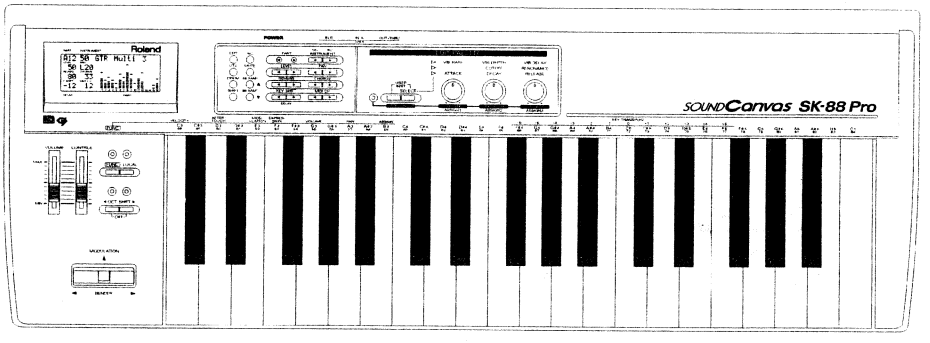
Roland®

GENERAL MIDI GS

SOUND Canvas SK-88 Pro

Owner's Manual



Before using this unit, carefully read the sections entitled: "USING THE UNIT SAFELY" and "IMPORTANT NOTES" (p.1–3). These sections provide important information concerning the proper operation of the unit. Additionally, in order to feel assured that you have gained a good grasp of every feature provided by your new unit, this manual should be read in its entirely. The manual should be saved and kept on hand as a convenient reference.

Apparatus containing Lithium batteries

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Discard used batteries according to the manufacturer's instructions.

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

VARNING!

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

ADVARSEL!

Lithiumbatteri - Eksplosjonsfare.
Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

VAROITUS!

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

For EU Countries

CE This product complies with the requirements of European Directive 89/336/EEC.

For the USA

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.
This equipment requires shielded interface cables in order to meet FCC class B Limit.

For Canada

NOTICE

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

AVIS

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

USING THE UNIT SAFELY

INSTRUCTIONS FOR THE PREVENTION OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

About ⚠WARNING and ⚠CAUTION Notices

⚠**WARNING**	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
⚠**CAUTION**	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. * Material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols

⚠	The △ symbol alerts the user to important instructions or warnings.The specific meaning of the symbol is determined by the design contained within the triangle. In the case of the symbol at left, it is used for general cautions, warnings, or alerts to danger.
⃠	The ⃠ symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the unit must never be disassembled.
	The ● symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the power-cord plug must be unplugged from the outlet.

ALWAYS OBSERVE THE FOLLOWING

⚠WARNING

- Before using this unit, make sure to read the instructions below, and the Owner's Manual.
- Do not open (or modify in any way) the unit or its AC adaptor.
- Do not attempt to repair the unit, or replace parts within it (except when this manual provides specific instructions directing you to do so). Refer all servicing to your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.
- Never use or store the unit in places that are:
  - Subject to temperature extremes (e.g., direct sunlight in an enclosed vehicle, near a heating duct, on top of heat-generating equipment); or are
  - Damp (e.g., baths, washrooms, on wet floors); or are
  - Humid; or are
  - Dusty; or are
  - Subject to high levels of vibration.
- Make sure you always have the unit placed so it is level and sure to remain stable. Never place it on stands that could wobble, or on inclined surfaces.

⚠WARNING

- Be sure to use only the AC adaptor supplied with the unit. Also, make sure the line voltage at the installation matches the input voltage specified on the AC adaptor's body. Other AC adaptors may use a different polarity, or be designed for a different voltage, so their use could result in damage, malfunction, or electric shock.
- Avoid damaging the power cord. Do not bend it excessively, step on it, place heavy objects on it, etc. A damaged cord can easily become a shock or fire hazard. Never use a power cord after it has been damaged.
- This unit, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level, or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should immediately stop using the unit, and consult an audiologist.
- Do not allow objects (e.g., flammable material, coins, pins); or liquids of any kind (water, soft drinks, etc.) to penetrate the unit.

⚠ WARNING

- Immediately turn the power off, remove the AC adaptor from the outlet, and request servicing by your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page when:
  - The AC adaptor or the power-supply cord has been damaged; or
  - Objects have fallen into, or liquid has been spilled onto the unit; or
  - The unit has been exposed to rain (or otherwise has become wet); or
  - The unit does not appear to operate normally or exhibits a marked change in performance.

- In households with small children, an adult should provide supervision until the child is capable of following all the rules essential for the safe operation of the unit.

- Protect the unit from strong impact. (Do not drop it!)

- Do not force the unit's power-supply cord to share an outlet with an unreasonable number of other devices. Be especially careful when using extension cords—the total power used by all devices you have connected to the extension cord's outlet must never exceed the power rating (watts/amperes) for the extension cord. Excessive loads can cause the insulation on the cord to heat up and eventually melt through.

- Before using the unit in a foreign country, consult with your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.

⚠ CAUTION

- The unit and the AC adaptor should be located so their location or position does not interfere with their proper ventilation.

- Always grasp only the plug on the body of the AC adaptor when plugging into, or unplugging from, an outlet or this unit.

- Whenever the unit is to remain unused for an extended period of time, disconnect the AC adaptor.

- Try to prevent cords and cables from becoming entangled. Also, all cords and cables should be placed so they are out of the reach of children.

- Never climb on top of, nor place heavy objects on the unit.

- Never handle the AC adaptor body, or its plugs, with wet hands when plugging into, or unplugging from, an outlet or this unit.

- Before moving the unit, disconnect the AC adaptor and all cords coming from external devices.

- Before cleaning the unit, turn off the power and unplug the AC adaptor from the outlet.

- Whenever you suspect the possibility of lightning in your area, disconnect the AC adaptor from the outlet.

IMPORTANT NOTES

In addition to the items listed under "USING THE UNIT SAFELY" on the previous page, please read and observe the following:

Power Supply

- Do not use this unit on the same power circuit with any device that will generate line noise (such as an electric motor or variable lighting system).
- The AC adaptor will begin to generate heat after long hours of consecutive use. This is normal, and is not a cause for concern.
- Before connecting this unit to other devices, turn off the power to all units. This will help prevent malfunctions and/or damage to speakers or other devices.

Placement

- Using the unit near power amplifiers (or other equipment containing large power transformers) may induce hum. To alleviate the problem, change the orientation of this unit; or move it farther away from the source of interference.
- This device may interfere with radio and television reception. Do not use this device in the vicinity of such receivers.
- Do not expose the unit to direct sunlight, place it near devices that radiate heat, leave it inside an enclosed vehicle, or otherwise subject it to temperature extremes. Excessive heat can deform or discolor the unit.

Maintenance

- For everyday cleaning wipe the unit with a soft, dry cloth or one that has been slightly dampened with water. To remove stubborn dirt, use a cloth impregnated with a mild, non-abrasive detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
- Never use benzene, thinners, alcohol or solvents of any kind, to avoid the possibility of discoloration and/or deformation.

Repairs and Data

- Please be aware that all data contained in the unit's memory may be lost when the unit is sent for repairs. Important data should always be backed up in sequencing software or another MIDI device (e.g., a sequencer), or written down on paper (when possible). During repairs, due care is taken to avoid the loss of data. However, in certain cases (such as when circuitry related to memory itself is out of order), we regret that it may not be possible to restore the data, and Roland assumes no liability concerning such loss of data.

Memory Backup

- This unit contains a battery which powers the unit's memory circuits while the main power is off. When this battery becomes weak, the message shown below will appear in the display. Once you see this message, have the battery replaced with a fresh one as soon as possible to avoid the loss of all data in memory. To have the battery replaced, consult with your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.

Battery Low

Additional Precautions

- Please be aware that the contents of memory can be irretrievably lost as a result of a malfunction, or the improper operation of the unit. To protect yourself against the risk of loosing important data, we recommend that you periodically save a back-up copy of important data you have stored in the unit's memory in sequencing software or another MIDI device (e.g., a sequencer).
- Unfortunately, it may be impossible to restore the contents of data that was stored in the unit's memory, sequencing software, or another MIDI device (e.g., a sequencer) once it has been lost. Roland Corporation assumes no liability concerning such loss of data.
- Use a reasonable amount of care when using the unit's buttons, sliders, or other controls; and when using its jacks and connectors. Rough handling can lead to malfunctions.
- Never strike or apply strong pressure to the display.
- When connecting/disconnecting all cables, grasp the connector itself—never pull on the cable. This way you will avoid causing shorts, or damage to the cable's internal elements.
- A small amount of heat will radiate from the unit during normal operation.
- To avoid disturbing your neighbors, try to keep the unit's volume at reasonable levels. You may prefer to use headphones, so you do not need to be concerned about those around you (especially when it is late at night).
- When you need to transport the unit, package it in the box (including padding) that it came in, if possible. Otherwise, you will need to use equivalent packaging materials.

FEATURES

General MIDI System/GS Format Compatible

SK-88Pro is compatible with the General MIDI System and the GS Format. Music files in compliance with the General MIDI System/GS Format can be played back on a computer or sequencer to play the SK-88Pro.

32-Part/64-Voice Multi-Timbral

The SK-88Pro is a 32 part 64 voice multi-timbral sound module. A single this unit can produce the sounds of a large ensemble. It is an ideal sound module for use with computers or sequencers.

37-Note Keyboard

The keyboard is velocity sensitive. By using the Octave Shift function, you can shift the pitch range of the keyboard upward or downward by four octaves at the touch of a button, allowing you to transmit all of the MIDI note numbers. As a convenience for data entry, note names and MIDI note numbers are shown above the keyboard. (p.35)

Versatile Control Functions

A variety of functions can be assigned to the three knobs and the slider, allowing you to control the sound in real time. This allows for the efficient input of natural tonal changes and the dynamics of a performance. By connecting a pedal switch or expression pedal, you will be able to use it to sustain a sound or control the volume. But, in addition to such conventional uses for a pedal, you can also use it for any desired Control Change, and modify the character of the sound or the effects applied to it. (p.36, 127–128)

High-Quality Sounds

SK-88Pro contains 1117 high quality sounds and 42 types of drum sound set (including 3 sound effects sets). These sounds include the same sounds as the SC-55/55mkII and SC-88, allowing SC-55/55mkII and SC-88 song data to be played back correctly. (p.43)

Reverb, Chorus and Insertion Effects

A wide variety of effects are provided: 64 types of Insertion effect, eight types each of reverb and chorus effects, 10 types of delay, and 2-band equalizer. In addition, the values of relevant parameters can be set for each effect, allowing professional-level manipulation of sound. (p.54, 62)

User Sounds

A wide variety of sound parameters (e.g., Vibrato, Filter, Envelope) can be edited directly and easily by rotating the knobs. There are 256 user sounds and 2 user Drum Sets, allowing you to create your own sounds and Drum Sets. (p.110)

Ideal for Computer Music Use

The SK-88Pro is the ideal sound producing solution when you want to be connected with a computer. Using sequencing software, you can play back and edit song data, and use the SK-88Pro for real-time entry of music data.

Large Display

The large display screen graphically provides easy visual confirmation of settings such as volume for each part, and pictures and character data can also be displayed in the dot matrix (ten screens).(p.134)

Connecting with Other Devices

Audio input jacks with input level adjustment allow you to connect another sound source, and output it from the audio output jacks mixed with the SK-88Pro's own sound. Two sets of audio output jacks are also provided. (p.12)

Ease of Use

The SK-88Pro's compact design and convenient placement of most connectors on the left side will help keep your desktop tidy. The familiar user interface of the Sound Canvas series has been employed here as well, so the sound generator's parameters can be handled with ease.

General MIDI System

The General MIDI System is a universal set of specifications for sound generating devices. These specifications seek to allow for the creation of music files which is not limited to equipment by a particular manufacturer or to specific models. The General MIDI System defines things such as the minimum number of voices that should be supported, the MIDI messages that should be recognized, which sounds correspond to which Program Change numbers, and the layout of rhythm sounds on the keyboard. Thanks to these specifications, any device that is equipped with sound sources supporting the General MIDI System will be able to accurately reproduce General MIDI Scores (music files created for the General MIDI System), regardless of the manufacturer or model.

GS Format

The GS Format is Roland's set of specifications for standardizing the performance of sound generating devices. In addition to including support for everything defined by the General MIDI System, the highly-compatible GS Format additionally offers an expanded number of sounds, provides for the editing of sounds, and spells out many details for a wide range of extra features, including effects such as reverb and chorus. Designed with the future in mind, the GS Format can readily include new sounds and support new hardware features when they arrive. Since it is upwardly compatible with the General MIDI System, Roland's GS Format is capable of reliably playing back General MIDI Scores equally as well as it performs GS Music Files (music files that has been created with the GS Format in mind).

HOW TO USE THIS MANUAL

Conventions Used in This Manual

In the explanatory text, parameter names and other items are given in the form in which they appear in the display; e.g., "Cho Rate." Since these are usually abbreviations, the full name will also be given; e.g., "Chorus Rate."
The possible values that can be set for a parameter that can be adjusted consecutively will be given like this: "0–127." Those that allow only specific values are presented like this: "200/400 Hz." Values shown in boldface, such as "64" in "0–**64**–127," are the default values.
Buttons on the panel appear in square brackets; e.g., [ALL] or [▶].
This manual contains examples of the SK-88Pro's display, but please be aware that this may differ slightly from the display that you actually see on your instrument.

When Using the SK-88Pro by Itself

When using the SK-88Pro by itself, please read the explanation given in "1. GETTING ACQUAINTED WITH THE SK-88PRO."
To understand how the controller section is related to the sound generating section, read "3. ABOUT THE SK-88PRO'S CONTROLLER SECTION" (p.34).

When Connecting the SK-88Pro to a Computer

If you wish to use the SK-88Pro while it is connected to a computer, read "2. USING THE SK-88PRO WITH A COMPUTER" (p.26) for the necessary connections and settings. The first chapter, "1. GETTING ACQUAINTED WITH THE SK-88PRO," explains the basic operations for when the SK-88Pro is used by itself. Before you connect it to a computer, you may want to try out the things that are possible with the SK-88Pro when used on its own.
If you are using the SK-88Pro from sequencing software running on your computer, it may not be necessary to directly operate the SK-88Pro itself. If so, you can read the appropriate pages when you need to know, for example, how to select sounds, or find out what kinds of effects are available.

How to Read "1. GETTING ACQUAINTED WITH THE SK-88PRO" (p.10)

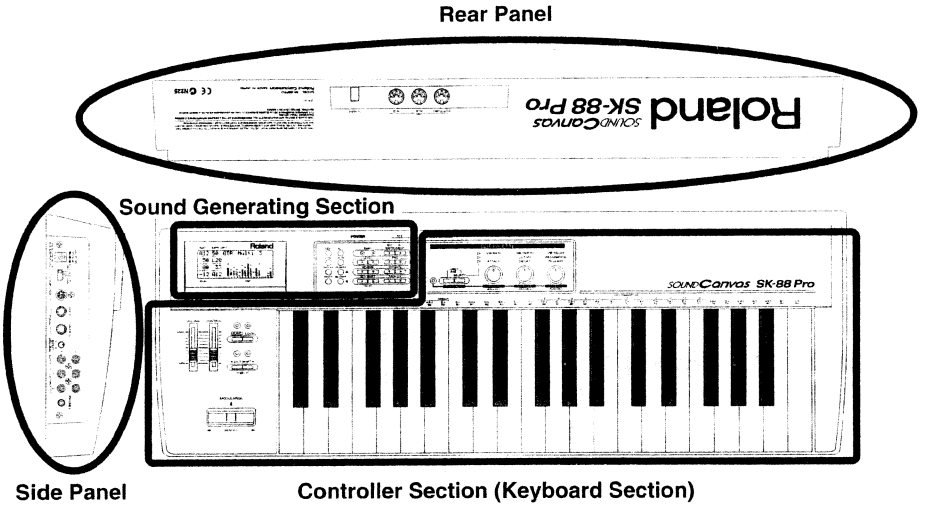
This chapter provides an easy explanation of what you can do using the SK-88Pro. There may be things that you do not understand, but try to continue through the explanation and finish working through the example procedures that are given. You will be trying out the various buttons and controls of the SK-88Pro. At the end of the chapter, you will also learn how to restore the factory settings, so you don't need to worry about the settings being changed.
Each function of the SK-88Pro is explained in detail in other chapters, so if there is something you do not understand, or would like more information on, you can go on and read the following chapters.

Once You Have Become Familiar with Operating the SK-88Pro

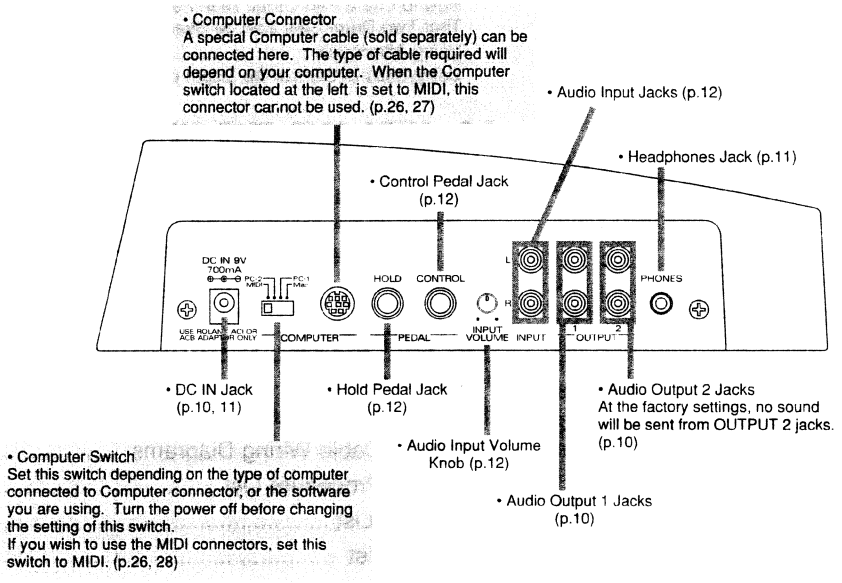
Once you have a general understanding about operating the SK-88Pro, you need only consult "Operating Procedure List" (p.160–165) to find the desired operation for each mode. Use this list when you need to remind yourself of a procedure. "13. APPENDIX" (p.155) also contains other lists and information that will be useful to you.

CONTENTS

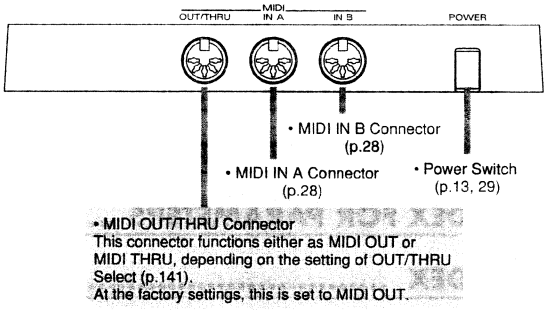
PANEL DESCRIPTIONS



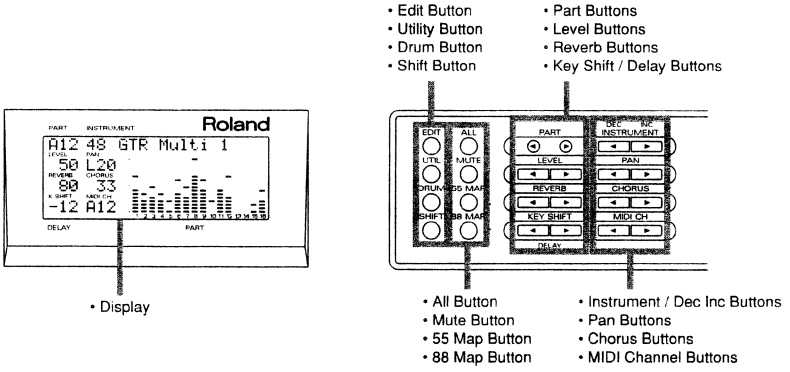
Side Panel



Rear Panel



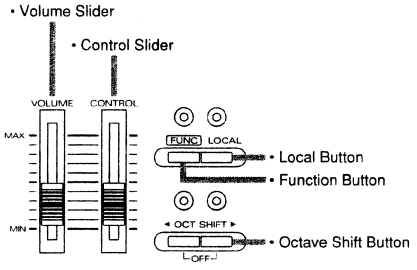
Sound Generating Section

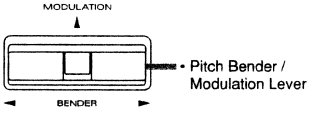


* The function of each button will change depending on the mode you are in. For the operations in each mode, refer to "Operating Procedure List" (p.160).

Controller Section (Keyboard Section)

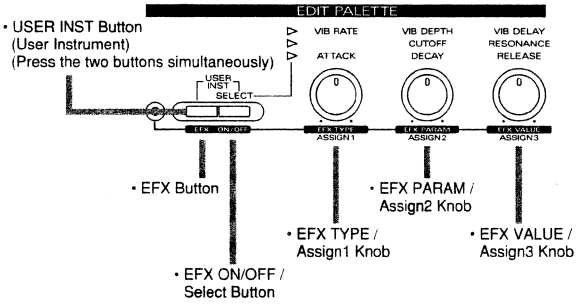
The Left of the Keyboard





* For details, refer to "3. ABOUT THE SK-88PRO'S CONTROLLER SECTION" (p.34).

Above the Keyboard (EDIT PALETTE)



* The function of each button and knob will change depending on the mode you are in. For the operations in each mode, refer to "Operating Procedure List" (p.160).

1. GETTING ACQUAINTED WITH THE SK-88PRO

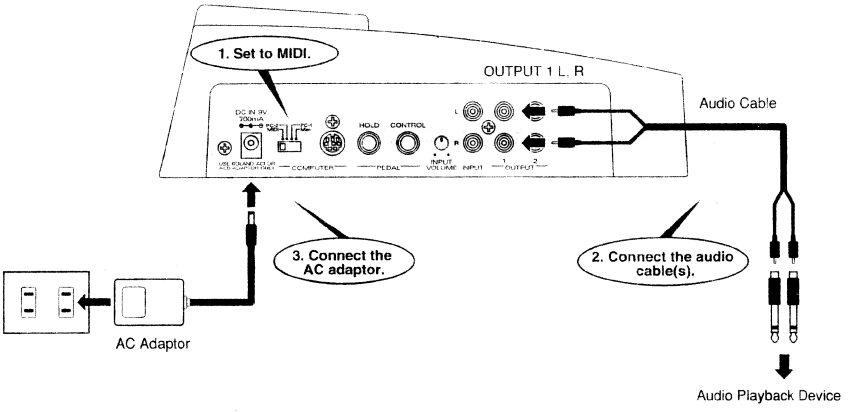
Here we will explain how you can play the SK-88Pro as a standalone instrument. Instructions on connecting the SK-88Pro with a computer start on p.26. Even if you just can't wait to hear what the SK-88Pro sounds like, please try to at least read this chapter first.

Making Connections

In order to hear the sounds of the SK-88Pro, you will need to connect audio cables or headphones. Refer to "Connecting the Audio Cable" or "Connecting Headphones."

Connecting the Audio Cable

NOTE To prevent malfunction and/or damage to speakers or other devices, always turn down the volume, and turn off the power on all devices before making any connections.



1 Set the Computer switch on the left side of the SK-88Pro to the "MIDI" position.

NOTE If you wish to connect the SK-88Pro to a MIDI device, set the Computer switch to MIDI. Before changing the setting of the Computer switch, you must first turn off the power on the SK-88Pro.

2 Plug the audio cable(s) into L/R Output 1 jacks on the SK-88Pro, and connect the other end of the audio cable(s) to the input jacks on the audio playback device (e.g., stereo set, speaker with built-in amp).

NOTE Be sure to match the L/R Output jacks of the SK-88Pro with the L/R input jacks on your audio equipment. If you get them reversed, the sounds you play will be reversed too.

NOTE At the factory settings, no sound will be sent from Output 2 jacks. (p.105)

3 Plug the attached AC adaptor to the SK-88Pro's DC IN jack on the left side of the SK-88Pro. Plug the AC adaptor into an outlet.

⚠WARNING Be sure to use only the AC adaptor supplied with the unit. Also, make sure the line voltage at the installation matches the input voltage specified on the AC adaptor's body. Other AC adaptors may use a different polarity, or be designed for a different voltage, so their use could result in damage, malfunction, or electric shock.

Connecting Headphones

1 Set the Computer switch on the left side of the SK-88Pro to the "MIDI" position.

NOTE If you wish to connect the SK-88Pro to a MIDI device, set the Computer switch to MIDI.

NOTE Before changing the setting of the Computer switch, you must first turn off the power on the SK-88Pro.

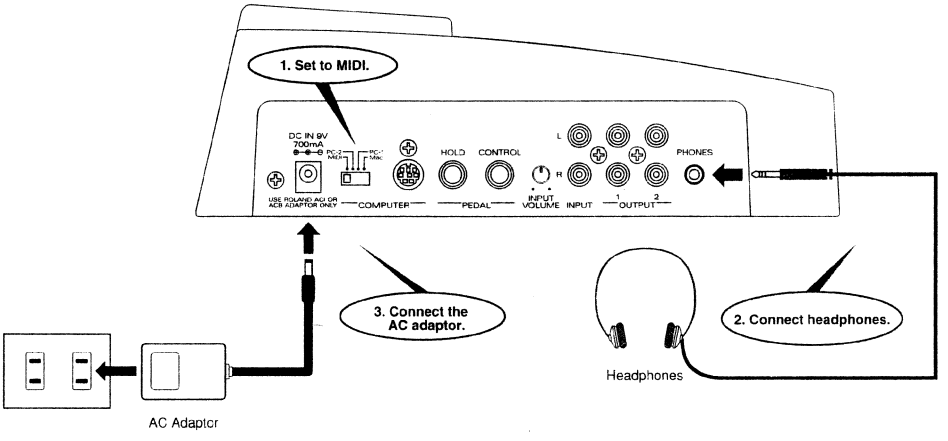
2 Connect your headphones plug to the headphones jack on the left side of the SK-88Pro.

NOTE Be sure to use headphones with an impedance of 8–150 ohms, and which have a stereo miniature type plug.

MEMO Sound will be output from the Output jacks even when headphones are connected.

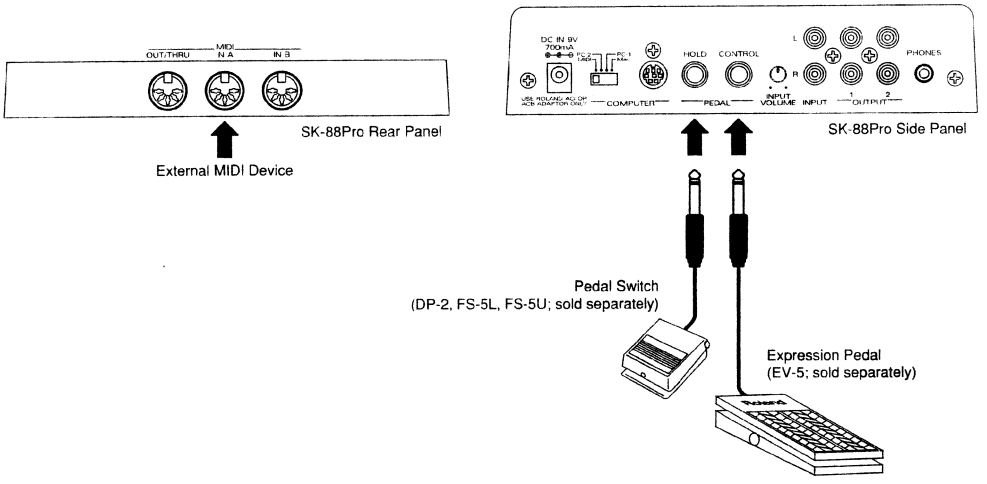
3 Plug the attached AC adaptor to the SK-88Pro's DC IN jack on the left side of the SK-88Pro. Plug the AC adaptor into an outlet.

⚠**WARNING** Be sure to use only the AC adaptor supplied with the unit. Also, make sure the line voltage at the installation matches the input voltage specified on the AC adaptor's body. Other AC adaptors may use a different polarity, or be designed for a different voltage, so their use could result in damage, malfunction, or electric shock.



Connecting Other Devices

If you want to connect other MIDI devices, an expression pedal and/or a pedal switch, refer to the following diagram.



NOTE Be sure to use expression pedals and pedal switches manufactured by Roland or Boss. Pedals of other manufacturers may not operate correctly with SK-88Pro.

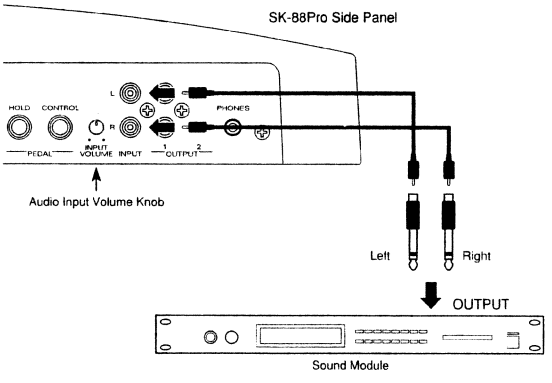
NOTE Since the jacks are closely spaced, you may need to hold plugs at an angle when plugging them in if you use 90-degree (L-shaped) plugs.

MEMO If you use the FS-5L pedal switch, the indicator will light when you press the pedal once, and the "on" condition will be maintained. This makes it suitable for controlling the SK-88Pro's EFX ON/OFF or START/STOP functions (p.128).

MEMO When connecting other MIDI devices, refer to "Connecting Another MIDI Sound Source to the SK-88Pro" (p.140).

How to Use Audio Input Jacks/Audio Input Volume

You can connect the output jacks of other MIDI sound sources to these jacks with audio cables. The audio signal that is input here will be mixed with the SK-88Pro's sound and output from the audio Output 1 jacks.
If the signal input to the SK-88Pro is too large or too small, use the audio input volume knob to adjust it. If the input signal is too large, rotate the knob to the left to reduce the volume.



Turning the Power ON/OFF

NOTE

Once the connections have been completed, turn on power to your various devices in the order specified. By turning on devices in the wrong order, you risk causing malfunction and/or damage to speakers and other devices.

Here we will explain how to connect the SK-88Pro to an audio reproduction system (stereo set or amplified speakers). If you are using headphones, you may skip the explanations regarding operation of your audio reproduction system.

Turning the Power On

1 Before you turn the power on, turn down the volume of the SK-88Pro and audio playback devices (your amp/speaker system).

2 Push the Power switch on the rear of the SK-88Pro to turn on the SK-88Pro.

NOTE

This unit is equipped with a protection circuit. A brief interval (a few seconds) after power up is required before the unit will operate normally.

3 Turn on the power of your audio system.

4 Set the volume of each device to an appropriate setting.

NOTE

When connecting the SK-88Pro to your speaker system, excessive volumes can damage your speaker system. Please be aware that speakers used in conventional stereo systems are more vulnerable to being damaged by high volume levels than are speakers designed for musical instruments.

Turning the Power Off

1 Before you turn the power off, turn down the volume of SK-88Pro and audio playback devices (your amp/speaker system).

2 Turn off audio devices, and then turn off the SK-88Pro.

NOTE

Even if the SK-88Pro is turned off, the settings for System parameters and User parameters will not be affected. If you want to initialize all the settings of the SK-88Pro to the factory settings, refer to "Restoring the Factory Settings (Initialize)" (p.25).

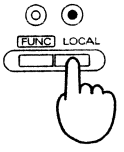
Transmitting Keyboard Data to the Internal Sound Generator (Local ON)

The SK-88Pro contains a controller section (keyboard section) and sound generating section in one package. This means that you can make a setting (Local Control) that specifies whether or not the performance data from the keyboard will be transmitted directly to the sound generator.
Be aware that this setting will be different depending on whether you are using the SK-88Pro by itself, or together with a computer (p.30).

When using the SK-88Pro by itself, there will be no sound unless the keyboard data are transmitted to the internal sound generator. Turn the Local Control setting ON to connect the controller section to the sound generating section.

1 Make sure that the [LOCAL] button's indicator (located at the left of the keyboard) is lit.

If it is dark, press the [LOCAL] button to turn it on.



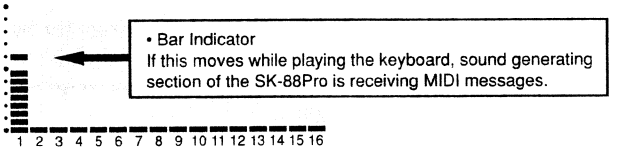
When the [LOCAL] button's indicator is lit, Local will be ON, and performance data from the keyboard will be transmitted to the internal sound generator, and sound will be output from the Output jacks.

NOTE The next time you turn the power on, Local Control will be ON, but you will need to check this setting whenever you use the SK-88Pro by itself (i.e., when it is not connected to a computer).

MEMO For details about Local Control, refer to p.34.

Is There Sound?

After making connections, turn the power on, and gradually raise the volume while playing the keyboard. Check that sound is produced.
If you hear no sound, check whether the bar indicator of the SK-88Pro is moving.



If the bar indicator moves, the SK-88Pro's sound generating section is receiving MIDI messages correctly from the controller section. Check the connections of audio cables or headphones (p.10, 11).

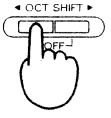
If the bar indicator is not moving, messages from the controller section are not being transmitted to the internal sound generator. Check the Local ON setting described above.

Changing the Keyboard Octave Setting

The SK-88Pro is a 37 note keyboard, but by shifting the octave setting upward or downward you can access all notes (note numbers).
To change the octave setting of the SK-88Pro, use the two [OCT SHIFT] buttons located at the left of the keyboard.

1 First, play the keyboard to check the pitch of the sound.

2 Press the left [OCT SHIFT] button once.



Play the same note as before, and notice that the pitch is 1 octave (12 semitones) lower.

3 Press the left [OCT SHIFT] button once again.

The pitch will fall an additional octave.

In the same way, pressing the right [OCT SHIFT] button will raise the pitch in one-octave intervals.

The SK-88Pro lets you shift the pitch a maximum of 4 octaves upward or downward. When the octave has been shifted, the corresponding indicator above the two [OCT SHIFT] buttons will light.

NOTE With a setting of +4 octaves, the notes from G#5 and above cannot be used. This is because these keys would exceed the maximum note number allowed by MIDI (G9 = note number 127).

NOTE This setting will return to normal when the power is turned off.

MEMO To return the octave setting to normal, use the following procedure.

1 Simultaneously press both the [OCT SHIFT] buttons.

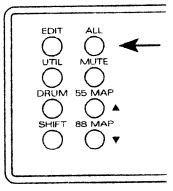
The indicator will go out, and the octave setting will return to normal. At this time, the keyboard will produce the pitches that are marked above it: from C3 (note number 48) to C6 (note number 84).

Try Out the Various Sounds

The SK-88Pro contains a wide variety of sounds, including not only musical instruments such as piano, organ and guitar, but also sound effects such as birds and telephone rings. In the SK-88Pro, each of these sounds is called an "Instrument."
Here's how to select Instruments to try out the sounds.

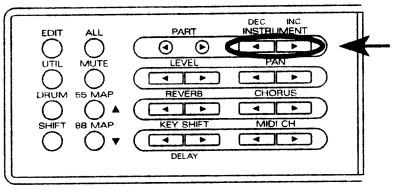
Basic Sounds

1 Make sure that the [ALL] indicator above the keyboard is dark.



If it is lit, press the [ALL] button to turn it off.

2 Now, try using INSTRUMENT [◀] [▶] to select various sounds and play them from the keyboard.



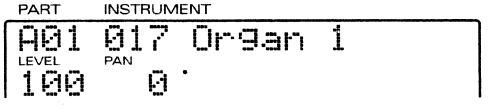
Pressing INSTRUMENT [◀] will decrement the sound number, and pressing INSTRUMENT [▶] will increment the sound number, allowing you to select a number in the range of 001–128.

Variation Sounds

As you probably know, the SK-88Pro offers more than 128 sounds.
In addition to the SK-88Pro's basic sounds, it also offers "Variation" sounds, which have a somewhat different character than the basic sounds.
The sounds of the SK-88Pro are selected by two numbers: the Instrument number and the Variation number. In preceding explanations, when you used the INSTRUMENT [◀] [▶] buttons to select basic sounds, you were changing the Instrument number. Here's how you can change the Variation number to listen to different Variation sounds.

1 Make sure that the [ALL] indicator is dark.

2 Now, select "017 Organ 1" using the INSTRUMENT [◀] [▶] buttons.



3 Simultaneously press both the INSTRUMENT [◀] [▶] buttons to enter Variation Select mode.

```
PART    INSTRUMENT
A01 000/Organ 1
LEVEL   PAN
100     0
```

The slash "/" at the left of the Instrument name indicates that you are in Variation Select mode. 000 is the Variation number.

4 Press INSTRUMENT [▶] to change the Variation number, and press the keyboard to hear the sound. Even among organ sounds, you can hear that there are many variations.

In Variation Select mode, pressing INSTRUMENT [◀] or [▶] will change the Variation number.

```
PART    INSTRUMENT
A01 001/Organ 101
LEVEL   PAN
100     0
```

↓

```
PART    INSTRUMENT
A01 008/Trem. Organ
LEVEL   PAN
100     0
```

↓

```
PART    INSTRUMENT
A01 009/Organ o
LEVEL   PAN
100     0
```

5 After you have tried various Variation sounds, press INSTRUMENT [◀] several times to return to Variation number 000.

6 In the above step **3**, you entered Variation Select mode by simultaneously pressing the INSTRUMENT [◀] and [▶] buttons. You can leave Variation Select mode in the same way. Once again, press the INSTRUMENT [◀] and [▶] buttons simultaneously.

You will exit Variation Select mode, and return to Normal mode in which you can select Instrument numbers.

If in step **5** you did not return to Variation 000, returning to Normal mode and pressing INSTRUMENT [◀] [▶] will select different Variation sounds.

Try out other sounds in the same way.
The Instrument List (p.166) shows the Instruments provided by the SK-88Pro. The Instrument number corresponds to the number in the PC column of the table, and the Variation number corresponds to the number shown in the CC00 column. The number of Variations will depend on the sound. You can see that the organ (Instrument number 017) that we just heard has many Variation sounds. For details refer to p.41.

Drum Set Sounds

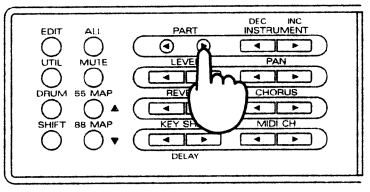
For the Drum Part, sounds are selected in a different way than for a normal Part. Drum Sets assign a different sound to each note of the keyboard. The SK-88Pro has 42 types of Drum set, and you can change Drum Sets in the same way as you select sounds for a normal Part.

1 Make sure that the [ALL] indicator is dark.

If it is lit, press the [ALL] button to turn it off.

2 Use the PART [▶] button to select the Drum Part.

At the factory settings, Part 10 (A10 and B10) is the Drum Part.



When selecting the Drum Part, an "*" will be displayed in front of the Drum Set name.

3 Play the keyboard, and notice that different sounds of the Drum Set are assigned to each note.

The "Drum Set List" (p.173) tells you the sounds that are assigned to each note. To shift the pitch range of the keyboard, use the two [OCT SHIFT] buttons. To lower the pitch range of the keyboard, press the left [OCT SHIFT] button. If you continue holding the button, the pitch will be lowered by 4 octaves.

Next, change the types of Drum Set.

4 Use the INSTRUMENT [◀] [▶] buttons to select the Drum Set.

When you change Drum Sets, the sound played by a particular note will also change.
(Some sounds will not change. Sounds marked by "<-" in the "Drum Set List" (p.173) are the same sounds as the standard set.)

Try Out Patches

A "Patch" is a set of sounds for which various parameters such as effects have been given their optimal settings, and Parts A01 and A02 will use these sounds. The SK-88Pro provides 128 different patches.
These preset patches are high-quality sounds that make skillful use of effects and other parameters, and can be selected and used without making further adjustments.

1 Make sure that the [ALL] indicator is dark.

2 Use the PART [◀] [▶] buttons to select A01 (Part 1).

3 Press the [ALL] button to make the button indicator light.

4 Use the INSTRUMENT [◀] [▶] buttons to select the Patch that you wish to load.

PART INSTRUMENT
ALL 003 WAH! PEDAL
LEVEL PAN

When pressing the INSTRUMENT [◀] [▶], the [ALL] button and [MUTE] button will blink.

5 When you display the Patch that you wish to load, press the [ALL] button to load the Patch.

MEMO

When the [ALL] button and the [MUTE] button are blinking simultaneously, [ALL] will carry out the operation, and [MUTE] will cancel the operation. Please remember this, since [ALL] and [MUTE] will be blinking in other situations described later.

NOTE

Even if you display a Patch in step **4**, the data will not be loaded and the sound will not change unless you press the [ALL] button to load the data. When you change patches, a brief interval of time will be required before the sound can be heard.

Now, play the keyboard to check the Patch sound.
If you want to try out other Patches, repeat the following procedures.
For the types of Patches, refer to "Preset Patch List" (p.194).

1. Use the INSTRUMENT [◀] [▶] buttons to select the Patch that you wish to load.
2. Press the [ALL] button.

For details about the Patch, refer to "Using Patches" (p.48).

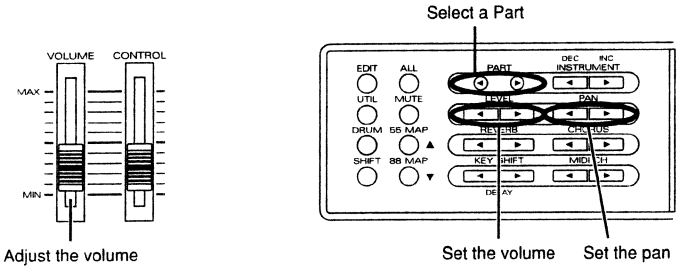
Restoring the Previous Settings

So that you can follow along with the following explanations, go back to the condition whereby no Patch is selected.

1. Make sure that the [ALL] indicator is lit.
2. Press the INSTRUMENT [◀] button to turn back the display to "– SOUND Canvas –."
3. Press the [ALL] button.

Learning Basic Operations

This section will explain the buttons and sliders that are most frequently used on the SK-88Pro.



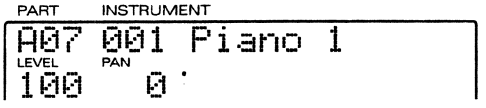
The following procedures must be performed with the [ALL] indicator dark. If it is lit, press the [ALL] button to turn it off.

Selecting Parts

The SK-88Pro has 32 Parts, and is able to produce 32 different types of sound at once. Here's how to select the Part.

1 Use the PART [◀] [▶] buttons to select the Part.

The PART area of the display will indicate the selected Part.



Please remember this operation, since it will be used frequently when assigning a sound to each Part and when transmitting a keyboard performance to an external device.

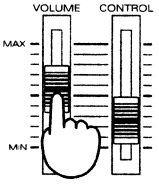
Adjusting the Volume

If the SK-88Pro is connected to an audio reproduction system (amp, speaker, etc.), you can adjust the volume on your audio reproduction system. However when you wish to adjust the volume as you play, there are two methods of adjusting the volume from the SK-88Pro.

VOLUME Slider

1 Move the Volume slider located at the left of the keyboard.

Moving the slider upwards increases the volume, while moving it downwards decreases the volume.



MEMO This slider adjusts the volume of the output from the Output jacks (OUTPUT 1) and the headphones jack (PHONES) of the SK-88Pro.

LEVEL Button

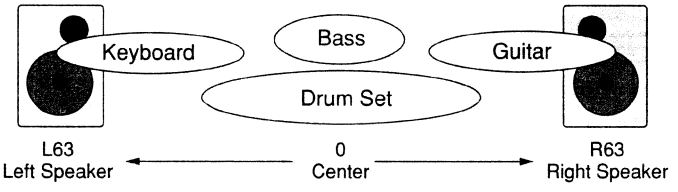
1 Use the LEVEL [◀] [▶] buttons.

Pressing the LEVEL [◀] button decreases the volume, while pressing the LEVEL [▶] button increases the volume.

The volume is shown as a value from 0 to 127, next to LEVEL in the display.

Adjusting the Pan (Stereo Position)

Pan set the stereo position of the sound when a stereo playback system is used. For example, the drum set and bass might be placed in the center, the guitar at right, and the keyboard at left.



1 Use the PAN [◀] [▶] buttons to set the pan.

The PAN area of the display will indicate the pan value of the Part.

To place a sound in the center, set the PAN value to 0. As the L-value increases the sound will be placed further left, and as the R-value increases the sound will be placed further right. You can specify a value between L63 and R63, and center is 0. If you continue pressing PAN [◀], "Rnd" (random) will be selected, and each note will be placed at a random stereo position.

NOTE For some Instruments, small amounts of leakage may be heard from the opposite speaker even when pan has been set fully left or right.

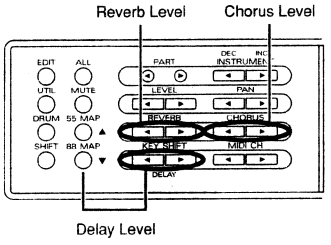
NOTE If you are listening in mono, pan settings will have no effect.

Try Out the Effects

Effect Types

Effects are used to electrically process the sound in various ways to add a different character to the sound. The effects of the SK-88Pro can be classified either as System effects (p.54) or as Insertion effects (p.62). System effects include 8 types each of reverb and chorus, 10 types of delay, and 2-band equalizer. Insertion effects include 64 effect types. In addition, you can make appropriate parameter settings for each effect, providing varied and detailed control over the sound.

Reverb, Chorus and Delay (System Effects)



MEMO

When the [ALL] indicator is lit, the following procedures will adjust the amount of effects for all Parts. When the indicator is extinguished, they will adjust the amount of effects for the individual Parts. For details refer to p.56.

Adjusting the Amount of Reverb

Reverb is an effect that adds spacious reverberance to the sound, simulating a performance in an acoustically live concert hall.

1. Use the REVERB [◀] [▶] buttons.

Pressing REVERB [◀] decreases the reverb depth, while pressing REVERB [▶] increases the reverb depth.

Adjusting the Amount of Chorus

Chorus is an effect that adds depth and richness to the sound.

1. Use the CHORUS [◀] [▶] buttons.

Pressing CHORUS [◀] decreases the chorus depth, while pressing CHORUS [▶] increases the chorus depth.

Adjusting the Amount of Delay

Delay is an effect that delays the sound to create echoes. Also, you can add a short delay to the original sound to give depth and space to the sound.

1. While holding down the [88 MAP] button, press the DELAY [◀] [▶] buttons (the same buttons as KEY SHIFT [◀] [▶]).

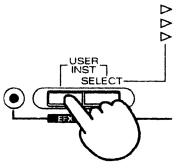
While holding down the [88 MAP] button, press DELAY [◀], decreases the volume of the delayed sound, and while holding down the [88 MAP] button, press DELAY [▶], increases the volume of the delayed sound.
The K SHIFT area of the display will indicate the value.

MEMO

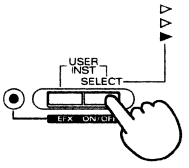
The area of the display where the Delay setting is displayed is shared with the KEY SHIFT display. When while holding down the [88 MAP] button, press DELAY [◀] [▶] buttons, the delay setting will be displayed. And when while not holding down the [88 MAP] button, the KEY SHIFT [◀] [▶] buttons are pressed, the KeyShift setting will be displayed. If the display indicates a +/- (plus or minus) value, the Key Shift setting is being displayed. (p.100)

Insertion Effects (EFX)

1 Press the [EFX] button of the EDIT PALETTE above the keyboard to make the indicator light.

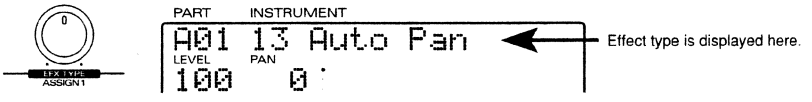


2 Press the [ON/OFF] button at the right of the [EFX] button to make the EFX [ON/OFF] indicator (►) light.



Each time you press the [ON/OFF] button, the indicator will light/go out. When it is lit, the Insertion effect will be on, and when it is extinguished the Insertion effect will be off.

3 Rotate the [EFX TYPE] knob to select the effect type, and play the keyboard.



NOTE It takes awhile until the sound can be heard after you change the effect type. When "00 Thru" is selected, the Insertion effect will not be applied.

4 By pressing the [ON/OFF] button that you turned on in step **2** to switch the effect on/off, you can compare the sound with and without the effect.

Rotate the [EFX TYPE] knob to try out other Insertion effects.

Exiting Insertion Effect Mode

1 If you wish to leave the Insertion effect applied, turn on the "►" indicator located at the right of the [ON/OFF] button.

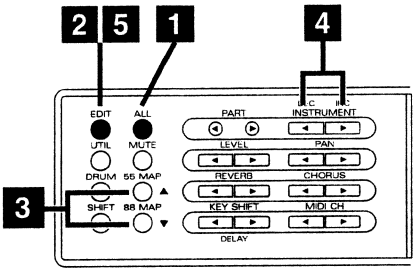
If you wish to leave the Insertion effect off, get the [ON/OFF] button to go out. Pressing the [ON/OFF] button will alternate between lit/dark.

2 Press the [EFX] button to make the left indicator dark.

You will exit Insertion Effect mode, and return to Normal mode.

Tuning to Other Instruments

When you are playing in an ensemble with other Instruments or need to set the SK-88Pro to match the pitch of another Instrument, adjust the Master Tune setting in the range of 415.3–466.2 Hz. The displayed value (e.g., 440.0 Hz) indicates the frequency of the A4 note's pitch (note number 69).



1 Press the [ALL] button to make the button indicator light.

2 Press the [EDIT] button to make the button indicator light.

3 Press the [▲] or [▼] button to select "M.Tune."

PART INSTRUMENT
ALL >M. Tune: 440.0
LEVEL PAN
127 0

4 As you listen to the sound, use the INSTRUMENT button [◀] [▶] to adjust the pitch of the SK-88Pro to match the pitch of the other Instrument.

Pressing [◀] will lower the pitch, and pressing [▶] will raise the pitch. The display will show the frequency of the pitch, so if you are tuning to a specific frequency you can visually check the desired value.

5 When you have made the desired setting, press the [EDIT] button.

Restoring the Factory Settings (Initialize)

This chapter has introduced you to the basic operation of the SK-88Pro, but you probably do not want to store the changes you made in the SK-88Pro's memory. If so, you can easily restore the settings to their factory condition.

Initializing All Settings to the Factory Condition (Factory Preset)

This operation will initialize all the settings of the SK-88Pro to the factory settings.

NOTE Be aware that this will also initialize System parameters (p.107) and User parameters (p.114, 116, 118, 120).

1. While holding down the [SHIFT] button, press the PART [◀] button.
The display will ask " Init All, Sure? "

2. To initialize, press the [ALL] button.
To quit without initializing, press the [MUTE] button.

NOTE After the initialization has been performed, the settings of OUT/THRU and In Mode will not yet at that point be at the defaults. They will be placed at the defaults after you turn power off, then on again.

Initializing for General MIDI/GS Format

Here we will also explain the Initialize procedure that you will use when you need to initialize the SK-88Pro to the basic General MIDI/GS settings. Normally, you won't need to press buttons to have an initialization performed. Use this procedure only when manual initialization is necessary.

When you wish to playback music files carrying the General MIDI/GS logo, you need to initialize the SK-88Pro for General MIDI/GS settings. When this is done, the SK-88Pro will be set to the basic General MIDI/GS settings appropriate for playing back music files carrying the General MIDI/GS logo.
The beginning of music files carrying the General MIDI/GS logo contains data which requests the sound source to initialize itself (Turn General MIDI System On, GS Reset p.154). This means that if you are playing back the music files from the beginning, initialization will be done automatically, and there is no need for you to do it using the panel buttons.

NOTE Even if the SK-88Pro is initialized for General MIDI/GS, the System parameter settings (p.107) will not be affected.

NOTE Even if Backup Switch (p.108) is on, the following procedure will initialize it to the basic General MIDI/GS settings.

Initialize for General MIDI (Turn General MIDI System On)
Initialize for GS (GS Reset)

1. (for General MIDI) While holding down the [SHIFT] button, press the PART [▶] button.
The display will ask " Init GM, Sure? "

(for GS) While holding down the [SHIFT] button, press the PART [◀] button.
The display will ask " Init GS, Sure? "

NOTE If you perform this operation in Double Module mode (p.138), the display will ask " Init GS A, Sure? " Use INSTRUMENT [◀] [▶] to specify which module A or B will be initialized.

2. To initialize, press the [ALL] button.
To quit without initializing, press the [MUTE] button.

2. USING THE SK-88PRO WITH A COMPUTER

The SK-88Pro can be controlled by music software running on a computer. This will allow you to create your own songs, and also to select sounds or edit sounds from the computer display. The features available to you when using a computer will vary greatly, depending on the software you use, so it is important that you choose software suited to your needs.

Connecting to Your Computer

Two Connection Methods

There are two ways to connect the SK-88Pro to your computer: by means of the Computer connector, or by using the MIDI connectors.

To make connections via the Computer connector, use a Computer cable to connect the serial port (RS-232C connector) of your computer to the Computer connector of the SK-88Pro.

To make connections via MIDI, you will need a MIDI interface (such as the Roland Super MPU II, etc.). Use MIDI cables to connect the SK-88Pro's MIDI connectors to the MIDI connectors of the MIDI interface, after it has been installed in an expansion slot on your computer.

Connect the SK-88Pro to your computer using the method that is appropriate for your setup.
If you are making connections using MIDI, read from p.28.

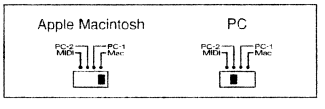
Connecting with Computer Connector

1 Turn off the SK-88Pro, your computer and all peripheral devices.

NOTE To prevent malfunction and/or damage to speakers or other devices, always turn down the volume, and turn off the power on all devices before making any connections.

2 Set the Computer switch on the left side of the SK-88Pro as the following figure.

In general, set the switch to PC-2 for PC, and to Mac for Apple Macintosh series.



NOTE Before changing the setting of the Computer switch, you must first turn off the power on the SK-88Pro.

NOTE This setting determines the transmission speed (baud rate) between your computer and the MIDI sound module (the SK-88Pro), and the setting used by the computer must match the setting on the SK-88Pro. Here we explained how to make the setting on the SK-88Pro. To make settings on your computer, you will need to make settings for your software. If you are using Windows, settings may be different than the above, depending on your driver settings. If so, carefully read the owner's manual that was included with your driver.

MEMO The PC-1 baud rate is 31.25 (kbit/sec), and the PC-2 baud rate is 38.4 (kbit/sec).

In step **3**, the connections will be slightly different depending on the type of computer you are using, so read the section (3a, 3b) that applies to you.

3a If you're using a PC, connect the computer cable to the serial port (RS-232C) connector on the rear of the computer.

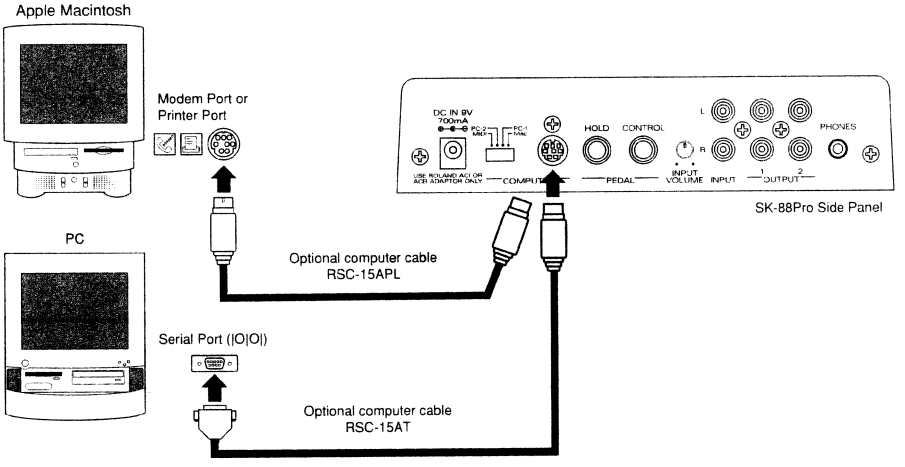
Computer cable : RSC-15AT (sold separately)

This is a 9 pin cable. If you need a 25 pin cable, refer to the wiring diagram on p.159 and purchase an appropriate cable.

3b If you're using an Apple Macintosh computer, connect the computer cable to the modem port or printer port on the rear of the computer.

Computer cable : RSC-15APL (sold separately)

4 Connect the other end of the Computer cable to the Computer connector on the left side of the SK-88Pro.



NOTE

In order to hear the sounds of the SK-88Pro, you will also need to connect an AC adaptor, and audio cables or headphones. If you have not yet made connections, please read "Making Connections" (p.10).
If you are finished making connections, read from the "Turning the Power ON/OFF" section on p.29.

Connecting with MIDI Connectors

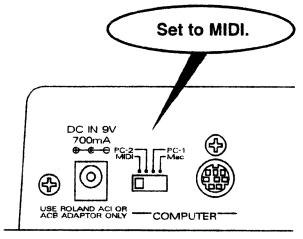
If a MIDI interface board (Roland Super MPU II, etc.) is installed in an expansion slot on your computer, or if a MIDI interface adaptor is connected, you can use the MIDI connectors to make connections.
The MIDI interface can be connected to the SK-88Pro using up to three MIDI cables (sold separately: MSC-15/25/50).

NOTE For details on how to install the MIDI interface, refer to the owner's manual for your MIDI interface.

1 Turn off the SK-88Pro, your computer and all peripheral devices.

NOTE To prevent malfunction and/or damage to speakers or other devices, always turn down the volume, and turn off the power on all devices before making any connections.

2 Set the Computer switch on the left side of the SK-88Pro to MIDI.



NOTE Before changing the setting of the Computer switch, you must first turn off the power on the SK-88Pro.

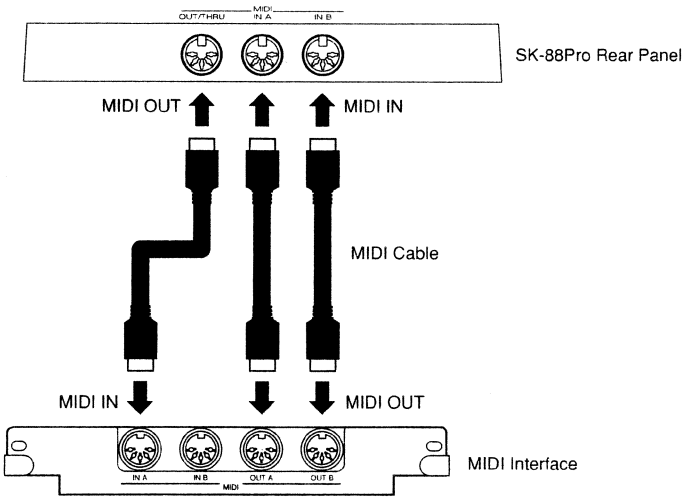
3 Use a MIDI cable (sold separately) to connect the MIDI OUT connector of the MIDI interface to the MIDI IN connector of the SK-88Pro.

If your MIDI interface has two MIDI OUT connectors, use MIDI cables to connect the MIDI OUT A connector of the MIDI interface to the SK-88Pro's MIDI IN A connector, and the MIDI OUT B connector of the interface to the SK-88Pro's MIDI IN B.

NOTE If only one MIDI OUT connector from the MIDI interface is connected to the SK-88Pro's MIDI IN connector, it will not be possible to enjoy 32-part playback on the SK-88Pro.

4 Use a MIDI cable to connect the MIDI IN connector on the MIDI interface to the MIDI OUT connector on the SK-88Pro.

NOTE This connection is necessary in order to use the controller section (keyboard section) of the SK-88Pro.



MEMO MIDI Interface (sold separately) for PC: MPU-401AT, S-MPU-IIAT (Super MPU II)

Turning the Power ON/OFF

NOTE Once the connections have been completed, turn on power to your various devices in the order specified. By turning on devices in the wrong order, you risk causing malfunction and/or damage to speakers and other devices.

Turning the Power On

1 Before you turn the power on, turn down the volume of SK-88Pro and audio playback devices (your amp/speaker system).

2 Check to make sure the setting of the Computer switch is correct. (p.26, 28)

3 Push the Power switch on the rear of the SK-88Pro to turn on the SK-88Pro.

NOTE This unit is equipped with a protection circuit. A brief interval (a few seconds) after power up is required before the unit will operate normally.

4 Turn on the power of your computer.

5 Turn on the power of your audio system.

6 Set the volume of each device to an appropriate setting.

NOTE When connecting the SK-88Pro to your speaker system, Excessive volumes can damage your speaker system. Please be aware that speakers used in conventional stereo systems are more vulnerable to being damaged by high volume levels than are speakers designed for musical instruments.

Turning the Power Off

1 Before you turn the power off, turn down the volume of SK-88Pro and audio playback devices (your amp/speaker system).

2 Turn off your audio system.

3 Turn off the power of your computer.

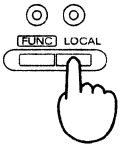
4 Turn off the SK-88Pro.

NOTE Even if the SK-88Pro is turned off, the settings for System parameter and User parameter will not be affected. If you want to initialize all the settings of the SK-88Pro to the factory settings, refer to "Restoring the Factory Settings (Initialize)" (p.25).

Disconnecting the Keyboard from the Internal Sound Generator (Local OFF)

The SK-88Pro contains a controller section (keyboard section) and sound generating section, packaged as a single unit. This means that you can make a setting (Local Control) that specifies whether or not the performance data from the keyboard will be transmitted directly to the sound generator.
When using the SK-88Pro by itself, you will turn Local ON (p.14), but when connecting it to a computer, etc., you will turn Local OFF to disconnect the keyboard from the internal sound generator.

1 Press the [LOCAL] button at the left of the keyboard to make the indicator dark.

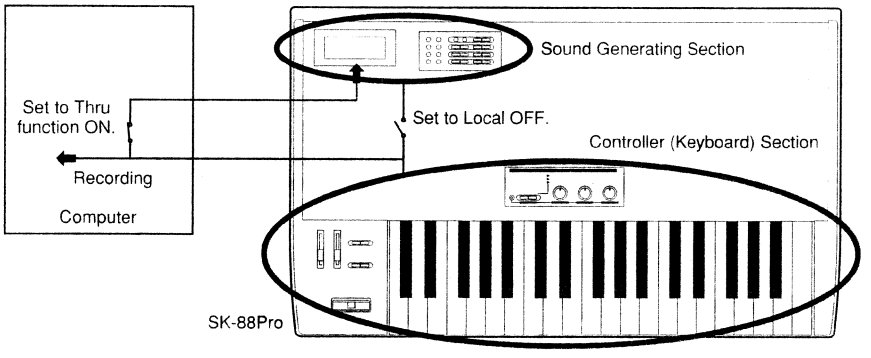


NOTE This setting will return to Local ON when the power is turned on again. If you are using the SK-88Pro with a computer, you will need to make this setting each time.

2 Depending on your sequencing program, turn on the Thru function of your sequencing program. (Refer to the following page.)

About Local OFF

When using the SK-88Pro with your computer, you will need to disconnect the SK-88Pro's controller section from its sound generating section. The disconnected state is referred to as "Local OFF."
With a setting of Local OFF, what you play on the controller section will be transmitted to the computer. Then, that data will be re-transmitted (by the sequencing program running on your computer) back to the sound generating section of the SK-88Pro.



If the Local Control were ON, each note would be played twice; once by the musical data from the controller section, and once again by the data sent from sequencing software on the computer. In order to prevent such double triggering, the Local Control setting is turned off to separate the controller section from the sound generating section.

MEMO

Even if the Local Control setting is turned to OFF, musical data from an external devices (e.g., computer) are received and will play the internal sound generator.

Settings on Your Sequencing Program

In order for the musical data received by the computer from the SK-88Pro to be transmitted back to the SK-88Pro, the Thru function of the sequencing program must be turned on. When the Thru function of the sequencing program is turned on, MIDI messages received at MIDI IN will be re-transmitted without change from MIDI OUT. (Refer to the diagram on p.32.)
For details on whether or not your sequencing program has a Thru function, and how to set the Thru function, refer to the owner's manual for your sequencing program.

MEMO

Start up your sequencing program, and with the SK-88Pro's [LOCAL] button's indicator extinguished, play the SK-88Pro's keyboard. If you hear sound, the Thru setting of the sequencing program is correct.

NOTE

If your sequencing program does not have a Thru function, set the SK-88Pro's Local Control to ON.

NOTE

For some sequencing programs, System Exclusive messages are not transmitted by the Thru function. If you are using such software and wish to record System Exclusive messages, turn the SK-88Pro's Local Control setting ON.

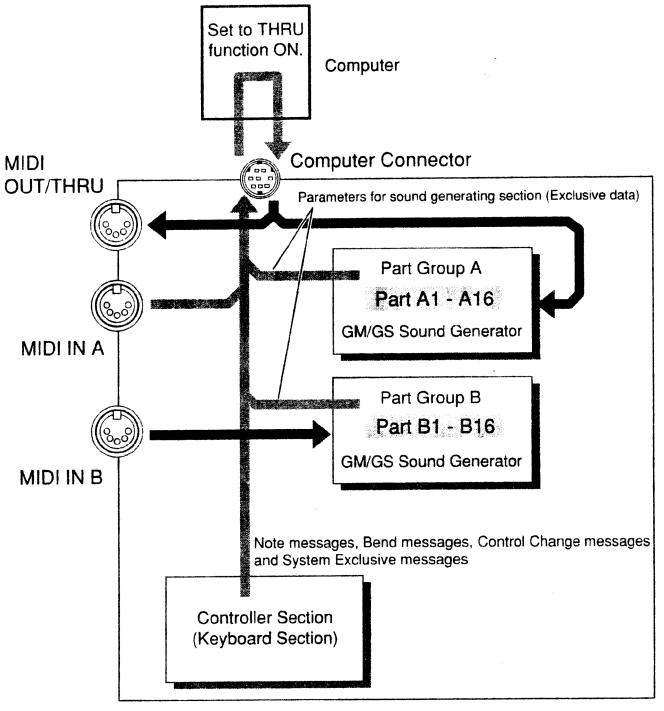
NOTE

When what you play on the SK-88Pro's keyboard is being recorded by your sequencing program, there may be cases in which the displayed Part does not match the Part that is sounding. This is because the musical data from the SK-88Pro is transmitted on the MIDI channel of the displayed Part (with the Tx Channel default setting, p.109), but this musical data is returned to the SK-88Pro on the MIDI channel that is specified for the recording track of the sequencing program.
If you wish to match the SK-88Pro's displayed Part with the Part that is played, set the MIDI channel of the recording track of the sequencing program to match the displayed Part of the SK-88Pro.

MIDI Data Transfer with the Computer

Depending on the setting of the Computer switch, MIDI data flow will be different as follows (with the factory settings).

When the Computer Switch is Set to PC-1, PC-2 or Mac



NOTE

In order for data received at MIDI IN A to be sent to the sound generating section, the Thru function of the computer software must be turned on. When the Thru function is turned on, the data received at MIDI IN A will pass through the computer and be played by the sound generating section. When transmitting MIDI Exclusive data from the sound generating section via the SK-88Pro's MIDI OUT/THRU connector, it is also necessary for Thru function to be on.

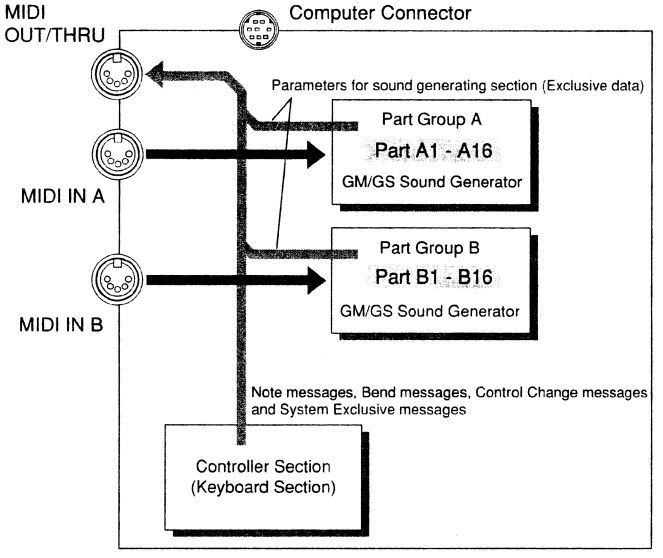
MEMO

Data received at MIDI IN B will not be sent to the Computer connector, but will be passed directly to the sound generating section.

NOTE

The number of sound generator Parts that can be controlled using the Computer connector will depend on the software you are using. This means that if you are using the Computer connector, you will not necessarily be able to play 32 Parts. Carefully read the operating manual for your software. Also be aware that although the SK-88Pro allows two connectors MIDI IN A and B to be used for 32 Part performance, this may impossible to achieve depending on your software.

When the Computer Switch is Set to MIDI

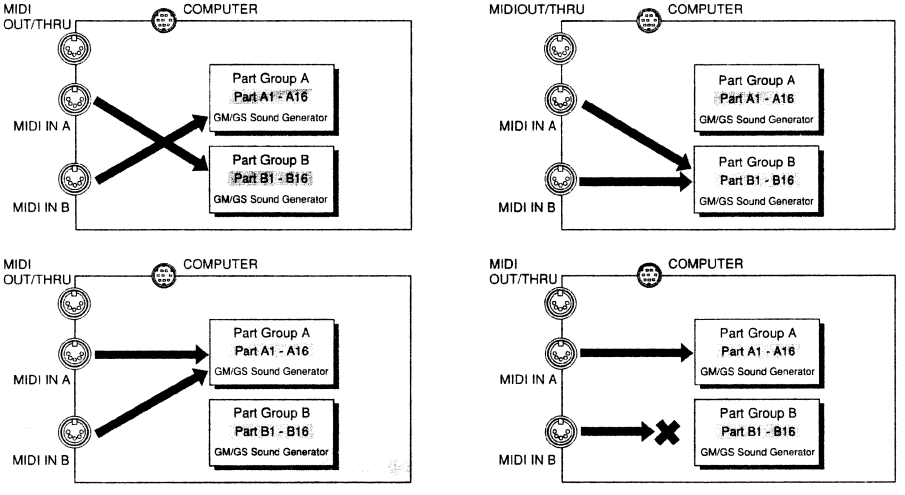


NOTE Be aware that when the Computer switch located on the left side of the SK-88Pro is set to MIDI, data will not be exchanged via the Computer connector.

MEMO At the factory settings, MIDI OUT/THRU is set to function as MIDI OUT. If you wish to use it as MIDI THRU, set the MIDI OUT/THRU Select switch (p.108) to THRU.

MEMO Exclusive data address settings are explained on p.147 and 202.

MEMO At the factory settings, MIDI messages received at MIDI IN A are passed to Group A Parts, and MIDI messages received at MIDI IN B are passed to Group B Parts. In most situations there is no need to change this, but it is possible to change the MIDI signal flow as shown below (p.142).



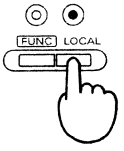
How Keyboard Performance Data is Sent to the Internal Sound Generator (Local Control)

The SK-88Pro contains a controller section and a sound generating section, packaged as a single unit. This means that depending on how you are using the SK-88Pro, you may need to change the setting (Local Control) that determines whether or not the data from the SK-88Pro's keyboard will be transmitted directly to its sound generator. Be aware that different settings are required depending on whether you use the SK-88Pro by itself, or in conjunction with a computer, etc.

• Using the SK-88Pro by itself	Local ON (p.14)
• Connected with a computer	Local OFF (p.30)
Connected with a sequencer	Local OFF
Connected with a workstation-type synthesizer	Local OFF

Local Control Setting (LOCAL)

1. Pressing the [LOCAL] button at the left of the keyboard will switch between ON and OFF.



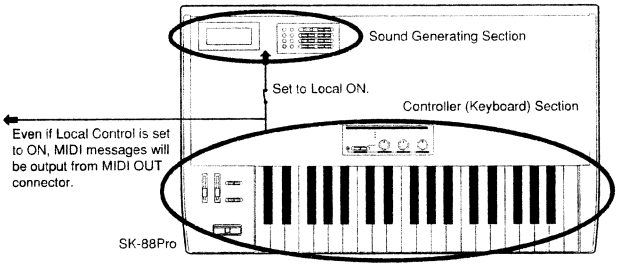
The indicator above the button is lit: Local ON
The indicator above the button is dark: Local OFF

NOTE The Local Control setting will be ON when the power is turned on. Each time you turn on the power of the SK-88Pro, you will need to check the Local Control setting.

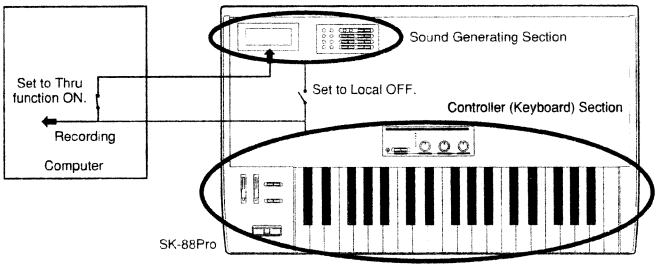
Data Flow

The following diagram shows how the flow of data will differ, depending on whether Local Control is ON or OFF.

When Local Control is ON



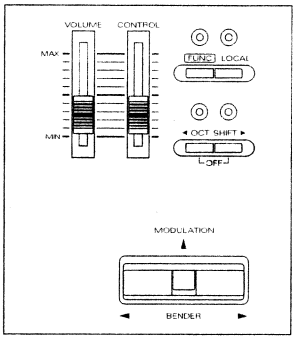
When Local Control is OFF



NOTE For details in each case, refer to "Transmitting Keyboard Data to the Internal Sound Generator (Local ON)" (p.14) and "Disconnecting the Keyboard from the Internal Sound Generator (Local OFF)" (p.30).

Operation of Controller Section

This section explains about the lever, sliders and buttons located at the left of the keyboard.



MEMO For operation of three knobs in the EDIT PALETTE of the controller section, refer to p.62, 110, 127, 160–165.

Adjusting the Volume (VOLUME Slider)

Move the Volume slider up and down to adjust the volume that output from the Output 1 jacks and the headphones jack (PHONES) of the SK-88Pro.

Changing the Octave Setting (OCT SHIFT)

The SK-88Pro is a 37 note keyboard, but by using the [OCT SHIFT] (Octave Shift) buttons to raise or lower the octave setting, you can transmit the entire range of notes (note numbers).

1. Use the [OCT SHIFT] buttons to raise or lower the keyboard octave setting.

Each time you press a [OCT SHIFT] button, the octave setting will rise or fall by 1 octave.
When the octave setting is lower than its default value, the indicator above the left [OCT SHIFT] button will light. When it is higher, the indicator above the right button will light.
The SK-88Pro lets you shift the octave a maximum of 4 octaves upward or downward.

2. To return the octave setting to normal, simultaneously press both the [OCT SHIFT] buttons.

The indicator will go out, and the octave setting will return to normal. At this time, the range of the keyboard will be from C3 (note number 48) to C6 (note number 84) as printed above the keyboard.

* *With an octave setting of +4, the notes from G#5 and above will be unavailable, since they fall outside of the range of note numbers defined by MIDI. The highest note number (127) is G9.*
* *The octave setting will return to normal when the power is turned off.*

Pitch Bender/Modulation Lever (BENDER/MODULATION)

When you operate the Pitch Bender/Modulation lever, a modulation effect will be applied to the sound.

* *The output destination of the Pitch Bend/Modulation messages will depend on the Local Control setting (p.34). When Local Control is ON, these messages will be transmitted both to the SK-88Pro's internal sound generator and also from the MIDI OUT connector (or from the Computer connector). When Local Control is OFF, the messages will not be transmitted to the SK-88Pro's internal sound generator.*

Pitch Bender

While the keyboard allows you to specify the pitch in semitone steps, Pitch Bend lets you control the pitch in finer detail, allowing you to make smooth changes in pitch, such as the "bending" techniques used by electric guitarists.

1. Moving the Pitch Bender (located at the left of the keyboard) to left or right will raise or lower the pitch.

Modulation Lever

1. Move the Modulation lever away from yourself, and modulation will be applied to the sound.
   Release your hand from the lever, and the modulation will disappear.

* *At the factory settings, vibrato (cyclic modulation of pitch) will be applied.*

Assigning a Control Function to the Slider (CONTROL Slider)

The following parameters can be assigned to the Control slider ([CONTROL]) located at the left of the keyboard, allowing you to use the slider to adjust the value of the assigned parameter.
For example, if you assign Pan to the Control slider, then move the slider as you play the keyboard, the sound will shift from left to right.

Velocity	(dynamics of the notes played from the keyboard)
Aftertouch	(pressure applied to the keyboard after playing a note)
Modulation	(vibrato effect)
Expression	(change in volume)
Volume	(volume)
Pan	(stereo location)
Assign	(any desired Control Change message can be assigned)

NOTE

The data produced when you move the Control slider will be output to different destinations, depending on the setting for Local Control (p. 34). With Local Control set to ON, the data will be output to the SK-88Pro's internal sound generator, and also from the MIDI OUT connector (or the Computer connector). If Local Control is OFF, no data will be sent to the internal sound generator.

Next, we will explain how to assign a parameter to the Control slider, and introduce the various parameters that are available.

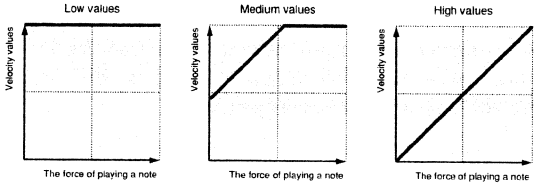
Assign a Function to the Slider

1. Press the [FUNC] button at the right of the Control slider to make the indicator light.
2. Press the key that corresponds to the parameter that you wish to assign to the Control slider.
   The parameter names are listed on the line above the keyboard.
3. After making the setting, press the [FUNC] button, and confirm that the indicator has gone out.
   While the [FUNC] button's indicator is lit, the keyboard will not produce sound.

* *This setting will return to the factory settings when the power is tuned off. At the factory settings, EXPRESSION is assigned to the slider.*

VELOCITY (Range of Keyboard Playing Dynamics)

Velocity refers to the range in which the velocity values will vary as you play notes at different strengths; i.e., playing dynamics. When the Control slider is moved away from you, the keys will be more sensitive to velocity.



AFTERTOUCH (Pressure Applied After Playing a Note)

Aftertouch refers to the extra pressure that can be applied to a key after playing a note. It is used to apply a variety of changes to the sound, relative to the amount of pressure used. The keyboard of the SK-88Pro does not provide Aftertouch functionality, but you can use the slider to produce the same result.

NOTE

With the initial settings of the SK-88Pro's sound generator, no effect will be applied to the sound even if Aftertouch messages are transmitted to the sound generating section. In order to produce an effect, you must set Aftertouch-related parameters. Refer to "CAf~" (p.106).

MODULATION (Vibrato Effect)

Modulation adjusts the vibrato effect that applies cyclic pitch modulation to the sound.

EXPRESSION (Expressive Changes in Volume)

Expression and Volume both change the volume level. However, Expression is used to create expressive changes in volume during a song.

VOLUME

Volume and Expression both change the volume level. We recommend you use Volume when you want to adjust the volume balance between Parts.

PAN

Pan sets the stereo position of the sound when a stereo playback system is used. Moving the slider towards the rear localizes the sound image more to the right, while pulling it forward orients the sound more to the left.

ASSIGN (Assignable Control Change Message)

When the Control slider is set to Assign (ASSIGN), you will be able to select one of the following functions: any Control Change message/Channel Aftertouch/Master Level/Master Pan. The parameter for ASSIGN can be selected in Utility mode.

1. Press the [UTIL] button above the keyboard.

2. Use the [▲] [▼] buttons to display "C.Slider."

3. Use the INSTRUMENT [◀] [▶] buttons to select the parameter to assign.

CC#01-31, 33-95 (Control Change Messages)
For details about Control Change messages, refer to p.152.

CAf (Channel Aftertouch)
If you wish to select CAf, you need to make the settings of CAf. (p.106)

M.Lev (Master Level) (Refer to p.100)

M.Pan (Master Pan) (Refer to p.100)

4. When you finish making settings, press the [UTIL] button.

Transpose the Pitch (KEY TRANSPOSE)

Key Transpose lets you shift the pitch of the sound in semitone step, and you can easily change the pitch of a song.

1. Press the [FUNC] button to make the indicator light.

2. Press the key that offers the value by which you want to transpose the keyboard.
The transposing values (-6– +15) are listed on the line above the keyboard.

3. After making the setting, press the [FUNC] button, and confirm that the indicator has gone out.
While the [FUNC] button's indicator is lit, the keyboard will not produce sound.

MEMO

To restore the original setting, perform the Key Transpose operation again, and press the key for Transpose 0 in step **2**.

NOTE

The Key Transpose setting will be turned to the factory setting when the power is tuned off.

4. PARTS AND SOUNDS

The SK-88Pro is able to produce 32 different types of sound at once. An instrument such as the SK-88Pro, which can simultaneously produce many sounds from a single unit's is called a multi-timbral sound generator. A Timbre is an instrumental sound. Being able to simultaneously play 32 sounds means that you can use 32 different instruments at once. In other words, you can create an orchestra-like ensemble of 32 musical parts. In the SK-88Pro, the sound selected for each Part is called an Instrument. (Instrument List, p.166) You can assign the sounds you want to each of 32 Parts to create your own ensemble.

Assigning a Sound to a Part

Types of Part

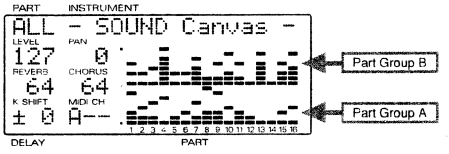
The SK-88Pro has 32 Parts. Parts are classified into Group A (A01–A16) and Group B (B01–B16), with sixteen in each group.
There are two types of Parts: Normal Parts and Drum Parts. We refer to this difference as the Part Mode. Normal Parts are used for playing melody or bass lines. Drum Parts are used for playing percussion instruments.

With the factory settings, each Part is set to the Part Mode as follows.

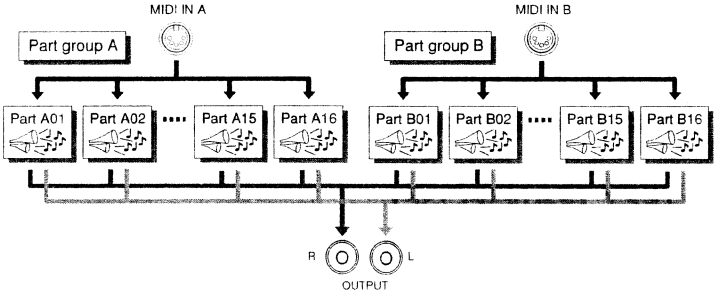
Normal Part:	A01–A09, A11–A16, B01–B09, B11–B16
Drum Part:	A10, B10

MEMO You can change the Part Mode settings. For more information, refer to p.104.

If the [ALL] button indicator is lit, the volume levels of the 32 Parts will be graphically displayed when the SK-88Pro is played. This graphic display allows you to monitor the reception for each Part.



Which MIDI IN Will be Used by Each Part?



The SK-88Pro has two MIDI IN connectors. This is because since there are only 16 MIDI channels, it is necessary to have two MIDI connectors in order to play 32 Parts. Parts are classified into Group A (A01–A16) and Group B (B01–B16), with sixteen in each group. The MIDI channel assigned to each Part is also displayed in two groups as A01–A16 or B01–B16. With the factory settings, groups A and B correspond to the SK-88Pro's two MIDI IN connectors A and B. In other words, MIDI messages received at MIDI IN A are sent to the Group A Parts, and MIDI messages received at MIDI IN B are sent to the Group B Parts. For example, MIDI messages on channel 5 received at MIDI IN B will sound Part 5 of Group B (B05) (with the factory settings).

NOTE Be aware that the way in which the data are sent from the two MIDI IN connectors to the various Parts will depend on the In Mode setting (p.142). Also, Exclusive messages received at MIDI IN A can be passed on to Parts of Group B, depending on the specified address. (p.147, 202)

Selecting a Part

Before selecting a sound or making effect settings for a Part, etc., you must first select the Part to which the settings will apply.

1 Make sure that the [ALL] indicator is dark.

If it is lit, press the [ALL] button to turn it off.

2 Use the PART [◀] [▶] buttons to select a Part.

As you press the PART [◀] [▶] buttons, the display indicating the Part numbers will change "A01 - A16, B01 - B16."

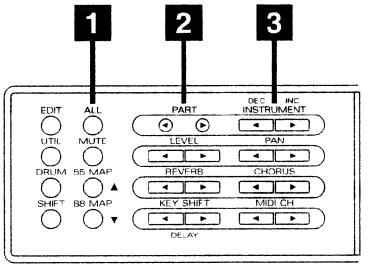
If you select a Drum Part, an "*" will be displayed in front of the Drum Set name.

Switch Between the Group A and B

1. Simultaneously press both the [ALL] and PART [◀] buttons.

Selecting Basic Sounds (Normal Part)

On the SK-88Pro, sounds of a normal Part are specified using two numbers: the Instrument number and the Variation number. The 128 sounds with a Variation number of 000 are the basic sounds ("Capital sounds").



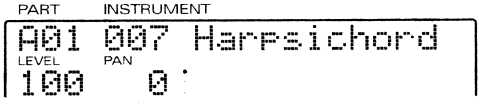
1 Make sure that the [ALL] indicator is dark.

If it is lit, press the [ALL] button to turn it off.

2 Use the PART [◀] [▶] buttons to select a normal Part (a Part other than the Drum Parts).

3 Use the INSTRUMENT [◀] [▶] buttons to select a sound (Instrument) for the Part.

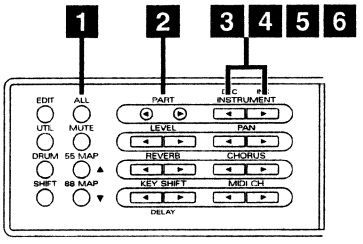
Pressing INSTRUMENT [◀] will decrement the Instrument number, and pressing INSTRUMENT [▶] will increment the Instrument number. You can select an Instrument number from 001 to 128.

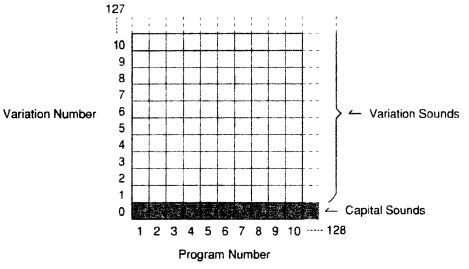


NOTE Some of the sounds in the SK-88Pro cannot be played above (or below) a certain pitch. This is because the sounds have been created with the pitch ranges of actual instruments in mind.

Selecting Variation Sounds (Normal Part)

The SK-88Pro contains Capital sounds (basic sounds) and Variation sounds (sounds with different nuances). The procedure explained on the previous page selects Capital sounds (128 sounds; Instrument List, p.166). Here's how to select Variation sounds.





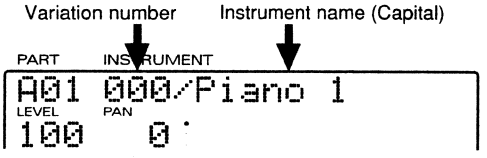
1 Make sure that the [ALL] indicator is dark.

2 Use the PART [◀] [▶] buttons to select a normal Part.

3 Use the INSTRUMENT [◀] [▶] buttons to select the Instrument number of a Variation sound which you want to choose.

This is the same procedure as when selecting a basic sound (Capital sound).

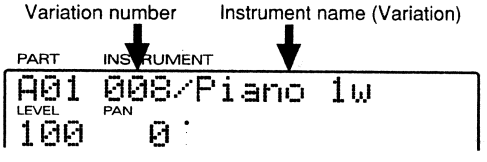
4 Simultaneously press INSTRUMENT [◀] [▶] buttons to enter Variation Select mode.



The Variation number and a "/" symbol will be displayed in front of the Instrument name, which shows that you are in Variation Select mode.

5 Use the INSTRUMENT [◀] [▶] buttons to change the Variation number, and select a sound.

In Variation Select mode, pressing INSTRUMENT [◀] [▶] will change the Variation number.

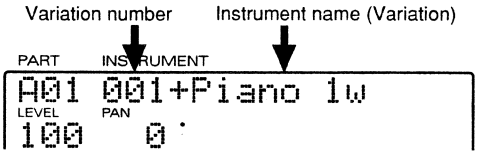


MEMO

The number of Variation sounds will differ depending on the Instrument number. By pressing INSTRUMENT [◀] [▶] you can step through just the Variation numbers provided by the SK-88Pro. For the Variation sounds provided for each Instrument number, refer to "Instrument List" (p.166).

