (refer to p.146 "Symphonic Ensemble").*

167. Effect 1 switch
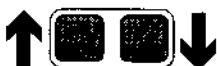
↑ 166. Effect 1 type
↓ 168. Effect 2 type

169. Effect 2 switch
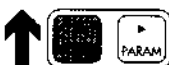
↑ 168. Effect 2 type

Turn effect 1 and effect 2 on/off

ON, OFF

```
<EDIT EFFECT>
A:000 Rev+Cho    PARA.3
Fx1:01 Hall          SW: ON
Fx2:19 Chorus 1   SW: ON
```
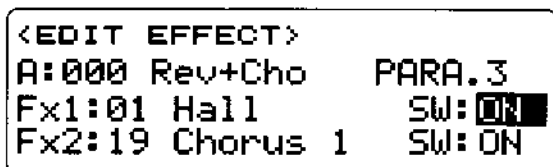
Turn effect 1 and effect 2 on/off. With a setting of OFF, that effect will not be applied.

⚠️ *For the following effects, the equalizer settings (EQ High, EQ Low) will remain in effect even if the Effect Switch is turned off.*
13: Stereo Delay, 14: Cross Delay, 19: Chorus 1, 20: Chorus 2, 28: Exciter, 35: Auto Pan, 36: Tremolo

8

Effect Edit mode

Reference Guide

	↑ FX1 PARAM
⬆ [PART◄ PAGE] [PART► PAGE] ⬇	↓ FX2 PARAM

	↑ EDIT EFFECT
⬆ [PART◄ PAGE] [PART► PAGE] ⬇	↓ FX1 PARAM

170. Effect 1 balance

⬇ ↓ 171. Dynamic modulation source 1

174. Effect 2 balance

⬇ ↓ 175. Dynamic modulation source 2

Adjust the depth of effect 1 and effect 2

DRY, 99:01—01:99, EFF

```
<FX.1 CONTROL>
(Type:01 Hall        )

 DRY:FX      MOD.SRC   INT
 80:20        JS(+Y)   +15
```

For each effect 1 and 2, adjust the level balance between the unprocessed original sound the processed effect sound. With a setting of DRY only the unprocessed sound will be heard. With a setting of FX only the processed effect sound will be heard.

171. Dynamic modulation source 1

⬆ ⬇ ↑ 170. Effect 1 balance
↓ 172. Dynamic modulation intensity 1

175. Dynamic modulation source 2

⬆ ⬇ ↑ 174. Effect 2 balance
↓ 176. Dynamic modulation intensity 2

Select the controller which will control dynamic modulation

NONE, JS (+Y), JS (−Y), AFTR.T, PEDAL1, PEDAL2, VDA-EG

```
<FX.1 CONTROL>
(Type:01 Hall        )

 DRY:FX      MOD.SRC   INT
 80:20        JS(+Y)   +15
```

Dynamic Modulation is a function which allows specific effect parameters such as Effect Level Balance or Modulation Speed etc. to be adjusted while you play. This lets you add complex and subtle variation to your performance.

The modulation source can be selected from six types of controllers such as joystick or foot pedal. For each effect type, one parameter can be controlled using dynamic modulation, and you can specify the Modulation Source and Modulation Intensity separately for effect 1 and effect 2.

JS (+Y) : Modulation will be controlled by the MIDI messages [Bn, 01, xx] (control change #1) that are transmitted when the joystick on a MIDI keyboard is moved in the +Y direction.

JS (–Y) : Modulation will be controlled by the MIDI messages [Bn, 02, xx] (control change #2) that are transmitted when the joystick on a MIDI keyboard etc. is moved in the –Y direction.

AFTT : Aftertouch [Dn, xx]

PEDAL1 : Modulation will be controlled by the MIDI messages [Bn, 0C, xx] (control change #12) that are transmitted when the assignable pedal of a MIDI keyboard etc. is operated.

PEDAL2 : Modulation will be controlled by the MIDI messages [Bn, 0D, xx] (control change #13).

VDA EG : This is the sum of the VDA EG levels for all 64 voices. Modulation will apply more strongly when chords are played simultaneously.

(n indicates the MIDI channel)

172. Dynamic modulation intensity 1

 ↑ 171. Dynamic modulation source 1

176. Dynamic modulation intensity 2

 ↑ 175. Dynamic modulation source 2

Adjust the depth of dynamic modulation

–15—+00—+15

```
<FX.1 CONTROL>
(Type:01 Hall      )

  DRY:FX    MOD.SRC   INT
  80:20     JS(+Y)    +15
```
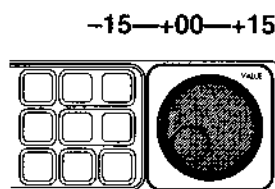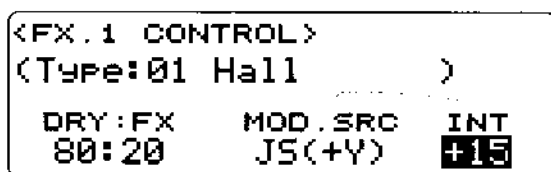

For effect 1 and effect 2, specify the depth of the dynamic modulation effect. The range of settings is from –15 to +15. Positive (+) settings will allow dynamic modulation to increase the value of the parameter being controlled. Negative (–) settings will have the opposite effect.

139

 ↑ FX.1 CONTROL
↓ FX.2 CONTROL

 ↑ FX.2 CONTROL
↓ PAN/OUT

173. Effect 1 parameters

177. Effect 2 parameters

Parameters for effect 1 and effect 2

(P141, following)

```
<FX1 PARAM>
(Type:01 Hall        )
Time :2.0s   H.Dmp:31%
P.Dly:025ms  E.Ref:34
EQ.Lo:-01dB  EQ.Hi:-03dB
```
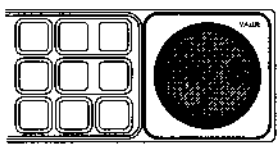

Effect parameters are explained on p.141 and following.

 ↑ FX.2 PARAM
↓ EFFECT RENAME

178. Panpot/output level

Adjust the volume/panning of the output signal

OFF, L, 99:01—01:99, R

```
<PAN/OUT>


PAN/    PAN 3    PAN 4
LEVEL   50:50    50:50
```
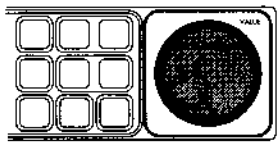

When the Placement setting is Serial, Parallel 1 or Parallel 2, the above display will appear. Here you can adjust the L/R output balance to Pan 3 and Pan 4.

0—9

```
<PAN/OUT>


PAN/    1-L  1-R  2-L  2-R
LEVEL    8    0    8    0
```
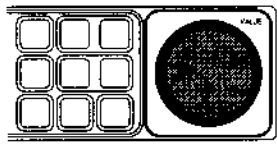

When the Placement setting is Parallel 3, the above display will appear. Here you can adjust the individual output levels (rather than the L/R output balance).

EFFECT RENAME ↑ [icon] ↑ PAN/OUT

179. Effect rename ↑ [icon] [icon] ↓

Assign a name to the effect program

```
<EFFECT RENAME>
  A:001     Rev+Cho
       000
  NewName: Rev+Cho█
```

000—127

If you wish, you can assign a new name to the effect program, and save it in one of the program numbers of the user program bank (bank H).