6 To exit Variation Select mode, simultaneously press both the INSTRUMENT [◀] [▶] buttons.

You will return to Normal mode, and the Instrument number is displayed. In this condition, a "+" symbol is displayed in front of the Variation Instrument name.



MEMO If you wish to return to the Capital sound screen, return the Variation number to 000 in Variation Select mode, and then simultaneously press the INSTRUMENT [◀] and [▶] buttons.

How to Use the Instrument List

Sounds (Instruments) contained in the SK-88Pro are in the Instrument List (p.166). Each sound (Instrument) of the SK-88Pro has two numbers; an Instrument number and a Variation number. Sounds with Variation number 000 are Capitals, and the sounds with numbers other than 000 are Variations.
In Normal mode, the Instrument numbers will be displayed. The display can show either the Instrument number or the Variation number, not both. To switch from display of the Instrument number to display of the Variation number, simultaneously press both the INSTRUMENT [◀] and [▶] buttons. Access the appropriate screen, and then specify a number to select a sound.

In the Instrument List, you can check both the Instrument number and the Variation number.

<Example>

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
060	**000**	**MutedTrumpet**	**#**	**1**	**Muted Tp.**		**1**	**MuteTrumpet**	**1**
	008	Muted Horns		1	-----			-----	
061	**000**	**French Horns**	**#**	**1**	**French Horns**		**1**	**French Horn**	**2**
	001	Fr.Horn 2	#	2	Fr.Horn 2	*	2	Fr.Horn 2	2
	002	Horn + Orche		2	-----			-----	
	003	Wide FreHrns		2	-----			-----	
	008	F.Hrn Slow	:	1	Fr.Horn Solo		1	-----	
	009	Dual Horns		2	-----			-----	
	016	Synth Horn		2	Horn Orch		2	-----	
	024	F.Horn Rip		1	-----			-----	

PC	Instrument number (Program Number)
CC00	Variation number (value of Controller number 0)
	Capital sounds with Variation number 0 are shown in boldface.
Native Map	sounds of SC-88Pro/SK-88Pro
SC-88 Map	sounds of SC-88 map
SC-55 Map	sounds of SC-55 map
-----	no sound in the Variation number
Voices	number of voices used by the Instrument
Remark :	legato-enabled sounds
Remark #	same sounds as SC-88 map
Remark *	same sounds as SC-55 map
Remark +	percussive sounds which cannot be played melodically. Use near C4 (note number 60).

Selecting Drum Sets (Drum Part)

In the case of the Drum Part, sounds are selected in a different way than for a normal Part.
In a Drum Set, different sounds are assigned to each note of the keyboard. When you select a Drum Part and play the keyboard, a different sound will sound for each note. This is because it is not necessary to specify the pitch of a drum sound.
Drum Sets can be selected in the same way that you select sounds for a normal Part. This means that Variation numbers are not used for the Drum Part.

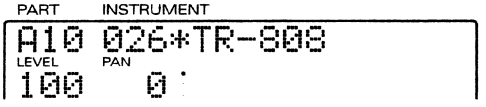
1 Make sure that the [ALL] indicator is dark.

If it is lit, press the [ALL] button to turn it off.

2 Use the PART [◀] [▶] buttons to select the Drum Part.

At the factory settings, Part 10 (A10 and B10) is the Drum Part.
When selecting the Drum Part, an "*" will be displayed in front of the Drum Set name.

3 Use the INSTRUMENT [◀] [▶] buttons to select the Drum Set for the Part.



For the types of Drum Sets, refer to "Drum Set List" (p.173).

How to Use the Drum Set List

The normal screen of a Drum Part shows the Drum Set number and Drum Set name. Each drum sound (Drum Instrument) will be assigned to a different note of the Drum set.
The Drum Sets of the SK-88Pro are listed in the "Drum Set List" (p.173), which gives the number and name of each sound in each Drum set.
Pages 174 and following provide lists of the Native Drum Sets, SC-88 Drum Sets, and SC-55 Drum Sets, giving the number and name of each sound.

<Example>

	PC1 STANDARD 1		PC2 STANDARD 2 #	PC3 STANDARD 3	PC9 ROOM #
22	MC-500 Beep 1		<-	<-	<-
23	MC-500 Beep 2		<-	<-	<-
C1 24	Concert SD		<-	<-	<-
25	Snare Roll		<-	<-	<-
26	Finger Snap 2		Finger Snap	<-	Finger Snap
27	High Q		<-	<-	<-
28	Slap		<-	<-	<-
29	Scratch Push	[EXC7]	<-	<-	<-
30	Scratch Pull	[EXC7]	<-	<-	<-
31	Sticks		<-	<-	<-

PC	Drum Set number (Program number)
Keys	Note Number (The numbers shown above the keyboard are the note numbers. When playing the key of the note number below 47 or above 85, use the Octave Shift function (p.35).
	Same as the percussion sound of "STANDARD 1" Set (PC1).
----	No sound
[88]	Same as the percussion sound of SC-88
[55]	Same as the percussion sound of SC-55
[EXC]	Percussion sound of the same number will not be heard at the same time.
*	Tones which are created using two voices

Selecting the Same Sounds As the SC-88/SC-55

The SK-88Pro has three maps; a Native map which contains original sounds, an SC-55 map which contains almost the same sounds as the SC-55/SC-55mkII, and an SC-88 map which contain the same sounds as the SC-88. If you wish to use the same sounds as the SC-88/SC-55, change the map.

1 If you wish to set all Parts to the same sounds as the SC-88/SC-55, get the [ALL] indicator to light.

If you wish to set a specific Part to the same sounds as the SC-88/SC-55, turn off the [ALL] indicator, and use PART [◀] [▶] to select the Part for which you wish to specify the map.

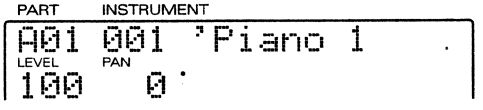
Pressing the [ALL] button will switch the indicator light and dark.

2 To select sounds of SC-88 map, press the [88 MAP] button to make the indicator light.

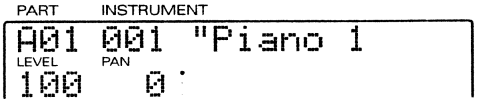
To select sounds of SC-55 map, press the [55 MAP] button to make the indicator light.

When switching the map, the following symbol is displayed in front of the Instrument name.

SC-88 Map : '



SC-55 Map : "



To restore to the previous setting, press the [88 MAP] button or [55 MAP] button to make the indicator dark.

MEMO Even if all Parts have been set to the SC-88 map, you can still set individual Parts to the SC-55 map.

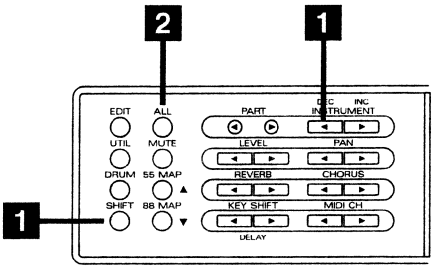
MEMO If you wish to set all Parts to the Native map, turn on the [ALL] indicator, then hold down [SHIFT] and press the [55 MAP] button. The [55 MAP] indicator will begin blinking. Regardless of the song data or the switch settings of each Part, all Parts will be forced to the Native map.

MEMO If you wish to set all Parts to the SC-88 map, turn on the [ALL] indicator, then hold down [SHIFT] and press the [88 MAP] button. The [88 MAP] indicator will begin blinking. Regardless of the song data or the switch settings of each Part, all Parts will be forced to the SC-88 map.

Selecting the CM-64 Sound Map

The SK-88Pro can be set to the sound map of the Roland CM-64 (Sound Module). When you wish to play song data that was created for the CM-64, use the following procedure.

NOTE Be aware that if you select the CM-64 sound map, all previous settings will be lost.



1 While holding down the [SHIFT] button, press the INSTRUMENT [◀] button.

The display will ask " Init CM-64, Sure? ," and the [ALL] button and [MUTE] button will blink.

2 Press the [ALL] button to select the CM-64 sound map.

To safely cancel the operation press the [MUTE] button.

When selecting the CM-64 sound map, the [55 MAP] button will automatically blink.

MEMO The Variation numbers of the CM-64 sound map are 126 and 127. For the Instrument list of the CM-64 sound map, refer to p.172.

MEMO To restore the original settings, perform the operation for resetting to General MIDI or GS basic settings ("Initializing for General MIDI/GS Format" p.25). Also, if you play back song data that contains a "Turn General MIDI System On" or "GS Reset" message, the CM-64 sound map setting will be cancelled.

Part Settings of the CM-64 Sound Map

When the CM-64 sound map is selected, the settings of each Part (Group A, B) will be as follows.

Part	Rx.Channel	Instrument Name (Variation/Instrument Number)		Level	Pan	Reverb	Chorus	Key Shift
1	1	Acou Piano 1	(127/001)	100	0	64	0	0
2	2	Slap Bass 1	(127/069)	100	L10	64	0	0
3	3	Str Sect 1	(127/049)	100	L10	64	0	0
4	4	Brs Sect 1	(127/096)	100	L10	64	0	0
5	5	Sax 1	(127/079)	100	L10	64	0	0
6	6	Ice Rain	(127/042)	100	L46	64	0	0
7	7	Elec Piano 1	(127/004)	100	R27	64	0	0
8	8	Bottleblow	(127/111)	100	L63	64	0	0
9	9	Orche Hit	(127/123)	100	R63	64	0	0
10	10	CM-64/32L Set	(128)	100	0	64	0	0
11	11	FRETLESS 1	(126/028)	100	0	64	0	0
12	12	CHOIR 1	(126/030)	100	R17	64	0	0
13	13	A.PIANO 1	(126/001)	100	0	64	0	0
14	14	E.ORGAN 2	(126/038)	100	R35	64	0	0
15	15	E.GUITAR 1	(126/014)	100	L37	64	0	0
16	16	SOFT TP 1	(126/047)	100	L19	64	0	0

MEMO

When the CM-64 sound map is selected, the Pitch Bend range will be set to +12, and the Modulation Depth will be set to +4.

NOTE

The sound names in this table are the CM-64 sound names. The sound names that will actually be displayed on the SK-88Pro will be partially different.

Settings for All Parts

Level	Pan	Reverb	Chorus	Key Shift
127	0	64	64	±0

Differences between the CM-64 and the SK-88Pro

When the CM-64 sound map is selected, the playback result will be the same as if a CM-64 were used. However since the internal structure of the sound source is different, the result is not absolutely identical. Please be aware of the following main differences.

1. How the sounds change

When velocity, modulation and Aftertouch etc. are used to add expression, the sounds will change in a way slightly different than the CM-64.

2. Exclusive data

The SK-88Pro is not compatible with CM-64's Exclusive data. If CM-64's Exclusive data is received, the SK-88Pro's settings will not change. This means that if the song data contains CM-64's sound data (Exclusive data), playing back that song data will not have the same result as it would have on the CM-64.

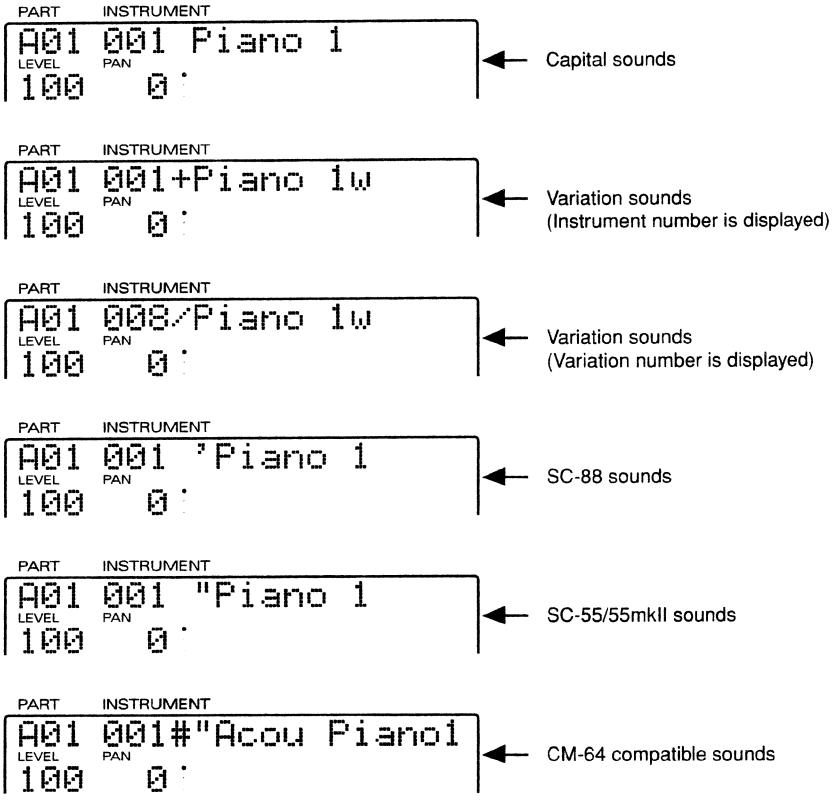
3. Pan

the SK-88Pro's pan settings are opposite to those of the CM-64. Please reverse the left/right (L/R) connections of the Output jacks.

Distinguishing Sounds by their Symbol

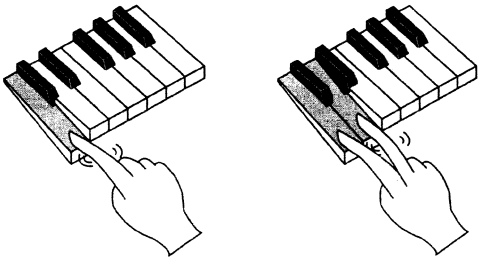
When a sound is selected, various symbols will appear in the display in front of the Instrument name. These symbols allow you to distinguish the type of sound that is selected.

blank	Capital sounds (Variation number 000)
+	Variation sounds (Variation number 001–125)
'	SC-88 sounds (SC-88 map)
"	SC-55/55mk II sounds (SC-55 map)
#	CM-64 compatible sounds (Variation number 126, 127 in the SC-55 map)

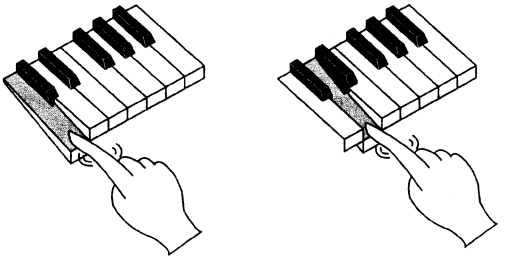


Legato-enabled Sounds

The SK-88Pro provides legato-enabled sounds that are ideally suited to legato playing, and which can realistically simulate this instrumental performance technique.
To understand this feature, consider how most string instruments produce sound. Usually, a brief attack-like sound will be heard only at the very instant the string is made to vibrate. After that a much mellower, attack-free sound continues to emanate during the string's vibration. The legato-enabled sounds simulates such variable attack-portion characteristics of string sounds by switching on or off certain special voices within an Instrument according to the way the keyboard is played.
Instrument which has a " : " at the end of its name (such as Violin :) is the legato-enabled sound.
Try out one of these Patches to hear how it works. Play a note and keep your finger on that key while playing another note.
You should hear a distinct attack portion with the first note you play, while the second one contains almost no attack components, and sounds much smoother.
At this time, " L " will be displayed following " : " of the Instrument name.



If you want to sound the attack portion each time, simply release your finger from a key before playing the next note.
At this time, " L " will not be displayed following " : " of the Instrument name.



MEMO

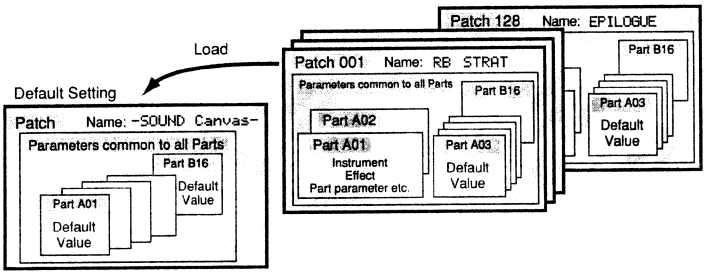
Legato control cannot be switched on and off on an Instrument basis. You should choose and edit an Instrument that meets your intended usage.

Using Patches

On the SK-88Pro, the Instrument and effect parameters are collectively referred to as a Patch. The SK-88Pro provides 128 preset Patches (Patch number: 001–128) in which these parameters are already set to ideal settings. (p.194)
The preset Patches contain high-quality sounds together with optimal settings for other parameters such as effects, making the SK-88Pro immediately useful as an expansion sound module, etc.
Patches contain parameter settings for Part A01 and Part A02 (see following diagram). When you load a Patch, the other Parts are initialized.

NOTE

Be aware that with the factory settings, the settings of Part A03 and following will be initialized when you load a Patch. If you do not want the settings of Part A03 and following to be initialized when a Patch is loaded, turn "P.Load Init" Off (p.109). Also, in Double Module mode, the settings of Part Group B will not be initialized.



Loading a Patch

1 Make sure that the [ALL] button indicator is dark.

2 Use the PART [◀] [▶] buttons to select the Part A01.

To use a Patch, select either A01 or A02. For the sounds and effects of Parts A01 and A02, refer to "Preset Patch List" (p.194).

3 Press the [ALL] button to make the indicator light.

You will enter Patch Select mode.

4 Use the INSTRUMENT [◀] [▶] buttons to select the Patch that you wish to load.

The Patch name will displayed, and the [ALL] button and [MUTE] button will blink.

PART INSTRUMENT
ALL 001 RB STRAT
LEVEL PAN

5 Press the [ALL] button to load the Patch.

To cancel without loading, press the [MUTE] button.

* *It takes awhile until the sound can be heard after you change the Patch.*

6 To exit Patch Select mode, press the [ALL] button.

To Return to the State Where No Patch has been Loaded

1. Make sure the [ALL] indicator is lit.
   If it is dark, press the [ALL] button to turn it on to enter Patch Select mode.
2. Press the INSTRUMENT [◀] button to return to "– SOUND Canvas –."
   The [ALL] button and [MUTE] button will blink.
3. Press the [ALL] button.

Parameter Settings for Patches

Patches contain all the Patch parameters (p.209). Of these, the main parameters which can be set from the panel are the following.

Parameters common to all Parts (p.100)
System Effects (p.58–61)
Insertion Effects (p.65)
Part parameters for Parts A01 and A02 (p.100, 104–106, 112)

Knob and Slider Control When Using a Patch

When a Patch has been loaded, you can use the SK-88Pro's Control slider and the three EDIT PALETTE knobs to perform a variety of real-time control.
At the factory settings, the following controls can be used.

[ASSIGN1] knob: General purpose controller (Controller number 16)

At the factory settings, this will be EFX C.Src1 = CC16 (p.96), and the knob will control the parameter marked by "+" for the Insertion effect used by the Patch.

[ASSIGN2] knob: General purpose controller (Controller number 17)

At the factory settings, this will be EFX C.Src2 = CC17 (p.96), and the knob will control the parameter marked by "#" for the Insertion effect used by the Patch.

[ASSIGN3] knob: PAN (Controller number 10)

[CONTROL] slider: EXPRESSION (Controller number 11)

Pedal connected to the Control Pedal jack:
EXPRESSION (Controller number 11)

Pedal switch connected to the Hold Pedal jack:
HOLD 1 (Controller number 64)

MEMO

You can change the above settings with the parameters of Asgn1, Asgn2, Asgn3, P.Ctrl and P.SW in Utility mode (p.109).
You can change the settings for the Control slider with the [FUNC] button. (p.36)

Loading Patches in Double Module Mode

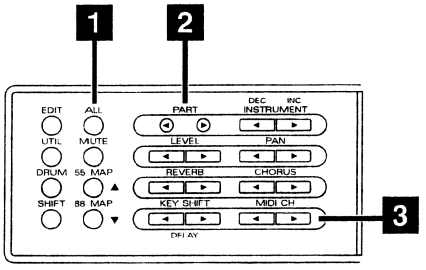
In Double Module mode, you can select Patches only for the Part Group A, and the parameters will be fixed for Part A01 and Part A02. By playing song data on the Part Group B while you play the Part Group A Patches from the keyboard etc., you can enjoy solo playing while adding unique effects.
Some sequencing programs are unable to transmit data from the Computer connector to play the Part Group B. In this case, set the In Mode to "Xconnect" so that the Part Group B will be played (p.142).

NOTE

If you select a Patch in Double Module mode, the equalizer and delay settings will be ignored. Also, Patches cannot be selected for the Part Group B.

Assigning a MIDI Channel to the Part

To each of the SK-88Pro's 32 Parts, there is assigned an Instrument and also a Channel. Channels are a concept used in MIDI to distinguish notes that should be played by different Instruments in an ensemble. Normally, there is no need to change the channel of a Part when using the SK-88Pro. However it may sometimes be interesting to set two Parts to the same channel so that two sounds will simultaneously play the same musical line. To change the MIDI channel of a Part, use the following procedure.



1 Make sure that the [ALL] indicator is dark.

If it is lit, press the [ALL] button to turn it off.

NOTE If you operate the MIDI CH [◀] [▶] buttons while the [ALL] indicator is lit, the MIDI channel of a Patch (p.53) will be changed.

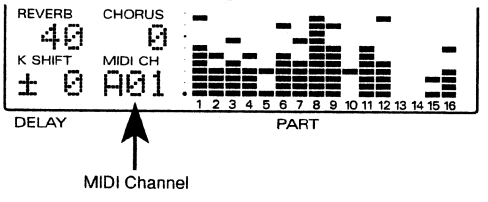
2 Use the PART [◀] [▶] buttons to select the Part whose channel you wish to change.

When you press the PART [◀] [▶] buttons, the Part number will change as "A01..A16, B01..B16." If you select a Drum Part, an "*" mark will appear in front of the Drum Set name.

3 Use the MIDI CH [◀] [▶] buttons to set the MIDI channel of the Part.

When you press the MIDI CH [◀] [▶] buttons, the MIDI channel will change as "A01..A16 A-- B01..B16 B--." Select the desired MIDI channel. Parts for which you select "A--, B--" will ignore all MIDI messages except Exclusive messages.

MEMO To switch the Part Group between A and B, simultaneously press both the KEY SHIFT [▶] and MIDI CH [◀] buttons.



How Simultaneous Note Numbers and Voices are Related

The sounds of the SK-88Pro consist of units called "Voices." There is a limit to how many of these "Voices" can sound at once, and in the case of the SK-88Pro, up to 64 simultaneous voices can be used. Some sounds (Instruments) use 1 voice and others use 2 voices (Instrument List, p.166). The main reason that some sounds use 2 voices is to allow different timbres to be produced by different velocity values.

If more than 64 voices are used at once, later-sounded notes will be given priority, and notes sounded previously will be turned off starting from the oldest. If you use only single-voice Instruments, you will be able to play 64 notes simultaneously, but if some of the Instruments are 2-voice, you will be able to play less than 64 simultaneous notes. Even if a MIDI Note Off message (p.152) is received, voices will be used for as long as the sound is heard. Be aware of this especially in the case of sound with a long release (p.113).

MEMO

If song data created with 64 voice playback in mind is played back on a sound source with fewer voices, some notes will drop out, and the musical result will not be as it should. The SC-55 has 24 voices, and the SC-55mkII has 28 voices.

Using MIDI Messages to Select Instruments From Other Devices or Sequencing Software

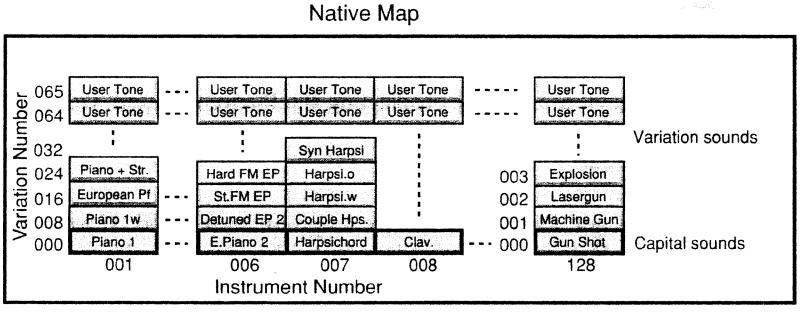
You can use sequencing software on your computer to select the SK-88Pro's sounds. You can specify sounds by inputting the Variation number and the Instrument number (p.41) into your sequencing program, but depending on your software the way in which numbers are displayed may differ, so be aware of this. On the SK-88Pro, Variation numbers begin with 0, and Instrument numbers begin with 1. Variation numbers correspond to MIDI Bank numbers, and Instrument numbers correspond to MIDI Program numbers.

MEMO

MIDI Bank numbers have an upper (MSB) and lower (LSB) part. Each can specify a number 0–127, allowing you to specify 128 x 128 = 16384 banks. The upper part of the Bank number corresponds to the SK-88Pro Variation number. The lower part switches between SC-55 map, SC-88 map and Native map. (MIDI Implementation, p.196).

MEMO

If you specify an Instrument number that the SK-88Pro does not have, a sound will not change. Refer to "Instrument List" on p.166 when selecting sounds.



Actual MIDI Messages

When creating MIDI messages on a sequencing program and transmitting them, use the following procedure.

1. The value of Control Change 0: MIDI Bank number (upper) (the SK-88Pro's Variation number)

2. The value of Control Change 32: MIDI Bank number (lower)
(0: map setting on the panel, 1: SC-55 map, 2: SC-88 map, 3: Native map)

3. Program Change value: MIDI Program number (the SK-88Pro's Instrument number)

1. and **2.** are the Bank Select message. Bank Select messages are a type of Control Change message (p.152).

For example if you wish to select the Instrument (Piano3w) with Variation number 8, Instrument number 3, you would transmit the following data to the SK-88Pro. (Expressed in decimal notation.)

1. The value of Control Change 0: 8 (Bank number (upper) 8; Variation number 8)

2. The value of Control Change 32: 0

3. Program Change value: 2 (Program number 3 : Instrument number 3)

NOTE Note that the data actually transmitted as the Program number will be one less than the Program number.

The example above can be expressed in hexadecimal as follows.

1. BnH 00H 08H
2. BnH 20H 00H
3. CnH 02H

MEMO H indicates that the value is expressed as a hexadecimal number. Decimal 32 is written as hexadecimal 20H.
n indicates the MIDI channel.

NOTE Note that for MIDI channels and Instrument numbers, the number is one less than the channel or Instrument number. For example if you wish to select a sound on the Part receiving MIDI channel 4, n would be 3 If you wish to select Instrument 3, the value in step **3** would be 2.

Bank Select LSB

The SK-88Pro processes the lower part of the Bank Select message (LSB) as follows (p.196).

Least significant byte (LSB)	
00H	The setting of the [55 MAP] or [88 MAP] button is followed. If the panel [55 MAP] button is lit, SC-55 map will be selected. If the panel [88 MAP] button is lit, SC-88 map will be selected. If the button is dark, Native map will be selected.
01H	SC-55 map will be selected, and [55 MAP] is lit.
02H	SC-88 map will be selected, and [88 MAP] is lit.
03H	Native map will be selected, and [55 MAP] and [88 MAP] are dark.

If we use the previous example of selecting the Piano3w sound, we would transmit

1. BnH 00H 08H
2. BnH 20H 03H
3. CnH 02H

to the SK-88Pro, and Piano3w of Native map will be selected. If we transmit BnH 20H 01H in step **2**, the SC-55 map Piano3w will be selected. If we transmit BnH 20H 02H in step **2**, the SC-88 map Piano3w will be selected.

MEMO When SC-55 map is selected, " ᴵᴵ " symbol will be displayed at the left of the Instrument name. When SC-88 map is selected, " ᴵᴵ " symbol will be displayed at the left of the Instrument name.

Using MIDI Messages to Select Drum Sets From Other Devices or Sequencing Software

You can select Drum Sets by transmitting MIDI messages from a sequencing program, in the same way as you can select Instruments. When a Program Change message is received, the Drum Set will change. Transmit a Program Change message on the channel being received by the Drum Part. At the factory settings, Part 10 is the Drum Part (MIDI receive channel:10). On the SK-88Pro, Drum Set numbers correspond to Program numbers (p.173).

Set the note numbers of the rhythm data being played back to match the note numbers of the SK-88Pro Drum Set you are using (p.174).

Drum Set name and Drum Set number (Program number)

STANDARD 1	---	ROOM	---	TR-808	---	User Set	User Set
001		009		026		065	066

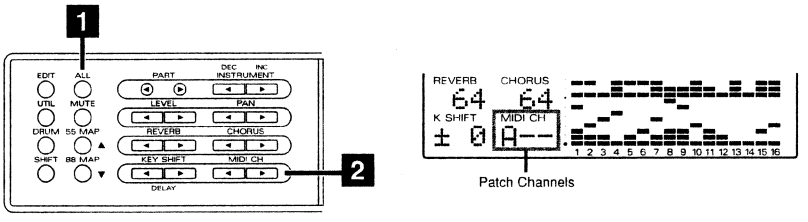
Using MIDI Messages to Select Patches From Other Devices or Sequencing Software

When a MIDI Program Change message is received, normally the Instrument of a Part will change. However if you set the MIDI channel for the Patch, the Patch will change when a Program Change message is received.

If you perform the following procedure to set the MIDI channel for the Patch, the Patch will change when a Program Change message is received.
With the Patch MIDI CH settings of "A-- " (the factory preset) or "B--," incoming Program Change messages will select the Instrument of the corresponding Part.

1 Press the [ALL] button to make the button indicator light.

2 Use the MIDI CH [◀] [▶] button to set the MIDI channel for the Patch.



For example, suppose that the MIDI channels of the Patch and Part were set to the same value.

Patch MIDI CH: A01
Part A01 MIDI CH: A01

In this case, an incoming Program Change message on channel 1 [C0H 01H] will select Patch "02 MILD OD," but the Instrument of Part A01 the Instrument (TC Front Pick) specified for the Patch will be used.
If you wish to use Program Change messages to select Instruments (return to initial settings), you must set the MIDI channel of the Patch to either A-- or B-- to match the channel of the Part.

NOTE It takes awhile until the sound can be heard after you change the Patch.

5. SYSTEM EFFECTS

The Effect Structure of the SK-88Pro

The effects of the SK-88Pro can be categorized into System effects (p.54) and Insertion effects (p.62).

As System effects, the SK-88Pro provides 8 types of reverb to add reverberation to the sound, 8 types of chorus to add depth, 10 types of delay to add echo-like effects, and a 2-band equalizer to modify the tonal character by boosting or cutting the frequency ranges of the sound.

As Insertion effects, the SK-88Pro provides 64 diverse kinds of effects, which allow you to distort or modulate the sound, or even to combine multiple effects.
The System effect and Insertion effect differ not only in the type of effects, but also in the output routing of the effect sound.

System Effects

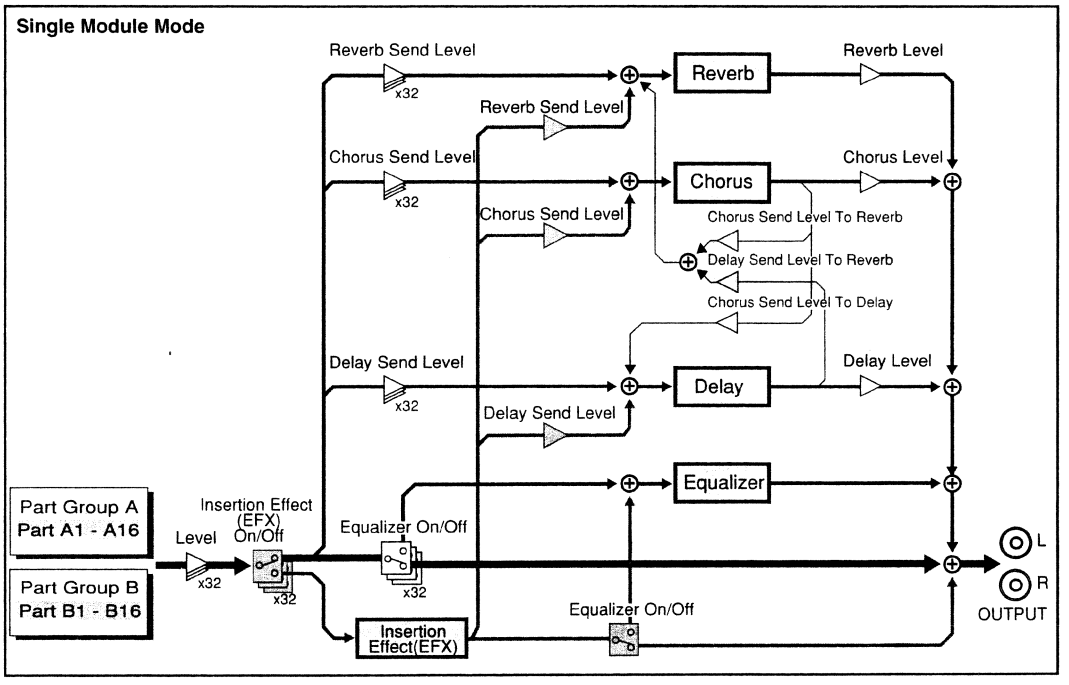
Of the System effects, the reverb/chorus/delay effects take part of the sound from each Part to create a new effected sound (reverberance, etc.), and then add this to the original sound.
For these effects, you can specify the amount of the sound for each Part sent to the effect unit (Send Level). Higher settings will increase the level of the signal that is sent to the effect unit, causing the effect sound that is produced to be louder. The result is that the effect becomes deeper.
For the equalizer of System effects, on the other hand, you can select whether the sound of the Part will pass through the equalizer or not; i.e., make an on/off setting to modify the sound.

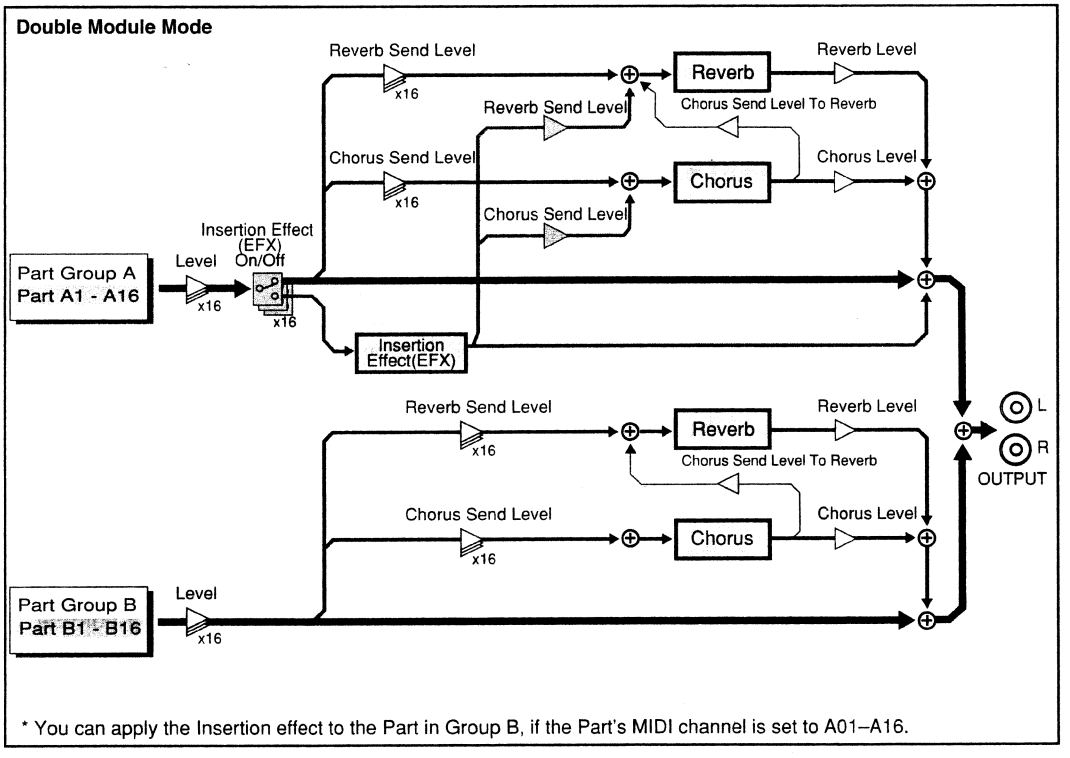
Insertion Effects

Insertion effects are effects that modify the sound itself, and are able to give it a completely different character. SK-88Pro provides 64 types of effects.
As shown in the diagram at right, you can select one Insertion effect, and specify for each Part whether or not the sound will be routed through the effect (on/off).
Since only one type of Insertion effect can be applied at a time, turning it on for two or more Parts will cause the sound of these Parts to be mixed. If a System effect is applied to a Part for which the Insertion effect is turned on, the Insertion effect Send Level will be used instead of the Send Level of the Part itself. (p.63)

System Mode Setting

The type of effects that are available here will depend on the System mode setting (p.138).
In Single Module mode (mode 1), each will have one set of effects.
In Double Module mode (mode 2), equalizer and delay are unavailable, but there are two sets each for Reverb and Chorus settings, and these can be used simultaneously. This is especially valuable when you wish to have different effect types or settings for each Part. Also, the Insertion effect can be used only for the Part group A. This is every effective when you wish to apply a special effect to the solo part that you play.





* You can apply the Insertion effect to the Part in Group B, if the Part's MIDI channel is set to A01–A16.

MEMO

Single Module mode is the Normal mode in which you can use 32 Parts, and Double Module mode is the mode in which you can use the SK-88Pro as two sound modules (Part Groups A and B). For details refer to p.138.

Reverb/Chorus/Delay

The System effects of the SK-88Pro include 8 types of reverb and chorus, and 10 types of delay. In addition, for each of these effects you can specify parameter values such as character, depth, rate and time. For these effects, you can set the overall level for all Parts and also individual levels for each Part.

* *For settings for each Part, this will be the Send Level.*

Reverb
Reverb is an effect that adds reverberation to a sound, as you would hear in a concert hall.

Chorus
Chorus broadens the spatial image of the sound, adding depth and richness.

Delay
Delay creates echoes. It is also possible to give depth and width to a sound by adding a short delay to the original sound.

Adjusting the Level of Reverb/Chorus/Delay

1 When you want to adjust the level for all Parts, press the [ALL] button to make the button indicator light.

When you want to adjust the level for each Part, make sure that the [ALL] button is dark, and use the PART [◀] [▶] buttons to select the Part you wish to modify.

2 Press the button of the effect you wish to adjust.

REVERB [◀] [▶]: Reverb level (for all Parts)
Reverb Send Level (for each Part)
CHORUS [◀] [▶]: Chorus level (for all Parts)
Chorus Send Level (for each Part)
DELAY [◀] [▶]: Delay level (for all Parts)
Delay Send Level (for each Part)
(while holding down the [88 MAP] button, press the DELAY [◀] [▶] buttons)

MEMO You can not select the System effect parameters individually for the Part with Insertion effect "on." If a System effect is applied to a Part for which the Insertion effect is turned on, the Insertion effect Send Level will be used instead of the Send Level of the Part itself.

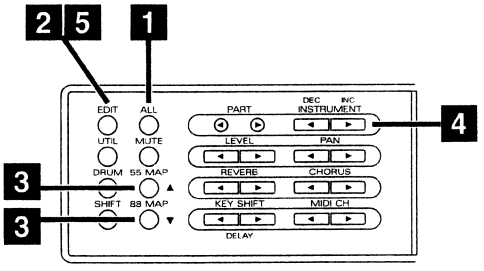
MEMO The area of the display where the Delay setting is displayed is shared with the KEY SHIFT display. When while holding down the [88 MAP] button, press the DELAY [◀] [▶] buttons, the delay setting will be displayed. And when while not holding down the [88 MAP] button, the KEY SHIFT [◀] [▶] buttons are pressed, the Key Shift setting will be displayed. If the display indicates a +/- (plus or minus) value, the Key Shift setting is being displayed. (p.100)

Showing the Settings Graphically

When you perform the following operation, the current parameter value of Reverb or Chorus will be displayed graphically.

1. Simultaneously press both the [◀] [▶] buttons of REVERB or CHORUS. The current parameter value of Reverb or Chorus will be displayed.
2. Simultaneously press both buttons once again and the previous display will reappear.

Setting Reverb/Chorus/Delay Parameters

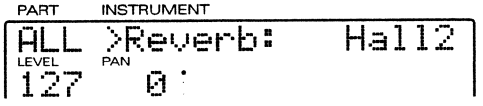


1 Press the [ALL] button to make the button indicator light.

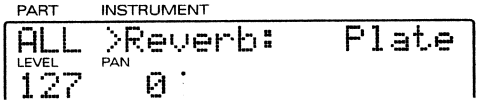
2 Press the [EDIT] button.

3 Use the [▲] [▼] buttons to select the parameter you wish to modify.

While holding the [SHIFT] button, press the [▲] [▼] button to skip parameters.



4 Use the INSTRUMENT [◀] [▶] buttons to set the value.



5 When you finish making settings, press the [EDIT] button.

MEMO Delay cannot be used in Double Module mode (p.138).

Reverb Parameters

■ Reverb (Reverb Type)

Room1, 2, 3, **Hall1**, **2**, Plate, Delay, PanDelay

You can choose from 8 types of reverb.

Room1, Room2, Room3

These reverbs simulate the reverberation of a room. They provide a well-defined spacious reverberation.

Hall1, Hall2

These reverbs simulate the reverberation of a concert hall. They provide a deeper reverberation than the Room reverbs.

Plate

This simulates a plate reverb (a studio device using a metal plate).

Delay

This is a conventional delay that produces echo effects.

PanDelay (Panning Delay)

This is a special delay in which the delayed sounds move left and right. It is effective when you are listening in stereo.

When you change the Reverb Type, the following parameter values will automatically change. This is so that the parameter values will have the settings most appropriate for the selected Reverb Type. You can select these parameters (p.57) and modify the values to adjust the effect to your taste.

■ Rev Charac. (Reverb Character) 0–**4**–7

This parameter selects only the type of reverb. 0–5 are reverb effects, and 6 and 7 are delay effects.

■ Rev Pre-LPF (Reverb Pre Low Pass Filter) **0**–7

A low pass filter can be applied to the sound coming into the reverb to cut the high frequency range. Higher values will cut more of the high frequencies, resulting in a more mellow reverberation.

■ Rev Level (Reverb Level) 0–**64**–127

This parameter sets the amount of the reverberant sound. Higher values result in louder reverberation.

■ Rev Time (Reverb Time) 0–**64**–127

This parameter sets the time over which the reverberation will continue. Higher values result in longer reverberation.

■ Rev DelayFb (Reverb Delay Feedback) **0**–127

This parameter is used when the Reverb Charac. is set to 6 or 7, Reverb Type is set to Delay or Panning Delay. It sets the way in which delays repeat. Higher values result in more delay repeats.

■ RevPreDlyT (Reverb Pre-Delay Time) **0**–127ms

This parameter sets the delay time until the reverberant sound is heard. Higher values result in a longer pre-delay time, simulating a larger reverberant space.

* *Reverb Pre-Delay Time cannot be used in Double Module mode (p.138).*

About Reverb Type

When you change the Reverb Type, the above-listed six reverb parameters (including Reverb Character) will be automatically adjusted to the optimal values. Rather than individually adjusting each reverb parameter, it is easier to first set the Reverb Type (listed in the MIDI implementation as "REVERB MACRO" p.203), and then modify only those parameters that you wish to modify. In particular when using MIDI Exclusive messages, this method of making settings will minimize the amount of data.

Reverb	Room1	Room2	Room3	Hall1	Hall2	Plate	Delay	PanDelay
Rev Charac.	0	1	2	3	4	5	6	7
Rev Pre-LPF	3	4	0	4	0	0	0	0
Rev Level	64	64	64	64	64	64	64	64
Rev Time	80	56	64	72	64	88	32	64
Rev DelayFb	0	0	0	0	0	0	40	32
RevPreDlyT	0	0	0	0	0	0	0	0

Chorus Parameters

■ Chorus (Chorus Type)

Chorus1, 2, **3**, 4, FbChorus, Flanger, SDelay, SDelayFB

You can choose from 8 types of chorus.

Chorus1, Chorus2, Chorus3, Chorus4
These are conventional chorus effects that add spaciousness and depth to the sound.

FbChorus (Feedback Chorus)
This is a chorus with a flanger-like effect and a soft sound.

Flanger
This is an effect sounding somewhat like a jet airplane taking off and landing.

SDelay (Short Delay)
This is a delay with a short delay time.

SDelayFB (Short Delay FB)
This is a short delay with many repeats.

When you change the Chorus Type, the following parameter values will automatically change. This is so that the parameter values will have the settings most appropriate for the selected Chorus Type. You can select these parameters (p.57) and modify the values to adjust the effect to your taste.

■ Cho Pre-LPF (Chorus Pre Low Pass Filter) **0**–7

A low pass filter can be applied to the sound coming into the chorus to cut the high frequency range. Higher values will cut more of the high frequencies, resulting in a more mellow chorus sound.

■ Cho Level (Chorus Level) 0–**64**–127

This parameter sets the amount of the chorus sound. Higher values will cause the chorus sound to be louder.

■ Cho Feedback (Chorus Feedback Level) 0–**8**–127

This parameter sets the level at which the chorus sound is returned (fed back) into the chorus. By using feedback, a denser chorus sound can be created. Higher values result in a greater feedback level.

■ Cho Delay (Chorus Delay Time) 0–**80**–127

This parameter sets the delay time of the chorus effect. Higher values will cause greater deviation in pitch of the chorus sound.

■ Cho Rate (Chorus Rate) 0–**3**–127

This parameter sets the speed (frequency) at which the chorus sound is modulated. Higher values result in faster modulation.

■ Cho Depth (Chorus Depth) 0–**19**–127

This parameter sets the depth at which the chorus sound is modulated. Higher values result in deeper modulation.

■ Cho → Rev (Chorus Send Level To Reverb) **0**–127

This parameter sets the amount of chorus sound that will be sent to the reverb. Higher values result in more sound being sent.

■ Cho → Dly (Chorus Send Level To Delay) **0**–127

This parameter sets the amount of chorus sound that will be sent to the delay. Higher values result in more sound being sent.

* *Chorus Send Level To Delay cannot be used in Double Module mode (p.138).*

About Chorus Type

When you change the Chorus Type, the above-listed eight chorus parameters will be automatically adjusted to the optimal values. Rather than individually adjusting each chorus parameter, it is easier to first set the Chorus Type (listed in the MIDI implementation as "CHORUS MACRO" p.203), and then modify only those parameters that you wish to modify. In particular when using MIDI Exclusive messages, this method of making settings will minimize the amount of data.

	Chorus1	2	3	4	FbChorus	Flanger	SDelay	SDelayFb
Cho Pre-LPF	0	0	0	0	0	0	0	0
Cho Level	64	64	64	64	64	64	64	64
ChoFeedback	0	5	8	16	64	112	0	80
Cho Delay	112	80	80	64	127	127	127	127
Cho Rate	3	9	3	9	2	1	0	0
Cho Depth	5	19	19	16	24	5	127	127
Cho → Rev	0	0	0	0	0	0	0	0
Cho → Dly	0	0	0	0	0	0	0	0

Delay Parameters

* *Delay cannot be used in Double Module mode (p.138).*

■ Delay (Delay Type)

Delay1, 2, 3, 4, PanDelay1, 2, 3, 4, Dly ToRev, PanRepeat

You can choose from 10 types of delay.

Delay1, Delay2, Delay3

These are conventional delays. 1, 2 and 3 have progressively longer delay times.

Delay4

This is a delay with a rather short delay time.

PanDelay1, PanDelay2, PanDelay3

The delay sound moves between left and right. This is effective when listening in stereo. 1, 2 and 3 have progressively longer delay times.

PanDelay4

This is a rather short delay with the delayed sound moving between left and right. It is effective when listening in stereo.

Dly ToRev (Delay to Reverb)

Reverb is added to the delay sound which moves between left and right. It is effective when listening in stereo.

PanRepeat (Panning Repeat)

The delay sound moves between left and right, but the pan positioning is different than the effects listed above. It is effective when listening in stereo.

When you change the Delay Type, the following parameter values will automatically change. This is so that the parameter values will have the settings most appropriate for the selected Delay Type. You can select these parameters (p.57) and modify the values to adjust the effect to your taste.

■ Dly Pre-LPF (Delay Pre Low Pass Filter) 0–7

A low pass filter can be applied to the sound coming into the delay to cut the high frequency range. Higher values will cut more of the high frequencies, resulting in a more mellow delay sound.

■ Dly Time C (Delay Time Center)

0.1–**340m**–1sec

The delay effect of the SK-88Pro allows you to set three delay times; center, left and right (when listening in stereo). Delay Time Center sets the delay time of the delay located at the center.

■ DlyTRatioL (Delay Time Ratio Left) 4–500%

This parameter sets the delay time of the delay located at the left as a percentage of the Delay Time Center. (up to a max. of 1.0s)

■ DlyTRatioR (Delay Time Ratio Right) 4–500%

This parameter sets the delay time of the delay located at the right as a percentage of the Delay Time Center. (up to a max. of 1.0s)

■ Dly Level C (Delay Level Center) 0–**127**

This parameter sets the volume of the central delay. Higher values result in a louder center delay.

■ Dly Level L (Delay Level Left) **0**–127

This parameter sets the volume of the left delay. Higher values result in a louder left delay.

■ Dly Level R (Delay Level Right) **0**–127

This parameter sets the volume of the right delay. Higher values result in a louder right delay.

■ Dly Level (Delay Level) 0–**64**–127

This parameter sets the overall volume of the three delays (center, left and right). Higher values result in a louder overall delay.

■ Dly Fback (Delay Feedback) -64– **+16**– +63

This parameter affects the number of times the delay will repeat. With a value of 0, the delay will not repeat. With higher values there will be more repeats. With negative (-) values, the center delay will be fed back with inverted phase. Negative values are effective with short delay times.

■ Dly → Rev (Delay Send Level To Reverb) **0**–127

This parameter sets the amount of delay sound that is sent to the reverb. Higher values result in more sound being sent.

About Delay Type

When you change the Delay Type, the above-listed ten Delay parameters will be automatically adjusted to the optimal values. Rather than individually adjusting each delay parameter, it is easier to first set the Delay Type (listed in the MIDI implementation as "DELAY MACRO" p.204), and then modify only those parameters that you wish to modify. In particular when using MIDI Exclusive messages, this method of making settings will minimize the amount of data.

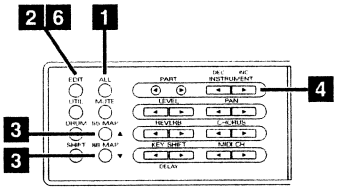
	Delay				PanDelay				Dly To	Pan
	1	2	3	4	1	2	3	4	Rev	Repeat
Dly Pre-LPF	0	0	0	0	0	0	0	0	0	0
Dly Time C	340m	550m	1sec	130m	500m	700m	1sec	260m	700m	750m
DlyRatioL	4%	4%	4%	4%	50%	50%	50%	50%	50%	88%
DlyRatioR	4%	4%	4%	4%	100%	100%	100%	100%	100%	133%
Dly Level C	127	127	127	127	0	0	0	0	0	97
Dly Level L	0	0	0	0	125	125	120	120	114	127
Dly Level R	0	0	0	0	60	60	64	64	60	67
Dly Level	64	64	64	64	64	64	64	64	64	64
Dly Fback	+16	+16	+8	+8	+10	+7	+9	+8	-3	-24
Dly → Rev	0	0	0	0	0	0	0	0	36	0

Equalizer

The SK-88Pro has a two-band equalizer (high range, low range). An equalizer lets you boost or cut specified frequency ranges of a sound to adjust the tone. For each range, high and low, you can specify the frequency and the amount of boost or cut (gain).

Equalizer Settings

NOTE The equalizer cannot be used in Double Module mode (p.138).



1 Press the [ALL] button to make the indicator light.

Since equalizer settings apply to all Parts in common, make the [ALL] button light. Although it is not possible to make equalizer settings individually for each Part, you can turn the equalizer on/off (p.104).

2 Press the [EDIT] button to enter Edit mode.

3 Use the [▲] [▼] buttons to select the equalizer parameters.

Equalizer parameters are "EQ Low Freq," "EQ High Freq," "EQ Low Gain" and "EQ Hi Gain."

4 Use the INSTRUMENT [◀] [▶] buttons to set the value for the displayed parameter.

5 Repeat steps **3** and **4** to make the equalizer settings.

6 When you finish making settings, press the [EDIT] button once again to exit Edit mode.

Equalizer Parameters

EQ Low Freq (Equalizer Low Frequency) **200**/400 Hz
EQ High Freq (Equalizer High Frequency) **3**/6 kHz

These parameters set the cutoff frequencies of the ranges boosted or cut by the equalizer.

EQ Low Gain (Equalizer Low Gain) -12–**0**– +12 dB
EQ High Gain (Equalizer High Gain) -12–**0**– +12 dB

Specify the amount of boost or cut (gain) for the high frequency range (high) and the low frequency range (low). Positive (+) settings will boost, and negative (-) settings will cut.

* *With a gain setting of 0, the equalizer will have no effect.*

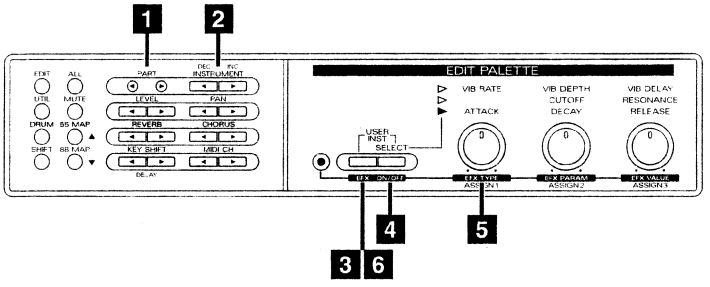
6. INSERTION EFFECTS

What is Insertion Effect?

The SK-88Pro has two types of effects: System effects and Insertion effects. Insertion effects provide 64 effect types. Since appropriate parameters are provided for each effects, you can make fine adjustments to the sound for professional-level control. You can turn Insertion effects ON/OFF independently to an individual Part.

* *For details on System effects and Insertion effects, and on the effect structure of the SK-88Pro, refer to p.54.*

Selecting Insertion Effects



1 Use the PART [◀] [▶] buttons to select the Part to which the effect will be applied.

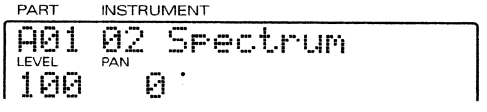
2 Although Insertion effects are actually specified with respect to Parts rather than Instruments, we recommend that you first select the Instrument for which you want to apply an Insertion effect using the INSTRUMENT [◀] [▶] buttons.

3 Press the [EFX] button to make the indicator light orange.

You will enter Insertion Effect mode.

4 Press the [ON/OFF] button to make the Effect ON/OFF indicator light, and the Insertion effect will be turned on to the Part.

5 Rotate the [EFX TYPE] knob to select the effect type.



MEMO In some cases it may not be possible to make accurate settings using the knobs alone. In such cases, use DEC INC (INSTRUMENT) [◀] [▶] to step through the effect types. (p.64)

MEMO To set Insertion effect parameters, use the procedure explained in "Changing Insertion Effect Parameters" (p.64).

6 Press the [EFX] button to exit Insertion Effect mode.

NOTE

It takes awhile until the sound can be heard after you change the Insertion effect. When "00 Thru" is selected, the Insertion effect will not be applied.

If you wish to turn the Insertion effect on/off for multiple Parts

1. Use steps **1–5** on the previous page to make Insertion effect settings for a Part.

2. Use PART [◀] [▶] to select the Part, and use the [ON/OFF] button to turn the Insertion effect on/off.

The on/off status is shown by the "▶" indicator at the right of the [ON/OFF] button.

Pan Settings When Using Insertion Effects

Whether the Pan setting will have effect or not changes depending on whether the Insertion effect is stereo or monaural.

If a monaural Insertion effect is turned on, the settings for Part Pan and Master Pan (p.100) will be ignored.

<Example of Monaural Insertion effects> 02: Spectrum, 35: OD→ Chorus, etc.

In the case of stereo Insertion effects, however, the settings for Part Pan and Master Pan (p.100) will be effective when the Insertion effect is on.

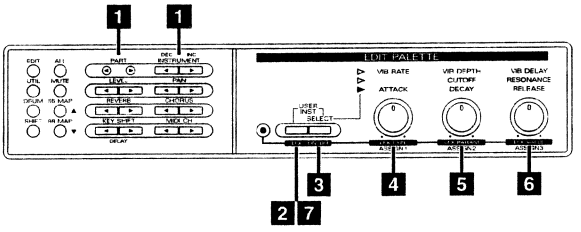
<Example of Stereo Insertion effects> 01: Stereo-EQ, 16: Hexa Chorus

The diagram for each effect shows whether the Insertion effect is monaural or stereo. Effects that have discrete signal paths, from input to output, for L and R are stereo; those that do not are monaural.

Effect Settings When Using Insertion Effects

If the Insertion effect is turned on for two or more Parts, the sound of each Part will be mixed, and the common settings are applied to these Parts. It will not be possible to set reverb/chorus/delay/equalizer independently for these Parts. (Refer to the figures on p.55.)
For example if the Insertion effect is turned on for Part1 and Part2, and you modify the Reverb value for Part1, the Reverb for Part2 will automatically be modified to the same value.
For Parts for which the Insertion effect is Off, System effect settings can be made independently for each Part.

Changing Insertion Effect Parameters



1 Use the PART [◀] [▶] buttons to select the Part, and use the INSTRUMENT [◀] [▶] button to select the Instrument which the effect will be applied.

2 Press the [EFX] button to make the indicator light orange.

You will enter Insertion Effect mode.

3 Press the [ON/OFF] button to make the Effect ON/OFF indicator light, and the Insertion effect will be turned on to the Part.

4 Rotate the [EFX TYPE] knob to select the effect type.

5 Rotate the [EFX PARAM] knob to select the effect parameter you wish to modify.

6 Rotate the [EFX VALUE] knob to set the value for the effect parameter.

7 Press the [EFX] button to exit Insertion Effect mode.

NOTE Be aware that when you change the effect type, the effect parameters will be initialized. If you wish to save your parameter values, it is convenient to use a User Effect. (p.118)

MEMO In some cases it may not be possible to make accurate settings using the knobs alone. In such cases, use DEC INC (INSTRUMENT) [◀] [▶] as the following procedures to step through the value.

Making Detailed Settings (Fine Adjustments)

In the above procedure, you rotate the knob to select parameters or values. Sometimes, though, it may be difficult to make a selection accurately just by rotating the knob. In such cases, follow the steps below to make fine adjustments without using the knob.

1 Rotate the desired knob, either [EFX TYPE], [EFX PARAM], or [EFX VALUE] to make an approximate setting.

2 Use the DEC INC [◀] [▶] buttons (the same buttons as INSTRUMENT [◀] [▶]) to select parameters or values individually.

The DEC INC [◀] [▶] buttons will adjust the setting of the knob that was last operated.

Insertion Effect Types

Effect types can be broadly grouped into the following categories.

Effects that modify the tone (filter type)	(01–04)
Effects that distort the sound (distortion type)	(05–06)
Effects that modulate the sound (modulation type)	(07–13)
Effects that affect the level (compressor type)	(14–15)
Effects that broaden the sound (chorus type)	(16–20)
Effects that reverberate the sound (delay/reverb type)	(21–28)
Effects that modify the pitch (pitch shift type)	(29–30)
Others	(31–34)
Effects that connect two types of effect in series (series 2)	(35–46)
Effects that connect three or more types of effect in series (series 3/series 4/series 5)	(47–55)
Effects that connect two types of effect in parallel (parallel 2)	(56–64)

In the explanations that follow, the hexadecimal values used when making settings via Exclusive messages are given at the right of the effect type name. The parameter number is given in decimal form at the right of the effect parameter name. Use these values when you use MIDI messages to set parameters. For details on using Exclusive messages, refer to p.96, 97, 199.

< Example of Effect Types >

01: Stereo-EQ (Stereo Equalizer) [01H, 00H]

This means that the value for address 40H 03H 00H is MSB: 01H, LSB: 00H.
For example, if you wish to set the effect type to 01: Stereo-EQ, use an Exclusive message such as the following:

F0 41 10 42 12 <u>40 03 00</u> <u>01 00</u> 3C F7
address value

< Example of Effect Parameters >

Low Freq (Low frequency) 200/400 [1]

"[1]" describes that it's the first parameter. Parameter numbers and Exclusive message addresses correspond as follows. (P.204)

[1]	40 03	03	[11]	40 03	0D
[2]		04	[12]		0E
[3]		05	[13]		0F
[4]		06	[14]		10
[5]		07	[15]		11
[6]		08	[16]		12
[7]		09	[17]		13
[8]		0A	[18]		14
[9]		0B	[19]		15
[10]		0C	[20]		16

* *Parameters with "+" or "#" symbols allow you to modify their value using specified controller, such as Pitch Bender and sliders, or with Control Change messages. (p.95)*

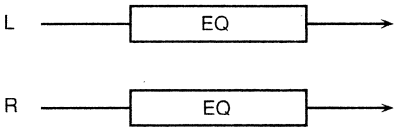
00: Thru [00H, 00H]

No Effect will be applied. When a Turn General MIDI System On or GS Reset messages (p.154) is received, "00 Thru" will be selected for Insertion Effect.

■ Effects that modify the tone (filter type)

01: Stereo-EQ (Stereo Equalizer) [01H, 00H]

This is a four-band stereo equalizer (low, mid x 2, high).



Low Freq (Low frequency) 200/400 [1]
Select the frequency of the low range (200/400 Hz).

Low Gain -12– +12 [2]
Adjust the gain of the low frequency.

Hi Freq (High frequency) 4k/8k [3]
Select the frequency of the high range (4/8 kHz).

Hi Gain -12– +12 [4]
Adjust the gain of the high frequency.

M1 Freq (Mid 1 frequency) 200–6.3k [5]
Adjust the frequency of Mid 1 (mid range1).

M1 Q (Mid 1 Q) 0.5/1.0/2.0/4.0/9.0 [6]
This parameter adjusts the width of the area around the M1 Freq parameter that will be affected by the Gain setting. Higher values of Q will result in a narrower area being affected.

M1 Gain (Mid 1 gain) -12– +12 [7]
Adjust the gain for the area specified by the M1 Freq parameter and M1 Q parameter settings.

M2 Freq (Mid 2 frequency) 200–6.3k [8]
Adjust the frequency of Mid 2 (mid range2).

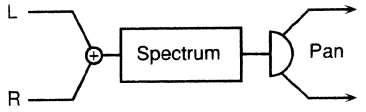
M2 Q (Mid 2 Q) 0.5/1.0/2.0/4.0/9.0 [9]
This parameter adjusts the width of the area around the M2 Freq parameter that will be affected by the Gain setting. Higher values of Q will result in a narrower area being affected.

M2 Gain (Mid 2 gain) -12– +12 [10]
Adjust the gain for the area specified by the M2 Freq parameter and M2 Q parameter settings.

+Level (Output level) 0–127 [20]
Adjust the output level.

02: Spectrum [01H, 01H]

Spectrum is a type of filter which modifies the timbre by boosting or cutting the level at specific frequencies. It is similar to an equalizer, but has 8 frequency points fixed at locations most suitable for adding character to the sound.



Band 1 (Band 1 gain) -12– +12 [1]
Adjust the 250 Hz level.

Band 2 (Band 2 gain) -12– +12 [2]
Adjust the 500 Hz level.

Band 3 (Band 3 gain) -12– +12 [3]
Adjust the 1000 Hz (1 kHz) level.

Band 4 (Band 4 gain) -12– +12 [4]
Adjust the 1250 Hz level.

Band 5 (Band 5 gain) -12– +12 [5]
Adjust the 2000 Hz level.

Band 6 (Band 6 gain) -12– +12 [6]
Adjust the 3150 Hz level.

Band 7 (Band 7 gain) -12– +12 [7]
Adjust the 4000 Hz level.

Band 8 (Band 8 gain) -12– +12 [8]
Adjust the 8000 Hz level.

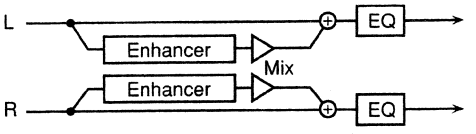
Width (Band width) 0.5/1.0/2.0/4.0/9.0 [9]
Adjust the width of the frequency bands whose gain is being modified (common to all bands). Higher settings will make the frequency band narrower.

+Pan (Output pan) L63–0–R63 [19]
Adjust the stereo location of the output sound. L63 is far left, 0 is center, and R63 is far right.

#Level (Output level) 0–127 [20]
Adjust the output level.

03: Enhancer [01H, 02H]

The Enhancer controls the overtone structure of the high frequencies, adding sparkle and tightness to the sound.



+Sens (Sensitivity) 0–127 [1]
Adjust the sensitivity of the enhancer.

#Mix (Mix level) 0–127 [2]
Adjust the ratio with which the overtones generated by the enhancer are combined with the direct sound.

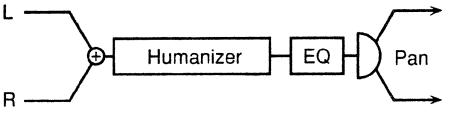
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

04: Humanizer [01H, 03H]

This adds a vowel character to the sound, making it similar to a human voice.



Drive 0–127 [1]
Adjust the depth of distortion.

Drive Sw (Drive switch) Off/On [2]
Turn Drive on/off.

+Vowel a/i/u/e/o [3]
Select the vowel.

Accel (Acceleration) 0–15 [4]
Adjust the time over which the sound will move to the specified Vowel. Smaller values will require more time.

Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

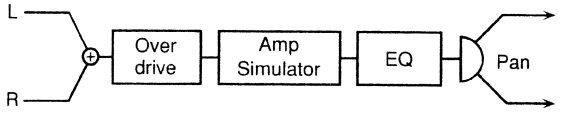
Pan (Output pan) L63–0–R63 [19]
Adjust the stereo position of the output sound. L63 is far left, 0 is center, and R63 is far right.

#Level (Output level) 0–127 [20]
Adjust the output volume.

■ Effects that distort the sound (distortion type)

05: Overdrive [01H, 10H]

This effect creates a soft distortion similar to that produced by tube amplifiers.



+Drive 0–127 [1]
Adjust the degree of distortion.

Amp Type (Amp simulator type) Small/BltIn/2-Stk/3-Stk [2]
Select the type of guitar amp.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

Amp Sw (Amp switch) Off/On [3]
Turn the Amp Type on/off.

Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

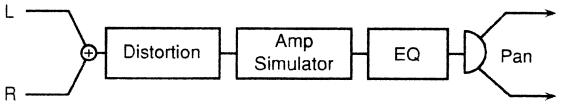
Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

#Pan (Output pan) L63–0–R63 [19]
Adjust the stereo location of the output sound. L63 is far left, 0 is center, and R63 is far right.

Level (Output level) 0–127 [20]
Adjust the output level.

06: Distortion [01H, 11H]

This effect produces a more intense distortion than Overdrive.



+Drive 0–127 [1]
Adjust the degree of distortion.

Amp Type (Amp simulator type) Small/BltIn/2-Stk/3-Stk [2]
Select the type of guitar amp.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

Amp Sw (Amp switch) Off/On [3]
Turn the Amp Type on/off.

Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

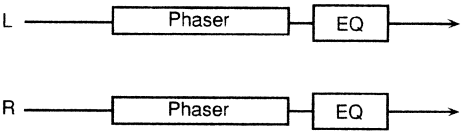
#Pan (Output pan) L63–0–R63 [19]
Adjust the stereo location of the output sound. L63 is far left, 0 is center, and R63 is far right.

Level (Output level) 0–127 [20]
Adjust the output level.

■ Effects that modulate the sound (modulation type)

07: Phaser [01H, 20H]

A phaser adds a phase-shifted sound to the original sound, producing a twisting modulation that creates spaciousness and depth.



+Manual 100–8.0k [1]
Adjust the basic frequency from which the sound will be modulated.

#Rate 0.05–10.0 [2]
Adjust the frequency (period) of modulation.

Depth 0–127 [3]
Adjust the depth of modulation.

Reso (Resonance) 0–127 [4]
Adjust the amount of emphasis added to the frequency range surrounding the basic frequency determined by the Manual parameter setting.

Mix (Mix level) 0–127 [5]
Adjust the ratio with which the phase-shifted sound is combined with the direct sound.

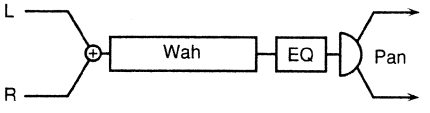
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

08: Auto Wah [01H, 21H]

The Auto Wah cyclically controls a filter to create cyclic change in timbre.



Fil Type (Filter Type) LPF/BPF [1]
Select the type of filter.

LPF:	The wah effect will be applied over a wide frequency range.
BPF:	The wah effect will be applied over a narrow frequency range.

Sens (Sensitivity) 0–127 [2]
Adjust the sensitivity with which the filter is controlled. If this value is increased, the filter frequency will change more readily in response to the input level.

+Manual 0–127 [3]
Adjust the center frequency from which the effect is applied.

Peak 0–127 [4]
Adjust the amount of the wah effect that will occur in the area of the center frequency. Lower settings will cause the effect to be applied in a broad area around the center frequency. Higher settings will cause the effect to be applied in a more narrow range. In the case of LPF, decreasing the value will cause the wah effect to change less.

#Rate 0.05–10.0 [5]
Adjust the speed of the modulation.

Depth 0–127 [6]
Adjust the depth of the modulation.

Polarity Down/Up [7]
Set the direction in which the frequency will change when the filter is modulated. With a setting of Up, the filter will change toward a higher frequency. With a setting of Down it will change toward a lower frequency.

Low Gain -12– +12 [17]
Adjust the gain of the low frequency range for EQ.

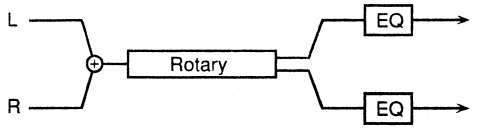
Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range for EQ.

Pan (Output pan) L63–0–R63 [19]
Adjust the stereo location of the output sound. L63 is far left, 0 is center, and R63 is far right.

Level (Output level) 0–127 [20]
Adjust the output level.

09: Rotary [01H, 22H]

The Rotary effect simulates the sound of a classic rotary speakers. Since the movement of the high range and low range rotors can be set independently, the unique type of modulation characteristic of these speakers can be simulated quite closely. This effect is most suitable for electric organ.



Low Slow (Low frequency slow rate) 0.05–10.0 [1]
Adjust the slow speed (Slow) of the low frequency rotor.

Low Fast (Low frequency fast rate) 0.05–10.0 [2]
Adjust the fast speed (Fast) of the low frequency rotor.

Low Accl (Low frequency acceleration) 0–15 [3]
Adjust the time it takes for the low frequency rotor to reach the newly selected speed when switching from fast to slow (or slow to fast) speed. Lower values will require longer times.

Low Level (Low frequency level) 0–127 [4]
Adjust the volume of the low frequency rotor.

Hi Slow (High frequency slow rate) 0.05–10.0 [5]
Adjust the slow speed (Slow) of the high frequency rotor.

Hi Fast (High frequency fast rate) 0.05–10.0 [6]
Adjust the fast speed (Fast) of the high frequency rotor.

Hi Accl (High frequency acceleration) 0–15 [7]
Adjust the time it takes for the high frequency rotor to reach the newly selected speed when switching from fast to slow (or slow to fast) speed. Lower values will require longer times.

Hi Level (High frequency level) 0–127 [8]
Adjust the volume of the high frequency rotor.

Separate (Separation) 0–127 [9]
Adjust the spatial dispersion of the sound.

+Speed Slow/Fast [11]
Simultaneously switch the rotational speed of the low frequency rotor and high frequency rotor.

Slow:	Slow down the rotation to the specified speed (the Low Slow parameter/Hi Slow parameter values).
Fast:	Speed up the rotation to the specified speed (the Low Fast parameter/Hi Fast parameter values).

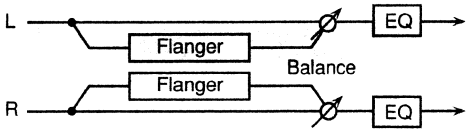
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range for EQ.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range for EQ.

#Level (Output level) 0–127 [20]
Adjust the output level.

10: Stereo Flanger [01H, 23H]

This is a stereo flanger. It produces a metallic resonance that rises and falls like a jet airplane taking off or landing. A filter is provided so that you can adjust the timbre of the flanged sound.



Pre Filter (Pre filter type) Off/LPF/HPF [1]
Select the type of filter.

Off:	a filter will not be used
LPF:	cut the frequency range above the Cutoff parameter
HPF:	cut the frequency range below the Cutoff parameter

Cutoff (Cutoff frequency) 250–8k [2]
Adjust the basic frequency of the filter.

Pre Dly (Pre delay time) 0–100m [3]
Adjust the time delay from when the direct sound begins until the processed sound is heard.

+Rate 0.05–10.0 [4]
Adjust the rate of modulation.

Depth 0–127 [5]
Adjust the depth of modulation.

#Feedback (Feedback level) -98%– +98% [6]
Adjust the amount (%) of the processed sound that is returned (fed back) into the input. Negative (-) settings will invert the phase.

Phase 0–180 [7]
Adjust the spatial spread of the sound.

Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

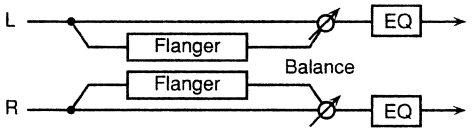
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

11: Step Flanger [01H, 24H]

The Step Flanger is an effect in which the flanger pitch changes in steps.



Pre Dly (Pre delay time) 0–100m [1]
Adjust the time delay from when the direct sound begins until the processed sound is heard.

Rate 0.05–10.0 [2]
Adjust the rate of modulation.

Depth 0–127 [3]
Adjust the depth of modulation.

+Feedback (Feedback level) -98%– +98% [4]
Adjust the amount (%) of the processed sound that is returned (fed back) into the input. Negative (-) settings will invert the phase.

Phase 0–180 [5]
Adjust the spatial spread of the sound.

#Step Rate 0.05–10.0 [6]
Adjust the rate (period) of pitch change.

Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

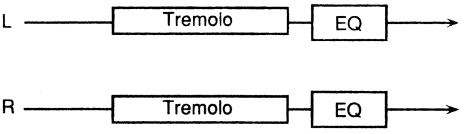
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

12: Tremolo [01H, 25H]

Tremolo cyclically modulates the volume to add tremolo effect to the sound.



Mod Wave (Modulation wave) Tri/Sqr/Sin/Saw1/Saw2 [1]
Select the type of modulation.

Tri: The sound will be modulated like a triangle wave.
Sqr: The sound will be modulated like a square wave.
Sin: The sound will be modulated like a sine wave.
Saw1, 2: The sound will be modulated like a sawtooth wave. The "teeth" in Saw1 and Saw2 point at opposite directions.

+Mod Rate (Modulation rate) 0.05–10.0 [2]
Adjust the speed of modulation.

#Mod Depth (Modulation depth) 0–127 [3]
Adjust the depth of modulation.

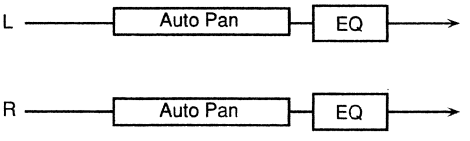
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

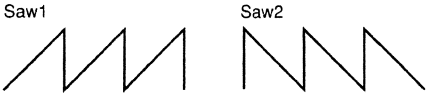
13: Auto Pan [01H, 26H]

The Auto Pan effect cyclically modulates the stereo location of the sound.



Mod Wave (Modulation wave) Tri/Sqr/Sin/Saw1/Saw2 [1]
Select the type of modulation.

Tri: The sound will be modulated like a triangle wave.
Sqr: The sound will be modulated like a square wave.
Sin: The sound will be modulated like a sine wave.
Saw1, 2: The sound will be modulated like a sawtooth wave. The "teeth" in Saw1 and Saw2 point at opposite direction.



+Mod Rate (Modulation rate) 0.05–10.0 [2]
Adjust the frequency of modulation.

#Mod Depth (Modulation depth) 0–127 [3]
Adjust the depth of modulation.

Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

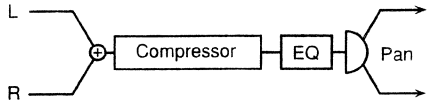
Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

■ Effects that affect the level (compressor type)

14: Compressor [01H, 30H]

The Compressor flattens out high levels and boosts low levels, smoothing out unevenness in volume.



Attack 0–127 [1]
Adjust the attack time of an input sound.

Sustain 0–127 [2]
Adjust the time over which low level sounds are boosted until they reach the specified volume.
Increasing the value will shorten the time. When the value is modified, the level will also change.

Post Gain 0/+6/+12/+18 [3]
Adjust the output gain.

Low Gain -12– +12 [17]
Adjust the low frequency gain.

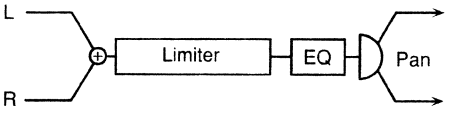
Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

+Pan (Output pan) L63–0–R63 [19]
Adjust the stereo location of the output sound. L63 is far left, 0 is center, and R63 is far right.

#Level (Output level) 0–127 [20]
Adjust the output level.

15: Limiter [01H, 31H]

The Limiter compresses signals that exceed a specified volume level, preventing distortion from occurring.



Threshold (Threshold level) 0–127 [1]
Adjust the volume at which compression will begin.

Ratio (Compression ratio) 1/1.5,1/2,1/4,1/100 [2]
This adjusts the compression ratio for signals that are louder than the Threshold Level. 1/100 is the highest compression ratio, and the output level will decrease.

Release (Release time) 0–127 [3]
Adjust the time from when the volume falls below the Threshold Level until compression is no longer applied.

Post Gain 0/+6/+12/+18 [4]
Adjust the output gain.

Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

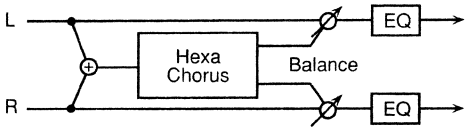
+Pan (Output pan) L63–0–R63 [19]
Adjust the stereo location of the output sound. L63 is far left, 0 is center, and R63 is far right.

#Level (Output level) 0–127 [20]
Adjust the output level.

■ Effects that broaden the sound (chorus type)

16: Hexa Chorus [01H, 40H]

Hexa-chorus uses a six-phase chorus (six layers of chorused sound) to give richness and spatial spread to the sound.



Pre Dly (Pre delay time) 0–100m [1]
Adjust the time delay from when the direct sound begins until the processed sound is heard.

+Rate 0.05–10.0 [2]
Adjust the rate of modulation.

Depth 0–127 [3]
Adjust the depth of modulation.

Pre Dly Dev (Pre delay deviation) 0–20 [4]
The Pre Delay is the time from when the original sound begins until when the chorus sound is heard. This adjusts the difference in Pre Delay between each of the six phases of chorus sound.

Depth Dev (Depth deviation) -20– +20 [5]
Adjust the difference in modulation depth between each of the six phases of chorus sound.

Pan Dev (Pan deviation) 0–20 [6]
Adjust the difference in stereo position between each of the six phases of chorus sound. With a setting of 0, all the chorus sound will be located in the center. With a setting of 20, each chorus sound will be placed in 30 degree intervals relative to the center position.

#Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

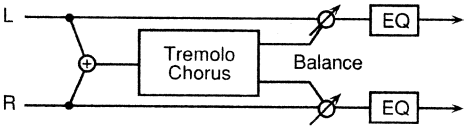
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

17: Tremolo Chorus [01H, 41H]

Tremolo Chorus is a chorus effect with added Tremolo (cyclic modulation of volume).



Pre Dly (Pre delay time) 0–100m [1]
Adjust the time delay from when the direct sound begins until the chorus sound is heard.

Cho Rate (Chorus rate) 0.05–10.0 [2]
Adjust the modulation speed of the chorus effect.

Cho Depth (Chorus depth) 0–127 [3]
Adjust the modulation depth of the chorus effect.

Trem Phase (Tremolo phase) 0–180 [4]
Adjust the width of the tremolo sound.

+Trem Rate (Tremolo rate) 0.05–10.0 [5]
Adjust the modulation speed of the tremolo effect.

Trem Sep (Tremolo separation) 0–127 [6]
Adjust the spatial spread of the tremolo effect.

#Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

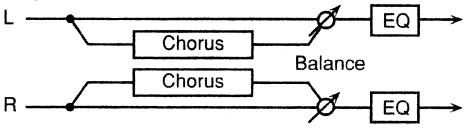
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

18: Stereo Chorus [01H, 42H]

This is a stereo chorus. A filter is provided so that you can adjust the timbre of the chorus sound.



Pre Filter (Pre filter type) Off/LPF/HPF [1]
Select the type of filter.

Off:	a filter will not be used
LPF:	cut the frequency range above the cutoff
HPF:	cut the frequency range below the cutoff

Cutoff (Cutoff frequency) 250–8k [2]
Adjust the center frequency of the filter for the chorus sound for the chorus sound.

Pre Dly (Pre delay time) 0–100m [3]
Adjust the time delay from when the direct sound begins until the processed sound is heard.

+Rate 0.05–10.0 [4]
Adjust the rate of modulation.

Depth 0–127 [5]
Adjust the depth of modulation.

Phase 0–180 [7]
Adjust the spatial spread of the sound.

#Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

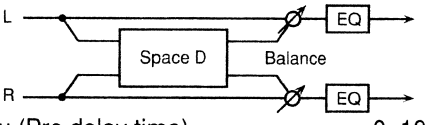
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

19: Space D [01H, 43H]

Space-D is a multiple chorus that applies two-phase modulation in stereo. It gives no impression of modulation, but produces a transparent chorus effect.



Pre Dly (Pre delay time) 0–100m [1]
Adjust the time delay from when the direct sound begins until the processed sound is heard.

+Rate 0.05–10.0 [2]
Adjust the rate of modulation.

Depth 0–127 [3]
Adjust the depth of modulation.

Phase 0–180 [4]
Adjust the spatial spread of the sound.

#Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

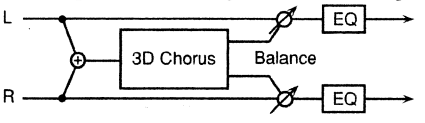
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

20: 3D Chorus [01H, 44H]

This applies a 3D effect to the chorus sound. The chorus sound will be positioned 90 degrees left and 90 degrees right.



Pre Dly (Pre delay time) 0–100m [1]
Adjust the time delay from when the direct sound begins until the processed sound is heard.

+Cho Rate (Chorus Rate) 0.05–10.0 [2]
Adjust the modulation speed of the chorus sound.

Cho Depth (Chorus Depth) 0–127 [3]
Adjust the modulation depth of the chorus sound.

Out (Output Mode) Speaker/Phones [15]
Specify the method that will be used to hear the sound which is output to the Output jacks. The optimal 3D effect will be achieved if you select Speaker when using speakers, or Phones when using headphones (p.94).

#Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

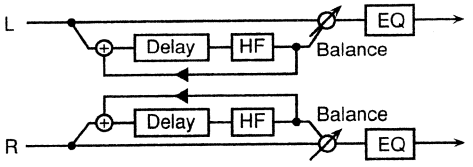
Level (Output level) 0–127 [20]
Adjust the output level.

■ Effects that reverberate the sound (delay/reverb type)

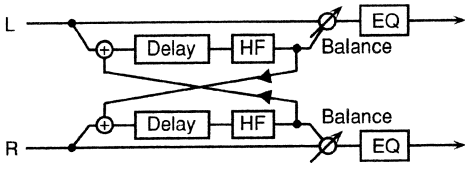
21: Stereo Delay [01H, 50H]

This is a stereo delay.

Fb Mode is Norm:



Fb Mode is Cross:



Dly Tm L (Delay time left) 0–500m [1]
Adjust the time from the original sound until when the left delay sound is heard.

Dly Tm R (Delay time right) 0–500m [2]
Adjust the time from the original sound until when the right delay sound is heard.

+Feedback (Feedback level) -98%– +98% [3]
Adjust the proportion (%) of the processed sound that is fed back into the effect. Negative (-) settings will invert the phase.

Fb Mode (Feedback mode) Norm/Cross [4]
Select the way in which processed sound is fed back into the effect.

Norm: The left delay sound will be fed back into the left delay, and the right delay sound into the right delay.
Cross: The left delay sound will be fed back into the right delay, and the right delay sound into the left delay.

Phase L (Phase left) Norm/Invert [5]
Select the phase of the left delay sound.

Norm: Phase will not be changed.
Invert: Phase will be inverted.

Phase R (Phase right) Norm/Invert [6]
Select the phase of the right delay sound.

Norm: Phase will not be changed.
Invert: Phase will be inverted.

HF Damp 315–8k/Bypass [8]
Adjust the frequency above which sound fed back to the effect will be cut. If you do not want to cut the high frequencies of the feedback, set this parameter to Bypass.

#Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

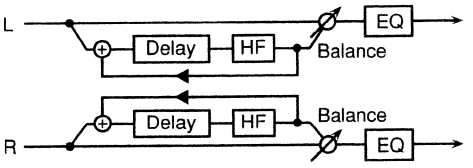
Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

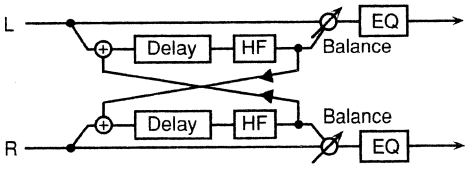
22: Mod Delay (Modulation Delay) [01H, 51H]

This effect adds modulation to the delayed sound, producing an effect similar to a flanger.

Fb Mode is Norm:



Fb Mode is Cross:



Dly Tm L (Delay time left) 0–500m [1]
Adjust the time from the original sound until when the left delay sound is heard.

Dly Tm R (Delay time right) 0–500m [2]
Adjust the time from the original sound until when the right delay sound is heard.

Feedback (Feedback level) -98%– +98% [3]
Adjust the proportion (%) of the processed sound that is fed back into the effect. Negative (-) settings will invert the phase.

Fb Mode (Feedback mode) Norm/Cross [4]
Select the way in which processed sound is fed back into the effect.

Norm: The left delay sound will be fed back into the left delay, and the right delay sound into the right delay.
Cross: The left delay sound will be fed back into the right delay, and the right delay sound into the left delay.

+Mod Rate (Modulation rate) 0.05–10.0 [5]
Adjust the speed of the modulation.

Mod Depth (Modulation depth) 0–127 [6]
Adjust the depth of the modulation.

Mod Phase (Modulation phase) 0–180 [7]
Adjust the spatial spread of the sound.

HF Damp 315–8k/Bypass [8]
Adjust the frequency above which sound fed back to the effect will be cut. If you do not wish to cut the high frequencies of the feedback, set this parameter to Bypass.

#Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

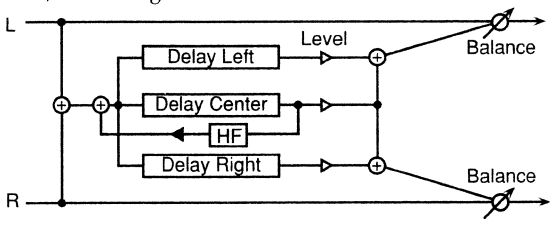
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

23: 3 Tap Delay (Triple Tap Delay) [01H, 52H]

The Triple Tap Delay produces three delay sounds; center, left and right.



Dly Tm C (Delay time center) 200–990m/1sec [1]
Adjust the time delay from the direct sound until when the center delay sound is heard.

Dly Tm L (Delay time left) 200–990m/1sec [2]
Adjust the time delay from the direct sound until when the left delay sound is heard.

Dly Tm R (Delay time right) 200–990m/1sec [3]
Adjust the time delay from the direct sound until when the right delay sound is heard.

+Feedback (Feedback level) -98%– +98% [4]
Adjust the proportion (%) of the Center Delay sound that is fed back into the effect. Negative (-) settings will invert the phase.

Dly Lev C (Delay level center) 0–127 [5]
Adjust the volume of center delay sound.

Dly Lev L (Delay level left) 0–127 [6]
Adjust the volume of left delay sound.

Dly Lev R (Delay level right) 0–127 [7]
Adjust the volume of right delay sound.

HF Damp 315–8k/Bypass [8]
This adjusts the frequency at which the high range is cut when the Center Delay sound is returned to the input. If you do not wish to cut the high range, set this to Bypass.

#Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

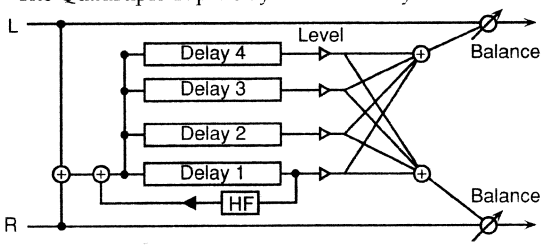
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

24: 4 Tap Delay (Quadruple Tap Delay) [01H, 53H]

The Quadruple Tap Delay has four delays.



Dly Tm 1 (Delay time 1) 200m–990m/1sec [1]
Adjust the time delay from the direct sound until when delay 1 sound is heard.

Dly Tm 2 (Delay time 2) 200m–990m/1sec [2]
Adjust the time delay from the direct sound until when delay 2 sound is heard.

Dly Tm 3 (Delay time 3) 200m–990m/1sec [3]
Adjust the time delay from the direct sound until when delay 3 sound is heard.

Dly Tm 4 (Delay time 4) 200m–990m/1sec [4]
Adjust the time delay from the direct sound until when delay 4 sound is heard.

Dly Lev 1 (Delay level 1) 0–127 [5]
Adjust the volume of delay 1 sound.

Dly Lev 2 (Delay level 2) 0–127 [6]
Adjust the volume of delay 2 sound.

Dly Lev 3 (Delay level 3) 0–127 [7]
Adjust the volume of delay 3 sound.

Dly Lev 4 (Delay level 4) 0–127 [8]
Adjust the volume of delay 4 sound.

+Feedback (Feedback level) -98%– +98% [9]
Adjust the proportion (%) of the Delay 1 sound that is fed back into the effect. Negative (-) settings will invert the phase.

HF Damp 315–8k/Bypass [10]
This adjusts the frequency at which the high range is cut when the Delay 1 sound is returned to the input. If you do not wish to cut the high range, set this to Bypass.

#Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

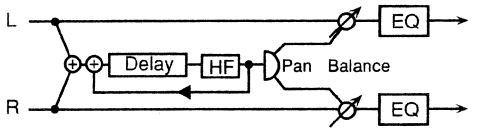
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

25: Tm Ctrl Delay (Time Control Delay) [01H, 54H]

This effect allows you to use a specified controller (the controller selected in EFX C.Src display (p.95) to control the delay time and pitch in realtime. Lengthening the delay time will lower the pitch, and shortening it will raise the pitch.



+Dly Time (Delay time) 200m–990m/1sec [1]
Adjust the time delay from the direct sound until when each delay sound is heard.

Accel (Acceleration) 0–15 [2]
This parameter adjusts the speed over which the Delay Time will change from the current setting to a newly specified setting. The rate of change for the Delay Time directly affects the rate of pitch change.

#Feedback (Feedback level) -98%– +98% [3]
Adjust the proportion (%) of the processed sound that is fed back into the effect. Negative (-) settings will invert the phase.

HF Damp 315–8k/Bypass [4]
Adjust the frequency above which sound fed back to the effect will be cut. If you do not wish to cut the high frequencies of the feedback, set this parameter to Bypass.

EFX Pan (Effect output pan) L63–0–R63 [5]
Adjust the stereo location of the processed sound. L63 is far left, 0 is center, and R63 is far right.

Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

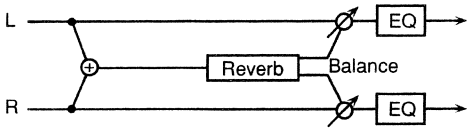
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

26: Reverb [01H, 55H]

The Reverb effect adds reverberation to the sound, simulating an acoustic space.



Type (Reverb type)
Room1/Room2/Stage1/Stage2/Hall1/Hall2 [1]
Select the type of Reverb effect.

Room1:	dense reverb with short decay
Room2:	sparse reverb with short decay
Stage1:	reverb with greater late reverberation
Stage2:	reverb with strong early reflections
Hall1:	reverb with clear reverberance
Hall2:	reverb with rich reverberance

Pre Dly (Pre delay time) 0–100m [2]
Adjust the time delay from when the direct sound begins until the reverb sound is heard.

+Time (Reverb time) 0–127 [3]
Adjust the time length of reverberation.

HF Damp 315–8k/Bypass [4]
Adjust the frequency above which the reverberant sound will be cut. As the frequency is set lower, more of the high frequencies will be cut, resulting in a softer and more muted reverberance. If you do not want the high frequencies to be cut, set this parameter to Bypass.

#Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

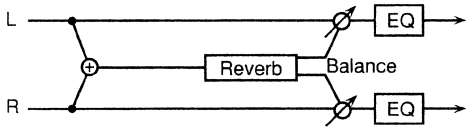
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

27: Gate Reverb [01H, 56H]

Gate Reverb is a special type of reverb in which the reverberant sound is cut off before its natural length.



Type (Gate reverb type)

Norm/Reverse/Sweep1/Sweep2 [1]

Select the type of reverb.

Norm:	conventional gate reverb
Reverse:	backwards reverb
Sweep1:	the reverberant sound moves from right to left
Sweep2:	the reverberant sound moves from left to right

Pre Dly (Pre delay time) 0–100m [2]

Adjust the time delay from when the direct sound begins until the reverb sound is heard.

Gate Time 5–500m [3]

Adjust the time from when the reverb is heard until when it disappears.

+Balance (Effect balance) D> 0E – D 0<E [16]

Adjust the volume balance between the direct and the processed sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

Low Gain -12– +12 [17]

Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]

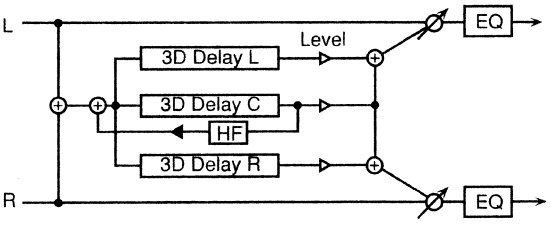
Adjust the gain of the high frequency range.

#Level (Output level) 0–127 [20]

Adjust the output level.

28: 3D Delay [01H, 57H]

This applies a 3D effect to the delay sound. The delay sound will be positioned 90 degrees left and 90 degrees right.



Dly Tm C (Delay time center) 0m–500m [1]

Adjust the time from the original sound until when the center delay sound begins.

Dly Tm L (Delay time left) 0m–500m [2]

Adjust the time from the original sound until when the left delay sound begins.

Dly Tm R (Delay time right) 0m–500m [3]

Adjust the time from the original sound until when the right delay sound begins.

+Feedback (Delay feedback) -98%– +98% [4]

Adjust the amount (%) of the center delay sound that will be returned to the input. With negative (-) settings, the phase will be inverted.

Dly Lev C (Delay level center) 0–127 [5]

Adjust the volume of the center delay sound.

Dly Lev L (Delay level left) 0–127 [6]

Adjust the volume of the left delay sound.

Dly Lev R (Delay level right) 0–127 [7]

Adjust the volume of the right delay sound.

HF Damp 315–8k/Bypass [8]

This adjusts the frequency at which the high range is cut when the Center Delay sound is returned to the input. If you do not wish to cut the high range, set this to Bypass.

Out (Output mode) Speaker/Phones [15]

Specify the method that will be used to hear the sound which is output to the Output jacks. The optimal 3D effect will be achieved if you select Speaker when using speakers, or Phones when using headphones (p.94).

#Balance (Effect balance) D> 0E – D 0<E [16]

Adjust the volume balance between the direct and the processed sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

Low Gain -12– +12 [17]

Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]

Adjust the gain of the high frequency range.

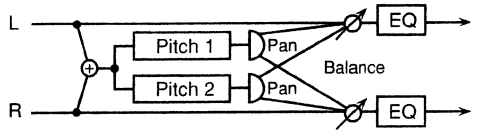
Level (Output level) 0–127 [20]

Adjust the output level.

■ Effects that modify the pitch (pitch shift type)

29: 2 Pitch Shifter (2-voice Pitch Shifter) [01H, 60H]

A Pitch Shifter shifts the pitch of the original sound. This 2-voice pitch shifter has two pitch shifters, and can add two pitch shifted sounds to the original sound.



+Coarse 1 (Coarse pitch 1) -24–0– +12 [1]
Adjust the pitch of Pitch Shift 1 in semitone steps (-2– +1 octaves).

Fine 1 (Fine pitch 1) -100–0– +100 [2]
Make fine adjustments to the pitch of Pitch Shift 1 in 2-cent steps (-100– +100 cents).

Pre Dly 1 (Pre delay time 1) 0–100m [3]
Adjust the time delay from when the direct sound begins until the Pitch Shift 1 sound is heard.

EFX Pan 1 (Effect output pan 1) L63–0–R63 [4]
Adjust the stereo location of the Pitch Shift 1 sound. L63 is far left, 0 is center, and R63 is far right.

#Coarse 2 (Coarse pitch 2) -24–0– +12 [5]
Adjust the pitch of Pitch Shift 2 in semitone steps (-2– +1 octaves).

Fine 2 (Fine pitch 2) -100–0– +100 [6]
Make fine adjustments to the pitch of Pitch Shift 2 in 2-cent steps (-100– +100 cents).

Pre Dly 2 (Pre delay time 2) 0–100m [7]
Adjust the time delay from when the direct sound begins until the Pitch Shift 2 sound is heard.

EFX Pan 2 (Effect output pan 2) L63–0–R63 [8]
Adjust the stereo location of the Pitch Shift 2 sound. L63 is far left, 0 is center, and R63 is far right.

Shift Mode (Pitch shifter mode) 1–5 [9]
Higher settings of this parameter will result in slower response, but steadier pitch.

L.Bal (Level balance) A> 0B–A 0<B [10]
Adjust the volume balance between the Pitch Shift 1 and Pitch Shift 2 sounds.

Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

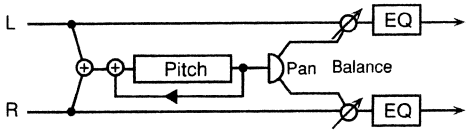
Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

30: Fb P.Shifter (Feedback Pitch Shifter) [01H, 61H]

This pitch shifter allows the pitch shifted sound to be returned into the effect.



+P.Coarse (Coarse pitch) -24–0– +12 [1]
Adjust the pitch of the pitch shifted sound in semitone steps (-2– +1 octaves).

P.Fine (Fine pitch) -100–0– +100 [2]
Make fine adjustments to the pitch of the pitch shifted sound in 2-cent steps (-100– +100 cents).

#Feedback (Feedback level) -98%– +98% [3]
Adjust the proportion (%) of the processed sound that is fed back into the effect. Negative (-) settings will invert the phase.

Pre Dly (Pre delay time) 0–100m [4]
Adjust the time delay from when the direct sound begins until the pitch shifted sound is heard.

Mode (Pitch shifter mode) 1–5 [5]
Higher settings of this parameter will result in slower response, but steadier pitch.

EFX Pan (Effect output pan) L63–0–R63 [6]
Adjust the stereo location of the pitch shifted sound. L63 is far left, 0 is center, and R63 is far right.

Balance (Effect balance) D> 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

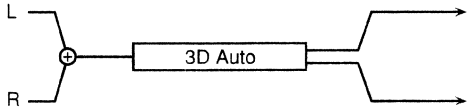
Hi Gain (High gain) -12– +12 [18]
Adjust the gain of the high frequency range.

Level (Output level) 0–127 [20]
Adjust the output level.

■ Others

31: 3D Auto [01H, 70H]

The 3D Auto effect rotates the location of the sound.



Azimuth 180/L168–0–R168 [1]
Set the location at which the sound will stop when rotation is stopped.
A setting of 0 positions the sound in the center.

+Speed 0.05–10.0 [2]
Set the speed of rotation.

Clockwise -/+ [3]
Set the direction of rotation. A setting of "-" is counter-clockwise, and "+" is clockwise.

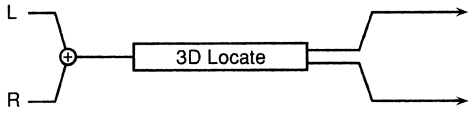
#Turn Off/On [4]
This stops or starts the rotation. When this is turned On, the sound will rotate. When turned Off, rotation will stop at the location specified by Azimuth.

Out (Output mode) Speaker/Phones [15]
Specify the method that will be used to hear the sound which is output to the Output jacks. The optimal 3D effect will be achieved if you select Speaker when using speakers, or Phones when using headphones (p.94).

Level (Output level) 0–127 [20]
Adjust the output level.

32: 3D Manual [01H, 71H]

This places the 3D effect at a desired location.



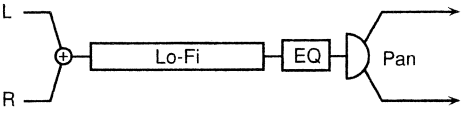
+Azimuth 180/L168–0–R168 [1]
Specify the location.
A setting of 0 positions the sound in the center.

Out (Output mode) Speaker/Phones [15]
Specify the method that will be used to hear the sound which is output to the Output jacks. The optimal 3D effect will be achieved if you select Speaker when using speakers, or Phones when using headphones (p.94).

#Level (Output level) 0–127 [20]
Adjust the output level.

33: Lo-Fi 1 [01H, 72H]

Lo-Fi 1 is an effect that intentionally degrades the sound quality.



Pre Filter (Pre filter type) 1–6 [1]
Specify the type of filter that will be applied before the sound passes through the Lo-Fi effect.

Lo-Fi Type 1–9 [2]
Degrade the sound quality. The sound quality will become poorer as this value is increased.

Post Filter (Post filter type) 1–6 [3]
Specify the type of filter that will be applied after the sound passes through the Lo-Fi effect.

+Balance D > 0E – D 0<E [16]
Adjust the volume balance between the direct and the processed sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain -12– +12 [18]
Adjust the gain of the high frequency range.

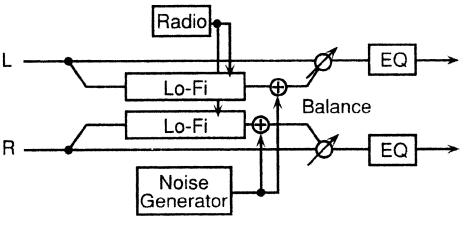
#Pan L63–0–R63 [19]
Adjust the stereo location of the output sound. L63 is far left, 0 is center, and R63 is far right.

Level 0–127 [20]
Adjust the output level.

34: Lo-Fi 2 [01H, 73H]

Lo-Fi 2 is an effect that intentionally degrades the sound quality and allows a variety of noise to be added

* *If the R.Detune (Radio Detune), W/P Level (White/Pink Noise Level), Disc Nz Lev (Disc Noise Level), or Hum Level settings are raised, there will be noise even when the input sound is silent.*



Lo-Fi Type 1–6 [1]
Degrade the sound quality. The sound quality will become poorer as this value is increased.

Fil Type (Filter type) Off/LPF/HPF [2]
Specify the type of filter that is applied after the sound passes through the Lo-Fi effect.

Cutoff (Cutoff frequency) 250–8 k [3]
Specify the cutoff frequency of the filter that is applied after the sound passes through the Lo-Fi effect.

+R.Detune (Radio detune) 0–127 [4]
This simulates the tuning noise of a radio. As this value is raised, the tuning will drift further.

R.Nz Lev (Radio noise level) 0–127 [5]
Adjust the volume of the radio noise.

W/P Sel (White/Pink noise select) White/Pink [6]
Select either white noise or pink noise.

W/P LPF (White/Pink noise LPF) 250–6.3 k/Bypass [7]
Specify the cutoff frequency of the low pass filter that is applied to the white noise or pink noise.

W/P Level (White/Pink noise level) 0–127 [8]
Specify the volume of the white noise or pink noise.

Disc Type (Disc noise type) LP/EP/SP/RND [9]
Select the type of record noise. The frequency at which the noise is heard will depend on the selected type.

Disc LPF (Disc noise LPF) 250–6.3 k/Bypass [10]
Specify the cutoff frequency of the low pass filter that is applied to the record noise.

Disc Nz Lev (Disc noise level) 0–127 [11]
Specify the volume of the record noise.

Hum Type (Hum noise type) 50/60 Hz [12]
Select the type of hum noise.

Hum LPF (Hum noise LPF) 250–6.3 k/Bypass [13]
Specify the cutoff frequency of the low pass filter that is applied to the hum noise.

Hum Level (Hum noise level) 0–127 [14]
Specify the volume of the hum noise.

M/S (Mono/Stereo switch) Mono/Stereo [15]
Select whether the effect sound will be monaural or stereo.

#Balance (Effect balance) D> 0E – D0 – 0<E [16]
Adjust the volume balance between the direct and the effect sound.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

Low Gain -12– +12 [17]
Adjust the gain of the low frequency range.

Hi Gain -12– +12 [18]
Adjust the gain of the high frequency range.

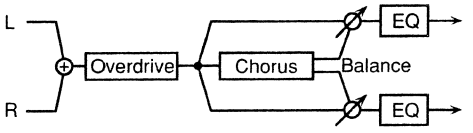
Pan (Mono) (Output pan (mono)) L63–0–R63 [19]
When Mono mode is used, adjust the stereo location of the output sound. L63 is far left, 0 is center, and R63 is far right.

Level 0–127 [20]
Adjust the output level.

■ Effects that connect two types of effect in series (series 2)

35: OD → Chorus (Overdrive → Chorus) [02H, 00H]

This effect connects an overdrive and a chorus in series.



OD Drive (Overdrive drive) 0–127 [1]
Adjust the degree of overdrive distortion. The volume will change together with the degree of distortion.

+OD Pan (Overdrive drive output pan) L63–0–R63 [2]
Adjust the stereo location of the overdrive sound. L63 is far left, 0 is center, and R63 is far right.

OD Amp (Overdrive amp simulator type) Small/BltIn/2-Stk/3-Stk [3]
Select the type of guitar amp.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

OD Amp Sw (Overdrive amp switch) Off/On [4]
Turn OD Amp on/off.

Cho Dly (Chorus pre delay) 0–100m [6]
Adjust the time delay from when the direct sound begins until the chorus sound is heard.

Cho Rate (Chorus rate) 0.05–10.0 [7]
Adjust the modulation speed of the chorus effect.

Cho Depth (Chorus depth) 0–127 [8]
Adjust the modulation depth of the chorus effect.

#Cho Bal (Chorus balance) D> 0E – D 0<E [10]
Adjust the volume balance between the sound which passes through the chorus and the sound which does not. With a setting of D>0E, only the overdrive sound will be output, and with a setting of D 0<E, the overdrive sound which passes through the chorus will be output. "D" and "E" respectively indicate D (dry sound) and E (effect sound) values of 100.

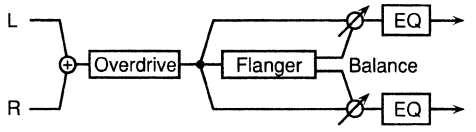
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

36: OD → Flanger (Overdrive → Flanger) [02H, 01H]

This effect connects an overdrive and a flanger in series.



OD Drive (Overdrive drive) 0–127 [1]
Adjust the degree of overdrive distortion. The volume will change together with the degree of distortion.

+OD Pan (Overdrive output pan) L63–0–R63 [2]
Adjust the stereo location of the overdrive sound. L6 is far left, 0 is center, and R63 is far right.

OD Amp (Overdrive amp simulator type) Small/BltIn/2-Stk/3-Stk [3]
Select the type of guitar amp.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

OD Amp Sw (Overdrive amp switch) Off/On [4]
Turn OD Amp on/off.

FL Dly (Flanger pre delay) 0–100m [6]
Adjust the time delay from when the direct sound begins until the flanger sound is heard.

FL Rate (Flanger rate) 0.05–10.0 [7]
Adjust the modulation speed of the flanger effect.

FL Depth (Flanger depth) 0–127 [8]
Adjust the modulation depth of the flanger effect.

FL Fb (Flanger feedback level) -98%– +98% [9]
Adjust the proportion (%) of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.

#FL Bal (Flanger balance) D> 0E – D 0<E [10]
Adjust the volume balance between the sound which passes through the flanger and the sound which does not. With a setting of D>0E, only the overdrive sound will be output, and with a setting of D 0<E, the overdrive sound which passes through the flanger will be output. "D" and "E" respectively indicate D (dry sound) and E (effect sound) values of 100.

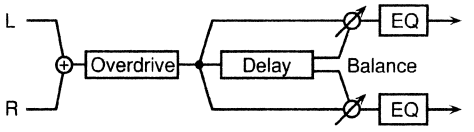
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

37: OD → Delay (Overdrive → Delay) [02H, 02H]

This effect connects an overdrive and a delay in series.



OD Drive (Overdrive drive) 0–127 [1]
Adjust the degree of overdrive distortion. The volume will change together with the degree of distortion.

+OD Pan (Overdrive output pan) L63–0–R63 [2]
Adjust the stereo location of the overdrive sound. L63 is far left, 0 is center, and R63 is far right.

OD Amp (Overdrive amp simulator type) Small/BltIn/2-Stk/3-Stk [3]
Select the type of guitar amp.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

OD Amp Sw (Overdrive amp switch) Off/On [4]
Turn OD Amp on/off.

Dly Time (Delay time) 0–500m [6]
Adjust the time delay from when the direct sound begins until the delay sound is heard.

Dly Fb (Delay feedback level) -98%– +98% [7]
Adjust the proportion (%) of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.

Dly HF (Delay HF damp) 315–8k/Bypass [8]
Adjust the frequency above which delayed sound fed back to the effect will be cut. If you do not wish to cut the high frequencies of the feedback, set this parameter to Bypass.

#Dly Bal (Delay balance) D> 0E – D 0<E [10]
Adjust the volume balance between the sound which passes through the delay and the sound which does not. With a setting of D>0E, only the overdrive sound will be output, and with a setting of D 0<E, the overdrive sound which passes through the delay will be output.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

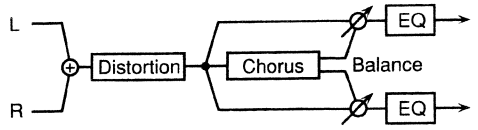
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

38: DS → Chorus (Distortion → Chorus) [02H, 03H]

This effect connects a distortion and a chorus in series.



DS Drive (Distortion drive) 0–127 [1]
Adjust the degree of distortion. The volume will change together with the degree of distortion.

+DS Pan (Distortion output pan) L63–0–R63 [2]
Adjust the stereo location of the distortion sound. L63 is far left, 0 is center, and R63 is far right.

DS Amp (Distortion amp simulator type) Small/BltIn/2-Stk/3-Stk [3]
Select the type of guitar amp.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

DS Amp Sw (Distortion amp switch) Off/On [4]
Turn DS Amp on/off.

Cho Dly (Chorus pre delay) 0–100m [6]
Adjust the time delay from when the direct sound begins until the chorus sound is heard.

Cho Rate (Chorus rate) 0.05–10.0 [7]
Adjust the modulation speed of the chorus effect.

Cho Depth (Chorus depth) 0–127 [8]
Adjust the modulation depth of the chorus effect.

#Cho Bal (Chorus balance) D> 0E – D 0<E [10]
Adjust the volume balance between the sound which passes through the chorus and the sound which does not. With a setting of D>0E, only the distortion sound will be output, and with a setting of D 0<E, the distortion sound which passes through the chorus will be output.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

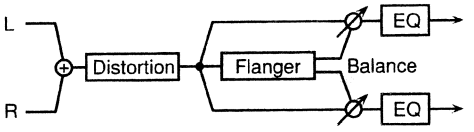
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

39: DS → Flanger (Distortion → Flanger) [02H, 04H]

This effect connects a distortion and a flanger in series.



DS Drive (Distortion drive) 0–127 [1]
Adjust the degree of distortion. The volume will change together with the degree of distortion.

+DS Pan (Distortion output pan) L63–0–R63 [2]
Adjust the stereo location of the distortion sound. L63 is far left, 0 is center, and R63 is far right.

DS Amp (Distortion amp simulator type) Small/BltIn/2-Stk/3-Stk [3]
Select the type of guitar amp.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

DS Amp Sw (Distortion amp switch) Off/On [4]
Turn DS Amp on/off.

FL Dly (Flanger pre delay) 0–100m [6]
Adjust the time delay from when the direct sound begins until the flanger sound is heard.

FL Rate (Flanger rate) 0.05–10.0 [7]
Adjust the modulation speed of the flanger effect.

FL Depth (Flanger depth) 0–127 [8]
Adjust the modulation depth of the flanger effect.

FL Fb (Flanger feedback level) -98%– +98% [9]
Adjust the proportion (%) of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.

#FL Bal (Flanger balance) D> 0E – D 0<E [10]
Adjust the volume balance between the sound which passes through the flanger and the sound which does not. With a setting of D>0E, only the distortion sound will be output, and with a setting of D 0<E, the distortion sound which passes through the flanger will be output.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

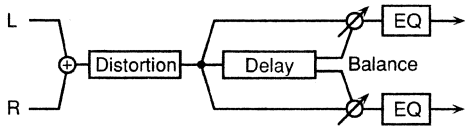
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

40: DS → Delay (Distortion → Delay) [02H, 05H]

This effect connects a distortion and a delay in series.



DS Drive (Distortion drive) 0–127 [1]
Adjust the degree of distortion. The volume will change together with the degree of distortion.

+DS Pan (Distortion output pan) L63–0–R63 [2]
Adjust the stereo location of the distortion sound. L63 is far left, 0 is center, and R63 is far right.

DS Amp (Distortion amp simulator type) Small/BltIn/2-Stk/3-Stk [3]
Select the type of guitar amp.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

DS Amp Sw (Distortion amp switch) Off/On [4]
Turn DS Amp on/off.

Dly Time (Delay time) 0–500m [6]
Adjust the time delay from when the direct sound begins until the delay sound is heard.

Dly Fb (Delay feedback level) -98%– +98% [7]
Adjust the proportion (%) of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.

Dly HF (Delay HF damp) 315–8k/Bypass [8]
Adjust the frequency above which delayed sound fed back to the effect will be cut. If you do not wish to cut the high frequencies of the feedback, set this parameter to Bypass.

#Dly Bal (Delay balance) D> 0E – D 0<E [10]
Adjust the volume balance between the sound which passes through the delay and the sound which does not. With a setting of D>0E, only the distortion sound will be output, and with a setting of D 0<E, the distortion sound which passes through the delay will be output. "D" and "E" respectively indicate D (dry sound) and E (effect sound) values of 100.

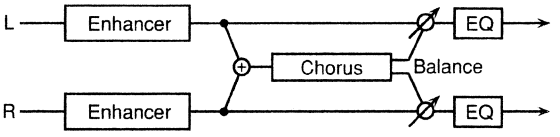
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

41: EH → Chorus (Enhancer → Chorus) [02H, 06H]

This effect connects an enhancer and a chorus in series.



+EH Sens (Enhancer sensitivity) 0–127 [1]
Adjust the sensitivity of the enhancer.

EH Mix (Enhancer mix level) 0–127 [2]
Adjust the ratio with which the overtones generated by the enhancer are combined with the direct sound.

Cho Dly (Chorus pre delay) 0–100m [6]
Adjust the time delay from when the direct sound begins until the chorus sound is heard.

Cho Rate (Chorus rate) 0.05–10.0 [7]
Adjust the modulation speed of the chorus effect.

Cho Depth (Chorus depth) 0–127 [8]
Adjust the modulation depth of the chorus effect.

#Cho Bal (Chorus balance) D> 0E – D 0<E [10]
Adjust the volume balance between the sound which passes through the chorus and the sound which does not. With a setting of D>0E, only the enhancer sound will be output, and with a setting of D 0<E, the enhancer sound which passes through the chorus will be output. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

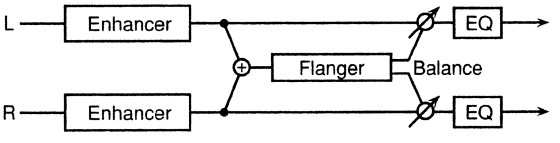
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

42: EH → Flanger (Enhancer → Flanger) [02H, 07H]

This effect connects an enhancer and a flanger in series.



+EH Sens (Enhancer sensitivity) 0–127 [1]
Adjust the sensitivity of the enhancer.

EH Mix (Enhancer mix level) 0–127 [2]
Adjust the ratio with which the overtones generated by the enhancer are combined with the direct sound.

FL Dly (Flanger pre delay) 0–100m [6]
Adjust the time delay from when the direct sound begins until the flanger sound is heard.

FL Rate (Flanger rate) 0.05–10.0 [7]
Adjust the modulation speed of the flanger effect.

FL Depth (Flanger depth) 0–127 [8]
Adjust the modulation depth of the flanger effect.

FL Fb (Flanger feedback level) -98%– +98% [9]
Adjust the proportion (%) of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.

#FL Bal (Flanger balance) D> 0E – D 0<E [10]
Adjust the volume balance between the sound which passes through the flanger and the sound which does not. With a setting of D>0E, only the enhancer sound will be output, and with a setting of D 0<E, the enhancer sound which passes through the flanger will be output.
"D" and "E" respectively indicate D (dry sound) and E (effect sound) values of 100.

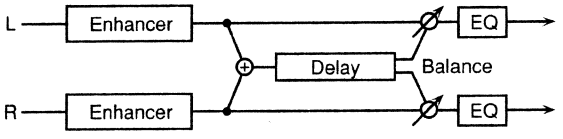
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

43: EH → Delay (Enhancer → Delay) [02H, 08H]

This effect connects an enhancer and a delay in series.



+EH Sens (Enhancer sensitivity) 0–127 [1]
Adjust the sensitivity of the enhancer.

EH Mix (Enhancer mix level) 0–127 [2]
Adjust the ratio with which the overtones generated by the enhancer are combined with the direct sound.

Dly Time (Delay time) 0–500m [6]
Adjust the time delay from when the direct sound begins until the delay sound is heard.

Dly Fb (Delay feedback level) -98%– +98% [7]
Adjust the proportion (%) of the delay sound that is fed back into the delay input. Negative (-) settings will invert the phase.

Dly HF (Delay HF damp) 315–8k/Bypass [8]
Adjust the frequency above which delayed sound fed back to the delay input will be cut. If you do not wish to cut the high frequencies of the delay feedback, set this parameter to Bypass.

#Dly Bal (Delay balance) D> 0E – D 0<E [10]
Adjust the volume balance between the sound which passes through the delay and the sound which does not. With a setting of D>0E, only the enhancer sound will be output, and with a setting of D 0<E, the enhancer sound which passes through the delay will be output.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

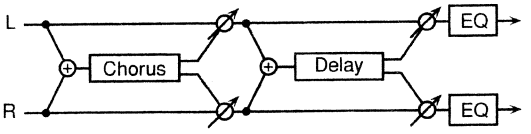
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

44: Cho → Delay (Chorus → Delay) [02H, 09H]

This effect connects a chorus and a delay unit in series.



Cho Dly (Chorus pre delay) 0–100m [1]
Adjust the time delay from when the direct sound begins until the chorus sound is heard.

Cho Rate (Chorus rate) 0.05–10.0 [2]
Adjust the modulation speed of the chorus effect.

Cho Depth (Chorus depth) 0–127 [3]
Adjust the modulation depth of the chorus effect.

+Cho Bal (Chorus balance) D> 0E – D 0<E [5]
Adjust the volume balance between the direct sound and the chorus sound. With a setting of "D> 0E," only the direct sound will be output. With a setting of "D 0<E," only the chorus sound will be output.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

Dly Time (Delay time) 0–500m [6]
Adjust the time delay from when the direct sound begins until the delay sound is heard.

Dly Fb (Delay feedback level) -98%– +98% [7]
Adjust the proportion (%) of the delay sound that is fed back into the delay input. Negative (-) settings will invert the phase.

Dly HF (Delay HF damp) 315–8k/Bypass [8]
Adjust the frequency above which delayed sound fed back to the delay input will be cut. If you do not wish to cut the high frequencies of the feedback, set this parameter to Bypass.

#Dly Bal (Delay balance) D> 0E – D 0<E [10]
Adjust the volume balance between the sound which passes through the delay and the sound which does not. With a setting of D>0E, only the chorus sound will be output, and with a setting of D 0<E, the chorus sound which passes through the delay will be output.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

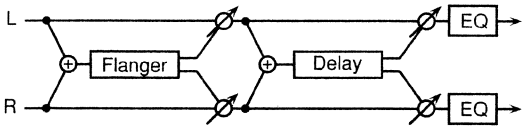
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

45: FL → Delay (Flanger → Delay) [02H, 0AH]

This effect connects a flanger and a delay in series.



FL Dly (Flanger pre delay) 0–100m [1]
Adjust the time delay from when the direct sound begins until the flanger sound is heard.

FL Rate (Flanger rate) 0.05–10.0 [2]
Adjust the modulation speed of the flanger effect.

FL Depth (Flanger depth) 0–127 [3]
Adjust the modulation depth of the flanger effect.

+FL Fb (Flanger feedback level) -98%– +98% [4]
Adjust the proportion (%) of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.

FL Bal (Flanger balance) D> 0E – D 0<E [5]
Adjust the volume balance between the direct sound and the flanger sound. With a setting of "D> 0E," only the direct sound will be output. With a setting of "D 0<E," only the flanger sound will be output.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

Dly Time (Delay time) 0–500m [6]
Adjust the time delay from when the direct sound begins until the delay sound is heard.

Dly Fb (Delay feedback level) -98%– +98% [7]
Adjust the proportion (%) of the delay sound that is fed back into the delay input. Negative (-) settings will invert the phase.

Dly HF (Delay HF damp) 315–8k/Bypass [8]
Adjust the frequency above which delayed sound fed back to the delay input will be cut. If you do not wish to cut the high frequencies of the delay feedback, set this parameter to Bypass.

#Dly Bal (Delay balance) D> 0E – D 0<E [10]
Adjust the volume balance between the sound which passes through the delay and the sound which does not. With a setting of D>0E, only the flanger sound will be output, and with a setting of D 0<E, the flanger sound which passes through the delay will be output.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

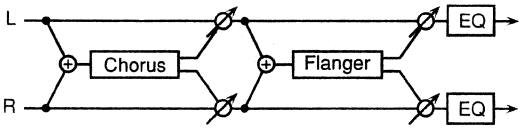
Low Gain -12– +12 [17]
Adjust the low frequency gain.

Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

46: Cho → Flanger (Chorus → Flanger) [02H, 0BH]

This effect connects a chorus and a flanger in series.



Cho Dly (Chorus pre delay) 0–100m [1]
Adjust the time delay from when the direct sound begins until the chorus sound is heard.

Cho Rate (Chorus rate) 0.05–10.0 [2]
Adjust the modulation speed of the chorus effect.

Cho Depth (Chorus depth) 0–127 [3]
Adjust the modulation depth of the chorus effect.

+Cho Bal (Chorus balance) D> 0E – D 0<E [5]
Adjust the volume balance between the direct sound and the chorus sound. With a setting of "D> 0E," only the direct sound will be output. With a setting of "D 0<E," only the chorus sound will be output.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

FL Dly (Flanger pre delay time) 0–100m [6]
Adjust the time delay from when the direct sound begins until the flanger sound is heard.

FL Rate (Flanger rate) 0.05–10.0 [7]
Adjust the modulation speed of the flanger effect.

FL Depth (Flanger depth) 0–127 [8]
Adjust the modulation depth of the flanger effect.

FL Fb (Flanger feedback level) -98%– +98% [9]
Adjust the proportion (%) of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.

#FL Bal (Flanger balance) D> 0E – D 0<E [10]
Adjust the volume balance between the sound which passes through the flanger and the sound which does not. With a setting of D>0E, only the chorus sound will be output, and with a setting of D 0<E, the chorus sound which passes through the flanger will be output.
"D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

Low Gain -12– +12 [17]
Adjust the low frequency gain.

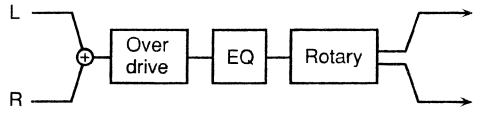
Hi Gain (High gain) -12– +12 [18]
Adjust the high frequency gain.

Level (Output level) 0–127 [20]
Adjust the output level.

■ Effects that connect three or more types of effect in series (series 3/4/5)

47: Rotary Multi [03H, 00H]

This connects Overdrive (OD), 3-band equalizer (EQ), and Rotary (RT) effects in series.



+OD Drive 0–127 [1]
Adjust the depth of distortion. The volume will change together with the depth of distortion.

OD Sw (Overdrive switch) Off/On [2]
Turn the Overdrive effect on/off.

EQ L Gain (EQ low gain) -12– +12 [3]
Adjust the low range gain of the equalizer.

EQ M Fq (EQ mid frequency) 200–6.3k [4]
Set the center frequency for the equalizer mid-range.

EQ M Q (EQ mid Q) 0.5/1.0/2.0/4.0/9.0 [5]
Adjust the width of the area centered at the EQ M Fq setting in which the gain will be affected. The area affected will become narrower as this value is increased.

EQ M Gain (EQ mid gain) -12– +12 [6]
Adjust the gain of the area specified by the EQ M Fq parameter and the EQ M Q parameter.

EQ H Gain (EQ high gain) -12– +12 [7]
Adjust the high-range gain of the equalizer.

<RT (Rotary)>

RT L Slow (RT low frequency slow rate) 0.05–10.0 [8]
Adjust the speed of the low-range rotor for the low-speed (Slow) setting.

RT L Fast (RT low frequency fast rate) 0.05–10.0 [9]
Adjust the speed of the low-range rotor for the high-speed (Fast) setting.

RT Lo Accl (RT low frequency accelaration) 0–15 [10]
Adjust the time over which the rotation speed of the low-range rotor will change from low-speed to high-speed (or high-speed to low-speed) rotation. Smaller values will require greater time to reach the new rotational speed.

RT Lo Lev (RT low frequency level) 0–127 [11]
Adjust the volume of the low-range rotor.

RT H Slow (RT high frequency slow rate) 0.05–10.0 [12]
Adjust the speed of the high-range rotor for the low-speed (Slow) setting.

RT H Fast (RT high frequency fast rate) 0.05–10.0 [13]
Adjust the speed of the high-range rotor for the high-speed (Fast) setting.

RT Hi Accl (RT high frequency accelaration) 0–15 [14]
Adjust the time over which the rotation speed of the high-range rotor will change from low-speed to high-speed (or high-speed to low-speed) rotation. Smaller values will require greater time to reach the new rotational speed.

RT Hi Lev (RT high frequency level) 0–127 [15]
Adjust the volume of the high-range rotor.

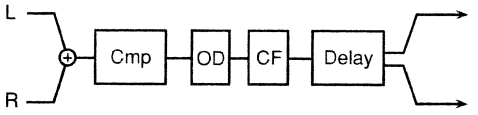
RT Sept (RT separation) 0–127 [16]
Adjust the spatial spread of the rotary sound.

#RT Speed Slow/Fast [17]
Simultaneously switch the rotational speed of both the low-range and the high-range rotors.
Slow: Slow down the rotation to the specified speeds (RT L Slow parameter/RT H Slow parameter values).
Fast: Speed up the rotation to the specified speeds (RT L Fast parameter/RT H Fast parameter values).

Level (Output level) 0–127 [20]
Adjust the output level.

48: GTR Multi 1 (Guitar Multi1) [04H, 00H]

Guitar Multi 1 connects Compressor (Cmp), Overdrive or Distortion (OD), Chorus or Flanger (CF), and Delay (Dly) effects in series.



<Cmp (Compressor)>

Cmp Atck (Compressor attack) 0–127 [1]
Adjust the time over which the sound will rise after input.

Cmp Sus (Compressor sustain) 0–127 [2]
Adjust the time over which low-level sounds are boosted until they reach a specified volume.
Increasing the value will shorten the time. When the value is modified, the level will also change.

Cmp Level (Compressor level) 0–127 [3]
Adjust the volume of the compressor sound.

Cmp Sw (Compressor switch) Off/On [4]
Turn the compressor on/off.

<OD (Overdrive/Distortion)>

OD Sel (OD select) Odrv/Dist [5]
Select either Overdrive or Distortion.

+OD Drive 0–127 [6]
Adjust the depth of distortion. The volume will change together with the depth of distortion.

OD Amp (OD amp simulator type) Small/BltIn/2-Stk/3-Stk [7]
Select the type of guitar amp.
Small: small amp
BltIn: single-unit type amp
2-Stk: large double stack amp
3-Stk: large triple stack amp

OD Amp Sw (OD amp switch) Off/On [8]
Turn OD Amp on/off.

OD L Gain (OD low gain) -12– +12 [9]
Adjust the low-range gain.

OD H Gain (OD high gain) -12– +12 [10]
Adjust the high-range gain.

OD Sw (OD switch) Off/On [11]
Turn Overdrive or Distortion on/off.

<CF (Chorus/Flanger)>

CF Sel (CF select) Chorus/Flangr [12]
Select either Chorus or Flanger.

CF Rate 0.05–6.40 [13]
Adjust the speed of modulation.

CF Depth 0–127 [14]
Adjust the depth of modulation.

CF Fb (CF feedback) -98%– +98% [15]
Adjust the amount (%) of the flanger sound that is returned to the input. Negative (-) values will invert the phase. In the case of Chorus, this will have no effect.

CF Mix 0–127 [16]
Adjust the volume of the chorus or flanger sound.

<Dly (Delay)>

Dly Time (Delay time) 0m–635m [17]
Adjust the time from the original sound until when the delay sound is heard.

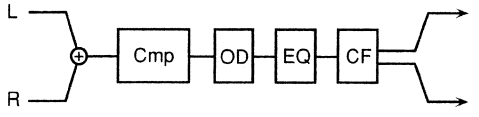
Dly Fb (Delay feedback level) 0–127 [18]
Adjust the amount of the delay sound that is returned to the input.

#Dly Mix (Delay mix) 0–127 [19]
Adjust the volume of the delay sound.

Level (Output level) 0–127 [20]
Adjust the output level.

49: GTR Multi 2 (Guitar Multi2) [04H, 01H]

Guitar Multi 2 provides Compressor (Cmp), Overdrive or Distortion (OD), Equalizer (EQ), and Chorus or Flanger (CF) effects connected in series.



<Cmp (Compressor)>

Cmp Atck (Compressor attack) 0–127 [1]
Adjust the time over which the sound will rise after it is input.

Cmp Sus (Compressor sustain) 0–127 [2]
Adjust the time over which low-level sounds are boosted until they reach a specified volume.
Increasing the value will shorten the time. When the value is modified, the level will also change.

Cmp Level (Compressor level) 0–127 [3]
Adjust the volume of the compressor sound.

Cmp Sw (Compressor switch) Off/On [4]
Turn the compressor on/off.

<OD (Overdrive/Distortion)>

OD Sel (OD select) Odrv/Dist [5]
Select either Overdrive or Distortion.

+OD Drive (OD drive) 0–127 [6]
Adjust the depth of distortion. The volume will change together with the depth of distortion.

OD Amp (OD amp simulator type) Small/BltIn/2-Stk/3-Stk [7]
Select the type of guitar amp.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

OD Amp Sw (OD amp switch) Off/On [8]
Turn OD Amp on/off.

OD Sw (OD switch) Off/On [9]
Turn Overdrive or Distortion on/off.

<EQ (Equalizer)>

EQ L Gain (EQ low gain) -12– +12 [10]
Adjust the low-range gain of the equalizer.

EQ M Fq (EQ mid frequency) 200–6.3k [11]
Set the center frequency for the equalizer mid-range.

EQ M Q (EQ mid Q) 0.5/1.0/2.0/4.0/9.0 [12]
Adjust the width of the area centered at the EQ M Fq setting in which the gain will be affected. The area affected will become narrower as this value is increased.

EQ M Gain (EQ mid gain) -12– +12 [13]
Adjust the gain of the area specified by the EQ M Fq parameter and the EQ M Q parameter.

EQ H Gain (EQ high gain) -12– +12 [14]
Adjust the high-range gain of the equalizer.

<CF (Chorus/Flanger)>

CF Sel (CF select) Chorus/Flangr [15]
Select either Chorus or Flanger.

CF Rate 0.05–6.40 [16]
Adjust the speed of modulation for the chorus or flanger.

CF Depth 0–127 [17]
Adjust the depth of modulation for the chorus or flanger.

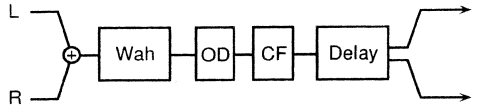
CF Fb (CF feedback) -98%– +98% [18]
Adjust the amount (%) of the flanger sound that will be returned to the input. Negative (-) values will invert the phase. In the case of Chorus, this will have no effect.

#CF Mix (CF mix) 0–127 [19]
Adjust the volume of the chorus or flanger sound.

Level (Output level) 0–127 [20]
Adjust the output level.

50: GTR Multi 3 (Guitar Multi3) [04H, 02H]

Guitar Multi 3 connects Wah (Wah), Overdrive or Distortion (OD), Chorus or Flanger (CF), and Delay (Dly) effects in series.



<Wah>

Wah Fil (Wah filter type) LPF/BPF [1]
Select the type of filter.
- LPF: The wah effect will be produced over a broad frequency range.
- BPF: The wah effect will be produced in a narrow frequency range.

+Wah Man (Wah manual) 0–127 [2]
Set the center frequency at which the effect will be produced.

Wah Peak 0–127 [3]
Adjust the way in which the wah effect will be applied to the region of the center frequency. Lower settings will produce a wah effect in a broad area around the center frequency, and higher settings will produce a wah effect in a narrower area around the center frequency.

Wah Sw (Wah switch) Off/On [4]
Turn Wah on/off.

<OD (Overdrive/Distortion)>

OD Sel (OD select) Odrv/Dist [5]
Select either Overdrive or Distortion.

#OD Drive 0–127 [6]
Adjust the depth of distortion. The volume will change together with the depth of distortion.

OD Amp (OD amp simulator type) Small/BltIn/2-Stk/3-Stk [7]
Select the type of bass amp.
- Small: small amp
- BltIn: single-unit type amp
- 2-Stk: large double stack amp
- 3-Stk: large triple stack amp

OD Amp Sw (OD amp switch) Off/On [8]
Turn OD Amp on/off.

OD L Gain (OD low gain) -12– +12 [9]
Adjust the low-range gain for the overdrive (or distortion) sound.

OD H Gain (OD high gain) -12– +12 [10]
Adjust the high-range gain for the overdrive (or distortion) sound.

OD Sw (OD switch) Off/On [11]
Turn overdrive or distortion on/off.

<CF (Chorus/Flanger)>

CF Sel (CF select) Chorus/Flangr [12]
Select either Chorus or Flanger.

CF Rate 0.05–6.40 [13]
Adjust the modulation speed for the chorus or flanger.

CF Depth 0–127 [14]
Adjust the modulation depth for the chorus or flanger.

CF Fb (CF feedback) -98%– +98% [15]
Adjust the amount (%) of the flanger sound that is returned to the input. Negative (-) values will invert the phase. In the case of Chorus, this will have no effect.

CF Mix 0–127 [16]
Adjust the volume of the chorus or flanger sound.

<Dly (Delay)>

Dly Time (Delay time) 0m–635m [17]
Adjust the time from the original sound until when the delay sound is heard.

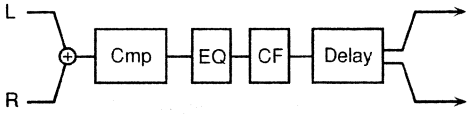
Dly Fb (Delay feedback level) 0–127 [18]
Adjust the amount of the delay sound that is returned to the input.

Dly Mix (Delay mix) 0–127 [19]
Adjust the volume of the delay sound.

Level (Output level) 0–127 [20]
Adjust the output level.

51: Clean Gt Multi1 (Clean Guitar Multi1) [04H, 03H]

Clean Guitar Multi 1 connects Compressor (Cmp), Equalizer (EQ), Chorus or Flanger (CF), and Delay (Dly) effects in series.



<Cmp (Compressor)>

Cmp Atck (Compressor attack) 0–127 [1]
Adjust the time over which the sound will rise after it is input.

Cmp Sus (Compressor sustain) 0–127 [2]
Adjust the time over which low-level sounds are boosted until they reach a specified volume.
Increasing the value will shorten the time. When the value is modified, the level will also change.

Cmp Level (Compressor level) 0–127 [3]
Adjust the volume of the compressor sound.

Cmp Sw (Compressor switch) Off/On [4]
Turn the compressor on/off.

<EQ (Equalizer)>

EQ L Gain (EQ low gain) -12– +12 [5]
Adjust the low-range gain of the equalizer.

EQ M Fq (EQ mid frequency) 200–6.3k [6]
Set the center frequency for the equalizer mid-range.

EQ M Q (EQ mid Q) 0.5/1.0/2.0/4.0/9.0 [7]
Adjust the width of the area centered at the EQ M Fq setting in which the gain will be affected. The area affected will become narrower as this value is increased.

EQ M Gain (EQ mid gain) -12– +12 [8]
Adjust the gain of the area specified by the EQ M Fq parameter and the EQ M Q parameter.

EQ H Gain (EQ high gain) -12– +12 [9]
Adjust the high-range gain of the equalizer.

<CF (Chorus/Flanger)>

CF Sel (CF select) Chorus/Flangr [10]
Select either Chorus or Flanger.

CF Rate 0.05–6.40 [11]
Adjust the speed of modulation for the chorus or flanger.

CF Depth 0–127 [12]
Adjust the depth of modulation for the chorus or flanger.

CF Fb (CF feedback) -98%– +98% [13]
Adjust the amount (%) of the flanger sound that will be returned to the input. Negative (-) values will invert the phase. In the case of Chorus, this will have no effect.

+CF Mix (CF mix) 0–127 [14]
Adjust the volume of the chorus or flanger sound.

<Dly (Delay)>

Dly Time (Delay time) 0m–635m [15]
Adjust the time from the original sound until when the delay sound is heard.

Dly Fb (Delay feedback level) 0–127 [16]
Adjust the amount of the delay sound that is returned to the input.

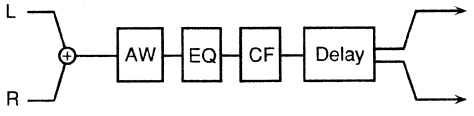
Dly HF (Delay HF dump) 315-8k/Bypass[17]
Adjust the frequency at which the high range will be cut from the delay sound that is returned to the input. If you do not wish to cut the high range of the returned sound, select Bypass.

#Dly Mix (Delay mix) 0–127 [18]
Adjust the volume of the delay sound.

Level (Output level) 0–127 [20]
Adjust the output level.

52: Clean Gt Multi2 (Clean Guitar Multi2) [04H, 04H]

Clean Guitar Multi 2 provides Auto-wah (AW), Equalizer (EQ), Chorus or Flanger (CF), and Delay (Dly) effects connected in series.



<AW (Auto-wah)>

AW Filter (Auto-wah filter type) LPF/BPF [1]
Select the type of filter for the auto-wah.

LPF:	The wah effect will be produced over a broad frequency range.
BPF:	The wah effect will be produced over a narrow frequency range.

+AW Man (Auto-wah manual) 0–127 [2]
Set the center frequency at which the auto-wah effect will be produced.

AW Peak (Auto-wah peak) 0–127 [3]
Adjust the way in which the wah effect will be applied to the region of the center frequency. Lower settings will produce a wah effect in a broad area around the center frequency, and higher settings will produce a wah effect in a narrower area around the center frequency.

AW Rate (Auto-wah rate) 0.05–6.40 [4]
Adjust the modulation speed of the auto-wah.

AW Depth (Auto-wah depth) 0–127 [5]
Adjust the modulation depth of the auto-wah.

AW Sw (Auto-wah switch) Off/On [6]
Turn Auto-wah on/off.

<EQ (Equalizer)>

EQ L Gain (EQ low gain) -12– +12 [7]
Adjust the low-range gain of the equalizer.

EQ M Fq (EQ mid frequency) 200–6.3k [8]
Set the center frequency for the equalizer mid-range.

EQ M Q (EQ mid Q) 0.5/1.0/2.0/4.0/9.0 [9]
Adjust the width of the area centered at the EQ M Fq setting in which the gain will be affected. The area affected will become narrower as this value is increased.

EQ M Gain (EQ mid gain) -12– +12 [10]
Adjust the gain of the area specified by the EQ M Fq parameter and the EQ M Q parameter.

EQ H Gain (EQ high gain) -12– +12 [11]
Adjust the high-range gain of the equalizer.

<CF (Chorus/Flanger)>

CF Sel (CF select) Chorus/Flangr [12]
Select either Chorus or Flanger.

CF Rate 0.05–6.40 [13]
Adjust the speed of modulation for the chorus or flanger.

CF Depth 0–127 [14]
Adjust the depth of modulation for the chorus or flanger.

CF Fb (CF feedback) -98%– +98% [15]
Adjust the amount (%) of the flanger sound that will be returned to the input. Negative (-) values will invert the phase. In the case of Chorus, this will have no effect.

CF Mix 0–127 [16]
Adjust the volume of the chorus or flanger sound.

<Dly (Delay)>

Dly Time (Delay time) 0m–635m [17]
Adjust the time from the original sound until when the delay sound is heard.

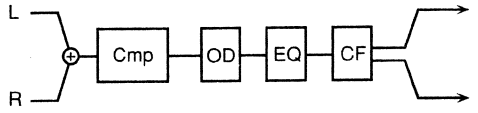
Dly Fb (Delay feedback level) 0–127 [18]
Adjust the amount of the delay sound that is returned to the input.

#Dly Mix (Delay mix) 0–127 [19]
Adjust the volume of the delay sound.

Level (Output level) 0–127 [20]
Adjust the output level.

53: Bass Multi [04H, 05H]

Bass Multi provides Compressor (Cmp), Overdrive or Distortion (OD), Equalizer (EQ), and Chorus or Flanger (CF) effects connected in series.



<Cmp (Compressor)>

Cmp Atck (Compressor attack) 0–127 [1]
Adjust the time over which the sound will rise after it is input.

Cmp Sus (Compressor sustain) 0–127 [2]
Adjust the time over which low-level sounds are boosted until they reach a specified volume. Increasing the value will shorten the time. When the value is modified, the level will also change.

Cmp Level (Compressor level) 0–127 [3]
Adjust the volume of the compressor sound.

Cmp Sw (Compressor switch) Off/On [4]
Turn the compressor on/off.

<OD (Overdrive/Distortion)>

OD Sel (OD select) Odrv/Dist [5]
Select either bass guitar Overdrive or Distortion.

+OD Drive (OD drive) 0–127 [6]
Adjust the depth of distortion. The volume will change together with the depth of distortion.

OD Amp (OD amp simulation type) Small/Bltln/2-Stk [7]
Select the type of guitar amp.

Small:	small amp
Bltln:	single-unit type amp
2-Stk:	large double stack amp

OD Amp Sw (OD amp switch) Off/On [8]
Turn OD Amp on/off.

OD Sw (OD switch) Off/On [9]
Turn Overdrive/Distortion on/off.

<EQ (Equalizer)>

EQ L Gain (EQ low gain) -12– +12 [10]
Adjust the low-range gain of the equalizer.

EQ M Fq (EQ mid frequency) 200–6.3k [11]
Set the center frequency for the equalizer mid-range.

EQ M Q (EQ mid Q) 0.5/1.0/2.0/4.0/9.0 [12]
Adjust the width of the area centered at the EQ M Fq setting in which the gain will be affected. The area affected will become narrower as this value is increased.

EQ M Gain (EQ mid gain) -12– +12 [13]
Adjust the gain of the area specified by the EQ M Fq parameter and the EQ M Q parameter.

EQ H Gain (EQ high gain) -12– +12 [14]
Adjust the high-range gain of the equalizer.

<CF (Chorus/Flanger)>

CF Sel (CF select) Chorus/Flangr [15]
Select either Chorus or Flanger.

CF Rate 0.05–6.40 [16]
Adjust the speed of modulation for the chorus or flanger.

CF Depth 0–127 [17]
Adjust the depth of modulation for the chorus or flanger.

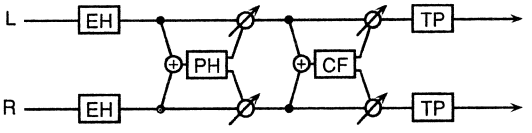
CF Fb (CF feedback level) -98%– +98% [18]
Adjust the amount (%) of the flanger sound that will be returned to the input. Negative (-) values will invert the phase. In the case of Chorus, this will have no effect.

#CF Mix 0–127 [19]
Adjust the volume of the chorus or flanger sound.

Level (Output level) 0–127 [20]
Adjust the output level.

54: Rhodes Multi [04H, 06H]

Rhodes Multi provides Enhancer (EH), Phaser (PH), Chorus or Flanger (CF), and Tremolo or Pan (TP) effects connected in series.



<EH (Enhancer)>

EH Sens (Enhancer sensitivity) 0–127 [1]
Adjust the depth of the enhancer.

EH Mix (Enhancer mix level) 0–127 [2]
Adjust the level at which the overtones generated by the enhancer will be mixed with the direct sound.

<PH (Phaser)>

PH Man (Phaser manual) 100–8.0k [3]
Adjust the center frequency at which the sound will be modulated.

PH Rate (Phaser rate) 0.05–6.40 [4]
Adjust the modulation speed.

PH Depth (Phaser depth) 0–127 [5]
Adjust the modulation depth.

PH Reso (Phaser resonance) 0–127 [6]
Adjust the emphasis for the region around the center frequency specified by the PH Man parameter.

PH Mix (Phaser mix) 0–127 [7]
Adjust the proportion of the phase-shifted sound that will be mixed with the direct sound.

<CF (Chorus/Flanger)>

CF Sel (CF select) Chorus/Flangr [8]
Select either Chorus or Flanger.

CF LPF (CF low pass filter) 250–6.3k/Bypass [9]
Cut the high frequency range of the chorus or flanger sound.

CF Dly (CF pre delay) 0–100m [10]
Adjust the time from the direct sound until when the chorus or flanger sound is heard.

CF Rate 0.05–6.40 [11]
Adjust the modulation speed.

CF Depth 0–127 [12]
Adjust the modulation depth.

CF Fb (CF feedback level) -98%– +98% [13]
Adjust the amount (%) of the flanger sound that will be returned to the input. Negative (-) values will invert the phase. In the case of Chorus, this will have no effect.

CF Mix 0–127 [14]
Adjust the volume of the effect sound.

<TP (Tremolo/Pan)>

TP Sel (TP select) Trem/Pan [15]
Select either Tremolo or Pan.

TP Mod WV (TP modulation wave) Tri/Sqr/Sin/Saw1/Saw2 [16]
Select the way in which tremolo or pan will be modulated.

- Tri: The sound will be modulated like a triangle wave.
- Sqr: The sound will be modulated like a square wave.
- Sin: The sound will be modulated like a sine wave.
- Saw1,2: The sound will be modulated like a sawtooth wave. The "teeth" in Saw1 and Saw2 point in opposite directions.

+TP Mod RT (TP modulation rate) 0.05–6.40 [17]
Adjust the modulation speed.

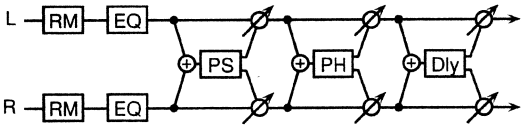
#TP Mod Dep (TP modulation depth) 0–127 [18]
Adjust the modulation depth.

TP Sw (TP switch) Off/On [19]
Turn tremolo or pan on/off.

Level (Output level) 0–127 [20]
Adjust the output level.

55: Keyboard Multi [05H, 00H]

Keyboard Multi provides Ring Modulator (RM), Equalizer (EQ), Pitch Shifter (PS), Phaser (PH) and Delay (Dly) effects connected in series.
Ring Modulator is an effect which applies amplitude modulation (AM) to the input signal, producing bell-like sounds.



<RM (Ring Modulator)>

+RM Mod Freq (RM modulation frequency) 0–127 [1]
Set the frequency at which modulation will be applied.

#RM Bal (RM balance) D> 0E – D 0<E [2]
Adjust the balance between the direct and the ring modulated sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

<EQ (Equalizer)>

EQ L Gain (EQ low gain) -12– +12 [3]
Adjust the low range gain of the equalizer.

EQ M Fq (EQ mid frequency) 200–6.3k [4]
Set the center frequency for the equalizer mid-range.

EQ M Q (EQ mid Q) 0.5/1.0/2.0/4.0/9.0 [5]
Adjust the width of the area centered at the EQ M Fq setting in which the gain will be affected. The area affected will become narrower as this value is increased.

EQ M Gain (EQ mid gain) -12– +12 [6]
Adjust the gain of the area specified by the EQ M Fq parameter and the EQ M Q parameter.

EQ H Gain (EQ high gain) -12– +12 [7]
Adjust the high-range gain of the equalizer.

<PS (Pitch Shifter)>

PS Coarse (PS coarse pitch) -24–0– +12 [8]
Adjust the amount of pitch shift in semitone steps (-2 to +1 octaves).

PS Fine (PS fine pitch) -100–0– +100 [9]
Make fine adjustments to the pitch shift in 2-cent steps (-100 to +100 cents).

PS Mode (PS shifter mode) 1–5 [10]
As this value is increased, the response will become slower but the sound will be more stable.

PS Bal (PS balance) D> 0E – D 0<E [11]
Adjust the volume balance between the direct and the pitch shifted sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

<PH (Phaser)>

PH Man (Phaser manual) 100–8.0k [12]
Set the center frequency at which the phaser sound will be modulated.

PH Rate (Phaser rate) 0.05–6.40 [13]
Adjust the modulation speed of the phaser.

PH Depth (Phaser depth) 0–127 [14]
Adjust the modulation depth of the phaser.

PH Reso (Phaser resonance) 0–127 [15]
Adjust the emphasis for the region in the area of the center frequency specified by the PH Man parameter.

PH Mix (Phaser mix) 0–127 [16]
Adjust the proportion at which the phase-shifted sound will be mixed with the original sound.

<Dly (Delay)>

Dly Time (Delay time) 0m–635m [17]
Adjust the time from the original sound until when the delay sound is heard.

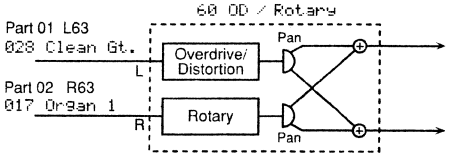
Dly Fb (Delay feedback level) 0–127 [18]
Adjust the amount of the delay sound that is returned to the input.

Dly Mix (Delay mix level) 0–127 [19]
Adjust the proportion at which the delay sound is mixed with the direct sound.

Level (Output level) 0–127 [20]
Adjust the output level.

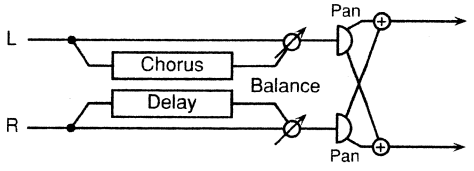
■ Effects that connect two types of effect in parallel (parallel 2)

Effect types in which two different effects are connected in parallel allow you to apply different effects to L and R independently. By using parallel effects for the sound of two Parts, you can achieve a result as if two separate effect units were used.
For example you might select a guitar sound for Part 1 and an organ sound for Part 2. Then set the pan setting to L63 (far left) for Part 1, and to R63 (far right) for Part 2. Apply the effect "60: OD/Rotary" to both Parts 1 and 2. By then making appropriate settings for the "OD Pan" and "RT Pan" effect parameters, you can apply Overdrive to the guitar sound and Rotary to the organ sound, effectively allowing you to use two separate effects at once.



56: Cho/Delay (Chorus/Delay) [11H, 00H]

This effect connects a chorus and a delay in parallel.



Cho Dly (Chorus pre delay) 0–100m [1]
Adjust the time delay from when the direct sound begins until the chorus sound is heard.

Cho Rate (Chorus rate) 0.05–10.0 [2]
Adjust the modulation speed of the chorus effect.

Cho Depth (Chorus depth) 0–127 [3]
Adjust the modulation depth of the chorus effect.

+Cho Bal (Chorus balance) D> 0E – D 0<E [5]
Adjust the volume balance between the direct and the chorus sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

Cho Pan (Chorus output pan) L63–0–R63 [16]
Adjust the stereo position of the chorus sound. L63 is far left, 0 is center, and R63 is far right.

Cho Level (Chorus level) 0–127 [17]
Adjust the volume of the chorus sound.

Dly Time (Delay time) 0–500m [6]
Adjust the time delay from when the direct sound begins until the delay sound is heard.

Dly Fb (Delay feedback level) -98%– +98% [7]
Adjust the proportion (%) of the delay sound that is fed back into the delay input. Negative (-) settings will invert the phase.

Dly HF (Delay HF damp) 315–8k/Bypass [8]
Adjust the frequency above which delayed sound fed back to the delay input will be cut. If you do not wish to cut the high frequencies of the feedback, set this parameter to Bypass.

#Dly Bal (Delay balance) D> 0E – D 0<E [10]
Adjust the volume balance between the direct and the delay sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

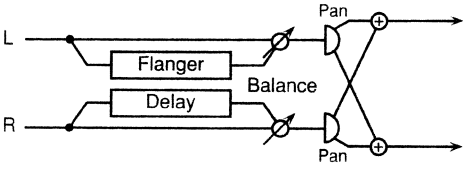
Dly Pan (Delay output pan) L63–0–R63 [18]
Adjust the stereo position of the delay sound. L63 is far left, 0 is center, and R63 is far right.

Dly Level (Delay level) 0–127 [19]
Adjust the volume of the delay sound.

Level (Output level) 0–127 [20]
Adjust the output level.

57: FL/Delay (Flanger/Delay) [11H, 01H]

This effect connects a flanger and a delay in parallel.



FL Dly (Flanger pre delay) 0–100m [1]
Adjust the time delay from when the direct sound begins until the flanger sound is heard.

FL Rate (Flanger rate) 0.05–10.0 [2]
Adjust the modulation speed of the flanger effect.

FL Depth (Flanger depth) 0–127 [3]
Adjust the modulation depth of the flanger effect.

FL Fb (Flanger feedback level) -98%– +98% [4]
Adjust the proportion (%) of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.

+FL Bal (Flanger balance) D> 0E – D 0<E [5]
Adjust the volume balance between the direct and the flanger sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

FL Pan (Flanger output pan) L63–0–R63 [16]
Adjust the stereo position of the flanger sound. L63 is far left, 0 is center, and R63 is far right.

FL Level (Flanger level) 0–127 [17]
Adjust the volume of the flanger sound.

Dly Time (Delay time) 0–500m [6]
Adjust the time delay from when the direct sound begins until the delay sound is heard.

Dly Fb (Delay feedback level) -98%– +98% [7]
Adjust the proportion (%) of the delay sound that is fed back into the delay input. Negative (-) settings will invert the phase.

Dly HF (Delay HF damp) 315–8k/Bypass [8]
Adjust the frequency above which delayed sound fed back to the delay input will be cut. If you do not want to cut the high frequencies of the delay feedback, set this parameter to Bypass.

#Dly Bal (Delay balance) D> 0E – D 0<E [10]
Adjust the volume balance between the direct and the delay sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

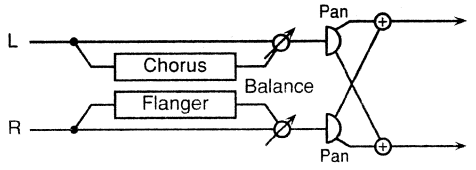
Dly Pan (Delay output pan) L63–0–R63 [18]
Adjust the stereo position of the delay sound. L63 is far left, 0 is center, and R63 is far right.

Dly Level (Delay level) 0–127 [19]
Adjust the volume of the delay sound.

Level (Output level) 0–127 [20]
Adjust the output level.

58: Cho/Flanger (Chorus/Flanger) [11H, 02H]

This effect connects a chorus and a flanger in parallel.



Cho Dly (Chorus pre delay) 0–100m [1]
Adjust the time delay from when the direct sound begins until the chorus sound is heard.

Cho Rate (Chorus rate) 0.05–10.0 [2]
Adjust the modulation speed of the chorus effect.

Cho Depth (Chorus depth) 0–127 [3]
Adjust the modulation depth of the chorus effect.

+Cho Bal (Chorus balance) D> 0E – D 0<E [5]
Adjust the volume balance between the direct and the chorus sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

Cho Pan (Chorus output pan) L63–0–R63 [16]
Adjust the stereo position of the chorus sound. L63 is far left, 0 is center, and R63 is far right.

Cho Level (Chorus level) 0–127 [17]
Adjust the volume of the chorus sound.

FL Dly (Flanger pre delay) 0–100m [6]
Adjust the time delay from when the direct sound begins until the flanger sound is heard.

FL Rate (Flanger rate) 0.05–10.0 [7]
Adjust the modulation speed of the flanger effect.

FL Depth (Flanger depth) 0–127 [8]
Adjust the modulation depth of the flanger effect.

FL Fb (Flanger feedback level) -98%– +98% [9]
Adjust the proportion (%) of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.

#FL Bal (Flanger balance) D> 0E – D 0<E [10]
Adjust the volume balance between the direct and the flanger sound. "D" or "E" on the display respectively means D (direct sound) or E (effect sound) values of 100.

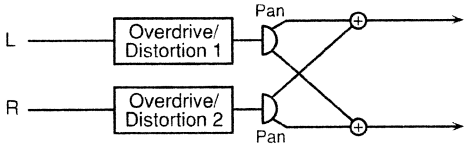
FL Pan (Flanger output pan) L63–0–R63 [18]
Adjust the stereo position of the flanger sound. L63 is far left, 0 is center, and R63 is far right.

FL Level (Flanger level) 0–127 [19]
Adjust the volume of the flanger sound.

Level (Output level) 0–127 [20]
Adjust the output level.

59: OD1/OD2 (Overdrive/Distortion1,2) [11H, 03H]

This connects two effect units in parallel, each of which allows you to select Overdrive or Distortion.



<OD1 (Overdrive/Distortion 1)>

OD1 Sel (OD1 select) Odrv/Dist [1]
Select either Overdrive or Distortion for set 1.

+OD1 Drive (OD1 drive) 0–127 [2]
Adjust the depth of distortion for set 1. The volume will change together with the depth of distortion.

OD1 Amp (OD1 amp simulator type) Small/BltIn/2-Stk/3-Stk [3]
Select the type of guitar amp for set 1.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

OD1 Amp Sw (OD1 amp switch) Off/On [4]
Turn OD1 Amp on/off.

OD1 Pan (OD1 output pan) L63–0–R63 [16]
Set the stereo location of the overdrive or distortion sound for set 1. L63 is far left, 0 is center, and R63 is far right.

OD1 Level 0–127 [17]
Adjust the overdrive or distortion volume for set 1.

<OD2 (Overdrive/Distortion 2)>

OD2 Sel (OD2 select) Odrv/Dist [6]
Select either Overdrive or Distortion for set 2.

#OD2 Drive (OD2 drive) 0–127 [7]
Adjust the depth of distortion for set 2. The volume will change together with the depth of distortion.

OD2 Amp (OD2 amp simulator type) Small/BltIn/2-Stk/3-Stk [8]
Select the type of guitar amp for set 2.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

OD2 Amp Sw (OD2 amp switch) Off/On [9]
Turn OD2 Amp on/off.

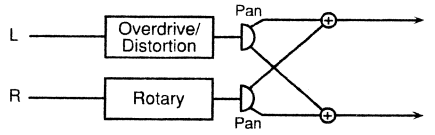
OD2 Pan (OD2 output pan) L63–0–R63 [18]
Set the stereo location of the overdrive or distortion sound for set 2. L63 is far left, 0 is center, and R63 is far right.

OD2 Level 0–127 [19]
Adjust the overdrive or distortion volume for set 2.

Level (Output level) 0–127 [20]
Adjust the output level.

60: OD/Rotary (Overdrive/Distortion, Rotary) [11H, 04H]

This connects Overdrive or Distortion in parallel with Rotary.



<OD (Overdrive/Distortion)>

OD Sel (OD select) Odrv/Dist [1]
Select either Overdrive or Distortion.

+OD Drive (OD drive) 0–127 [2]
Adjust the depth of overdrive or distortion. The volume will change together with the depth of distortion.

OD Amp (OD amp simulator type) Small/BltIn/2-Stk/3-Stk [3]
Select the type of guitar amp for overdrive or distortion.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

OD Amp Sw (OD amp switch) Off/On [4]
Turn the OD Amp parameter on/off.

OD Pan (OD output pan) L63–0–R63 [16]
Set the stereo location of the overdrive or distortion sound. L63 is far left, 0 is center, and R63 is far right.

OD Level 0–127 [17]
Adjust the volume of the overdrive or distortion sound.

<RT (Rotary)>

RT L Slow (RT low frequency slow rate) 0.05–10.0 [6]
Adjust the speed of the low-range rotor for the low-speed (Slow) setting.

RT L Fast (RT low frequency fast rate) 0.05–10.0 [7]
Adjust the speed of the low-range rotor for the high-speed (Fast) setting.

RT Lo Accl (RT low frequency acceleration) 0–15 [8]
Adjust the time over which the rotation speed of the low-range rotor will change from low-speed to high-speed (or high-speed to low-speed) rotation. Smaller values will require greater time to reach the new rotational speed.

RT Lo Lev (RT low frequency level) 0–127 [9]
Adjust the volume of the low-range rotor.

RT H Slow (RT high frequency slow rate) 0.05–10.0 [10]
Adjust the speed of the high-range rotor for the low-speed (Slow) setting.

RT H Fast (RT high frequency fast rate) 0.05–10.0 [11]
Adjust the speed of the high-range rotor for the high-speed (Fast) setting.

RT Hi Accl (RT high frequency acceleration) 0–15 [12]
Adjust the time over which the rotation speed of the high-range rotor will change from low-speed to high-speed (or high-speed to low-speed) rotation. Smaller values will require greater time to reach the new rotational speed.

RT Hi Lev (RT high frequency level) 0–127 [13]
Adjust the volume of the high-range rotor.

RT Sept (RT separation) 0–127 [14]
Adjust the spatial spread of the rotary sound.

#RT Speed Slow/Fast [15]
Simultaneously switch the rotational speed of both the low-range and the high-range rotors.

Slow:	Slow down the rotation to the specified speeds (RT L Slow parameter/RT H Slow parameter values).
Fast:	Speed up the rotation to the specified speeds (RT L Fast parameter/RT H Fast parameter values).

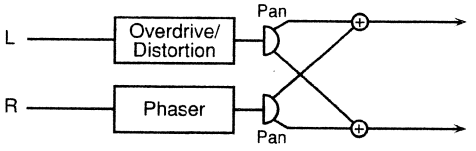
RT Pan (RT output pan) L63–0–R63 [18]
Adjust the stereo position of the rotary sound. L63 is far left, 0 is center, and R63 is far right.

RT Level 0–127 [19]
Adjust the volume of the rotary sound.

Level (output level) 0–127 [20]
Adjust the output level.

61: OD/Phaser (Overdrive/Distortion, Phaser) [11H, 05H]

This connects an overdrive or distortion in parallel with a phaser.



<OD (Overdrive/Distortion)>

OD Sel (OD select) Odrv/Dist [1]
Select either Overdrive or Distortion.

+OD Drive (OD drive) 0–127 [2]
Adjust the depth of distortion. The volume will change together with the depth of distortion.

OD Amp (OD Amp Simulator Type) Small/BltIn/2-Stk/3-Stk [3]
Select the type of guitar amp.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

OD Amp Sw (OD amp switch) Off/On [4]
Turn the OD Amp parameter on/off.

OD Pan (OD output pan) L63–0–R63 [16]
Set the stereo location of the overdrive or distortion sound. L63 is far left, 0 is center, and R63 is far right.

OD Level 0–127 [17]
Adjust the overdrive or distortion volume.

<PH (Phaser)>

PH Man (Phaser manual) 100–8.0k [6]
Adjust the center frequency at which the sound will be modulated.

#PH Rate (Phaser rate) 0.05–10.0 [7]
Adjust the modulation speed.

PH Depth (Phaser depth) 0–127 [8]
Adjust the modulation depth.

PH Reso (Phaser resonance) 0–127 [9]
Adjust the emphasis for the region around the center frequency specified by the PH Man parameter.

PH Mix (Phaser mix level) 0–127 [10]
Adjust the proportion of the phase-shifted sound that will be mixed with the direct sound.

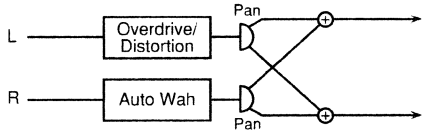
PH Pan (Phaser output pan) L63–0–R63 [18]
Set the stereo location of the phaser sound. L63 is far left, 0 is center, and R63 is far right.

PH Level 0–127 [19]
Adjust the volume of the phaser sound.

Level (Output level) 0–127 [20]
Adjust the output level.

62: OD/AutoWah (Overdrive/Distortion, Auto-wah)[11H, 06H]

This connects an Overdrive or Distortion in parallel with an Auto-wah.



<OD (Overdrive/Distortion)>

OD Sel (OD select) Odrv/Dist [1]
Select either Overdrive or Distortion.

+OD Drive (OD drive) 0–127 [2]
Adjust the depth of overdrive or distortion. The volume will change together with the depth of distortion.

OD Amp (OD amp simulator type) Small/BltIn/2-Stk/3-Stk [3]
Select the type of guitar amp for overdrive or distortion.

Small:	small amp
BltIn:	single-unit type amp
2-Stk:	large double stack amp
3-Stk:	large triple stack amp

OD Amp Sw (OD amp switch) Off/On [4]
Turn the OD Amp parameter on/off.

OD Pan (OD output pan) L63–0–R63 [16]
Set the stereo location of the overdrive or distortion sound. L63 is far left, 0 is center, and R63 is far right.

OD Level (OD level) 0–127 [17]
Adjust the volume of the overdrive or distortion sound.

<AW (Auto-wah)>

AW Filter (Auto-wah filter type) LPF/BPF [6]
Select the type of filter for the auto-wah.

LPF:	The wah effect will be produced over a broad frequency range.
BPF:	The wah effect will be produced over a narrow frequency range.

AW Sens (Auto-wah sensitivity) 0–127 [7]
Adjust the sensitivity with which the auto-wah filter will be controlled.

#AW Man (Auto-wah manual) 0–127 [8]
Set the center frequency at which the auto-wah effect will be produced.

AW Peak (Auto-wah peak) 0–127 [9]
Adjust the way in which the wah effect will be applied to the region of the center frequency. Lower settings will produce a wah effect in a broad area around the center frequency, and higher settings will produce a wah effect in a narrower area around the center frequency.

AW Rate (Auto-wah rate) 0.05–10.0 [10]
Adjust the modulation speed of the auto-wah.

AW Depth (Auto-wah depth) 0–127 [11]
Adjust the modulation depth of the auto-wah.

AW Pol (Auto-wah polarity) Down/Up [12]
Set the direction in which the frequency will change when the auto-wah filter is modulated. With a setting of Up, the filter will change toward a higher frequency. With a setting of Down, it will change toward a lower frequency.

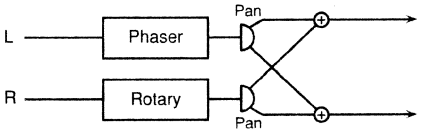
AW Pan (Auto-wah output pan) L63–0–R63 [18]
Adjust the stereo position of the auto-wah sound. L63 is far left, 0 is center, and R63 is far right.

AW Level (Auto-wah level) 0–127 [19]
Adjust the volume of the auto-wah sound.

Level (Output level) 0–127 [20]
Adjust the output level.

63: PH/Rotary (Phaser, Rotary) [11H, 07H]

This connects a Phaser effect in parallel with a Rotary effect.



<PH (Phaser)>

PH Man (Phaser manual) 100–8.0k [1]
Adjust the center frequency at which the sound will be modulated.

+PH Rate (Phaser rate) 0.05–10.0 [2]
Adjust the modulation speed of the phaser.

PH Depth (Phaser depth) 0–127 [3]
Adjust the modulation depth of the phaser.

PH Reso (Phaser resonance) 0–127 [4]
Adjust the emphasis for the region around the center frequency specified by the PH Man parameter.

PH Mix (Phaser mix level) 0–127 [5]
Adjust the proportion of the phase-shifted sound that will be mixed with the direct sound.

PH Pan (Phaser output pan) L63–0–R63 [16]
Set the stereo location of the phaser sound. L63 is far left, 0 is center, and R63 is far right.

PH Level (Phaser level) 0–127 [17]
Adjust the volume of the phaser sound.

<RT (Rotary)>

RT L Slow (RT low frequency slow rate) 0.05–10.0 [6]
Adjust the speed of the low-range rotor for the low-speed (Slow) setting.

RT L Fast (RT low frequency fast rate) 0.05–10.0 [7]
Adjust the speed of the low-range rotor for the high-speed (Fast) setting.

RT Lo Accl (RT low frequency acceleration) 0–15 [8]
Adjust the time over which the rotation speed of the low-range rotor will change from low-speed to high-speed (or high-speed to low-speed) rotation. Smaller values will require greater time to reach the new rotational speed.

RT Lo Lev (RT low frequency level) 0–127 [9]
Adjust the volume of the low-range rotor.

RT H Slow (RT high frequency slow rate) 0.05–10.0 [10]
Adjust the speed of the high-range rotor for the low-speed (Slow) setting.

RT H Fast (RT high frequency fast rate) 0.05–10.0 [11]
Adjust the speed of the high-range rotor for the high-speed (Fast) setting.

RT Hi Accl (RT high frequency acceleration) 0–15 [12]
Adjust the time over which the rotation speed of the high-range rotor will change from low-speed to high-speed (or high-speed to low-speed) rotation. Smaller values will require greater time to reach the new rotational speed.

RT Hi Lev (RT high frequency level) 0–127 [13]
Adjust the volume of the high-range rotor.

RT Sept (RT separation) 0–127 [14]
Adjust the spread of the rotary sound.

#RT Speed Slow/Fast [15]
Simultaneously switch the rotational speed of both the low-range and the high-range rotors.
Slow: Slow down the rotation to the specified speeds (RT L Slow parameter/RT H Slow parameter values).
Fast: Speed up the rotation to the specified speeds (RT L Fast parameter/RT H Fast parameter values).

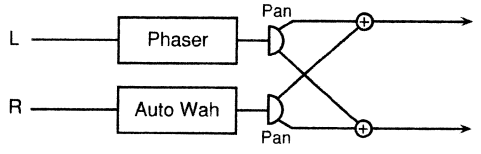
RT Pan (RT output pan) L63–0–R63 [18]
Adjust the stereo position of the rotary sound. L63 is far left, 0 is center, and R63 is far right.

RT Level 0–127 [19]
Adjust the volume of the rotary sound.

Level (Output level) 0–127 [20]
Adjust the output level.

64: PH/AutoWah (Phaser, Auto-wah) [11H, 08H]

This connects a Phaser effect and an Auto-wah effect in parallel.



<PH (Phaser)>

PH Man (Phaser manual) 100–8.0k [1]
Adjust the center frequency at which the phaser sound will be modulated.

+PH Rate (Phaser rate) 0.05–10.0 [2]
Adjust the modulation speed of the phaser.

PH Depth (Phaser depth) 0–127 [3]
Adjust the modulation depth of the phaser.

PH Reso (Phaser resonance) 0–127 [4]
Adjust the emphasis for the region around the center frequency specified by the PH Man parameter.

PH Mix (Phaser mix level) 0–127 [5]
Adjust the proportion of the phase-shifted sound that will be mixed with the direct sound.

PH Pan (Phaser output pan) L63–0–R63 [16]
Set the stereo location of the phaser sound. L63 is far left, 0 is center, and R63 is far right.

PH Level (Phaser level) 0–127 [17]
Adjust the volume of the phaser sound.

<AW (Auto-wah)>

AW Filter (Auto-wah filter type) LPF/BPF [6]
Select the type of filter for the auto-wah.
LPF: The wah effect will be produced over a broad frequency range.
BPF: The wah effect will be produced over a narrow frequency range.

AW Sens (Auto-wah sensitivity) 0–127 [7]
Adjust the sensitivity with which the auto-wah filter will be modulated.

#AW Man (Auto-wah manual) 0–127 [8]
Set the center frequency at which the auto-wah effect will be produced.

AW Peak (Auto-wah peak) 0–127 [9]
Adjust the way in which the wah effect will be applied to the region of the center frequency. Lower settings will produce a wah effect in a broad area around the center frequency, and higher settings will produce a wah effect in a narrower area around the center frequency.

AW Rate (Auto-wah rate) 0.05–10.0 [10]
Adjust the modulation speed of the auto-wah.

AW Depth (Auto-wah depth) 0–127 [11]
Adjust the modulation depth of the auto-wah.

AW Pol (Auto-wah polarity) Down/Up [12]
Set the direction in which the frequency will change when the auto-wah filter is modulated. With a setting of Up, the filter will change toward a higher frequency. With a setting of Down it will change toward a lower frequency.

AW Pan (Auto-wah output pan) L63–0–R63 [18]
Adjust the stereo position of the auto-wah sound. L63 is far left, 0 is center, and R63 is far right.

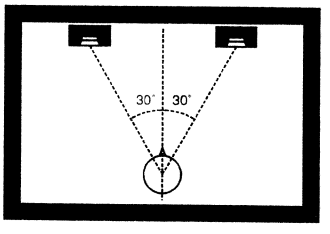
AW Level (Auto-wah level) 0–127 [19]
Adjust the volume of the auto-wah sound.

Level (Output level) 0–127 [20]
Adjust the output level.

<< When using 3D effects >>

The following four 3D effects utilize RSS (Roland Sound Space) technology to create a spaciousness that cannot be produced by delay, reverb, or chorus etc.
20: 3D Chorus
28: 3D Delay
31: 3D Auto
32: 3D Manual

When using these effects, we recommend that you place your speakers as follows. Also, make sure that the speakers are at a sufficient distance from the walls on either side.



If the left and right speakers are too far apart, or if there is too much reverberation, the full 3D effect may not appear.
Each of these effects has an "Out (Output Mode)" parameter. If the sound from the Output jacks will be heard through speakers, set this parameter to Speaker. If the sound will be heard through headphones, set it to Phones. This will ensure that the optimal 3D effect will be heard. If this parameter is not set correctly, the full 3D effect may not appear.

Using Controllers to Modify Effect Parameters

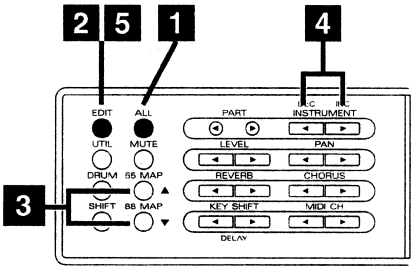
Some Insertion effect parameters allow you to modify their value using a controller. These parameters are marked by a "+" or "#" in front of the parameter name in "Insertion Effect Types" (p.65–94).

Using MIDI messages to modify effect parameters during a song would require a large amount of data if you were to use only Exclusive messages. Thus, the SK-88Pro allows you to use controllers to set the main effect parameters. Since you can use Control Change messages to modify parameter values, the amount of data will not be excessively large, even if you modify parameter values during a song.
Also, you can use controllers to modify the values in realtime using the SK-88Pro's knobs etc.

For example, look at the parameters of the Insertion effect "04: Humanizer" (p.66). Notice that the Vowel parameter is marked by a "+," and that the Level is marked by a "#." In this case, the controller assigned to EFX C.Src1 will control Vowel, and the controller assigned to EFX C.Src2 will control Level.

EFX C.Src1, 2	(Effect Control Source 1, 2)
EFX C.Dep1, 2	(Effect Control Depth 1, 2)

Setting Procedure



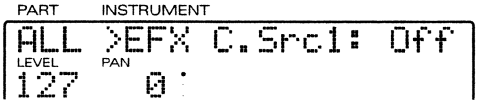
1 Press the [ALL] button to make the button indicator light.

2 Press the [EDIT] button.

3 Press either the [▲] or [▼] button to select the parameter whose setting you wish to change.

You can skip parameters by pressing the [▲] [▼] button, while holding the [SHIFT] button.

4 Use the INSTRUMENT [◀] [▶] buttons to set the value.



5 When you finish making settings, press the [EDIT] button.

How Each Parameter Works

■ EFX C.Src1, 2 (Effect Control Source) Off/CC1–95/CAf/Bend

Specify the controllers that you wish to use. EFX C.Src1 will control the parameter marked with a "+" at the left of the parameter name. EFX C.Src2 will control the parameter marked with a "#" at the left of the parameter name.

CC1–95:	Controller numbers 1–95
CAf:	Channel aftertouch
Bend:	Pitch Bend

* *For CC1–95, make sure that the setting matches the Controller number of the device that is transmitting the MIDI messages.*

■ EFX C.Depth 1, 2 (Effect Control Depth) -100– ±0 – +100 (%)

This specifies the percentage of the full parameter range in which change will actually occur when a controller is used. Higher values will allow a greater range of change. If this value is set to 0, the controller will not affect the effect parameter. With negative (-) settings, the change will be inverted. The controller will increase/decrease the value of the effect parameter relative to the value that was set from the panel. At this time, the value displayed on the panel will not change.

When Depth has a positive (+) setting
Panel setting value + value from controller x depth (%) /100
When Depth has a negative (-) setting
Panel setting value - value from controller x depth (%) /100

< Example >

The Drive parameter of "05: Overdrive" normally changes in the range of 0–127.
When this parameter is modified by a controller, it will change in the range of 0–127 if the Effect Control Depth value is +100. With a value of +50, it will change in the range of 0–64 (i.e., 50% of 127).