To modify the program name, use the [PARAM] buttons to move the cursor to the character of the name that you wish to modify, and use the VALUE controller to select the desired character. By repeating this process you can specify any name you wish. The following characters can be used.

Effect types and parameters

The parameters will depend on the effect type that you select. For each effect 1 and 2, you can select any effect from 00 (No Effect) to 47 (Delay/Rotary Speaker).

NO EFFECT

00: No Effect
For some of the effects, the equalizer settings (EQ High, EQ Low) will still be in effect even if the [167] [169] Effect Switch is OFF (refer to p.137). If you wish to cut the effects out completely, select 0 (No Effect).

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

REVERB

These effects simulate the acoustics of a hall etc., adding a reverberant ambiance to the sound.

01: Hall

This simulates the reverberation and natural acoustics of a medium-sized hall.

02: Ensemble Hall

This reverb is suitable for string or brass ensembles etc., and simulates the natural reverberation of an ensemble hall.

03: Concert Hall

This simulates the reverberation of a large hall, with the early reflections emphasized.

04: Room

This simulates the acoustics of a small room.

05: Large Room

This simulates the acoustics of a large room, and emphasizes the density of the reverb. With a Reverb Time setting of approximately 0.5 seconds, an effect similar to gated reverb will be produced.

06: Live Stage

This simulates the reverberation and acoustic characteristic of a live performance in a large room.

07: Wet Plate

This produces a deep plate reverb effect.

08: Dry Plate

This produces a shallow plate reverb effect.

09: Spring Reverb

This simulates the effect of a spring reverb device.

Parameter	Range	Description
Reverb Time (Time)	0.2 ~ 9.9 sec 0.2 ~ 4.9 sec 00 ~99 sec	Time over which the reverberation will decay (HALL type) (ROOM type) (PLATE/SPRING type)
High Damp (H. Dmp)	0 ~ 99%	Attenuation of the high frequency range Higher settings will cause the high range to decay faster, making the tone darker.
Pre delay (P.Dly)	0 ~200 ms	Time interval from the direct sound to the early reflections
Early Reflection Level (E.R)	0 ~ 99 1 ~10	Level of the early reflections (HALL/ROOM type) (PLATE/SPRING type)
EQ Low (EQ. Lo)	–12 ~ +12 dB	Amount of cut/boost for LOW EQ
EQ High (EQ. Hi)	–12 ~ +12 dB	Amount of cut/boost for HIGH EQ

For effects 01—09, the dynamic modulation selected by [171] and [175] will control the Dry:Effect balance.

EARLY REFLECTION

Out of all the components of reverberant sound, the Early Reflection effects isolate the early reflections which are such an important factor in determining the character of an acoustical space. A variety of effects can be created by adjusting the Early Reflection Time, such as thickening the sound or creating echo-like reflections.

10: Early Reflection 1

This effect isolates the early reflections which are such an important factor in determining the character of an acoustical space. Since the low frequency range is emphasized, this is especially suitable for percussion such as drums.

11: Early Reflection 2

Compared to Early Reflection 1, the level of the early reflections will change in a different way over time. This effect may be more suitable for other types of sound.

12: Early Reflection 3

The envelope of the early reflections is reversed in this effect, compared with Early Reflection 1 and Early Reflection 2. When applied to a sound that has a strong attack, such as a cymbal, a "reverse-tape" effect will be obtained.

Parameter	Range	Description
Early Reflection Time (Time)	100 ~ 800 ms	Early reflection time (10 ms steps)
Pre Delay (P. Dly)	0 ~ 200 ms	Time interval from the direct sound until the early reflections
EQ Low (EQ. Lo)	−12 ~ +12 dB	Amount of cut/boost for LOW EQ
EQ High (EQ. Hi)	−12 ~ +12 dB	Amount of cut/boost for HIGH EQ

For effects 10—12, the dynamic modulation selected by [171] and [175] will control the Dry:Effect balance.

STEREO DELAY

These effects allow you to specify the L/R channel delay times independently, to produce a delay pattern in stereo. The High Damp parameter lets you create a natural-sounding decay for the repeating delay sounds.

13: Stereo Delay

This is a stereo delay with feedback, that allows you to specify independent delay times for the left and right channels.

14: Cross Delay

This is a stereo delay that allows you to specify independent delay times for the left and right channels. Since the delayed sound can be fed back to the input of the opposite channel, the delay repeats will alternate between left and right.

Parameter	Range	Description
Delay Time Left (D. Time L)	0 ~ 500 ms	Delay time for the left channel (input A or C)
Delay Time Right (R)	0 ~ 500 ms	Delay time for the right channel (input B or D)
Feedback (FB)	−99 ~ +99%	The amount of delayed sound that will be fed back into the effect Negative settings will invert the phase
High Damp (H. Dmp)	0 ~ 99%	Attenuation of the high frequency range Higher settings will cause the high range to decay faster, making the tone darker.
EQ Low (EQ. Lo)	−12 ~ +12 dB	Amount of cut/boost for LOW EQ
EQ High (EQ. Hi)	−12 ~ +12 dB	Amount of cut/boost for HIGH EQ

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Effect Edit mode

For effects 13 and 14, the dynamic modulation selected by [171] and [175] will control the Dry:Effect balance. Also, the equalizer settings (EQ Low, EQ High) will remain effective even if the Effect Switch [167][169] is OFF. If you wish to turn off all effects including the equalizer, select 00 (No Effect).

DUAL MONO DELAY

15: Dual Mono Delay
This effect provides two mono delays, each with independent delay time, feedback, and high damp settings.

Parameter	Range	Description
Delay Time Left (D. Time L)	0 ~ 500 ms	Left channel delay time
High Damp Left (H. Damp L)	0 ~ 99%	Left channel attenuation of the high frequency range Higher settings will cause the high range to decay faster, making the tone darker.
Feedback Left (F. Back L)	−99 ~ +99%	The amount of delayed sound that will be fed back into the left channel Negative settings will invert the phase
Delay Time Right (D. Time R)	0 ~ 500 ms	Right channel delay time
High Damp Right (H. Dmp R)	0 ~ 99%	Right channel attenuation of the high frequency range Higher settings will cause the high range to decay faster, making the tone darker.
Feedback Right (F. Back R)	−99 ~ +99%	The amount of delayed sound that will be fed back into the right channel Negative settings will invert the phase

For effect 15, the dynamic modulation selected by [171] and [175] will control the Dry:Effect balance.

MULTI-TAP DELAY

In these effects, each effect input is equalized, and sent to two independent delays. The output of one delay will be fed back to the input.

16: Multi-Tap Delay 1
This is a 2-channel multi-repeat delay.

17: Multi-Tap Delay 2
This is a 2-channel multi-repeat delay with cross panning.

18: Multi-Tap Delay 3
This is a 2-channel multi-repeat delay with alternating feedback.

Parameter	Range	Description
Delay Time 1 (D. Time 1)	0 ~ 500 ms	Delay time for delay 1
Delay Time 2 (D. Time 2)	0 ~ 500 ms	Delay time for delay 2
Feedback (FB)	−99 ~ +99%	The amount of delayed sound that will be fed back into the effect Negative settings will invert the phase
EQ Low (EQ. Lo)	−12 ~ +12 dB	Amount of cut/boost for LOW EQ
EQ High (EQ. Hi)	−12 ~ +12 dB	Amount of cut/boost for HIGH EQ

For effects 16—18, the dynamic modulation selected by [171] and [175] will control the Dry:Effect balance.