Normally	→ 0–127
Depth = +100%	→ 0–127
Depth = +50%	→ 0–64
Depth = -100%	→ 127–0

Examples of Using Effect Controllers

Here are some examples of how effect controllers can be used. In these examples MIDI messages are used to modify the settings, but these settings can also be controlled from the panel (p.95).
Hexadecimal values in the < Settings > sections denote Exclusive messages, and hexadecimal values in the <Modifying the value> sections denote Control Change messages. The Exclusive messages are given with device ID 17 (10H) (the factory setting). After the settings in < Settings > have been made, the Control Change messages described in < Modifying the value > can be transmitted to modify the parameters to the desired value.
For details on Exclusive messages, refer to p.199 and following.

■ Using Control Change 16 to Modify the Drive value of "06: Distortion"

< Settings >

1. Turn EFX on for Part 1.
   F0 41 10 42 12 40 41 22 01 5C F7
2. Set the effect type to 6: Distortion (value: 01H 11H).
   F0 41 10 42 12 40 03 00 01 11 2B F7
3. Set Drive (address: 40H 03H 03H) to 0.
   F0 41 10 42 12 40 03 03 00 3A F7
4. Set Effect Control Source 1 (address: 40H 03H 1BH) to CC16 (10H).
   F0 41 10 42 12 40 03 1B 10 12 F7
5. Set Effect Control Depth 1 (address: 40H 03H 1CH) to +100% (7FH).
   F0 41 10 42 12 40 03 1C 7F 22 F7

< Modifying the value >

B0 10 00	Drive	→ 0
B0 10 01	Drive	→ 1
:		:
B0 10 7F	Drive	→ 126
B0 10 7F	Drive	→ 127

■ Using Control Change 16 to modify the Speed value of "09: Rotary"

< Settings >

1. Turn EFX on for Part 1.
   F0 41 10 42 12 40 41 22 01 5C F7
2. Set the effect type to 9: Rotary (value: 01H 22H)
   F0 41 10 42 12 40 03 00 01 22 01 F7
3. Set Speed (address: 40H 03H 0DH) to Slow.
   F0 41 10 42 12 40 03 0D 00 30 F7
4. Set Effect Control Source 1 (address: 40H 03H 1BH) to CC16 (10H).
   F0 41 10 42 12 40 03 1B 10 12 F7
5. Set Effect Control Depth 1 (address: 40H 03H 1CH) to +100% (7FH).
   F0 41 10 42 12 40 03 1C 7F 22 F7

< Modifying the value >

Since the Speed parameter has only two values, Slow and Fast, the lower half of the range (00H–3FH) will select Slow, and the upper half (40H–7FH) will select Fast.

B0 10 00	Speed	→ Slow
:		:
B0 10 3F	Speed	→ Slow
B0 10 40	Speed	→ Fast
:		:
B0 10 7F	Speed	→ Fast

■ Using Control Change 16 to modify the Wah Man value of "50:GTR Multi3"

< Settings >

1. Turn EFX on for Part 1.
   F0 41 10 42 12 40 41 22 01 5C F7
2. Set the effect type to 50: GTR Multi 3 (value: 04H 02H).
   F0 41 10 42 12 40 03 00 04 02 37 F7
3. Set Wah Man (address: 40H 03H 04H) to 0.
   F0 41 10 42 12 40 03 04 00 39 F7
4. Set Effect Control Source 1 (address: 40H 03H 1BH) to CC16 (10H).
   F0 41 10 42 12 40 03 1B 10 12 F7
5. Set Effect Control Depth 1 (address: 40H 03H 1CH) to +100% (7FH).
   F0 41 10 42 12 40 03 1C 7F 22 F7

< Modifying the value >

B0 10 00	Wah Man	→ 0
B0 10 01	Wah Man	→ 1
:		:
B0 10 7E	Wah Man	→ 126
B0 10 7F	Wah Man	→ 127

* *For the correspondence between the hexadecimal values and the parameter values, refer to p.192.*

■ Using Control Change 17 to modify the Feedback value of "10: Stereo Flanger"

Example 1: When Effect Control Depth is set to +100

< Settings >

1. Turn EFX on for Part 1.
   F0 41 10 42 12 40 41 22 01 5C F7
2. Set the effect type to 10: Stereo Flanger (value: 01H 23H).
   F0 41 10 42 12 40 03 00 01 23 19 F7
3. Set Feedback (address: 40H 03H 08H) to -98%.
   F0 41 10 42 12 40 03 08 00 35 F7
4. Set Effect Control Source 2 (address: 40H 03H 1DH) to CC17 (11H).
   F0 41 10 42 12 40 03 1D 11 0F F7
5. Set Effect Control Depth 2 (address: 40H 03H 1EH) to +100% (7FH).
   F0 41 10 42 12 40 03 1E 7F 20 F7

< Modifying the value >

The Feedback parameter changes in 2% steps, with 40H as the center. (For the correspondence between hexadecimal values and parameter values, refer to the table on p.192.)

B0 11 00	Feedback	→ -98%
:		:
B0 11 0F	Feedback	→ -98%
B0 11 10	Feedback	→ -96%
:		:
B0 11 3E	Feedback	→ -4%
B0 11 3F	Feedback	→ -2%
B0 11 40	Feedback	→ ±0%
B0 11 41	Feedback	→ +2%
B0 11 42	Feedback	→ +4%
:		:
B0 11 70	Feedback	→ +96%
B0 11 71	Feedback	→ +98%
:		:
B0 11 7F	Feedback	→ +98%

■ Using Control Change 17 to modify the Feedback value of "10: Stereo Flanger"

Example 2: When Effect Control Depth is set to -100

< Settings >

1. Turn EFX on for Part 1.
   F0 41 10 42 12 40 41 22 01 5C F7
2. Set the effect type to 10: Stereo Flanger (value: 01H 23H).
   F0 41 10 42 12 40 03 00 01 23 19 F7
3. Set Feedback (address: 40H 03H 08H) to +98% (7FH).
   F0 41 10 42 12 40 03 08 7F 36 F7
4. Set Effect Control Source 2 (address: 40H 03H 1DH) to CC17 (11H).
   F0 41 10 42 12 40 03 1D 11 0F F7
5. Set Effect Control Depth 2 (address: 40H 03H 1EH) to -100% (00H).
   F0 41 10 42 12 40 03 1E 00 1F F7

< Modifying the value >

The Feedback parameter changes in 2% steps, with 40H as the center. (For the correspondence between hexadecimal values and parameter values, refer to the table on p.192.) Since Effect Control Depth is set to -100%, increasing Control Change values will cause the value of the Feedback parameter to decrease.

B0 11 00	Feedback	→ +98%
:		:
B0 11 0F	Feedback	→ +98%
B0 11 10	Feedback	→ +96%
:		:
B0 11 3E	Feedback	→ +4%
B0 11 3F	Feedback	→ +2%
B0 11 40	Feedback	→ ±0%
B0 11 41	Feedback	→ -2%
B0 11 42	Feedback	→ -4%
:		:
B0 11 70	Feedback	→ -96%
B0 11 71	Feedback	→ -98%
:		:
B0 11 7F	Feedback	→ -98%

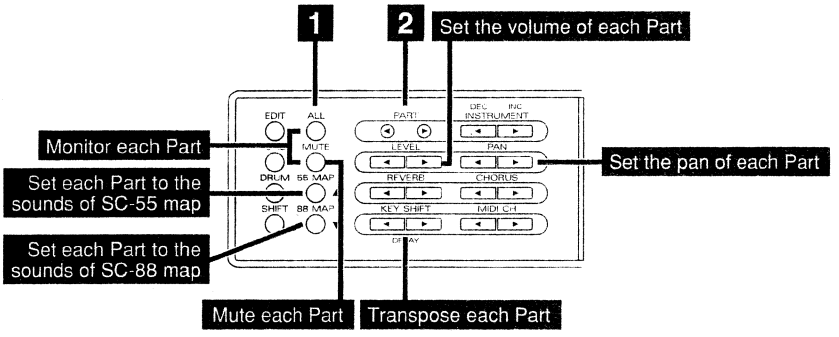
7. SETTING PARAMETERS RELATED PERFORMANCE

Here we will explain the basic performance related parameters that can be adjusted from the panel, such as volume, Part muting, and transposition.

Setting Procedure

The operation and parameters will differ depending on whether you are setting them for an individual Part or for all Parts.

Settings for Individual Parts



1 Make sure that the [ALL] indicator is dark.

If it is lit, press the [ALL] button to turn it off.

2 Use the PART [◀] [▶] buttons to select the Part whose setting you wish to change.

3 Use the buttons for the parameter you wish to change, and set the value.

LEVEL [◀] [▶]	Set the volume of each Part (Part Level)
PAN [◀] [▶]	Set the pan of each Part (Part Pan)
KEY SHIFT [◀] [▶]	Transpose each Part (Key Shift)
[MUTE]	Mute each Part (Part Mute)
[ALL] + [MUTE]	Monitor each Part (Part Monitor)
[55 MAP]	Set each Part to the same sounds as the SC-55 (SC-55 Map)
[88 MAP]	Set each Part to the same sounds as the SC-88 (SC-88 Map)

To restore the original setting

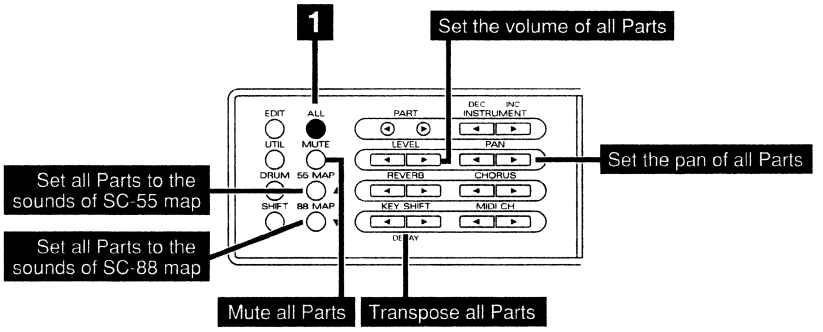
For LEVEL, PAN and KEY SHIFT, return the value to the original setting.
For [MUTE], [55 MAP], [88 MAP] and [ALL] + [MUTE], press the button once again, and confirm that the indicator has gone out.

Displaying the Current Settings of the level, pan and Key Shift

1. Simultaneously press the LEVEL, PAN and KEY SHIFT [◀] and [▶] buttons. The current settings will be shown graphically on the display.

   If you simultaneously press them once again, the previous screen will reappear.

Settings for All Parts



1 Make sure that the [ALL] indicator is lit.

If it is dark, press the [ALL] button to turn it on.

2 Use the buttons for the parameter you wish to change, and set the value.

LEVEL [◀] [▶]	Set the volume of all Parts (Master Level)
PAN [◀] [▶]	Set the pan of all Parts (Master Pan)
KEY SHIFT [◀] [▶]	Transpose all Parts (Master Key Shift)
[MUTE]	Mute all Parts (All Mute)
[55 MAP]	Set all Parts to the SC-55 map (All SC-55 Map)
[88 MAP]	Set all Parts to the SC-88 map (All SC-88 Map)
[SHIFT] + [55 MAP]	Set all Parts to the Native map forcibly
[SHIFT] + [88 MAP]	Set all Parts to the SC-88 map forcibly

To restore the original setting

For LEVEL, PAN and KEY SHIFT, return the value to the original setting.
For [MUTE], [55 MAP] and [88 MAP], press the button once again, and confirm that the indicator has gone out.

Displaying the Current Settings of the level, pan and Key Shift

1. Simultaneously press the LEVEL, PAN and KEY SHIFT [◀] and [▶] buttons. The current settings will be shown graphically on the display.

If you simultaneously press them once again, the previous screen will reappear.

How Each Parameter Works

■ LEVEL 0–127

[ALL] lit: Master Level
[ALL] extinguished: Part Level

Adjusts the volume of an individual Part or of all Parts. Raising the value will increase the volume. The basic volume of the entire SK-88Pro is adjusted by the volume slider. If the volume slider is at minimum position, there will be no sound even if this LEVEL setting is raised.

■ PAN L63–0–R63

[ALL] lit: Master Pan
[ALL] extinguished: Part Pan

Pan sets the stereo position of the sound when a stereo playback system is used. For example, the drum set and bass might be placed in the center, the guitar at right, and the keyboard at left. As the L-value increases the sound will be placed further left, and as the R-value increases the sound will be placed further right. To place a sound in the center, set the Pan value to 0. If you continue pressing PAN [◀] when setting for each Part, " Rnd " (random) will be selected, and each note will be placed at a random stereo position.

* *In the case of a Drum Set, the pan position has been fixed for each percussion instrument. Adjusting the pan of a Drum Set will shift the overall set to left or right.*
* *For some Instruments, a bit of sound may be heard from the opposite speaker even if pan has been set fully left or right.*
* *If you are listening to the SK-88Pro in mono, pan settings will have no effect.*

■ KEY SHIFT -24– ±0– +24, 2 octaves

[ALL] lit: Master Key Shift
[ALL] extinguished: Key Shift

Key Shift adjusts the pitch of the sound in semitone steps. For example if you were playing back song data from a sequencing program, you could use the Key Shift parameter to change the key of the song without changing the settings for the sequencing program. Or, if you are singing along with sequence data, you can adjust Key Shift to move the song to the key most comfortable for your voice. As the displayed value rises (falls) one step, the pitch will rise (fall) one semitone. This means that 12 steps equal one octave. With a setting of 0 the pitch will not be affected.

* *Even if you adjust Key Shift for all Parts, the pitch of the Drum Part will not be affected.*

■ MUTE On/Off

[ALL] lit: All Mute
[ALL] extinguished: Part Mute

This function allows you to mute the sound of a specific Part so that it will not be heard. When the [MUTE] button is pressed to turn on the indicator, Part Mute will be turned on. When playing back an ensemble from a sequencing program etc., it is sometimes convenient to mute one of the Parts and play the missing part yourself. The lowest dot on the bar indicates the mute on/off status of each Part. The dot will be off for Parts whose Part Mute is turned on.
If you press the [MUTE] button to turn the indicator on when the [ALL] button indicator is lit, All Mute will be on, and the sound of all Parts will be muted.

* *When All Mute is turned on, the lowest dot in the bar display will be off for all Parts, regardless of their Part Mute on/off setting.*
* *When a Turn General MIDI System On or GS Reset message (p.154) is received, muting will be cancelled. If you do not wish mute to be cancelled, turn on Mute Lock (p.103, 144).*

■ Part Monitor On/Off

Part Monitor can be turned on when you want to listen to only one Part that you select. This feature conveniently allows you to listen to only the Instruments you want to hear during sequenced playback. To turn it ON, simultaneously press both [ALL] and [MUTE]. The indicator on MUTE will blink on and off while the feature is on.

■ SC-55 Map On/Off

When the [55 MAP] button is pressed to turn on the indicator, the sound of the currently selected Part will change to be almost the same as the SC-55/55mkII. At this time, "ᴵᴵ" will be displayed in front of that Instrument name.

* *All the sounds for all Parts can be arranged so they use the Native map by holding down the [SHIFT] button while you press the [55 MAP] button (when the [ALL] indicator is lit). At this time, the [55 MAP] indicator will blink.*

■ SC-88 Map On/Off

If you press the [88 MAP] button to make the indicator light, all Parts will have the same sound map structure as the SC-88. At this time, " ᵌ " will be displayed in front of that Instrument name.
Parts for which the SC-55 map is selected will be played using the sounds of the SC-55 map.

* *When the [ALL] indicator is lit, you can hold down the [SHIFT] button and press the [88 MAP] button to set all Parts to the SC-88 map. At this time, the [88 MAP] indicator will blink.*

8. SETTING PARAMETERS RELATED SOUND GENERATOR (EDIT MODE)

To set parameters related to the SK-88Pro's sound generator, use the edit button ([EDIT]). Some parameters apply to all Parts, while others are set for individual Parts.
If the [ALL] button is lit when you select parameters, parameters that apply to all Parts will be displayed. If the [ALL] button is extinguished when you select parameters, parameters that apply to individual Parts will be displayed.
The following parameters can be set using the edit button.

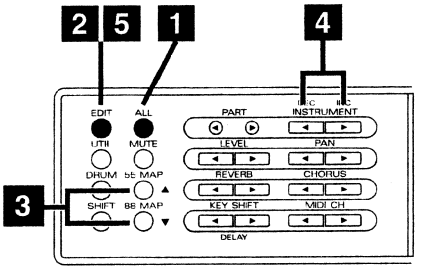
Parameters for All Parts

Device ID:	Device ID Number
M. Tune:	Master Tune
MUTE Lock:	Mute Lock
EQ Lock:	Equalizer Lock
Rx GM On:	General MIDI System On Receive Switch
Rx GS Reset:	GS Reset Receive Switch
Reverb:	Reverb Type
Rev Charac.:	Reverb Character
Rev Pre-LPF:	Reverb Pre Low Pass Filter
Rev Level:	Reverb Level
Rev Time:	Reverb Time
Rev Delay Fb:	Reverb Delay Feedback
Rev Pre Dly T:	Reverb Pre-Delay Time
Chorus:	Chorus Type
Cho Pre-LPF:	Chorus Pre Low Pass Filter
Cho Level:	Chorus Level
Cho Feedback:	Chorus Feedback Level
Cho Delay:	Chorus Delay Time
Cho Rate:	Chorus Rate
Cho Depth:	Chorus Depth
Cho → Rev:	Chorus Send Level To Reverb
Cho → Dly:	Chorus Send Level To Delay
Delay:	Delay Type
Dly Pre-LPF:	Delay Pre Low Pass Filter
Dly Time C:	Delay Time Center
Dly T Ratio L:	Delay Time Ratio Left
Dly T Ratio R:	Delay Time Ratio Right
Dly Level C:	Delay Level Center
Dly Level L:	Delay Level Left
Dly Level R:	Delay Level Right
Dly Level:	Delay Level
Dly Fback:	Delay Feedback
Dly → Rev:	Delay Send Level To Reverb
EQ Low Freq:	Equalizer Low Frequency
EQ High Freq:	Equalizer High Frequency
EQ Low Gain:	Equalizer Low Gain
EQ High Gain:	Equalizer High Gain
EFX C.Src1:	Effect Control Source 1
EFX C.Dep1:	Effect Control Depth 1
EFX C.Src2:	Effect Control Source 2
EFX C.Dep2:	Effect Control Depth 2

Parameters for Each Part

Part EQ:	Part Equalizer
Part Mode:	Part Mode
M/P Mode:	Mono/Poly Mode
Fine Tune:	Fine Tune
Rx Bank Sel:	Bank Select Receive Switch
Rx NRPN:	NRPN Receive Switch
Velo Depth:	Velocity Sensitivity Depth
Velo Offset:	Velocity Sensitivity Offset
K. Range L:	Keyboard Range Low
K. Range H:	Keyboard Range High
CC1 C.Number:	CC1 Controller Number
CC2 C.Number:	CC2 Controller Number
OUT Asgn:	Output Assign
S.Tune C–B:	Scale Tuning C–B
Mod Range:	Modulation Range
Mod Cutoff:	Modulation Cutoff Frequency
Mod Amp:	Modulation Amplitude
Mod LFO Rate:	Modulation LFO Rate
Mod LFO Pch:	Modulation LFO Pitch
Mod LFO TVF:	Modulation LFO TVF
Mod LFO TVA:	Modulation LFO TVA
Bnd Range:	Bend Range
Bnd Cutoff:	Bend Cutoff Frequency
Bnd Amp:	Bend Amplitude
Bnd LFO Rate:	Bend LFO Rate
Bnd LFO Pch:	Bend LFO Pitch
Bnd LFO TVF:	Bend LFO TVF
Bnd LFO TVA:	Bend LFO TVA
CAf Range:	Channel Aftertouch Range
CAf Cutoff:	Channel Aftertouch Cutoff Frequency
CAf Amp:	Channel Aftertouch Amplitude
CAf LFO Rate:	Channel Aftertouch LFO Rate
CAf LFO Pch:	Channel Aftertouch LFO Pitch
CAf LFO TVF:	Channel Aftertouch LFO TVF
CAf LFO TVA:	Channel Aftertouch LFO TVA
CC1(CC2) Range:	CC1 (CC2) Range
CC1(CC2) Cutoff:	CC1 (CC2) Cutoff Frequency
CC1(CC2) Amp:	CC1 (CC2) Amplitude
CC1(CC2) LFO Rate:	CC1 (CC2) LFO Rate
CC1(CC2) LFO Pch:	CC1 (CC2) LFO Pitch
CC1(CC2) LFO TVF:	CC1 (CC2) LFO TVF
CC1(CC2) LFO TVA:	CC1 (CC2) LFO TVA

Settings the Parameters



1 When you want to set the parameter for all Parts, press the [ALL] button to make the button indicator light.

When you want to set the parameter for each Part, make sure that the [ALL] button is dark, and use the PART [◀] [▶] buttons to select the Part whose settings you wish to modify.

MEMO Even after pressing the [EDIT] button in step **2**, you can press the [ALL] button to switch the type of parameters that are displayed.

2 Press the [EDIT] button.

You will enter Edit mode.

PART INSTRUMENT
ALL >Device ID: 17
LEVEL PAN
127 0

In Edit mode, ">" is displayed in front of the parameter name.

3 Use the [▲] [▼] buttons to select the parameter you wish to modify.

While holding the [SHIFT] button, press the [▲] [▼] button to skip parameters.

4 Use the INSTRUMENT [◀] [▶] buttons to set the value for the parameter.

5 When you finish making settings, press the [EDIT] button to exit Edit mode.

MEMO If you press both the [◀] and [▶] INSTRUMENT buttons simultaneously after step **4** above, the value of the parameter being displayed at that time will be transmitted.

Parameters for All Parts

The settings for the following parameters made here apply to all Parts.

■ Device ID (Device ID Number) 01–**17**–32

The Device ID number is an identification number used when transmitting and receiving Exclusive messages. The SK-88Pro receives Exclusive messages only if its own device ID number matches the device ID number of the message. This means that if you wish to transmit Exclusive messages between devices, you must make sure that their device ID numbers match.
The device ID number is a number from 1–32. At the factory settings, the number is 17.

* *If you wish to playback Roland SMF music files, be sure that the device ID number is set to 17. If it is not, playback will not be correct.*
* *It is not possible to specify the device ID number separately for individual Parts.*

■ M. Tune (Master Tune) 415.3–**440.0**–466.2 Hz

When you are playing in an ensemble with other instruments or need to set the SK-88Pro to match the pitch of another instrument, adjust the Master Tune setting in the range of 415.3–466.2 Hz. The displayed value (e.g., 440.0 Hz) indicates the frequency of the A4 note's pitch (note number 69).

■ MUTE Lock (Mute Lock) **Off**/On

When you once again playback a song that was previously played back, Part Mute settings (p.100) are sometimes defeated. This is because the beginning of the song data contains a message that causes the SK-88Pro to reset to initial values (Turn General MIDI System On/GS Reset p.154). If MUTE Lock is turned on, muting will not be turned off even when GS Reset or General MIDI System On is received, so there will be no need for you to remake mute settings. This is convenient when, for example, you are repeatedly playing back a song with a certain Part muted so that you can play that Part yourself.

* *Regardless of the MUTE Lock setting, All Mute (p.100) will not be defeated when GS Reset or General MIDI System On are received.*

■ EQ Lock (Equalizer Lock) **Off**/On

When a GS Reset or General MIDI System On message is received, the equalizer settings will be restored to the factory settings. If EQ Lock is turned on, this will not occur.

■ Rx GM On (General MIDI System On Receive Switch) Off/**On**
■ Rx GS Reset (GS Reset Receive Switch) Off/**On**

General MIDI System On and GS Reset (p.154) are MIDI Exclusive messages that are included in the beginning of song data bearing the General MIDI or GS logo. When song data is played back from the beginning, these messages cause the sound generator parameters to be reset to basic values so that playback will be correct. Thus, when playing back song data bearing the General MIDI or GS logo, you should leave these parameters on. If these parameters are turned off, General MIDI System On and GS Reset messages will be ignored.

* *When you play the General MIDI Score data, be sure to set the General MIDI System On Switch to ON and the Exclusive Receiving Switch to ON.*
* *When you play Roland SMF Music data, be sure to set the Device ID number to 17, the GS Reset Receiving Switch to ON.* The default settings are as above.

■ Reverb (Reverb Type)

:

■ Chorus (Chorus Type)

:

■ Delay (Delay Type)

:

■ EQ Low Freq (Equalizer Low Frequency)

Parameters above are the settings for reverb, chorus, delay and equalizer of the System effects. For each parameter, refer to p.58–p.61.

■ EFX C.Src1 (Effect Control Source 1)
■ EFX C.Src2 (Effect Control Source 2)

Off/CC1–95/CAf/Bend

Specify the controllers that you wish to use when controlling the Insertion effect parameters by MIDI messages. EFX C.Src1 will control the parameter marked with a "+" at the left of the parameter name. EFX C.Src2 will control the parameter marked with a "#" at the left of the parameter name. (p.95)

CC1–95:	Controller Numbers 1–95
CAf:	Channel Aftertouch
Bend:	Pitch Bend

* *For CC1–95, make sure that the setting matches the Controller number of the device that is transmitting the MIDI messages.*
* *When using Patches, EFX C.Src1 is set to CC16 and EFX C.Src1 is set to CC17, so you will be able to control the parameters with the knobs.*

■ EFX C.Dep1 (Effect Control Depth 1)
■ EFX C.Dep2 (Effect Control Depth 2)

-100– ±**0**– +100 %

This specifies the percentage of the full parameter range in which change will actually occur when a controller is used. Higher values will allow a greater range of change. If this value is set to 0, the controller will not affect the effect parameter. With negative (-) settings, the change will be inverted. The controller will increase/decrease the value of the effect parameter relative to the value that was set from the panel. At this time, the value displayed on the panel will not change.

When Depth has a positive (+) setting
Panel setting value + value from controller x depth (%) /100
When Depth has a negative (-) setting
Panel setting value - value from controller x depth (%) /100

* *The "EFX C.Src1," "EFX C.Src2," "EFX C.Dep1" and "EFX C.Dep1" parameters can be used when you want to modify the value for Insertion effect parameters with controllers. For more information, refer to p.95.*

Parameters for Each Part

The following parameters determine how each Part behaves when it receives MIDI messages. The way in which the sound changes in response to messages such as Velocity, Pitch Bend, Modulation and Aftertouch will be determined by the settings of these parameters.

■ Part EQ (Part Equalizer) Off/**On**

Equalizer on/off can be set for individual Parts. Part equalizer will be on, and the equalizer will be applied to the sounds of Parts. Part equalizer will be off, and the equalizer will not be applied to the sounds of Parts.

* *For the procedure of making Equalizer settings, refer to p.61.*
* *At the factory settings, equalizer gain is set at 0. This means that the equalizer will have no effect even if the Part EQ is on.*

■ Part Mode Norm/Drum1/Drum2

For Parts which are playing conventional instrument sounds, select Norm (Normal mode). For Parts which are playing percussion or drums, select Drum1 or Drum2. Drum Parts play a different sound (Instrument) for each different MIDI note number (p.152). In other words, a single Part can play many different percussion instrument sounds (Drum Set List p.173).

The Drum1 and Drum2 Parts allow you to simultaneously use two Drum Sets. For example if Drum Parts are set as shown below, when you change the STANDARD1 Drum Set of Part A10 to the TR-808, the selection for Part A12 will also change to TR-808. For details on how to assign a Drum Set to a Part, refer to p.42.

Part Name	Part Mode	Drum Set
Part A10	Drum1	STANDARD 1
Part A11	Drum2	JAZZ
Part A12	Drum1	STANDARD 1

■ M/P Mode (Mono/Poly Mode) Mono/**Poly**

If a Part is set to Mono (Mono Mode), that Part will play only one note at a time. It is effective to select Mono Mode for Parts that are playing a naturally monophonic instrument such as a trumpet or sax. Select Poly Mode for Parts that are playing chords.

* *For a Drum Part, changing the Mono/Poly Mode setting will not affect the sound.*

■ Fine Tune -100.0–**0.0**– +100.0 cent

Use this parameter when you wish to make fine adjustments to the tuning of a Part. Positive (+) settings will raise the pitch, and negative (-) settings will lower the pitch. If two or more Parts are set to the same MIDI channel and the same sound, you can spread their Fine Tuning settings aPart to add rich depth and breath to the sound.

* *To adjust the pitch of all Parts, use the Master Tune parameter (p.103).*
* *To transposes the Part, use the KEY SHIFT parameter (p.100).*

■ Rx Bank Sel (Bank Select Receive Switch) Off/**On**

To remotely select this unit sounds from another MIDI device, you can send Bank Select messages and Program Change messages to this unit. If Rx Bank Sel is turned on, these MIDI messages can select Variation sounds (p.40) and User Instruments (p.114). If this parameter is turned off, Bank Select messages will be ignored, meaning that MIDI messages cannot select Variation sounds or User Instruments (they will select Capital sounds). If this parameter is turned off, a "_" will be displayed between the Instrument number and the Instrument name.
For details on using MIDI messages to select sounds, refer to p.51.

* *After a Turn General MIDI System On message is received, Rx Bank Sel will be tuned off. And after a GS Reset message is received, this will be turned on.*

■ Rx NRPN (NRPN Receive Switch) **Off**/On

NRPN (Non-registered Parameter Number p.153) messages allow you to modify vibrato, filter and envelope values (p.112) via MIDI. If Rx NRPN is on, these sound parameters can be modified by MIDI messages. If Rx NRPN is off, this will not be possible.

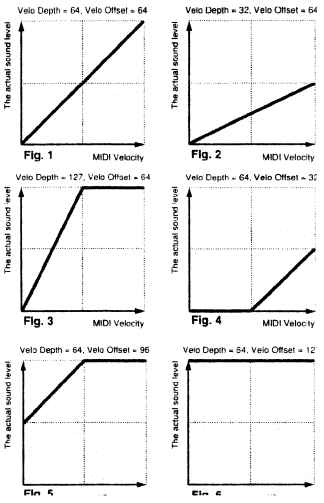
* *After a Turn General MIDI System On message is received, Rx NRPN will be tuned off. And after a GS Reset message is received, this will be turned on.*

■ Velo Depth (Velocity Sensitivity Depth) 0–**64**–127
■ Velo Offset (Velocity Sensitivity Offset) 0–**64**–127

The force with which you play a note on MIDI keyboard is transmitted as MIDI Velocity data. Strongly played notes will have a higher velocity value. The Velo Depth and Velo Offset parameters determine the relation between the force of the keyboard playing and the loudness of the sound that results.
If Velo Depth is increased, small differences in your playing dynamics will make a large difference in the loudness of the sound (Fig.3). If Velo Depth is decreased, even large differences in your playing dynamics will make only a small difference in the loudness of the sound (Fig.2).

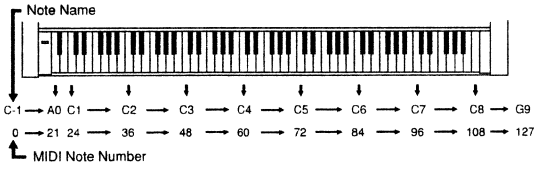
If Velo Offset is set higher than 64, even softly played notes (i.e., notes with a low velocity) will be sounded loudly (Fig.5). If Velo Offset is set lower than 64, even strongly played notes (i.e., notes with a high velocity) will be sounded softly (Fig.4).

* *For some settings, there may be no sound. If so, increase Velo Depth or Velo Offset.*

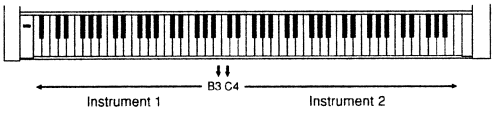


■ K. Range L (Keyboard Range Low) C-1–G9
■ K. Range H (Keyboard Range High) C-1–G9

The Key Range parameters determine the pitch range over which the instrument will be sounded. Keyboard Range Low (the lowest note) and Keyboard Range High (the highest note) will determine the range of notes that will sound. These values are displayed as key names. You can specify a value between C-1 and G9 (0–127), and middle C is C4 (60).



For example, if you assign two Parts to the same MIDI channel and set the Keyboard Range of one to C-1–B3 and the other to C4–G9. Then you could assign different sounds to each Part, and play two different sounds on either side of C4. Or, you could set the keyboard ranges of two Parts to overlap, and layer the two sounds.



* *Be aware that if Keyboard Range High is set to a note name lower than Keyboard Range Low, there will be no sound.*

■ CC1 C.Number (CC1 Controller Number) 1–16–95
■ CC1 C.Number (CC1 Controller Number) 1–17–95

Set the Controller number which will control the CC1/CC2 parameters (p.106) via MIDI. For example if you set CC1 C.Number to 16, the value of an incoming MIDI Controller number 16 message will affect the sound as specified by the setting of the CC1 parameter.

■ OUT Asgn (Output Assign) OUT-1/2/2L/2R

Specify the Output jack from which the sound of each Part will be output.

OUT-1	The sound together with the effect sound will be output in stereo from the Output 1 jacks.
OUT-2	The direct sound without the effect sound will be output in stereo from the Output 2 jacks.
OUT-2L	The direct sound without effects will be output from the Output 2L jack. (The Pan setting will have no effect.)
OUT-2R	The direct sound without effects will be output from the Output 2R jack. (The Pan setting will have no effect.)

* *The headphones jack will output the sound of Output 1. This means that the sound of Parts assigned to Output 2 will not be heard from the headphones jack.*

* *This is valid only when Sys.OUT Mode (p.108) is set to Sel. Be aware that if it is set to Fix, the above settings will be ignored.*

* *At the factory settings, all Parts are set to OUT-1.*

* *The sound from OUTPUT 2 is output at a fixed volume, unaffected by the position of the volume slider.*

■ S.Tune C–B (Scale Tuning C–B) -64– ±0– +63

Scale Tuning is a parameter which makes fine adjustments to the pitch of each note in the octave. These settings are for one octave of notes, and will simultaneously adjust the pitch of that note in all octaves. By using Scale Tuning, you can perform using a variety of temperaments other than equal temperament. Here we will give three settings as examples.

< Equal Temperament >

This tuning divides the octave into 12 equal parts, and is the most widely used method of temperament used in western music. The default setting of the SK-88Pro's Scale Tune function is Equal Temperament.

< Just Intonation (tonic of C) >

Compared with equal temperament, the principle triads sound pure in this tuning. However this effect is achieved only in one key, and the triads will turn muddy if you transpose. Here is an example of the settings for a tonic of C.

< Arabian-style Scale >

A variety of ethnic tunings can be achieved by using the Scale Tuning function. Here are settings for a tuning representative of Arabian-style scales.

Example settings (values are in units of cents)

Note name	Equal temperament	Just intonation (tonic of C)	Arabian-style Scale
C	0	0	-6
C#	0	-8	+45
D	0	+4	-2
D#	0	+16	-12
E	0	-14	-51
F	0	-2	-8
F#	0	-10	+43
G	0	+2	-4
G#	0	+14	+47
A	0	-16	0
A#	0	+14	-10
B	0	-12	-49

■ Mod ~/Bnd ~/CAf ~/CC1 ~

* *The following explains the two parts that go together to make up a parameter name.*

<The front half of the parameter name>

Mod ~ (Modulation ~)

When you move the Modulation lever on the SK-88Pro, modulation messages are transmitted, modifying the sound. The Mod ~ parameters specify the way in which the sound will change when these messages are received. With the factory settings of these parameters, vibrato will be applied to the sound.

Bnd ~ (Bend ~)

When you move the Pitch Bender on the SK-88Pro, Pitch Bend messages are transmitted, modifying the sound. The Bnd ~ parameters specify the way in which the sound will change when these messages are received. With the factory settings of these parameters, the pitch will be modified.

CAf ~ (Channel Aftertouch ~)

If you assign the CAf function to the slider, knobs or pedal jacks on the SK-88Pro, you can transmit Aftertouch messages. when pressing down on the key after a note is played.
The SK-88Pro's internal sound generator is able to receive these messages and modify the sound in response. The CAf ~ parameters specify the way in which the sound will change when these messages are received. With the factory settings of these parameters, no effect will occur.

CC1 ~, CC2 ~

You can assign Controller numbers to the slider, knobs, and pedal jacks on the SK-88Pro. When these sliders are moved, messages of the specified Controller number are transmitted, causing the sound to be modified. The CC1 parameters specify how the sound will change when messages of the corresponding Controller number are received.
First use the CC1 C.Number parameter (previous page) to select the Controller number that you are assigning.

<The latter half of the parameter name>

* *When the following settings are at 0, there will be no effect.*

~ Range -24– +24
(Bend Range is ±0– +24)

These parameters specify the maximum pitch change that will occur when the corresponding message is received. A setting of 12 allows 1 octave of change, and a setting of 24 allows 2 octaves of change. With a setting of 0, there will be no pitch change.

* *For some sounds, the pitch may not rise as high as specified by the Range setting.*

~ Cutoff (~ Cutoff frequency) -64– +63

These parameters specify how the cutoff frequency will change when the corresponding message is received. Higher values will cause the cutoff frequency to rise. Positive (+) settings allow the sound to be made brighter, and negative (-) settings allow the sound to be made more mellow.

~ Amp (~ Amplitude) -64– +63

These parameters specify the way in which the sound will change when the corresponding message is received. Higher values allow a greater increase in volume.

~ LFO Rate -64– +63

These parameters specify the way in which the LFO frequency will change when the corresponding message is received, adjusting the speed at which the sound is modulated or varied. Higher values allow the modulation or variation to be speeded up.

~ LFO Pch (~ LFO Pitch) 0– 127

These parameters specify the way in which the depth of the vibrato effect (cyclic modulation of pitch) will change when the corresponding message is received. Higher values allow the modulation effect to be increased.

~ LFO TVF (~ LFO TVF) 0– 127

These parameters specify the way in which the depth of the growl effect (cyclic modulation of tone) will change when the corresponding message is received. Higher values allow the growl effect to be increased.

~ LFO TVA (~ LFO TVA) 0– 127

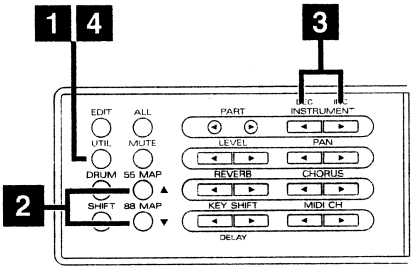
These parameters specify the way in which the depth of the tremolo effect (cyclic modulation of volume) will change when the corresponding message is received. Higher values allow the tremolo effect to be increased.

9. SETTINGS FOR THE SK-88PRO (UTILITY MODE)

You can use the [UTIL] button to modify the settings of System parameters that affect the SK-88Pro.
You can set the following parameters.

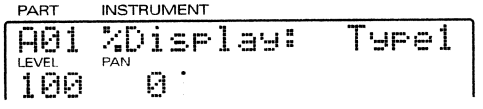
Display:	Display Types
Peak Hold:	Peak Hold
LCD Contrast:	LCD Contrast
Backup:	Backup Switch
OUT/THRU:	OUT/THRU Select
In Mode:	Input Mode
Rx Sys. Mode:	System Mode Set Receive Switch
Sys. OUT Mode:	System Output Mode
Assign Lock:	Output Assign Lock
P.Load Init:	Patch Load Initialize Switch
Tx Channel:	Transmit Channel
Tx D. Thin:	Transmit Data Thin Function
TxPalette:	Edit Palette Transmit Message Setting
Asgn1:	Assign the function to the [ASSIGN1] knob
Asgn2:	Assign the function to the [ASSIGN2] knob
Asgn3:	Assign the function to the [ASSIGN3] knob
C.Slider:	Assign the function to the Control slider
P.Ctrl:	Assign the function to the expression pedal
P.SW:	Assign the function to the pedal switch

Setting the Parameters



1 Press the [UTIL] button.

You will enter Utility mode.



In Utility mode, " % " is displayed in front of the parameter name.

2 Use the [▲] [▼] buttons to select the the parameter you wish to set.

3 Use the INSTRUMENT [◀] [▶] to set the value for the parameter.

4 When you finish making settings, press the [UTIL] button.

You will exit Utility mode.

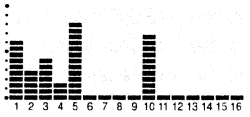
9

System Parameters

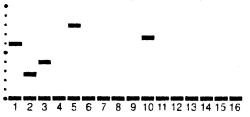
■ Display (Display Type) **Type1**–Type8

This parameter allows you to select one of the following 8 types of volume level display.

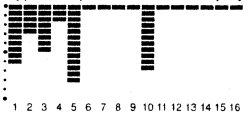
Type1: Bar display (factory setting)



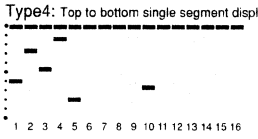
Type2: Single segment display



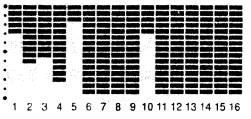
Type3: Top to bottom bar display



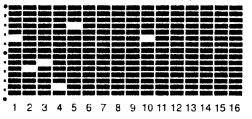
Type4: Top to bottom single segment display



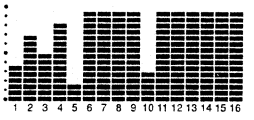
Type5: Reverse of the Type 1



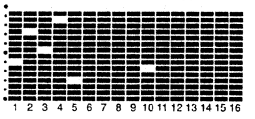
Type6: Reverse of the Type 2



Type7: Reverse of the Type 3



Type8: Reverse of the Type 4



* *In Double Module mode (p.138), the Type 1–4 display and Type 5–8 display will be exchanged.*

■ Peak Hold Off/**Type1**–Type3

In this unit display, the highest dot in the bar level display will be held on for a short time after the volume falls below it. You can select one of the following four ways in which this Peak Hold function will work.

Off:	The peak level will not be held
Type1:	After holding the peak level, the peak level dot will move downward
Type2:	After holding the peak level, the peak level dot will disappear
Type3:	After holding the peak level, the peak level dot will move upward

* *For Type 1 and Type 3, the dots of the peak level indicator will move downward if the Display parameter explained above is set to Type 3, 4, 7 or 8.*

■ LCD Contrast 1–**8**–16

Depending on the angle at which the SK-88Pro is placed, the display can sometimes be difficult to read. If so, adjust the contrast of the display. Higher values will make the characters darker.

■ Backup (Backup Switch) Off/**On**

When the power is turned off, the SK-88Pro preserves (backs up) the settings which were made, and when the power is turned on again, these settings will reappear in the display. If the Backup Switch is turned off, the data will not be preserved.

* *Even if the Backup Switch if off, the System parameter settings (p.107) will be preserved.*

■ OUT/THRU (MIDI OUT/THRU Select) **OUT**/THRU

This setting determines whether the MIDI OUT/THRU connector on the rear of the SK-88Pro will function as OUT or as THRU. (p.141)

* *After the setting of this switch is changed, the power must be turned on once again for the new setting to take effect.*

■ In Mode (Input Mode)

Standard, X-connect, Merge → A, Merge → B, A only

This parameter specifies whether data received at MIDI IN A and MIDI IN B will be passed to Part Group A or B. (p.142)

* *After changing this setting you must switch the power off, then on again.*

■ Rx Sys. Mode (System Mode Set Receive Switch) **Off**/On

The selection of Single Module mode or Double Module mode (p.138) is called the System Mode. The Rx Sys. Mode setting is the receive switch for MIDI messages (System Mode Set p.203) that select the System Mode. If Rx Sys. Mode is turned Off, the mode will not change even if System Mode Set messages are received. If Rx Sys. Mode is turned On, the mode will change.

■ Sys.OUT Mode (System Output Mode) **Sel**/Fix

This determines whether the OUT Asgn (Output Assign) setting (p.105) will be valid or not.

Sel :	The sound of each Part will be output as specified by the OUT Asgn settings.
Fix :	The output of each Part will be fixed as follows, regardless of the OUT Asgn settings.

For Single Module Mode:

Both Part Group A and B will be output in stereo with the effect sound from the Output 1 jacks.

For Double Module Mode:

The Parts of Group A will be output in stereo with the effect sound from the Output 1 jacks, and the Parts of Group B similarly from the Output 2 jacks.
In this case only, the Output 2 jacks will output sound that includes the effect sound.

Part Group A ⟶ OUTPUT 1 (includes effects)

Part Group B ⟶ OUTPUT 2 (includes effects)

* *The headphones jack will output the sound that is sent to Output 1. This means that the sound of the Parts assigned to Output 2 will not be heard in the headphones.*

* *At the factory settings, this parameter is set to Sel.*

■ Assign Lock (Output Assign Lock) **Off**/On

The setting of OUT Asgn (Output Assign) (p.105) will return to the factory settings when GS Reset or General MIDI System On are received. However if Assign Lock is turned On, these settings will not change.

■ P.Load Init (Patch Load Initialize switch) Off/**On**

This specifies whether or not the settings of Parts A03–B16 will be initialized when a Patch (p.48) is loaded. With a setting of On, the settings of Part A03 and following will be initialized. With a setting of Off, the settings of Part A03 and following will not be initialized. The factory setting is On.

* *In Double Module mode, the settings of Part Group B will not be initialized.*

■ Tx Channel (Transmit Channel) 01–16/**Part**

Specifies the MIDI channel on which data will be transmitted from the SK-88Pro's controller section. At the factory settings, this will be Part. With a setting of Part, the data will be transmitted on the channel that is specified for the Part that is selected in the SK-88Pro's sound generator (i.e., the Part that appears in the display). When using the SK-88Pro by itself, set this to Part.
If you want the notes played on the SK-88Pro's keyboard to be transmitted to another device and would like to specify the transmit channel, set this to the channel 01–16 that matches the receive channel of the other device.

* *If this is set to Part, port data will not be transmitted. Even if the channel of the specified Part is a Group B channel, the data will be transmitted on the channel of the same number. (E.g., the data will be transmitted on channel 11 for both A11 and B11.)*

■ Tx D.Thin (Transmit Data Thin Function) **Off**/On

When performance data from the SK-88Pro's keyboard is being received by another device, and large amounts of modulation or Pitch Bend data are being used, there may be cases in which the amount of data is greater than the other device is able to receive and process. In such cases, you can thin out the amount of data that is transmitted. The default setting is Off, and data will not be thinned.

■ TxPalette (Edit Palette Transmit Message Setting) **NRPN**/SysEx

The three knobs of the SK-88Pro's EDIT PALETTE allow you to transmit a variety of data that will control aspects of the sound such as vibrato, cutoff frequency, resonance and envelope. TxPalette lets you specify whether this data will be transmitted as NRPN messages or as System Exclusive messages (SysEx). If you wish to shorten the length of the data, select NRPN. However depending on the settings of the receiving device, NRPN messages may not be received correctly. In such cases, select SysEx (System Exclusive messages).

■ Asgn1 ([ASSIGN1] knob function assign)

Off/CC#01–**16**–31, 33–95/CAf/M.Lev/M.Pan

■ Asgn2 ([ASSIGN2] knob function assign)

Off/CC#01–**17**–31, 33–95/CAf/M.Lev/M.Pan

■ Asgn3 ([ASSIGN3] knob function assign)

Off/CC#01–**10**–31, 33–95/CAf/M.Lev/M.Pan

Any desired Control Change message, Channel Aftertouch, Master Level, or Master Pan can be assigned to the three knobs of the SK-88Pro's EDIT PALETTE, allowing you to control these parameters from the knobs.
At the factory settings, Asgn1 is CC#16 (general purpose controller), Asgn2 is CC#17 (general purpose controller) and Asgn3 is CC#10 (pan).

* *If you select CAf, you will also need to make CAf settings for the internal sound generator of the SK-88Pro. (p.106)*

■ C.Slider (Control Slider Function Assign)

Off/**CC#01**–31, 33–95/CAf/M.Lev/M.Pan

Any desired Control Change message, Channel Aftertouch, Master Level, or Master Pan can be assigned to the Control slider at the left of the keyboard, allowing you to control these parameters from the slider.
At the factory settings, CC#01 (Modulation) is assigned.

* *If you select CAf, you will also need to make CAf settings for the internal sound generator of the SK-88Pro. (p.106)*

■ P.Ctrl (Expression Pedal Function Assign)

Off/CC#01–**11**–31, 33–95/CAf/M.Lev/M.Pan

If an expression pedal is connected to the SK-88Pro's Control Pedal jack, you can assign any desired Control Change message, Channel Aftertouch, Master Level, or Master Pan to the pedal.
At the factory settings, CC#11 (Expression) is assigned.

* *If you select CAf, you will also need to make CAf settings for the internal sound generator of the SK-88Pro. (p.106)*

■ P.SW (Pedal Switch Function Assign)

Off/CC#01–31, 33–**64**–95/CAf/Start/Stop/EFX On/Off

If a pedal switch is connected to the SK-88Pro's Hold Pedal jack, you can assign any desired Control Change message or Channel Aftertouch to the pedal, so that these can be controlled by the pedal.
If you select Start/Stop, you can control playback/stop on an external device that is able to receive the Start/Stop message.
If you select EFX On/Off, you can switch EFX on/off for each Part.
At the factory settings, CC#64 (Hold1) is assigned.

* *If you select CAf, you will also need to make CAf settings for the internal sound generator of the SK-88Pro. (p.106)*

10. CREATING A SOUND OR DRUM SET

Try an Original Sound

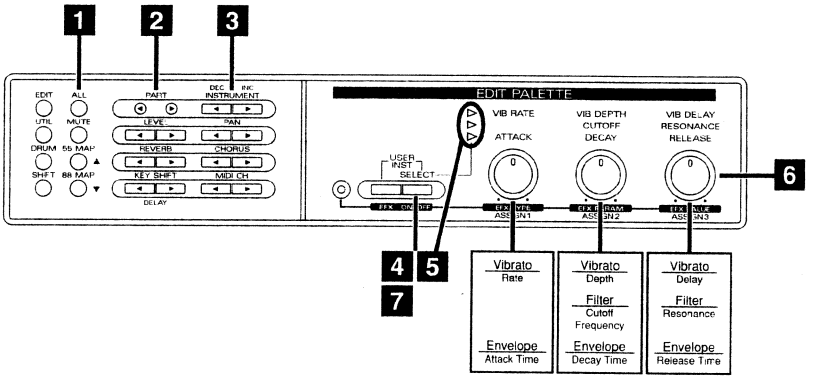
On the SK-88Pro, you can modify the values of a variety of parameters in order to create the sound most suitable for your playing. A "parameter" is something that affects the sound. The process of modifying parameter values is called "editing." Sound parameters affect the volume, timbre and pitch of the sound.

You can set the following parameters. For details, refer to p.112.

Vibrato:	Rate	Depth	Delay
Filter:		Cutoff Frequency	Resonance
Envelope:	Attack Time	Decay Time	Release Time

Modifying Various Aspects of the Sound

Try your hand at creating a sound by modifying various sound parameters. On the SK-88Pro, parameter values are set for each Part.



1 Make sure that the [ALL] indicator is dark.

If it is lit, press the [ALL] button to turn it off.

2 Use the PART [◀] [▶] buttons to select a Part.

3 Although parameters for sound edit are actually specified with respect to Parts rather than Instruments, we recommend that you first select the Instrument for which you want to change parameters using the INSTRUMENT [◀] [▶] buttons.

4 Press the [SELECT] button.

You will enter Tone Edit mode.

5 Press the [SELECT] button to select the parameter (vibrato, filter, envelope) you wish to edit.

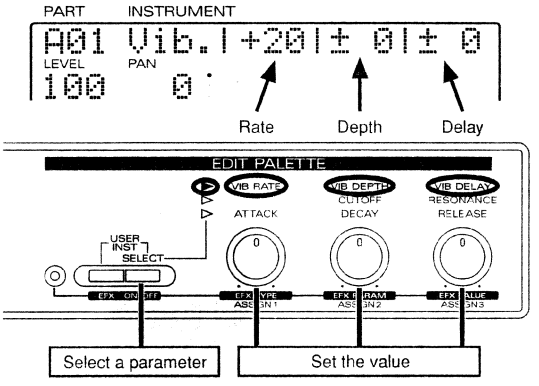
Each time you press the [SELECT] button, the indicator location and the display will change as follows.

Indicator:	Vibrato	→	Filter	→	Envelope	→	dark
Display:	Vib.	→	Fil.	→	Env.	→	Instrument Number

6 To modify parameter values, rotate the knob that corresponds to each parameter.

For example, if you wish to modify the Vibrato Depth, press the [SELECT] button in step **4** to make the top indicator light, and rotate the [EFX PARAM] knob to adjust the vibrato depth.

<Example> Vibrato Editing Display



NOTE In some cases it may not be possible to make accurate settings using the knobs alone. In such cases, use DEC INC (INSTRUMENT) [◀] [▶] as the following procedures to step through the value individually.

7 After you've finished with the settings, press the [SELECT] button several times, until you see that the indicator has gone out.

If you wish to save your settings to create a User Instrument, refer to p.114.

Make Detailed Settings (fine adjustments)

In the above procedure, you rotate the knob to select parameters or values. Sometimes, though, it may be difficult to make a selection accurately just by rotating the knob. In such cases, follow the steps below to make fine adjustments without using the knob.

1 Rotate the desired knob, either [EFX TYPE], [EFX PARAM], or [EFX VALUE] to make an approximate setting.

2 Use the DEC INC [◀] [▶] buttons (the same buttons as INSTRUMENT [◀] [▶]) to select parameters or values.

The DEC INC [◀] [▶] buttons will adjust the setting of the knob that was last operated.

Parameters for Sound Editing

On the SK-88Pro, parameter settings are made for each Part. In other words, parameter values belong to Parts, and not to sounds (Instruments). For example if you set Vibrato Rate to +20 and then select a different sound for that Part, the Vibrato Rate of +20 will apply to the newly selected sound (not the initial value of ±0). In this way, parameters belonging to Parts are called Part parameters.

* *Parameters such as Vibrato, Filter and Envelope can be set not only for Parts, but also for sounds (Instruments). Sounds you create by modifying these parameters are called User sounds, and can be stored in Native map memory area (p.114).*

Vibrato

Vibrato is an effect created by modulating the pitch. Applying vibrato makes the sound more expressive.

■ VIB RATE (Vibrato Rate) -64– +63

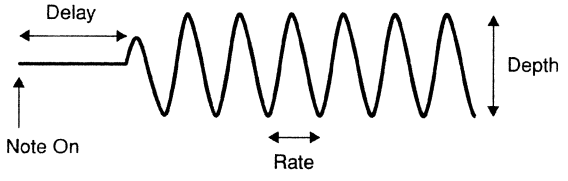
This parameter adjusts the speed (frequency) of the pitch modulation. Positive (+) settings make the pitch modulation faster, and negative (-) settings make it slower.

■ VIB DEPTH (Vibrato Depth) -64– +63

This parameter adjusts the depth of the pitch modulation. Positive (+) settings make the pitch modulation deeper, and negative (-) settings make it shallower.

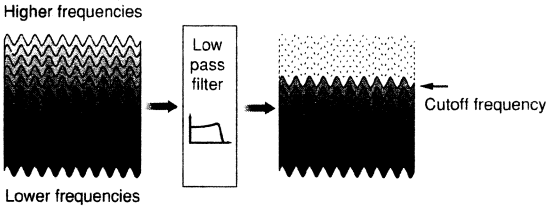
■ VIB DELAY (Vibrato Delay) -64– +63

This parameter adjusts the time required for the vibrato effect to begin. Positive (+) settings increase the time before vibrato will begin, and negative (-) settings shorten the time.



Filter

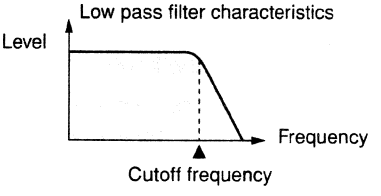
By modifying the filter settings, you can control the timbre (tone) of the sound. The type of filters in the SK-88Pro are called Low Pass Filters, and allow only frequencies lower than a specified frequency to pass. This frequency is called the Cutoff Frequency. By modifying the setting of the Cutoff Frequency you can make the sound brighter or darker. The Cutoff Frequency can change over time, controlled by the "envelope." By adjusting the filter and envelope settings, you can create sounds that have movement and expression.



■ CUTOFF (Cutoff Frequency) -64– +63

Positive settings of Cutoff Freq will raise the cutoff frequency. Negative settings will lower the cutoff frequency. As you set this value higher in the positive direction, more overtones will be allowed to pass, and the sound will become harder (brighter). The further this value is set in the negative direction, the fewer overtones will be allowed to pass, and the sound will become softer (darker).

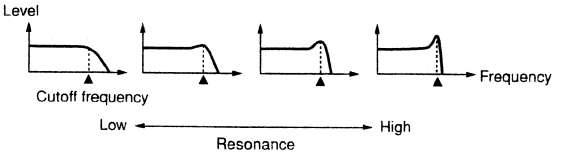
* *For some sounds, positive (+) settings of Cutoff Freq will cause no noticeable change in the sound.*



■ RESONANCE -64– +63

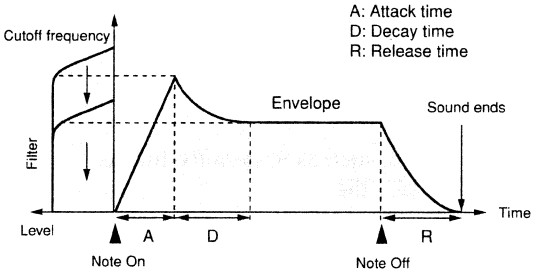
When the Resonance value is increased, the overtones in the area of the cutoff frequency will be emphasized, creating a sound with a strong character.

* *For some sounds, negative (-) settings of Resonance will cause no noticeable change in the sound.*



Envelope

The volume of an instrument changes with time, from the moment the note begins to sound to when it disappears. This change can be indicated on a graph as shown in the following diagram. This shape is unique to each instrument, and is an important element in how we distinguish sounds we hear. This shape is called the "envelope." The envelopes of musical instrument sounds can change depending on how the instrument is played. For example if a trumpet is played sharply and strongly, the attack will be quick and the sound will be sharp. But if a trumpet is played lightly and softly, the attack will be softer. In order to adjust the attack of a sound, we can modify the Attack Time of the envelope. By modifying the values of the envelope we can simulate the characteristics of many different instruments. The envelope shape that we create in this way will also affect the way in which the cutoff frequency changes. If the cutoff frequency had been lowered, it will rise as the envelope rises, and will fall as the envelope falls.



■ ATTACK (Attack Time) -64– +63

This parameter adjusts the sharpness of the beginning of the sound.

■ DECAY (Decay Time) -64– +63

This parameter adjusts the time over which the sound will fall from the highest point of the attack down to the sustain level (Fig.1).

* *Some sounds have a sustain level of 0 (Fig.2). Piano and guitar sounds are in this category.*

■ RELEASE (Release Time) -64– +63

This parameter adjusts the time over which the sound will decay after the note is released until it is no longer heard. The cutoff frequency will also fall according to this.

* *For some sounds, modifying the various Time settings of the envelope will cause no noticeable change in the sound.*

Fig. 1

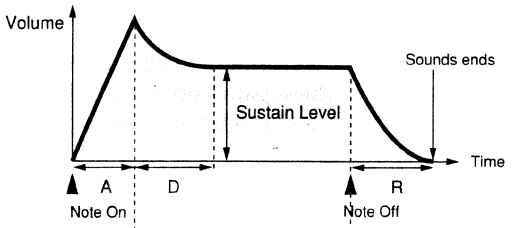
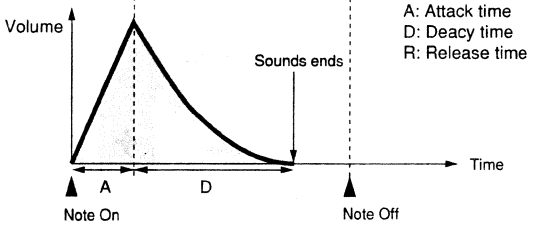


Fig. 2

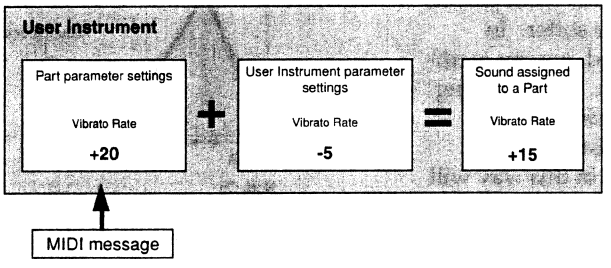


Creating and Saving a Sound (User Instrument)

You can modify the parameters of this unit sound to your taste, and save your new settings in Variation numbers 64 or 65 of the Native map/SC-88 map (p.115). A sound saved in this way is called a User Instrument, and this procedure is called User Editing. You can save 256 different sounds in this way.

You can set the vibrato, filter and envelope parameters to an Instrument.
These parameters are called User Instrument parameters.
For the function of each parameter, refer to p.112.

The User Instrument sound that is actually heard will reflect the combination of the Part parameter settings and the User Instrument parameter settings. For example if the Vibrato Rate is set to +20 by the Part parameters and to -5 by the User Instrument parameters, the vibrato rate of the sound that is actually heard will be +15 (20 - 5 = 15).

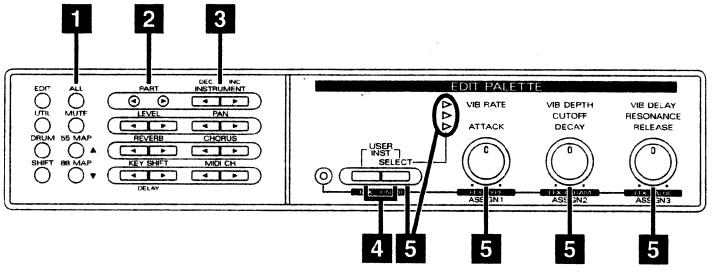


Also, if the vibrato, filter, and envelope values are modified by MIDI messages, the values of the Part parameters (p.110) will be modified. In this case, the values of the User Instrument parameters will not change.

MEMO The same contents are stored in both the SC-88 and Native maps.

MEMO For an explanation of messages that modify the sound, such as System Exclusive messages and NRPN messages, refer to p.146, 148, 153, 154.

Creating a Sound



1 Make sure that the [ALL] indicator is dark.

If it is lit, press the [ALL] button to turn it off.

2 Use the PART [◄] [►] buttons to select a normal Part.

3 Use the INSTRUMENT [◄] [►] buttons to select the sound you wish to start from.

Your edits will apply to this sound.

4 Simultaneously press the two [USER INST] buttons to make the indicator light red.

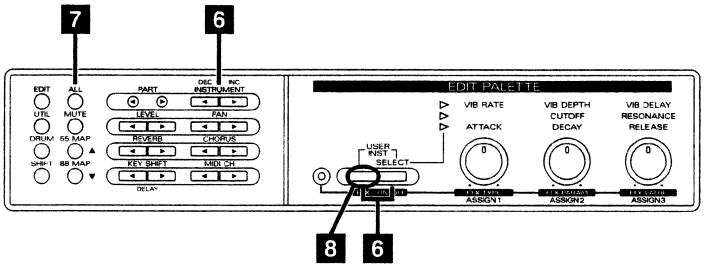
Be aware that if you don't press the buttons and the indicator is not lit, you will be editing not User Instrument parameters but Part parameters (p.110).

5 Press the [SELECT] button and select the parameter you wish to modify. Use the appropriate parameter edit knobs to modify the value.

For an explanation of parameters and the procedure for modifying them, refer to p.110–113.

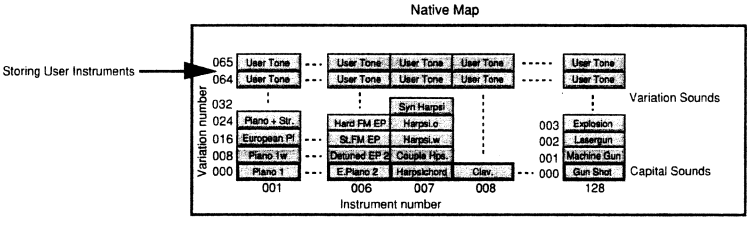
Saving the Sound

After you create a sound, use the following procedure to save the sound.



6 Simultaneously press two buttons of [USER INST].

The display will ask "Write UI 64/001? " Simultaneously pressing both INSTRUMENT [◀] and [▶] will move between the two numbers. Use the INSTRUMENT [◀] [▶] buttons to select Instrument number (001–128) and the Variation number (64 or 65) in which an original sound stored.



7 To save the sound data, press the [ALL] button.

To cancel without storing, press the [MUTE] button.

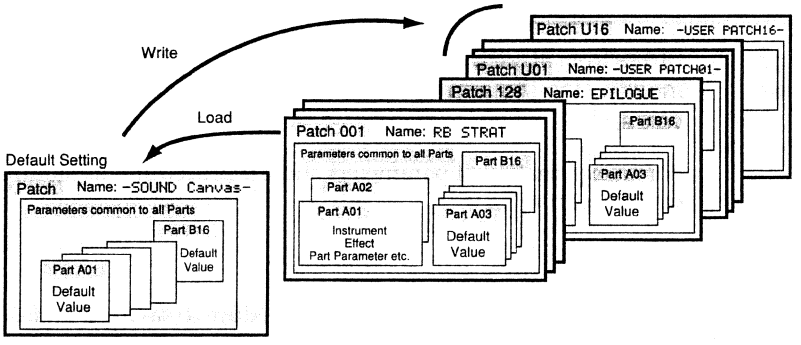
8 Press the left [USER INST] button (the same button as [EFX]) to turn off the indicator and complete the procedure.

MEMO

User Instrument parameter values can be transmitted as MIDI Exclusive messages (p.131). Data that is transmitted in this way can be saved using a sequencing program or sequencer, and re-transmitted back to the SK-88Pro to save and restore User Instrument data.

Create and Save a Patch (User Patch)

You can modify the parameter values of Parts A01 and A02 as desired, assign a Patch name, and save it. A Patch saved in this way is referred to as a User Patch. 16 Patches can be saved in the Patch number locations U01–U16.

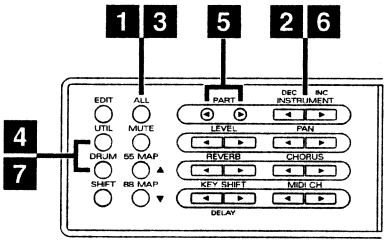


MEMO All Patch parameters (p.203) are stored. (Parameters marked with "*" in the "INDEX FOR PARAMETERS" (p.219) can be set in a Patch.) However, a distinction between Group A and B of MIDI channels will not be stored. The MIDI channel will be saved as channel "A**" of Group A.

NOTE Drum Set parameters are not stored in a Patch.

Naming a User Patch

Before creating and saving a Patch, name a User Patch.



1 Press the [ALL] button to make the indicator light.

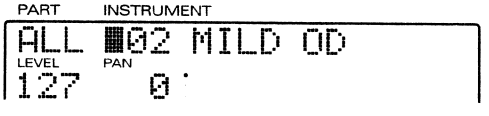
You will enter Patch Select mode.

2 Use the INSTRUMENT [◄] [►] buttons to select the Patch you wish to start from.

3 Press the [ALL] button to load the Patch.

4 Simultaneously press the [UTIL] and [DRUM] buttons.

You will enter Patch Name mode, and the first character location will blink.



5 Use the PART [◀] [▶] button to move the cursor and specify character location you wish to modify.

6 Use the INSTRUMENT [◀] [▶] buttons to select the desired character. Pressing the INSTRUMENT [◀] or [▶] button will change the displayed character.

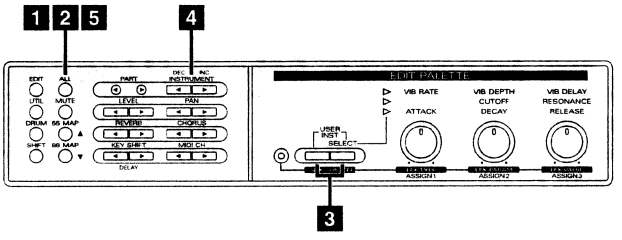
Each time you press [ALL], the character will change case as A → a → A.
Pressing [MUTE] will select a space.
Pressing [55 MAP] will select 0.
Each time you press [88 MAP], the symbol will alternate & → (→ & → (.

Repeat steps **5** and **6** to enter the Patch name.

7 To enter Patch Name mode simultaneously press the [UTIL] and [DRUM] buttons.

You have now finished entering the name of the User Patch, but it has not yet been saved. After modifying the Patch parameters, you must also carry out the "Saving a User Patch" operation explained below.

Saving a User Patch



1 Press the [ALL] button, and confirm that the indicator has gone out. Then, adjust the parameters as desired for Parts A01 and A02 of the currently loaded Patch.

NOTE All the parameters that can be set are Patch parameters (p.203). Refer to parameters marked by * in "INDEX FOR PARAMETERS" (p.219).

2 Press the [ALL] button to make the indicator light.

3 Simultaneously press two buttons of [USER INST] to make the indicator light.

The display will ask "Write U.Patch01?"

4 Use the INSTRUMENT [◀] [▶] buttons to select the number (01–16) where you wish to store the settings.

If you select a number in which a User Patch has already been stored, an "*" symbol will appear, such as "Write*U.Patch01?"

5 To save the Patch, press the [ALL] button.

To cancel without storing, press the [MUTE] button.

Loading a User Patch

1 Make sure that the [ALL] indicator is light.

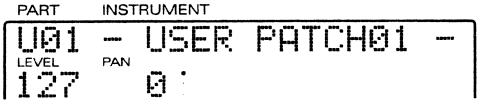
If it is dark, press the [ALL] button to turn it on.

2 Press the INSTRUMENT [▶] button to select " 128 EPILOGUE ."

3 Once again press the INSTRUMENT [▶] button, and the User Patches will be displayed. Select the User Patch that you wish to load.

User patches are shown as U01 – U16 in the PART area of the display.

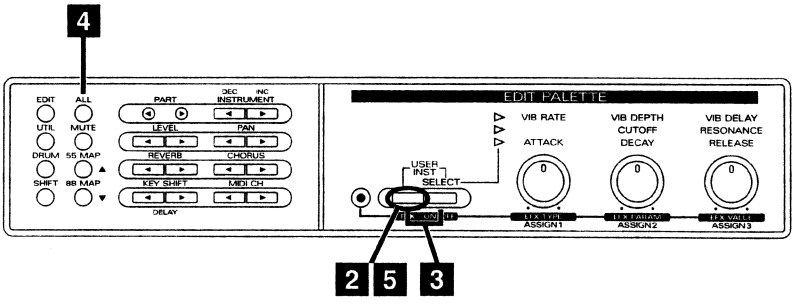
4 Press the [ALL] button to load the User Patch.



Create and Save an Insertion Effect (User Effect)

Insertion effect parameter settings that you make can be saved in memory. An Insertion effect that you save in this way is referred to as a User Effect. 64 User Effects can be stored.
For the function of each parameter, refer to the applicable page. (p.65–94)

Saving a User Effect



1 Set the Insertion effect parameters.

For the parameters, refer to "Changing Insertion Effect Parameters," (p.64).

2 Make sure that the [EFX] button indicator is lit in orange.

NOTE Caution is required at this point—if you happen to change the effect type, all the effect parameters will revert to their defaults.

3 Simultaneously press two buttons of [USER INST] to make the indicator light.

The display will ask "Write U.EFX 01?"

4 Use the INSTRUMENT [◀] [▶] buttons to select the User Effect number (01 to 64) where you wish to store the data.

5 To save the data, press the [ALL] button.

To cancel without storing, press the [MUTE] button.

6 Press the [EFX] button to turn off the indicator and complete the procedure.

Loading a User Effect

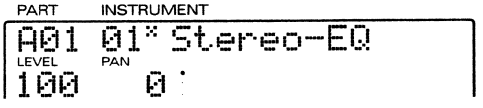
To load the User Effect that was stored, use the following procedure.

1 Press the [EFX] button to make the indicator light orange.

2 Rotate the [EFX TYPE] knob to the right to display "64 PH/Auto Wah."

3 Press the DEC INC [▶] button (the same button as INSTRUMENT [▶]), and a User Effect will be displayed.

The "×" symbol of the effect number indicates that this is a User Effect.



4 Then rotate the [EFX TYPE] knob to select the User Effect.

MEMO

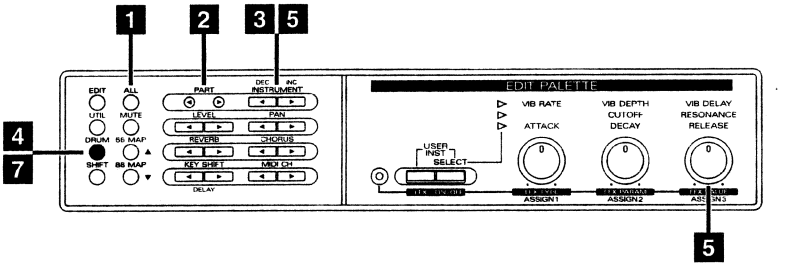
To select a preset effect when a User Effect is displayed, rotate the [EFX TYPE] knob toward the left to select "01×Stereo-EQ," and then press DEC INC [◀] to access the preset effect screen.

Create and Save a Drum Set (User Drum)

A Drum Part has assigned to it a group of various percussion instrument sounds which are called a Drum Set. Unlike a normal Part, a Drum Part sounds a different instrument for each note number. Since a Drum Part needs to simultaneously produce a wide variety of sounds such as bass drum, snare, tom and cymbal, this is very convenient. A collection of such sounds each assigned to their own note number is called a Drum Set. Each sound within a Drum Set is called a Drum Instrument. (Drum Set List p.173)
On the SK-88Pro, you can modify various Drum Instrument parameters to get the drum sounds most suitable for your musical needs. A "parameter" is something that affects the sound. The process of modifying parameter values is called "editing."
For each instrument (Drum Instrument) of the currently selected Drum Set, you can modify the values for the following parameters. These parameter values are set independently for each Drum Instrument assigned to a note number.
Volume, Pan (stereo position), Pitch, Reverb Send Level, Chorus Send Level, Delay Send Level, Assign group.

MEMO For explanation how to save the Drum Set you created, refer to "Saving a Drum Set You Created (User Drum Set)" (p.123).

Drum Edit



1 Make sure that the [ALL] indicator is dark.

2 Use the PART [◀] [▶] buttons to select the Drum Part.

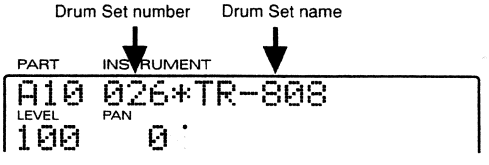
Drum Parts are indicated by an "*" mark at the left of the Drum Set name.

3 Use the INSTRUMENT [◀] [▶] buttons to select a Drum Set.

Your editing will apply to the Drum Set you select here.

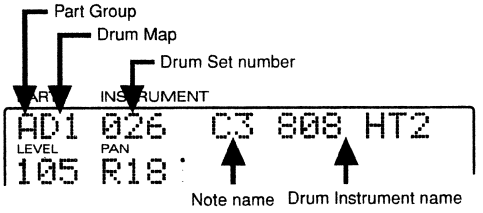
If you press the [55 MAP] button to make the indicator light, you can select the same Drum Sets as in the SC-55/55mkII. SC-55/55mkII Drum Sets are indicated by a "II" mark at the left of the Drum Set name.

If you press the [88 MAP] button to make the indicator light, you can select the same Drum Sets as in the SC-88. SC-88 Drum Sets are indicated by a "3" mark at the left of the Drum Set name.

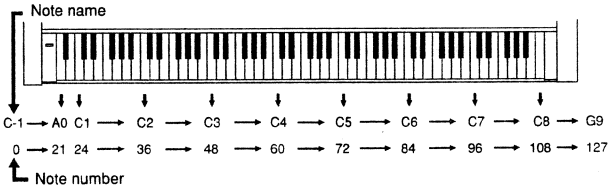


4 Press the [DRUM] button.

The display will show the Part Group (p.38), the Drum Map (p.122), Drum Set number, note name, and Drum Instrument name.



MEMO The note name is the name of each key on the keyboard, and corresponds to the MIDI note number. The Drum Instrument is assigned to note number.



5 Use one of the following methods to select the Drum Instrument that you wish to edit.

INSTRUMENT [◀] [▶]	Step through Instrument numbers one at a time.
Press the key	Select the Drum Instrument that corresponds to each note.

6 Use the panel buttons to modify the parameter values.

The values you set will appear in the appropriate location (field) of the display.

PART [◀] [▶]	set the Part Group and Drum map (p.122)
LEVEL [◀] [▶]	set the volume of each Instrument
PAN [◀] [▶]	set the pan of each Instrument
REVERB [◀] [▶]	set the Reverb Send Level of each Instrument
CHORUS [◀] [▶]	set the Chorus Send Level of each Instrument
While holding [88 MAP], press CHORUS [◀] [▶]	set the Delay Send Level of each Instrument
KEY SHIFT [◀] [▶]	pitch coarse (adjust the pitch of each Instrument in semitone steps)
MIDI CH [◀] [▶]	set the Assign group (p.122)

7 When you finish making settings, press the [DRUM] button to return to Normal mode.

Changing Drum Sets, etc. in Drum Edit mode

Even after you access Drum Edit mode, you can switch Drum Sets, etc.

● Selecting Drum Maps

1. Use the PART [◀] [▶] buttons to select the Drum map.
With the factory settings, you can select "AD1" and "BD1."

AD1: Drum1 of Part Group A
AD2: Drum2 of Part Group A (Only when a Drum Part is added by Part Mode settings)
BD1: Drum1 of Part Group B
BD2: Drum2 of Part Group B (Only when a Drum Part is added by Part Mode settings)

* *For details about Drum1, Drum2 and Part Mode, refer to p.104.*

● Selecting Drum Sets

1. Simultaneously press the INSTRUMENT [◀] [▶] buttons.
The Drum Set number in the INSTRUMENT area of the display will blink.

2. Use the INSTRUMENT [◀] [▶] buttons to specify the Drum Set number.

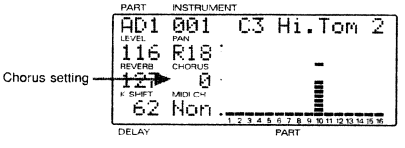
3. Simultaneously press the INSTRUMENT [◀] [▶] buttons.
The Drum Set number will stop blinking.
Now you can use step **5** in the procedure of the previous page to select the Drum Instrument name.

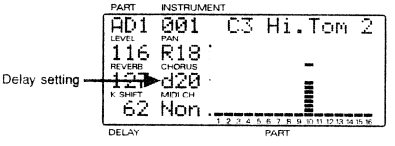
NOTE Be aware that if you select a different Drum Set, the parameter value will be initialized.

Using Chorus and Delay

In the case of a Drum Instrument, it is not possible to simultaneously use both chorus and delay. Chorus will not be applied to a Drum Instrument for which "d" and "D" is displayed in the CHORUS column (Fig.2). In this case, you can apply chorus by using the CHORUS [◀] [▶] buttons to set the Chorus Send Level.
Delay will not be applied to a Drum Instrument for which a number is displayed in the CHORUS column (Fig.1). In this case, you can apply delay by holding the [88 MAP] button while you press the CHORUS [◀] [▶] buttons to set the Delay Send Level. In other words, in the case of chorus and delay, only the one you specify last will be valid.

NOTE The Delay setting will be displayed as d00 – d99 for values of 0 to 99, and as D00 – D27 for values of 100 to 127.





Assign Group

Each Instrument can be given a number, and instruments with the identical number are treated as an Assign group. No two instruments of the same Assign group will sound together. If while one instrument is sounding, a MIDI message is received to play another instrument in the same Assign group, the first instrument will be turned off first. This is a useful way to prevent two instruments from sounding simultaneously that would not normally do so. For example since it is obviously impossible for a hi-hat to simultaneously produce both an open hi-hat sound and a closed hi-hat sound, these two sounds could be set to the same Assign group (the same number) so that they would not sound together.
Numbers from Non, 1 to 127 can be selected, but instruments for which Non is selected will not be turned off by other instruments. In other words, instruments with a setting of Non will not be treated as an Assign group.

* *Be aware that if you select a different Drum Set, the parameter values will be initialized.*

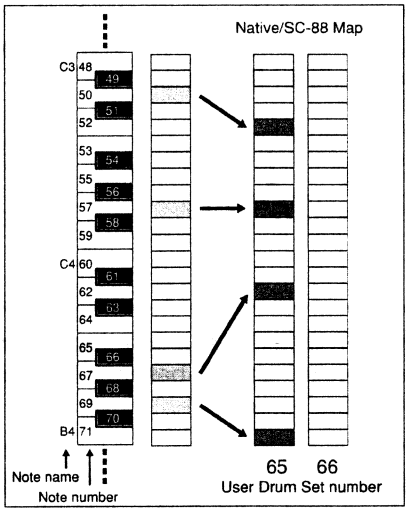
Saving a Drum Set You Created (User Drum Set)

You can modify Drum Instrument parameters to your liking, and save this data as a Drum Set. A Drum Set saved in this way is called a User Drum Set. You can save up to two Drum Sets, and since each set contains 128 instrumental sounds, this provides a total of 256 instrumental sounds (Drum Instruments). You can also give each User Drum Set a name of your choice. User Drum Sets are stored in Drum Set numbers 65 and 66 of the Native map/SC-88 map (p.126).

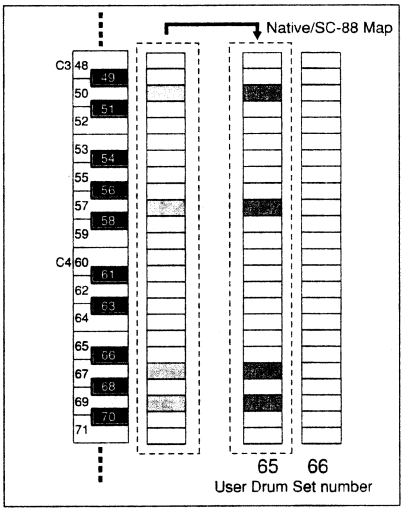
MEMO The same contents are stored in both the SC-88 and Native maps.

There are two ways to store an edited Drum Instrument. The first is to store each Drum Instrument individually (procedure 1). The second is to store an entire set of Drum Instruments as a Drum Set (procedure 2).

Procedure 1



Procedure 2



Storing an Individual Drum Instrument (procedure 1)

The following procedure will store an individual Drum Instrument into the note name you specify.

1 Select a Drum Part and Drum Set, and create a Drum Instrument.

```
PART    INSTRUMENT
AD1 017 C#3 CrshCym1
LEVEL   PAN
100     0
```

NOTE For explanation how to create a Drum Instrument, refer to "Drum Edit" (p.120).

2 To store an individual Drum Instrument, while holding down the [SHIFT] button press the REVERB [▶] button.

```
                User Drum Set number
          Note name
PART    INSTRUMENT
AD1 Write UD C#3/65?
LEVEL   PAN
100     0
```

3 Simultaneously press INSTRUMENT [◀] and [▶] to switch the item that you are setting (the blinking location) between the note number (left) and the Drum Set number (right).

4 When the note number (left side) is blinking, use INSTRUMENT [◀] [▶] to select a Drum Instrument number (note number) as the storing location.

5 When the Drum Set number (right side) is blinking, use INSTRUMENT [◀] [▶] to select a Drum Set number (65/66) as the storing location.

6 When you finish making the settings of note number and Drum Set number, press the [ALL] button to save the data.

To cancel without storing, press the [MUTE] button.

7 If you exit Drum Edit mode, press the [DRUM] button.

Storing an Entire Drum Set (procedure 2)

The following procedure will store all the Drum Instruments for the entire currently selected Drum Set.
You can also assign a name to the User Drum Sets in Drum Set numbers 65 and 66. If you do not wish to name them, read from "Saving a Drum Set."

Naming a User Drum Set

1 If the SK-88Pro is in Drum Edit mode, press the [DRUM] button to make the indicator dark.

2 Make sure that the [ALL] button indicator is dark.

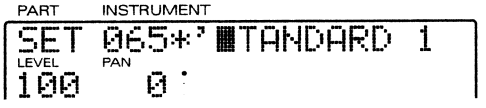
If it is lit, press the [ALL] button to turn it off.

3 Use the PART [◀] [▶] buttons to select a Drum Part.

4 Use the INSTRUMENT [◀] [▶] buttons to select a User Drum Set you wish to name.

5 Simultaneously press both the [UTIL] and [DRUM] buttons.

The first character at the cursor location will blink.



6 Use the PART [◀] [▶] buttons to move the cursor where you wish to input a character.

The blinking area will move.

7 Use INSTRUMENT [◀] [▶] to select the desired character.

Each time you press [ALL], the character will change A → a → A → a.
Pressing [MUTE] will enter a space.
Pressing [55 MAP] will select 0.
Each time you press [88 MAP], the symbol will change & → (→ & → (.

8 Repeat steps **6** and **7**.

NOTE If you wish to change the User Drum Set number, simultaneously press both the INSTRUMENT [◀] and [▶] buttons, and then use the INSTRUMENT [◀] [▶] buttons to select the number. However, be aware that if you change the number, the parameter settings will also change.

9 When you finish entering the Drum Set name, simultaneously press both the [UTIL] and [DRUM] buttons.

NOTE You have now finished entering the name of the User Drum Set, but it has not yet been saved. You must also carry out the "Saving a Drum Set" operation explained in the next page.

Saving a Drum Set

1 Press the [DRUM] button to enter Drum Edit mode.

You will enter Drum Edit mode.

2 Create a Drum Instrument in Drum Edit mode.

```
PART    INSTRUMENT
AD1 017 C3 PowHtom2
LEVEL   PAN
102 R18
```

NOTE For explanation how to create a Drum Instrument, refer to "Drum Edit" (p.120).

3 To store the entire Drum Set, while holding down the [SHIFT] button press the REVERB [◀] button.

The User Drum Set number into which the data will be stored.

```
PART    INSTRUMENT
AD1 Write U.Drum 65?
LEVEL   PAN
102 R18
```

4 Use the INSTRUMENT [◀] [▶] buttons to specify the User Drum Set number (65/66) into which the data will be stored.

5 To save the data, press the [ALL] button.

To quit without storing, press the [MUTE] button.

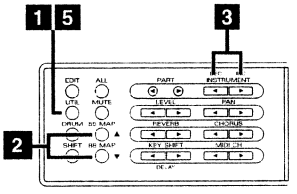
6 If you exit Drum Edit mode, press the [DRUM] button.

11. APPLICATIONS

Using the Panel Knobs and Control Slider As Controllers

Any desired Control Change message, Channel Aftertouch, Master Level or Master Pan can be assigned to the three knobs of the SK-88Pro's EDIT PALETTE and the Control slider, and controlled.
At the factory settings, the [ASSIGN1] knob is assigned to CC#16 (general purpose controller), the [ASSIGN2] knob to CC#17 (general purpose controller), the [ASSIGN3] knob to CC#10 (pan) and the Control slider to EXPRESSION.

NOTE If you move the controllers frequently during a song, there may be cases in which the will not play back correctly. If this occurs, you can either turn on the Tx D. Thin function (p.109), or reduce the amounts of each type of data in the song.



1 Press the [UTIL] button to enter Utility mode.

2 Use the [▲] [▼] buttons to select the knob or slider that you wish to set.

[ASSIGN1] knob:	Asgn1
[ASSIGN2] knob:	Asgn2
[ASSIGN3] knob:	Asgn3
[CONTROL] slider:	C.Slider

3 Use INSTRUMENT [◄] [►] to select the function that you wish to assign.

No assignment:	Off
Control Change messages:	CC#01–31, 33–95
Channel Aftertouch:	CAf (You will also need to make CAf settings. (p.106))
Master Level:	M.Lev
Master Pan:	M.Pan

4 If you wish to assign a function to another knob or slider, repeat steps **2** and **3**.

5 When you finish making settings, press the [UTIL] button to exit Utility mode.

If you assigned a function to the Control slider, perform the following procedure after the above setting.

1. Press the [FUNC] button at the left of the [CONTROL] slider to make the indicator light.
2. Press the key that [ASSIGN] is displayed on the line above the keyboard.
3. Press the [FUNC] button to make the indicator dark.

* *This setting will return to initial setting (EXPRESSION) when the power is tuned off.*

Using a Pedal or Pedal Switch As a Controller

A pedal that is connected to the SK-88Pro's Control Pedal jack or Hold Pedal jack can be used as a controller.

If an expression pedal is connected to the SK-88Pro's Control Pedal jack, the pedal can be assigned to transmit any desired Control Change message, Channel Aftertouch, Master Level or Master Pan, allowing you to control these parameters from the pedal.
At the factory settings, this is set to CC#11 (Expression).

If a pedal switch is connected to the SK-88Pro's Hold Pedal jack, the pedal can be assigned to transmit any desired Control Change message or Channel Aftertouch, so that value can be transmitted by pressing or releasing the pedal. (The value will be 127 when on, and 0 when off.)
You can also set the function to Start/Stop, allowing you to control playback/stop on a connected external device that is able to receive Start/Stop messages.
When this is set to EFX On/Off, you can turn EFX on/off for each Part.
At the factory settings, this is set to CC#64 (Hold 1).