CHORUS

These are stereo chorus effects with two chorus blocks. They can be applied to any type of sound, such as piano, strings or brass etc. to add a natural spaciousness and depth.

19: Chorus 1

The left channel modulation is in opposite phase to the right channel modulation. This produce a spacious stereo chorus.

20: Chorus 2

Same-phase modulation is applied to the left and right channels.

Parameter	Range	Description
Delay Time (Time)	0 ~ 200 ms	Delay time
Mod Waveform (Wave)	Sine (SIN) Triangle (TRI)	Select the modulation waveform
Mod Depth (Depth)	0 ~ 99	Modulation depth
Mod Speed (Speed)	0.03 ~ 30 Hz	Modulation speed
EQ Low (EQ. Lo)	–12 ~ +12 dB	Amount of cut/boost for LOW EQ
EQ High (EQ. Hi)	–12 ~ +12 dB	Amount of cut/boost for HIGH EQ

For effects 19 and 20, the dynamic modulation selected by [171] and [175] will control the Dry:Effect balance. Also, the equalizer settings (EQ Low, EQ High) will remain effective even if the Effect Switch [167][169] is OFF. If you wish to turn off all effects including the equalizer, select 00 (No Effect).

21: Quadrature Chorus

This is a stereo chorus in which the channels are modulated 90 degrees out of phase.

22: Crossover Chorus

This is a stereo chorus in which the two channels are modulated 90 degrees out of phase, and the chorus portion of each channel is mixed into the output of the opposite channel.

Parameter	Range	Description
Delay Time Left (Time:L)	0 ~ 250 ms	Left channel delay time
Delay Time Right (R)	0 ~ 250 ms	Right channel delay time
Mod Depth (Depth)	0 ~ 99	Modulation depth
Mod Speed (Speed)	1 ~ 99	Modulation speed
Mod Shape (Shape)	T+10 ~ T–10 S–10 ~ S+10	Select the modulation waveform. T: triangle wave, S: sine wave +10 to –10 adjusts the character of the waveform.
EQ Low (EQ. Lo)	–12 ~ +12 dB	Amount of cut/boost for LOW EQ
EQ High (EQ. Hi)	–12 ~ +12 dB	Amount of cut/boost for HIGH EQ

For effects 21 and 22, the dynamic modulation selected by [171] and [175] will control the Dry:Effect balance.

25: Flanger 1
Same-phase modulation will be applied to both channels.

26: Flanger 2
Opposite-phase modulation will be applied to the right and left channels. This will produce a spacious stereo flanging effect.

27: Crossover Flanger
Two flangers with opposite phase will apply feedback to each other.

Parameter	Range	Description
Delay Time (Time)	0 ~ 200 ms	Delay time
Resonance (Reso)	–99 ~ +99	Amount of the output signal that will be fed back to the input
Mod Depth (Depth)	0 ~ 99	Modulation depth
Mod Speed (Speed)	1 ~ 99	Modulation speed
EQ Low (EQ. Lo)	–12 ~ +12 dB	Amount of cut/boost for LOW EQ
EQ High (EQ. Hi)	–12 ~ +12 dB	Amount of cut/boost for HIGH EQ

For effects 25—27, the dynamic modulation selected by [171] and [175] will control the Mod Speed.

EXCITER

28: Exciter
This effect adds sparkle to the sound itself, sharpening its definition.

Parameter	Range	Description
Blend (Blend)	–99 ~ +99	Depth of the exciter effect
Emphatic Point (Emphatic Point)	1 ~ 10	Center frequency at which the exciter effect will be applied
EQ Low (EQ. Lo)	–12 ~ +12 dB	Amount of cut/boost for LOW EQ
EQ High (EQ. Hi)	–12 ~ +12 dB	Amount of cut/boost for HIGH EQ

For effect 28, the dynamic modulation selected by [171] and [175] will control the Dry:Effect balance. Also, the equalizer settings (EQ Low, EQ High) will remain effective even if the Effect Switch [167][169] is OFF. If you wish to turn off all effects including the equalizer, select 00 (No Effect).

ENHANCER

29: Enhancer
This is a 2-channel enhancer. It includes a delay which makes the sound more spacious. An enhancer improves the clarity of the sound, sharpening the definition, and gives the sound a presence that brings it forward in the mix.

Parameter	Range	Description
Harmonic Density (Density)	1 ~ 99	Depth of the enhancer effect
Hot Spot (H. Spot)	1 ~ 20	Center frequency at which the enhancer effect will be applied
Stereo Width (S. Width)	0 ~ 99	Width of the stereo image expanded by the delay
Delay Time (D. Time)	1 ~ 99	Delay time
EQ Low (EQ. Lo)	–12 ~ +12 dB	Amount of cut/boost for LOW EQ
EQ High (EQ. Hi)	–12 ~ +12 dB	Amount of cut/boost for HIGH EQ

For effect 29, the dynamic modulation selected by [171] and [175] will control the Dry:Effect balance.

DISTORTION

30: Distortion
This effect covers a range from light distortion to intense distortion, and also provides a wah effect. It is effective on solos. The Hot Spot and Resonance parameters adjust the wah effect. The Hot Spot parameter can be controlled in realtime using dynamic modulation.

31: Overdrive
This effect applies a smooth overdrive. As for the distortion effect described above, dynamic modulation can be used to control the Hot Spot of the wah filter.

Parameter	Range	Description
Drive (Drive)	1 ~ 111	Amount of distortion/overdrive
Resonance (Reso)	0 ~ 99	Gain of the wah resonance filter
Hot Spot (H. Spot)	0 ~ 99	Center frequency of the wah filter
Out Level (Level)	0 ~ 99	Output level of the distorted sound
EQ Low (EQ. Lo)	−12 ~ +12 dB	Amount of cut/boost for LOW EQ
EQ High (EQ. Hi)	−12 ~ +12 dB	Amount of cut/boost for HIGH EQ

For effects 30 and 31, the dynamic modulation selected by [171] and [175] will control the Hot Spot.

PHASER

These are 2-channel stereo phase shifters.

While chorus or flanger effects modulate the delay time to produce a modulation effect, the phaser effect modulates the phase of the input signal, producing a effect that is different than either chorus or flanger. This is especially suitable for electric piano or guitar sounds.

The maximum effect will be achieved with a [170][174] Dry:Effect Balance of 50:50.

32: Stereo Phaser 1
Since the right and left channels are modulated in inverse phase, a spacious phaser effect is produced.

33: Stereo Phaser 2
Same-phase modulation is applied to the two phaser blocks.

Parameter	Range	Description
Manual (Manual)	0 ~ 99	Center frequency at which the phase shift effect will be applied
Mod Depth (Depth)	0 ~ 99	Depth of the phase shift modulation effect
Mod Speed (Speed)	0.03 ~ 30 Hz	Modulation speed
Feedback (F. Back)	−99 ~ +99	Amount of signal that will be fed back to the effect Negative settings will invert the phase
Mod Waveform (Wave)	Sine (SIN) Triangle (TRI)	Modulation waveform

For effects 32 and 33, the dynamic modulation selected by [171] and [175] will control the Mod Speed.