NOTE

If you move the controllers frequently during a song, there may be cases in which the will not play back correctly. If this occurs, you can either turn on the Tx D. Thin function (p.109), or reduce the amounts of each type of data in the song.

1 Press the [UTIL] button to enter Utility mode.

2 Use the [▲] [▼] buttons to select the jack you wish to set.

Control Pedal jack:	P.Ctrl
Hold Pedal jack:	P.SW

3 Use the INSTRUMENT [◀] [▶] buttons to set the value.

For P.Ctrl

No assignment :	Off
Control Change messages:	CC#01–31, 33–95
Channel Aftertouch:	CAf
Master Level:	M.Lev
Master Pan:	M.Pan

For P.SW

Nothing:	Off
Control Change messages:	CC#01–31, 33–95
Channel Aftertouch:	CAf
Start/Stop:	Start/Stop
Insertion Effect ON/OFF:	EFX On/Off

NOTE

If you select CAf, you will also need to make CAf settings for the internal sound generator of the SK-88Pro. (p.106)

4 When you finish make the settings, press the [UTIL] button to exit Utility mode.

Controlling the Volume and Pan of a Specific Drum Instrument

While playing back song data, you can use the EDIT PALETTE knobs of the SK-88Pro to control the volume and pan (stereo location) of a specific Drum Instrument in real time.

NOTE

If you move the controllers frequently during a song, there may be cases in which the will not play back correctly. If this occurs, you can either turn on the Tx D. Thin function (p.109), or reduce the amounts of each type of data in the song.

1 Play music files with the sequencing software on the computer, etc.

2 Press the [DRUM] button to make the indicator light.

3 Use one of the following methods to select the Drum Instrument that you wish to edit.

INSTRUMENT [◀] [▶]	Step through Instrument numbers one at a time.
Press the keyboard	Select the Drum Instrument that corresponds to each note.

4 The volume of the Drum Instrument is controlled by the [ASSIGN1] knob. The pan of the Drum Instrument is controlled by the [ASSIGN2] knob.

* *For MIDI output, this data is transmitted as System Exclusive messages. (p.207)*

Copying or Exchanging Settings Between Parts/ Initializing Part Settings

The settings of the selected Part can be copied to another Part or initialized, and you can exchange settings between Parts. By using these functions, you can create sounds more efficiently.

1 Make sure that the [ALL] indicator is dark.

If it is lit, press the [ALL] button to make it go dark.

2 Use the PART [◀] [▶] buttons to select the source Part.

3 Use the following procedure.

(A) Copy: While pressing the [SHIFT] button, press the LEVEL [◀] button.
The display will ask "Copy A01 -> 02? "
Use the INSTRUMENT [◀] [▶] buttons to select the copy destination Part.

(B) Initialize: While pressing the [SHIFT] button, press the LEVEL [▶] button.
The display will ask "Clear A01? "

(C) Exchange: While pressing the [SHIFT], press the PAN [◀] button.
The display will ask "Exch9 A01 <--> A02? "
Use the INSTRUMENT [◀] [▶] buttons to select the Part to be exchanged.

4 To execute the specified operation, press the [ALL] button.

To cancel without executing, press the [MUTE] button.

Transmitting the Settings of the SK-88Pro to a Computer

The SK-88Pro can transmit the contents of its sound source memory as MIDI data. The data can be transmitted in two ways: Bulk Dump which transmits multiple parameters as a group, and Individual Data which allows parameters to be transmitted individually. All data is transmitted as System Exclusive messages.
Use Bulk Dump when you wish to save settings of the SK-88Pro on a sequencer or computer. By transmitting a Bulk Dump, you can also set all parameters of two units to identical settings.
By transmitting Individual Data, you can create data without having to look up individual System Exclusive messages, letting you create data more efficiently.

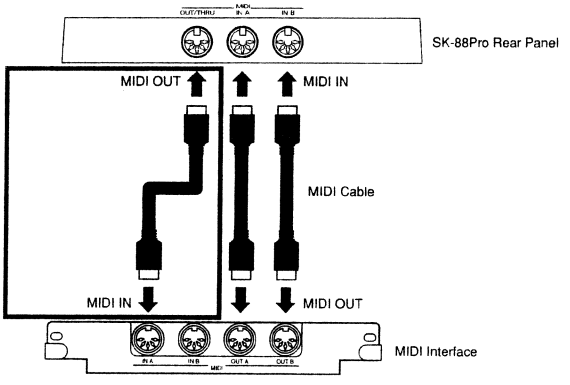
Connections and Settings

If you are using the MIDI connectors of the SK-88Pro to connect it to a computer, make the following additional connections and settings.

NOTE

If you are using a Computer cable to connect the SK-88Pro to a computer, these connections and settings are not necessary. Read from "Bulk Dump" on the following page.

1 Turn off the power on the SK-88Pro and your computer, and use a MIDI cable to connect the MIDI OUT/THRU connector on the SK-88Pro to the MIDI IN connector on the MIDI interface.



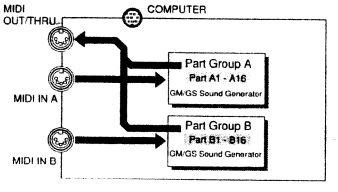
2 Turn on the power of the SK-88Pro.

3 Use the [▲] [▼] buttons to access the OUT/THRU parameter. If the setting is not OUT, press INSTRUMENT [◀] to set it to OUT.

4 When you finish making he setting, press the [UTIL] button.

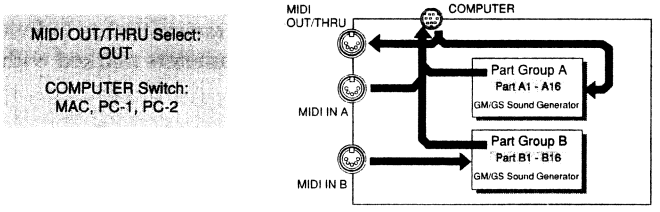
NOTE

The data will not be transmitted when MIDI OUT/THRU Select is set to THRU.



MEMO

It is also possible to transfer data to a computer via the Computer connector without using the MIDI connectors.



Bulk Dump

NOTE

When transmitting or receiving Bulk Dump data, check the settings and procedures on your sequencing program or sequencer.
Here we explain how to transmit data from the SK-88Pro.

1 Press the [ALL] button to make the button indicator light.

2 Simultaneously press both the INSTRUMENT [◀] [▶] buttons.

The display will ask "Dump All, Sure?," and the data is now ready to be transmitted.

3 Use the INSTRUMENT [◀] [▶] button to select the type of data you wish to transmit.

All:	all parameters of the SK-88Pro (Including User parameters)
All-U:	all parameters except User parameters (User Instrument, User Drum Set, User Effect and User Patch) settings
U.INST:	User Instrument settings
U.DRUM:	User Drum settings
U.PATCH:	User Patch settings
U.EFX:	User Effect settings
GS A:	GS parameters for Part Group A
GS B:	GS parameters for Part Group B

4 Start recording on the sequencing program or sequencer.

5 Press the [ALL] button and data transmission will begin.

The "Transmitting" display will appear while the SK-88Pro transmits data.
To cancel data transmission, press the [MUTE] button.

6 When data transmission is complete, stop recording on the sequencing program or sequencer.

NOTE

Since this operation transmits a large amount of data, make sure that the receiving MIDI device has sufficient memory. If the receiving device has insufficient memory, recording will not be completed. If you transmit data for all Parts, the Bulk Dump data transmitted by the SK-88Pro is about 40 Kbytes.

Transmitting Individual Data

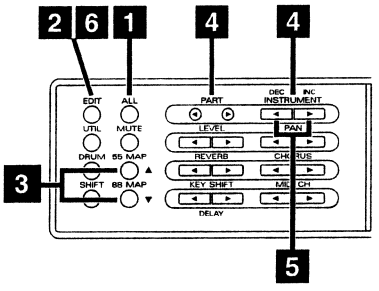
This data can be transmitted in one of two ways: parameters can be selected in Edit mode and transmitted, or Insertion effect parameters can be transmitted.
For the types of parameters which can be transmitted as Individual Data, refer to p.219 "INDEX FOR PARAMETERS." (Parameters marked with "#" can be transmitted.)

Transmitting Part Parameters and Parameters Common to All Parts (Edit Mode)

NOTE

In the parameters common to all Parts, the following parameters cannot be transmitted.

Device ID, MUTE Lock, EQ Lock, Rx GM On, Rx GS Reset



1 Part parameters:
Make sure that the [ALL] button indicator is dark.

Parameters common to all Parts:
Make sure that the [ALL] button indicator is lit.

2 Press the [EDIT] button to enter Edit mode.

3 Use the [▲] [▼] button to select the parameter you wish to transmit.

While holding the [SHIFT] button, press the [▲] [▼] button to skip parameters.

4 Part parameters:
Use the PART [◀] [▶] button to select the Part which will transmit the parameter, and use the INSTRUMENT [◀] [▶] button to set the value.

Parameters common to all Parts:
Use the INSTRUMENT [◀] [▶] button to set the value.

5 Simultaneously press the INSTRUMENT [◀] and [▶] buttons, and the data will be transmitted.

A display of " Transmitting " will appear while the data is being transmitted.

6 Press the [EDIT] button to end the procedure.

Transmitting Insertion Effect Parameters

1 Press the [EFX] button to make the indicator light orange.

2 If you want to transmit the effect type data, use the [EFX TYPE] knob to select the effect type.

If you want to transmit the effect parameter data, use the [EFX TYPE] knob to select the effect type, use the [EFX PARAM] knob to select the parameter, and use the [EFX VALUE] knob to set the the value.

3 Simultaneously press both the INSTRUMENT [◀] [▶] buttons, and the data will be transmitted.

Draw Pictures or Characters in the Display (Frame Draw)

You can use the dot matrix of the SK-88Pro display which is used as bar indicator to draw pictures or characters. This is called the Frame Draw function. Ten picture screens can be stored. Each of the ten screens is called a "Page." You can transmit the picture data as MIDI System Exclusive messages and save it to a sequencer or computer, and then re-transmit it to the SK-88Pro to make pictures or characters be displayed in time with the music.

1 Simultaneously press the [EDIT] and [UTIL] buttons.

You will enter Frame Draw mode, then the display will show "FrameDraw:Page 1."

2 Use the INSTRUMENT [◀] [▶] buttons to select the page you wish to use.

3 Move the cursor, and use the button operations listed below to turn each dot on or off to create a picture or characters.

The dot will blink at the cursor location.

[▲] [▼]:	move the cursor up/down
PART [◀] [▶]:	move the cursor left/right
[ALL]:	turn the dot on (lit)
[MUTE]:	turn the dot off (dark)
CHORUS [◀]:	shrink dots
CHORUS [▶]:	expand dots
LEVEL [◀]:	move the displayed picture down
LEVEL [▶]:	move the displayed picture up
PAN [◀]:	move the displayed picture left
PAN [▶]:	move the displayed picture right
INSTRUMENT [◀] + [▶]:	transmit the screen data to an external device

NOTE Be aware that the screen data will not be transmitted from MIDI OUT connector if MIDI OUT/THRU Select (p.141) is set to THRU.

4 To invert/erase/copy the screen data, use the following procedures.

(A) To invert the screen, press the REVERB [◀] or [▶] button.
A message will ask "Invert Page * ?" Use the INSTRUMENT [◀] [▶] buttons to specify the page to be inverted.

(B) To erase the screen, press the MIDI CH [◀] or [▶] button.
A message will ask "Clear Page * ?" Use the INSTRUMENT [◀] [▶] buttons to specify the page to be cleared.

(C) To copy the screen, press the KEY SHIFT [◀] or [▶] button.
A message will ask "Copy to Page * ?" Use the INSTRUMENT [◀] [▶] buttons to specify the copy destination page.

* *In the messages given above, "*" indicates the screen page number.*

For each operation, press the [ALL] button to execute.

To cancel without executing, press the [MUTE] button.

5 When you finish, simultaneously press the [EDIT] and [UTIL] button to exit Frame Draw mode.

If You Wish to Display Animated Pictures

1 Use the LEVEL and PAN buttons in step **3** on the previous page to move the picture and copy it to the next page to create each frame of the animation.

2 Then simultaneously press both the INSTRUMENT [◀] [▶] buttons to transmit the data for each frame and save it in sequencing software (p.131).

3 Then, before you start to playback the song, transmit this display data to the SK-88Pro.

4 Playback a music file that contains the display select command (Exclusive data p.202).

This allows you to make moving pictures or characters appear in synchronization with the music.

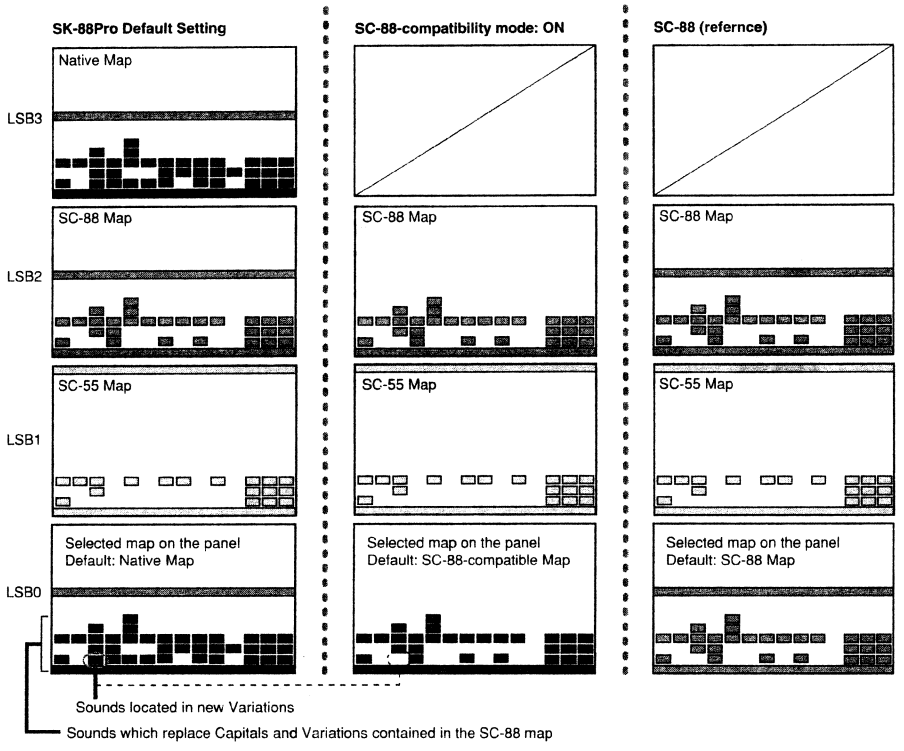
NOTE For this procedure, you will need sequencing software that is able to edit, receive and transmit System Exclusive data. Check the manual for your software.

NOTE When screen data are received as MIDI Exclusive messages, the screen data in the SK-88Pro will be overwritten and lost.

Creating Compatible Data for the SC-88Pro/SC-88

The SK-88Pro has an SC-88-compatibility mode which is convenient when you wish to create data that will be compatible with both the SC-88Pro and the SC-88.

The SK-88Pro provides numerous additional sounds. The additional sounds include sounds which replace Capitals and Variation contained in the SC-88 map, and sounds located in new Variation. Of these, the sounds which replace SC-88 map contain the same type of sounds as in the SC-88, and are musically interchangeable with each other. By using these sounds, you can create songs that will playback on either instrument with the generally same musical result. Thus, the SC-88-compatibility mode provides an SC-88-compatible sound map. In the SC-88-compatible sound map, the SK-88Pro's high-quality sounds are arranged in the same arrangement as the SC-88 map.
The initial settings of the SK-88Pro, SC-88-compatibility mode-on, and the SC-88 map structure are as shown in the following illustration.



NOTE The LSB is the lower byte of the Bank Select message. When the LSB is specified by a MIDI message, the condition will be as specified by the panel [88 MAP] and [55 MAP] buttons. (p.52)

When compared with SC-88, the map structure in SC-88-compatibility mode differs only in that the SC-88-compatible map can be used, and the structure is identical in all other respects.
In SC-88-compatibility mode, specifying a sound with a MIDI message of LSB 0 will normally select the SC-88-compatibility map, but if you press the [88 MAP] button, the SC-88 map will be selected. And if you press the [55 MAP] button, the SC-55 map will be selected. With the SC-88-compatible map, sounds for the SK-88Pro will be played, but with SC-88 map the same sounds as the SC-88 will be played.
When creating data that must be playable on both the SK-88Pro and the SC-88, you should usually turn SC-88-compatibility mode on, and use LSB 0 to specify sounds. If you wish to specify SC-55 map (or SC-88 map), use LSB 1 (or LSB 2) to specify sounds.

NOTE If you use Insertion effects, the SC-88 may not be able to produce the same playback.

Entering SC-88-compatibility Mode

1 Hold down the [SHIFT] button, and press the [ALL] button.

The [ALL] button will blink, and the SC-88-compatibility mode will be turned on.

At this time if you press the [88 MAP] button, the [88 MAP] button will light and the SC-88 map will be selected. Alternatively, if you press the [55 MAP] button, the [55 MAP] button will light and the SC-55 map will be selected.

2 To turn off SC-88-compatibility mode, hold down the [SHIFT] button and press the [ALL] button.

Map Settings When Playing back Music Files

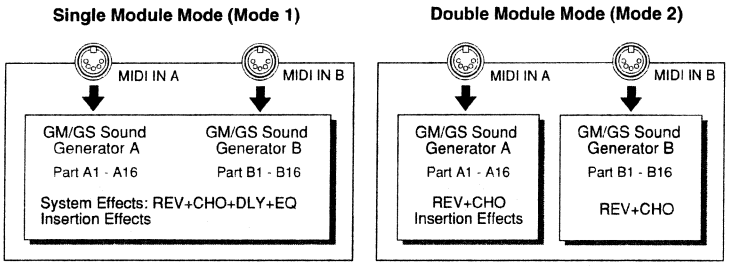
To maintain compatibility with various types of song data such as General MIDI/GS, the SK-88Pro has three sound maps. These can be accessed as follows.

Type of data	Map for playback	Map setting
General MIDI/GS data	Native map	Default setting
General MIDI/GS data	SC-55 map	[55 MAP]: ON
General MIDI/GS data	SC-88 map	[88 MAP]: ON
Data for SC-88 (LSB0)	Native map	Default setting
Data for SC-88 (LSB0)	SC-88 map	[88 MAP]: ON
Data for both the SK-88Pro/SC-88 (LSB0)	SC-88 map	[88 MAP]: ON
Data for the SK-88Pro	Native map	Default setting

For example if you wish to playback General MIDI/GS data using Native map, select the default map setting.

Using the SK-88Pro As Two Sound Modules

The SK-88Pro has two System modes: Single Module mode (Mode 1) and Double Module mode (Mode 2). When Double Module mode is selected, two types of System effect can be used simultaneously. For example, you could use different types of reverb on Drum Parts than on normal Parts. Other parameters can also be set separately in two groups.
Insertion effects can be used only for Part A.
Normally the SK-88Pro is in Single Module mode.



Selecting Double Module Mode

1 While holding down the [SHIFT] button, press the KEY SHIFT [▶] button.

The display will ask "Set Mode2, Sure?"

2 Press the [ALL] button, and the SK-88Pro will be in Double Module mode.

To cancel the operation, press the [MUTE] button.

At the left of the parameter names, there will be an indication of either A or B. This indicates whether you are setting parameters for Part Group A or B. The parameters indicated as either A or B can be set independently for Part Groups A or B. Use the PART [◀] [▶] buttons to move between groups A and B.

Selecting Single Module Mode

1 While holding down the [SHIFT] button, press the KEY SHIFT [◀] button.

The display will ask "Set Mode1, Sure?"

2 Press the [ALL] button, and the SK-88Pro will be in Single Module mode.

To cancel the operation, press the [MUTE] button.

NOTE The selection of Single or Double Module mode is remembered when the power is turned off. The System mode will not change even if the power is turned off and then on again.

NOTE Be aware that if you change the System mode, the settings of each Part will be initialized (GS Reset).

NOTE In Double Module mode, the screen display will be inverted. To avoid this, select Type5 setting for Display Type. (p.108)

In both Single Module mode and Double Module mode, MIDI messages received at MIDI IN A are sent to Group A Parts, and MIDI messages received at MIDI IN B are sent to Group B Parts (p.38). Be aware that the route by which data is passed between the two MIDI IN connectors and each Part is determined by the System parameter In Mode (p.142). It is possible to specify the address for Exclusive messages so that Exclusive messages received at MIDI A will be passed to Group B Parts. (p.147)

Parameters You Can Set Two Types in Double Module Mode

In Double Module mode, two groups are provided for the following parameters.

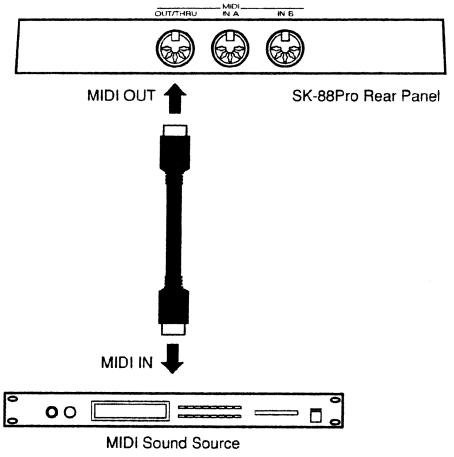
Master Level		(p.100)
Master Pan		(p.100)
Master Key Shift		(p.100)
Master Tune		(p.103)
Reverb Type		(p.58)
Reverb Character		(p.58)
Reverb Pre-LPF	(Reverb Pre Low Pass Filter)	(p.58)
Reverb Level		(p.58)
Reverb Time		(p.58)
Reverb Delay Feedback		(p.58)
Chorus Type		(p.59)
Chorus Pre-LPF	(Chorus Pre Low Pass Filter)	(p.59)
Chorus Level		(p.59)
Chorus Feedback	(Chorus Feedback Level)	(p.59)
Chorus Delay	(Chorus Delay Time)	(p.59)
Chorus Rate		(p.59)
Chorus Depth		(p.59)
Chorus Send Level To Reverb		(p.59)
MUTE Lock		(p.103)
Rx GM On	(General MIDI System On Receive Switch)	(p.103)
Rx GS Reset	(GS Reset Receive Switch)	(p.103)
Device ID	(Device ID Number)	(p.103)

Connecting Another MIDI Sound Source to the SK-88Pro

If you wish to connect another MIDI sound source to the SK-88Pro's MIDI OUT/THRU connector, be aware of the following points.

Making Connections

Connect the MIDI OUT/THRU connector of the SK-88Pro to the MIDI IN connector of another MIDI sound sources with a MIDI cable.

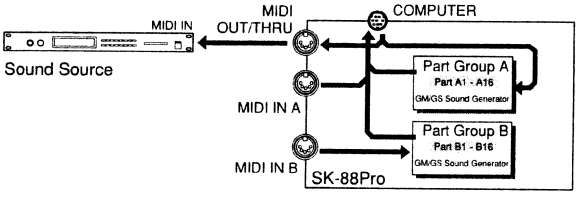


Setting for MIDI OUT/THRU Select

When Connecting to the Computer Using the Computer Connector (p.32)

In this situation, set MIDI OUT/THRU Select (p.141) to OUT. Data received at the Computer connector will be transmitted from the SK-88Pro MIDI OUT/THRU connector.

MIDI OUT/THRU Select:
OUT
COMPUTER Switch:
PC-1, PC-2, Mac



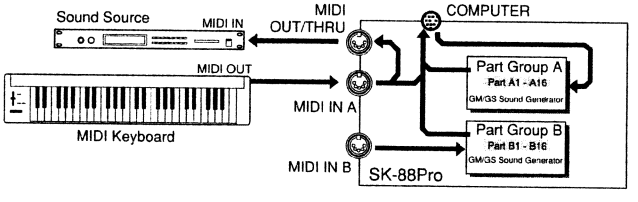
When Using Another Sound Source to Play Data Received at MIDI IN A

In this situation, set MIDI OUT/THRU Select (p.141) to THRU. Data received at MIDI IN A will be transmitted just as it is from MIDI OUT/THRU.

NOTE

Data received at MIDI IN B will not be passed thru even if THRU is selected. Regardless of the Input Mode setting (In Mode p.142), data from MIDI IN B will not be thru-ed.

MIDI OUT/THRU Select:
THRU
COMPUTER Switch:
PC-1, PC-2, Mac



Changing the Routing of MIDI Message Reception/Transmission

The SK-88Pro provides various parameters that determine how incoming MIDI messages are passed to the Parts.

■ OUT/THRU (MIDI OUT/THRU Select)

Specify whether the MIDI OUT/THRU connector on the rear of the SK-88Pro will function as a "MIDI OUT connector" or as a "MIDI THRU connector."

■ In Mode

You can set how data received at the MIDI IN A and B connectors on the rear of the SK-88Pro are routed to the internal sound generator.

Setting the Parameters

1 Press the [UTIL] button.

2 Use the [▲] [▼] buttons to select the parameters (OUT/THRU or In Mode) you wish to set.

3 Use the INSTRUMENT [◀] [▶] buttons to set the parameter value (OUT/THRU, or Standard/Xconnect/Merge → A/Merge → B/A only).

4 When you have set the value, press the [EDIT] button to end the procedure.

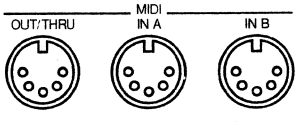
5 Turn on the power again.

NOTE After modifying the setting of OUT/THRU or In Mode parameters, you must turn the power on once again. New settings of these parameters become valid when the power is turned on.

How Each Parameter Works

■ OUT/THRU (MIDI OUT/THRU Select) **OUT**/THRU

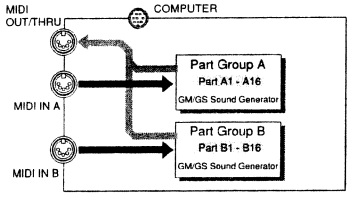
The MIDI OUT/THRU connector on the rear of the SK-88Pro can function either as a MIDI OUT or a MIDI THRU. When the OUT/THRU Select is set to OUT the connector will function as MIDI OUT, and when set to THRU it will function as MIDI THRU.



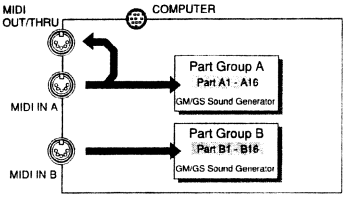
If THRU is selected, data received at MIDI IN A will be retransmitted from the MIDI OUT/THRU connector. Data received at MIDI IN B will never be "thru-ed," regardless of the Thru setting, and regardless of the setting for In Mode.
If OUT is selected, Exclusive data or data received at the Computer connector can be transmitted from the MIDI OUT/THRU connector. (p.32)

When the Computer switch is set to MIDI

MIDI OUT/THRU Select: OUT

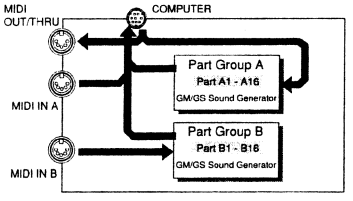


MIDI OUT/THRU Select: THRU

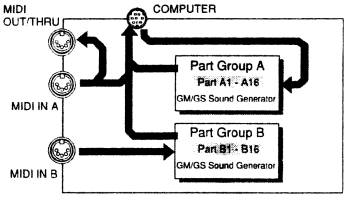


When the Computer switch is set to PC-1, PC-2 or Mac

MIDI OUT/THRU Select: OUT



MIDI OUT/THRU Select: THRU



■ In Mode (Input Mode) **Standard**, X-connect, Merge → A, Merge → B, A only

With the factory settings, MIDI messages received at MIDI IN A are passed to Group A Parts, and MIDI messages received at MIDI IN B are passed to Group B Parts. In normal circumstances, there is no need to change the standard setting, but it is also possible to change the MIDI signal in the following.

Standard

MIDI messages received at MIDI IN A are passed to Group A Parts, and MIDI messages received at MIDI IN B are passed to Group B Parts. Standard is the factory setting.

X-connect (Cross connect)

This reverses the handling of Standard. MIDI messages received at MIDI IN A are passed to Group B Parts, and MIDI messages received at MIDI IN B are passed to Group A Parts.

Merge → A

MIDI messages received at either MIDI IN A or MIDI IN B are sent to Group A Parts. MIDI messages are not sent to Group B Parts, so they will not sound. For example, you might use this setting when you wish to play Group A Parts simultaneously from a MIDI keyboard and from a MIDI sequencer.

Merge → B

This reverses the handling of Merge → A. MIDI messages received at either MIDI IN A or MIDI IN B are sent to Group B Parts. MIDI messages are not sent to Group A Parts, so they will not sound.

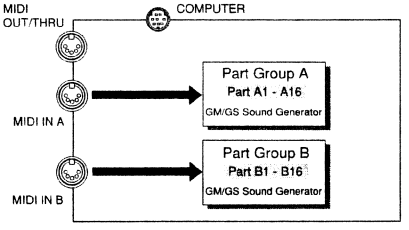
A only

When using the Roland Super MPU (MIDI interface which has two MIDI OUTs), some software will transmit the same data to both of the SK-88Pro's MIDI IN connectors. This will cause two Parts to sound in unison, causing an unnatural effect. In such a case, do not use both MIDI INs. Either disconnect one of the MIDI cables, or use the preceding procedure to set to A only. When A only, data received at MIDI IN B will be ignored.

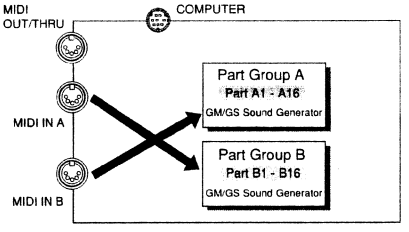
NOTE After modifying the parameter setting, you must turn the power on once again. New settings of these parameters become valid when the power is turned on.

NOTE Be aware that if the Computer switch on the left side of the SK-88Pro is set to either PC-1, PC-2 or Mac, MIDI data received at MIDI IN A will not be sent to the Parts (the sound generator), but will be sent through the Computer connector to the computer (p.32).

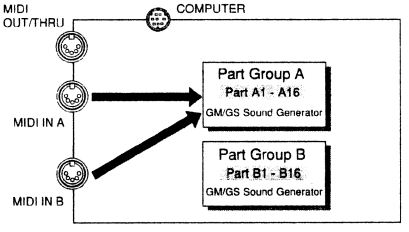
NOTE The data sent from the computer through the Computer connector will be treated as received from MIDI IN A, and will be passed to the various Parts according to the In Mode setting.



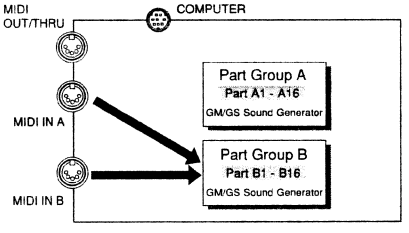
Standard



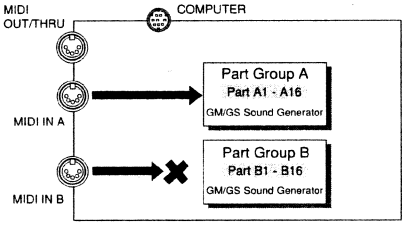
X-connect (Cross Connect)



Merge ->A



Merge ->B



A only

Disabling Exception of Specific MIDI Messages

On the SK-88Pro, you can make settings so that certain types of MIDI message will be ignored even if they are received. For example, if you have made mute settings, etc. on the SK-88Pro, playing back a song that contains an initialization message (such as General MIDI System On or GS Reset) will cause these settings to revert to their initialized values, so that your settings of these parameters will be lost. In such cases, you can specify that such initialization messages will be ignored even if they are received. Alternatively, you can maintain specific settings of the SK-88Pro, for example by specifying that only the mute settings will not be initialized.

The following parameters can be set. Some of these parameters are switches for all Parts, while others are switches for individual Parts.

Switches Which Apply to All Parts	
Keep up Part Mute settings	MUTE Lock
Keep up Equalizer settings (Equalizer Lock)	EQ Lock
Ignore General MIDI System On messages (General MIDI System On Receive Switch)	Rx GM On
Ignore GS Reset messages (GS Reset Receive Switch)	Rx GS Reset
Switches Which Can be Set Individually for Each Part	
Ignore Bank Select messages (Bank Select Receive Switch)	Rx Bank Select
Ignore NRPN messages (NRPN Receive Switch)	Rx NRPN

1 When you set the parameter for all Parts, make sure that the [ALL] button indicator is lit.

When you set the parameter for a Part, make sure that the [ALL] button indicator is dark, and use the PART [◀] [▶] buttons to select a Part.

2 Press the [EDIT] button to enter Edit mode.

3 Use the [▲] [▼] buttons to select the switch parameter you wish to set.

4 Use the INSTRUMENT [◀] [▶] buttons to turn on or off.

5 When you finish making settings, press the [EDIT] button to exit Edit mode.

MEMO For details about the parameters, refer to p.103, 104.

Basic Examples of Music Data

The SK-88Pro has many sound and effect parameters, etc. In order to take full advantage of these during playback, data must be entered correctly.
Here we will introduce some of the main examples of data.

* *In the explanation, "CC#" indicates the Controller number of a Control Change message, and "PC#" indicates a Program number.*

Initializing the Sound Generator (System Mode Set)

When this message is received, the sound generator will be initialized. In order to prevent the sound generator from being in an unexpected state, you should insert this at the beginning of the song.
There are two System modes: Single Module mode (Mode 1) and Double Module mode (Mode 2). Normally you will select Single Module mode (Mode 1).

■ To Select Single Module Mode (Mode 1) (hexadecimal notation)

F0 41 10 42 12 00 00 7F 00 01 F7

Allow an interval of at least 50 ms after this message before the next message.
For example, if the tempo is ♩= 120 and the time signature is 4/4, each beat will be 500 ms, so allow at least 1/10th of a beat before the next message.

* *For details on Double Module mode (Mode 2), refer to p.138.*

* *There are three types of mode message used for initialization: General MIDI System On, GS Reset and System Mode Set. When you create song data, we suggest that one of the following be included at the beginning of your song data: "System Mode Set" for data that is intended for the SC-88 or SC-88Pro/SK-88Pro, "Turn General MIDI System On" for a General MIDI score, or "GS Reset" for GS music data. However, only one of these messages should included in a song. Do not include two or more of these mode messages in the same song.*

SC-88 or SC-88Pro/SK-88Pro data:	System Mode Set
General MIDI Score:	Turn General MIDI System On
GS Music Data:	GS Reset

Setting Basic Parameters

To make settings such as sound selections and volume, use Channel Voice messages such as Program Change and Control Changes. Here are some examples of this data. (Decimal notation)

■ Setting the sound of Part 1 to the Native map 005 Dist E.Piano (Variation 017)

MIDI CH = 01

CC#00	017	Selects Variation number 017
CC#32	003	Selects the Native map
PC#	005	Selects Instrument number 005

■ Setting the sound of Part 2 to the SC-88 map 017 Organ 1 (Variation 000)

MIDI CH = 02

CC#00	000	Selects Variation number 000
CC#32	002	Selects the SC-88 map
PC#	017	Selects Instrument number 017

■ Setting the sound of Part 3 to the SC-55 map 039 Syn.Bass 3 (Variation 008)

MIDI CH = 03

CC#00	008	Selects Variation number 008
CC#32	001	Selects the SC-55 map
PC#	039	Selects Instrument number 039

■ Setting the level of Part 1 to 110

MIDI CH = 01
CC#07 110

■ Setting the pan of Part 2 to L30

MIDI CH = 02

CC#10	34	Since 64 is 0 (center), it is calculated like this: 64 - 30 = 34.

* *The value for R30 is 64 + 30 = 94.*

* *For the procedure for selecting a sound, refer also to p.51.*

Using NRPN to Set Sound Parameters

Control Change messages include a special extended area of messages called NRPN messages. GS sound modules can receive these NRPN messages to set parameters such as vibrato, filter, envelope and Drum Instrument settings. Here are some examples. (Decimal notation)

■ Setting the Part 3 cutoff frequency to -25

MIDI CH = 03

CC#99	01	Cutoff frequency
CC#98	32	Cutoff frequency
CC#06	39	Since 64 is 0, we obtain: 64 - 25 = 39.

■ Raising the pitch of note number 48 of the Part 10 Drum Set to +5 higher than the original pitch

MIDI CH = 10

CC#99	24	Drum Instrument pitch coarse
CC#98	48	Note number
CC#06	69	Since 64 is the original pitch, we obtain: 64 + 5 = 69.

* *For details on using NRPN messages, refer also to 148.*

Other Parameter Settings (System Exclusive Messages)

Use System Exclusive messages to set GS parameters and parameters that are unique to the SC-88Pro/SK-88Pro. Here are some examples of data. (Hexadecimal notation)

■ Setting the reverb type for all Parts to Room 3

F0 41 10 42 12 40 01 30 02 0D F7

■ Setting the chorus type for all Parts to Chorus 4

F0 41 10 42 12 40 01 38 03 04 F7

■ Setting the delay type for all Parts to Delay 3

F0 41 10 42 12 40 01 50 02 6D F7

■ Setting the pan of Part 1 to be random

F0 41 10 42 12 40 11 1C 00 13 F7

■ Setting the equalizer Low Gain to +6, and turning off the equalizer for Part 3

F0 41 10 42 12 40 02 01 46 77 F7	Sets the equalizer low gain to +6
F0 41 10 42 12 40 43 20 00 5D F7	Turns off the equalizer for Part 3

* *At the factory settings, the equalizer is turned on for each Part.*

■ Applying Insertion Effect 06:Distortion to Part 1

F0 41 10 42 12 40 41 22 01 5C F7	Turns on the effect for Part 1
F0 41 10 42 12 40 03 00 01 11 2B F7	Sets the effect type to 06:Distortion
F0 41 10 42 12 40 03 03 7F 3B F7	Sets the effect parameter Drive to 127

■ Setting Part 11 to a Drum Part

F0 41 10 42 12 40 1A 15 02 0F F7

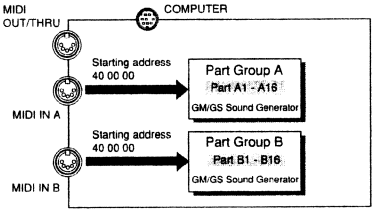
Exclusive Data Addresses

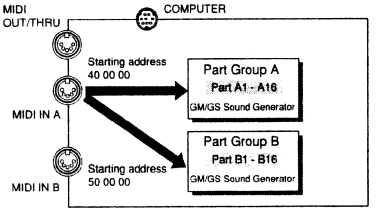
Receiving Exclusive Data

As listed in "MIDI IMPLEMENTATION" (p.196), the address of MIDI Exclusive data (GS format) is defined in units of 16 Parts. In other words, starting from address 40 00 00 are the parameters for 16 Parts. The SK-88Pro has data for another 16 Parts, making a total of 32 Parts. For this reason, the SK-88Pro's MIDI Exclusive data format expands the addressing, and places the remaining 16 Parts at starting address 50 00 00.

In the same way as with channel messages, Exclusive data received at MIDI IN A is passed to Group A Parts, and Exclusive data received at MIDI IN B is passed to Group B Parts. In other words, Exclusive data for the 32 Parts is received using two MIDI IN connectors. If this is done, each MIDI IN receives Exclusive data for 16 Parts, so it is not necessary to split up the data into addresses 40 00 00 and 50 00 00.

However it is also possible for the SK-88Pro to receive Exclusive data for all 32 Parts at a single MIDI IN. In this case it is necessary to use address 50 00 00. For example, the data at starting address 40 00 00 will be passed to Group A Parts, and the data at starting address 50 00 00 received at the same MIDI IN will be passed to Group B Parts. In other words, using starting address 50 00 00 means that the data will be passed to the Parts of the other Group than the MIDI IN that the data was received at.





Only in the case of Exclusive data, the System parameter In Mode (p.142) has no effect on the way in which data are passed from the two MIDI IN connectors to the Parts.

Transmitting Exclusive Data

Since the SK-88Pro has only one MIDI OUT, the Exclusive data transmitted is sent using the two address areas of 40 00 00 and 50 00 00. User sound data is located at starting areas of 20 00 00.

NOTE

Be aware that Exclusive data will be not transmitted from MIDI OUT connector if the MIDI OUT/THRU Select (p.141) is set to THRU.

MIDI Messages of the SK-88Pro

Using NRPNs with GS Sound Modules

Included within the various types of Control Changes (often abbreviated as "CC") is an extended range known as NRPNs (Non-registered Parameter Numbers). The NRPNs can be used with GS sound modules to alter various sound parameters, such as those for the vibrato, filters, and envelopes. There are distinct advantages to using Control Changes rather than Exclusive messages when wishing to modify sounds. They are not as complicated, they are easier to handle, and they do not require a large amount of data (p.153, 197). Such Control Change messages include a number (the Controller number) which specifies the type of function that is to be controlled.
The MIDI specifications do not define any specific functions which can be set using NRPNs. This is because the NRPNs are intended to serve as a flexible range of controls which can be assigned whatever parameters are required for a specific device in order to achieve the desired changes in its sounds, or enhance its expressive capabilities. In contrast, there is another type of extended form of control known as an RPN (registered parameter number). As their name suggests, RPN functions are all defined (registered) within the MIDI specifications (p.198).
When using an NRPN, the function (sound parameter) being dealt with needs to be specified by means of the numeric values that are supplied for the NRPN MSB (Controller No. 99) and NRPN LSB (Controller No. 98). By then sending the appropriate value for Data Entry (Controller No. 6), the change in the specified sound parameter is accomplished.
Note that instead of the hexadecimal notation that is used within the "MIDI IMPLEMENTATION" (p.197), the numbers for the combinations of values for NRPNs that appear in the chart below have all been converted to decimal. (Note also that these NRPNs are specific only to GS sound modules.)

NRPN MSB	NRPN LSB	Range	Function
1	8	0–64–127	Vibrato Rate *1 (p.112)
1	9	0–64–127	Vibrato Depth *1 (p.112)
1	10	0–64–127	Vibrato Delay *1 (p.112)
1	32	0–64–127	TVF Cutoff Frequency *1 (p.112)
1	33	0–64–127	TVF Resonance *1 (p.112)
1	99	0–64–127	TVF&TVA Envelope Attack Time *1 (p.113)
1	100	0–64–127	TVF&TVA Envelope Decay Time *1 (p.113)
1	102	0–64–127	TVF&TVA Envelope Release Time *1 (p.113)
24	rr	0–64–127	Drum Instrument Pitch Coarse *1 Alters the pitch of individual percussion instruments in the Drum Part.
26	rr	0–127	Drum Instrument TVA Level Alters the volume of individual percussion instruments in the Drum Part.
28	rr	0, 1–64–127	Drum Instrument Pan Alters the panning for individual percussion instruments in the Drum Part. A setting of "0" provides random panning, while "1" selects the leftmost position, "64" the center, and "127" places it at the rightmost position.
29	rr	0–127	Drum Instrument Reverb Send Level Sets the reverb depth for individual percussion instruments in the Drum Part.
30	rr	0–127	Drum Instrument Chorus Send Level Sets the chorus depth for individual percussion instruments in the Drum Part.
31	rr	0–127	Drum Instrument Delay Send Level Determines the amount of delay for individual percussion instruments in the Drum Part (SC-88/this unit only)

For example, let's say that you want to alter the TVF Cutoff Frequency. First, you need to assert that it is the TVF Cutoff Frequency that you wish to control by sending the appropriate NRPN MSB and NRPN LSB combination.
The value for Controller No. 99 is the NRPN MSB, and that for Controller No. 98 is the NRPN LSB.
So, you would transmit these values:

Controller No. 99: 1
Controller No. 98: 32

The unit has thus been made aware that it is the TVF Cutoff Frequency that you are going to change. To go ahead and make the actual change, you would then use the Data Entry Control Change message to supply the new value (xx) for the TVF Cutoff Frequency.
Thus, you would send:

Controller No. 6: xx

As a result of transmitting the above three controller values, the TVF Cutoff Frequency will have been altered, and the timbre of the instrument selected for that Part should sound differently.
After altering sound parameters using an NRPN, we recommend that you make a habit of asserting a "null" by sending the RPN values shown below. This will tell the unit that you are finished working with the parameter that has been specified, and that it should stop waiting for any further new values for that parameter. (It cancels the standing request for change in a particular NRPN or RPN.) This way you can avoid having unexpected changes made if any unintended Data Entry values get sent afterwards.

Controller No. 101: 127
Controller No. 100: 127

For the "NRPN LSB rr" value, you need to supply the value which corresponds to the note number of the particular percussion instrument that you want to address (these numbers can be found in the Drum Set List, p.173).
For example, let's say that you want to set the High Bongo so that no reverb will be applied to it. This instrument is assigned note number 60 (middle C), and is contained in the Standard Set 1 Drum Set.
To accomplish this you would transmit these values:

Controller No. 99: 29
Controller No. 98: 60
Controller No. 6: 0

Note that these MIDI messages need to be sent in the order listed above.
Parameters marked with *1 in the chart at left can be altered in a relative manner from the default value. Depending on the particular sound you are working with, the type of change available will be different (in some cases you may not even notice any change). Also, the range of change will vary.
You may need to consult the manual that came with your equipment or software for details on how to properly input and transmit Control Change messages.
Note, though, that some devices may only allow you to work with a limited range of Controller numbers.
Make sure that you always follow the order shown above

when transmitting RPN, NRPN, and Data Entry data. Be careful, since if you insert a multiple number of MIDI messages at the same point in time (or in very close range of each other) when using some types of music software, the messages can sometimes be sent out in an order different than originally intended. To avoid problems, always allow sufficient space between adjacent messages (at least 1 tick at 96 TPQN, and 5 ticks at 480 TPQN).

* *TPQN: Ticks Per Quarter Note*
* *Any value which has been imposed by means of an NRPN will not be initialized even when a different sound is changed to in compliance with a received Program Change. Settings which have been made using NRPNs can only be initialized by sending a GS Reset, or by performing a GS Initialization (p.25).*
* *At the factory settings, the SK-88Pro will not respond to NRPN messages. However, after a GS Reset has been received it will recognize NRPNs. Alternately, you can enable recognition of NRPNs by turning on "Rx.NRPN" (NRPN Receive Switch p.104), either by using the panel buttons, or through Exclusive messages.*

When Song Data Plays Back with the Wrong Sounds

When song data created using the SC-55 or the SC-155 is played back by the SK-88Pro, the sounds that were intended may not be selected. This can occur for one of the following two reasons.

1. The wrong Variation number was selected

When a Variation number for which sounds do not exist is selected on the SK-88Pro, the display will show a message of No INSTRUMENT (or for the Drum Part, No DRUM SET). Even if the relevant Part is not displayed, this message will be displayed briefly when any Part receives such data.
The data which specifies sounds is usually placed in the beginning of the song data, so check whether this message appears when the song data starts. If this message appears, it is possible that a Control Change Bank Select message (or for the Drum Part, a Program Change) within the song is incorrect. (p.51) Refer to the Instrument List (p.166), and modify the data value so that an existing sound is selected.

2. The wrong sound map was selected

On the SK-88Pro, the lower byte (LSB) of a Control Change Bank Select message (Control Change 32) can be used to switch sound maps (p.52).

Control Change 32 values
00: The map selected by the panel buttons will be used.
01: The SC-55 map will be selected.
02: The SC-88 map will be selected.
03: The Native map will be selected.

If values other than these are transmitted to the SK-88Pro, a map for which the SK-88Pro has no sounds will be selected, so a message of No INSTRUMENT will appear. In the case of the SC-55/155/55mkII, the LSB of this Bank Select message is ignored, so sound selection will not be affected regardless of the value that is transmitted. However since Bank Select messages are used as a pair of upper and lower values (MSB and LSB), it is best to input 00 as the lower value (LSB) in your song data.

Using Screen Display Data for the SC-55 Series

About Screen Display Data

The level indicator area in the center of the SC-55/55mkII/SC-88/VL/Pro display (bar display) is able to display 16 x 16 dot graphics that are transmitted to it as Exclusive messages. By transmitting this data together with the song data, you can make the display change as the song progresses.
The SC-88/VL/Pro can hold 10 pages of display data. Exclusive messages can be used to display a specific page, and to adjust the duration for which each page will be displayed (p.202).
Also, text can be displayed in the INSTRUMENT display area, allowing song titles or lyrics to be displayed. Even display data for the SC-55/55mkII can be used without change to produce the same display. In this case, the data will be displayed as the first page of the 10 pages.

Frame Draw Function (p.134)

The SK-88Pro has a Frame Draw function. This function allows you to create display data for each page using the panel buttons, and to transmit the data you create as Exclusive messages. By using this to create data in the appropriate sequence and timing, you can create display data with movement.

How to Use a Part Other Than Part 10 as a Drum Part, So That Two Drum Sets Can be Used Simultaneously

About the Part Mode

Each Part 1–16 can be used either for normal sounds (normal Part) or for a Drum Set (Drum Part). This selection is made by the Part Mode setting. (p.104)
The mode of a Drum Part can be either Drum1 or Drum2. Since the same Drum Set will automatically be selected for Parts that have the same Part Mode, this means that up to 2 types of Drum Set can be used simultaneously.
For example if you set the Part Mode of Part 10 and Part 11 respectively to Drum1 and Drum2, you could select STANDARD1 Set for Part 10 and JAZZ Set for Part 11.
If the Part Mode of both Parts 10 and 11 were set to Drum1, selecting STANDARD1 Set for Part 10 would automatically select STANDARD1 Set for Part 11 as well.

Settings Via MIDI

To set the Part Mode using MIDI messages, you need to use System Exclusive messages.
For example if you wish to set the Part Mode of Part 11 to Drum2, transmit the following message. (p.205)

F0 41 10 42 12 40 1A 15 02 0F F7

10:	Device ID (17)
40 1A 15:	Address (USE FOR RHYTHM PART of Part 11)
02:	Data (Part Mode Drum2)

To select a Drum Set after setting the Part Mode, transmit a Program Change to Part 11.

Using Aftertouch

First set Aftertouch function using knobs, sliders, or pedals to be able to transmit Aftertouch messages from the controller section of the SK-88Pro. When the sound generating section of the SK-88Pro receives Aftertouch messages, the way in which it responds will depend on its settings. With the factory settings or immediately after the SK-88Pro has been initialized by a GS Reset etc., Aftertouch messages will have no effect, so you will need to change the settings if you want Aftertouch to do something.
Aftertouch parameters are divided into the following two groups.

- **Channel Aftertouch (CAf):**
  These messages apply an effect to the entire Part of a given channel. For example if you hold down a "C–E–G" chord and then press strongly on just the "C" note, the effect will apply to all notes "C–E–G."

* *The keyboard of the SK-88Pro does not provide Channel Aftertouch functionality.*

- **Polyphonic Aftertouch (PAf):**
  These messages apply an effect independently for each note number. For example if you hold down a "C–E–G" chord and then press strongly on just the "C" note, the effect will apply only to the "C" note.
  Of the Channel Aftertouch parameters, the following seven can be set from the panel (p.206).

  CAf Range/CAf Cutoff/CAf Amp/CAf LFO Rate/
  CAf LFO Pitch/CAf LFO TVF/CAf LFO TVA

  The other parameters (CAf: 7 types/PAf: 11 types) can be set by transmitting Exclusive messages from a sequencer or computer. For details on the messages for these parameters, refer to MIDI Implementation p.205–206.

* *The keyboard of the SK-88Pro does not provide Polyphonic Aftertouch functionality.*

Using MIDI to Control the Depth of a System Effect (p.54)

Reverb/Chorus/Delay

The depth of the System effects Reverb/Chorus/Delay can be adjusted for each Part using Control Change messages (p.153)

Reverb Send Level	(Controller number 91)
Chorus Send Level	(Controller number 93)
Delay Send Level	(Controller number 94)

The Reverb/Chorus/Delay effects use a portion of the sound from each Part to create a new effect sound (reverberance, etc.) which can then be added to the original sound.
The above three parameters control the amount of the sound (signal) of each Part that will be sent to the effect unit. Higher settings will increase the amount of the signal that is sent to the effect unit, causing more effect sound to be produced. The result is that the effect will be deeper.

Equalizer

The equalizer modifies the tonal character of the sound. You can specify whether or not the sound of a Part will be passed through the equalizer; i.e., turn the equalizer on/off. Settings are made using Exclusive messages, not Control Change messages.

< Setting example >
Turning the equalizer on for Part 1:
F0 41 10 42 12 40 41 20 01 5E F7

12. MIDI AND THE SK-88PRO

About MIDI

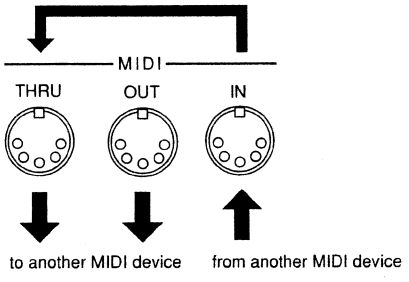
MIDI stands for Musical Instrument Digital Interface. MIDI devices can transmit musically related data such as performance data or data to select sounds. Since MIDI is a world-wide standard, musical data can be sent and received between devices even if they are of different types and were made by different manufacturers. In the MIDI standard, data describing a musical performance such as "play a note" or "press the pedal" are transmitted as MIDI messages.
As long as you are using the SK-88Pro to simply play commercially available music data or to provide sound for game software, it is not necessary to know about MIDI. Simply follow the instructions in the manual for your music data playback device (MIDI player) or your software.
The explanation that follows will help you use MIDI to control the SK-88Pro in greater detail.

How MIDI Messages are Transmitted and Received

First we will briefly explain how MIDI messages are transmitted and received.

MIDI Connectors

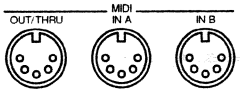
MIDI messages are transmitted and received using three types of connector. Connect MIDI cables to these connectors as appropriate for your setup.



MIDI IN: This connector receives messages from another MIDI device.
MIDI OUT: This connector transmits messages from the SK-88Pro.
MIDI THRU: This connector retransmits the messages received at MIDI IN.

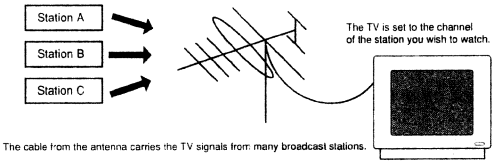
* *It is possible to use MIDI THRU to connect two or more MIDI devices, but in practice the limit is 5 units. This is because as the signal path becomes longer, the signal deteriorates and the messages can no longer be received correctly.*

* *On the SK-88Pro, MIDI THRU and MIDI OUT share the same connector. The MIDI OUT/THRU Select switch (p.141) determines which function the connector will have.*

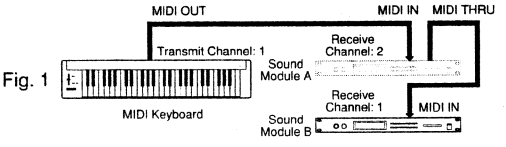


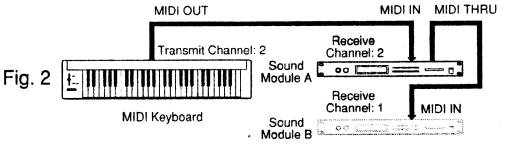
MIDI Channels and Multi-timbral Sound Modules

MIDI transmits a wide variety of performance data over a single MIDI cable. This is made possible by MIDI channels. MIDI channels allow specific data to be selected out of a large amount of data. The concept is similar to the idea of TV channels. By changing the channel of a TV receiver you can view the programs of different stations. By setting the channel of the receiver to match the channel of the transmitter, you can receive only the program you wish to watch. In the same way, MIDI allows you to receive data only when the channel of the receiver matches the channel of the transmitter.



MIDI uses sixteen channels, numbered 1–16. Music data is received when the transmit channel of the transmitting device matches the receive channel of the receiving device. If you make MIDI channel settings as Fig.1, only sound source B will sound when you play the keyboard, and sound source A will not sound. This is because sound source B matches the transmit channel of the keyboard, but sound source A's channel does not match.
Conversely, if you set the transmit channel of the keyboard to match sound source A, sound source A will sound (Fig.2).





Since the SK-88Pro has two MIDI IN connectors, it can receive a total of 32 channels simultaneously. By using 32 channels you can play ensembles of 32 Parts (p.38). Sound sources such as the SK-88Pro which are able to simultaneously play many parts are called multi-timbral sound modules. Timbre is a word meaning sound.
The SK-88Pro has two types of Parts: Normal Parts and Drum Parts (p.104). Normal Parts are used to play melody or bass lines. On General MIDI/GS sound sources, the Drum Part uses channel 10.

MIDI Messages That Can be Received by the SK-88Pro

MIDI uses many different types of message to transmit musical performance data, and there are many types of MIDI message. For example, information indicating "which key was played how strongly" is transmitted as a Note message.
The way that a device responds when it receives each type of MIDI message (i.e., how it produces sound, etc.) will depend on the specifications of that device. This means that if the receiving device is not able to perform the function requested by the incoming message, the musical result will not be what you expected.
The main types of MIDI message received by the SK-88Pro are as follows.

* *MIDI messages for which reception capability is required by the General MIDI System (level 1) are marked by a ☆ sign.*

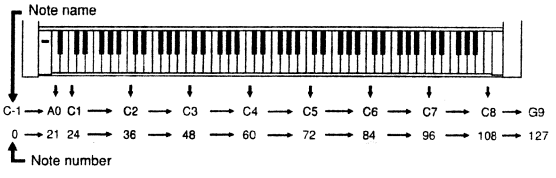
● Note messages ☆

These messages convey notes played on the keyboard. They include the following information.

Note number:	a number indicating the note (key) that was pressed or released
Note on:	data indicating that the note (key) was pressed
Note off:	data indicating that the note (key) was released
Velocity:	a number indicating how strongly the note (key) was pressed

Note numbers are a number from 0 to 127 which indicate the keyboard key position, with middle C (C4) as note number 60.

Correspondence between note numbers and note names



● Pitch Bend ☆

This message conveys the position of the bender lever (or pitch bend wheel). The pitch will change when this message is received.

● Bank Select (Controller number 0 and 32)

● Program Change ☆

These messages are used to select sounds. Sounds are selected by a Program numbers 1–128. On the SK-88Pro, these messages will select sounds (Instruments). By using Bank Select messages (which are a type of Control Change message), an even wider variety of sounds can be selected (p.51). These messages can also be used to select Patches (p.53). However if settings have been made to allow Patches to be selected, the Program Change message for each Part will be ignored.

● Control Change

These messages control parameters such as modulation and pan. The function of the message is determined by its Controller number.

❍ Modulation (Controller number 1) ☆

This message controls vibrato.

❍ Volume (Controller number 7) ☆

This message controls the volume of a Part. When this message is received the volume of a Part will change.

❍ Expression (Controller number 11) ☆

This message conveys volume changes. It can be used to add expression during a song.

* *The volume of a Part will be affected both by Volume messages (Control Change 7) and by Expression messages (Control Change 11). If a value of 0 is received for either of these messages, the Part volume will be 0 and will not rise even if the other message is sent with a higher value. Be aware of this.*

Using Volume and Expression

It is convenient to use Volume and Expression in distinct ways, as follows.

Volume:	Adjust the volume balance between Parts.
Expression:	Create volume changes during a song (crescendo, decrescendo, etc.).

The reason for this differentiation is that if you use only Volume messages to create volume changes during the song, you will have to modify all of the Volume data in the song if you later decide to adjust the volume balance between the Parts. However if you use only Volume at the beginning of the song, and use only Expression during the song, it will be easy to adjust the volume balance between Parts for the entire song simply by modifying the Volume data at the beginning of the song, and the data for changes in dynamics during the song can remain as it was. This is very convenient when, for example, you decide to make a slight change in the balance between the piano and bass when the song is nearly completed.

❍ Pan (Controller number 10) ☆

This message controls the stereo position of a Part. (p.100)

❍ Hold (1) (Controller number 64) ☆

This message conveys the up/down movements of the damper pedal, causing the currently sounding notes to be sustained. When a message of Hold On is received, notes will be sustained. In the case of decay-type instruments such as a piano, the sound will decay gradually until a Hold Off message is received. In the case of sustain-type instruments such as an organ, the sound will continue sustaining until a Hold Off message is received.

❍ **Sostenuto (Controller number 66)**
The sostenuto pedal on a piano sustains only the notes which were already sounding at the moment the pedal was pressed. The Sostenuto message conveys the movement of this pedal. When Sostenuto On is received, only the notes which were already on at that moment will be sustained. In the case of decay-type instruments such as a piano, the sound will decay gradually until a Sostenuto Off message is received. In the case of sustain-type instruments such as an organ, the sound will continue sustaining until a Sostenuto Off message is received.

❍ **Soft (Controller number 67)**
The soft pedal on a piano softens the tone during the time the pedal is pressed. The Soft message conveys the movement of this pedal. When Soft On is received, the cutoff frequency will be lowered, causing a softer sound. When Soft Off is received, the previous sound will return.

❍ **Reverb Send Level (Controller number 91)**
This message adds a reverb effect to the Part (Reverb Level p.56).

❍ **Chorus Send Level (Controller number 93)**
This message adds a chorus effect to the Part (Chorus Level p.56).

❍ **Delay Send Level (Controller number 93)**
This message adds a delay effect to the Part (Delay Level p.56).

❍ **Portamento (Controller number 65)**
❍ **Portamento Time (Controller number 5)**
❍ **Portamento Control (Controller number 84)**
Portamento is an effect that creates a smooth change in pitch between the previously played note and the newly played note. When a Portamento message is received, the portamento effect will be turned on or off. Portamento Time controls the speed of the pitch change.
Portamento Control specifies the Source note number (the previously played note).

❍ **RPN LSB, MSB (Controller number 100/101)** ☆
❍ **Data Entry (Controller number 6/38)** ☆
Since the function of the RPN (Registered Parameter Number) is defined in the MIDI specification, this message can be used between devices of different types. The RPN MSB and LSB messages specify the parameter which is to be modified, and then Data Entry messages can be used to modify the value of that parameter. RPN can be used to adjust Pitch Bend Sensitivity, Master Coarse Tune, and Master Fine Tune.

* *The values modified using RPN messages will not be initialized even if Program Change messages etc. are received to select other sounds.*

❍ **NRPN LSB, MSB (Controller number 98/99)**
❍ **Data Entry (Controller number 6/38)**
NRPN (Non-registered Parameter Number) messages can be used to modify the values of sound parameters unique to a particular device. The NRPN MSB and LSB messages specify the parameter which is to be modified, and then Data Entry messages can be used to modify the value of that parameter.
Since the GS format defines the function of several NRPN messages, GS compatible application programs can use NRPN messages to modify sound data parameters for Vibrato, Cutoff Frequency, Resonance, and Envelope values.

* *The values modified using NRPN messages will not be initialized even if Program Change messages etc. are received to select other sounds.*

* *At the factory settings, the SK-88Pro will ignore NRPN messages. After a GS Reset message is received, NRPN messages will be received. You can also turn Rx.NRPN on (NRPN Receive Switch, p.104) either from the panel or by using Exclusive messages, so that NRPN messages will be received.*

● Aftertouch (Channel Pressure only ☆)

Aftertouch is a message which conveys the pressure applied to the keyboard after playing a note, so that this information can be used to control various aspects of the sound. There are two types of Aftertouch message; Polyphonic Key Pressure which is transmitted separately for each note, and Channel Key Pressure which is transmitted as one value that affects all notes on the specified MIDI channel.

* *The keyboard of the SK-88Pro does not have Aftertouch functionality.*

* *At the factory settings, Aftertouch messages will have no effect when received by the SK-88Pro. In order for Aftertouch messages to do something, you need to set Aftertouch-related parameters. (p.106).*

● All Sounds Off

This message completely turns off the sound of all currently-sounding notes. The sound of the specified channel will be forcibly turned off.

● All Notes Off ☆

This message causes a Note Off to be sent to each note of the specified channel that is currently on. However if Hold 1 or Sostenuto are on, the sound will continue until these are turned off.

● Reset All Controllers ☆

This message returns controller values to their initial settings. The following controller values for the specified channel will be reset to their initial values.

Controller	Initial value
Pitch Bend	0 (center)
Polyphonic Key Pressure	0 (minimum)
Channel Pressure	0 (minimum)
Modulation	0 (minimum)
Expression	127 (maximum)
Hold	0 (off)
Portamento	0 (off)
Soft	0 (off)
Sostenuto	0 (off)
RPN	number unset
NRPN	number unset

* *Parameter values that were modified using RPN or NRPN will not change even when a Reset All Controller message is received.*

● Active Sensing

This message is used to check for broken MIDI connections, such as MIDI connectors that have been pulled out or MIDI cables that have been broken. The SK-88Pro transmits Active Sensing messages from MIDI OUT at specific intervals. Once an Active Sensing message is received at MIDI IN, Active Sensing monitoring will begin, and if an Active Sensing message fails to arrive for more than 420 msec, it is assumed that the cable has been disconnected. If this happens, all currently sounding notes will be turned off, the same procedure will be executed as if a Reset All Controllers message was received, and Active Sensing monitoring will stop.

● System Exclusive Messages

Exclusive messages are used to control functions which are unique to specific devices. Although Universal System Exclusive messages can be used even between devices of different manufacturers, most Exclusive messages cannot be used between devices of different types or different manufacturers. In order to recognize the device for which the data is intended, Roland Exclusive messages contain a manufacturer ID, device ID and model ID.
This unit Exclusive messages use two model IDs; 42H for GS format, and 45H for SC-55 (88). The two numbers are used depending on the parameter you wish to modify. Be aware that if the appropriate ID number is not used, data will not be transferred. (p.103)

❍ Turn General MIDI System On ☆ (Universal System Exclusive)

When General MIDI System On is received, the unit will be set to the basic General MIDI settings. Also, NRPN Bank Select messages will no longer be received after General MIDI System On is received. The beginning of song data bearing the General MIDI logo contains a General MIDI System On message. This means that if you playback the data from the beginning, the sound generator device will be automatically initialized to the basic settings.

❍ GS Reset (GS Format System Exclusive)

When GS Reset is received, the unit will be set to the basic GS settings. Also, NRPN messages specified in the GS format can be received after GS Reset is received. The beginning of song data bearing the GS logo contains a GS Reset message. This means that if you playback the data from the beginning, the sound generator device will be automatically initialized to the basic settings.

❍ Master Volume (Universal System Exclusive)

This is an Exclusive message common to all MIDI devices that controls the Master Volume of all Parts.

❍ Other Exclusive messages

The SK-88Pro can receive GS format Exclusive messages (model ID 42H) that are common to all GS sound generators. The SK-88Pro can also use Exclusive messages (model ID 45H) that are especially for the SC-55 (88). Exclusive messages can be used to store the SK-88Pro settings or to make fine adjustments to parameters.

For details of the Exclusive messages transmitted and received by the SK-88Pro, refer to the explanation on p.202 and following.

About MIDI Implementation Charts

MIDI allows many different types of device to be connected, but in some cases there will be types of message which cannot be conveyed meaningfully. For example if you wish to use keyboard Aftertouch to control the sound but the sound generator connected to the keyboard does not receive Aftertouch messages, you will not get the musical result you intend. In this way, only messages that are used by both devices will actually be conveyed.

The MIDI specification requires that the owner's manual for each MIDI device include a "MIDI Implementation Chart" (p.216) that shows the types of MIDI message which are actually transmitted and received by a device. Place the transmit column of the transmitting device's implementation chart side by side with the receive column of the receiving device's implementation chart. Messages which are marked as "o" in both charts can be conveyed successfully. If either chart shows a "x" for a certain type of message, that message cannot be conveyed.
For your reference, the data format for Exclusive messages and other details of this unit MIDI implementation are given on p.196 and following.

13. APPENDIX

Troubleshooting

If the the SK-88Pro does not function in the way you expect, first check the following points. If this does not resolve the problem, consult your dealer or a nearby Roland Service Station (listed at the end of this manual).

* *If a message appears during operation, consult the following section "If a Message Appears."*

Cannot turn the power on

- Is the AC adaptor correctly connected to an AC outlet and the SK-88Pro?

No sound

- Is the power turned on for your amp/speaker system connected to the SK-88Pro? Is the volume turned down?
- Is the Volume slider of the SK-88Pro turned down?
- Are the connections correct?
  When using the SK-88Pro by itself, connect audio cables or headphones. (p.10, 11)
  When using the SK-88Pro with a computer, use a Computer cable or MIDI cables to connect it to the computer. (p.26–29) You will also need to connect audio cables or headphones. (p.10, 11)
- Can you hear sound in a set of headphones?
  If you can hear sound in a set of headphones, the problem may be that the audio cable connected to your playback system is broken or incorrectly connected, or that there is a problem with the connected amp, mixer or speaker.
- Do the bar indicators in the display move?
  (1) If the bar indicators are moving
  The SK-88Pro is receiving MIDI data correctly. Check the volume slider position and the cable connections once again.

  (2) If the bar indicators are not moving
  Are the settings of the Local Control correct?
  When using the SK-88Pro by itself, you need to set Local Control setting ON. (p.14)
  Is the lowest dot in the bar display turned off?
  Turn on the [ALL] button indicator. If all dots are off, the All Mute function is on. Turn off the All Mute function. (p.99)
  Turn off the [ALL] button indicator. If some of the dots are off, the Part Mute function is on. Turn off the Part Mute function. (p.98)
- Is the [FUNC] button's indicator lit?
  Notes will not sound while [FUNC] is lit, so press the [FUNC] button to turn it off. (p.36)
- Is the overall volume for all Parts tuned down? (p.99)
- Has the expression pedal, etc. of a connected MIDI device lowered the volume level?
- Are the settings for the Output 1, 2 jacks correct? (p.105, 109)
  At the factory settings, no sound will be sent from Output 2 jacks.
- Is the Computer switch on the left side of the SK-88Pro set to the correct position for the software you are using?
  When using the SK-88Pro with MIDI devices, set to MIDI. (p.10, 11)
  When using the SK-88Pro with a computer, set the Computer switch to correspond to your computer's type and driver setting. (p.26–29)

  * *Before changing the setting of the Computer switch, you must first turn off the power on the SK-88Pro.*
- On occasion, you may find that the SK-88Pro's parameter settings have gone awry. To remedy such situations, initialize the unit for either General MIDI or GS. (p. 25)

Notes are sounded twice

- If the SK-88Pro is connected to a computer, is Local Control turned ON? If the [LOCAL] indicator at the left of the keyboard is lit, press the [LOCAL] button to make it go out.

If performance is incorrect when playing back music files carrying the General MIDI/GS logo

- Is the Device ID set to 17? (p.103)
- Is the General MIDI System On/GS Reset Receive Switch (p.103) turned on?

The above settings are the factory settings.

A specific Part does not sound

- Is the lowest dot in the bar display off? Parts for which this dot is off have been muted. Turn Part Mute off. (p.98)
- Is the volume level of the Part turned down? (p.98)
- Does the MIDI Receive channel of the Part match the MIDI Transmit channel of the connected MIDI device? (p.50)

A connected MIDI device does not sound

- Does the MIDI transmit channel of the SK-88Pro controller section match the MIDI receive channel of the connected MIDI device? At the factory settings, the transmit channel of the SK-88Pro will be the channel of the displayed Part. (p.109)
- When musical data from the SK-88Pro's controller section is received by another device, the amount of data may be too great for the receiving device to handle. If this is the case, you can thin out the data that is transmitted by the SK-88Pro. (p.109)

A specific keyboard area does not sound

- Has the Keyboard Range been set? (p.105)

Sound is heard but the bar indicator does not move

- Are you receiving MIDI messages at MIDI IN B and viewing Part information for Group A? If so, press the PART [◀] [▶] buttons to display the Parts of Group B. If you press the [ALL] button to make the indicator light, Part information for both Groups A and B will be displayed.

Cannot select the desired sound

- Are you sending an incorrect Program number? (p.51)
- Have you specified the MIDI receive channel of a Patch? (p.53)
- Are you setting the SK-88Pro to All SC-55 Map or All SC-88 Map? (p.99)

Sound is distorted

- Is an effect which distorts the sound being applied? (p.67)
- If a specific sound or Part is distorted, lower the volume level of that Part. (p.98)
- If all sounds are distorted, lower the overall volume level of all Parts (p.99), or use the Volume slider (p.35) to lower the volume level.

Pitch is incorrect

- Is the pitch of a specific Part or all Parts incorrect? (p.98, 99)
- Has the Fine Tune setting set to a specific Part? (p.104)
- Has a MIDI Pitch Bend message been received to change the pitch? Return the Pitch Bender to the center.

Sound won't stop sounding

- With some sequencing programs, sound may continue to sound if you change the recording tracks while playing the keyboard. In that case, press the [MUTE] button of the SK-88Pro to stop the sound, then press the [MUTE] button again to restore the previous state. (p.98)

Sound is wrong

- Have you selected another sound after modifying sound parameter settings (filter, etc.)? Restore all sound parameter settings to a value of 0. (p.110)
- On occasion, you may find that the SK-88Pro's parameter settings have gone awry. To remedy such situations, initialize the unit for either General MIDI or GS. (p.25)

Sounds are interrupted

- If you play more than 64 voices at once, sounds will be interrupted. (p.51)
- Is the same data being sent simultaneously to MIDI IN A and MIDI IN B?

Able to play only from either MIDI IN A or MIDI IN B

- Is the In Mode set to A Only? Set the In Mode to Standard. (p.142)

Exclusive messages are not received

- Does the Device ID number of the transmitted Exclusive message match the Device ID number of this unit? (p.103)

the SK-88Pro does not transmit MIDI data

- If you wish to transmit this unit data via the Computer connector, set the Computer switch to PC-1, PC-2 or Mac, depending on the software you are using. (p.26)
- When the Computer switch on the left side of the SK-88Pro is set to MIDI, the SK-88Pro will not transmit data from the Computer connector. In this case, data will be transmitted from the MIDI OUT/THRU connector.
- When the MIDI OUT/THRU Select switch is set to THRU, data received at MIDI IN A will be transmitted from MIDI OUT/THRU. (p.141)

Problems occur with the playback when controllers are operated

- In some cases, frequent movements of controllers during a song will cause problems in playback. If this occurs, turn the Tx D. Thin function ON (p.109), or reduce the amount of data in the song.

MIDI sound sources connected to the SK-88Pro are not played from a computer or sequencer

- Music data received at the SK-88Pro Computer connector is transmitted from the MIDI OUT/THRU connector, but you need to make the following settings. (p.26, 141)

  Set the Computer switch to PC-1, PC-2 or Mac depending on your software
  Set MIDI OUT/THRU Select switch to OUT

- MIDI data received at MIDI IN A is transmitted from the MIDI OUT/THRU connector, but you need to make the following settings (p.28, 141)

  Set the Computer switch to MIDI
  Set the MIDI OUT/THRU Select switch to THRU

* *After changing the setting for OUT/THRU, or In Mode, the power must be turned on again. These settings will take effect the next time the power is turned on.*

When using sequencing software, operating the knobs does not affect the sound

- For some sequencing programs, System Exclusive messages are not transmitted by the Thru function. If you are using such software and wish to record System Exclusive messages, turn the SK-88Pro's Local Control setting ON.

When recording using sequencing software, the displayed Part does not match the playback Part

- When what you play on the SK-88Pro's keyboard is being recorded by your sequencing program, there may be cases in which the displayed Part does not match the Part that is sounding. This is because the musical data from the SK-88Pro is transmitted on the MIDI channel of the displayed Part (with the Tx Channel default setting, p.109), but this musical data is returned to the SK-88Pro on the MIDI channel that is specified for the recording track of the sequencing program.
  If you wish to match the SK-88Pro's displayed Part with the Part that is played, set the MIDI channel of the recording track of the sequencing program to match the displayed Part of the SK-88Pro.

If a Message Appears

If operation is incorrect or if the data cannot be processed correctly, an error message will appear in the display.
Consult the following list and take the appropriate action.

Battery Low

Cause: The memory backup battery inside the SK-88Pro has run down.
Action: Consult a nearby Roland Service Station.

Check Sum Error

Cause: The check sum of the received Exclusive message is incorrect.
Action: Check the data which was transmitted to the SK-88Pro, and transmit it once again. Also make sure that the MIDI cable is not broken.

MIDI Buff. Full

Cause: A large amount of MIDI data was received by the SK-88Pro in a time too short for correct processing to be done.
Action: Check whether a large amount of MIDI data is not being transmitted in a short time.

MIDI Off Line

Cause 1: It is possible that the power has been turned off for the MIDI device connected to MIDI IN.
Action 1: The problem is not with the SK-88Pro. Check the power of the connected MIDI device.
Cause 2: It is possible that a MIDI cable has been pulled out or broken.
Action 2: Check the MIDI cables.

No INSTRUMENT

Cause: A sound (Instrument) which the SK-88Pro does not have has been selected.
Action: The previously selected sound name will be displayed, and that sound will be heard. Carefully refer to the tables on p.166 to 172, and specify the correct Bank number and Program number.

No DRUM SET

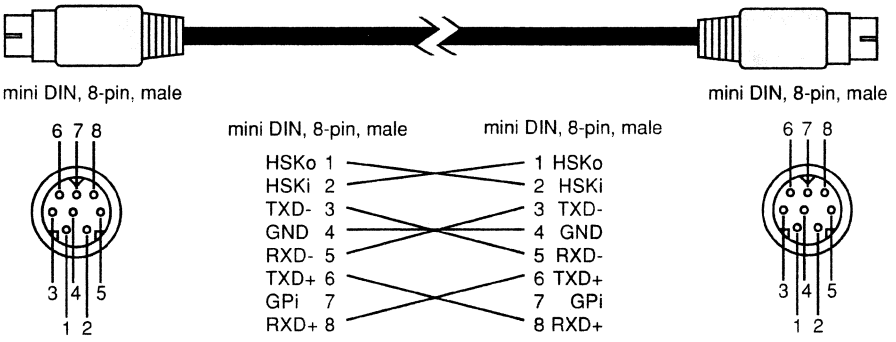
Cause: A Drum Set which the SK-88Pro does not have has been selected.
Action: The previously selected Drum Set name will be displayed, and that set will sound.

No PATCH

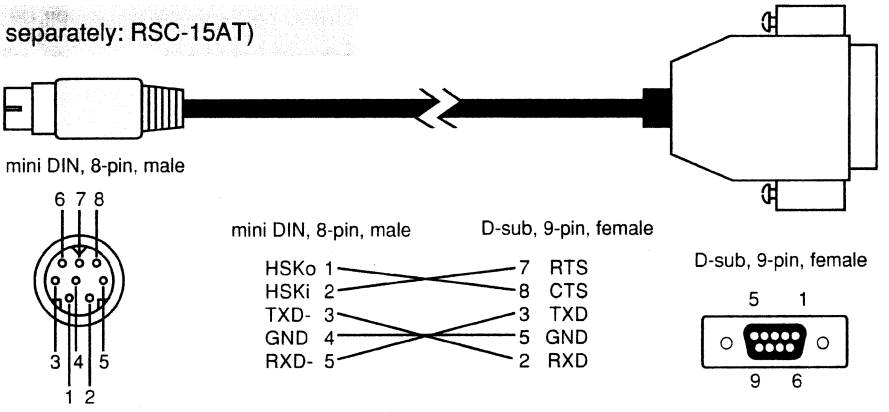
Cause: A Patch which the SK-88Pro does not have has been selected.
Action: The previously selected Patch name will be displayed, and that Patch will sound.

Computer Cable Wiring Diagrams

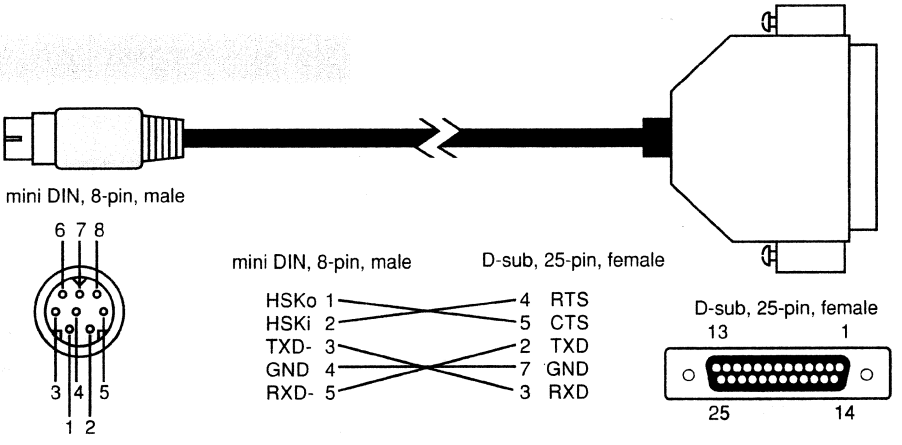
For Apple Macintosh (Sold separately: RSC-15APL)



For PC (9-pin) (Sold separately: RSC-15AT)

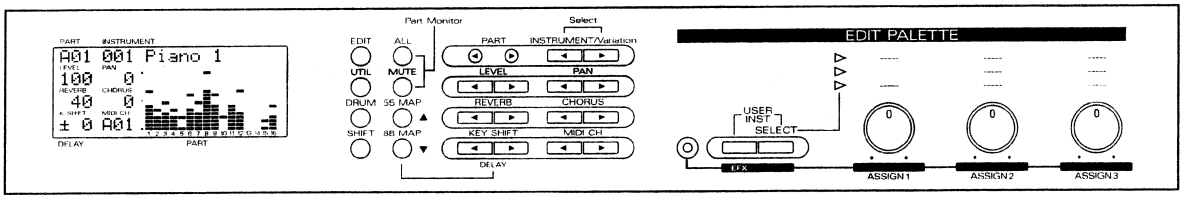


For PC (25-pin)



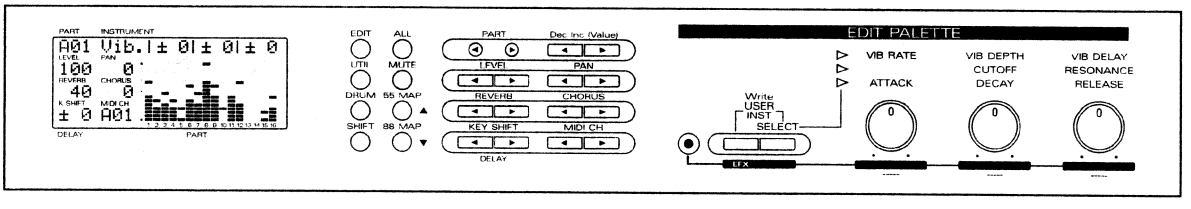
Operating Procedure List

■ Normal Mode (Buttons are dark) : Setting for Each Part



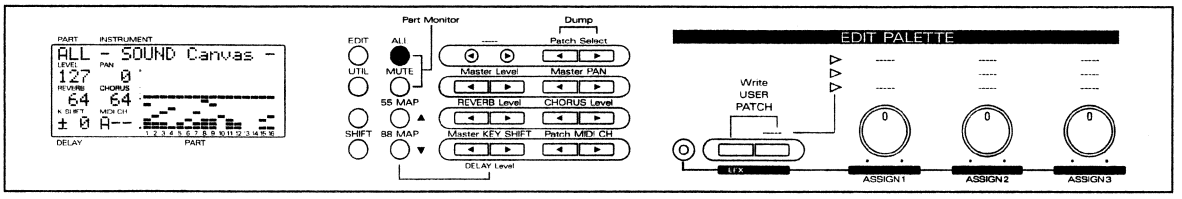
Button	Operation	Value (boldface indicates the factory setting value.)
PART [◀] [▶]	Select a Part	**A01**–B16
[EDIT]	Enter Edit mode (Setting for each Part)	
[UTIL]	Enter Utility mode	
[DRUM]	Enter Drum Edit mode	
[ALL]	Enter overall Part settings mode ([ALL] lit)	
[MUTE]	Part Mute	**Off**, On
[ALL] + [MUTE]	Part monitor	**Off**, On
[55 MAP]	SC-55 map (for a specified Part)	**Off**, On
[88 MAP]	SC-88 map (for a specified Part)	**Off**, On
[ALL] + PART [◀]	Switch the Part Group	A, B
INSTRUMENT [◀] [▶]	When an Instrument number is displayed: Select an Instrument sound	**001**–128
	When a Variation number is displayed: Select a Variation sound	**000**–127
	When a Drum Set is displayed: Select a Drum Set	**001**–128
INSTRUMENT [◀] + [▶]	Switch the display for an Instrument or a Variation	**Instrument**/Variation
LEVEL [◀] [▶]	Part level	0–**100**–127
LEVEL [◀] + [▶]	Display the level value for each Part graphically (Press again to retrurn to normal.)	
PAN [◀] [▶]	Part Pan	Rnd, L63–**0**–R63
PAN [◀] + [▶]	Display the pan value for each Part graphically (Press again to retrurn to normal.)	
REVERB [◀] [▶]	Reverb Send Level	0–**40**–127
REVERB [◀] + [▶]	Display the Reverb Send Level value for each Part	
CHORUS [◀] [▶]	Chorus Send Level	**0**–127
CHORUS [◀] + [▶]	Display the Chorus Send Level value for each Part	
[88 MAP] + KEY SHIFT [◀] [▶]	Delay Send Level	**0**–127
KEY SHIFT [◀] [▶]	Key Shift (for a specified Part)	-24–**0**– +24
KEY SHIFT [◀] + [▶]	Display the Key Shift value for each Part graphically (Press again to retrurn to normal.)	
MIDI CH [◀] [▶]	Select a MIDI channel	**A01**–A16, A--, B01–B16, B--
KEY SHIFT [▶] + MIDI CH [◀]	Switch the Part Group for the MIDI channel	A, B
[EFX]	Enter Insertion Effect mode	
[USER INST] (Press the two buttons)	Enter User Instrument mode	
[SELECT]	Enter Tone Edit mode	
[ASSIGN1]	Function assigned to this knob (This is set in Utility mode)	
[ASSIGN2]	Function assigned to this knob (This is set in Utility mode)	
[ASSIGN3]	Function assigned to this knob (This is set in Utility mode)	
[EDIT] + [UTIL]	Enter Frame Draw mode in which you can draw pictures or characters in the display	
[UTIL] + [DRUM]	(When a Drum Part is selected) Enter Drum Set Name mode	

■ User Instrument Mode



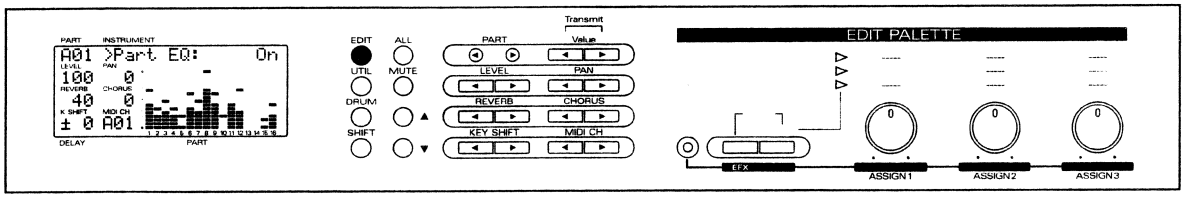
Button	Operation
[SELECT]	Switch the parameter you want to edit
[EFX TYPE]	Set the value for the parameter
[EFX PARAM]	Set the value for the parameter
[EFX VALUE]	Set the value for the parameter
[USER INST] (Press the two buttons)	Enter User Instrument Write mode

■ Overall Part Settings Mode ((ALL) is lit)



Button	Operation	Value (boldface indicates the factory setting value.)
[EDIT]	Enter Edit mode (Setting for all Parts)	
[UTIL]	Enter Utility mode	
[MUTE]	All Mute	**Off**, On
[55 MAP]	All SC-55 Map	**Off**, On
[88 MAP]	All SC-88 Map	**Off**, On
[SHIFT] + [55 MAP]	Set all Parts to the Native map forcibly	**Off**, On
[SHIFT] + [88 MAP]	Set all Parts to the SC-88 map forcibly	**Off**, On
INSTRUMENT [◀] [▶]	Select a Patch to load	**SOUND Canvas**, 1–128, U01–U16
	(When [ALL] and [MUTE] buttons blink: [ALL] execute, [MUTE] cancel	
INSTRUMENT [◀] + [▶]	Transmit a Bulk Dump	
	(Use INSTRUMENT [◀] [▶] to select the type of data. [ALL]: Start transmitting)	
LEVEL [◀] [▶]	Master Level	0–**127**
LEVEL [◀] + [▶]	Display the current level value graphically (Press again to return to normal.)	
PAN [◀] [▶]	Master Pan	L63–**0**–R63
PAN [◀] + [▶]	Display the current pan value graphically (Press again to return to normal.)	
REVERB [◀] [▶]	Reverb Level	0–**64**–127
REVERB [◀] + [▶]	Display the Reverb Level	
CHORUS [◀] [▶]	Chorus Level	0–**64**–127
CHORUS [◀] + [▶]	Display the Chorus Level	
[88 MAP] + KEY SHIFT [◀] [▶]	Delay Level	0–**64**–127
KEY SHIFT [◀] [▶]	Master Key Shift	-24–**0**– +24
KEY SHIFT [◀] + [▶]	Display the current Key Shift value graphically (Press again to return to normal.)	
MIDI CH [◀] [▶]	Select a MIDI channel for the Patch	A01–A16, **A--**, B01–B16, B--
[EFX]	Enter Insertion Effect mode	
[ASSIGN1]	Function assigned to this knob (This is set in Utility mode)	
[ASSIGN2]	Function assigned to this knob (This is set in Utility mode)	
[ASSIGN3]	Function assigned to this knob (This is set in Utility mode)	
[UTIL] + [DRUM]	Enter Patch Name mode	
[USER INST]	Enter User Patch Write mode	
(Press the two buttons)		
[EDIT] + [UTIL]	Enter Frame Draw mode in which you can draw pictures or characters in the display	
[ALL]	Return to Normal mode	

■ Edit Mode ((EDIT) is lit): Setting the parameters affecting the sound generating section



Button	Operation	Value (boldface indicates the factory setting value.)
PART [◀] [▶]	Select a Part (only when the [ALL] button is dark)	**A01**–B16
[▲] ([55 MAP])	Select a parameter	
[▼] ([88 MAP])	Select a parameter	
[SHIFT] + [▲] [▼]	Skip parameters	
INSTRUMENT [◀] [▶]	Select a value for the displayed parameter	
INSTRUMENT [◀] + [▶]	Transmit the value of the parameter	
[EDIT]	Return to Normal mode	

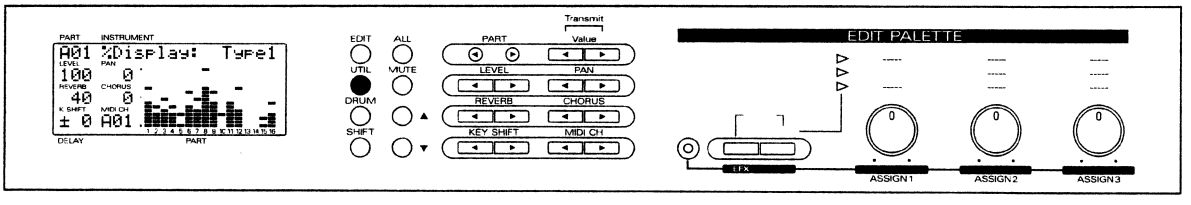
Parameters for each Part when [ALL] is dark (For details, refer to p.104–106.)