ROTARY SPEAKER

This simulates the rotary speaker effect that is often applied to organ sounds.

34: Rotary Speaker

Independent LFOs are used to simulate the rotor section and horn section of the rotary speaker. Fast and Slow speeds can be switched by the dynamic modulation source selected in [171][174]. The rotational speed will change at the rate specified by Acceleration, regardless of the speed at which the controller is moved. Also, the speed change will not be affected by the dynamic modulation Intensity setting of [172][176].

Parameter	Range	Description
Vibrato Depth (Vib, Depth)	0 ~ 15	Depth of the effect
Acceleration (Accel)	1 ~ 15	Time required for the change in speed to occur
Slow Speed (Slow Speed)	1 ~ 99	Speed during slow rotation
Fast Speed (Fast Speed)	1 ~ 99	Speed during fast rotation

For effect 34, the dynamic modulation selected by [171] and [175] will switch between the Slow Speed and Fast Speed.

TREMOLO

These effects cyclically modulate the volume.

35: Auto Pan

This effect combines two tremolo blocks into stereo type program. Opposite-phase modulation is applied to the two tremolo blocks, producing an effect of the sound being panned in stereo.

36: Tremolo

In contrast with the Auto Pan effect described above, this applies same-phase modulation to the two tremolo blocks.

Parameter	Range	Description
Mod Waveform (Wave)	Sine (SIN) Triangle (TRI)	Select the waveform
Mod Shape (Shape)	–99 ~ +99	
Mod Depth (Depth)	0 ~ 99	Modulation depth
Mod Speed (Speed)	0.03 ~ 30 Hz	Modulation speed
EQ Low (EQ. Lo)	–12 ~ +12 dB	Amount of cut/boost for LOW EQ
EQ High (EQ. Hi)	–12 ~ +12 dB	Amount of cut/boost for HIGH EQ

For effects 35 and 36, the dynamic modulation selected by [171] and [175] will control the Dry:Effect balance. Also, the equalizer settings (EQ Low, EQ High) will remain effective even if the Effect Switch [167][169] is OFF. If you wish to turn off all effects including the equalizer, select 00 (No Effect).

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PARAMETRIC EQ (Parametric equalizer)

37: Parametric EQ

This is a 3-band equalizer which allows you to adjust the cutoff frequency and gain for the low, mid and high ranges. For the mid-range, the width of the area affected can also be adjusted.

Parameter	Range	Description
Low Freq (L=Freq)	0 ~ 29	Low range cutoff frequency
Low Gain (Gain)	−12 ~ +12 dB	Amount of cut/boost for LOW EQ
Mid Freq (M=Freq)	0 ~ 99	Mid range cutoff frequency
Mid Gain (Gain)	−12 ~ +12 dB	Amount of cut/boost for MID EQ
Mid Width (W)	0 ~ 99	Width of mid range band
High Freq (H=Freq)	0 ~ 29	High range cutoff frequency
High Gain (Gain)	−12 ~ +12 dB	Amount of cut/boost for HIGH EQ

For effect 37, the dynamic modulation selected by [171] and [175] will control the Mid Freq, allowing you to create a wah effect.

COMBINATION EFFECT SERIAL

Effects 38 and 39 connect a mono-input/stereo-output chorus or flanger in series with a stereo delay.

38: Chorus-Delay

A mono-input stereo-output chorus with LFOs 90 degrees out of phase is connected to a stereo delay. Feedback can be specified independently for chorus and delay.

39: Flanger-Delay

A mono-input stereo-output flanger with LFOs 90 degrees out of phase is connected to a stereo delay. Feedback can be specified independently for flanger and delay.

Chorus, Flanger

Parameter	Range	Description
Delay Time (Cho. DT)	0 – 50 ms	Chorus/flanger delay time Amount fed back to the effect
Feedback (FB)	−99 ~ +99%	Negative values will invert the phase
Mod Depth (Cho. Depth)	0 ~ 99	Modulation depth
Mod Speed (Speed)	1 ~ 99	Modulation speed

Delay

Parameter	Range	Description
Delay Time (Dly. DT)	0 ~ 450 ms	Delay time (2 ms steps)
Delay Feedback (FB)	−99 ~ +99	Amount fed back to the effect Negative values will invert the phase

For effects 38 and 39, the dynamic modulation selected by [171] and [175] will control the Dry:Effect balance.

COMBINATION EFFECT PARALLEL

* *The following effect types (40—47) connect two effects in parallel, allowing independent effects to be applied to two channels.*

For details on each effect, refer to the explanations for effects 1 through 34.

MONO DELAY/REVERB

40: Delay/Hall Reverb
This effect provides a delay in the left channel and a hall type reverb in the right channel.

41: Delay/Room Reverb
This effect provides a delay in the left channel and a room type reverb in the right channel.

MONO DELAY/MODULATED DELAY

42: Delay/Chorus
This effect provides a delay in the left channel, and a chorus in the right channel.

43: Delay/Flanger
This effect provides a delay in the left channel, and a flanger in the right channel.

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MONO DELAY/PHASER

46: Delay/Phaser
This effect provides a delay in the left channel, and a phaser in the right channel.

Delay

Parameter	Range	Description
Delay time (Dly. DT)	0 ~ 500 ms	Delay time
Feedback (Dly. FB)	–99 ~ +99%	Amount fed back to the effect Negative values will invert the phase
High Damp (H. Dmp)	0 ~ 99%	High frequency attenuation Higher settings will cause the high frequency range to decay faster, producing a darker sound.

Room (Hall, Room)

Parameter	Range	Description
Reverb Time (Time)	0.2 ~ 9.9 sec 0.2 ~ 4.9 sec	Time over which the reverb will decay (for Hall) (for Room)
High Damp (H. Dmp)	0 ~ 99%	High frequency attenuation Higher settings will cause the high frequency range to decay faster, producing a darker sound.
Pre Delay (P. Dly)	0 ~ 150 ms	Time interval from the direct sound until the first early reflection

Chorus

Parameter	Range	Description
Mod Depth (Depth)	0 ~ 99%	Modulation depth
Mod Speed (Spd)	0.03 ~ 30 Hz	Modulation speed
Mod Waveform (Wave)	Sine (SIN) Triangle (TRI)	Modulation waveform

Flanger

Parameter	Range	Description
Mod Depth (Depth)	0 ~ 99%	Modulation depth
Mod Speed (Spd)	0.03 ~ 30 Hz	Modulation speed
Feedback (FB)	–99 ~ +99%	Amount fed back to the effect Negative values will invert the phase

Phaser

Parameter	Range	Description
Mod Depth (Depth)	0 ~ 99%	Modulation depth
Mod Speed (Spd)	0.03 ~ 30 Hz	Modulation speed
Feedback (FB)	–99 ~ +99%	Amount fed back to the effect Negative values will invert the phase

For effects 40, 41, 42, 43 and 46, the dynamic modulation selected by [171] and [175] will control the Dry:Effect balance.

MONO DELAY/DISTORTION, OVERDRIVE

44: Delay/Distortion
This effect provides a delay in the left channel, and distortion in the right channel.

45: Delay/Overdrive
This effect provides a delay in the left channel, and overdrive in the right channel.

MONO DELAY/ROTARY

47: Delay/Rotary Speaker
This effect provides a delay in the left channel, and rotary speaker in the right channel.

Delay

Parameter	Range	Description
Delay Time (Dly. DT)	0 ~ 500 ms	Delay time
Feedback (FB)	−99 ~ +99%	Amount fed back to the effect Negative values will invert the phase

Distortion, Overdrive

Parameter	Range	Description
Drive (Drive)	1 ~ 111	Amount of distortion/overdrive
Resonance (Res)	0 ~ 99	Wah resonance filter gain
Hot Spot (HotSpot)	1 ~ 99	Wah filter center frequency
Level (Level)	1 ~ 99	Output level of distorted sound

Rotary Speaker

Parameter	Range	Description
Acceleration (Accel)	1 ~ 15	Time required for rotor speeds to change
Slow Speed (Slow)	1 ~ 99	Slow rotation speed
Fast Speed (Fast)	1 ~ 99	Fast rotation speed

For effect 47, the dynamic modulation selected by [171] and [175] will switch between the Slow Speed and the Fast Speed.

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Effect Parameter Table

	REVERB	Reverb Time		Pre Delay		E.R Level	
1	Hall	0.2~9.9	[2.3]	0~200	[60]	0~99	[62]
2	Ensemble Hall	"	[3.1]	"	[15]	"	[23]
3	Concert Hall	"	[3.3]	"	[80]	"	[46]
4	Room	0.2~4.9	[1.3]	"	[8]	"	[68]
5	Large Room	"	[2.4]	"	[25]	"	[51]
6	Live Stage	"	[2.2]	"	[12]	"	[81]
7	Wet Plate	0~99	[59]	"	[29]	1~10	[7]
8	Dry Plate	"	[30]	"	[26]	"	[5]
9	Spring Reverb	"	[25]	"	[0]	"	[9]
	EARLY REFLECTION	E.R Time				Pre Delay	
10	Early Reflection 1	100~800	[220]			0~200	[10]
11	" 2	"	[180]			"	[30]
12	" 3	"	[300]			"	[90]
	STEREO DELAY	Delay Time L		Delay Time R		Feedback	
13	Stereo Delay	0~500	[185]	0~500	[370]	-99~+99	[-40]
14	Cross Delay	"	[190]	"	[380]	"	[+40]
	DUAL MONO DELAY	Delay Time L		Feedback L		High Damp L	
15	Dual Mono Delay	0~500	[20]	-99~+99	[0]	0~99	[0]
	MULTI TAP DELAY	Delay Time				Delay Time 2	
16	Multi Tap Delay 1	0~500	[175]			0~500	[350]
17	" 2	"	[200]			"	[400]
18	" 3	"	[250]			"	[500]
	CHORUS	Delay Time		Mod Speed		Mod Depth	
19	Stereo Chorus 1	0~200	[3]	0.03~30	[0.33]	0~99	[99]
20	" 2	"	[2]	"	[0.42]	"	[84]
	CHORUS	Delay Time L		Delay Time R		Mod Speed	
21	Quadrature Chorus	0~250	[24]	0~250	[12]	●1~99	[30]
22	Cross Over Chorus	"	[2]	"	[24]	● "	[16]
	HARMONIC CHORUS	Delay Time L		Delay Time R			
23	Harmonic Chorus	0~500	[4]	0~500	[12]		
	SYMPHONIC ENSEMBLE	Mod Depth					
24	Symphonic Ensemble	0~99	[92]				
	FLANGER	Delay Time		Mod Depth		Mod Speed	
25	Flanger 1	0~200	[5]	0~99	[50]	●1~99	[20]
26	" 2	"	[24]	"	[99]	● "	[42]
27	Cross Over Flanger	"	[1]	"	[60]	● "	[22]
	EXCITER	Blend				Emphatic Point	
28	Exciter	-99~+99	[+60]			1~10	[01]
	ENHANCER	Harmonic Density		Hot Spot		Stereo Width	
29	Enhancer	1~99	[28]	1~20	[3]	0~99	[85]
	DISTORTION	Drive		Hot Spot		Resonance	
30	Distortion	1~111	[107]	●0~99	[99]	0~99	[07]
31	Over Drive	"	[85]	● "	[70]	"	[63]
	PHASER	Manual		Mod Speed		Mod Depth	
32	Stereo Phaser 1	0~99	[98]	●0.03~30	[0.24]	0~99	[90]
33	" 2	"	[96]	● ~	[0.24]	"	[90]
	ROTARY SPEAKER	Vibrato Depth				Acceleration	
34	Rotary Speaker	0~15	[2]			1~15	[12]
	TREMOLO	Mod Waveform		Mod Wave Shape		Mod Speed	
35	Auto Pan	SIN, TRI	[TRI]	-99~+99	[+96]	0.03~30	[0.21]
36	Tremolo	"	[TRI]	"	[-99]	"	[3.9]
	PARAMETRIC EQ	Low Freq		Low Gain		Mid Freq	
37	Parametric EQ	0~29	[15]	-12~+12	[+06]	●0~99	[50]
	COMBINATION SERIAL	Flg/Cho Delay		Flg/Cho F-Back		Mod Speed	
38	Chorus-Delay	0~50	[24]	-99~+99	[+24]	1~99	[12]
39	Flanger-Delay	"	[1]	"	[+80]	"	[04]
	COMBINATION PARALLEL	Delay Time		Feedback		High Damp	
40	Delay / Hall	0~500	[30]	-99~+99	[0]	0~99	[0]
41	Delay / Room	"	[20]	"	[0]	"	[0]
		Delay Time		Feedback		High Damp	
42	Delay / Chorus	0~500	[220]	-99~+99	[+15]	0~99	[50]
		Delay Time		Feedback		High Damp	
43	Delay / Flanger	0~500	[400]	-99~+99	[+20]	0~99	[60]
		Delay Time		Feedback			
44	Delay / Distortion	0~500	[250]	-99~+99	[+40]		
45	Delay / Over Drive	"	[350]	"	[+50]		
		Delay Time		Feedback		High Damp	
46	Delay / Phaser	0~500	[300]	-99~+99	[+15]	0~99	[60]
		Delay Time		Feedback			
47	Delay / Rotary Speaker	0~500	[280]	-99~+99	[+15]		