Part EQ, Part Mode, M/P Mode, Fine Tune, Rx Bank Sel, Rx NRPN, Velo Depth, Velo Offset, K. Range L, K. Range H, CC1 C.Number, OUT Asgn, S.Tune C–B,
Mod Range, Mod Cutoff, Mod Amp, Mod LFO Rate, Mod LFO Pch, Mod LFO TVF, Mod LFO TVA,
Bnd Range, Bnd Cutoff, Bnd Amp, Bnd LFO Rate, Bnd LFO Pch, Bnd LFO TVF, Bnd LFO TVA,
CAf Range, CAf Cutoff, CAf Amp, CAf LFO Rate, CAf LFO Pch, CAf LFO TVF, CAf LFO TVA,
CC1 Range, CC1 Cutoff, CC1 Amp, CC1 LFO Rate, CC1 LFO Pch, CC1 LFO TVF, CC1 LFO TVA,
CC2 Range, CC2 Cutoff, CC2 Amp, CC2 LFO Rate, CC2 LFO Pch, CC2 LFO TVF, CC2 LFO TVA

Parameters for all Parts when [ALL] is lit (For details, refer to p.103.)

Device ID, M. Tune, MUTE Lock, EQ Lock, Rx GM On, Rx GS Reset,
Reverb, Rev Charac., Rev Pre-LPF, Rev Level, Rev Time, Rev Delay Fb, Rev Pre Dly T,
Chorus, Cho Pre-LPF, Cho Level, Cho Feedback, Cho Delay, Cho Rate, Cho Depth, Cho → Rev, Cho → Dly,
Delay, Dly Pre-LPF, Dly Time C, Dly T Ratio L, Dly T Ratio R, Dly Level C, Dly Level L, Dly Level R, Dly Level, Dly Fback, Dly → Rev,
EQ Low Freq, EQ High Freq, EQ Low Gain, EQ High Gain,
EFX C.Src1, EFX C.Dep1, EFX C.Src2, EFX C.Dep2

■ Utility Mode ((UTIL) is lit): Setting the Parameters affecting the SK-88Pro system

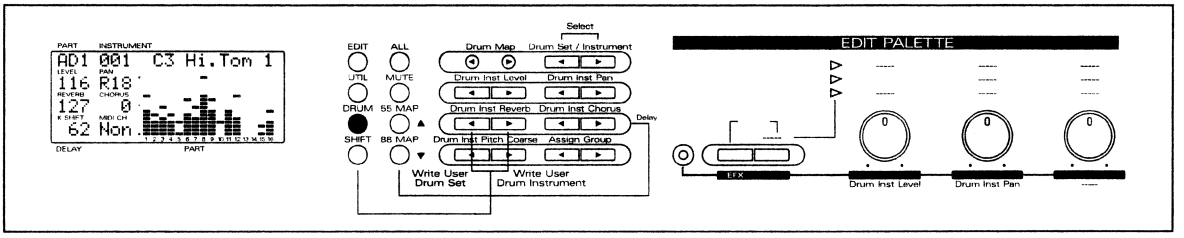


Button	Operation
[▲] ([55 MAP])	Select a parameter
[▼] ([88 MAP])	Select a parameter
INSTRUMENT [◀] [▶]	Select a value for the parameter
[UTIL]	Return to Normal mode

Parameters you can set in Utility mode (For details, refer to p.108–109.)

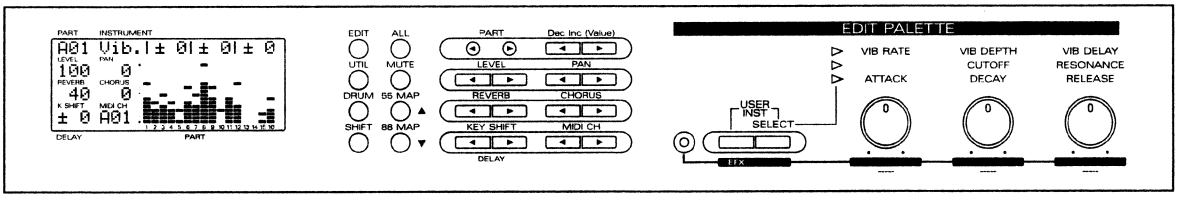
Display, Peak Hold, LCD Contrast, Backup, OUT/THRU, In Mode, Rx Sys. Mode, Sys. OUT Mode, Assign Lock, P.Load Init,
Tx Channel, Tx D. Thin, TxPalette, Asgn1, Asgn2, Asgn3, C.Slider, P.Ctrl, P.SW

■ Drum Edit Mode ((DRUM) is lit)



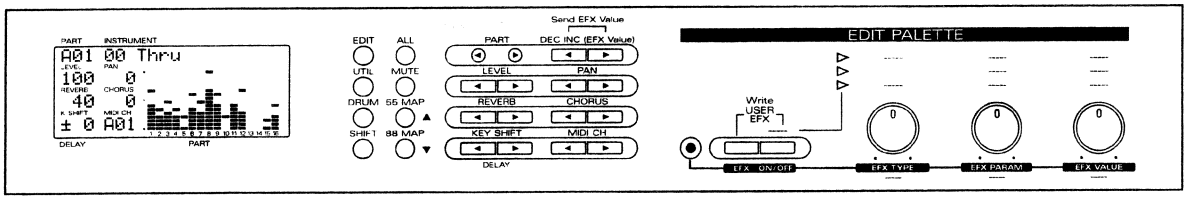
Button	Operation	Value (boldface indicates the factory setting value.)
PART [◀] [▶]	Select a Drum map	**AD1**, AD2, BD1, BD2
INSTRUMENT [◀] [▶]	(When an Instrument is displayed) Select a Drum Instrument	
	(When a Drum Set number blinks) Select a Drum Set	
INSTRUMENT [◀] + [▶]	Switch the display for showing an Instrument or Drum Set number	
LEVEL [◀] [▶]	Set the level for each Instrument	0–127
[ASSIGN1]	Set the level for each Instrument	0–127
PAN [◀] [▶]	Set the pan for each Instrument	Rnd, L63–R63
[ASSIGN2]	Set the pan for each Instrument	Rnd, L63–R63
REVERB [◀] [▶]	Set the reverb level for each Instrument	0–127
CHORUS [◀] [▶]	Set the chorus level for each Instrument	0–127
[88 MAP] + CHORUS [◀] [▶]	Set the delay level for each Instrument	0–127
KEY SHIFT [◀] [▶]	Set the pitch coarse for each Instrument	
MIDI CH [◀] [▶]	Set the Assign group	Non, 1–127
[MUTE]	Mute	**Off**, On
[55 MAP]	SC-55 map	**Off**, On
[88 MAP]	SC-88 map	**Off**, On
[SHIFT] + REVERB [▶]	Enter User Drum Instrument Write mode	
[SHIFT] + REVERB [◀]	Enter User Drum Set Write mode	
[UTIL] + [DRUM]	Enter Drum Set Name mode	
[DRUM]	Return to Normal mode	

■ Edit Mode (the SELECT indicator (▶) is lit, and (ALL) is dark)



Button	Operation	Value (boldface indicates the factory setting value.)
PART [◀] [▶]	Select a Part	A01–B16
[SELECT]	Vibrato → Filter → Envelope → dark	
[EFX TYPE]	When Vibrato is selected: VIB RATE	-64–**0**– +63
	When Envelope is selected: ATTACK	-64–**0**– +63
[EFX PARAM]	When Vibrato is selected: VIB DEPTH	-64–**0**– +63
	When Filter is selected: CUTOFF	-64–**0**– +63
	When Envelope is selected: DECAY	-64–**0**– +63
[EFX VALUE]	When Vibrato is selected: VIB DELAY	-64–**0**– +63
	When Filter is selected: RESONANCE	-64–**0**– +63
	When Envelope is selected: RELEASE	-64–**0**– +63
INSTRUMENT [◀] [▶]	Make fine adjustment of the knob ([EFX TYPE], [EFX PARAM] or [EFX VALUE]) that was last operated	
[USER INST] (Press the two buttons)	Enter User Instrument Write mode	

■ Insertion Effect Mode ((EFX) is lit)



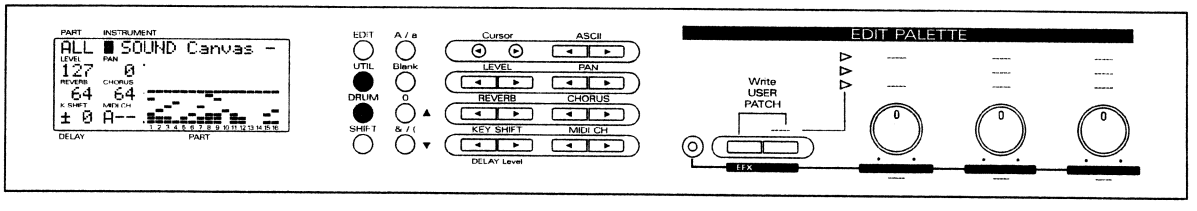
Button	Operation	Value (boldface indicates the factory setting value.)
PART [◀] [▶]	Select a Part (only when [ALL] is dark)	A01–B16
[ON/OFF]	Switch the Insertion effect ON/OFF for the displayed Part (When [ALL] is lit, switch ON/OFF for all Parts)	On, Off
[EFX TYPE]	Select an effect type	0–64, 01x–64x
[EFX PARAM]	Select an effect parameter	
[EFX VALUE]	Set a value for the effect parameter	
INSTRUMENT [◀] [▶]	Make fine adjustment of the knob ([EFX TYPE], [EFX PARAM] or [EFX VALUE]) that was last operated	
INSTRUMENT [◀] + [▶]	Transmit the effect type or the value for the effect parameter	
[USER INST] (Press the two buttons)	Enter User Effect Write mode	
[EFX]	Return to Normal mode	

■ Write Mode

Mode	Display/Button	Operation
User Instrument Write UI 64/001? ([EFX] is lit in red.)	INSTRUMENT [◀] + [▶] INSTRUMENT [◀] [▶] [ALL]/[MUTE] The left [USER INST] button	Switch the blinking part to Variation number or Instrument number (When Variation number blinks) Set the Variation number (When Instrument number blinks) Set the Instrument number Execute/Cancel Exit Write mode
User Patch Write U.Patch01?	INSTRUMENT [◀] [▶] [ALL]/[MUTE]	Select the User Patch number (01–16) Execute/Cancel
User Effect Write U.EFX 01? ([EFX] is lit in orange.)	INSTRUMENT [◀] [▶] [ALL]/[MUTE] [EFX]	Select the User Effect number (01–64) Execute/Cancel Exit
User Drum Instrument Write UD C3/65?	INSTRUMENT [◀] + [▶] INSTRUMENT [◀] [▶] [ALL]/[MUTE]	Switch the display to Drum Instrument number/Drum Set number (When Drum Instrument number blinks) Set the Drum Instrument number (Drum Set number blinks) Set the Drum Set number Execute/Cancel
User Drum Set Write U.Drum 65?	INSTRUMENT [◀] [▶] [ALL]/[MUTE]	Select the User Drum Set number (65/66) Execute/Cancel

■ Patch Name Mode

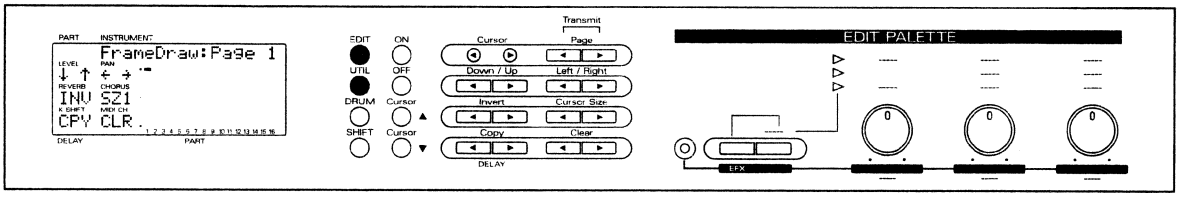
■ Drum Set Name Mode



Button	Operation	Value (boldface indicates the factory setting value.)
PART [◀] [▶]	Move the cursor	
INSTRUMENT [◀] [▶]	Select character	A–Z, a–z, 0–9, symbols
[ALL]	Switch to capital letter/small letter	
[MUTE]	Select space	
[55 MAP]	Select 0	
[88 MAP]	Select & or (	
[UTIL] + [DRUM]	Exit	

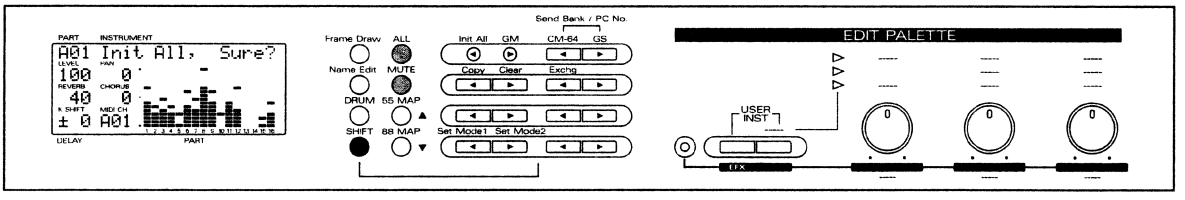
■ Frame Draw Mode

When the [EDIT] and [UTIL] buttons are pressed simultaneously, you enter Frame Draw mode, and "FrameDraw:Page 1" will be shown in the display.



Button	Operation	Value (boldface indicates the factory setting value.)
INSTRUMENT [◀] [▶]	Select the page	**Page 1**–Page 10
[▲] ([55 MAP])	Move the cursor up	
[▼] ([88 MAP])	Move the cursor down	
PART [◀] [▶]	Move the cursor horizontally	
[ALL]	Turn the dot on	
[MUTE]	Turn the dot off	
CHORUS [◀]	Shrink dots	
CHORUS [▶]	Expand dots	
LEVEL [◀]	Move the picture down	
LEVEL [▶]	Move the picture up	
PAN [◀]	Move the picture left	
PAN [▶]	Move the picture right	
INSTRUMENT [◀] + [▶]	Transmit the picture data	
REVERB [◀] [▶]	Invert the picture (INSTRUMENT [◀] [▶]: Select the page, [ALL]: Execute, [MUTE]: Cancel)	
KEY SHIFT [◀] [▶]	Copy the picture (INSTRUMENT [◀] [▶]: Select the page, [ALL]: Execute, [MUTE]: Cancel)	
MIDI CH [◀] [▶]	Erase the picture (INSTRUMENT [◀] [▶]: Select the page, [ALL]: Execute, [MUTE]: Cancel)	
[EDIT] + [UTIL]	Exit	

■ Operation While Holding down the (SHIFT) Button



Button/Knob	Display	Operation	
PART [◀]	Init All, Sure?	Initialize all settings	([ALL] Execute, [MUTE] Cancel)
PART [▶]	Init GM, Sure?	Initialize for General MIDI System	([ALL] Execute, [MUTE] Cancel)
INSTRUMENT [◀]	Init CM-64, Sure?	Initialize for CM-64	([ALL] Execute, [MUTE] Cancel)
INSTRUMENT [▶]	Init GS, Sure?	Initialize for GS	([ALL] Execute, [MUTE] Cancel)
LEVEL [◀]	Copy A01 → A02?	Part Copy	([ALL] Execute, [MUTE] Cancel)
LEVEL [▶]	Clear A01?	Initialize for a Part	([ALL] Execute, [MUTE] Cancel)
PAN [◀]	Exchg A01 ↔ A02?	Part Exchange	([ALL] Execute, [MUTE] Cancel)
REVERB [◀]	(When [DRUM] is lit) Write U.Drum 65?	(And you enter Write mode.)	([ALL] Execute, [MUTE] Cancel)
REVERB [▶]	(When [DRUM] is lit) Write UD C3/65?	(And you enter Write mode.)	([ALL] Execute, [MUTE] Cancel)
KEY SHIFT [◀]	Set Mode1, Sure?	Single Module Mode	([ALL] Execute, [MUTE] Cancel)
KEY SHIFT [▶]	Set Mode2, Sure?	Double Module Mode	([ALL] Execute, [MUTE] Cancel)
[ALL]		SC-88-compatibility mode	

Instrument List

■ Piano

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
001	**000**	**Piano 1**		**1**	**Piano 1**		**1**	**Piano 1**	**1**
	008	Piano 1w		1	Piano 1w		1	Piano 1w	1
	016	European Pf		1	Piano 1d		1	Piano 1d	1
	024	Piano + Str.		2	-----			-----	
002	**000**	**Piano 2**		**2**	**Piano 2**		**1**	**Piano 2**	**1**
	008	Piano 2w		2	Piano 2w		1	Piano 2w	1
	016	Dance Piano		2	------			-----	
003	**000**	**Piano 3**		**2**	**Piano 3**		**1**	**Piano 3**	**1**
	001	EG+Rhodes 1		2	EG+Rhodes 1		2	-----	
	002	EG+Rhodes 2	#	2	EG+Rhodes 2		2	-----	
	008	Piano 3w		2	Piano 3w		1	Piano 3w	1
004	**000**	**Honky-tonk**		**2**	**Honky-tonk**		**2**	**Honky-tonk**	**2**
	008	Honky-tonk 2		2	Old Upright		2	HonkyTonk w	2
005	**000**	**E.Piano 1**		**1**	**E.Piano 1**		**2**	**E.Piano 1**	**1**
	008	St.Soft EP	#	2	St.Soft EP		2	Detuned EP1	2
	009	Cho. E.Piano		2	-----			-----	
	010	SilentRhodes		2	-----			-----	
	016	FM+SA EP	#	2	FM+SA EP		2	E.Piano 1v	2
	017	Dist E.Piano		2	-----			-----	
	024	Wurly		2	60'sE.Piano		1	60s E.Piano	1
	025	Hard Rhodes	#	2	Hard Rhodes		2	-----	
	026	MellowRhodes	#	2	MellowRhodes		2	-----	
006	**000**	**E.Piano 2**	#	**2**	**E.Piano 2**		**2**	**E.Piano 2**	**1**
	008	Detuned EP 2	#	2	Detuned EP2		2	Detuned EP2	2
	016	St.FM EP	#	2	St.FM EP		2	E.Piano 2v	2
	024	Hard FM EP	#	2	Hard FM EP		2	-----	
007	**000**	**Harpsichord**	#	**1**	**Harpsichord**		**1**	**Harpsichord1**	
	001	Harpsichord2		2	-----			-----	
	008	Coupled Hps.	#	2	Coupled Hps	*	2	Coupled Hps	2
	016	Harpsi.w	#	1	Harpsi.w		1	Harpsi.w	1
	024	Harpsi.o	#	2	Harpsi.o		2	Harpsi.o	2
	032	Synth Harpsi		2	—			—	
008	**000**	**Clav.**	#	**1**	**Clav.**		**1**	**Clav.**	**1**
	008	Comp Clav.		1	-----			-----	
	016	Reso Clav.		1	-----			-----	
	024	Clav.o		2	-----			-----	
	032	Analog Clav.		2	-----			-----	
	033	JP8 Clav. 1		1	-----			-----	
	035	JP8 Clav. 2		1	-----			-----	

■ Chromatic Percussion

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
009	**000**	**Celesta**	#	**1**	**Celesta**	*	**1**	**Celesta**	**1**
	001	Pop Celesta		2	-----			-----	
010	**000**	**Glockenspiel**	#	**1**	**Glockenspiel**		**1**	**Glockenspl**	**1**
011	**000**	**Music Box**	#	**1**	**Music Box**		**1**	**Music Box**	**1**
012	**000**	**Vibraphone**		**1**	**Vibraphone**		**1**	**Vibraphone**	**1**
	001	Pop Vibe.		2	Hard Vibe		2	-----	
	008	Vibraphone w		1	Vib.w	*	1	Vib.w	1
	009	Vibraphones		2	-----			-----	
013	**000**	**Marimba**	#	**1**	**Marimba**		**1**	**Marimba**	**1**
	008	Marimba w	#	1	Marimba w		1	Marimba w	1
	016	Barafon	#	1	Barafon		1	-----	
	017	Barafon 2	#	1	Barafon 2		1	-----	
	024	Log drum	#	1	Log drum		1	-----	
014	**000**	**Xylophone**	#	**1**	**Xylophone**		**1**	**Xylophone**	**1**
015	**000**	**Tubular-bell**	#	**1**	**Tubular-bell**	*	**1**	**Tubular-bell**	**1**
	008	Church Bell	#	1	Church Bell	*	1	Church Bell	1
	009	Carillon	#	1	Carillon	*	1	Carillon	1
016	**000**	**Santur**	#	**1**	**Santur**	*	**1**	**Santur**	**1**
	001	Santur 2	#	2	Santur 2		2	-----	
	008	Cimbalom	#	2	Cimbalom		2	-----	
	016	Zither 1		1	-----			-----	
	017	Zither 2		2	-----			-----	
	024	Dulcimer		2	-----			-----	

PC	: Program number (Instrument number)
CC00	: value of Controller number 0 (Bank number, Variation number)
:	: legato-enabled sounds
Voices	: number of voices used by the Instrument
Remark #	: same sounds as SC-88 map
Remark *	: same sounds as SC-55 map
Remark +	: a percussive sound which cannot be played melodically. Use near C4 (note number 60).

■ Organ

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
017	**000**	**Organ 1**		**2**	**Organ 1**		**1**	**Organ 1**	**1**
	001	Organ 101		2	Organ 101		2	-----	
	008	Trem. Organ		2	Detuned Or.1		2	Detuned Or1	2
	009	Organ. o		2	Organ 109		2	-----	
	016	60's Organ 1		1	60's Organ 1		1	60's Organ1	1
	017	60's Organ 2		1	60's Organ 2		1	-----	
	018	60's Organ 3		1	60's Organ 3		1	-----	
	019	Farf Organ		1	-----			-----	
	024	Cheese Organ	#	1	Cheese Organ		1	-----	
	025	D-50 Organ		2	-----			-----	
	026	JUNO Organ		2	-----			-----	
	027	Hybrid Organ		2	-----			-----	
	028	VS Organ		2	-----			-----	
	029	Digi Church		2	-----			-----	
	032	70's E.Organ		2	Organ 4		1	Organ 4	2
	033	Even Bar	#	2	Even Bar		2	-----	
	040	Organ Bass	#	1	Organ Bass		1	-----	
	048	5th Organ		2	-----			-----	
018	**000**	**Organ 2**		**2**	**Organ 2**		**1**	**Organ 2**	**1**
	001	Jazz Organ		2	Organ 201		2	-----	
	002	E.Organ 16+2		2	-----			-----	
	008	Chorus Or.2		2	Detuned Or.2		2	Detuned Or2	2
	009	Octave Organ		2	-----			-----	
	032	Perc. Organ		2	Organ 5		2	Organ 5	2
019	**000**	**Organ 3**	#	**2**	**Organ 3**	*	**2**	**Organ 3**	**2**
	008	Rotary Org.	#	1	Rotary Org.		1	-----	
	016	Rotary Org.S	#	1	Rotary Org.S		1	-----	
	017	Rock Organ 1		2	-----			-----	
	018	Rock Organ 2		2	-----			-----	
	024	Rotary Org.F	#	1	Rotary Org.F		1	-----	
020	**000**	**Church Org.1**	#	**1**	**Church Org.1**		**1**	**Church Org1**	**1**
	008	Church Org.2	#	2	Church Org.2		2	Church Org2	2
	016	Church Org.3	#	2	Church Org.3		2	Church Org3	2
	024	Organ Flute	#	1	Organ Flute		1	-----	
	032	Trem.Flute	#	2	Trem.Flute		2	-----	
	033	Theater Org.		2	-----			-----	
021	**000**	**Reed Organ**	#	**1**	**Reed Organ**	*	**1**	**Reed Organ**	**1**
	008	Wind Organ		2	-----			-----	
022	**000**	**Accordion Fr**		**1**	**Accordion Fr**		**1**	**Accordion F**	**2**
	008	Accordion It		1	Accordion It		2	Accordion I	2
	009	Dist. Accord		2	-----			-----	
	016	Cho. Accord		2	-----			-----	
	024	Hard Accord		2	-----			-----	
	025	Soft Accord		2	-----			-----	
023	**000**	**Harmonica**		**1**	**Harmonica**		**1**	**Harmonica**	**1**
	001	Harmonica 2		1	Harmonica 2		2	-----	
024	**000**	**Bandoneon**		**2**	**Bandoneon**		**1**	**Bandoneon**	**2**
	008	Bandoneon 2		2	-----			-----	
	016	Bandoneon 3		2	-----			-----	

■ Guitar

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
025	**000**	**Nylon-str.Gt**		**2**	**Nylon-str.Gt**		**1**	**Nylon Gt.**	**1**
	008	Ukulele	#	1	Ukulele		1	Ukulele	1
	016	Nylon Gt.o		2	Nylon Gt.o		2	Nylon Gt.o	2
	024	Velo Harmnix	#	1	Velo Harmnix		1	-----	
	032	Nylon Gt 2		1	Nylon Gt.2		1	Nylon Gt.2	1
	040	Lequint Gt.	#	1	Lequint Gt.		1	-----	

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
026	**000**	**Steel-str.Gt**		**1**	**Steel-str.Gt**		**1**	**Steel Gt.**	**1**
	008	12-str.Gt		2	12-str.Gt		2	12-str.Gt	2
	009	Nylon+Steel		2	Nylon+Steel		2	-----	
	016	Mandolin	#	2	Mandolin		2	Mandolin	1
	017	Mandolin 2		2	-----			-----	
	018	MandolinTrem		2	-----			-----	
	032	Steel Gt.2	#	1	Steel Gt.2		1	-----	
027	**000**	**Jazz Gt.**		**1**	**Jazz Gt.**	*	**1**	**Jazz Gt.**	**1**
	001	Mellow Gt.	#	2	Mellow Gt.		2	-----	
	008	Pedal Steel	#	1	Pedal Steel		1	Hawaiian Gt	1
028	**000**	**Clean Gt.**		**1**	**Clean Gt.**		**1**	**Clean Gt.**	**1**
	001	Clean Half		1	-----			-----	
	002	Open Hard 1		2	-----			-----	
	003	Open Hard 2		1	-----			-----	
	004	JC Clean Gt.		1	-----			-----	
	008	Chorus Gt.		2	Chorus Gt.		2	Chorus Gt.	2
	009	JC Chorus Gt		2	-----			-----	
	016	TC FrontPick		1	-----			-----	
	017	TC Rear Pick		1	-----			-----	
	018	TC Clean ff		2	-----			-----	
	019	TC Clean 2	:	2	-----			-----	
029	**000**	**Muted Gt.**		**1**	**Muted Gt.**		**1**	**Muted Gt.**	**1**
	001	Muted Dis.Gt	#	1	Muted Dis.Gt		1	-----	
	002	TC Muted Gt.		2	-----			-----	
	008	Funk Pop	#	1	Funk Pop		1	Funk Gt.	1
	016	Funk Gt.2	#	1	Funk Gt.2		1	Funk Gt.2	1
030	**000**	**OverdriveGt**		**2**	**OverdriveGt**		**1**	**OverdriveGt**	**1**
	001	Overdrive 2		2	-----			-----	
	002	Overdrive 3		2	-----			-----	
	003	More Drive		2	-----			-----	
	008	LP OverDrvGt		2	-----			-----	
	009	LP OverDrv	:	2	-----			-----	
031	**000**	**DistortionGt**		**2**	**DistortionGt**		**1**	**Dist.Gt.**	**1**
	001	Dist. Gt2	:	2	Dist. Gt2		2	-----	
	002	Dazed Guitar	#	2	Dazed Guitar		2	-----	
	003	Distortion	:	2	-----			-----	
	004	Dist.Fast	:	2	-----			-----	
	008	Feedback Gt.		2	Feedback Gt.		2	Feedback Gt	2
	009	Feedback Gt2	#	2	Feedback Gt2		2	-----	
	016	Power Guitar	#	2	Power Guitar		2	-----	
	017	Power Gt.2		2	Power Gt.2		2	-----	
	018	5th Dist.	#	2	5th Dist.		2	-----	
	024	Rock Rhythm	#	2	Rock Rhythm		2	-----	
	025	Rock Rhythm2	#	2	Rock Rhythm2		2	-----	
032	**000**	**Gt.Harmonics**	#	**1**	**Gt.Harmonics**	*	**1**	**Gt.Harmonix**	**1**
	008	Gt. Feedback	#	1	Gt.Feedback	*	1	Gt.Feedback	1
	009	Gt. Feedback2		2	-----			-----	
	016	Ac.Gt.Harmnx	#	1	Ac.Gt.Harm.		1	-----	
	024	E.Bass Harm.		1	-----			-----	

■ Bass

PC	CC00	Native Map		Voices	SC-88 Map	Voices	SC-55 Map	Voices
033	**000**	**Acoustic Bs.**		**1**	**Acoustic Bs.**	**2**	**Acoustic Bs**	**1**
	001	Rockabilly		2	-----		-----	
	008	Wild A.Bass		2	-----		-----	
	016	Bass + OHH		2	-----		-----	
034	**000**	**Fingered Bs.**		**1**	**Fingered Bs.**	**1**	**Fingered Bs**	**1**
	001	Fingered Bs2		2	Fingered Bs2	2	-----	
	002	Jazz Bass	#	1	Jazz Bass	1	-----	
	003	Jazz Bass 2		2	-----		-----	
	004	Rock Bass		2	-----		-----	
	008	ChorusJazzBs		2	-----		-----	
	016	F.Bass/Harm.		1	-----		-----	
035	**000**	**Picked Bass**		**1**	**Picked Bass**	**1**	**Picked Bass**	**1**
	001	Picked Bass2		2	-----		-----	
	002	Picked Bass3		2	-----		-----	
	003	Picked Bass4		2	-----		-----	
	008	Muted PickBs		1	Mute PickBs.	1	-----	
	016	P.Bass/Harm.		1	-----		-----	
036	**000**	**Fretless Bs.**	#	**1**	**Fretless Bs.**	**1**	**Fretless Bs**	**1**
	001	Fretless Bs2		2	Fretless Bs2	2	-----	
	002	Fretless Bs3	#	2	Fretless Bs3	2	-----	
	003	Fretless Bs4	#	2	Fretless Bs4	2	-----	
	004	Syn Fretless	#	2	Syn Fretless	2	-----	
	005	Mr.Smooth	#	2	Mr.Smooth	2	-----	
	008	Wood+FlessBs		2	-----		-----	

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
037	**000**	**Slap Bass 1**	#	**1**	**Slap Bass 1**		**1**	**Slap Bass 1**	**1**
	001	Slap Pop		1	-----			-----	
	008	Reso Slap	#	1	Reso Slap		1	-----	
	009	Unison Slap		2	-----			-----	
038	**000**	**Slap Bass 2**	#	**2**	**Slap Bass 2**		**2**	**Slap Bass 2**	**1**
	008	FM Slap		2	-----			-----	
039	**000**	**Synth Bass 1**	#	**2**	**Synth Bass 1**		**2**	**Syn.Bass 1**	**1**
	001	Synth Bass101	#	1	Syn.Bass101	*	1	Syn.Bass101	1
	002	CS Bass		2	-----			-----	
	003	JP-4 Bass		1	-----			-----	
	004	JP-8 Bass		2	-----			-----	
	005	P5 Bass		1	-----			-----	
	006	JPMG Bass		2	-----			-----	
	008	Acid Bass	#	1	Acid Bass		1	Syn.Bass 3	1
	009	TB303 Bass	#	1	TB303 Bass		1	-----	
	010	Tekno Bass	#	2	Tekno Bass		2	-----	
	011	TB303 Bass 2		1	-----			-----	
	012	Kicked TB303		2	-----			-----	
	013	TB303 Saw Bs		1	-----			-----	
	014	Rubber303 Bs		1	-----			-----	
	015	Reso 303 Bs		1	-----			-----	
	016	Reso SH Bass	#	1	Reso SH Bass		1	-----	
	017	303 Sqr Bs		1	-----			-----	
	018	TB303 DistBs		1	-----			-----	
	024	Arpeggio Bs		1	-----			-----	
040	**000**	**Synth Bass 2**	#	**2**	**Synth Bass 2**		**2**	**Syn.Bass 2**	**2**
	001	Synth Bass201	#	2	Syn.Bass201		2	-----	
	002	Modular Bass	#	2	Modular Bass		2	-----	
	003	Seq Bass	#	2	Seq Bass		2	-----	
	004	MG Bass		1	-----			-----	
	005	Mg Oct Bass1		2	-----			-----	
	006	MG Oct Bass2		2	-----			-----	
	007	MG Blip Bs	:	2	-----			-----	
	008	Beef FM Bass	#	2	Beef FM Bass		2	Syn.Bass 4	2
	009	Dly Bass		2	X Wire Bass		2	-----	
	010	X Wire Bass	#	2	-----			-----	
	011	WireStr Bass		2	-----			-----	
	012	Blip Bass	:	2	-----			-----	
	013	RubberBass 1		2	-----			-----	
	016	RubberBass 2		2	Rubber Bass	*	2	Rubber Bass	2
	017	SH101 Bass 1	#	1	SH101Bass 1		1	-----	
	018	SH101 Bass 2	#	1	SH101Bass 2		1	-----	
	019	Smooth Bass	#	2	Smooth Bass		2	-----	
	020	SH101 Bass 3		1	-----			-----	
	021	Spike Bass		1	-----			-----	
	022	House Bass	:	2	-----			-----	
	023	KG Bass		2	-----			-----	
	024	Sync Bass		2	-----			-----	
	025	MG 5th Bass		2	-----			-----	
	026	RND Bass		2	-----			-----	
	027	WowMG Bass		2	-----			-----	
	028	Bubble Bass		2	-----			-----	

■ Strings/Orchestra

PC	CC00	Native Map		Voices	SC-88 Map	Voices	SC-55 Map	Voices
041	**000**	**Violin**	:	**2**	**Violin**	**1**	**Violin**	**1**
	001	Violin Atk	:	2	-----		-----	
	008	Slow Violin		1	Slow Violin	1	Slow Violin	1
042	**000**	**Viola**	:	**2**	**Viola**	**1**	**Viola**	**1**
	001	Viola Atk.	:	2	-----		-----	
043	**000**	**Cello**	:	**2**	**Cello**	**1**	**Cello**	**1**
	001	Cello Atk.	:	2	-----		-----	
044	**000**	**Contrabass**		**1**	**Contrabass**	**1**	**Contrabass**	**1**
045	**000**	**Tremolo Str**	#	**1**	**Tremolo Str**	**1**	**Tremolo Str**	**1**
	008	Slow Tremolo	#	1	Slow Tremolo	1	-----	
	009	Suspense Str	#	2	Suspense Str	2	-----	
046	**000**	**PizzicatoStr**	#	**1**	**Pizzicato Str.**	**1**	**Pizzicato**	**1**
	001	Vcs&Cbs Pizz		2	-----		-----	
	002	Chamber Pizz		2	-----		-----	
	003	St. Pizzicato		2	-----		-----	
	008	Solo Pizz.		1	-----		-----	
	016	Solo Spic.		1	-----		-----	
047	**000**	**Harp**	#	**1**	**Harp**	**1**	**Harp**	**1**
	016	Synth Harp		1	-----		-----	
048	**000**	**Timpani**	#	**1**	**Timpani**	**1**	**Timpani**	**1**

■ Ensemble

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
049	**000**	**Strings**	:	**2**	**Strings**		**1**	**Strings**	**1**
	001	Bright Str	:	1	Strings 2		1	-----	
	002	ChamberStr	:	2	-----			-----	
	003	Cello sect.		1	-----			-----	
	008	Orchestra		2	Orchestra		2	Orchestra	2
	009	Orchestra 2		2	Orchestra 2		2	-----	
	010	Tremolo Orch	#	2	Tremolo Orch		2	-----	
	011	Choir Str.		2	Choir Str.		2	-----	
	012	Strings+Horn		2	-----			-----	
	016	St. Strings		2	St.Strings		2	-----	
	024	Velo Strings	#	2	Velo Strings		2	-----	
	032	Oct Strings1		2	-----			-----	
	033	Oct Strings2		2	-----			-----	
050	**000**	**SlowStrings**		**1**	**SlowStrings**		**1**	**SlowStrings**	**1**
	001	SlowStrings2		1	Slow Str. 2		1	-----	
	008	Legato Str.	#	2	Legato Str.		2	-----	
	009	Warm Strings	#	2	Warm Strings		2	-----	
	010	St.Slow Str.		2	St.Slow Str.		2	-----	
051	**000**	**Syn.Strings1**		**2**	**Syn.Strings1**		**2**	**Syn.Strings1**	**1**
	001	OB Strings		2	OB Strings		2	-----	
	002	StackStrings		2	-----			-----	
	003	JP Strings		2	-----			-----	
	008	Syn.Strings3	#	2	Syn.Strings3	*	2	Syn.Strings3	2
	009	Syn.Strings4		2	-----			-----	
	016	High Strings		2	-----			-----	
	017	Hybrid Str.		2	-----			-----	
	024	Tron Strings		2	-----			-----	
	025	Noiz Strings		2	-----			-----	
052	**000**	**Syn.Strings2**	#	**2**	**Syn.Strings2**	*	**2**	**Syn.Strings2**	**2**
	001	Syn.Strings5		2	-----			-----	
	002	JUNO Strings		2	-----			-----	
	008	Air Strings		2	-----			-----	
053	**000**	**Choir Aahs**		**1**	**Choir Aahs**		**1**	**Choir Aahs**	**1**
	008	St.ChoirAahs		2	St.Choir		2	-----	
	009	Melted Choir		2	Mello Choir		2	-----	
	010	Church Choir		2	-----			-----	
	016	Choir Hahs		1	-----			-----	
	024	Chorus Lahs		1	-----			-----	
	032	Chorus Aahs		2	ChoirAahs 2	*	1	Choir Aahs2	1
	033	Male Aah+Str		2	-----			-----	
054	**000**	**Voice Oohs**	#	**1**	**Voice Oohs**	*	**1**	**Voice Oohs**	**1**
	008	Voice Dahs		1	-----			-----	
055	**000**	**SynVox**	#	**1**	**SynVox**	*	**1**	**SynVox**	**1**
	008	Syn.Voice	#	2	Syn.Voice		2	-----	
	009	Silent Night		2	-----			-----	
	016	VP330 Choir		1	-----			-----	
	017	Vinyl Choir		2	-----			-----	
056	**000**	**OrchestraHit**	#	**2**	**Orch. Hit**		**2**	**Orchest.Hit**	**2**
	008	Impact Hit	#	2	Impact Hit		2	-----	
	009	Philly Hit	#	2	Philly Hit		2	-----	
	010	Double Hit	#	2	Double Hit		2	-----	
	011	Perc. Hit		1	-----			-----	
	012	Shock Wave		2	-----			-----	
	016	Lo Fi Rave	#	2	Lo Fi Rave		2	-----	
	017	Techno Hit		1	-----			-----	
	018	Dist. Hit		1	-----			-----	
	019	Bam Hit		1	-----			-----	
	020	Bit Hit		1	-----			-----	
	021	Bim Hit		1	-----			-----	
	022	Technorg Hit		1	-----			-----	
	023	Rave Hit		2	-----			-----	
	024	Strings Hit		2	-----			-----	
	025	Stack Hit		2	-----			-----	

PC : Program number (Instrument number)
CC00 : value of Controller number 0
(Bank number, Variation number)
: : legato-enabled sounds
Voices : number of voices used by the Instrument
Remark # : same sounds as SC-88 map
Remark * : same sounds as SC-55 map
Remark + : a percussive sound which cannot be played melodically.
Use near C4 (note number 60).

■ Brass

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
057	**000**	**Trumpet**		**1**	**Trumpet**		**1**	**Trumpet**	**1**
	001	Trumpet 2	#	1	Trumpet 2		1	-----	
	002	Trumpet	:	1	-----			-----	
	008	Flugel Horn	#	1	Flugel Horn		1	-----	
	016	4th Trumpets		2	-----			-----	
	024	Bright Tp.		2	Bright Tp.		2	-----	
	025	Warm Tp.	#	2	Warm Tp.		2	-----	
	032	Syn. Trumpet		1	-----			-----	
058	**000**	**Trombone**		**1**	**Trombone**		**1**	**Trombone**	**1**
	001	Trombone 2		1	Trombone 2	*	2	Trombone 2	2
	002	Twin bones		2	-----			-----	
	008	Bs. Trombone		1	-----			-----	
059	**000**	**Tuba**	#	**1**	**Tuba**		**1**	**Tuba**	**1**
	001	Tuba 2	#	1	Tuba 2		1	-----	
060	**000**	**MutedTrumpet**	#	**1**	**Muted Tp.**		**1**	**MuteTrumpet**	**1**
	008	Muted Horns		1	-----			-----	
061	**000**	**French Horns**	#	**1**	**French Horns**		**1**	**French Horn**	**2**
	001	Fr.Horn 2	#	2	Fr.Horn 2	*	2	Fr.Horn 2	2
	002	Horn + Orche		2	-----			-----	
	003	Wide FreHrns		2	-----			-----	
	008	F.Hrn Slow	:	1	Fr.Horn Solo		1	-----	
	009	Dual Horns		2	-----			-----	
	016	Synth Horn		2	Horn Orch		2	-----	
	024	F.Horn Rip		1	-----			-----	
062	**000**	**Brass 1**		**2**	**Brass 1**	*	**1**	**Brass 1**	**1**
	001	Brass ff		1	-----			-----	
	002	Bones Sect.		1	-----			-----	
	008	Brass 2		2	Brass 2		2	Brass 2	2
	009	Brass 3		2	-----			-----	
	010	Brass sfz		2	-----			-----	
	016	Brass Fall	#	1	Brass Fall		1	-----	
	017	Trumpet Fall		1	-----			-----	
	024	Octave Brass		2	-----			-----	
	025	Brass + Reed		2	-----			-----	
063	**000**	**SynthBrass1**		**2**	**SynthBrass1**		**2**	**Syn.Brass 1**	**2**
	001	JUNO Brass		2	Poly Brass		2	-----	
	002	StackBrass		2	-----			-----	
	003	SH-5 Brass		2	-----			-----	
	004	MKS Brass		2	-----			-----	
	008	Pro Brass		2	Syn.Brass 3	*	2	Syn.Brass 3	2
	009	P5 Brass		2	Quack Brass		2	-----	
	016	Oct SynBrass		2	Octave Brass		2	Analog Brs1	2
	017	Hybrid Brass		2	-----			-----	
064	**000**	**Synth Brass 2**		**2**	**Syn.Brass 2**	*	**2**	**Syn.Brass 2**	**2**
	001	Soft Brass		2	Soft Brass		2	-----	
	002	Warm Brass		2	-----			-----	
	008	SynBrass sfz		1	Syn.Brass 4	*	1	Syn.Brass 4	1
	009	OB Brass		2	-----			-----	
	010	Reso Brass		2	-----			-----	
	016	Velo Brass 1	#	2	Velo Brass 1		2	Analog Brs2	2
	017	Transbrass		2	Velo Brass 2		2	-----	

■ Reed

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
065	**000**	**Soprano Sax**		**1**	**Soprano Sax**		**1**	**Soprano Sax**	**1**
	008	Soprano Exp.		1	-----			-----	
066	**000**	**Alto Sax**		**1**	**Alto Sax**		**1**	**Alto Sax**	**1**
	008	AltoSax Exp.		1	Hyper Alto		1	-----	
	009	Grow Sax		1	-----			-----	
	016	AltoSax + Tp		2	-----			-----	
067	**000**	**Tenor Sax**		**2**	**Tenor Sax**		**2**	**Tenor Sax**	**1**
	001	Tenor Sax	:	2	-----			-----	
	008	BreathyTn.	:	1	Breathy Tenor		1	-----	
	009	St. Tenor Sax		2	-----			-----	
068	**000**	**Baritone Sax**		**2**	**Baritone Sax**		**1**	**BaritoneSax**	**1**
	001	Bari. Sax	:	2	-----			-----	
069	**000**	**Oboe**		**1**	**Oboe**		**1**	**Oboe**	**1**
	008	Oboe Exp.		1	-----			-----	
	016	Multi Reed		1	-----			-----	
070	**000**	**English Horn**	#	**1**	**English Horn**		**1**	**EnglishHorn**	**1**
071	**000**	**Bassoon**	#	**1**	**Bassoon**		**1**	**Bassoon**	**1**
072	**000**	**Clarinet**		**1**	**Clarinet**		**1**	**Clarinet**	**1**
	008	Bs Clarinet	#	1	Bs Clarinet		1	-----	
	016	Multi Wind		1	-----			-----	

■ Pipe

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
073	**000**	**Piccolo**	#	**1**	**Piccolo**		**1**	**Piccolo**	**1**
	001	Piccolo	:	1	-----			-----	
	008	Nay		2	-----			-----	
	009	Nay Tremolo		2	-----			-----	
	016	Di		2	-----			-----	
074	**000**	**Flute**	#	**1**	**Flute**		**1**	**Flute**	**1**
	001	Flute 2	:	1	-----			-----	
	002	Flute Exp.		1	-----			-----	
	003	Flt Travelso		2	-----			-----	
	008	Flute + Vln		2	-----			-----	
	016	Tron Flute		1	-----			-----	
075	**000**	**Recorder**	#	**1**	**Recorder**	*	**1**	**Recorder**	**1**
076	**000**	**Pan Flute**	#	**2**	**Pan Flute**		**2**	**Pan Flute**	**1**
	008	Kawala	#	2	Kawala		2	-----	
	016	Zampona		2	-----			-----	
	017	Zampona Atk		1	-----			-----	
077	**000**	**Bottle Blow**	#	**2**	**Bottle Blow**		**2**	**Bottle Blow**	**2**
078	**000**	**Shakuhachi**	#	**2**	**Shakuhachi**	*	**2**	**Shakuhachi**	**2**
	001	Shakuhachi	:	2	-----			-----	
079	**000**	**Whistle**	#	**1**	**Whistle**	*	**1**	**Whistle**	**1**
	001	Whistle 2		2	-----			-----	
080	**000**	**Ocarina**	#	**1**	**Ocarina**	*	**1**	**Ocarina**	**1**

■ Synth Lead

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
081	**000**	**Square Wave**		**2**	**Square Wave**	*	**2**	**Square Wave**	**2**
	001	MG Square		1	Square	*	1	Square	1
	002	Hollow Mini	#	1	Hollow Mini		1	-----	
	003	Mellow FM	#	2	Mellow FM		2	-----	
	004	CC Solo	#	2	CC Solo		2	-----	
	005	Shmoog	#	2	Shmoog		2	-----	
	006	LM Square	#	2	LM Square		2	-----	
	008	2600 Sine		1	Sine Wave	*	1	Sine Wave	1
	009	Sine Lead		1	-----			-----	
	010	KG Lead		1	-----			-----	
	016	P5 Square		1	-----			-----	
	017	OB Square		1	-----			-----	
	018	JP-8 Square		1	-----			-----	
	024	Pulse Lead		2	-----			-----	
	025	JP8 PulseLd1		2	-----			-----	
	026	JP8 PulseLd2		1	-----			-----	
	027	MG Reso. Pls		1	-----			-----	
082	**000**	**Saw Wave**		**2**	**Saw Wave**	*	**2**	**Saw Wave**	**2**
	001	OB2 Saw		1	Saw	*	1	Saw	1
	002	Pulse Saw	#	2	Pulse Saw		2	-----	
	003	Feline GR	#	2	Feline GR		2	-----	
	004	Big Lead	#	2	Big Lead		2	-----	
	005	Velo Lead	#	2	Velo Lead		2	-----	
	006	GR-300	#	2	GR-300		2	-----	
	007	LA Saw	#	1	LA Saw		1	-----	
	008	Doctor Solo	#	2	Doctor Solo	*	2	Doctor Solo	2
	009	Fat Saw Lead		2	-----			-----	
	011	D-50 Fat Saw		2	-----			-----	
	016	Waspy Synth		2	Waspy Synth		2	-----	
	017	PM Lead	#	1	-----			-----	
	018	CS Saw Lead		1	-----			-----	
	024	MG Saw 1		1	-----			-----	
	025	MG Saw 2		1	-----			-----	
	026	OB Saw 1		1	-----			-----	
	027	OB Saw 2		1	-----			-----	
	028	D-50 Saw		1	-----			-----	
	029	SH-101 Saw		1	-----			-----	
	030	CS Saw		1	-----			-----	
	031	MG Saw Lead		1	-----			-----	
	032	OB Saw Lead		1	-----			-----	
	033	P5 Saw Lead		2	-----			-----	
	034	MG unison		2	-----			-----	
	035	Oct Saw Lead		2	-----			-----	
	040	SequenceSaw1		2	-----			-----	
	041	SequenceSaw2		1	-----			-----	
	042	Reso Saw		1	-----			-----	
	043	Cheese Saw 1		1	-----			-----	
	044	Cheese Saw 2		2	-----			-----	
	045	Rhythmic Saw		2	-----			-----	
083	**000**	**Syn.Calliope**	#	**2**	**Syn.Calliope**	*	**2**	**SynCalliope**	**2**
	001	Vent Synth	#	2	Vent Synth		2	-----	
	002	Pure PanLead	#	2	Pure PanLead		2	-----	
084	**000**	**Chiffer Lead**	#	**2**	**Chiffer Lead**	*	**2**	**Chiffer Lead**	**2**
	001	TB Lead		2	-----			-----	
	008	Mad Lead		2	-----			-----	
085	**000**	**Charang**	#	**2**	**Charang**	*	**2**	**Charang**	**2**
	008	Dist.Lead	#	2	Dist.Lead		2	-----	
	009	Acid Guitar1		2	-----			-----	
	010	Acid Guitar2		2	-----			-----	
	016	P5 Sync Lead		1	-----			-----	
	017	Fat Sync Lead		2	-----			-----	
	018	Rock Lead		2	-----			-----	
	019	5th DecaSync		2	-----			-----	
	020	Dirty Sync		1	-----			-----	
	024	JUNO Sub Osc		1	-----			-----	
086	**000**	**Solo Vox**	#	**2**	**Solo Vox**	*	**2**	**Solo Vox**	**2**
	008	Vox Lead		2	-----			-----	
	009	LFO Vox		2	-----			-----	
087	**000**	**5th Saw Wave**	#	**2**	**5th Saw**	*	**2**	**5th Saw**	**2**
	001	Big Fives	#	2	Big Fives		2	-----	
	002	5th Lead		2	-----			-----	
	003	5th Ana.Clav		2	-----			-----	
	008	4th Lead		2	-----			-----	
088	**000**	**Bass & Lead**	#	**2**	**Bass & Lead**	*	**2**	**Bass & Lead**	**2**
	001	Big & Raw	#	2	Big & Raw		2	-----	
	002	Fat & Perky	#	2	Fat & Perky		2	-----	
	003	JUNO Rave		1	-----			-----	
	004	JP8 BsLead 1		1	-----			-----	
	005	JP8 BsLead 2		2	-----			-----	
	006	SH-5 Bs.Lead		2	-----			-----	

■ Synth Pad, etc.

PC	CC00	Native Map		Voices	SC-88 Map		Voices	SC-55 Map	Voices
089	**000**	**Fantasia**	#	**2**	**Fantasia**	*	**2**	**Fantasia**	**2**
	001	Fantasia 2	#	2	Fantasia 2		2	-----	
	002	New Age Pad		2	-----			-----	
	003	Bell Heaven		2	-----			-----	
090	**000**	**Warm Pad**	#	**1**	**Warm Pad**	*	**1**	**Warm Pad**	**1**
	001	Thick Matrix		2	Thick Pad		2	-----	
	002	Horn Pad	#	2	Horn Pad		2	-----	
	003	Rotary Strng	#	2	Rotary String		2	-----	
	004	OB Soft Pad		2	Soft Pad		2	-----	
	008	Octave Pad		2	-----			-----	
	009	Stack Pad		2	-----			-----	
091	**000**	**Polysynth**	#	**2**	**Polysynth**	*	**2**	**Polysynth**	**2**
	001	80's PolySyn	#	2	80's PolySyn		2	-----	
	002	Polysynth 2		2	-----			-----	
	003	Poly King		2	-----			-----	
	008	Power Stack		2	-----			-----	
	009	Octave Stack		2	-----			-----	
	010	Reso Stack		1	-----			-----	
	011	Techno Stack		2	-----			-----	
092	**000**	**Space Voice**	#	**1**	**Space Voice**	*	**1**	**Space Voice**	**1**
	001	Heaven II	#	2	Heaven II		2	-----	
	002	SC Heaven		2	-----			-----	
	008	Cosmic Voice		2	-----			-----	
	009	Auh Vox		1	-----			-----	
	010	AuhAuh		2	-----			-----	
	011	Vocorderman		2	-----			-----	
093	**000**	**Bowed Glass**	#	**2**	**Bowed Glass**	*	**2**	**Bowed Glass**	**2**
	001	SoftBellPad		2	-----			-----	
	002	JP8 Sqr Pad		2	-----			-----	
	003	7thBelPad		2	-----			-----	
094	**000**	**Metal Pad**	#	**2**	**Metal Pad**	*	**2**	**Metal Pad**	**2**
	001	Tine Pad	#	2	Tine Pad		2	-----	
	002	Panner Pad	#	2	Panner Pad		2	-----	
095	**000**	**Halo Pad**	#	**2**	**Halo Pad**	*	**2**	**Halo Pad**	**2**
	001	Vox Pad		2	-----			-----	
	002	Vox Sweep		2	-----			-----	
	008	Horror Pad		2	-----			-----	
096	**000**	**Sweep Pad**	#	**1**	**Sweep Pad**	*	**1**	**Sweep Pad**	**1**
	001	Polar Pad	#	1	Polar Pad		1	-----	
	008	Converge	#	1	Converge		1	-----	
	009	Shwimmer	#	2	Shwimmer		2	-----	
	010	Celestial Pd	#	2	CelestialPd		2	-----	
	011	Bag Sweep		2	-----			-----	

■ Synth SFX

PC	CC00	Native Map	Voices	SC-88 Map	Voices	SC-55 Map	Voices
097	**000**	**Ice Rain**	**# 2**	**Ice Rain**	*** 2**	**Ice Rain**	**2**
	001	Harmo Rain	# 2	Harmo Rain	2	-----	
	002	African wood	# 2	African Wood	2	-----	
	003	Anklung Pad	2	-----		-----	
	004	Rattle Pad	2	-----		-----	
	008	Clavi Pad	# 2	Clavi Pad	2	-----	
098	**000**	**Soundtrack**	**# 2**	**Soundtrack**	*** 2**	**Soundtrack**	**2**
	001	Ancestral	# 2	Ancestral	2	-----	
	002	Prologue	# 2	Prologue	2	-----	
	003	Prologue 2	2	-----		-----	
	004	Hols Strings	2	-----		-----	
	008	Rave	# 2	Rave	2	-----	
099	**000**	**Crystal**	**# 2**	**Crystal**	*** 2**	**Crystal**	**2**
	001	Syn Mallet	# 1	Syn Mallet	* 1	Syn Mallet	1
	002	Soft Crystal	# 2	Soft Crystal	2	-----	
	003	Round Glock	# 2	Round Glock	2	-----	
	004	Loud Glock	# 2	Loud Glock	2	-----	
	005	GlockenChime	# 2	GlockenChime	2	-----	
	006	Clear Bells	# 2	Clear Bells	2	-----	
	007	ChristmasBel	# 2	ChristmasBel	2	-----	
	008	Vibra Bells	# 2	Vibra Bells	2	-----	
	009	Digi Bells	# 2	Digi Bells	2	-----	
	010	Music Bell	2	-----		-----	
	011	Analog Bell	1	-----		-----	
	016	Choral Bells	# 2	Choral Bells	2	-----	
	017	Air Bells	# 2	Air Bells	2	-----	
	018	Bell Harp	# 2	Bell Harp	2	-----	
	019	Gamelimba	# 2	Gamelimba	2	-----	
	020	JUNO Bell	2	-----		-----	
100	**000**	**Atmosphere**	**# 2**	**Atmosphere**	*** 2**	**Atmosphere**	**2**
	001	Warm Atmos	# 2	Warm Atmos	2	-----	
	002	Nylon Harp	# 2	Nylon Harp	2	-----	
	003	Harpvox	# 2	Harpvox	2	-----	
	004	HollowReleas	# 2	HollowReleas	2	-----	
	005	Nylon+Rhodes	# 2	Nylon+Rhodes	2	-----	
	006	Ambient Pad	# 2	Ambient Pad	2	-----	
	007	Invisible	2	-----		-----	
	008	Pulsey Key	2	-----		-----	
	009	Noise Piano	2	-----		-----	
101	**000**	**Brightness**	**# 2**	**Brightness**	*** 2**	**Brightness**	**2**
	001	Shining Star	2	-----		-----	
	002	OB Stab	1	-----		-----	
	008	Org Bell	2	-----		-----	
102	**000**	**Goblin**	**# 2**	**Goblin**	*** 2**	**Goblin**	**2**
	001	Goblinson	# 2	Goblinson	2	-----	
	002	50's Sci-Fi	# 2	50's Sci-Fi	2	-----	
	003	Abduction	2	-----		-----	
	004	Auhbient	2	-----		-----	
	005	LFO Pad	2	-----		-----	
	006	Random Str	2	-----		-----	
	007	Random Pad	2	-----		-----	
	008	LowBirds Pad	2	-----		-----	
	009	Falling Down	2	-----		-----	
	010	LFO RAVE	2	-----		-----	
	011	LFO Horror	2	-----		-----	
	012	LFO Techno	2	-----		-----	
	013	Alternative	2	-----		-----	
	014	UFO FX	2	-----		-----	
	015	Gargle Man	1	-----		-----	
	016	Sweep FX	1	-----		-----	

PC	CC00	Native Map	Voices	SC-88 Map	Voices	SC-55 Map	Voices
103	**000**	**Echo Drops**	**# 1**	**Echo Drops**	*** 1**	**Echo Drops**	**1**
	001	Echo Bell	# 2	Echo Bell	* 2	Echo Bell	2
	002	Echo Pan	# 2	Echo Pan	* 2	Echo Pan	2
	003	Echo Pan 2	# 2	Echo Pan 2	2	-----	
	004	Big Panner	# 2	Big Panner	2	-----	
	005	Reso Panner	# 2	Reso Panner	2	-----	
	006	Water Piano	# 2	Water Piano	2	-----	
	008	Pan Sequence	2	-----		-----	
	009	Aqua	2	-----		-----	
104	**000**	**Star Theme**	**# 2**	**Star Theme**	*** 2**	**Star Theme**	**2**
	001	Star Theme 2	# 2	Star Theme 2	2	-----	
	008	Dream Pad	2	-----		-----	
	009	Silky Pad	2	-----		-----	
	016	New Century	1	-----		-----	
	017	7th Atmos	2	-----		-----	
	018	Galaxy Way	2	-----		-----	

■ Ethnic, etc.

PC	CC00	Native Map	Voices	SC-88 Map	Voices	SC-55 Map	Voices
105	**000**	**Sitar**	**# 1**	**Sitar**	*** 1**	**Sitar**	**1**
	001	Sitar 2	# 2	Sitar 2	* 2	Sitar 2	2
	002	Detune Sitar	# 2	Detune Sitar	2	-----	
	003	Sitar 3	2	-----		-----	
	008	Tambra	# 1	Tambra	1	-----	
	016	Tamboura	# 2	Tamboura	2	-----	
106	**000**	**Banjo**	**# 1**	**Banjo**	**1**	**Banjo**	**1**
	001	Muted Banjo	# 1	Muted Banjo	1	-----	
	008	Rabab	# 2	Rabab	2	-----	
	009	San Xian	2	-----		-----	
	016	Gopichant	# 2	Gopichant	2	-----	
	024	Oud	# 2	Oud	2	-----	
	028	Oud+Strings	2	-----		-----	
	032	Pi Pa	1	-----		-----	
107	**000**	**Shamisen**	**# 1**	**Shamisen**	*** 1**	**Shamisen**	**1**
	001	Tsugaru	# 2	Tsugaru	2	-----	
	008	Syn Shamisen	2	-----		-----	
108	**000**	**Koto**	**2**	**Koto**	*** 1**	**Koto**	**1**
	001	Gu Zheng	2	-----		-----	
	008	Taisho Koto	# 1	Taisho Koto	1	Taisho Koto	2
	016	Kanoon	# 2	Kanoon	2	-----	
	019	Kanoon+Choir	2	-----		-----	
	024	Oct Harp	1	-----		-----	
109	**000**	**Kalimba**	**1**	**Kalimba**	**1**	**Kalimba**	**1**
	008	Sanza	2	-----		-----	
110	**000**	**Bagpipe**	**# 1**	**Bagpipe**	**1**	**Bagpipe**	**1**
	008	Didgeridoo	+ 1	-----		-----	
111	**000**	**Fiddle**	**# 1**	**Fiddle**	*** 1**	**Fiddle**	**1**
	008	Er Hu	1	-----		-----	
	009	Gao Hu	1	-----		-----	
112	**000**	**Shanai**	**# 1**	**Shanai**	*** 1**	**Shanai**	**1**
	001	Shanai 2	# 1	Shanai 2	1	-----	
	008	Pungi	# 1	Pungi	1	-----	
	016	Hichiriki	# 2	Hichiriki	2	-----	
	024	Mizmar	1	-----		-----	
	032	Suona 1	1	-----		-----	
	033	Suona 2	1	-----		-----	

PC : Program number (Instrument number)
CC00 : value of Controller number 0
(Bank number, Variation number)
: : legato-enabled sounds
Voices : number of voices used by the Instrument
Remark # : same sounds as SC-88 map
Remark * : same sounds as SC-55 map
Remark + : a percussive sound which cannot be played melodically.
Use near C4 (note number 60).

■ Percussive

PC	CC00	Native Map	Voices	SC-88 Map	Voices	SC-55 Map	Voices
113	**000**	**Tinkle Bell**	**# 1**	**Tinkle Bell**	*** 1**	**Tinkle Bell**	**1**
	008	Bonang	# 1	Bonang	1	-----	
	009	Gender	# 1	Gender	1	-----	
	010	Gamelan Gong	# 1	Gamelan Gong	1	-----	
	011	St.Gamelan	# 2	St.Gamelan	2	-----	
	012	Jang-Gu	2	-----		-----	
	016	RAMA Cymbal	# 1	RAMA Cymbal	1	-----	
114	**000**	**Agogo**	**# 1**	**Agogo**	**1**	**Agogo**	**1**
	008	Atarigane	# 1	Atarigane	1	-----	
	016	Tambourine	+ 1	-----		-----	
115	**000**	**Steel Drums**	**# 1**	**Steel Drums**	*** 1**	**Steel Drums**	**1**
	001	Island Mlt	2	-----		-----	
116	**000**	**Woodblock**	**#+1**	**Woodblock**	***+ 1**	**Woodblock**	**+ 1**
	008	Castanets	#+1	Castanets	*+ 1	Castanets	+ 1
	016	Angklung	1	-----		-----	
	017	Angkl Rhythm	2	-----		-----	
	024	Finger Snaps	+ 1	-----		-----	
	032	909 HandClap	+ 1	-----		-----	
117	**000**	**Taiko**	**#+1**	**Taiko**	***+ 1**	**Taiko**	**+ 1**
	001	Small Taiko	+ 1	-----		-----	
	008	Concert BD	#+1	Concert BD	*+ 1	Concert BD	+ 1
	016	Jungle BD	+ 1	-----		-----	
	017	Techno BD	+ 1	-----		-----	
	018	Bounce	+ 1	-----		-----	
118	**000**	**Melo. Tom 1**	**#+1**	**Melo. Tom 1**	***+ 1**	**Melo. Tom 1**	**+ 1**
	001	Real Tom	#+2	Real Tom	+ 2	-----	
	008	Melo. Tom 2	#+1	Melo. Tom 2	*+ 1	Melo. Tom 2	+ 1
	009	Rock Tom	#+2	Rock Tom	+ 2	-----	
	016	Rash SD	+ 1	-----		-----	
	017	House SD	+ 1	-----		-----	
	018	Jungle SD	+ 1	-----		-----	
	019	909 SD	+ 1	-----		-----	
119	**000**	**Synth Drum**	**#+1**	**Synth Drum**	***+ 1**	**Synth Drum**	**+ 1**
	008	808 Tom	#+2	808 Tom	+ 2	808 Tom	+ 1
	009	Elec Perc	#+1	Elec Perc	*+ 1	Elec Perc	+ 1
	010	Sine Perc.	1	-----		-----	
	011	606 Tom	+ 1	-----		-----	
	012	909 Tom	+ 1	-----		-----	
120	**000**	**Reverse Cym.**	**#+1**	**Reverse Cym**	***+ 1**	**Reverse Cym**	**+1**
	001	Reverse Cym2	#+1	Reverse Cym2	+ 1	-----	
	002	Reverse Cym3	+ 1	-----		-----	
	008	Rev.Snare 1	#+1	Rev.Snare 1	+ 1	-----	
	009	Rev.Snare 2	#+1	Rev.Snare 2	+ 1	-----	
	016	Rev.Kick 1	#+1	Rev.Kick 1	+ 1	-----	
	017	Rev.ConBD	#+1	Rev.ConBD	+ 1	-----	
	024	Rev.Tom 1	#+1	Rev.Tom 1	+ 1	-----	
	025	Rev.Tom 2	#+1	Rev.Tom 2	+ 1	-----	

■ SFX

PC	CC00	Native Map	Voices	SC-88 Map	Voices	SC-55 Map	Voices
121	**000**	**Gt.FretNoise**	**# 1**	**Gt.FretNoise**	*** 1**	**Gt.FretNoise**	**1**
	001	Gt.Cut Noise	#+1	Gt.Cut Noise	*+ 1	Gt.Cut Noise	+ 1
	002	String Slap	#+1	String Slap	*+ 1	String Slap	+ 1
	003	Gt.Cut Noise2	#+1	Gt.CutNoise2	+ 1	-----	
	004	Dist.CutNoiz	#+1	Dist.CutNoiz	+ 1	-----	
	005	Bass Slide	#+1	Bass Slide	+ 1	-----	
	006	Pick Scrape	#+1	Pick Scrape	+ 1	-----	
	008	Gt. FX Menu	1	-----		-----	
	009	Bartok Pizz.	1	-----		-----	
	010	Guitar Slap	+ 1	-----		-----	
	011	Chord Stroke	1	-----		-----	
	012	Biwa Stroke	+ 1	-----		-----	
	013	Biwa Tremolo	+ 1	-----		-----	
122	**000**	**Breath Noise**	**# 1**	**Breath Noise**	*** 1**	**Breath Noise**	**1**
	001	Fl.Key Click	#+1	Fl.Key Click	*+ 1	Fl.Key Click	+ 1
123	**000**	**Seashore**	**#+1**	**Seashore**	***+ 1**	**Seashore**	**+ 1**
	001	Rain	#+1	Rain	*+ 1	Rain	+ 1
	002	Thunder	#+1	Thunder	*+ 1	Thunder	+ 1
	003	Wind	#+1	Wind	*+ 1	Wind	+ 1
	004	Stream	#+2	Stream	*+ 2	Stream	+ 2
	005	Bubble	#+2	Bubble	*+ 2	Bubble	+ 2
	006	Wind 2	+ 1	-----		-----	
	016	Pink Noise	1	-----		-----	
	017	White Noise	1	-----		-----	
124	**000**	**Bird**	**#+2**	**Bird**	***+ 2**	**Bird**	**+ 2**
	001	Dog	#+1	Dog	*+ 1	Dog	+ 1
	002	Horse-Gallop	#+1	Horse-Gallop	*+ 1	HorseGallop	+ 1
	003	Bird 2	#+1	Bird 2	*+ 1	Bird 2	+ 1
	004	Kitty	#+1	Kitty	+ 1	-----	
	005	Growl	#+1	Growl	+ 1	-----	
125	**000**	**Telephone 1**	**#+1**	**Telephone 1**	***+ 1**	**Telephone 1**	**+ 1**
	001	Telephone 2	#+1	Telephone 2	*+ 1	Telephone 2	+ 1
	002	DoorCreaking	#+1	Creaking	*+ 1	Creaking	+ 1
	003	Door	#+1	Door	*+ 1	Door	+ 1
	004	Scratch	#+1	Scratch	*+ 1	Scratch	+ 1
	005	Wind Chimes	#+2	Wind Chimes	*+ 2	Wind Chimes	+ 2
	007	Scratch 2	#+1	Scratch 2	+ 1	-----	
	008	ScratchKey	+ 2	-----		-----	
	009	TapeRewind	+ 1	-----		-----	
	010	Phono Noise	+ 1	-----		-----	
	011	MC-500 Beep	1	-----		-----	
126	**000**	**Helicopter**	**#+1**	**Helicopter**	***+ 1**	**Helicopter**	**+ 1**
	001	Car-Engine	#+1	Car-Engine	*+ 1	Car-Engine	+ 1
	002	Car-Stop	#+1	Car-Stop	*+ 1	Car-Stop	+ 1
	003	Car-Pass	#+1	Car-Pass	*+ 1	Car-Pass	+ 1
	004	Car-Crash	#+2	Car-Crash	*+ 2	Car-Crash	+ 2
	005	Siren	#+1	Siren	*+ 1	Siren	+ 1
	006	Train	#+1	Train	*+ 1	Train	+ 1
	007	Jetplane	#+2	Jetplane	*+ 2	Jetplane	+ 2
	008	Starship	#+2	Starship	*+ 2	Starship	+ 2
	009	Burst Noise	#+2	Burst Noise	*+ 2	Burst Noise	+ 2
	010	Calculating	+ 2	-----		-----	
	011	Perc. Bang	+ 2	-----		-----	
127	**000**	**Applause**	**#+2**	**Applause**	***+ 2**	**Applause**	**+ 2**
	001	Laughing	#+1	Laughing	*+ 1	Laughing	+ 1
	002	Screaming	#+1	Screaming	*+ 1	Screaming	+ 1
	003	Punch	#+1	Punch	*+ 1	Punch	+ 1
	004	Heart Beat	# 1	Heart Beat	* 1	Heart Beat	1
	005	Footsteps	#+1	Footsteps	*+ 1	Footsteps	+ 1
	006	Applause 2	#+2	Applause 2	+ 2	-----	
	007	Small Club	+ 2	-----		-----	
	008	ApplauseWave	+ 2	-----		-----	
	016	Voice One	+ 1	-----		-----	
	017	Voice Two	+ 1	-----		-----	
	018	Voice Three	+ 1	-----		-----	
	019	Voice Tah	+ 1	-----		-----	
	020	Voice Whey	+ 1	-----		-----	
128	**000**	**Gun Shot**	**#+1**	**Gun Shot**	***+ 1**	**Gun Shot**	**+ 1**
	001	Machine Gun	#+1	Machine Gun	*+ 1	Machine Gun	+ 1
	002	Lasergun	#+1	Lasergun	*+ 1	Lasergun	+ 1
	003	Explosion	#+2	Explosion	*+ 2	Explosion	+ 2
	004	Eruption	+ 1	-----		-----	
	005	Big Shot	+ 2	-----		-----	

CM-64 Sound Map (SC-55 Map)

(PCM Sounds)

PC	CC00	Instrument	Voices
001	126	Piano 2	1
002	126	Piano 2	1
003	126	Piano 2	1
004	126	Honky-tonk	2
005	126	Piano 1	1
006	126	Piano 2	1
007	126	Piano 2	1
008	126	E.Piano 1	1
009	126	Detuned EP1	2
010	126	E.Piano 2	1
011	126	Steel Gt.	1
012	126	Steel Gt.	1
013	126	12-str.Gt.	2
014	126	Funk Gt.	1
015	126	Muted Gt.	1
016	126	Slap Bass 1	1
017	126	Slap Bass 1	1
018	126	Slap Bass 1	1
019	126	Slap Bass 1	1
020	126	Slap Bass 2	1
021	126	Slap Bass 2	1
022	126	Slap Bass 2	1
023	126	Slap Bass 2	1
024	126	Fingered Bs	1
025	126	Fingered Bs	1
026	126	Picked Bass	1
027	126	Picked Bass	1
028	126	Fretless Bs	1
029	126	Acoustic Bs	1
030	126	Choir Aahs	1
031	126	Choir Aahs	1
032	126	Choir Aahs	1
033	126	Choir Aahs	1
034	126	SlowStrings	1
035	126	Strings	1
036	126	Syn.Strings3	2
037	126	Syn.Strings3	2
038	126	Organ 1	1
039	126	Organ 1	1
040	126	Organ 1	1
041	126	Organ 2	1
042	126	Organ 1	1
043	126	Organ 1	1
044	126	Organ 2	1
045	126	Organ 2	1
046	126	Organ 2	1
047	126	Trumpet	1
048	126	Trumpet	1
049	126	Trombone	1
050	126	Trombone	1
051	126	Trombone	1
052	126	Trombone	1
053	126	Trombone	1
054	126	Trombone	1
055	126	Alto Sax	1
056	126	Tenor Sax	1
057	126	BaritoneSax	1
058	126	Alto Sax	1
059	126	Brass 1	1
060	126	Brass 1	1
061	126	Brass 2	2
062	126	Brass 2	2
063	126	Brass 1	1
064	126	Orchest.Hit	2

(LA Sounds)

PC	CC00	Instrument	Voices
001	127	Acou Piano1	1
002	127	Acou Piano2	1
003	127	Acou Piano3	1
004	127	Elec Piano1	1
005	127	Elec Piano2	1
006	127	Elec Piano3	1
007	127	Elec Piano4	1
008	127	Honkytonk	2
009	127	Elec Org 1	1
010	127	Elec Org 2	2
011	127	Elec Org 3	1
012	127	Elec Org 4	1
013	127	Pipe Org 1	2
014	127	Pipe Org 2	2
015	127	Pipe Org 3	2
016	127	Accordion	2
017	127	Harpsi 1	1
018	127	Harpsi 2	2
019	127	Harpsi 3	1
020	127	Clavi 1	1
021	127	Clavi 2	1
022	127	Clavi 3	1
023	127	Celesta 1	1
024	127	Celesta 2	1
025	127	Syn Brass 1	2
026	127	Syn Brass 2	2
027	127	Syn Brass 3	2
028	127	Syn Brass 4	2
029	127	Syn Bass 1	1
030	127	Syn Bass 2	2
031	127	Syn Bass 3	2
032	127	Syn Bass 4	1
033	127	Fantasy	2
034	127	Harmo Pan	2
035	127	Chorale	1
036	127	Glasses	2
037	127	Soundtrack	2
038	127	Atmosphere	2
039	127	Warm Bell	2
040	127	Funny Vox	1
041	127	Echo Bell	2
042	127	Ice Rain	2
043	127	Oboe 2001	2
044	127	Echo Pan	2
045	127	Doctor Solo	2
046	127	School Daze	1
047	127	Bellsinger	1
048	127	Square Wave	2
049	127	Str Sect 1	1
050	127	Str Sect 2	1
051	127	Str Sect 3	1
052	127	Pizzicato	1
053	127	Violin 1	1
054	127	Violin 2	1
055	127	Cello 1	1
056	127	Cello 2	1
057	127	Contrabass	1
058	127	Harp 1	1
059	127	Harp 2	1
060	127	Guitar 1	1
061	127	Guitar 2	1
062	127	Elec Gtr 1	1
063	127	Elec Gtr 2	1
064	127	Sitar	2

PC	CC00	Instrument		Voices
065	127	Acou Bass 1		1
066	127	Acou Bass 2		1
067	127	Elec Bass 1		1
068	127	Elec Bass 2		1
069	127	Slap Bass 1		1
070	127	Slap Bass 2		1
071	127	Fretless 1		1
072	127	Fretless 2		1
073	127	Flute 1		1
074	127	Flute 2		1
075	127	Piccolo 1		1
076	127	Piccolo 2		2
077	127	Recorder		1
078	127	Pan Pipes		1
079	127	Sax 1		1
080	127	Sax 2		1
081	127	Sax 3		1
082	127	Sax 4		1
083	127	Clarinet 1		1
084	127	Clarinet 2		1
085	127	Oboe		1
086	127	Engl Horn		1
087	127	Bassoon		1
088	127	Harmonica		1
089	127	Trumpet 1		1
090	127	Trumpet 2		1
091	127	Trombone 1		2
092	127	Trombone 2		2
093	127	Fr Horn 1		2
094	127	Fr Horn 2		2
095	127	Tuba		1
096	127	Brs Sect 1		1
097	127	Brs Sect 2		2
098	127	Vibe 1		1
099	127	Vibe 2		1
100	127	Syn Mallet		1
101	127	Windbell		2
102	127	Glock		1
103	127	Tube Bell		1
104	127	Xylophone		1
105	127	Marimba		1
106	127	Koto		1
107	127	Sho		2
108	127	Shakuhachi		2
109	127	Whistle 1		2
110	127	Whistle 2		1
111	127	Bottleblow		2
112	127	Breathpipe		1
113	127	Timpani		1
114	127	Melodic Tom		1
115	127	Deep Snare	+	1
116	127	Elec Perc 1	+	1
117	127	Elec Perc 2	+	1
118	127	Taiko	+	1
119	127	Taiko Rim		1
120	127	Cymbal		1
121	127	Castanets	+	1
122	127	Triangle	+	1
123	127	Orche Hit		1
124	127	Telephone	+	1
125	127	Bird Tweet	+	1
126	127	OneNote Jam	+	1
127	127	Water Bell		2
128	127	Jungle Tune		2

Drum Set List

The Drum Sets of the SK-88Pro are organized as follows.
The Native map has 25 types, the SC-88 map has 14 types, and the SC-55 map has 10 types.

PC	Native Map		SC-88 Map	SC-55 Map
001	STANDARD 1		STANDARD 1	STANDARD
002	STANDARD 2	#	STANDARD 2	-----
003	STANDARD 3	*	-----	-----
009	ROOM	#	ROOM	ROOM
010	HIP HOP		-----	-----
011	JUNGLE		-----	-----
012	TECHNO		-----	-----
017	POWER		POWER	POWER
025	ELECTRONIC	#	ELECTRONIC	ELECTRONIC
026	TR-808		TR-808/909	TR-808
027	DANCE		DANCE	-----
028	CR-78		-----	-----
029	TR-606		-----	-----
030	TR-707		-----	-----
031	TR-909		-----	-----
033	JAZZ		JAZZ	JAZZ
041	BRUSH		BRUSH	BRUSH
049	ORCHESTRA	#	ORCHESTRA	ORCHESTRA
050	ETHNIC	#	ETHNIC	-----
051	KICK & SNARE	#	KICK & SNARE	-----
053	ASIA		-----	-----
054	CYMBAL&CLAPS		-----	-----
057	SFX		SFX	SFX
058	RHYTHM FX	#	RHYTHM FX	-----
059	RHYTHM FX 2		-----	-----
128	-----		-----	CM-64/32L

: Same as the SC-88 map Drum Sets

* : Sounds in the STANDARD 3 Drum Sets that have "RND" appended to their name (such as Kick, Snare, and Hi-Hat) in the list on the next page are sounds which will change randomly with each note played (these changes affect the timbre and timing). The purpose of this is to create a more natural sounding performance—even if all note messages for percussive instruments are sent with absolute precision, subtle fluctuations will be applied so the performance sounds less mechanical.
Note, however, that you may not always be able to obtain the desired effect, depending on the circumstances.

Native Drum Set (1)

* For note number 0–19 and 97–127, refer to p.180.

Note Number	PC1 STANDARD 1	PC2 STANDARD 2 #	PC3 STANDARD 3	PC9 ROOM #	PC10 Hip-Hop
22	MC-500 Beep 1	<-	<-	<-	<-
23	MC-500 Beep 2	<-	<-	<-	<-
C1 24	Concert SD	<-	<-	<-	<-
25	Snare Roll	<-	<-	<-	<-
26	Finger Snap 2	Finger Snap	<-	Finger Snap	<-
27	High Q	<-	<-	<-	<-
28	Slap	<-	<-	<-	<-
29	Scratch Push [EXC7]	<-	<-	<-	Scratch Push 2 [EXC7]
30	Scratch Pull [EXC7]	<-	<-	<-	Scratch Pull 2 [EXC7]
31	Sticks	<-	<-	<-	<-
32	Square Click	<-	<-	<-	* <-
33	Metronome Click	<-	<-	<-	<-
34	Metronome Bell	<-	<-	<-	<-
35	Standard 1 Kick 2	Standard 2 Kick 2	Standard 3 Kick 2	Room Kick 2	Hip-Hop Kick 2
C2 36	Standard 1 Kick 1	Standard 2 Kick 1	[RND] Kick	Room Kick 1	Hip-Hop Kick 1
37	Side Stick	<-	<-	<-	TR-808 Rim Shot
38	Standard 1 Snare 1	Standard 2 Snare 1	[RND] Snare	Room Snare 1	Rap Snare
39	TR-909 Hand Clap	Hand Clap	[RND] Hand Clap *	Hand Clap	<-
40	Standard 1 Snare 2	Standard 2 Snare 2	Standard 3 Snare 2	Room Snare 2	Hip-Hop Snare 2
41	Low Tom 2 *	<-	<-	Room Low Tom 2 *	TR-909 Low Tom 2
42	Closed Hi-Hat [EXC1]	Closed Hi-Hat [EXC1]	[RND] Closed Hi-Hat [EXC1]	Closed Hi-Hat 3 [EXC1]	Room Closed Hi-Hat [EXC1]
43	Low Tom 1 *	<-	<-	Room Low Tom 1 *	TR-909 Low Tom 1
44	Pedal Hi-Hat [EXC1]	Pedal Hi-Hat [EXC1]	[RND] Pedal Hi-Hat [EXC1]	Pedal Hi-Hat [EXC1]	Pedal Hi-Hat [EXC1]
45	Mid Tom 2 *	<-	<-	Room Mid Tom 2 *	TR-909 Mid Tom 2
46	Open Hi-Hat [EXC1]	Open Hi-Hat [EXC1]	[RND] Open Hi-Hat [EXC1]	Open Hi-Hat 3 [EXC1]	Room Open Hi-Hat [EXC1]
47	Mid Tom 1 *	<-	<-	Room Mid Tom 1 *	TR-909 Mid Tom 1
C3 48	High Tom 2 *	<-	<-	Room High Tom 2 *	TR-909 High Tom 2
49	Crash Cymbal1	<-	[RND] Crash Cymbal	<-	TR-909 Crash Cymbal
50	High Tom 1 *	<-	<-	Room High Tom 1 *	TR-909 High Tom 1
51	Ride Cymbal 1	<-	[RND] Ride Cymbal 1 *	<-	<-
52	Chinese Cymbal	<-	<-	<-	Reverse Cymbal
53	Ride Bell	<-	[RND] Ride Bell 1	<-	<-
54	Tambourine	<-	<-	<-	Shake Tambourine
55	Splash Cymbal	<-	<-	<-	<-
56	Cowbell	<-	<-	<-	TR-808 Cowbell
57	Crash Cymbal 2	<-	<-	<-	<-
58	Vibra-slap	<-	<-	<-	<-
59	Ride Cymbal 2	<-	[RND] Ride Cymbal 2 *	<-	<-
C4 60	High Bongo	<-	<-	<-	<-
61	Low Bongo	<-	<-	<-	<-
62	Mute High Conga	<-	<-	<-	<-
63	Open High Conga	<-	<-	<-	<-
64	Low Conga	<-	<-	<-	<-
65	High Timbale	<-	<-	<-	<-
66	Low Timbale	<-	<-	<-	<-
67	High Agogo	<-	<-	<-	<-
68	Low Agogo	<-	<-	<-	<-
69	Cabasa	<-	<-	<-	<-
70	Maracas	<-	<-	<-	TR-808 Maracas
71	Short High Whistle [EXC2]	<-	<-	<-	<-
C5 72	Long Low Whistle [EXC2]	<-	<-	<-	<-
73	Short Guiro [EXC3]	<-	<-	<-	<-
74	Long Guiro [EXC3]	<-	<-	<-	CR-78 Guiro [EXC3]
75	Claves	<-	<-	<-	TR-808 Claves
76	High Wood Block	<-	<-	<-	<-
77	Low Wood Block	<-	<-	<-	<-
78	Mute Cuica [EXC4]	<-	<-	<-	High Hoo [EXC4]
79	Open Cuica [EXC4]	<-	<-	<-	Low Hoo [EXC4]
80	Mute Triangle [EXC5]	<-	<-	<-	Mute Triangle
81	Open Triangle [EXC5]	<-	<-	<-	Open Triangle
82	Shaker	<-	<-	<-	TR-626 Shaker
83	Jingle Bell	<-	<-	<-	<-
C6 84	Bell Tree	Bar Chimes	<-	<-	<-
85	Castanets	<-	<-	<-	<-
86	Mute Surdo [EXC6]	<-	<-	<-	<-
87	Open Surdo [EXC6]	<-	<-	<-	<-
88	Applause 2 *	<-	<-	<-	Small Club 1 *
89	---	---	---	---	---
90	---	---	---	---	---
91	---	---	---	---	---
92	---	---	---	---	---
93	---	---	---	---	---
94	---	---	---	---	---
95	---	---	---	---	---
C7 96	---	---	---	---	---

PC: Program number (Drum Set number)
[55] : Same as the sound of SC-88.
* : Tones which are created using two voices

<- : Same as the percussion sound of "STANDARD1" (PC1).
--- : No sound
[EXC] : Percussion sounds of the same number will not be heard at the same time.

[88] : Same as the sound of SC-88.

Native Drum Set (2)

* For note number 0–19 and 97–127, refer to p.180.