Effect Parameter Table

	REVERB	Reverb Time		Pre Delay		E.R Level	
1	Hall	0.2~9.9	[2.3]	0~200	[60]	0~99	[62]
2	Ensemble Hall	⁓	[3.1]	⁓	[15]	⁓	[23]
3	Concert Hall	⁓	[3.3]	⁓	[80]	⁓	[46]
4	Room	0.2~4.9	[1.3]	⁓	[8]	⁓	[68]
5	Large Room	⁓	[2.4]	⁓	[25]	⁓	[51]
6	Live Stage	⁓	[2.2]	⁓	[12]	⁓	[81]
7	Wet Plate	0~99	[59]	⁓	[29]	1~10	[7]
8	Dry Plate	⁓	[30]	⁓	[26]	⁓	[5]
9	Spring Reverb	⁓	[25]	⁓	[0]	⁓	[9]
	EARLY REFLECTION	E.R Time				Pre Delay	
10	Early Reflection 1	100~800	[220]			0~200	[10]
11	⁓ 2	⁓	[180]			⁓	[30]
12	⁓ 3	⁓	[300]			⁓	[90]
	STEREO DELAY	Delay Time L		Delay Time R		Feedback	
13	Stereo Delay	0~500	[185]	0~500	[370]	−99~+99	[−40]
14	Cross Delay	⁓	[190]	⁓	[380]	⁓	[+40]
	DUAL MONO DELAY	Delay Time L		Feedback L		Hight Damp L	
15	Dual Mono Delay	0~500	[20]	−99~+99	[0]	0~99	[0]
	MULTI TAP DELAY	Delay Time				Delay Time 2	
16	Multi Tap Delay 1	0~500	[175]			0~500	[350]
17	⁓ 2	⁓	[200]			⁓	[400]
18	⁓ 3	⁓	[250]			⁓	[500]
	CHORUS	Delay Time		Mod Speed		Mod Depth	
19	Stereo Chorus 1	0~200	[3]	0.03~30	[0.33]	0~99	[99]
20	⁓ 2	⁓	[2]	⁓	[0.42]	⁓	[84]
	CHORUS	Delay Time L		Delay Time R		Mod Speed	
21	Quadrature Chorus	0~250	[24]	0~250	[12]	●1~99	[30]
22	Cross Over Chorus	⁓	[2]	⁓	[24]	● ⁓	[16]
	HARMONIC CHORUS	Delay Time L		Delay Time R			
23	Harmonic Chorus	0~500	[4]	0~500	[12]		
	SYMPHONIC ENSEMBLE	Mod Depth					
24	Symphonic Ensemble	0~99	[92]				
	FLANGER	Delay Time		Mod Depth		Mod Speed	
25	Flanger 1	0~200	[5]	0~99	[50]	●1~99	[20]
26	⁓ 2	⁓	[24]	⁓	[99]	● ⁓	[42]
27	Cross Over Flanger	⁓	[1]	⁓	[60]	● ⁓	[22]
	EXCITER	Blend				Emphatic Point	
28	Exciter	−99~+99	[+60]			1~10	[01]
	ENHANCER	Harmonic Density		Hot Spot		Stereo Width	
29	Enhancer	1~99	[28]	1~20	[3]	0~99	[85]
	DISTORTION	Drive		Hot Spot		Resonance	
30	Distortion	1~111	[107]	●0~99	[99]	0~99	[07]
31	Over Drive	⁓	[85]	● ⁓	[70]	⁓	[63]
	PHASER	Manual		Mod Speed		Mod Depth	
32	Stereo Phaser 1	0~99	[98]	●0.03~30	[0.24]	0~99	[90]
33	⁓ 2	⁓	[96]	● ~	[0.24]	⁓	[90]
	ROTARY SPEAKER	Vibrato Depth				Acceleration	
34	Rotary Speaker	0~15	[2]			1~15	[12]
	TREMOLO	Mod Waveform		Mod Wave Shape		Mod Speed	
35	Auto Pan	SIN, TRI	[TRI]	−99~+99	[+96]	0.03~30	[0.21]
36	Tremolo	⁓	[TRI]	⁓	[−99]	⁓	[3.9]
	PARAMETRIC EQ	Low Freq		Low Gain		Mid Freq	
37	Parametric EQ	0~29	[15]	−12~+12	[+06]	●0~99	[50]
	COMBINATION SERIAL	Flg / Cho Delay		Flg / Cho F·Back		Mod Speed	
38	Chorus-Delay	0~50	[24]	−99~+99	[+24]	1~99	[12]
39	Flanger-Delay	⁓	[1]	⁓	[+80]	⁓	[04]
	COMBINATION PARALLEL	Delay Time		Feedback		High Damp	
40	Delay / Hall	0~500	[30]	−99~+99	[0]	0~99	[0]
41	Delay / Room	⁓	[20]	⁓	[0]	⁓	[0]
		Delay Time		Feedback		High Damp	
42	Delay / Chorus	0~500	[220]	−99~+99	[+15]	0~99	[50]
		Delay Time		Feedback		High Damp	
43	Delay / Flanger	0~500	[400]	−99~+99	[+20]	0~99	[60]
		Delay Time		Feedback			
44	Delay / Distortion	0~500	[250]	−99~+99	[+40]		
45	Delay / Over Drive	⁓	[350]	⁓	[+50]		
		Delay Time		Feedback		High Damp	
46	Delay / Phaser	0~500	[300]	−99~+99	[+15]	0~99	[60]
		Delay Time		Feedback			
47	Delay / Rotary Speaker	0~500	[280]	−99~+99	[+15]		

[ ] : Initial Value   ●: Dynamic Mod Dest

High Damp		EQ Low		EQ High		Dry : FX Balance		
0~99	[31]	-12~+12	[-3]	-12~+12	[-1]	●DRY~FX	[80:20]	
"	[32]	"	[-1]	"	[-3]	● "	[80:20]	
"	[41]	"	[-2]	"	[-4]	● "	[80:20]	
"	[36]	"	[+1]	"	[+2]	● "	[78:22]	
"	[32]	"	[-1]	"	[+2]	● "	[78:22]	
"	[36]	"	[-5]	"	[-4]	"	[75:25]	
"	[51]	"	[0]	"	[-4]	● "	[80:20]	
"	[47]	"	[+2]	"	[+2]	● "	[80:20]	
"	[30]	"	[+2]	"	[-4]	"	[78:22]	

EQ Low		EQ High		Dry : FX Balance	
-12~+12	[-4]	-12~+12	[-4]	●DRY~FX	[68:32]
"	[+1]	"	[0]	● "	[65:35]
"	[0]	"	[0]	● "	[75:25]

High Damp		EQ Low		EQ High		Dry : FX Balance	
0~99	[10]	-12~+12	[0]	-12~+12	[0]	●DRY~FX	[80:20]
"	[10]	"	[0]	"	[0]	● "	[80:20]

Dry : FX Balance L		Delay Time R		Feedback R		High Damp R		Dry : FX Balance R	
DRY~FX	[50:50]	0~500	[40]	-99~+99	[0]	0~99	[0]	●DRY~FX	[35:65]

Feedback		EQ Low		EQ High		Dry : FX Balance	
-99~+99	[+30]	-12~+12	[0]	-12~+12	[0]	●DRY~FX	[80:20]
"	[0]	"	[0]	"	[0]	● "	[70:30]
"	[+20]	"	[0]	"	[0]	● "	[75:25]

Mod Waveform		EQ Low		EQ High		Dry : FX Balance	
SIN, TRI	[TRI]	-12~+12	[+4]	-12~+12	[+4]	●DRY~FX	[50:50]
"	[SIN]	"	[+3]	"	[+4]	● "	[60:40]

Mod Depth		Mod Waveform		EQ Low		EQ High		Dry : FX Balance	
0~99	[50]	T+10~S+10	[T+0]	-12~+12	[0]	-12~+12	[0]	DRY~FX	[50:50]
"	[99]	"	[T+0]	"	[0]	"	[0]	"	[50:50]

Mod Speed		Mod Depth		Filter Split Point		Dry : FX Balance	
●1~99	[36]	0~99	[99]	0~18	[3]	DRY~FX	[25:75]

EQ Low		EQ High		Dry : FX Balance	
-12~+12	[0]	-12~+12	[0]	●DRY~FX	[67:33]

Resonance		EQ Low		EQ High		Dry : FX Balance	
-99~+99	[+80]	-12~+12	[0]	-12~+12	[0]	DRY~FX	[50:50]
"	[+36]	"	[0]	"	[0]	"	[50:50]
"	[+80]	"	[0]	"	[0]	"	[50:50]

EQ Low		EQ High		Dry : FX Balance	
-12~+12	[+3]	-12~+12	[+3]	●DRY~FX	[50:50]

Delay Time		EQ Low		EQ High		Dry : FX Balance	
1~99	[25]	-12~+12	[0]	-12~+12	[0]	●DRY~FX	[50:50]

EQ Low		EQ High		Out Level		Dry : FX Balance	
-12~+12	[0]	-12~+12	[0]	0~99	[6]	DRY~FX	[50:50]
"	[0]	"	[0]	"	[8]	"	[50:50]

Feedback		Mod Waveform		Dry : FX Balance	
-99~+99	[96]	SIN, TRI	[TRI]	DRY~FX	[50:50]
"	[90]	"	[SIN]	"	[50:50]

Slow Speed		Fast Speed		Dry : FX Balance	
1~99	[25]	1~99	[69]	DRY~FX	[34:66] *

Mod Depth		EQ Low		EQ High		Dry : FX Balance	
0~99	[96]	-12~+12	[0]	-12~+12	[0]	●DRY~FX	[20:80]
"	[99]	"	[0]	"	[0]	● "	[50:50]

Mid Gain		Mid Width		High Freq		High Gain		Dry : FX Balance	
-12~+12	[+6]	0~99	[50]	0~29	[12]	-12~+12	[+6]	DRY~FX	[50:50]

Mod Depth		Delay Time		Feedback		Dry : FX Balance	
0~99	[75]	0~450	[120]	-99~+99	[+16]	●DRY~FX	[60:40]
"	[99]	"	[300]	"	[+30]	● "	[50:50]

Dry : FX Balance		Reverb Time		Pre Delay		High Damp		Dry : FX Balance	
●DRY~FX	[FX]	0.2~9.9	[3.0]	0~150	[68]	0~99	[34]	●DRY~FX	[70:30]
● "	[FX]	0.2~4.9	[1.1]	"	[0]	"	[28]	● "	[65:35]

Dry : FX Balance		Mod Speed		Mod Depth		Mod Waveform		Dry : FX Balance	
●DRY~FX	[70:30]	0.03~30	[0.39]	0~99	[99]	SIN, TRI	[TRI]	●DRY~FX	[50:50]

Dry : FX Balance		Mod Speed		Mod Depth		Feedback		Dry : FX Balance	
●DRY~FX	[70:30]	0.03~30	[0.21]	0~99	[96]	-99~+99	[-75]	●DRY~FX	[50:50]

Dry : FX Balance		Drive		Hot Spot		Resonance		Out Level	
DRY~FX	[79:21]	1~111	[105]	1~99	[99]	0~99	[07]	1~99	[10]
"	[75:25]	"	[65]	"	[90]	"	[63]	"	[20]

Dry : FX Balance		Mod Speed		Mod Depth		Feedback		Dry : FX Balance	
●DRY~FX	[60:40]	0.03~30	[0.69]	0~99	[90]	-99~+99	[+99]	●DRY~FX	[25:75]

Dry : FX Balance		Acceleration		Slow Speed		Fast Speed		Dry : FX Balance	
DRY~FX	[70:30]	1~15	[10]	1~99	[25]	1~99	[69]	DRY~FX	[30:70] *

* *Dynamic Modulation allows you to switch between "Slow speed" and "Fast speed".*

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[ ] : Initial Value   ●: Dynamic Mod Dest

High Damp		EQ Low		EQ High		Dry : FX Balance	
0~99	[31]	−12~+12	[−3]	−12~+12	[−1]	●DRY~FX	[80:20]
◊	[32]	◊	[−1]	◊	[−3]	● ◊	[80:20]
◊	[41]	◊	[−2]	◊	[−4]	● ◊	[80:20]
◊	[36]	◊	[+1]	◊	[+2]	● ◊	[78:22]
◊	[32]	◊	[−1]	◊	[+2]	● ◊	[78:22]
◊	[36]	◊	[−5]	◊	[−4]	● ◊	[75:25]
◊	[51]	◊	[0]	◊	[−4]	● ◊	[80:20]
◊	[47]	◊	[+2]	◊	[+2]	● ◊	[80:20]
◊	[30]	◊	[+2]	◊	[−4]	● ◊	[78:22]

		EQ Low		EQ High		Dry : FX Balance	
		−12~+12	[−4]	−12~+12	[−4]	●DRY~FX	[68:32]
		◊	[+1]	◊	[0]	● ◊	[65:35]
		◊	[0]	◊	[0]	● ◊	[75:25]

High Damp		EQ Low		EQ High		Dry : FX Balance	
0~99	[10]	−12~+12	[0]	−12~+12	[0]	●DRY~FX	[80:20]
◊	[10]	◊	[0]	◊	[0]	● ◊	[80:20]

Dry : FX Balance L		Delay Time R		Feedback R		High Damp R		Dry : FX Balance R	
DRY~FX	[50:50]	0~500	[40]	−99~+99	[0]	0~99	[0]	●DRY~FX	[35:65]

Feedback		EQ Low		EQ High		Dry : FX Balance	
−99~+99	[+30]	−12~+12	[0]	−12~+12	[0]	●DRY~FX	[80:20]
◊	[0]	◊	[0]	◊	[0]	● ◊	[70:30]
◊	[+20]	◊	[0]	◊	[0]	● ◊	[75:25]

Mod Waveform		EQ Low		EQ High		Dry : FX Balance	
SIN, TRI	[TRI]	−12~+12	[+4]	−12~+12	[+4]	●DRY~FX	[50:50]
◊	[SIN]	◊	[+3]	◊	[+4]	● ◊	[60:40]

Mod Depth		Mod Waveform		EQ Low		EQ High		Dry : FX Balance	
0~99	[50]	T+10~S+10	[T+0]	−12~+12	[0]	−12~+12	[0]	DRY~FX	[50:50]
◊	[99]	◊	[T+0]	◊	[0]	◊	[0]	◊	[50:50]

Mod Speed		Mod Depth		Filter Split Point				Dry : FX Balance	
●1~99	[36]	0~99	[99]	0~18	[3]			DRY~FX	[25:75]

				EQ Low		EQ High		Dry : FX Balance	
				−12~+12	[0]	−12~+12	[0]	●DRY~FX	[67:33]

		Resonance		EQ Low		EQ High		Dry : FX Balance	
		−99~+99	[+80]	−12~+12	[0]	−12~+12	[0]	DRY~FX	[50:50]
		◊	[+36]	◊	[0]	◊	[0]	◊	[50:50]
		◊	[+80]	◊	[0]	◊	[0]	◊	[50:50]

				EQ Low		EQ High		Dry : FX Balance	
				−12~+12	[+3]	−12~+12	[+3]	●DRY~FX	[50:50]

Delay Time				EQ Low		EQ High		Dry : FX Balance	
1~99	[25]			−12~+12	[0]	−12~+12	[0]	●DRY~FX	[50:50]