Note Number	PC 11 JUNGLE	PC 12 TECHNO	PC 17 POWER	PC 25 ELECTRONIC #	PC 26 TR-808
22	<-	<-	<-	<-	<-
23	<-	<-	<-	<-	<-
C1 24	<-	<-	<-	<-	<-
25	<-	<-	<-	<-	<-
26	<-	<-	<-	Finger Snap 2	<-
27	<-	<-	<-	<-	<-
28	<-	<-	<-	<-	<-
29	Scratch Push 2 [EXC7]	Scratch Push 2 [EXC7]	<- [EXC7]	Scratch Push 2 [EXC7]	Scratch Push 2 [EXC7]
30	Scratch Pull 2 [EXC7]	Scratch Pull 2 [EXC7]	<- [EXC7]	Scratch Pull 2 [EXC7]	Scratch Pull 2 [EXC7]
31	<-	<-	<-	<-	<-
32	<-	<-	<-	<-	<-
33	<-	<-	<-	<-	<-
34	<-	<-	<-	<-	<-
35	Jungle Kick 2	Techno Kick 2	Power Kick 2	Electric Kick 2	TR-808 Kick 2
C2 36	Jungle Kick 1	Techno Kick 1	Power Kick 1	Electric Kick 1 *	TR-808 Kick 1
37	<-	TR-808 Rim Shot	<-	<-	TR-808 Rim Shot
38	Jungle Snare 1	Techno Snare 1	Power Snare 1	Electric Snare 1	TR-808 Snare 1
39	Hand Clap 2	TR-707 Hand Clap	Hand Clap	Hand Clap	Hand Clap
40	Jungle Snare 2	Techno Snare 2	Power Snare 2	Electric Snare 2	TR-808 Snare 2
41	TR-909 Low Tom 2	TR-808 Low Tom 2 *	Power Low Tom 2 *	Electric Low Tom 2 *	TR-808 Low Tom 2 *
42	TR-606 Closed Hi-Hat [EXC1]	TR-707 Closed Hi-Hat [EXC1]	<-	Closed Hi-Hat 2 [EXC1]	TR-808 Closed Hi-Hat 2 [EXC1]
43	TR-909 Low Tom 1	TR-808 Low Tom 1 *	Power Low Tom 1 *	Electric Low Tom 1 *	TR-808 Low Tom 1 *
44	Jungle Hi-Hat [EXC1]	CR-78 Closed Hi-Hat [EXC1]	<-	Pedal Hi-Hat [EXC1]	TR-808 Closed Hi-Hat [EXC1]
45	TR-909 Mid Tom 2	TR-808 Mid Tom 2 *	Power Mid Tom 2 *	Electric Mid Tom 2 *	TR-808 Mid Tom 2 *
46	TR-606 Open Hi-Hat [EXC1]	TR-909 Open Hi-Hat [EXC1]	<-	Open Hi-Hat 2 [EXC1]	TR-808 Open Hi-Hat [EXC1]
47	TR-909 Mid Tom 1	TR-808 Mid Tom 1 *	Power Mid Tom 1 *	Electric Mid Tom 1 *	TR-808 Mid Tom 1 *
C3 48	TR-909 High Tom 2	TR-808 High Tom 2 *	Power High Tom 2 *	Electric High Tom 2 *	TR-808 High Tom 2 *
49	TR-808 Crash Cymbal	TR-909 Crash Cymbal	<-	<-	TR-808 Crash Cymbal
50	TR-909 High Tom 1	TR-808 High Tom 1 *	Power High Tom 1 *	Electric High Tom 1 *	TR-808 High Tom 1 *
51	<-	<-	<-	<-	TR-606 Ride Cymbal
52	Reverse Cymbal	Reverse Cymbal	<-	Reverse Cymbal	<-
53	<-	<-	<-	<-	<-
54	Shake Tambourine	Shake Tambourine	<-	<-	CR-78 Tambourine
55	<-	<-	<-	<-	<-
56	TR-808 Cowbell	TR-808 Cowbell	<-	<-	TR-808 Cowbell
57	<-	TR-909 Crash Cymbal	<-	<-	TR-909 Crash Cymbal
58	<-	<-	<-	<-	<-
59	<-	<-	<-	<-	Ride Cymbal 2
C4 60	<-	CR-78 High Bongo	<-	<-	CR-78 High Bongo
61	<-	CR-78 Low Bongo	<-	<-	CR-78 Low Bongo
62	<-	TR-808 High Conga	<-	<-	TR-808 High Conga
63	<-	TR-808 Mute Conga	<-	<-	TR-808 Mute Conga
64	<-	TR-808 Low Conga	<-	<-	TR-808 Low Conga
65	<-	<-	<-	<-	<-
66	<-	<-	<-	<-	<-
67	<-	<-	<-	<-	<-
68	<-	<-	<-	<-	<-
69	<-	<-	<-	<-	<-
70	TR-808 Maracas	TR-808 Maracas	<-	<-	TR-808 Maracas
71	<-	<-	<-	<-	<-
C5 72	<-	<-	<-	<-	<-
73	<-	<-	<-	<-	<-
74	CR-78 Guiro [EXC3]	CR-78 Guiro [EXC3]	<-	<-	CR-78 Guiro [EXC3]
75	TR-808 Claves	TR-808 Claves	<-	<-	TR-808 Claves
76	<-	<-	<-	<-	<-
77	<-	<-	<-	<-	<-
78	High Hoo [EXC4]	High Hoo [EXC4]	<-	<-	High Hoo [EXC4]
79	Low Hoo [EXC4]	Low Hoo [EXC4]	<-	<-	Low Hoo [EXC4]
80	Mute Triangle	Mute Triangle	<-	<-	Mute Triangle
81	Open Triangle	Open Triangle	<-	<-	Open Triangle
82	TR-626 Shaker	TR-626 Shaker	<-	<-	TR-626 Shaker
83	<-	<-	<-	<-	<-
C6 84	<-	<-	<-	<-	<-
85	<-	<-	<-	<-	<-
86	<-	<-	<-	<-	<-
87	<-	<-	<-	<-	<-
88	Small Club 1 *	<-	<-	Small Club 1 *	Small Club 1 *
89	---	---	---	---	---
90	---	---	---	---	---
91	---	---	---	---	---
92	---	---	---	---	---
93	---	---	---	---	---
94	---	---	---	---	---
95	---	---	---	---	---
C7 96	---	---	---	---	---

PC: Program number (Drum Set number)
[55] : Same as the sound of SC-88.
* : Tones which are created using two voices
<- : Same as the percussion sound of "STANDARD1" (PC1).
--- : No sound
[EXC] : Percussion sounds of the same number will not be heard at the same time.
[88] : Same as the sound of SC-88.

Native Drum Set (3)

* For note number 0–19 and 97–127, refer to p.180.

Note Number	PC 27 DANCE		PC 28 CR-78		PC 29 TR-606		PC 30 TR-707	
22	<-		<-		<-		<-	
23	<-		<-		<-		<-	
C1 24	<-		<-		<-		<-	
25	<-		<-		<-		<-	
26	Finger Snap 2		<-		<-		<-	
27	<-		<-		<-		<-	
28	<-		<-		<-		<-	
29	Scratch Push 2	[EXC7]	Scratch Push 2	[EXC7]	Scratch Push 2	[EXC7]	Scratch Push 2	[EXC7]
30	Scratch Pull 2	[EXC7]	Scratch Pull 2	[EXC7]	Scratch Pull 2	[EXC7]	Scratch Pull 2	[EXC7]
31	<-		<-		<-		<-	
32	<-		<-		<-		<-	
33	<-		<-		<-		<-	
34	<-		<-		<-		<-	
35	TR-909 Comp Kick		CR-78 Kick 2		CR-78 Kick 2		TR-707 Kick 2	
C2 36	Electric Kick 2		CR-78 Kick 1		TR-606 Kick 1		TR-707 Kick 1	
37	<-		CR-78 Rim Shot		CR-78 Rim Shot		TR-707 Rim Shot	
38	House Snare		CR-78 Snare 1		TR-606 Snare 1		TR-707 Snare 1	
39	<-		TR-707 Hand Clap		TR-707 Hand Clap		TR-707 Hand Clap	
40	Dance Snare 2		CR-78 Snare 2		TR-606 Snare 2		TR-707 Snare 2	
41	Electric Low Tom 2	*	CR-78 Low Tom 2	*	TR-606 Low Tom 2		TR-707 Low Tom 2	*
42	CR-78 Closed Hi-Hat	[EXC1]	CR-78 Closed Hi-Hat	[EXC1]	TR-606 Closed Hi-Hat	[EXC1]	TR-707 Closed Hi-Hat	[EXC1]
43	Electric Low Tom 1	*	CR-78 Low Tom 1	*	TR-606 Low Tom 1		TR-707 Low Tom 1	*
44	TR-808 Closed Hi-Hat 2	[EXC1]	TR-606 Closed Hi-Hat	[EXC1]	TR-606 Closed Hi-Hat	[EXC1]	TR-707 Closed Hi-Hat	[EXC1]
45	Electric Mid Tom 2	*	CR-78 Mid Tom 2	*	TR-606 Mid Tom 2		TR-707 Mid Tom 2	*
46	CR-78 Open Hi-Hat	[EXC1]	CR-78 Open Hi-Hat	[EXC1]	TR-606 Open Hi-Hat	[EXC1]	TR-707 Open Hi-Hat	[EXC1]
47	Electric Mid Tom 1	*	CR-78 Mid Tom 1	*	TR-606 Mid Tom 1		TR-707 Mid Tom 1	*
C3 48	Electric High Tom 2	*	CR-78 High Tom 2	*	TR-606 High Tom 2		TR-707 High Tom 2	*
49	TR-808 Crash Cymbal		TR-808 Crash Cymbal		TR-808 Crash Cymbal		TR-909 Crash Cymbal	
50	Electric High Tom 1	*	CR-78 High Tom 1	*	TR-606 High Tom 1		TR-707 High Tom 1	*
51	TR-606 Ride Cymbal		TR-606 Ride Cymbal		TR-606 Ride Cymbal		TR-909 Ride Cymbal	*
52	Reverse Cymbal		<-		<-		<-	
53	<-		<-		<-		<-	
54	Shake Tambourine		CR-78 Tambourine		CR-78 Tambourine		Tambourine 2	
55	<-		<-		<-		<-	
56	TR-808 Cowbell		CR-78 Cowbell		CR-78 Cowbell		TR-808 Cowbell	
57	<-		TR-909 Crash Cymbal		TR-909 Crash Cymbal		<-	
58	<-		<-		<-		<-	
59	<-		Ride Cymbal Edge		Ride Cymbal Edge		Ride Cymbal Edge	
C4 60	<-		CR-78 High Bongo		CR-78 High Bongo		<-	
61	<-		CR-78 Low Bongo		CR-78 Low Bongo		<-	
62	<-		TR-808 High Conga		TR-808 High Conga		<-	
63	<-		TR-808 Mute Conga		TR-808 Mute Conga		<-	
64	<-		TR-808 Low Conga		TR-808 Low Conga		<-	
65	<-		<-		<-		<-	
66	<-		<-		<-		<-	
67	<-		<-		<-		<-	
68	<-		<-		<-		<-	
69	<-		<-		<-		<-	
70	<-		CR-78 Maracas		CR-78 Maracas		TR-808 Maracas	
71	<-		<-		<-		<-	
C5 72	<-		<-		<-		<-	
73	<-		<-		<-		<-	
74	<-		CR-78 Guiro	[EXC3]	CR-78 Guiro	[EXC3]	<-	
75	<-		CR-78 Claves		CR-78 Claves		<-	
76	<-		<-		<-		<-	
77	<-		<-		<-		<-	
78	High Hoo	[EXC4]	High Hoo	[EXC4]	High Hoo	[EXC4]	High Hoo	[EXC4]
79	Low Hoo	[EXC4]	Low Hoo	[EXC4]	Low Hoo	[EXC4]	Low Hoo	[EXC4]
80	Mute Triangle		CR-78 Metalic Beat 1	[EXC5]	CR-78 Metalic Beat 1	[EXC5]	Mute Triangle	
81	Open Triangle		CR-78 Metalic Beat 2	[EXC5]	CR-78 Metalic Beat 2	[EXC5]	Open Triangle	
82	TR-626 Shaker		TR-626 Shaker		TR-626 Shaker		TR-626 Shaker	
83	<-		<-		<-		<-	
C6 84	<-		<-		<-		<-	
85	<-		<-		<-		<-	
86	<-		<-		<-		<-	
87	<-		<-		<-		<-	
88	Small Club 1	*	Small Club 1	*	Small Club 1	*	Small Club 1	*
89	---		---		---		---	
90	---		---		---		---	
91	---		---		---		---	
92	---		---		---		---	
93	---		---		---		---	
94	---		---		---		---	
95	---		---		---		---	
C7 96	---		---		---		---	

PC: Program number (Drum Set number)
[55] : Same as the sound of SC-88.
* : Tones which are created using two voices
<- : Same as the percussion sound of "STANDARD1" (PC1).
--- : No sound
[EXC] : Percussion sounds of the same number will not be heard at the same time.
[88] : Same as the sound of SC-88.

Native Drum Set (4)

* For note number 0–19 and 97–127, refer to p.180.

Note Number	PC 31 TR-909		PC 33 JAZZ		PC 41 BRUSH		PC 49 ORCHESTRA #	
22	<-		<-		<-		<-	
23	<-		<-		<-		<-	
C1 24	<-		<-		<-		<-	
25	<-		<-		<-		<-	
26	<-		Finger Snap 2		Finger Snap 2		Finger Snap	
27	<-		<-		<-		Closed Hi-Hat 2	[EXC1]
28	<-		<-		<-		Pedal Hi-Hat	[EXC1]
29	Scratch Push 2	[EXC7]	<-		<-		Open Hi-Hat 2	[EXC1]
30	Scratch Pull 2	[EXC7]	<-		<-		Ride Cymbal 1	
31	<-		<-		<-		<-	
32	<-		<-		<-		<-	
33	<-		<-		<-		<-	
34	<-		<-		<-		<-	
35	TR-909 Kick 2		Jazz Kick 2		Jazz Kick 2		Jazz Kick 1	
C2 36	TR-909 Kick 1	*	Jazz Kick 1		Jazz Kick 1		Concert BD 1	
37	TR-909 Rim		<-		<-		<-	
38	TR-909 Snare 1		Jazz Snare 1		Brush Tap 1		Concert SD	
39	<-		Hand Clap 2		Brush Slap 1		Castanets	
40	TR-909 Snare2		Jazz Snare 2		Brush Swirl 1		Concert SD	
41	TR-909 Low Tom 2		<-		Brush Low Tom 2	*	Timpani F	
42	TR-707 Closed Hi-Hat	[EXC1]	Closed Hi-Hat 2	[EXC1]	Brush Closed Hi-Hat	[EXC1]	Timpani F#	
43	TR-909 Low Tom 1		<-		Brush Low Tom 1	*	Timpani G	
44	TR-707 Closed Hi-Hat	[EXC1]	Pedal Hi-Hat	[EXC1]	Pedal Hi-Hat	[EXC1]	Timpani G#	
45	TR-909 Mid Tom 2		<-		Brush Mid Tom 2	*	Timpani A	
46	TR-909 Open Hi-Hat	[EXC1]	Open Hi-Hat 2	[EXC1]	Brush Open Hi-Hat	[EXC1]	Timpani A#	
47	TR-909 Mid Tom 1		<-		Brush Mid Tom 1	*	Timpani B	
C3 48	TR-909 High Tom 2		<-		Brush High Tom 2	*	Timpani c	
49	TR-909 Crash Cymbal		<-		Brush Crash Cymbal		Timpani c#	
50	TR-909 High Tom 1		<-		Brush High Tom 1	*	Timpani d	
51	TR-909 Ride Cymbal	*	Ride Cymbal Inner		Ride Cymbal Inner		Timpani d#	
52	<-		<-		<-		Timpani e	
53	<-		<-		Brush Ride Bell		Timpani f	
54	Tambourine 2		<-		<-		<-	
55	<-		<-		<-		<-	
56	TR-808 Cowbell		<-		<-		<-	
57	<-		<-		<-		Concert Cymbal 2	
58	<-		<-		<-		<-	
59	Ride Cymbal Edge		Ride Cymbal Edge		Ride Cymbal Edge		Concert Cymbal 1	
C4 60	<-		<-		<-		<-	
61	<-		<-		<-		<-	
62	<-		<-		<-		<-	
63	<-		<-		<-		<-	
64	<-		<-		<-		<-	
65	<-		<-		<-		<-	
66	<-		<-		<-		<-	
67	<-		<-		<-		<-	
68	<-		<-		<-		<-	
69	<-		<-		<-		<-	
*70	TR-808 Maracas		<-		<-		<-	
71	<-		<-		<-		<-	
C5 72	<-		<-		<-		<-	
73	<-		<-		<-		<-	
74	CR-78 Guiro	[EXC3]	<-		<-		<-	
75	TR-808 Claves		<-		<-		<-	
76	<-		<-		<-		<-	
77	<-		<-		<-		<-	
78	High Hoo	[EXC4]	<-		<-		<-	
79	Low Hoo	[EXC4]	<-		<-		<-	
80	Mute Triangle		<-		<-		<-	
81	Open Triangle		<-		<-		<-	
82	TR-626 Shaker		<-		<-		<-	
83	<-		<-		<-		<-	
C6 84	<-		<-		<-		<-	
85	<-		<-		<-		<-	
86	<-		<-		<-		<-	
87	<-		<-		<-		<-	
88	<-		Applause	*	Applause	*	Applause	*
89	---		---		---		---	
90	---		---		---		---	
91	---		---		---		---	
92	---		---		---		---	
93	---		---		---		---	
94	---		---		---		---	
95	---		---		---		---	
C7 96	---		---		---		---	

PC: Program number (Drum Set number)
[55] : Same as the sound of SC-88.
* : Tones which are created using two voices
<- : Same as the percussion sound of "STANDARD1" (PC1).
--- : No sound
[EXC] : Percussion sounds of the same number will not be heard at the same time.
[88] : Same as the sound of SC-88.

Native Drum Set (5)

* For note number 0–19 and 97–127, refer to p.180.

Note Number	PC 50 ETHNIC #		PC 51 KICK & SNARE #		PC 53 ASIA		PC 54 CYMBAL&CLAPS	
25	Finger Snap		CR-78 Kick 1		Gamelan Gong 1		---	
26	Tambourine		CR-78 Kick 2		Gamelan Gong 2		---	
27	Castanets		TR-606 Kick		Gamelan Gong 3		---	
28	Crash Cymbal 1		TR-707 Kick		Gamelan Gong 4		---	
29	Snare Roll		TR-808 Kick 1		Gamelan Gong 5		---	
30	Concert SD		TR-909 Kick 1		Gamelan Gong 6		---	
31	Concert Cymbal		TR-909 Kick 2	*	Gamelan Gong 7		---	
32	Concert BD 1		Hip-Hop Kick 2		Gamelan Gong 8		Reverse Open Hi-Hat	
33	Jingle Bell		Hip-Hop Kick 1		Gamelan Gong 9		Reverse Closed Hi-Hat 1	
34	Bell Tree		Jungle Kick 2		Gamelan Gong 10		Reverse Closed Hi-Hat 2	
35	Bar Chimes		Jungle Kick 1		Gender 1		Jungle Hi-Hat	[EXC1]
C2 36	Wadaiko	*	Techno Kick 2		Gender 2		[55] Closed Hi-Hat	[EXC1]
37	Wadaiko Rim	*	Techno KicK 1		Gender 3		[88] Closed Hi-Hat 2	[EXC1]
38	Shime Taiko		Standard 1 Kick 2		Gender 4		[88] Closed Hi-Hat 3	[EXC1]
39	Atarigane		Standard 1 Kick 1		Gender 5		Closed Hi-Hat 4	[EXC1]
40	Hyoushigi		[88] Standard 1 Kick 1		Bonang 1		Closed Hi-Hat	[EXC1]
41	Ohkawa		[88] Standard 1 Kick 2		Bonang 2		TR-707 Closed Hi-Hat	[EXC1]
42	High Kotsuzumi		[88] Standard 2 Kick 1		Bonang 3		TR-606 Closed Hi-Hat	[EXC1]
43	Low Kotsuzumi		[88] Standard 2 Kick 2		Bonang 4		[88] TR-808 Closed Hi-Hat	[EXC1]
44	Ban Gu		[55] Kick Drum1		Bonang 5		TR-808 Closed Hi-Hat	[EXC1]
45	Big Gong		[55] Kick Drum 2		Rama Cymbal Low		CR-78 Closed Hi-Hat	[EXC1]
46	Small Gong		[88] Soft Kick		Rama Cymbal High		[55] Pedal Hi-Hat	[EXC1]
47	Bend Gong		[88] Jazz Kick 1		Sagat Open	[EXC7]	[88] Pedal Hi-Hat	[EXC1]
C3 48	Thai Gong		[88] Jazz Kick 2		Sagat Closed	[EXC7]	Pedal Hi-Hat	[EXC1]
49	Rama Cymbal		[55] Concert BD 1		Jaws Harp		Half-Open Hi-Hat 1	[EXC1]
50	Gamelan Gong		[88] Room Kick 1		Wadaiko	*	Half-Open Hi-Hat 2	[EXC1]
51	Udo Short	[EXC1]	[88] Room Kick 2		Wadaiko Rim	*	[55] Open Hi Hat	[EXC1]
52	Udo Long	[EXC1]	[88] Power Kick1		Small Taiko		[88] Open Hi-Hat 2	[EXC1]
53	Udo Slap		[88] Power Kick2		Shimedaiko		[88] Open Hi-Hat 3	[EXC1]
54	Bendir		[88] Electric Kick 2		Atarigane		Open Hi-Hat 2	[EXC1]
55	Req Dum		[88] Electric Kick 1	*	Hyoushigi		TR-909 Open Hi-Hat	[EXC1]
56	Req Tik		[55] Electric Kick		Ohkawa		TR-707 Open Hi-Hat	[EXC1]
57	Tabla Te		[88] TR-808 Kick		High Kotsuzumi		TR-606 Open Hi-Hat	[EXC1]
58	Tabla Na		[88] TR-909 Kick		Low Kotsuzumi		[88] TR-808 Open Hi-Hat	[EXC1]
59	Tabla Tun		[88] Dance Kick		Yyoo Dude		TR-808 Open Hi-Hat	[EXC1]
C4 60	Tabla Ge		[88] Standard 1 Snare 1		Buk		CR-78 Open Hi-Hat	[EXC1]
61	Tabla Ge Hi		[88] Standard 1 Snare 2		Buk Rim		Crash Cymbal 1	[EXC3]
62	Talking Drum	*	[88] Standard 2 Snare 1		Gengari p	[EXC1]	Crash Cymbal 2	[EXC4]
63	Bend Talking Drum	*	[88] Standard 2 Snare 2		Gengari Mute Low	[EXC1]	Crash Cymbal 3	
64	Caxixi		[55] Tight Snare		Gengari f	[EXC2]	Brush Crash Cymbal	
65	Djembe		[55] Concert Snare		Gengari Mute High	[EXC2]	Hard Crash Cymbal	*
66	Djembe Rim		[88] Jazz Snare 1		Gengari Samll		TR-909 Crash Cymbal	
67	Timbales Low		[88] Jazz Snare 2		Jang-Gu Che		TR-808 Crash Cymbal	
68	Timbales Paila		[88] Room Snare 1		Jang-Gu Kun		Mute Crash Cymbal 1	[EXC3]
69	Timbales High		[88] Room Snare 2		Jang-Gu Rim		Mute Crash Cymbal 2	[EXC4]
70	Cowbell		[88] Power Snare 1		Jing p	[EXC3]	Reverse Crash Cymbal 1	
71	High Bongo		[88] Power Snare 2		Jing f	*[EXC3]	Reverse Crash Cymbal 2	
C5 72	Low Bongo		[55] Gated Snare		Jing Mute	[EXC3]	Reverse Crash Cymbal 3	
73	Mute High Conga		[88] Dance Snare 1		Asian Gong		Reverse TR-909 Crash Cymbal	
74	Open High Conga		[88] Dance Snare 2		Big Gong		[55] Splash Cymbal	
75	Mute Low Conga		[88] Disco Snare		Small Gong		Splash Cymbal	
76	Conga Slap		[88] Electric Snare 2		Pai Ban		[88] Ride Bell	
77	Open Low Conga		[88] House Snare	*	Ban Gu		[88] Brush Ride Bell	
78	Conga Slide	*	[55] Electric Snare 1		Tang Gu	[EXC4]	[88] Ride Cymbal 1	
79	Mute Pandiero		[88] Electric Snare 3	*	Tang Gu Mute	[EXC4]	[88] Ride Cymbal 2	
80	Open Pandiero		[88] TR-808 Snare 1		Shou Luo	*	[88] Brush Ride Cymbal	
81	Open Surdo	[EXC2]	[88] TR-808 Snare 2	*	Bend Gong		Ride Cymbal Low Inner	
82	Mute Surdo	[EXC2]	[88] TR-909 Snare 1		Hu Yin Luo Low	*	Ride Cymbal Mid Inner	
83	Tamborim		[88] TR-909 Snare 2	*	Hu Yin Luo Mid	[EXC5]	Ride Cymbal High Inner	
C6 84	High Agogo		[88] Brush Tap 1		Hu Yin Luo Mid 2	[EXC5]	Ride Cymbal Low Edge	
85	Low Agogo		[88] Brush Tap 2		Hu Yin Luo High	[EXC6]	Ride Cymbal Mid Edge	
86	Shaker		[88] Brush Slap 1		Hu Yin Luo High 2	[EXC6]	Ride Cymbal High Edge	
87	High Whistle	[EXC3]	[88] Brush Slap 2		Nao Bo		TR-606 Ride Cymbal	
88	Low Whistle	[EXC3]	[88] Brush Slap 3		Xiao Bo		TR-808 Ride Cymbal	
89	Mute Cuica	[EXC4]	[88] Brush Swirl 1		---		Chinese Cymbal	
90	Open Cuica	[EXC4]	[88] Brush Swirl 2		---		Chinese Cymbal 2	
91	Mute Triangle	[EXC5]	[88] Brush Long Swirl		---		[55] Hand Clap	
92	Open Triangle	[EXC5]	Standard 1 Snare 1		---		[88] Hand Clap 2	
93	Short Guiro	[EXC6]	Standard 1 Snare 2		---		[88] Hand Clap	
94	Long Guiro	[EXC6]	Standard 1 Snare 3		---		Hand Clap	
95	Cabasa Up		Rap Snare		---		Hand Clap 2	
C7 96	Cabasa Down		Hip-Hop Snare 2		---		TR-707 Hand Clap	
97	Claves		Jungle Snare 1		---		---	
98	High Wood Block		Jungle Snare 2		---		---	
99	Low Wood Block		Techno Snare 1		---		---	

PC: Program number (Drum Set number)
[55] : Same as the sound of SC-88.
* : Tones which are created using two voices
<- : Same as the percussion sound of "STANDARD1" (PC1).
--- : No sound
[EXC] : Percussion sounds of the same number will not be heard at the same time.
[88] : Same as the sound of SC-88.

Native Drum Set (6)

Note Number	PC 57 SFX		PC 58 RHYTHM FX #		PC 59 RHYTHM FX 2	
21	MC-500 Beep 1		---		---	
22	MC-500 Beep 2		---		---	
23	Guitar Slide		---		---	
C1 24	Guitar Wah		---		---	
25	Guitar Slap		---		---	
26	Chord Stroke Down		---		---	
27	Chord Stroke Up		---		---	
28	Biwa FX	*	---		---	
29	Phonograph Noise		---		---	
30	Tape Rewind		---		---	
31	Scratch Push 2	[EXC1]	---		---	
32	Scratch Pull 2	[EXC1]	---		---	
33	Cutting Noise 2 Up		---		---	
34	Cutting Noise 2 Down		---		---	
35	Distortion Guitar Cutting Noise Up		---		---	
C2 36	Distortion Guitar Cutting Noise Down		Reverse Kick 1		Reverse TR-707 Kick 1	
37	Bass Slide		Reverse Concert Bass Drum		Reverse TR-909 Kick 1	
38	Pick Scrape		Reverse Power Kick1		Reverse Hip-Hop Kick 1	
39	High Q		Reverse Electric Kick 1		Reverse Jungle Kick 2	
40	Slap		Reverse Snare 1		Reverse Techno Kick 2	
41	Scratch Push	[EXC7]	Reverse Snare 2		Reverse TR-606 Snare 2	
42	Scratch Pull	[EXC7]	Reverse Standard 1 Snare 1		Reverse CR-78 Snare 1	
43	Sticks		Reverse Tight Snare		Reverse CR-78 Snare 2	
44	Square Click		Reverse Dance Snare		Reverse Jungle Snare 2	
45	Metronome Click		Reverse 808 Snare		Reverse Techno Snare 2	
46	Metronome Bell		Reverse Tom 1		Reverse TR-707 Snare	
47	Guitar Fret Noise		Reverse Tom 2		Reverse TR-606 Snare 1	
C3 48	Guitar Cutting Noise Up		Reverse Sticks		Reverse TR-909 Snare 1	
49	Guitar Cutting Noise Down		Reverse Slap		Reverse Hip-Hop Snare 2	
50	String Slap of Double Bass		Reverse Cymbal 1		Reverse Jungle Snare 1	
51	Flute Key Click Noise		Reverse Cymbal 2		Reverse House Snare	
52	Laughing		Reverse Open Hi-Hat		Reverse Closed Hi-Hat	
53	Screaming		Reverse Ride Cymbal		Reverse TR-606 Closed Hi-Hat	
54	Punch		Reverse CR-78 Open Hi-Hat		Reverse TR-707 Closed Hi-Hat	
55	Heart Beat		Reverse Closed Hi-Hat		Reverse TR-808 Closed Hi-Hat	
56	Footsteps 1		Reverse Gong		Reverse Jungle Hi-Hat	
57	Footsteps 2		Reverse Bell Tree		Reverse Tambourine 2	
58	Applause	*	Reverse Guiro		Reverse Shake Tambourine	
59	Door Creaking		Reverse Bendir		Reverse TR-808 Open Hi-Hat	
C4 60	Door		Reverse Gun Shot		Reverse TR-707 Open Hi-Hat	
61	Scratch		Reverse Scratch		Reverse Open Hi-Hat	
62	Wind Chimes	*	Reverse Laser Gun		Reverse TR-606 Open Hi-Hat	
63	Car - Engine		Key Click		Reverse Hu Yin Luo	
64	Car - Stop		Techno Thip		Reverse TR-707 Crash Cymbal	*
65	Car - Passing		Pop Drop		Voice One	
66	Car - Crash	*	Woody Slap		Reverse Voice One	
67	Siren		Distortion Kick	*	Voice Two	
68	Train		Syn. Drops		Reverse Voice Two	
69	Jetplane	*	Reverse Hi Q		Voice Three	
70	Helicopter		Pipe		Reverse Voice Three	
71	Starship	*	Ice Block		Voice Tah	
C5 72	Gun Shot		Digital Tambourine	*	Reverse Voice Tah	
73	Machine Gun		Alias		Voice Ou	
74	Laser Gun		Modulated Bell		Voice Au	
75	Explosion	*	Spark		Voice Whey	
76	Dog		Metallic Percussion		Frog Vpoce	*
77	Horse-Gallop		Velocity Noise FX		Reverse Yyoo Dude	
78	Birds	*	Stereo Noise Clap	*	Douby	
79	Rain		Swish		Reverse Douby	
80	Thunder		Slappy	*	Baert High	
81	Wind		Voice Ou		Baert Low	
82	Seashore		Voice Au		Bounce	
83	Stream	*	Hoo		Reverse bounce	
C6 84	Bubble	*	Tape Stop 1	*	Distortion Knock	
85	Kitty		Tape Stop 2	*	Guitar Slide	
86	Bird 2		Missile	*	Sub Marine	
87	Growl		Space Birds		Noise Attack	
88	<-		Flying Monster		Space Worms	
89	Telephone 1		---		Emergency !	*
90	Telephone 2		---		Calculating...	*
91	Small Club 1	*	---		Saw LFO Saw	
92	Small Club 2	*	---		---	
93	Applause Wave	*	---		---	
94	Eruption		---		---	
95	Big Shot	*	---		---	
C7 96	Percussion Bang	*	---		---	

PC: Program number (Drum Set number)
[55] : Same as the sound of SC-88.
* : Tones which are created using two voices
<- : Same as the percussion sound of "STANDARD1" (PC1).
--- : No sound
[EXC] : Percussion sounds of the same number will not be heard at the same time.
[88] : Same as the sound of SC-88.

Native Drum Set (7)

Notes 0-19 and 97-127 are as follows.

Note Number	PC 1 STANDARD 1 PC 2 STANDARD 2 PC 3 STANDARD 3 PC 9 ROOM PC 17 POWER	PC 10 Hip-Hop PC 11 JUNGLE PC 12 TECHNO PC 25 ELECTRONIC PC 26 TR-808 PC 27 DANCE PC 28 CR-78 PC 29 TR-606 PC 30 TR-707 PC 31 TR-909	PC 33 JAZZ PC 41 BRUSH	PC 49 ORCHESTRA	PC 51 KICK & SNARE
C-1 0	[88] Standard 1 Kick 1	[88] Electric Kick 2	<-	<-	---
1	[88] Standard 1 Kick 2	[88] Electric Kick 1 *	<-	<-	---
2	[88] Standard 2 Kick 1	CR-78 Kick 1	<-	<-	---
3	[88] Standard 2 Kick 2	CR-78 Kick 2	<-	<-	---
4	[55] Kick Drum 1	TR-606 Kick1	<-	<-	---
5	[55] Kick Drum 2	TR-707 Kick 1	<-	<-	---
6	[88] Jazz Kick 1	[55] TR-808 Kick	<-	<-	---
7	[88] Jazz Kick 2	[88] TR-808 Kick	<-	<-	---
8	[88] Room Kick 1	TR-808 Kick 2	<-	<-	---
9	[88] Room Kick 2	[88] TR-909 Kick	<-	<-	---
10	[88] Power Kick 1	[88] Dance Kick	<-	<-	---
11	[88] Power Kick 2	Hip-Hop Kick 2	<-	<-	---
C0 12	[88] Electric Kick 2	TR-909 Kick 1 *	<-	<-	---
13	[88] Electric Kick 1 *	Hip-Hop Kick 3	<-	<-	---
14	[88] TR-808 Kick	Jungle Kick 1	<-	<-	---
15	[88] TR-909 Kick	Techno Kick 1	<-	<-	---
16	[88] Dance Kick	Bounce Kick	<-	<-	---
17	Voice One	<-	<-	<-	---
18	Voice Two	<-	<-	<-	---
19	Voice Three	<-	<-	<-	---
:	:	:	:	:	:
97	[88] Standard 1 Snare1	Techno Hit	---	Applause 2 *	Jungle Snare 1
98	[88] Standard 1 Snare 2	Philly Hit *	---	Small Club 1 *	Jungle Snare 2
99	[88] Standard 2 Snare 1	Impact Hit *	---	[55] Timpani D#	Techno Snare 1
100	[88] Standard 2 Snare 2	Lo-Fi Rave *	[88] Brush Tap 1	[55] Timpani E	Techno Snare 2
101	[55] Snare Drum 2	Bam Hit	[88] Brush Tap 2	[55] Timpani F	House Snare 2
102	Standard 1 Snare 1	Bim Hit	[88] Brush Slap 1	[55] Timpani F#	CR-78 Snare 1
103	Standard 1 Snare 2	Tape Rewind	[88] Brush Slap 2	[55] Timpani G	CR-78 Snare 2
104	Standard 1 Snare 3	Phonograph Noise	[88] Brush Slap 3	[55] Timpani G#	TR-606 Snare 1
105	[88] Jazz Snare 1	[88] Power Snare 1	[88] Brush Swirl 1	[55] Timpani A	TR-606 Snare 2
106	[88] Jazz Snare 2	[88] Dance Snare 1	[88] Brush Swirl 2	[55] Timpani A#	TR-707 Snare 1
107	[88] Room Snare 1	[88] Dance Snare 2	[88] Brush Long Swirl	[55] Timpani B	TR-707 Snare 2
C8 108	[88] Room Snare 2	[88] Disco Snare	[88] Jazz Snare 1	[55] Timpani c	Standard 3 Snare 2
109	[88] Power Snare 1	[88] Electric Snare 2	[88] Jazz Snare 2	[55] Timpani c#	TR-808 Snare 2
110	[88] Power Snare 2	[55] Electric Snare	[88] Standard 1 Snare1	[55] Timpani d	TR-909 Snare 1
111	[55] Gated Snare	[88] Electric Snare 3 *	[88] Standard 1 Snare2	[55] Timpani d#	TR-909 Snare 2
112	[88] Dance Snare 1	TR-606 Snare 2	[88] Standard 2 Snare1	[55] Timpani e	---
113	[88] Dance Snare 2	TR-707 Snare 1	[88] Standard 2 Snare2	[55] Timpani f	---
114	[88] Disco Snare	[88] TR-808 Snare 2	[55] Snare Drum 2	---	---
115	[88] Electric Snare 2	[88] TR-808 Snare 1 *	Standard 1 Snare 1	---	---
116	[55] Electric Snare	TR-808 Snare 2	Standard 1 Snare 2	---	---
117	[88] Electric Snare 3 *	[88] TR-909 Snare 1	Standard 1 Snare 3	---	---
118	TR-707 Snare 1	[88] TR-909 Snare 2 *	[88] Room Snare 1	---	---
119	[88] TR-808 Snare 1	TR-909 Snare 1	[88] Room Snare 2	---	---
C9 120	[88] TR-808 Snare 2 *	TR-909 Snare 2	[88] Power Snare 1	---	---
121	[88] TR-909 Snare 1	Rap Snare	[88] Power Snare 2	---	---
122	[88] TR-909 Snare 2 *	Jungle Snare	[88] Gated Snare	---	---
123	Rap Snare	House Snare 1	[88] Dance Snare 1	---	---
124	Jungle Snare 1	[88] House Snare *	[88] Dance Snare 2	---	---
125	House Snare 1	House Snare 2	[88] Disco Snare	---	---
126	[88] House Snare *	Voice Tah	[88] Electric Snare 2	---	---
127	House Snare 2	[88] Slappy *	[88] Electric Snare 3 *	---	---

PC: Program number (Drum Set number)
[55] : Same as the sound of SC-88.
* : Tones which are created using two voices
<- : Same as the percussion sound of "STANDARD1" (PC1).
--- : No sound
[88] : Same as the sound of SC-88.

SC-88 Drum Set (1)

Note Number	PC 1 STANDARD 1		PC 2 STANDARD 2		PC 9 ROOM		PC 17 POWER		PC 25 ELECTRONIC	
25	Snare Roll		<-		<-		<-		<-	
26	Finger Snap		<-		<-		<-		<-	
27	High Q		<-		<-		<-		<-	
28	Slap		<-		<-		<-		<-	
29	Scratch Push	[EXC7]	<-		<-		<-		Scratch Push2	[EXC7]
30	Scratch Pull	[EXC7]	<-		<-		<-		Scratch Pull2	[EXC7]
31	Sticks		<-		<-		<-		<-	
32	Square Click		<-		<-		<-		<-	
33	Metronome Click		<-		<-		<-		<-	
34	Metronome Bell		<-		<-		<-		<-	
35	Standard 1 Kick 2		Standard 2 Kick 2		Room Kick 2		Power Kick 2		Electric Kick 2	
C2 36	Standard 1 Kick 1		Standard 2 Kick 1		Room Kick 1		Power Kick 1		Electric Kick 1	
37	Side Stick		<-		<-		<-		<-	
38	Standard 1 Snare 1		Standard 2 Snare 1		Room Snare 1		Power Snare 1		Electric Snare 1	
39	Hand Clap		<-		<-		<-		<-	
40	Standard 1 Snare 2		Standard 2 Snare 2		Room Snare 2		Power Snare 2		Electric Snare 2	
41	Low Tom2	*	<-		Room Low Tom2	*	Power Low Tom2	*	Electric Low Tom2	*
42	Closed Hi-hat1	[EXC1]	Closed Hi-hat2	[EXC1]	Closed Hi-hat3	[EXC1]	Closed Hi-hat3	[EXC1]	Closed Hi-hat2	[EXC1]
43	Low Tom1	*	<-		Room Low Tom1	*	Power Low Tom1	*	Electric Low Tom1	*
44	Pedal Hi-hat	[EXC1]	<-		<-		<-		<-	
45	Mid Tom2	*	<-		Room Mid Tom2	*	Power Mid Tom2	*	Electric Mid Tom2	*
46	Open Hi-hat1	[EXC1]	Open Hi-hat2	[EXC1]	Open Hi-hat3	[EXC1]	Open Hi-hat3	[EXC1]	Open Hi-hat2	[EXC1]
47	Mid Tom1	*	<-		Room Mid Tom1	*	Power Mid Tom1	*	Electric Mid Tom1	*
C3 48	High Tom2	*	<-		Room Hi Tom2	*	Power Hi Tom2	*	Electric Hi Tom2	*
49	Crash Cymbal1		<-		<-		<-		<-	
50	High Tom1	*	<-		Room Hi Tom1	*	Power Hi Tom1	*	Electric Hi Tom1	*
51	Ride Cymbal1		<-		<-		<-		<-	
52	Chinese Cymbal		<-		<-		<-		Reverse Cymbal	
53	Ride Bell		<-		<-		<-		<-	
54	Tambourine		<-		<-		<-		<-	
55	Splash Cymbal		<-		<-		<-		<-	
56	Cowbell		<-		<-		<-		<-	
57	Crash Cymbal2		<-		<-		<-		<-	
58	Vibra-slap		<-		<-		<-		<-	
59	Ride Cymbal2		<-		<-		<-		<-	
C4 60	High Bongo		<-		<-		<-		<-	
61	Low Bongo		<-		<-		<-		<-	
62	Mute High Conga		<-		<-		<-		<-	
63	Open High Conga		<-		<-		<-		<-	
64	Low Conga		<-		<-		<-		<-	
65	High Timbale		<-		<-		<-		<-	
66	Low Timbale		<-		<-		<-		<-	
67	High Agogo		<-		<-		<-		<-	
68	Low Agogo		<-		<-		<-		<-	
69	Cabasa		<-		<-		<-		<-	
70	Maracas		<-		<-		<-		<-	
71	Short Hi Whistle	[EXC2]	<-		<-		<-		<-	
C5 72	Long Low Whistle	[EXC2]	<-		<-		<-		<-	
73	Short Guiro	[EXC3]	<-		<-		<-		<-	
74	Long Guiro	[EXC3]	<-		<-		<-		<-	
75	Claves		<-		<-		<-		<-	
76	High Wood Block		<-		<-		<-		<-	
77	Low Wood Block		<-		<-		<-		<-	
78	Mute Cuica	[EXC4]	<-		<-		<-		<-	
79	Open Cuica	[EXC4]	<-		<-		<-		<-	
80	Mute Triangle	[EXC5]	<-		<-		<-		<-	
81	Open Triangle	[EXC5]	<-		<-		<-		<-	
82	Shaker		<-		<-		<-		<-	
83	Jingle Bell		<-		<-		<-		<-	
C6 84	Bell Tree		Bar Chimes		<-		<-		<-	
85	Castanets		<-		<-		<-		<-	
86	Mute Surdo	[EXC6]	<-		<-		<-		<-	
87	Open Surdo	[EXC6]	<-		<-		<-		<-	
88	---		---		---		---		---	
89	---		---		---		---		---	
90	---		---		---		---		---	
91	---		---		---		---		---	
92	---		---		---		---		---	
93	---		---		---		---		---	
94	---		---		---		---		---	
95	---		---		---		---		---	
C7 96	---		---		---		---		---	
97	---		---		---		---		---	
98	---		---		---		---		---	
99	---		---		---		---		---	

Note Number

PC: Program number (Drum Set number)
* : Tones which are created using two voices
<- : Same as the percussion sound of "STANDARD1" (PC1).
[EXC] : Percussion sounds of the same number will not be heard at the same time.
--- : No sound

SC-88 Drum Set (2)

Note Number	PC 26 TR-808/909		PC 27 DANCE		PC 33 JAZZ		PC 41 BRUSH		PC 49 ORCHESTRA	
25	<-		<-		<-		<-		<-	
26	<-		<-		<-		<-		<-	
27	<-		<-		<-		<-		Closed Hi-hat2	[EXC1]
28	<-		<-		<-		<-		Pedal Hi-hat	[EXC1]
29	Scratch Push2	[EXC7]	Scratch Push2	[EXC7]	<-		<-		Open Hi-hat2	[EXC1]
30	Scratch Pull2	[EXC7]	Scratch Pull2	[EXC7]	<-		<-		Ride Cymbal1	
31	<-		<-		<-		<-		<-	
32	<-		<-		<-		<-		<-	
33	<-		<-		<-		<-		<-	
34	<-		<-		<-		<-		<-	
35	909 Bass Drum		Dance Kick		Jazz Kick 2		Jazz Kick 2		Jazz Kick 1	
C2 36	808 Bass Drum		Electric Kick 2		Jazz Kick 1		Jazz Kick 1		Concert BD1	
37	808 Rim Shot		<-		<-		<-		<-	
38	808 Snare 1		Dance Snare 1		Jazz Snare 1		Brush Tap1		Concert SD	
39	<-		<-		Hand Clap2		Brush Slap1		Castanets	
40	909 Snare 1		Dance Snare 2		Jazz Snare 2		Brush Swirl1		Concert SD	
41	808 Low Tom2	*	Electric Low Tom2	*	<-		Brush Low Tom2	*	Timpani F	
42	808 CHH	[EXC1]	CR-78 CHH	[EXC1]	Closed Hi-hat2	[EXC1]	Brush Closed Hi-hat	[EXC1]	Timpani F#	
43	808 Low Tom1	*	Electric Low Tom1	*	<-		Brush Low Tom1	*	Timpani G	
44	808 CHH	[EXC1]	808 CHH	[EXC1]	<-		<-		Timpani G#	
45	808 Mid Tom2	*	Electric Mid Tom2	*	<-		Brush Mid Tom2	*	Timpani A	
46	808 OHH	[EXC1]	CR-78 OHH	[EXC1]	Open Hi-hat2	[EXC1]	Brush Open Hi-hat	[EXC1]	Timpani A#	
47	808 Mid Tom1	*	Electric Mid Tom1	*	<-		Brush Mid Tom1	*	Timpani B	
C3 48	808 Hi Tom2	*	Electric High Tom2	*	<-		Brush Hi Tom2	*	Timpani c	
49	808 Cymbal		<-		<-		Brush Crash Cymbal		Timpani c#	
50	808 Hi Tom1		Electric High Tom1	*	<-		Brush Hi Tom1	*	Timpani d	
51	<-		<-		<-		Brush Ride Cymbal		Timpani d#	
52	<-		Reverse Cymbal		<-		<-		Timpani e	
53	<-		<-		<-		Brush Ride Bell		Timpani f	
54	<-		<-		<-		<-		<-	
55	<-		<-		<-		<-		<-	
56	808 Cowbell		<-		<-		<-		<-	
57	<-		<-		<-		<-		Concert Cymbal2	
58	<-		<-		<-		<-		<-	
59	<-		<-		<-		<-		Concert Cymbal1	
C4 60	<-		<-		<-		<-		<-	
61	<-		<-		<-		<-		<-	
62	808 High Conga		<-		<-		<-		<-	
63	808 Mid Conga		<-		<-		<-		<-	
64	808 Low Conga		<-		<-		<-		<-	
65	<-		<-		<-		<-		<-	
66	<-		<-		<-		<-		<-	
67	<-		<-		<-		<-		<-	
68	<-		<-		<-		<-		<-	
69	<-		<-		<-		<-		<-	
70	808 Maracas		<-		<-		<-		<-	
71	<-		<-		<-		<-		<-	
C5 72	<-		<-		<-		<-		<-	
73	<-		<-		<-		<-		<-	
74	<-		<-		<-		<-		<-	
75	808 Claves		<-		<-		<-		<-	
76	<-		<-		<-		<-		<-	
77	<-		<-		<-		<-		<-	
78	<-		High Hoo	[EXC4]	<-		<-		<-	
79	<-		Low Hoo	[EXC4]	<-		<-		<-	
80	<-		Electric Mute Triangle	[EXC5]	<-		<-		<-	
81	<-		Electric Open Triangle	[EXC5]	<-		<-		<-	
82	<-		<-		<-		<-		<-	
83	<-		<-		<-		<-		<-	
C6 84	<-		<-		<-		<-		<-	
85	<-		<-		<-		<-		<-	
86	<-		<-		<-		<-		<-	
87	<-		<-		<-		<-		<-	
88	---		---		---		---		Applause	*
89	---		---		---		---		---	
90	---		---		---		---		---	
91	---		---		---		---		---	
92	---		---		---		---		---	
93	---		---		---		---		---	
94	---		---		---		---		---	
95	---		---		---		---		---	
C7 96	---		---		---		---		---	
97	---		---		---		---		---	
98	---		---		---		---		---	
99	---		---		---		---		---	

PC: Program number (Drum Set number)
* : Tones which are created using two voices
<- : Same as the percussion sound of "STANDARD1" (PC1).
--- : No sound
[EXC] : Percussion sounds of the same number will not be heard at the same time.

SC-88 Drum Set (3)

Note Number	PC 50 ETHNIC		PC 51 KICK&SNARE		PC 57 SFX		PC 58 RHYTHM FX	
25	Finger Snap		---		---		---	
26	Tambourine		---		---		---	
27	Castanets		---		---		---	
28	Crash Cymbal1		---		---		---	
29	Snare Roll		---		---		---	
30	Concert Snare Drum		---		---		---	
31	Concert Cymbal		---		Scratch Push2	[EXC1]	---	
32	Concert BD1		---		Scratch Pull2	[EXC1]	---	
33	Jingle Bell		---		Cutting Noise 2 Up		---	
34	Bell Tree		---		Cutting Noise 2 Down		---	
35	Bar Chimes		---		Distortion Guitar Cutting Noise Up		---	
C2 36	Wadaiko	*	---		Distortion Guitar Cutting Noise Down		Reverse Kick 1	
37	Wadaiko Rim	*	---		Bass Slide		Reverse Concert BD 1	
38	Shime Taiko		---		Pick Scrape		Reverse Power Kick 1	
39	Atarigane		---		High Q		Reverse Electric Kick 1	
40	Hyoushigi		Standard 1 Kick 1		Slap		Reverse Snare 1	
41	Ohkawa		Standard 1 Kick 2		Scratch Push	[EXC7]	Reverse Snare 2	
42	High Kotsuzumi		Standard 2 Kick 1		Scratch Pull	[EXC7]	Reverse Standard set1 Snare 1	
43	Low Kotsuzumi		Standard 2 Kick 2		Sticks		Reverse Tight Snare	
44	Ban Gu		Kick 1		Square Click		Reverse Dance Snare	
45	Big Gong		Kick 2		Metronome Click		Reverse 808 Snare	
46	Small Gong		Soft Kick		Metronome Bell		Reverse Tom1	
47	Bend Gong		Jazz Kick 1		Guitar Fret Noise		Reverse Tom2	
C3 48	Thai Gong		Jazz Kick 2		Guitar Cutting Noise Up		Reverse Sticks	
49	Rama Cymbal		Concert BD		Guitar Cutting Noise Down		Reverse Slap	
50	Gamelan Gong		Room Kick 1		String Slap of Double Bass		Reverse Cymbal1	
51	Udo Short	[EXC1]	Room Kick 2		Fl.Key Click		Reverse Cymbal2	
52	Udo Long	[EXC1]	Power Kick 1		Laughing		Reverse Open Hi-hat	
53	Udo Slap		Power Kick 2		Scream		Reverse Ride Cymbal	
54	Bendir		Electric Kick 2		Punch		Reverse CR-78 OHH	
55	Req Dum		Electric Kick 1	*	Heart Beat		Reverse Closed Hi-hat	
56	Req Tik		Electric Kick		Footsteps1		Reverse Gong	
57	Tabla Te		808 Bass Drum		Footsteps2		Reverse Bell Tree	
58	Tabla Na		909 Bass Drum		Applause	*	Reverse Guiro	
59	Tabla Tun		Dance Kick		Door Creaking		Reverse Bendir	
C4 60	Tabla Ge		Standard 1 Snare 1		Door		Reverse Gun Shot	
61	Tabla Ge Hi		Standard 1 Snare 2		Scratch		Reverse Scratch	
62	Talking Drum	*	Standard 2 Snare 1		Wind Chimes	*	Reverse Laser	
63	Bend Talking Drum	*	Standard 2 Snare 2		Car-Engine		Key Click	
64	Caxixi		Tight Snare		Car-Stop		Tekno Thip	
65	Djembe		Concert Snare		Car-Pass		Pop Drop	
66	Djembe Rim		Jazz Snare 1		Car-Crash	*	Woody Slap	
67	Timbales Low		Jazz Snare 2		Siren		Distortion Kick	*
68	Timbales Paila		Room Snare 1		Train		Syn.Drop	
69	Timbales High		Room Snare 2		Jetplane	*	Reverse High Q	
70	Cowbell		Power Snare 1		Helicopter		Pipe	
71	Hi Bongo		Power Snare 2		Starship	*	Ice Block	
C5 72	Low Bongo		Gated Snare		Gun Shot		Digital Tambourine	*
73	Mute Hi Conga		Dance Snare 1		Machine Gun		Alias	
74	Open Hi Conga		Dance Snare 2		Lasergun		Modulated Bell	
75	Mute Low Conga		Disco Snare		Explosion	*	Spark	
76	Conga Slap		Electric Snare2		Dog		Metalic Percussion	
77	Open Low Conga		House Snare	*	Horse-Gallop		Velocity Noise FX	
78	Conga Slide	*	Electric Snare 1		Birds	*	Stereo Noise Clap	*
79	Mute Pandiero		Electric Snare 3	*	Rain		Swish	
80	Open Pandiero		808 Snare 1		Thunder		Slappy	*
81	Open Surdo	[EXC2]	808 Snare 2	*	Wind		Voice Ou	
82	Mute Surdo	[EXC2]	909 Snare 1		Seashore		Voice Au	
83	Tamborim		909 Snare 2	*	Stream	*	Hoo	
C6 84	High Agogo		Brush Tap1		Bubble	*	Tape Stop1	*
85	Low Agogo		Brush Tap2		Kitty		Tape Stop2	*
86	Shaker		Brush Slap1		Bird2		Missile	*
87	High Whistle	[EXC3]	Brush Slap2		Growl		Space Bird	
88	Low Whistle	[EXC3]	Brush Slap3		Applause2	*	Flying Monster	
89	Mute Cuica	[EXC4]	Brush Swirl1		Telephone1		---	
90	Open Cuica	[EXC4]	Brush Swirl2		Telephone2		---	
91	Mute Triangle	[EXC5]	Brush Long Swirl		---		---	
92	Open Triangle	[EXC5]	---		---		---	
93	Short Guiro	[EXC6]	---		---		---	
94	Long Guiro	[EXC6]	---		---		---	
95	Cabasa Up		---		---		---	
C7 96	Cabasa Down		---		---		---	
97	Claves		---		---		---	
98	High Wood Block		---		---		---	
99	Low Wood Block		---		---		---	

↗ Note Number

PC: Program number (Drum Set number)
* : Tones which are created using two voices
<- : Same as the percussion sound of "STANDARD1" (PC1).
[EXC] : Percussion sounds of the same number will not be heard at the same time.
--- : No sound

SC-55 Drum Set (1)

Note Number	PC 1/PC 33 STANDARD/JAZZ	PC 9 ROOM	PC 17 POWER	PC 25 ELECTRONIC	PC 26 TR-808	PC 41 BRUSH	PC 49 ORCHESTRA
25	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---
27	High Q	<-	<-	<-	<-	<-	Closed Hi-hat [EXC1]
28	Slap	<-	<-	<-	<-	<-	Pedal Hi-hat [EXC1]
29	Scratch Push	<-	<-	<-	<-	<-	Open Hi-hat [EXC1]
30	Scratch Pull	<-	<-	<-	<-	<-	Ride Cymbal1
31	Sticks	<-	<-	<-	<-	<-	<-
32	Square Click	<-	<-	<-	<-	<-	<-
33	Metronome Click	<-	<-	<-	<-	<-	<-
34	Metronome Bell	<-	<-	<-	<-	<-	<-
35	Kick Drum2 / Jazz BD2	<-	<-	<-	<-	Jazz BD2	Concert BD2
C2 36	Kick Drum1 / Jazz BD1	<-	MONDO Kick	Elec BD	808 Bass Drum	Jazz BD1	Concert BD1
37	Side Stick	<-	<-	<-	808 Rim Shot	<-	<-
38	Snare Drum1	<-	Gated SD	Elec SD	808 Snare Drum	Brush Tap	Concert SD
39	Hand Clap	<-	<-	<-	<-	Brush Slap	Castanets
40	Snare Drum2	<-	<-	Gated SD	<-	Brash Swirl	Concert SD
41	Low Tom2	Room Low Tom2	Room Low Tom2	Elec Low Tom2	808 Low Tom2	<-	Timpani F
42	Closed Hi-hat [EXC1]	<-	<-	<-	808 CHH [EXC1]	<-	Timpani F#
43	Low Tom1	Room Low Tom1	Room Low Tom1	Elec Low Tom1	808 Low Tom1	<-	Timpani G
44	Pedal Hi-hat [EXC1]	<-	<-	<-	808 CHH [EXC1]	<-	Timpani G#
45	Mid Tom2	Room Mid Tom2	Room Mid Tom2	Elec Mid Tom2	808 Mid Tom2	<-	Timpani A
46	Open Hi-hat [EXC1]	<-	<-	<-	808 OHH [EXC1]	<-	Timpani A#
47	Mid Tom1	Room Mid Tom1	Room Mid Tom1	Elec Mid Tom1	808 Mid Tom1	<-	Timpani B
C3 48	High Tom2	Room Hi Tom2	Room Hi Tom2	Elec Hi Tom2	808 Hi Tom2	<-	Timpani c
49	Crash Cymbal1	<-	<-	<-	808 Cymbal	<-	Timpani c#
50	High Tom1	Room Hi Tom1	Room Hi Tom1	Elec Hi Tom1	808 Hi Tom1	<-	Timpani d
51	Ride Cymbal1	<-	<-	<-	<-	<-	Timpani d#
52	Chinese Cymbal	<-	<-	Reverse Cymbal	<-	<-	Timpani e
53	Ride Bell	<-	<-	<-	<-	<-	Timpani f
54	Tambourine	<-	<-	<-	<-	<-	<-
55	Splash Cymbal	<-	<-	<-	<-	<-	<-
56	Cowbell	<-	<-	<-	808 Cowbell	<-	<-
57	Crash Cymbal2	<-	<-	<-	<-	<-	Concert Cymbal2
58	Vibra-slap	<-	<-	<-	<-	<-	<-
59	Ride Cymbal2	<-	<-	<-	<-	<-	Concert Cymbal1
C4 60	High Bongo	<-	<-	<-	<-	<-	<-
61	Low Bongo	<-	<-	<-	<-	<-	<-
62	Mute High Conga	<-	<-	<-	808 High Conga	<-	<-
63	Open High Conga	<-	<-	<-	808 Mid Conga	<-	<-
64	Low Conga	<-	<-	<-	808 Low Conga	<-	<-
65	High Timbale	<-	<-	<-	<-	<-	<-
66	Low Timbale	<-	<-	<-	<-	<-	<-
67	High Agogo	<-	<-	<-	<-	<-	<-
68	Low Agogo	<-	<-	<-	<-	<-	<-
69	Cabasa	<-	<-	<-	<-	<-	<-
70	Maracas	<-	<-	<-	808 Maracas	<-	<-
71	Short Hi Whistle [EXC2]	<-	<-	<-	<-	<-	<-
C5 72	Long Low Whistle [EXC2]	<-	<-	<-	<-	<-	<-
73	Short Guiro	<-	<-	<-	<-	<-	<-
74	Long Guiro	<-	<-	<-	<-	<-	<-
75	Claves	<-	<-	<-	808 Claves	<-	<-
76	High Wood Block	<-	<-	<-	<-	<-	<-
77	Low Wood Block	<-	<-	<-	<-	<-	<-
78	Mute Cuica [EXC4]	<-	<-	<-	<-	<-	<-
79	Open Cuica [EXC4]	<-	<-	<-	<-	<-	<-
80	Mute Triangle [EXC5]	<-	<-	<-	<-	<-	<-
81	Open Triangle [EXC5]	<-	<-	<-	<-	<-	<-
82	Shaker	<-	<-	<-	<-	<-	<-
83	Jingle Bell	<-	<-	<-	<-	<-	<-
C6 84	Bell Tree	<-	<-	<-	<-	<-	<-
85	Castanets	<-	<-	<-	<-	<-	<-
86	Mute Surdo [EXC6]	<-	<-	<-	<-	<-	<-
87	Open Surdo [EXC6]	<-	<-	<-	<-	<-	<-
88	---	---	---	---	---	---	Applause *
89	---	---	---	---	---	---	---
90	---	---	---	---	---	---	---
91	---	---	---	---	---	---	---
92	---	---	---	---	---	---	---
93	---	---	---	---	---	---	---
94	---	---	---	---	---	---	---
95	---	---	---	---	---	---	---
C7 96	---	---	---	---	---	---	---
97	---	---	---	---	---	---	---
98	---	---	---	---	---	---	---
99	---	---	---	---	---	---	---

PC: Program number (Drum Set number)
* : Tones which are created using two voices
<- : Same as the percussion sound of "STANDARD1" (PC1).
--- : No sound
[EXC] : Percussion sounds of the same number will not be heard at the same time.

SC-55 Drum Set (2)

Note Number	PC 57 SFX		PC 128 CM-64/32L	
35	---		CM Kick Drum	
C2 36	---		CM Kick Drum	
37	---		CM Rim Shot	
38	---		CM Snare Drum	
39	High Q		CM Hand Clap	
40	Slap		CM Electronic Snare Drum	
41	Scratch Push	[EXC7]	CM Acoustic Low Tom	
42	Scratch Pull	[EXC7]	CM Closed High Hat	[EXC1]
43	Sticks		CM Acoustic Low Tom	
44	Square Click		CM Open Hi-Hat2	
45	Metronome Click		CM Acoustic Middle Tom	
46	Metronome Bell		CM Open Hi-Hat1	[EXC1]
47	Guitar Fret Noise		CM M.TomAcoustic Middle Tom	
C3 48	Guitar cutting noise/up		CM Acoustic High Tom	
49	Guitar cutting noise/down		CM Crash Cymbal	
50	String slap of double bass		CM Acoustic High Tom	
51	Fl.Key Click		CM Ride Cymbal	
52	Laughing		---	
53	Scream		---	
54	Punch		CM Tambourine	
55	Heart Beat		---	
56	Footsteps1		CM Cowbell	
57	Footsteps2		---	
58	Applause	*	---	
59	Door Creaking		---	
C4 60	Door		CM High Bongo	
61	Scratch		CM Low Bongo	
62	Wind Chimes	*	CM Mute High Conga	
63	Car-Engine		CM High Conga	
64	Car-Stop		CM Low Conga	
65	Car-Pass		CM High Timbale	
66	Car-Crash	*	CM Low Timbale	
67	Siren		CM High Agogo	
68	Train		CM Low Agogo	
69	Jetplane	*	CM Cabasa	
70	Helicopter		CM Maracas	
71	Starship	*	CM Short Whistle	
C5 72	Gun Shot		CM Long Whistle	
73	Machine Gun		CM Vibrato Slap	
74	Lasergun		---	
75	Explosion	*	CM Claves	
76	Dog		Laughing	
77	Horse-Gallop		Scream	
78	Birds	*	Punch	
79	Rain	*	Heart Beat	
80	Thunder		Footsteps1	
81	Wind		Footsteps2	
82	Seashore		Applause	*
83	Stream	*	Creaking	
C6 84	Bubble	*	Door	
85	---		Scratch	
86	---		Wind Chimes	*
87	---		Car-Engine	
88	---		Car-Stop	
89	---		Car-Pass	
90	---		Car-Crash	*
91	---		Siren	
92	---		Train	
93	---		Jetplane	*
94	---		Helicopter	
95	---		Starship	*
C7 96	---		Gun Shot	
97	---		Machine Gun	
98	---		Lasergun	
99	---		Explosion	*
100	---		Dog	
101	---		Horse-Gallop	
102	---		Birds	*
103	---		Rain	*
104	---		Thunder	
105	---		Wind	
106	---		SeaShore	
107	---		Stream	*
C8 108	---		Bubble	*

PC: Program number (Drum Set number)
* : Tones which are created using two voices
<- : Same as the percussion sound of "STANDARD1" (PC1).
[EXC] : Percussion sounds of the same number will not be heard at the same time.
--- : No sound

Insertion Effect List

<Example of effect types and effect parameters>

Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
01 : Stereo-EQ			**01 00**
Low Freq	200/400	00/01	03

- *The "MSB/LSB" column shows the following ** portion of the Exclusive message. (Hexadecimal notation) (p.204)*

  For Effect Type (Data section)
  F0 41 dev 42 12 40 03 00 ** ** sum F7
  For Effect Parameter (LSB part of address)
  F0 41 dev 42 12 40 03 ** data sum F7
  (dev: device ID, sum: checksum)

- *Parameters that have a "+" in front of their name can be modified by Effect Control 1 (EFX C.Src1). (p.95)*
- *Parameters that have a "#" in front of their name can be modified by Effect Control 2 (EFX C.Src2). (p.95)*
- *Values shown in boldface in the "Setting Value" column are the default value of the parameter.*
- *The correspondence between setting values and hexadecimal values for items in the Value column indicated with "*" is shown in "Effect Parameter Value Conversion Table" (p.192).*

*1: Pre Delay Time	*6: Rate 1	*11: LPF
*2: Delay Time 1	*7: Rate 2	*12: Manual
*3: Delay Time 2	*8: HF Damp	*13: Azimuth
*4: Delay Time 3	*9: Cutoff Freq	*14: Accl
*5: Delay Time 4	*10: EQ Freq	

■ Effects that modify the tone (filter type)

Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
00 : Thru			**00 00**
01 : Stereo-EQ			**01 00**
Low Freq	200/**400**	00/01	03
Low Gain	-12– **+5**– +12	34–4C	04
Hi Freq	4k/**8k**	00/01	05
Hi Gain	**-12**– +12	34–4C	06
M1 Freq	200–**1.6k**–6.3k	*10	07
M1 Q	**0.5**/1.0/2.0/4.0/9.0	00/01/02/03/04	08
M1 Gain	-12– **+8**– +12	34–4C	09
M2 Freq	200–**1k**–6.3k	*10	0A
M2 Q	**0.5**/1.0/2.0/4.0/9.0	00/01/02/03/04	0B
M2 Gain	-12– **-8**– +12	34–4C	0C
+ Level	0–**127**	00–7F	16
02 : Spectrum			**01 01**
Band 1	-12– **-4**– +12	34–4C	03
Band 2	-12– **+1**– +12	34–4C	04
Band 3	-12– **+3**– +12	34–4C	05
Band 4	-12– **+6**– +12	34–4C	06
Band 5	-12– **+2**– +12	34–4C	07
Band 6	-12– **-1**– +12	34–4C	08
Band 7	-12– **-4**– +12	34–4C	09
Band 8	-12– **-5**– +12	34–4C	0A
Width	0.5/1.0/**2.0**/4.0/9.0	00/01/02/03/04	0B
+ Pan	L63–**0**–R63	00–7F	15
# Level	0–**127**	00–7F	16
03 : Enhancer			**01 02**
+ Sens	0–**64**–127	00–7F	03
# Mix	0–**127**	00–7F	04
Low Gain	-12– **+3**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**127**	00–7F	16
04 : Humanizer			**01 03**
Drive	0–**48**–127	00–7F	03
Drive Sw	Off/**On**	00/01	04
+ Vowel	**a**/i/u/e/o	00/01/02/03/04	05
Accel	0–**15**	*14	06
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Pan	L63–**0**–R63	00–7F	15
# Level	0–**127**	00–7F	16

■ Effects that distort the sound (distortion type)

Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
05 : Overdrive			**01 10**
+ Drive	0–**48**–127	00–7F	03
Amp Type	Small/**BltIn**/2-Stk/3-Stk	00/01/02/03	04
Amp Sw	Off/**On**	00/01	05
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
# Pan	L63–**0**–R63	00–7F	15
Level	0–**96**–127	00–7F	16
06 : Distortion			**01 11**
+ Drive	0–**76**–127	00–7F	03
Amp Type	Small/BltIn/2-Stk/**3-Stk**	00/01/02/03	04
Amp Sw	Off/**On**	00/01	05
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12– **-8**– +12	34–4C	14
# Pan	L63–**0**–R63	00–7F	15
Level	0–**84**–127	00–7F	16

■ Effects that modulate the sound (modulation type)

Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
07 : Phaser			**01 20**
+ Manual	100–**620**–8k	*12	03
# Rate	0.05–**0.85**–10.0	*6	04
Depth	0–**64**–127	00–7F	05
Reso	0–**16**–127	00–7F	06
Mix	0–**127**	00–7F	07
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**104**–127	00–7F	16
08 : Auto Wah			**01 21**
Fil Type	LPF/**BPF**	00/01	03
Sens	**0**–127	00–7F	04
+ Manual	0–**68**–127	00–7F	05
Peak	0–**62**–127	00–7F	06
# Rate	0.05–**2.05**–10.0	*6	07
Depth	0–**72**–127	00–7F	08
Polarity	Down/**Up**	00/01	09
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Pan	L63–**0**–R63	00–7F	15
Level	0–**96**–127	00–7F	16
09 : Rotary			**01 22**
Low Slow	0.05–**0.35**–10.0	*6	03
Low Fast	0.05–**6.40**–10.0	*6	04
Low Accl	0–**3**–15	*14	05
Low Level	0–**127**	00–7F	06
Hi Slow	0.05–**0.90**–10.0	*6	07
Hi Fast	0.05–**7.50**–10.0	*6	08
Hi Accl	0–**11**–15	*14	09
Hi Level	0–**64**–127	00–7F	0A
Separate	0–**96**–127	00–7F	0B
+ Speed	**Slow**/Fast	00/7F	0D
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
# Level	0–**127**	00–7F	16
10 : Stereo Flanger			**01 23**
Pre Filter	**Off**/LPF/HPF	00/01/02	03
Cutoff	**250**–8k	*9	04
Pre Dly	0–**1.6m**–100m	*1	05
+ Rate	0.05–**0.60**–10.0	*6	06
Depth	0–**24**–127	00–7F	07
# Feedback	-98%– **+80%**– +98%	0F–71	08
Phase	0–**180**	00–5A	09
Balance	D> 0E – **D=E** – D 0<E	00–7F	12
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**104**–127	00–7F	16
11 : Step Flanger			**01 24**
Pre Dly	0–**1.0m**–100m	*1	03
Rate	0.05–**0.30**–10.0	*6	04
Depth	0–**95**–127	00–7F	05
+ Feedback	-98%– **+30%**– +98%	0F–71	06
Phase	0–**180**	00–5A	07
# Step Rate	0.05–**2.75**–10.0	*6	08
Balance	D> 0E – **D=E** – D 0<E	00–7F	12
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**96**–127	00–7F	16

	Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
12 :	**Tremolo**			**01 25**
	Mod Wave	Tri/**Sqr**/Sin/Saw1/Saw2	00/01/02/03/04	03
+	Mod Rate	0.05–**3.05**–10.0	*6	04
#	Mod Depth	0–**96**–127	00–7F	05
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**127**	00–7F	16
13 :	**Auto Pan**			**01 26**
	Mod Wave	Tri/**Sqr**/Sin/Saw1/Saw2	00/01/02/03/04	03
+	Mod Rate	0.05–**3.05**–10.0	*6	04
#	Mod Depth	0–**96**–127	00–7F	05
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**127**	00–7F	16

■ Effects that affect the level (compressor type)

	Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
14 :	**Compressor**			**01 30**
	Attack	0–**72**–127	00–7F	03
	Sustain	0–**100**–127	00–7F	04
	Post Gain	**0**/+6/+12/+18	00/01/02/03	05
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
+	Pan	L63–**0**–R63	00–7F	15
#	Level	0–**104**–127	00–7F	16
15 :	**Limiter**			**01 31**
	Threshold	0–**85**–127	00–7F	03
	Ratio	1/1.5, 1/2, 1/4, **1/100**	00/01/02/03	04
	Release	0–**16**–127	00–7F	05
	Post Gain	**0**/+6/+12/+18	00/01/02/03	06
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
+	Pan	L63–**0**–R63	00–7F	15
#	Level	0–**127**	00–7F	16

■ Effects that broaden the sound (chorus type)

	Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
16 :	**Hexa Chorus**			**01 40**
	Pre Dly	0–**2.4m**–100m	*1	03
+	Rate	0.05–**0.45**–10.0	*6	04
	Depth	0–**127**	00–7F	05
	Pre Dly Dev	0–**5**–20	00–14	06
	Depth Dev	-20– **+2**– +20	2C–54	07
	Pan Dev	0–**16**–20	00–14	08
#	Balance	D> 0E – **D=E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**112**–127	00–7F	16
17 :	**Tremolo Chorus**			**01 41**
	Pre Dly	0–**1.6m**–100m	*1	03
	Cho Rate	0.05–**0.45**–10.0	*6	04
	Cho Depth	0–**40**–127	00–7F	05
	Trem Phase	0–**80**–180	00–5A	06
+	Trem Rate	0.05–**3.05**–10.0	*6	07
	Trem Sep	0–**96**–127	00–7F	08
#	Balance	D> 0E – **D 0<E**	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**127**	00–7F	16
18 :	**Stereo Chorus**			**01 42**
	Pre Filter	**Off**/LPF/HPF	00/01/02	03
	Cutoff	**250**–8k	*9	04
	Pre Dly	0–**1.0m**–100m	*1	05
+	Rate	0.05–**0.45**–10.0	*6	06
	Depth	0–**111**–127	00–7F	07
	Phase	0–**180**	00–5A	09
#	Balance	D> 0E – **D=E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**104**–127	00–7F	16
19 :	**Space D**			**01 43**
	Pre Dly	0–**3.2m**–100m	*1	03
+	Rate	0.05–**0.45**–10.0	*6	04
	Depth	0–**127**	00–7F	05
	Phase	0–**180**	00–5A	06
#	Balance	D> 0E – **D=E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**96**–127	00–7F	16
20 :	**3D Chorus**			**01 44**
	Pre Dly	0–**1.0m**–100m	*1	03
+	Cho Rate	0.05–**0.45**–10.0	*6	04
	Cho Depth	0–**72**–127	00–7F	05
	Out	**Speaker**/Phones	00/01	11
#	Balance	D> 0E – **D=E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**80**–127	00–7F	16

■ Effects that reverberate the sound (delay/reverb type)

	Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
21 :	**Stereo Delay**			**01 50**
	Dly Tm L	0–**150m**–500m	*4	03
	Dly Tm R	0–**300m**–500m	*4	04
+	Feedback	-98%– **+48%**– +98%	0F–71	05
	Fb Mode	Norm/**Cross**	00/01	06
	Phase L	**Norm**/Invert	00/01	07
	Phase R	**Norm**/Invert	00/01	08
	HF Damp	315–8k/**Bypass**	*8	0A
#	Balance	D> 0E – **D>74E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**127**	00–7F	16
22 :	**Mod Delay**			**01 51**
	Dly Tm L	0–**40m**–500m	*4	03
	Dly Tm R	0–**220m**–500m	*4	04
	Feedback	-98%– **+48%**– +98%	0F–71	05
	Fb Mode	Norm/**Cross**	00/01	06
+	Mod Rate	0.05–**0.65**–10.0	*6	07
	Mod Depth	0–**21**–127	00–7F	08
	Mod Phase	0–**180**	00–5A	09
	HF Damp	315–8k/**Bypass**	*8	0A
#	Balance	D> 0E – **D>61E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**127**	00–7F	16
23 :	**3 Tap Delay**			**01 52**
	Dly Tm C	200m–**300m**–990m/1sec	*2	03
	Dly Tm L	200m–**200m**–990m/1sec	*2	04
	Dly Tm R	200m–**235m**–990m/1sec	*2	05
+	Feedback	-98%– **+32%**– +98%	0F–71	06
	Dly Lev C	0–**127**	00–7F	07
	Dly Lev L	0–**127**	00–7F	08
	Dly Lev R	0–**127**	00–7F	09
	HF Damp	315–8k/**Bypass**	*8	0A
#	Balance	D> 0E – **D>74E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**127**	00–7F	16
24 :	**4 Tap Delay**			**01 53**
	Dly Tm 1	200m–**500m**–990m/1sec	*2	03
	Dly Tm 2	200m–**300m**–990m/1sec	*2	04
	Dly Tm 3	200m–**400m**–990m/1sec	*2	05
	Dly Tm 4	200m–**200m**–990m/1sec	*2	06
	Dly Lev 1	0–**127**	00–7F	07
	Dly Lev 2	0–**127**	00–7F	08
	Dly Lev 3	0–**127**	00–7F	09
	Dly Lev 4	0–**127**	00–7F	0A
+	Feedback	-98%– **+32%**– +98%	0F–71	0B
	HF Damp	315–8k/**Bypass**	*8	0C
#	Balance	D> 0E – **D>74E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**127**	00–7F	16
25 :	**Tm Ctrl Delay**			**01 54**
+	Dly Time	200m–**500m**–990m/1sec	*3	03
	Accel	0–**10**–15	*14	04
#	Feedback	-98%– **+32%**– +98%	0F–71	05
	HF Damp	315–8k/**Bypass**	*8	06
	EFX Pan	L63–**0**–R63	00–7F	07
	Balance	D> 0E – **D>74E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**127**	00–7F	16

	Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
26 :	**Reverb**			**01 55**
	Type	Room1/2/**Stage1**/2/Hall1/2	00/01/02/03/04/05	03
	Pre Dly	0–**74m**–100m	*1	04
+	Time	0–**120**–127	00–7F	05
	HF Damp	315–**6.3k**–8k/Bypass	*8	06
#	Balance	D> 0E – **D=E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**127**	00–7F	16
27 :	**Gate Reverb**			**01 56**
	Type	**Norm**/Reverse/Sweep1/2	00/01/02/03	03
	Pre Dly	0–**0.5m**–100m	*1	04
	Gate Time	0–**65m**–500m	00–63	05
+	Balance	D> 0E – **D>65E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12– **-3**– +12	34–4C	14
#	Level	0–**112**–127	00–7F	16
28 :	**3D Delay**			**01 57**
	Dly Tm C	0m–**300m**–500m	*4	03
	Dly Tm L	0m–**200m**–500m	*4	04
	Dly Tm R	0m–**240m**–500m	*4	05
+	Feedback	-98%– **+32%**– +98%	0F–71	06
	Dly Lev C	0–**40**–127	00–7F	07
	Dly Lev L	0–**64**–127	00–7F	08
	Dly Lev R	0–**64**–127	00–7F	09
	HF Damp	315–8k/**Bypass**	*8	0A
	Out	**Speaker**/Phones	00/01	11
#	Balance	D> 0E – **D>74E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**127**	00–7F	16

■ Effects that modify the pitch (pitch/shift type)

	Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
29 :	**2 Pitch Shifter**			**01 60**
+	Coarse 1	-24– **+7**– +12	28–4C	03
	Fine 1	-100– **-4**– +100	0E–72	04
	Pre Dly 1	**0**–100m	*1	05
	EFX Pan 1	L63–0–**R63**	00–7F	06
#	Coarse 2	-24– **-5**– +12	28–4C	07
	Fine 2	-100– **+4**– +100	0E–72	08
	Pre Dly 2	**0**–100m	*1	09
	EFX Pan 2	**L63**–0–R63	00–7F	0A
	Shift Mode	1–**3**–5	00–04	0B
	L.Bal	A> 0B – **A=B** – A 0<B	00–7F	0C
	Balance	D> 0E – **D>74E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**95**–127	00–7F	16
30 :	**Fb P.Shifter**			**01 61**
+	P.Coarse	-24– **+7**– +12	28–4C	03
	P.Fine	-100–**0**– +100	0E–72	04
#	Feedback	-98%– **+40%**– +98%	0F–71	05
	Pre Dly	0–**45m**–100m	*1	06
	Mode	1–**3**–5	00–04	07
	EFX Pan	L63–**0**–R63	00–7F	08
	Balance	D> 0E – **D=E** – D 0<E	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12– **-6**– +12	34–4C	14
	Level	0–**127**	00–7F	16

■ Others

	Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
31 :	**3D Auto**			**01 70**
	Azimuth	180/L168–**0**–R168	*13	03
+	Speed	0.05–**1.30**–10.0	*6	04
	Clockwise	-/+	00/01	05
#	Turn	Off/**On**	00/01	06
.	Out	**Speaker**/Phones	00/01	11
	Level	0–**127**	00–7F	16
32 :	**3D Manual**			**01 71**
+	Azimuth	180/L168–**0**–R168	*13	03
	Out	**Speaker**/Phones	00/01	11
#	Level	0–**127**	00–7F	16
33 :	**Lo-Fi 1**			**01 72**
	Pre Filter	1–**2**–6	00–05	03
	Lo-Fi Type	1–**6**–9	00–08	04
	Post Filter	1–**2**–6	00–05	05
+	Balance	D> 0E – **D 0<E**	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
#	Pan	L63–**0**–R63	00–7F	15
	Level	0–**127**	00–7F	16
34 :	**Lo-Fi 2**			**01 73**
	Lo-Fi Type	1–**2**–6	00–05	03
	Fil Type	Off/**LPF**/HPF	00/01/02	04
	Cutoff	250–**630**–8k	*9	05
+	R.Detune	**0**–127	00–7F	06
	R.Nz Lev	0–**64**–127	00–7F	07
	W/P Sel	White/**Pink**	00/01	08
	W/P LPF	250–6.3k/**Bypass**	*11	09
	W/P Level	**0**–127	00–7F	0A
	Disc Type	**LP**/EP/SP/RND	00/01/02/03	0B
	Disc LPF	250–6.3k/**Bypass**	*11	0C
	Disc Nz Lev	**0**–127	00–7F	0D
	Hum Type	**50Hz**/60Hz	00/01	0E
	Hum LPF	250–6.3k/**Bypass**	*11	0F
	Hum Level	**0**–127	00–7F	10
	M/S	Mono/**Stereo**	00–01	11
#	Balance	D> 0E – **D 0<E**	00–7F	12
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Pan(Mono)	L63–**0**–R63	00–7F	15
	Level	0–**127**	00–7F	16

■ Effects that connect two types of effect in series (series 2)

	Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
35 :	**OD → Chorus**			**02 00**
	OD Drive	0–**48**–127	00–7F	03
+	OD Pan	L63–**0**–R63	00–7F	04
	OD Amp	Small/**BltIn**/2-Stk/3-Stk	00/01/02/03	05
	OD Amp Sw	**Off**/On	00/01	06
	Cho Dly	0–**1.0m**–100m	*1	08
	Cho Rate	0.05–**0.45**–10.0	*6	09
	Cho Depth	0–**72**–127	00–7F	0A
#	Cho Bal	D> 0E – **D=E** – D 0<E	00–7F	0C
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**80**–127	00–7F	16
36 :	**OD → Flanger**			**02 01**
	OD Drive	0–**48**–127	00–7F	03
+	OD Pan	L63–**0**–R63	00–7F	04
	OD Amp	Small/**BltIn**/2-Stk/3-Stk	00/01/02/03	05
	OD Amp Sw	**Off**/On	00/01	06
	FL Dly	0–**1.6m**–100m	*1	08
	FL Rate	0.05–**0.60**–10.0	*6	09
	FL Depth	0–**40**–127	00–7F	0A
	FL Fb	-98%– **+80%**– +98%	0F–71	0B
#	FL Bal	D> 0E – **D>49E** – D 0<E	00–7F	0C
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**80**–127	00–7F	16
37 :	**OD → Delay**			**02 02**
	OD Drive	0–**48**–127	00–7F	03
+	OD Pan	L63–**0**–R63	00–7F	04
	OD Amp	Small/**BltIn**/2-Stk/3-Stk	00/01/02/03	05
	OD Amp Sw	**Off**/On	00/01	06
	Dly Time	0–**250m**–500m	*4	08
	Dly Fb	-98%– **+32%**– +98%	0F–71	09
	Dly HF	315–8k/**Bypass**	*8	0A
#	Dly Bal	D> 0E – **D>74E** – D 0<E	00–7F	0C
	Low Gain	-12–**0**– +12	34–4C	13
	Hi Gain	-12–**0**– +12	34–4C	14
	Level	0–**80**–127	00–7F	16

Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
38 : DS → Chorus			**02 03**
DS Drive	0–**48**–127	00–7F	03
+ DS Pan	L63–**0**–R63	00–7F	04
DS Amp	Small/**BltIn**/2-Stk/3-Stk	00/01/02/03	05
DS Amp Sw	**Off**/On	00/01	06
Cho Dly	0–**1.0m**–100m	*1	08
Cho Rate	0.05–**0.45**–10.0	*6	09
Cho Depth	0–**72**–127	00–7F	0A
# Cho Bal	D> 0E – **D=E** – D 0<E	00–7F	0C
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**72**–127	00–7F	16
39 : DS → Flanger			**02 04**
DS Drive	0–**48**–127	00–7F	03
+ DS Pan	L63–**0**–R63	00–7F	04
DS Amp	Small/**BltIn**/2-Stk/3-Stk	00/01/02/03	05
DS Amp Sw	**Off**/On	00/01	06
FL Dly	0–**1.1m**–100m	*1	08
FL Rate	0.05–**0.60**–10.0	*6	09
FL Depth	0–**24**–127	00–7F	0A
FL Fb	-98%– **+80%**– +98%	0F–71	0B
# FL Bal	D> 0E – **D>49E** – D 0<E	00–7F	0C
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**72**–127	00–7F	16
40 : DS → Delay			**02 05**
DS Drive	0–**48**–127	00–7F	03
+ DS Pan	L63–**0**–R63	00–7F	04
DS Amp	Small/**BltIn**/2-Stk/3-Stk	00/01/02/03	05
DS Amp Sw	**Off**/On	00/01	06
Dly Time	0–**250m**–500m	*4	08
Dly Fb	-98%– **+32%**– +98%	0F–71	09
Dly HF	315–8k/**Bypass**	*8	0A
# Dly Bal	D> 0E – **D>74E** – D 0<E	00–7F	0C
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**72**–127	00–7F	16
41 : EH → Chorus			**02 06**
+ EH Sens	0–**64**–127	00–7F	03
EH Mix	0–**127**	00–7F	04
Cho Dly	0–**14m**–100m	*1	08
Cho Rate	0.05–**0.45**–10.0	*6	09
Cho Depth	0–**101**–127	00–7F	0A
# Cho Bal	D> 0E – **D=E** – D 0<E	00–7F	0C
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**80**–127	00–7F	16
42 : EH → Flanger			**02 07**
+ EH Sens	0–**64**–127	00–7F	03
EH Mix	0–**127**	00–7F	04
FL Dly	0–**1.6m**–100m	*1	08
FL Rate	0.05–**0.60**–10.0	*6	09
FL Depth	0–**24**–127	00–7F	0A
FL Fb	-98%– **+80%**– +98%	0F–71	0B
# FL Bal	D> 0E – **D>74E** – D 0<E	00–7F	0C
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**96**–127	00–7F	16
43 : EH → Delay			**02 08**
+ EH Sens	0–**64**–127	00–7F	03
EH Mix	0–**127**	00–7F	04
Dly Time	0–**250m**–500m	*4	08
Dly Fb	-98%– **+32%**– +98%	0F–71	09
Dly HF	315–8k/**Bypass**	*8	0A
# Dly Bal	D> 0E – **D>74E** – D 0<E	00–7F	0C
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**88**–127	00–7F	16
44 : Cho → Delay			**02 09**
Cho Dly	0–**1.0m**–100m	*1	03
Cho Rate	0.05–**0.50**–10.0	*6	04
Cho Depth	0–**120**–127	00–7F	05
+ Cho Bal	D> 0E – **D=E** – D 0<E	00–7F	07
Dly Time	0–**250m**–500m	*4	08
Dly Fb	-98%– **+32%**– +98%	0F–71	09
Dly HF	315–8k/**Bypass**	*8	0A
# Dly Bal	D> 0E – **D>74E** – D 0<E	00–7F	0C
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**127**	00–7F	16

Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
45 : FL → Delay			**02 0A**
FL Dly	0–**1.6m**–100m	*1	03
FL Rate	0.05–**0.60**–10.0	*6	04
FL Depth	0–**24**–127	00–7F	05
+ FL Fb	-98%– **+80%**– +98%	0F–71	06
FL Bal	D> 0E – **D=E** – D 0<E	00–7F	07
Dly Time	0–**250m**–500m	*4	08
Dly Fb	-98%– **+32%**– +98%	0F–71	09
Dly HF	315–8k/**Bypass**	*8	0A
# Dly Bal	D> 0E – **D>74E** – D 0<E	00–7F	0C
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**127**	00–7F	16
46 : Cho → Flanger			**02 0B**
Cho Dly	0–**1.0m**–100m	*1	03
Cho Rate	0.05–**0.45**–10.0	*6	04
Cho Depth	0–**120**–127	00–7F	05
+ Cho Bal	D> 0E – **D=E** – D 0<E	00–7F	07
FL Dly	0–**1.6m**–100m	*1	08
FL Rate	0.05–**0.60**–10.0	*6	09
FL Depth	0–**24**–127	00–7F	0A
FL Fb	-98%– **+80%**– +98%	0F–71	0B
# FL Bal	D> 0E – **D=E** – D 0<E	00–7F	0C
Low Gain	-12–**0**– +12	34–4C	13
Hi Gain	-12–**0**– +12	34–4C	14
Level	0–**112**–127	00–7F	16