EQ Low		EQ High		Out Level				Dry : FX Balance	
−12~+12	[0]	−12~+12	[0]	0~99	[6]			DRY~FX	[50:50]
◊	[0]	◊	[0]	◊	[8]			◊	[50:50]

Feedback		Mod Waveform						Dry : FX Balance	
−99~+99	[96]	SIN, TRI	[TRI]					DRY~FX	[50:50]
◊	[90]	◊	[SIN]					◊	[50:50]

		Slow Speed				Fast Speed		Dry : FX Balance	
		1~99	[25]			1~99	[69]	DRY~FX	[34:66] *

Mod Depth				EQ Low		EQ High		Dry : FX Balance	
0~99	[96]			−12~+12	[0]	−12~+12	[0]	●DRY~FX	[20:80]
◊	[99]			◊	[0]	◊	[0]	● ◊	[50:50]

Mid Gain		Mid Width		High Freq		High Gain		Dry : FX Balance	
−12~+12	[+6]	0~99	[50]	0~29	[12]	−12~+12	[+6]	DRY~FX	[50:50]

Mod Depth		Delay Time		Feedback				Dry : FX Balance	
0~99	[75]	0~450	[120]	−99~+99	[+16]			●DRY~FX	[60:40]
◊	[99]	◊	[300]	◊	[+30]			● ◊	[50:50]

Dry : FX Balance		Reverb Time		Pre Delay		High Damp		Dry : FX Balance	
●DRY~FX	[FX]	0.2~9.9	[3.0]	0~150	[68]	0~99	[34]	●DRY~FX	[70:30]
● ◊	[FX]	0.2~4.9	[1.1]	◊	[0]	◊	[28]	● ◊	[65:35]

Dry : FX Balance		Mod Speed		Mod Depth		Mod Waveform		Dry : FX Balance	
●DRY~FX	[70:30]	0.03~30	[0.39]	0~99	[99]	SIN, TRI	[TRI]	●DRY~FX	[50:50]

Dry : FX Balance		Mod Speed		Mod Depth		Feedback		Dry : FX Balance	
●DRY~FX	[70:30]	0.03~30	[0.21]	0~99	[96]	−99~+99	[−75]	●DRY~FX	[50:50]

Dry : FX Balance		Drive		Hot Spot		Resonance		Out Level	
DRY~FX	[79:21]	1~111	[105]	1~99	[99]	0~99	[07]	1~99	[10]
◊	[75:25]	◊	[65]	◊	[90]	◊	[63]	◊	[20]

Dry : FX Balance		Mod Speed		Mod Depth		Feedback		Dry : FX Balance	
●DRY~FX	[60:40]	0.03~30	[0.69]	0~99	[90]	−99~+99	[+99]	●DRY~FX	[25:75]

Dry : FX Balance		Acceleration		Slow Speed		Fast Speed		Dry : FX Balance	
DRY~FX	[70:30]	1~15	[10]	1~99	[25]	1~99	[69]	DRY~FX	[30:70] *

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Effect Edit mode

* *Dynamic Modulation allows you to switch between "Slow speed" and "Fast speed".*

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Additional functions of the NS5R

Frame Draw function

MIDI system exclusive messages can be used to display any desired pattern, picture or characters on the NS5R's LCD screen.
This is called the Frame Draw function.
This function is called Frame Draw. The following explanation provides examples of how the data is actually transmitted.

< Example image to be transmitted (32 * 16 dot) >

```
***_***__*****__******____******      ***_*** __***** __***** *____** ****
***_***_*******_*******___*******     ***_*** _****** *_***** **__*** ****
***_***_***_***_***_***___***_____     ***_*** _***_** *_***_* **__*** _____
*****__***_***_*******____***_***      *****_ _***_** *_***** **__*** _***
****____***_***_******____***_***      *****__ _***_** *_***** *____*** _***
******__***_***_***_***___***_***      ******_ _***_** *_***_* **__*** _***
***_***_***_***_***_***___***_***      ***_*** _***_** *_***_* **__*** _***
***_***_*******_***___***_*******      ***_*** _****** *_***__ ***_*** ****
***_***__*****__***__***__******      ***_*** __***** __***__ ***__** ****
-------------------------------       ------- ------- ------- ------- ----
__**___**__*****__*****_*****___       __**___ **__*** **__*** **_**** *___
___**__*__*_____*_____*____*__       ___**__ *__*____ ____*__ ___*___ _*__
___*_*_*____****___****__*****___       ___*_*_ *___*** *____*** *__**** *___
___*__**_____*_____*_*__*____       ___*__* *_____ _*_____ _*_*__* ____
__**___**_*****___*___*_*___**__       __**___ **_**** *___*__ _*_*___ **__
-------------------***_____       ------- ------- _____** *_____ ----
```

Figure 1-1   Figure 1-2

In order to convert this into exclusive data,
1. Divide it into groups of 7 dots (figure 1-2). Then specify "-" as a data bit of 0, and "*" as a data bit of 1.

2. Add a 0 bit ("-") at the beginning of each group (figure 2).
3. Group the data into 8 dot units, as follows.

```
   76543210        76543210        76543210        76543210        76543210
20 01110111   30 00011111   40 00011111   50 01000011   60 01111000
21 01110111   31 00111111   41 01011111   51 01100111   61 01111000
22 01110111   32 00111011   42 01011101   52 01100111   62 00000000
23 01111110   33 00111011   43 01011111   53 01100111   63 00111000
24 01111100   34 00111011   44 01011111   54 01000111   64 00111000
25 01111110   35 00111011   45 01011101   55 01100111   65 00111000
26 01110111   36 00111011   46 01011101   56 01100111   66 00111000
27 01110111   37 00111111   47 01011100   57 01110111   67 01111000
28 01110111   38 00011111   48 00011100   58 01110011   68 01111000
29 00000000   39 00000000   49 00000000   59 00000000   69 00000000
2A 00011000   3A 01100111   4A 01100111   5A 01101111   6A 01000000
2B 00001100   3B 01001000   4B 00000100   5B 00001000   6B 00100000
2C 00001010   3C 01000111   4C 01000111   5C 01001111   6C 01000000
2D 00001001   3D 01000000   4D 00100000   5D 00101001   6D 00000000
2E 00011000   3E 01101111   4E 01000100   5E 00101000   6E 01100000
2F 00000000   3F 00000000   4F 00000011   5F 01000000   6F 00000000
```

<div align="center">Figure 2</div>

4. In this case, the exclusive message which is actually transmitted will have the following format.

```
F0 42 3n 42 12 08 00 20 xx....... F7(n=Excl Ch. xx=data)
```

Taking the data which was grouped into 8 dot units as binary data, convert this into hexadecimal data as 01110111=77h, 01111110=7Eh, ... etc., and place it in addresses 20 through 6F.

```
F0 42 30 42 12 08 00 20
77 77 77 7E 7C 7E 77 77 77 00 18 0C 0A 09 18 00
1F 3F 3B 3B 3B 3B 3B 3F 1F 00 67 48 47 40 6F 00
1F 5F 5D 5F 5F 5D 5D 5C 1C 00 67 04 47 20 44 03
43 67 67 67 47 67 67 77 73 00 6F 08 4F 29 28 40
78 78 00 38 38 38 38 78 78 00 40 20 40 00 60 00
F7
```

This exclusive data will cause the graphic shown in figure 1-1 to be displayed in the LCD.