■ Effects that connect three or more types of effect in series (series 3/4/5)

Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
47 : Rotary Multi			**02 0C**
+ OD Drive	0–**13**–127	00–7F	03
OD Sw	Off/**On**	00/01	04
EQ L Gain	-12–**0**– +12	34–4C	05
EQ M Fq	200–**1.6k**–6.3k	*10	06
EQ M Q	**0.5**/1.0/2.0/4.0/9.0	00/01/02/03/04	07
EQ M Gain	-12–**0**– +12	34–4C	08
EQ H Gain	-12–**0**– +12	34–4C	09
RT L Slow	0.05–**0.35**–10.0	*6	0A
RT L Fast	0.05–**6.40**–10.0	*6	0B
RT Lo Accl	0–**3**–15	*14	0C
RT Lo Lev	0–**127**	00–7F	0D
RT H Slow	0.05–**0.90**–10.0	*6	0E
RT H Fast	0.05–**7.50**–10.0	*6	0F
RT Hi Accl	0–**11**–15	*14	10
RT Hi Lev	0–**64**–127	00–7F	11
RT Sept	0–**96**–127	00–7F	12
# RT Speed	**Slow**/Fast	00/7F	13
Level	0–**96**–127	00–7F	16
48 : GTR Multi 1			**04 00**
Cmp Atck	0–**100**–127	00–7F	03
Cmp Sus	0–**80**–127	00–7F	04
Cmp Level	0–**100**–127	00–7F	05
Cmp Sw	Off/**On**	00/01	06
OD Sel	**Odrv**/Dist	00/01	07
+ OD Drive	0–**80**–127	00–7F	08
OD Amp	**Small**/BltIn/2-Stk/3-Stk	00/01/02/03	09
OD Amp Sw	Off/**On**	00/01	0A
OD L Gain	-12– **+5**– +12	34–4C	0B
OD H Gain	-12– **+10**– +12	34–4C	0C
OD Sw	Off/**On**	00/01	0D
CF Sel	**Chorus**/Flangr	00/01	0E
CF Rate	0.05–**0.45**–6.40	*7	0F
CF Depth	0–**30**–127	00–7F	10
CF Fb	-98%– **+76%**– +98%	0F–71	11
CF Mix	0–**40**–127	00–7F	12
Dly Time	0m–**300m**–635m	*5	13
Dly Fb	0–**34**–127	00–7F	14
# Dly Mix	0–**15**–127	00–7F	15
Level	0–**110**–127	00–7F	16

	Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
49 :	**GTR Multi 2**			**04 01**
	Cmp Atck	0–**70**–127	00–7F	03
	Cmp Sus	0–**127**	00–7F	04
	Cmp Level	0–**90**–127	00–7F	05
	Cmp Sw	Off/**On**	00/01	06
	OD Sel	**Odrv**/Dist	00/01	07
+	OD Drive	0–**80**–127	00–7F	08
	OD Amp	Small/BltIn/**2-Stk**/3-Stk	00/01/02/03	09
	OD Amp Sw	Off/**On**	00/01	0A
	OD Sw	Off/**On**	00/01	0B
	EQ L Gain	-12– **+12**	34–4C	0C
	EQ M Fq	200–**1k**–6.3k	*10	0D
	EQ M Q	0.5/1.0/**2.0**/4.0/9.0	00/01/02/03/04	0E
	EQ M Gain	-12– **+5**– +12	34–4C	0F
	EQ H Gain	-12– **-10**– +12	34–4C	10
	CF Sel	**Chorus**/Flangr	00/01	11
	CF Rate	0.05–**0.45**–6.40	*7	12
	CF Depth	0–**96**–127	00–7F	13
	CF Fb	-98%– **+76%**– +98%	0F–71	14
#	CF Mix	**0**–127	00–7F	15
	Level	0–**80**–127	00–7F	16
50 :	**GTR Multi 3**			**04 02**
	Wah Fil	LPF/**BPF**	00/01	03
+	Wah Man	0–**60**–127	00–7F	04
	Wah Peak	0–**10**–127	00–7F	05
	Wah Sw	Off/**On**	00/01	06
	OD Sel	Odrv/**Dist**	00/01	07
#	OD Drive	0–**80**–127	00–7F	08
	OD Amp	Small/BltIn/**2-Stk**/3-Stk	00/01/02/03	09
	OD Amp Sw	Off/**On**	00/01	0A
	OD L Gain	-12–**0**– +12	34–4C	0B
	OD H Gain	-12–**0**– +12	34–4C	0C
	OD Sw	Off/**On**	00/01	0D
	CF Sel	**Chorus**/Flangr	00/01	0E
	CF Rate	0.05–**0.45**–6.40	*7	0F
	CF Depth	**0**–127	00–7F	10
	CF Fb	-98%– **+50%**– +98%	0F–71	11
	CF Mix	0–**50**–127	00–7F	12
	Dly Time	0m–**160m**–635m	*5	13
	Dly Fb	0–**64**–127	00–7F	14
	Dly Mix	0–**30**–127	00–7F	15
	Level	0–**88**–127	00–7F	16
51 :	**Clean Gt Multi1**			**04 03**
	Cmp Atck	0–**50**–127	00–7F	03
	Cmp Sus	0–**127**	00–7F	04
	Cmp Level	0–**75**–127	00–7F	05
	Cmp Sw	Off/**On**	00/01	06
	EQ L Gain	-12– **+12**	34–4C	07
	EQ M Fq	**200**–6.3k	*10	08
	EQ M Q	0.5/1.0/**2.0**/4.0/9.0	00/01/02/03/04	09
	EQ M Gain	-12– **+5**– +12	34–4C	0A
	EQ H Gain	**-12**– +12	34–4C	0B
	CF Sel	**Chorus**/Flangr	00/01	0C
	CF Rate	0.05–**0.45**–6.40	*7	0D
	CF Depth	0–**40**–127	00–7F	0E
	CF Fb	-98%– **+30%**– +98%	0F–71	0F
+	CF Mix	0–**100**–127	00–7F	10
	Dly Time	0m–**120m**–635m	*5	11
	Dly Fb	0–**40**–127	00–7F	12
	Dly HF	315–8k/**Bypass**	*8	13
#	Dly Mix	0–**30**–127	00–7F	14
	Level	0–**95**–127	00–7F	16
52 :	**Clean Gt Multi2**			**04 04**
	AW Filter	LPF/**BPF**	00/01	03
+	AW Man	0–**55**–127	00–7F	04
	AW Peak	0–**40**–127	00–7F	05
	AW Rate	0.05–**1.50**–6.40	*7	06
	AW Depth	0–**80**–127	00–7F	07
	AW Sw	Off/**On**	00/01	08
	EQ L Gain	-12– **+12**	34–4C	09
	EQ M Fq	200–**1.6k**–6.3k	*10	0A
	EQ M Q	**0.5**/1.0/2.0/4.0/9.0	00/01/02/03/04	0B
	EQ M Gain	-12–**0**– +12	34–4C	0C
	EQ H Gain	-12–**0**– +12	34–4C	0D
	CF Sel	**Chorus**/Flangr	00/01	0E
	CF Rate	0.05–**0.45**–6.40	*7	0F
	CF Depth	0–**20**–127	00–7F	10
	CF Fb	-98%– **+76%**– +98%	0F–71	11
	CF Mix	0–**100**–127	00–7F	12
	Dly Time	0m–**30m**–635m	*5	13
	Dly Fb	0–**15**–127	00–7F	14
#	Dly Mix	0–**80**–127	00–7F	15
	Level	0–**76**–127	00–7F	16
53 :	**Bass Multi**			**04 05**
	Cmp Atck	0–**72**–127	00–7F	03
	Cmp Sus	0–**100**–127	00–7F	04
	Cmp Level	0–**75**–127	00–7F	05
	Cmp Sw	Off/**On**	00/01	06
	OD Sel	**Odrv**/Dist	00/01	07
+	OD Drive	0–**48**–127	00–7F	08
	OD Amp	**Small**/BltIn/2-Stk	00/01/02	09
	OD Amp Sw	**Off**/On	00/01	0A
	OD Sw	Off/**On**	00/01	0B
	EQ L Gain	-12– **+2**– +12	34–4C	0C
	EQ M Fq	200–**1.6k**–6.3k	*10	0D
	EQ M Q	0.5/**1.0**/2.0/4.0/9.0	00/01/02/03/04	0E
	EQ M Gain	-12– **+4**– +12	34–4C	0F
	EQ H Gain	-12–**0**– +12	34–4C	10
	CF Sel	**Chorus**/Flangr	00/01	11
	CF Rate	0.05–**0.30**–6.40	*7	12
	CF Depth	0–**20**–127	00–7F	13
	CF Fb	-98%– **+76%**– +98%	0F–71	14
#	CF Mix	0–**64**–127	00–7F	15
	Level	0–**76**–127	00–7F	16
54 :	**Rhodes Multi**			**04 06**
	EH Sens	0–**64**–127	00–7F	03
	EH Mix	0–**64**–127	00–7F	04
	PH Man	100–**620**–8k	*12	05
	PH Rate	0.05–**0.85**–6.40	*7	06
	PH Depth	0–**32**–127	00–7F	07
	PH Reso	0–**16**–127	00–7F	08
	PH Mix	0–**64**–127	00–7F	09
	CF Sel	**Chorus**/Flangr	00/01	0A
	CF LPF	250–6.3k/**Bypass**	*11	0B
	CF Dly	0–**1.0m**–100m	*1	0C
	CF Rate	0.05–**0.45**–6.40	*7	0D
	CF Depth	0–**64**–127	00–7F	0E
	CF Fb	-98%– **+80%**– +98%	0F–71	0F
	CF Mix	0–**127**	00–7F	10
	TP Sel	Trem/**Pan**	00/01	11
	TP Mod WV	Tri/Sqr/**Sin**/Saw1/Saw2	00/01/02/03/04	12
+	TP Mod RT	0.05–**3.05**–6.40	*7	13
#	TP Mod Dep	0–**64**–127	00–7F	14
	TP Sw	Off/**On**	00/01	15
	Level	0–**127**	00–7F	16
55 :	**Keyboard Multi**			**05 00**
+	RM Mod Freq	0–**50**–127	00–7F	03
#	RM Bal	D> 0E – **D>30E** – D 0<E	00–7F	04
	EQ L Gain	-12– **+3**– +12	34–4C	05
	EQ M Fq	200–6.3k	*10	06
	EQ M Q	0.5/1.0/**2.0**/4.0/9.0	00/01/02/03/04	07
	EQ M Gain	-12– **+5**– +12	34–4C	08
	EQ H Gain	-12– **-3**– +12	34–4C	09
	PS Coarse	-24– **+7**– +12	28–4C	0A
	PS Fine	-100–**0**– +100	0E–72	0B
	PS Mode	**1**–5	00–04	0C
	PS Bal	D> 0E – **D>60E** – D 0<E	00–7F	0D
	PH Man	100–**620**–8k	*12	0E
	PH Rate	0.05–**0.45**–6.40	*7	0F
	PH Depth	0–**90**–127	00–7F	10
	PH Reso	0–**80**–127	00–7F	11
	PH Mix	0–**75**–127	00–7F	12
	Dly Time	0m–**100m**–635m	*5	13
	Dly Fb	0–**64**–127	00–7F	14
	Dly Mix	0–**40**–127	00–7F	15
	Level	0–**96**–127	00–7F	16

■ Effects that connect two types of effect in parallel (parallel 2)

	Parameter	Setting Value	Value(Hex.)	MSB/LSB(H)
56 :	**Cho/Delay**			**11 00**
	Cho Dly	0–**1.0m**–100m	*1	03
	Cho Rate	0.05–**0.45**–10.0	*6	04
	Cho Depth	0–**120**–127	00–7F	05
+	Cho Bal	D> 0E – **D=E** – D 0<E	00–7F	07
	Cho Pan	**L63**–0–R63	00–7F	12
	Cho Level	0–**127**	00–7F	13
	Dly Time	0–**250m**–500m	*4	08
	Dly Fb	-98%– **+32%**– +98%	0F–71	09
	Dly HF	315–8k/**Bypass**	*8	0A
#	Dly Bal	D> 0E – **D>61E** – D 0<E	00–7F	0C
	Dly Pan	L63–0–**R63**	00–7F	14
	Dly Level	0–**127**	00–7F	15
	Level	0–**96**–127	00–7F	16
57 :	**FL/Delay**			**11 01**
	FL Dly	0–**1.6m**–100m	*1	03
	FL Rate	0.05–**0.60**–10.0	*6	04
	FL Depth	0–**24**–127	00–7F	05
	FL Fb	-98%– **+80%**– +98%	0F–71	06
+	FL Bal	D> 0E – **D=E** – D 0<E	00–7F	07
	FL Pan	**L63**–0–R63	00–7F	12
	FL Level	0–**127**	00–7F	13
	Dly Time	0–**250m**–500m	*4	08
	Dly Fb	-98%– **+32%**– +98%	0F–71	09
	Dly HF	315–8k/**Bypass**	*8	0A
#	Dly Bal	D> 0E – **D>74E** – D 0<E	00–7F	0C
	Dly Pan	L63–0–**R63**	00–7F	14
	Dly Level	0–**127**	00–7F	15
	Level	0–**96**–127	00–7F	16
58 :	**Cho/Flanger**			**11 02**
	Cho Dly	0–**1.6m**–100m	*1	03
	Cho Rate	0.05–**0.45**–10.0	*6	04
	Cho Depth	0–**120**–127	00–7F	05
+	Cho Bal	D> 0E – **D=E** – D 0<E	00–7F	07
	Cho Pan	**L63**–0–R63	00–7F	12
	Cho Level	0–**127**	00–7F	13
	FL Dly	0–**1.6m**–100m	*1	08
	FL Rate	0.05–**0.60**–10.0	*6	09
	FL Depth	0–**24**–127	00–7F	0A
	FL Fb	-98%– **+80%**– +98%	0F–71	0B
#	FL Bal	D> 0E – **D=E** – D 0<E	00–7F	0C
	FL Pan	L63–0–**R63**	00–7F	14
	FL Level	0–**127**	00–7F	15
	Level	0–**88**–127	00–7F	16
59 :	**OD1/OD2**			**11 03**
	OD1 Sel	**Odrv**/Dist	00/01	03
+	OD1 Drive	0–**48**–127	00–7F	04
	OD1 Amp	Small/**BltIn**/2-Stk/3-Stk	00/01/02/03	05
	OD1 Amp Sw	Off/**On**	00/01	06
	OD1 Pan	**L63**–0–R63	00–7F	12
	OD1 Level	0–**96**–127	00–7F	13
	OD2 Sel	Odrv/**Dist**	00/01	08
#	OD2 Drive	0–**76**–127	00–7F	09
	OD2 Amp	Small/BltIn/2-Stk/**3-Stk**	00/01/02/03	0A
	OD2 Amp Sw	Off/**On**	00/01	0B
	OD2 Pan	L63–0–**R63**	00–7F	14
	OD2 Level	0–**84**–127	00–7F	15
	Level	0–**127**	00–7F	16
60 :	**OD/Rotary**			**11 04**
	OD Sel	**Odrv**/Dist	00/01	03
+	OD Drive	0–**48**–127	00–7F	04
	OD Amp	Small/**BltIn**/2-Stk/3-Stk	00/01/02/03	05
	OD Amp Sw	Off/**On**	00/01	06
	OD Pan	**L63**–0–R63	00–7F	12
	OD Level	0–**96**–127	00–7F	13
	RT L Slow	0.05–**0.35**–10.0	*6	08
	RT L Fast	0.05–**6.40** -10.0	*6	09
	RT Lo Accl	0–**3**–15	*14	0A
	RT Lo Lev	0–**127**	00–7F	0B
	RT H Slow	0.05–**0.90**–10.0	*6	0C
	RT H Fast	0.05–**7.50**–10.0	*6	0D
	RT Hi Accl	0–**11**–15	*14	0E
	RT Hi Lev	0–**64**–127	00–7F	0F
	RT Sept	0–**96**–127	00–7F	10
#	RT Speed	**Slow**/Fast	00/7F	11
	RT Pan	L63–0–**R63**	00–7F	14
	RT Level	0–**127**	00–7F	15
	Level	0–**127**	00–7F	16
61 :	**OD/Phaser**			**11 05**
	OD Sel	**Odrv**/Dist	00/01	03
+	OD Drive	0–**48**–127	00–7F	04
	OD Amp	Small/**BltIn**/2-Stk/3-Stk	00/01/02/03	05
	OD Amp Sw	Off/**On**	00/01	06
	OD Pan	**L63**–0–R63	00–7F	12
	OD Level	0–**96**–127	00–7F	13
	PH Man	100–**620**–8k	*12	08
#	PH Rate	0.05–**0.85**–10.0	*6	09
	PH Depth	0–**64**–127	00–7F	0A
	PH Reso	0–**16**–127	00–7F	0B
	PH Mix	0–**127**	00–7F	0C
	PH Pan	L63–0–**R63**	00–7F	14
	PH Level	0–**127**	00–7F	15
	Level	0–**127**	00–7F	16
62 :	**OD/AutoWah**			**11 06**
	OD Sel	**Odrv**/Dist	00/01	03
+	OD Drive	0–**48**–127	00–7F	04
	OD Amp	Small/**BltIn**/2-Stk/3-Stk	00/01/002/03	05
	OD Amp Sw	Off/**On**	00/01	06
	OD Pan	**L63**–0–R63	00–7F	12
	OD Level	0–**96**–127	00–7F	13
	AW Filter	LPF/**BPF**	00/01	08
	AW Sens	**0**–127	00–7F	09
#	AW Man	0–**68**–127	00–7F	0A
	AW Peak	0–**62**–127	00–7F	0B
	AW Rate	0.05–**2.05**–10.0	*6	0C
	AW Depth	0–**72**–127	00–7F	0D
	AW Pol	Down/**Up**	00/01	0E
	AW Pan	L63–0–**R63**	00–7F	14
	AW Level	**0–127**	00–7F	15
	Level	**0–127**	00–7F	16
63 :	**PH/Rotary**			**11 07**
	PH Man	100–**620**–8k	*12	03
+	PH Rate	0.05–**0.85**–10.0	*6	04
	PH Depth	0–**64**–127	00–7F	05
	PH Reso	0–**16**–127	00–7F	06
	PH Mix	0–**127**	00–7F	07
	PH Pan	**L63**–0–R63	00–7F	12
	PH Level	0–**127**	00–7F	13
	RT L Slow	0.05–**0.35**–10.0	*6	08
	RT L Fast	0.05–**6.40**–10.0	*6	09
	RT Lo Accl	0–**3**–15	*14	0A
	RT Lo Lev	0–**127**	00–7F	0B
	RT H Slow	0.05–**0.90**–10.0	*6	0C
	RT H Fast	0.05–**7.50**–10.0	*6	0D
	RT Hi Accl	0–**11**–15	*14	0E
	RT Hi Lev	0–**64**–127	00–7F	0F
	RT Sept	0–**96**–127	00–7F	10
#	RT Speed	**Slow**/Fast	00/7F	11
	RT Pan	L63–0–**R63**	00–7F	14
	RT Level	0–**127**	00–7F	15
	Level	0–**127**	00–7F	16
64 :	**PH/AutoWah**			**11 08**
	PH Man	100–**620**–8k	*12	03
+	PH Rate	0.05–**0.85**–10.0	*6	04
	PH Depth	0–**64**–127	00–7F	05
	PH Reso	0–**16**–127	00–7F	06
	PH Mix	0–**127**	00–7F	07
	PH Pan	**L63**–0–R63	00–7F	12
	PH Level	0–**127**	00–7F	13
	AW Filter	LPF/**BPF**	00/01	08
	AW Sens	**0**–127	00–7F	09
#	AW Man	0–**68**–127	00–7F	0A
	AW Peak	0–**62**–127	00–7F	0B
	AW Rate	0.05–**2.05**–10.0	*6	0C
	AW Depth	0–**72**–127	00–7F	0D
	AW Pol	Down/**Up**	00/01	0E
	AW Pan	L63–0–**R63**	00–7F	14
	AW Level	0–**127**	00–7F	15
	Level	0–**127**	00–7F	16

Effect Parameter Value Conversion Table

Here is a table for converting between the hexadecimal value and the actual setting for each parameter. These parameters are used in the following effect types.

1. Pre Delay Time
- 10: Stereo Flanger
- 11: Step Flanger
- 16: Hexa Chorus
- 17: Tremolo Chorus
- 18: Stereo Chorus
- 19: Space-D
- 20: 3D Chorus
- 26: Reverb
- 27: Gate Reverb
- 29: 2 Pitch Shifter
- 30: Fb P.Shifter
- 35: OD → Chorus
- 36: OD → Flanger
- 38: DS → Chorus
- 39: DS → Flanger
- 41: EH → Chorus
- 42: EH → Flanger
- 44: Cho → Delay
- 45: FL → Delay
- 46: Cho → Flanger
- 54: Rhodes Multi
- 56: Cho/Delay
- 57: FL/Delay
- 58: Cho/Flanger

2. Delay Time1
- 23: 3 Tap Delay
- 24: 4 Tap Delay

3. Delay Time2
- 25: Tm Ctrl Delay

4. Delay Time3
- 21: Stereo Delay
- 22: Mod Delay
- 28: 3D Delay
- 37: OD → Delay
- 40: DS → Delay
- 43: EH → Delay
- 44: Cho → Delay
- 45: FL → Delay
- 56: Cho/Delay
- 57: FL/Delay

5. Delay Time4
- 48: GTR Multi 1
- 50: GTR Multi 3
- 51: Clean Gt Multi 1
- 52: Clean Gt Multi 2
- 55: Keyboard Multi

6. Rate1
- 07: Phaser
- 08: Auto Wah
- 09: Rotary
- 10: Stereo Flanger
- 11: Step Flanger
- 12: Tremolo
- 13: Auto Pan
- 16: Hexa Chorus
- 17: Tremolo Chorus
- 18: Stereo Chorus
- 19: Space-D
- 20: 3D Chorus
- 22: Mod Delay
- 31: 3D Auto
- 35: OD → Chorus
- 36: OD → Flanger
- 38: DS → Chorus
- 39: DS → Flanger
- 41: EH → Chorus
- 42: EH → Flanger
- 44: Cho → Delay
- 45: FL → Delay
- 46: Cho → Flanger
- 47: Rotary Multi
- 56: Cho/Delay
- 57: FL/Delay
- 58: Cho/Flanger
- 60: OD/Rotary
- 61: OD/Phaser
- 62: OD/Auto Wah
- 63: PH/Rotary
- 64: PH/Auto Wah

7. Rate1
- 48: GTR Multi 1
- 49: GTR Multi 2
- 50: GTR Multi 3
- 51: Clean Gt Multi 1
- 52: Clean Gt Multi 2
- 53: Bass Multi
- 54: Rhodes Multi
- 55: Keyboard Multi

8. HF Damp
- 21: Stereo Delay
- 22: Mod Delay
- 23: 3 Tap Delay
- 24: 4 Tap Delay
- 25: Tm Ctrl Delay
- 26: Reverb
- 28: 3D Delay
- 37: OD → Delay
- 40: DS → Delay
- 43: EH → Delay
- 44: Cho → Delay
- 45: FL → Delay
- 51: Clean Gt Multi 1
- 56: Cho/Delay
- 57: FL/Delay

9. Cutoff Freq
- 10: Stereo Flanger
- 18: Stereo Chorus
- 34: Lo-Fi 2

10. EQ Freq
- 01: Stereo-EQ
- 47: Rotary Multi
- 49: GTR Multi 2
- 51: Clean Gt Multi 1
- 52: Clean Gt Multi 2
- 53: Bass Multi
- 55: Keyboard Multi

11. LPF
- 34: Lo-Fi 2
- 54: Rhodes Multi

12 Manual
- 07: Phaser
- 54: Rhodes Multi
- 55: Keyboard Multi
- 61: OD/Phaser
- 63: PH/Rotary
- 64: PH/Auto Wah

13. Azimuth
- 31: 3D Auto
- 32: 3D Locate

14. Accl
- 04: Humanizer
- 09: Rotary
- 60: OD/Rotary
- 63: PH/Rotary

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Value (Hex.)	Value (Dec.)	Pre Delay Time (ms)	Delay Time 1 (ms)	Delay Time 2 (ms)	Delay Time 3 (ms)	Delay Time 4 (ms)	Rate1 (Hz)	Rate2 (Hz)	HF Damp (Hz)	Cutoff Freq (Hz)	EQ Freq (Hz)	LPF (Hz)	Manual (Hz)	Azimuth (deg)	Accl
00	0	0.0	200	200	0.0	0	0.05	0.05	315	250	200	250	100	L180 (=R180)	0
01	1	0.1	205	205	0.1	5	0.10	0.10	:	:	:	:	110	:	:
02	2	0.2	210	210	0.2	10	0.15	0.15	:	:	:	:	120	:	:
03	3	0.3	215	215	0.3	15	0.20	0.20	:	:	:	:	130	:	:
04	4	0.4	220	220	0.4	20	0.25	0.25	:	:	:	:	140	:	:
05	5	0.5	225	225	0.5	25	0.30	0.30	:	:	:	:	150	L180	:
06	6	0.6	230	230	0.6	30	0.35	0.35	:	:	:	:	160	L168	:
07	7	0.7	235	235	0.7	35	0.40	0.40	315	250	200	250	170	:	0
08	8	0.8	240	240	0.8	40	0.45	0.45	400	315	250	315	180	:	1
09	9	0.9	245	245	0.9	45	0.50	0.50	:	:	:	:	190	L168	:
0A	10	1.0	250	250	1.0	50	0.55	0.55	:	:	:	:	200	L156	:
0B	11	1.1	255	255	1.1	55	0.60	0.60	:	:	:	:	210	:	:
0C	12	1.2	260	260	1.2	60	0.65	0.65	:	:	:	:	220	:	:
0D	13	1.3	265	265	1.3	65	0.70	0.70	:	:	:	:	230	L156	:
0E	14	1.4	270	270	1.4	70	0.75	0.75	:	:	:	:	240	L144	:
0F	15	1.5	275	275	1.5	75	0.80	0.80	400	315	250	315	250	:	1
10	16	1.6	280	280	1.6	80	0.85	0.85	500	400	315	400	260	:	2
11	17	1.7	285	285	1.7	85	0.90	0.90	:	:	:	:	270	L144	:
12	18	1.8	290	290	1.8	90	0.95	0.95	:	:	:	:	280	L132	:
13	19	1.9	295	295	1.9	95	1.00	1.00	:	:	:	:	290	:	:
14	20	2.0	300	300	2.0	100	1.05	1.05	:	:	:	:	300	:	:
15	21	2.1	305	305	2.1	105	1.10	1.10	:	:	:	:	320	L132	:
16	22	2.2	310	310	2.2	110	1.15	1.15	:	:	:	:	340	L120	:
17	23	2.3	315	315	2.3	115	1.20	1.20	500	400	315	400	360	:	2
18	24	2.4	320	320	2.4	120	1.25	1.25	630	500	400	500	380	:	3
19	25	2.5	325	325	2.5	125	1.30	1.30	:	:	:	:	400	L120	:
1A	26	2.6	330	330	2.6	130	1.35	1.35	:	:	:	:	420	L108	:
1B	27	2.7	335	335	2.7	135	1.40	1.40	:	:	:	:	440	:	:
1C	28	2.8	340	340	2.8	140	1.45	1.45	:	:	:	:	460	:	:
1D	29	2.9	345	345	2.9	145	1.50	1.50	:	:	:	:	480	L108	:
1E	30	3.0	350	350	3.0	150	1.55	1.55	:	:	:	:	500	L96	:
1F	31	3.1	355	355	3.1	155	1.60	1.60	630	500	400	500	520	:	3
20	32	3.2	360	360	3.2	160	1.65	1.65	800	630	500	630	540	:	4
21	33	3.3	365	365	3.3	165	1.70	1.70	:	:	:	:	560	L96	:
22	34	3.4	370	370	3.4	170	1.75	1.75	:	:	:	:	580	L84	:
23	35	3.5	375	375	3.5	175	1.80	1.80	:	:	:	:	600	:	:
24	36	3.6	380	380	3.6	180	1.85	1.85	:	:	:	:	620	:	:
25	37	3.7	385	385	3.7	185	1.90	1.90	:	:	:	:	640	L84	:
26	38	3.8	390	390	3.8	190	1.95	1.95	:	:	:	:	660	L72	:
27	39	3.9	395	395	3.9	195	2.00	2.00	800	630	500	630	680	:	4
28	40	4.0	400	400	4.0	200	2.05	2.05	1000	800	630	800	700	:	5
29	41	4.1	405	405	4.1	205	2.10	2.10	:	:	:	:	720	L72	:
2A	42	4.2	410	410	4.2	210	2.15	2.15	:	:	:	:	740	L60	:
2B	43	4.3	415	415	4.3	215	2.20	2.20	:	:	:	:	760	:	:
2C	44	4.4	420	420	4.4	220	2.25	2.25	:	:	:	:	780	:	:
2D	45	4.5	425	425	4.5	225	2.30	2.30	:	:	:	:	800	L60	:
2E	46	4.6	430	430	4.6	230	2.35	2.35	:	:	:	:	820	L48	:
2F	47	4.7	435	435	4.7	235	2.40	2.40	1000	800	630	800	840	L48	5

Value (Hex.)	Value (Dec.)	1 Pre Delay Time (ms)	2 Delay Time 1 (ms)	3 Delay Time 2 (ms)	4 Delay Time 3 (ms)	5 Delay Time 4 (ms)	6 Rate1 (Hz)	7 Rate2 (Hz)	8 HF Damp (Hz)	9 Cutoff Freq (Hz)	10 EQ Freq (Hz)	11 LPF (Hz)	12 Manual (Hz)	13 Azimuth (deg)	14 Accl
30	48	4.8	440	440	4.8	240	2.45	2.45	1250	1000	800	1000	860	L48	6
31	49	4.9	445	445	4.9	245	2.50	2.50	:	:	:	:	880	L48	:
32	50	5.0	450	450	5.0	250	2.55	2.55	:	:	:	:	900	L36	:
33	51	5.5	455	455	5.5	255	2.60	2.60	:	:	:	:	920	:	:
34	52	6.0	460	460	6.0	260	2.65	2.65	:	:	:	:	940	:	:
35	53	6.5	465	465	6.5	265	2.70	2.70	:	:	:	:	960	L36	:
36	54	7.0	470	470	7.0	270	2.75	2.75	:	:	:	:	980	L24	:
37	55	7.5	475	475	7.5	275	2.80	2.80	1250	1000	800	1000	1000	:	6
38	56	8.0	480	480	8.0	280	2.85	2.85	1600	1250	1000	1250	1100	:	7
39	57	8.5	485	485	8.5	285	2.90	2.90	:	:	:	:	1200	L24	:
3A	58	9.0	490	490	9.0	290	2.95	2.95	:	:	:	:	1300	L12	:
3B	59	9.5	495	495	9.5	295	3.00	3.00	:	:	:	:	1400	:	:
3C	60	10	500	500	10	300	3.05	3.05	:	:	:	:	1500	:	:
3D	61	11	505	505	11	305	3.10	3.10	:	:	:	:	1600	L12	:
3E	62	12	510	510	12	310	3.15	3.15	:	:	:	:	1700	0	:
3F	63	13	515	515	13	315	3.20	3.20	1600	1250	1000	1250	1800	:	7
40	64	14	520	520	14	320	3.25	3.25	2000	1600	1250	1600	1900	:	8
41	65	15	525	525	15	325	3.30	3.30	:	:	:	:	2000	0	:
42	66	16	530	530	16	330	3.35	3.35	:	:	:	:	2100	R12	:
43	67	17	535	535	17	335	3.40	3.40	:	:	:	:	2200	:	:
44	68	18	540	540	18	340	3.45	3.45	:	:	:	:	2300	:	:
45	69	19	545	545	19	345	3.50	3.50	:	:	:	:	2400	R12	:
46	70	20	550	550	20	350	3.55	3.55	:	:	:	:	2500	R24	:
47	71	21	560	555	21	355	3.60	3.60	2000	1600	1250	1600	2600	:	8
48	72	22	570	560	22	360	3.65	3.65	2500	2000	1600	2000	2700	:	9
49	73	23	580	565	23	365	3.70	3.70	:	:	:	:	2800	R24	:
4A	74	24	590	570	24	370	3.75	3.75	:	:	:	:	2900	R36	:
4B	75	25	600	575	25	375	3.80	3.80	:	:	:	:	3000	:	:
4C	76	26	610	580	26	380	3.85	3.85	:	:	:	:	3100	:	:
4D	77	27	620	585	27	385	3.90	3.90	:	:	:	:	3200	R36	:
4E	78	28	630	590	28	390	3.95	3.95	:	:	:	:	3300	R48	:
4F	79	29	640	595	29	395	4.00	4.00	2500	2000	1600	2000	3400	:	9
50	80	30	650	600	30	400	4.05	4.05	3150	2500	2000	2500	3500	:	10
51	81	31	660	610	31	405	4.10	4.10	:	:	:	:	3600	R48	:
52	82	32	670	620	32	410	4.15	4.15	:	:	:	:	3700	R60	:
53	83	33	680	630	33	415	4.20	4.20	:	:	:	:	3800	:	:
54	84	34	690	640	34	420	4.25	4.25	:	:	:	:	3900	:	:
55	85	35	700	650	35	425	4.30	4.30	:	:	:	:	4000	R60	:
56	86	36	710	660	36	430	4.35	4.35	:	:	:	:	4100	R72	:
57	87	37	720	670	37	435	4.40	4.40	3150	2500	2000	2500	4200	:	10
58	88	38	730	680	38	440	4.45	4.45	4000	3150	2500	3150	4300	:	11
59	89	39	740	690	39	445	4.50	4.50	:	:	:	:	4400	R72	:
5A	90	40	750	700	40	450	4.55	4.55	:	:	:	:	4500	R84	:
5B	91	41	760	710	50	455	4.60	4.60	:	:	:	:	4600	:	:
5C	92	42	770	720	60	460	4.65	4.65	:	:	:	:	4700	:	:
5D	93	43	780	730	70	465	4.70	4.70	:	:	:	:	4800	R84	:
5E	94	44	790	740	80	470	4.75	4.75	:	:	:	:	4900	R96	:
5F	95	45	800	750	90	475	4.80	4.80	4000	3150	2500	3150	5000	:	11
60	96	46	810	760	100	480	4.85	4.85	5000	4000	3150	4000	5100	:	12
61	97	47	820	770	110	485	4.90	4.90	:	:	:	:	5200	R96	:
62	98	48	830	780	120	490	4.95	4.95	:	:	:	:	5300	R108	:
63	99	49	840	790	130	495	5.00	5.00	:	:	:	:	5400	:	:
64	100	50	850	800	140	500	5.10	5.05	:	:	:	:	5500	:	:
65	101	52	860	810	150	505	5.20	5.10	:	:	:	:	5600	R108	:
66	102	54	870	820	160	510	5.30	5.15	:	:	:	:	5700	R120	:
67	103	56	880	830	170	515	5.40	5.20	5000	4000	3150	4000	5800	:	12
68	104	58	890	840	180	520	5.50	5.25	6300	5000	4000	5000	5900	:	13
69	105	60	900	850	190	525	5.60	5.30	:	:	:	:	6000	R120	:
6A	106	62	910	860	200	530	5.70	5.35	:	:	:	:	6100	R132	:
6B	107	64	920	870	210	535	5.80	5.40	:	:	:	:	6200	:	:
6C	108	66	930	880	220	540	5.90	5.45	:	:	:	:	6300	:	:
6D	109	68	940	890	230	545	6.00	5.50	:	:	:	:	6400	R132	:
6E	110	70	950	900	240	550	6.10	5.55	:	:	:	:	6500	R144	:
6F	111	72	960	910	250	555	6.20	5.60	6300	5000	4000	5000	6600	:	13
70	112	74	970	920	260	560	6.30	5.65	8000	6300	5000	6300	6700	:	14
71	113	76	980	930	270	565	6.40	5.70	:	:	:	:	6800	R144	:
72	114	78	990	940	280	570	6.50	5.75	:	:	:	:	6900	R156	:
73	115	80	1000	950	290	575	6.60	5.80	:	:	:	:	7000	:	:
74	116	82	--	960	300	580	6.70	5.85	:	:	:	:	7100	:	:
75	117	84	--	970	320	585	6.80	5.90	:	:	:	:	7200	R156	:
76	118	86	--	980	340	590	6.90	5.95	:	:	:	:	7300	R168	:
77	119	88	--	990	360	595	7.00	6.00	8000	6300	5000	6300	7400	:	14
78	120	90	--	1000	380	600	7.50	6.05	Bypass	8000	6300	Bypass	7500	:	15
79	121	92	--	1000	400	605	8.00	6.10	:	:	:	:	7600	:	:
7A	122	94	--	1000	420	610	8.50	6.15	:	:	:	:	7700	R180 (=L180)	:
7B	123	96	--	1000	440	615	9.00	6.20	:	:	:	:	7800	:	:
7C	124	98	--	1000	460	620	9.50	6.25	:	:	:	:	7900	:	:
7D	125	100	--	1000	480	625	10.00	6.30	:	:	:	:	8000	:	:
7E	126	100	--	1000	500	630	10.00	6.35	:	:	:	:	8000	:	:
7F	127	100	--	1000	500	635	10.00	6.40	Bypass	8000	6300	Bypass	8000	R180 (=L180)	15

Preset Patch List

The symbols preceding the Patch number indicate whether the parameters of the effect type used by that Patch can be controlled by the [ASSIGN1] and [ASSIGN2] knobs. In patches marked with a "+" symbol, effect parameters marked with "+" can be controlled. In patches marked with a "#" symbol, effect parameters marked with "#" can be controlled. (p.49, 65–94)
+: controllable by the [ASSIGN1] knob #: controllable by the [ASSIGN2] knob

	No.	Patch Name	Part	Map	PC/CC00	Instrument	Effect Type
+#	001	RB STRAT		[Pro]	028/000	Clean Gt.	48 : GTR Multi 1
+#	002	MILD OD		[Pro]	028/016	TC FrontPick	48 : GTR Multi 1
+#	003	WAH! PEDAL		[Pro]	028/017	TC Rear Pick	50 : GTR Multi 3
+#	004	WARM OD		[Pro]	028/016	TC FrontPick	49 : GTR Multi 2
+#	005	EC STRAT		[Pro]	028/001	Clean Half	48 : GTR Multi 1
+	006	BLUES OD		[Pro]	028/019	TC Clean 2 :	05 : Overdrive
#	007	HEAVY & WILD		[Pro]	028/017	TC Rear Pick	49 : GTR Multi 2
+#	008	FLANGER GTR		[Pro]	028/019	TC Clean 2 :	49 : GTR Multi 2
#	009	SLOW GEAR		[Pro]	028/019	TC Clean 2 :	40 : DS → Delay
+#	010	MID-BOOST		[Pro]	028/017	TC Rear Pick	50 : GTR Multi 3
#	011	POWER RHYTHM		[55]	029/000	"Muted Gt.	49 : GTR Multi 2
+#	012	HEAVY RHYTHM		[Pro]	035/001	Picked Bass2	49 : GTR Multi 2
+#	013	NOISY RHYTHM	A01	[Pro]	028/003	Open Hard 2	59 : OD1/OD2
			A02	[Pro]	028/002	Open Hard 1	59 : OD1/OD2
+#	014	CLEAN RHYTHM		[Pro]	028/003	Open Hard 2	51 : CleanGtMulti1
+#	015	WAH RHYTHM		[Pro]	028/003	Open Hard 2	52 : CleanGtMulti2
+	016	T-WAH GUITAR		[Pro]	028/003	Open Hard 2	08 : Auto Wah
+#	017	FUNK PHASE		[Pro]	028/003	Open Hard 2	07 : Phaser
+#	018	MELLOW&CLEAN		[Pro]	028/016	TC FrontPick	51 : CleanGtMulti1
+#	019	COOL ARP.		[Pro]	028/001	Clean Half	51 : CleanGtMulti1
+#	020	SURF GUITAR		[Pro]	029/002	TC Muted Gt.	51 : CleanGtMulti1
+#	021	JAZZ GUITAR		[Pro]	027/000	Jazz Gt.	51 : CleanGtMulti1
+#	022	NYLON BOSSA		[Pro]	025/032	Nylon Gt.2	26 : Reverb
+#	023	ENH. NYLON		[Pro]	025/000	Nylon-str.Gt	43 : EH → Delay
+#	024	ENH. STEEL		[Pro]	026/032	Steel Gt.2	41 : EH → Chorus
+#	025	COMP PK BASS		[Pro]	035/000	Picked Bass	53 : Bass Multi
+#	026	DRIVE PK BS.		[Pro]	035/000	Picked Bass	53 : Bass Multi
+#	027	JP FRETLESS		[Pro]	036/001	Fretless Bs2	53 : Bass Multi
+#	028	HYPER BASS	A01	[Pro]	039/001	Synth Bass101	62 : OD/AutoWah
			A02	[Pro]	037/009	Unison Slap	62 : OD/AutoWah
+#	029	303 SAW BASS		[Pro]	039/013	TB303 Saw Bs	07 : Phaser
+#	030	FAT S.BASS		[Pro]	040/000	Synth Bass 2	07 : Phaser
+#	031	SYNC BASS		[Pro]	040/024	Sync Bass	07 : Phaser
+	032	HUMAN BASS		[Pro]	039/009	TB303 Bass	04 : Humanizer
+#	033	PH RHODES		[Pro]	005/000	E.Piano 1	07 : Phaser
+#	034	TREM RHODES		[Pro]	005/000	E.Piano 1	17 : TremoloChorus
+#	035	TREM WURLY		[Pro]	005/024	Wurly	54 : Rhodes Multi
+#	036	TREM FM EP		[Pro]	006/016	St.FM EP	17 : TremoloChorus
+#	037	SC RHODES		[Pro]	005/000	E.Piano 1	54 : Rhodes Multi
+#	038	SOFT E.PIANO		[88]	005/008	'St.Soft EP	22 : Mod Delay
	039	COMP PIANO		[Pro]	003/000	Piano 3	14 : Compressor
+#	040	COMP CLAV.		[Pro]	008/000	Clav.	51 : CleanGtMulti1
+#	041	THE E.ORGAN		[Pro]	017/000	Organ 1	09 : Rotary
+#	042	TREM ORGAN		[Pro]	017/008	Trem. Organ	09 : Rotary
+#	043	5TH ORGAN		[Pro]	017/048	5th Organ	09 : Rotary
+#	044	PERC. ORGAN		[88]	018/000	'Organ 2	09 : Rotary
+#	045	OD-ROT ORGAN		[Pro]	017/000	Organ 1	47 : Rotary Multi
+#	046	THEATER ORG		[Pro]	020/033	Theater Org.	26 : Reverb
+#	047	DIGI ORGAN		[Pro]	017/028	VS Organ	22 : Mod Delay
+#	048	ORGAN BELL		[Pro]	101/008	Org Bell	09 : Rotary
+#	049	CHO STRINGS		[Pro]	049/016	St. Strings	18 : Stereo Chorus
+#	050	WIDE STRINGS		[Pro]	049/002	ChamberStr :	28 : 3D Delay
+#	051	WIDE SYN STR		[Pro]	050/009	Warm Strings	20 : 3D Chorus
+#	052	WARM STRINGS		[Pro]	051/009	Syn.Strings4	22 : Mod Delay
+#	053	FAT STRINGS		[Pro]	049/012	Strings+Horn	22 : Mod Delay
+#	054	SPIC WALTZ		[Pro]	046/016	Solo Spic.	23 : 3 Tap Delay
+#	055	WIDE CHOIR		[Pro]	053/009	Melted Choir	28 : 3D Delay
+#	056	DUAL CHOIR		[Pro]	053/008	St.ChoirAahs	21 : Stereo Delay
				[88]	053/032	'ChoirAahs 2	21 : Stereo Delay
+#	057	NYMAN BRASS	A01	[Pro]	062/000	Brass 1	03 : Enhancer
			A02	[Pro]	066/016	AltoSax + Tp	---
+#	058	SAX LIVE	A01	[Pro]	067/009	St.Tenor Sax	30 : Fb P.Shifter
			A02	[Pro]	068/000	Baritone Sax	---
+#	059	SFORZANDO		[Pro]	062/010	Brass sfz	03 : Enhancer
+#	060	TS WIND		[Pro]	091/003	Poly King	29 : 2PitchShifter
+#	061	ANALOG BRS	A01	[Pro]	063/001	JUNO Brass	03 : Enhancer
			A02	[Pro]	063/009	P5 Brass	03 : Enhancer
+#	062	OCT BRASS	A01	[Pro]	063/016	Oct SynBrass	03 : Enhancer
			A02	[Pro]	063/002	Stack Brass	03 : Enhancer
	063	M.TROMBONE		[55]	058/000	"Trombone	02 : Spectrum
+#	064	DRIVE TENOR		[Pro]	067/000	Tenor Sax	35 : OD → Chorus

	No.	Patch Name	Part	Map	PC/CC00	Instrument	Effect Type
+#	065	PM SYN LEAD		[Pro]	082/017	PM Lead	22 : Mod Delay
+#	066	MAD CHO LEAD		[Pro]	084/008	Mad Lead	16 : Hexa Chorus
+#	067	MG SAW LEAD		[Pro]	082/031	MG Saw Lead	23 : 3 Tap Delay
+#	068	OB SAW LEAD		[Pro]	082/032	OB Saw Lead	23 : 3 Tap Delay
+#	069	SINE LEAD		[Pro]	081/009	Sine Lead	23 : 3 Tap Delay
+#	070	WAH WAH LEAD		[Pro]	066/000	Alto Sax	50 : GTR Multi 3
+#	071	SUPER SAW		[Pro]	082/000	Saw Wave	55 : KeyboardMulti
+#	072	SYLKY LEAD		[Pro]	017/032	70's E.Organ	55 : KeyboardMulti
+#	073	STEP SYNC		[Pro]	085/017	Fat Sync Lead	11 : Step Flanger
+#	074	PHASER HPF		[Pro]	096/011	Bag Sweep	07 : Phaser
+#	075	PHASER STR		[Pro]	052/008	Air Strings	07 : Phaser
+#	076	PROLOGUE		[Pro]	098/003	Prologue 2	07 : Phaser
+#	077	MOD SWEEP		[Pro]	096/011	Bag Sweep	22 : Mod Delay
+#	078	MOD HEAVEN		[Pro]	092/002	SC Heaven	22 : Mod Delay
+#	079	RAVE SHIFT		[Pro]	098/008	Rave	29 : 2PitchShifter
+#	080	FB FAR OUT!		[Pro]	031/009	Feedback Gt2	25 : Tm Ctrl Delay
+#	081	STEP BELL		[Pro]	093/000	Bowed Glass	11 : Step Flanger
+#	082	STEP STRINGS		[Pro]	052/002	JUNO Strings	11 : Step Flanger
+#	083	SEQ HORN PAD		[Pro]	090/002	Horn Pad	11 : Step Flanger
+#	084	THE SOFT PAD		[88]	090/004	'Soft Pad	22 : Mod Delay
+#	085	RATTLE PAD		[Pro]	097/004	Rattle Pad	22 : Mod Delay
+#	086	WARM VOX PAD		[Pro]	095/001	Vox Pad	22 : Mod Delay
+#	087	JP8 SQR PAD		[Pro]	093/002	JP8 Sqr Pad	19 : Space D
+#	088	OB SOFT PAD		[Pro]	090/004	OB Soft Pad	19 : Space D
+#	089	PAN SEQUENCE		[Pro]	103/008	Pan Sequence	23 : 3 Tap Delay
+#	090	ASIAN DREAM	A01	[Pro]	108/001	Gu Zheng	24 : 4 Tap Delay
			A02	[Pro]	089/000	Fantasia	---
+#	091	ER HU LEAD		[Pro]	111/008	Er Hu	24 : 4 Tap Delay
+#	092	ZITHER		[Pro]	016/016	Zither 1	21 : Stereo Delay
+#	093	PSY. TABLA		[Pro]	032/016	Ac.Gt.Harmnx	55 : KeyboardMulti
+#	094	SITAR DANCE		[Pro]	105/003	Sitar 3	55 : KeyboardMulti
+#	095	SPIN BIWA		[Pro]	121/013	Biwa Tremolo	31 : 3D Auto
+#	096	ARABIC LEAD		[Pro]	112/024	Mizmar	23 : 3 Tap Delay
+#	097	3D BUBBLE		[Pro]	123/005	Bubble	31 : 3D Auto
+#	098	3D ROTARY		[Pro]	017/000	Organ 1	31 : 3D Auto
+#	099	3D DIDGERIDO		[Pro]	110/008	Didgeridoo	31 : 3D Auto
+#	100	3D BAG SWEEP		[Pro]	096/011	Bag Sweep	20 : 3D Chorus
+#	101	3D UFO.....		[Pro]	102/014	UFO FX	20 : 3D Chorus
+#	102	3D CHURCH		[Pro]	015/008	Church Bell	20 : 3D Chorus
+#	103	3D IMPCT HIT		[Pro]	056/012	Shock Wave	28 : 3D Delay
+#	104	3D EXCITE !!		[Pro]	127/006	Applause 2	28 : 3D Delay
+	105	LO-FI AUH		[Pro]	102/004	Auhbient	33 : Lo-Fi 1
+	106	LO-FI TECHNO		[Pro]	102/013	Alternative	33 : Lo-Fi 1
+	107	LO-FI ORGAN		[Pro]	017/024	Cheese Organ	33 : Lo-Fi 1
+	108	LO-FI SQUARE		[Pro]	093/002	JP8 Sqr Pad	33 : Lo-Fi 1
+	109	LO-FI VOX		[Pro]	086/008	Vox Lead	33 : Lo-Fi 1
+#	110	LO-FI JAZZ		[Pro]	RHY/033	JAZZ SET	34 : Lo-Fi 2
+#	111	LO-FI DUO	A01	[Pro]	004/008	Honky-tonk 2	34 : Lo-Fi 2
			A02	[Pro]	033/000	Acoustic Bs.	34 : Lo-Fi 2
+#	112	LO-FI GND NZ		[Pro]	030/003	More Drive	34 : Lo-Fi 2
+#	113	LEAD & SEQ	A01	[Pro]	085/016	P5 Sync Lead	19 : Space D
			A02	[Pro]	039/024	Arpeggio Bs	19 : Space D
	114	PIANO & BASS	A01	[Pro]	001/000	Piano 1	---
			A02	[Pro]	033/000	Acoustic Bs.	---
+#	115	GTR & ORGAN	A01	[Pro]	017/000	Organ 1	60 : OD/Rotary
			A02	[Pro]	028/016	TC FrontPick	60 : OD/Rotary
+#	116	VIOLIN&CELLO	A01	[Pro]	041/000	Violin :	43 : EH → Delay
			A02	[Pro]	043/000	Cello :	43 : EH → Delay
+#	117	BRS. & FLUTE	A01	[Pro]	074/001	Flute 2 :	---
			A02	[Pro]	062/008	Brass 2	30 : Fb P.Shifter
+#	118	SYNTH SPLIT	A01	[Pro]	082/018	CS Saw Lead	22 : Mod Delay
			A02	[Pro]	063/001	JUNO Brass	22 : Mod Delay
+#	119	PIANO & VIBE	A01	[Pro]	001/000	Piano 1	26 : Reverb
			A02	[Pro]	012/000	Vibraphone	26 : Reverb
+	120	TECHNO VOICE		[Pro]	082/024	MG Saw 1	04 : Humanizer
+#	121	ACID PANNER		[Pro]	085/009	Acid Guitar1	13 : Auto Pan
+#	122	LFO RAVE		[Pro]	102/010	LFO RAVE	19 : Space D
+#	123	FLANGER NZ		[Pro]	123/016	Pink Noise	10 : StereoFlanger
+#	124	1 KEY STROKE		[Pro]	121/011	Chord Stroke	24 : 4 Tap Delay
+#	125	INET LIVE :-)		[Pro]	127/007	Small Club	34 : Lo-Fi 2
+	126	DOUBLE HIT	A01	[Pro]	056/017	Techno Hit	---
			A02	[Pro]	056/016	Lo Fi Rave	33 : Lo-Fi 1
+#	127	SCRAPE SHIFT		[Pro]	121/006	Pick Scrape	30 : Fb P.Shifter
+#	128	EPILOGUE		[Pro]	055/016	VP330 Choir	30 : Fb P.Shifter

MIDI IMPLEMENTATION Model SK-88Pro Version 1.00 '97.12

The SK-88Pro implements additional functionality and parameters over and above the SC-88, which itself was an expansion of the GS sound source format. These functions and parameters are marked by a [Pro] symbol. If MIDI messages marked by a [Pro] symbol are transmitted to another GS format sound source or to the SC-88, those messages may not be recognized. Also, functions and parameters which were added to the SC-88 over and above previous GS format sound sources are marked by an [88] symbol.

Section 1. Receive Data

■ Channel Voice Messages

● Note Off

Status	2nd byte	3rd byte
8nH	kkH	vvH
9nH	kkH	00H

n = MIDI channel number: 0H–FH (ch.1–ch.16)
kk = note number: 00H–7FH (0–127)
vv = note off velocity: 00H–7FH (0–127)

* *For Drum Parts, these messages are received when Rx.NOTE OFF = ON for each Instrument.*
* *The velocity values of Note Off messages are ignored.*

● Note On

Status	2nd byte	3rd byte
9nH	kkH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
kk = note number: 00H–7FH (0–127)
vv = note on velocity: 01H–7FH (1–127)

* *Not received when Rx.NOTE MESSAGE = OFF. (Initial value is ON)*
* *For Drum Parts, not received when Rx.NOTE ON = OFF for each Instrument.*

● Polyphonic Key Pressure

Status	2nd byte	3rd byte
AnH	kkH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
kk = note number: 00H–7FH (0–127)
vv = key pressure: 00H–7FH (0–127)

* *Not received when Rx.POLY PRESSURE (PAf) = OFF. (Initial value is ON)*
* *The resulting effect is determined by System Exclusive messages. With the initial settings, there will be no effect.*

● Control Change

* *When Rx.CONTROL CHANGE = OFF, all Control Change messages except for Channel Mode messages will be ignored.*
* *The value specified by a Control Change message will not be reset even by a Program Change, etc.*

❍ Bank Select (Controller number 0, 32)

Status	2nd byte	3rd byte
BnH	00H	mmH
BnH	20H	llH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
mm = Bank number MSB: 00H–7FH (GS Variation number 0–127), Initial Value = 00H
ll = Bank number LSB: 00H–03H (MAP), Initial Value = 00H

* *Not received when Rx.BANK SELECT = OFF. "Rx.BANK SELECT" is set to OFF by "Turn General MIDI System On," and set to ON by "GS RESET." (Power-on default value is ON.)*
* *When Rx.BANK SELECT LSB = OFF, Bank number LSB will be handled as 00H regardless of the received value. However, when sending Bank Select messages, you have to send both the MSB (mmH) and LSB (llH, the value should be 00H) together.*
* *Bank Select processing will be suspended until a Program Change message is received.*
* *The GS format "Variation number" is the value of the Bank Select MSB (Controller number 0) expressed in decimal.*
* *This unit recognizes the Bank Select LSB (Controller number 32) as a flag for switching between the Native map,SC-88 map and the SC-55 map. With a Bank Select LSB of 00H, the map selected by the panel SC-88 map or SC-55 map button will be selected. With a LSB of 01H, the SC-55 map will be selected. With a LSB of 02H, the SC-88 map will be selected. With a LSB of 03H, the Native map will be selected.*
* *Some other GS devices may not recognize the Bank Select LSB (Controller number 32).*

❍ Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Modulation depth: 00H–7FH (0–127)

* *Not received when Rx.MODULATION = OFF. (Initial value is ON)*
* *The resulting effect is determined by System Exclusive messages. With the initial settings, this is Pitch Modulation Depth.*

❍ Portamento Time (Controller number 5)

Status	2nd byte	3rd byte
BnH	05H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Portamento Time: 00H–7FH (0–127), Initial value = 00H (0)

* *This adjusts the rate of pitch change when Portamento is ON or when using the Portamento Control. A value of 0 results in the fastest change.*

❍ Data Entry (Controller number 6, 38)

Status	2nd byte	3rd byte
BnH	06H	mmH
BnH	26H	llH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
mm, ll = the value of the parameter specified by RPN/NRPN
mm = MSB, ll = LSB

❍ Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Volume: 00H–7FH (0–127), Initial Value = 64H (100)

* *Volume messages are used to adjust the volume balance of each Part.*
* *Not received when Rx.VOLUME = OFF. (Initial value is ON)*

❍ Pan (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = pan: 00H–40H–7FH (Left–Center–Right), Initial Value = 40H (Center)

* *For Rhythm Parts, this is a relative adjustment of each Instrument's pan setting.*
* *Not received when Rx.PANPOT = OFF. (Initial value is ON)*

❍ Expression (Controller number 11)

Status	2nd byte	3rd byte
BnH	0BH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Expression: 00H–7FH (0–127), Initial Value = 7FH (127)

* *This adjusts the volume of a Part. It can be used independently from Volume messages. Expression messages are used for musical expression within a performance; e.g., expression pedal movements, crescendo and decrescendo.*
* *Not received when Rx.EXPRESSION = OFF. (Initial value is ON)*

❍ Hold 1 (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Control value: 00H–7FH (0–127)

* *Not received when Rx.HOLD1 = OFF. (Initial value is ON)*

❍ Portamento (Controller number 65)

Status	2nd byte	3rd byte
BnH	41H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Control value: 00H–7FH (0–127) 0–63 = OFF, 64–127 = ON

* *Not received when Rx.PORTAMENTO = OFF. (Initial value is ON)*

❍ Sostenuto (Controller number 66)

Status	2nd byte	3rd byte
BnH	42H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Control value: 00H–7FH (0–127) 0–63 = OFF, 64–127 = ON

* *Not received when Rx.SOSTENUTO = OFF. (Initial value is ON)*

❍ Soft (Controller number 67)

Status	2nd byte	3rd byte
BnH	43H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Control value: 00H–7FH (0–127) 0–63 = OFF, 64–127 = ON

* *Not received when Rx.SOFT = OFF. (Initial value is ON)*

❍ Portamento control (Controller number 84)

Status	2nd byte	3rd byte
BnH	54H	kkH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
kk = Source Note Number: 00H–7FH (0–127)

* *A Note-on received immediately after a Portamento Control message will change continuously in pitch, starting from the pitch of the Source Note Number.*
* *If a voice is already sounding for a note number identical to the Source Note Number, this voice will continue sounding (i.e., legato) and will, when the next Note-on is received, smoothly change to the pitch of that Note-on.*
* *The rate of the pitch change caused by Portamento Control is determined by the Portamento Time value.*

Example 1.

On MIDI	Description	Result
90 3C 40	Note on C4	C4 on
B0 54 3C	Portamento Control from C4	no change
90 40 40	Note on E4	glide from C4 to E4
80 3C 40	Note off C4	no change
80 40 40	Note off E4	E4 off

Example 2.

On MIDI	Description	Result
B0 54 3C	Portamento Control from C4	no change
90 40 40	Note on E4	E4 is played with glide from C4 to E4
80 40 40	Note off E4	E4 off

❍ Effect 1 (Reverb Send Level) (Controller number 91)

Status	2nd byte	3rd byte
BnH	5BH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Reverb Send Level: 00H–7FH (0–127), Initial Value = 28H (40)

* *This message adjusts the Reverb Send Level of each Part.*

❍ Effect 3 (Chorus Send Level) (Controller number 93)

Status	2nd byte	3rd byte
BnH	5DH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Chorus Send Level: 00H–7FH (0–127), Initial Value = 00H (0)

* *This message adjusts the Chorus Send Level of each Part.*

❍ Effect 4 (Delay Send Level) (Controller number 94) [88]

Status	2nd byte	3rd byte
BnH	5EH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Delay Send Level: 00H–7FH (0–127), Initial value = 00H (0)

* *This message adjusts the Delay Send Level of each Part.*
* *Some other GS devices may not recognize this message.*
* *Delay cannot be used in MODE-2 (Double Module mode).*

❍ NRPN MSB/LSB (Controller number 98, 99)

Status	2nd byte	3rd byte
BnH	63H	mmH
BnH	62H	llH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
mm = upper byte of the parameter number specified by NRPN
ll = lower byte of the parameter number specified by NRPN

* *NRPN can be received when Rx.NRPN = ON. "Rx.NRPN" is set to OFF by power-on reset or by receiving "Turn General MIDI System On," and it is set to ON by "GS RESET."*
* *The value set by NRPN will not be reset even if Program Change or Reset All Controllers is received.*

NRPN

The NRPN (Non Registered Parameter Number) message allows an extended range of Control Changes to be used. On the SK-88Pro, NRPN messages can be used to modify sound parameters etc.
To use these messages, you must first use NRPN messages (Controller number 98 and 99, their order does not matter) to specify the parameter to be controlled, and then use Data Entry messages to specify the value of the specified parameter. Once an NRPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN number = 7FH/7FH) when you have finished setting the value of the desired parameter. Refer to Section 5. Supplementary Material "Examples of actual MIDI messages" <Example 4> (p. 214). On the SK-88Pro, Data entry LSB (Controller number 38) of NRPN is ignored, so it is no problem to send Data entry MSB (Controller number 6) only (without Data entry LSB).

On this unit, NRPN can be used to modify the following parameters.

NRPN MSB LSB	Data entry MSB	Function and range
01H 08H	mmH	Vibrato Rate (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 09H	mmH	Vibrato Depth (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 0AH	mmH	Vibrato Delay (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 20H	mmH	TVF Cutoff Frequency (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 21H	mmH	TVF Resonance (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 63H	mmH	TVF&TVA Envelope Attack Time (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 64H	mmH	TVF&TVA Envelope Decay Time (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 66H	mmH	TVF&TVA Envelope Release Time (relative change) mm: 00H–40H–7FH (-64–0– +63)
18H rrH	mmH	Drum Instrument Pitch Coarse (relative change) rr: Drum Instrument note number mm: 00H–40H–7FH (-64–0– +63 semitone)
1AH rrH	mmH	Drum Instrument TVA Level (absolute change) rr: Drum Instrument note number mm: 00H–7FH (0–max)
1CH rrH	mmH	Drum Instrument Panpot (absolute change) rr: Drum Instrument note number mm: 00H, 01H–40H–7FH (random, left–center–right)
1DH rrH	mmH	Drum Instrument Reverb Send Level (absolute change) rr: Drum Instrument note number mm: 00H–7FH (0–max)
1EH rrH	mmH	Drum Instrument Chorus Send Level (absolute change) rr: Drum Instrument note number mm: 00H–7FH (0–max)
1FH rrH	mmH	Drum Instrument Delay Send Level (absolute change) [88] rr: Drum Instrument note number mm: 00H–7FH (0–max)

* *Data entry LSB (llH) is ignored.*
* *Parameters marked "relative change" will change relative to the preset value(40H). Even among different GS devices, "relative change" parameters may sometimes differ in the way the sound changes or in the range of change.*
* *Parameters marked "absolute change" will be set to the absolute value of the parameter, regardless of the preset value.*
* *It is not possible to simultaneously use both Chorus Send Level and Delay Send Level on a single Drum Instrument.*

❍ RPN MSB/LSB (Controller number 100, 101)

Status	2nd byte	3rd byte
BnH	65H	mmH
BnH	64H	llH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
mm = upper byte of parameter number specified by RPN
ll = lower byte of parameter number specified by RPN

* *Not received when Rx.RPN = OFF. (Initial value is ON)*
* *The value specified by RPN will not be reset even by messages such as Program Change or Reset All Controller.*

RPN
The RPN (Registered Parameter Number) messages are expanded Control Changes, and each function of an RPN is described by the MIDI Standard.
To use these messages, you must first use RPN (Controller number 100 and 110, their order does not matter) to specify the parameter to be controlled, and then use Data Entry messages (Controller number 6, 38) to specify the value of the specified parameter. Once an RPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN number = 7FH/7FH) when you have finished setting the value of the desired parameter.Refer to Section 5. "Examples of actual MIDI messages" <Example 4> (p.214).

On this unit, RPN can be used to modify the following parameters.

RPN MSB LSB	Data entry MSB LSB	Explanation
00H 00H	mmH ---	Pitch Bend Sensitivity mm: 00H–18H (0–24 semitones), Initial Value = 02H (2 semitones) ll: ignored (processed as 00H) specify up to 2 octaves in semitone steps
00H 01H	mmH llH	Master Fine Tuning mm, ll: 00 00H–40 00H–7F 7FH (-100–0– +99.99 cents), Initial Value = 40 00H (± 0 cent) Refer to 5. Supplementary material, "About tuning" (p.215).
00H 02H	mmH ---	Master Coarse Tuning mm: 28H–40H–58H (-24–0– +24 semitones), ll: ignored (processed as 00H)
7FH 7FH	--- ---	RPN null Set condition where RPN and NRPN are unspecified. The data entry messages after set RPN null will be ignored. (No Data entry messages are required after RPN null). Settings already made will not change. mm, ll: ignored

● Program Change

Status	2nd byte
CnH	ppH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
pp = Program number: 00H–7FH (prog.1–prog.128)

* *Not received when Rx.PROGRAM CHANGE = OFF. (Initial value is ON)*
* *After a Program Change message is received, the sound will change beginning with the next Note-on. Voices already sounding when the Program Change message was received will not be affected.*
* *For Drum Parts, Program Change message will not be received on lower byte of the Bank numbers (the value of Controller Number 0 is other than 0 (00H)).*

● Channel Pressure

Status	2nd byte
DnH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Channel Pressure: 00H–7FH (0–127)

* *Not received when Rx.CH PRESSURE (CAf) = OFF. (Initial value is ON)*
* *The resulting effect is determined by System Exclusive messages. With the initial settings there will be no effect.*

● Pitch Bend Change

Status	2nd byte	3rd byte
EnH	llH	mmH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
mm, ll = Pitch Bend value: 00 00H–40 00H–7F 7FH (-8192–0– +8191)

* *Not received when Rx.PITCH BEND = OFF. (Initial value is ON)*
* *The resulting effect is determined by System Exclusive messages. With the initial settings the effect is Pitch Bend.*

■ Channel Mode Messages

● All Sounds Off (Controller number 120)

Status	2nd byte	3rd byte
BnH	78H	00H

n = MIDI channel number: 0H–FH (ch.1–ch.16)

* *When this message is received, all currently-sounding notes on the corresponding channel will be turned off immediately.*

● Reset All Controllers (Controller number 121)

Status	2nd byte	3rd byte
BnH	79H	00H

n = MIDI channel number: 0H–FH (ch.1–ch.16)

* *When this message is received, the following controllers will be set to their reset values.*

Controller	Reset value
Pitch Bend Change	±0 (center)
Polyphonic Key Pressure	0 (off)
Channel Pressure	0 (off)
Modulation	0 (off)
Expression	127 (max)
Hold 1	0 (off)
Portamento	0 (off)
Sostenuto	0 (off)
Soft	0 (off)
RPN	unset; previously set data will not change
NRPN	unset; previously set data will not change

● Local Control (Controller number 122)

Status	2nd byte	3rd byte
BnH	7AH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Control value: 00H–7FH (0–127)
0 = Local OFF, 127 = Local ON

* *This message will set Local ON or OFF regardless of theMIDI channel number.*

● All Notes Off (Controller number 123)

Status	2nd byte	3rd byte
BnH	7BH	00H

n = MIDI channel number: 0H–FH (ch.1–ch.16)

* *When All Notes Off is received, all notes on the corresponding channel will be turned off. However if Hold 1 or Sostenuto is ON, the sound will be continued until these are turned off.*

● OMNI OFF (Controller number 124)

Status	2nd byte	3rd byte
BnH	7CH	00H

n = MIDI channel number: 0H–FH (ch.1–ch.16)

* *The same processing will be carried out as when All Notes Off is received.*

● OMNI ON (Controller number 125)

Status	2nd byte	3rd byte
BnH	7DH	00H

n = MIDI channel number: 0H–FH (ch.1–ch.16)

* *The same processing will be carried out as when All Notes Off is received.OMNI ON will not be turned on.*

● MONO (Controller number 126)

Status	2nd byte	3rd byte
BnH	7EH	mmH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
mm = mono number: 00H–10H (0–16)

* *The same processing will be carried out as when All Sounds Off and All Notes Off is received, and the corresponding channel will be set to Mode 4 (M = 1) regardless of the value of "mono number."*

● POLY (Controller number 127)

Status	2nd byte	3rd byte
BnH	7FH	00H

n = MIDI channel number: 0H–FH (ch.1–ch.16)

* *The same processing will be carried out as when All Sounds Off and All Notes Off is received, and the corresponding channel will be set to Mode 3.*

■ System Realtime Message

● Active Sensing

Status
FEH

* *When Active Sensing is received, the unit will begin monitoring the intervals of all further messages. While monitoring, if the interval between messages exceeds 420 ms, the same processing will be carried out as when All Sounds Off, All Notes Off and Reset All Controllers are received, and message interval monitoring will be halted.*

■ System Exclusive Message

Status	Data byte	Status
F0H	iiH, ddH, ...,eeH	F7H

F0H:	System Exclusive Message status
ii = ID number:	an ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H. ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime messages (7EH) and Universal Realtime messages (7FH).
dd,...,ee = data:	00H–7FH (0–127)
F7H:	EOX (End Of Exclusive)

The System Exclusive messages received by this unit are; messages related to mode settings, Universal Realtime System Exclusive messages, Data Requests (RQ1), and Data Set (DT1).

● System Exclusive messages related to mode settings

These messages are used to initialize a device to GS or General MIDI mode, or change the operating mode. When creating performance data, a "Turn General MIDI System On" message should be inserted at the beginning of a General MIDI score, and a "GS Reset" message at the beginning of a GS music data. In the case of data for the SC-88 and for this unit, we recommend that "System Mode Set" be placed at the beginning of the song data. Each song should contain only one mode message as appropriate for the type of data. (Do not insert two or more mode setting messages in a single song.)
"Turn General MIDI System On" use Universal Non-realtime message format. "System Mode Set" and "GS Reset" use Roland System Exclusive format "Data Set 1 (DT1)."

❍ Turn General MIDI System On

This is a command message that resets the internal settings of the unit to the General MIDI initial state (General MIDI System-Level 1). After receiving this message the SK-88Pro, will automatically be set to the proper condition for correctly playing a General MIDI score.

Status	Data byte	Status
F0H	7EH, 7FH, 09H, 01H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (General MIDI message)
01H	Sub ID#2 (General MIDI On)
F7H	EOX (End Of Exclusive)

* *When this message is received, Rx.BANK SELECT will be OFF and Rx.NRPN will be OFF.*
* *This message will not be received when Rx.GM On = OFF (p.103).*
* *There must be an interval of at least 50 ms between this message and the next message.*

❍ GS Reset

GS Reset is a command message that resets the internal settings of a device to the GS initial state. This message appears at the beginning of GS music data, and a GS device that receives this message will automatically be set to the proper state to correctly playback GS music data. If the SK-88Pro is in MODE-1 (Single Module mode) all 32 Parts will be initialized. If in MODE-2 (Double Module mode), only the corresponding 16 Parts will be initialized. In MODE-2 if the receiving MIDI connector for each Part has been changed, this may affect playback from the other MIDI connector. In this case, first perform initialization (p.25) before using this command.

Status	Data byte	Status
F0H	41H, dev, 42H, 12H, 40H, 00H, 7FH, 00H, 41H	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
dev	Device ID (dev: 00H–1FH (1–32), Initial value is 10H (17))
42H	Model ID (GS)
12H	Command ID (DT1)
40H	Address MSB
00H	Address
7FH	Address LSB
00H	Data (GS reset)
41H	Checksum
F7H	EOX (End Of Exclusive)

* *When this message is received, Rx.NRPN will be ON.*
* *This message will not be received if "Rx.GS Reset = OFF" (p.103).*
* *There must be an interval of at least 50 ms between this message and the next.*

❍ System Mode Set [88]

System Mode Set is a message that sets this unit operating mode to MODE-1 (Single Module mode) or MODE-2 (Double Module mode). When this message is received, the operating mode will be set, and at the same time all internal parameters (except for the map settings of each Part) will be reset to the initial state.

Status	Data byte	Status
F0H	41H, dev, 42H, 12H, 00H, 00H, 7FH, ddH, sumH	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number	(Roland)
dev	Device ID	(dev: 00H–1FH (1–32), Initial value is 10H(17))
42H	Model ID	(GS)
12H	Command ID	(DT1)
00H	Address MSB	
00H	Address	
7FH	Address LSB	
ddH	Data	00H (MODE-1), 01H (MODE-2)
sumH	Checksum	01H (MODE-1), 00H (MODE-2)
F7H	EOX	(End Of Exclusive)

* *When this message is received, Rx.NRPN will be set ON.*
* *This message will not be received when Rx.GS Reset = OFF (p.103) or Rx.Sys Mode = OFF (p.108).*
* *There must be an interval of at least 50 ms between this message and the next.*

● Universal Realtime System Exclusive Messages

❍ Master Volume

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 01H, llH, mmH	F7H

Byte	Explanation	
F0H	Exclusive status	
7FH	ID number	(universal realtime message)
7FH	Device ID	(Broadcast)
04H	Sub ID#1	(Device Control messages)
01H	Sub ID#2	(Master Volume)
llH	Master Volume lower byte	
mmH	Master Volume upper byte	
F7H	EOX	(End Of Exclusive)

* *The lower byte (llH) of Master Volume will be handled as 00H.*

● Universal Non-realtime System Exclusive Messages

❍ Identity Request Message [Pro]

Status	Data byte	Status
F0H	7EH, dev, 06H, 01H	F7H

Byte	Explanation
FOH	Exclusive status
7EH	ID number (Universal Non-realtime message)
dev	Device ID (dev: 00H–1FH (1–32), the initial value is 10H (17).)
06H	Sub ID#1 (General Information)
01H	Sub ID#2 (Identity Request)
F7H	EOX (End Of Exclusive)

* *The "dev" is own device number or 7FH (Broadcast)*

● Data transmission

The SK-88Pro can use Exclusive messages to transmit internal settings to other devices. There are two types of Exclusive data transmission; Individual Parameter Transmission (p.202) in which single parameters are transmitted one by one, and Bulk Dump Transmission (p.212) in which a large amount of data is transmitted at once.
The Exclusive message used when transmitting GS format data has a model ID of 42H and a device ID of 10H. (The SK-88Pro allows you to change the Device ID setting.)

❍ Request data 1 RQ1 (11H)

This message requests the other device to send data. The Address and Size determine the type and amount of data to be sent. There are two types of request; Individual Parameter Request which requests data for an individual parameter, and Bulk Dump Request which requests a large amount of data at once. In either case, the "Data Request 1 (RQ1)" message format is used, and the Address and Size included in the message determine the type and amount of data that is desired.
For Individual Parameter Request, refer to "3. Individual Parameter Transmission" (p.202).
For Bulk Dump Request, refer to "4. Bulk Dump" (p.212).
When a Data Request message is received, if the device is ready to transmit data and if the address and size are appropriate, the requested data will be transmitted as a "Data Set 1 (DT1)" message. If not, nothing will be transmitted.

Status	Data byte	Status
F0H	41H, dev, 42H, 11H, aaH, bbH, ccH, ssH, ttH, uuH, sum	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number	(Roland)
dev	Device ID	(dev: 00H–1FH Initial value is 10H(17))
42H	Model ID	(GS)
11H	Command ID	(RQ1)
aaH	Address MSB:	upper byte of the starting address of the requested data
bbH	Address:	middle byte of the starting address of the requested data
ccH	Address LSB:	lower byte of the starting address of the requested data
ssH	Size MSB	
ttH	Size	
uuH	Size LSB	
sum	Checksum	
F7H	EOX	(End Of Exclusive)

* *The amount of data that can be transmitted at once time will depend on the type of data, and data must be requested using a specific starting address and size. Refer to the Address and Size listed in Section 3 (p.202).*
* *Regarding the checksum please refer to Section 5 (p.215).*

❍ Data set 1 DT1(12H)

This is the message that actually performs data transmission, and is used when you wish to transmit the data.

Status	Data byte	Status
F0H	41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number	(Roland)
dev	Device ID	(dev: 00H–1FH Initial value is 10H(17))
42H	Model ID	(GS), 45H
12H	Command ID	(DT1)
aaH	Address MSB:	upper byte of the starting address of the transmitted data
bbH	Address:	middle byte of the starting address of the transmitted data
ccH	Address LSB:	lower byte of the starting address of the transmitted data
ddH	Data:	the actual data to be transmitted. Multiple bytes of data are transmitted starting from the address.
:	:	
eeH	Data	
sum	Checksum	
F7H	EOX	(End Of Exclusive)

* *The amount of data that can be transmitted at one time depends on the type of data, and data can be received only from the specified starting address and size. Refer to the Address and Size given in Section 3 (p.202).*
* *Data larger than 128 bytes must be divided into packets of 128 bytes or less. If "Data Set 1" is transmitted successively, there must be an interval of at least 40 ms between packets.*
* *Regarding the checksum please refer to Section 5 (p.215).*

Section 2. Transmit Data

■ Channel Voice Messages

● Note off

Status	2nd byte	3rd byte
8nH	kkH	40H

n = MIDI channel number: 0H–FH (ch.1–ch.16)
kk = note number: 00H–7FH (0–127)
40H = note off velocity

● Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
kk = note number: 00H–7FH (0–127)
vv = note on velocity: 01H–7FH (1–127)

● Control Change

* *On the SK-88Pro, you can specify any desired Controller number for the three knobs of the EDIT PALETTE, the Control slider located at the left of the keyboard, and connected pedals. (p. 127, 128)*

❍ Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Modulation depth: 00H–7FH (0–127)

* *This will be transmitted when the modulation lever is operated.*

❍ Portamento Time (Controller number 5)

Status	2nd byte	3rd byte
BnH	05H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Portamento Time: 00H–7FH (0–127), Initial value = 00H (0)

❍ Data Entry (Controller number 6, 38)

Status	2nd byte	3rd byte
BnH	06H	mmH
BnH	26H	llH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
mm, ll = the value of the parameter specified by RPN/NRPN
mm = MSB, ll = LSB

❍ Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Volume: 00H–7FH (0–127), Initial Value = 64H (100)

❍ Pan (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = pan: 00H–40H–7FH (Left–Center–Right), Initial Value = 40H (Center)

❍ Expression (Controller number 11)

Status	2nd byte	3rd byte
BnH	0BH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Expression: 00H–7FH (0–127), Initial Value = 7FH (127)

* *At the factory settings, this message is transmitted when you operate a pedal connected to the Control Pedal jack.*

❍ Hold 1 (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Control value: 00H–7FH (0–127)

* *At the factory settings, this message is transmitted when you operate a pedal switch connected to the Hold Pedal jack.*

❍ Portamento (Controller number 65)

Status	2nd byte	3rd byte
BnH	41H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Control value: 00H–7FH (0–127) 0–63 = OFF, 64–127 = ON

❍ Sostenuto (Controller number 66)

Status	2nd byte	3rd byte
BnH	42H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Control value: 00H–7FH (0–127) 0–63 = OFF, 64–127 = ON

❍ Soft (Controller number 67)

Status	2nd byte	3rd byte
BnH	43H	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Control value: 00H–7FH (0–127) 0–63 = OFF, 64–127 = ON

❍ Portamento control (Controller number 84)

Status	2nd byte	3rd byte
BnH	54H	kkH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
kk = source note number: 00H–7FH (0–127)

❍ Effect 1 (Reverb Send Level) (Controller number 91)

Status	2nd byte	3rd byte
BnH	5BH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Reverb Send Level: 00H–7FH (0–127), Initial Value = 28H (40)

❍ Effect 3 (Chorus Send Level) (Controller number 93)

Status	2nd byte	3rd byte
BnH	5DH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Chorus Send Level: 00H–7FH (0–127), Initial Value = 00H (0)

❍ Effect 4 (Delay Send Level) (Controller number 94) [88]

Status	2nd byte	3rd byte
BnH	5EH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Delay Send Level: 00H–7FH (0–127), Initial value = 00H (0)

❍ NRPN MSB/LSB (Controller number 98, 99)

Status	2nd byte	3rd byte
BnH	63H	mmH
BnH	62H	llH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
mm = upper byte of the parameter number specified by NRPN
ll = lower byte of the parameter number specified by NRPN

NRPN MSB LSB	Data entry MSB	Function and range
01H 08H	mmH	Vibrato Rate (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 09H	mmH	Vibrato Depth (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 0AH	mmH	Vibrato Delay (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 20H	mmH	TVF Cutoff Frequency (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 21H	mmH	TVF Resonance (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 63H	mmH	TVF&TVA Envelope Attack Time (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 64H	mmH	TVF&TVA Envelope Decay Time (relative change) mm: 00H–40H–7FH (-64–0– +63)
01H 66H	mmH	TVF&TVA Envelope Release Time (relative change) mm: 00H–40H–7FH (-64–0– +63)

* *Data entry LSB (llH) is ignored.*
* *On the SK-88Pro, you can control the above parameters using the three knobs. (p.110)*

❍ Ext Control Number

Status	2nd byte	3rd byte
BnH	ccH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
cc = Controller number: 01H–01FH, 40H–5FH (1–31, 64–95)
vv = Control value: 00H–7FH (0–127)

* *On the SK-88Pro, you can specify any desired Controller number for the three knobs of the EDIT PALETTE, the Control slider located at the left of the keyboard, and connected pedals. (p.127, 128)*

● Channel Pressure

Status	2nd byte
DnH	vvH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
vv = Channel Pressure: 00H–7FH (0–127)

* *You can transmit this message when you specify CAf for the three knobs of the EDIT PALETTE, the Control slider. (p.127, 128)*

● Pitch Bend Change

Status	2nd byte	3rd byte
EnH	llH	mmH

n = MIDI channel number: 0H–FH (ch.1–ch.16)
mm, ll = Pitch Bend value: 00 00H–40 00H–7F 7FH (-8192–0– +8191)

* *This will be transmitted when operating pitch bender.*

■ System Realtime Message

● Start

Status
FAH

* *Transmitted when the function of the Hold Pedal jack is set to START/STOP, and the pedal is operated.*

● Stop

Status
FCH

* *Transmitted when the function of the Hold Pedal jack is set to START/STOP, and the pedal is operated.*

● Active sensing

Status
FEH

* *This will be transmitted constantly at intervals of approximately 250 ms.*

■ System Exclusive messages

● Universal Realtime System Exclusive Messages

❍ Identity Reply [Pro]

Status	Data byte	Status
F0H	7EH, dev, 06H, 02H, 41H, 42H, 00H, ddH, ddH, ssH, ssH, ssH, ssH	F7H

Byte	Explanation	
F0H	Exclusive status	
7EH	ID number	(Universal Non-realtime message)
dev	Device ID	(use the same as the device ID of Roland)
06H	Sub ID#1	(General Information)
02H	Sub ID#2	(Identity Reply)
41H	ID number	(Roland)
42H	Device family code	(LSB)
00H	Device family code	(MSB)
ddH	Device family number code (LSB)	
ddH	Device family number code (MSB)	
ssH	Software revision level	
ssH	Software revision level	
ssH	Software revision level	
ssH	Software revision level	
F7H	EOX	(End of Exclusive)

* *Reply the message by the unique device ID (dev) when the device has received the "Identity Request Message" in the Broadcast.*

● Data transmission

When an appropriate "Data Request 1 (RQ1)" message is received, the internal data will be transmitted.

❍ Data set 1 DT1 (12H)

Status	Data byte	Status
F0H	41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number	(Roland)
dev	Device ID	(dev: 00H–1FH, Initial value is 10H)
42H	Model ID	(GS)
12H	Command ID	(DT1)
aaH	Address MSB:	upper byte of the starting address of the data to be sent
bbH	Address:	middle byte of the starting address of the data to be sent
ccH	Address LSB:	lower byte of the starting address of the data to be sent.
ddH	Data:	the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
:	:	
eeH	Data	
sum	Checksum	
F7H	EOX	(End Of Exclusive)

* *The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size. Refer to the Address and Size given in Section 3 (p.202).*
* *Data larger than 128 bytes will be divided into packets of 128 bytes or less, and each packet will be sent at an interval of about 40 ms.*
* *Regarding the checksum please refer to Section 4 (p.212).*
* *There are two ways in which GS data is transmitted: Individual Parameter Transmission (Section 3 p.202) in which individual parameters are transmitted one by one, and Bulk Dump Transmission (Section 4 p.212) in which a large amount of data is transmitted at once.*

Section 3. Individual Parameter Transmission (Model ID = 45H or 42H)

Individual Parameter Transmission transmits data (or requests data) for one parameter as one Exclusive message (one packet of "F0 ..... F7").
In Individual Parameter Transmission, you must use the Address and Size listed in the following "Parameter Address Map." Addresses marked at "#" cannot be used as starting addresses.

■ Address Block map

An outlined address map of the Exclusive Communication is as follows;

<Model ID = 45H>

Address (H)	Block
10 00 00	Display Data

<Model ID = 42H>

● Port-A

Address (H)	Block		Address (H)	Block	
00 00 00	SYSTEM				
20 00 00	USER TONE BANK				
21 00 00	USER DRUM SET				
22 00 00	USER EFFECT				
23 00 00	USER PATCH COMMON				
24 00 00	USER PATCH PART (BLOCK01)				
25 00 00	USER PATCH PART (BLOCK01)				
26 00 00	USER PATCH PART (BLOCK02)				
27 00 00	USER PATCH PART (BLOCK02)				
40 00 00	PATCH COMMON	#A	50 00 00	PATCH COMMON	B
40 10 00	PATCH PART (BLOCK00-0F)	A	50 10 00	PATCH PART (BLOCK10-1F)	B
41 00 00	DRUM SETUP	A	51 00 00	DRUM SETUP	B

* *The blocks displayed in gray cannot be accessed in Mode-1 (Single Module mode).*
* *Blocks listed as "#A" are parameter blocks which are common to the entire device in Mode-1, and valid only for Parts A01–A16 in Mode-2 (Double Module mode).*

● Port-B

Address (H)	Block		Address (H)	Block	
00 00 00	SYSTEM				
20 00 00	USER TONE BANK				
21 00 00	USER DRUM SET				
22 00 00	USER EFFECT				
23 00 00	USER PATCH COMMON				
24 00 00	USER PATCH PART (BLOCK01)				
25 00 00	USER PATCH PART (BLOCK01)				
26 00 00	USER PATCH PART (BLOCK02)				
27 00 00	USER PATCH PART (BLOCK02)				
50 00 00	PATCH COMMON	A	40 00 00	PATCH COMMON	#B
50 10 00	PATCH PART (BLOCK00-0F)	A	40 10 00	PATCH PART (BLOCK10-1F)	B
51 00 00	DRUM SETUP	A	41 00 00	DRUM SETUP	B

* *The blocks displayed in gray cannot be accessed in Mode-1 (Single Module mode).*
* *Blocks listed as "#B" are parameter blocks which are common to the entire device in Mode-1, and valid only for Parts B01–B16 in Mode-2 (Double Module mode).*

■ Parameter address map

This map indicates address, size, Data (range), Parameter, Description, and Default Value of parameters which can be transferred using "Request data 1 (RQ1)" and "Data set 1 (DT1)." All the numbers of address, size, Data, and Default Value are indicated in 7-bit Hexadecimal-form.
Numbers in the explanatory column are given in decimal notation. The MODEL ID = 45H parameters are related to LCD display.
The MODEL ID = 42H parameters at address 5* ** ** are not given in this map. The parameters for address 5* ** ** are the same format as those at at address 4* ** **.

< MODEL ID = 45H >

● Display data

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)
10 00 00	00 00 20	20–7F	Displayed Letter	32–127 (ASCII)	---
10 00 01#					
10 00 02#					
:					
10 00 1F#					

* *When this message is received, a character string specified by the data will be temporarily displayed in the INSTRUMENT display area. A character string of 1 to 32 characters can be received. If more than 16 characters are received, the display will automatically be scrolled.*

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)
10 0p 00	00 00 40	00–1F	Displayed		
			Dot Data d00	00–31	--
10 0p 01#			Dot Data d01		
10 0p 02#			Dot Data d02		
10 0p :			Dot Data :		
10 0p 3F#			Dot Data d63		
(p: Page#	p=1: Page1, p=2: Page3, p=3: Page5, p=4: Page7, p=5: Page9)				
10 0p 40	00 00 40	00–1F	Displayed		
			Dot Data d00	00–31	--
10 0p 41#			Dot Data d01		
10 0p 42#			Dot Data d02		
10 0p :			Dot Data :		
10 0p 7F#			Dot Data d63		
(p: Page#	p=1: Page2, p=2: Page4, p=3: Page6, p=4: Page8, p=5: Page10)				

* *When this message is displayed, screen data (16 x 16 dot) corresponding to the bit pattern of the Displayed Dot Data will be stored in this unit internal memory. The correspondence between data and dots is given below. The screen data which is stored can be displayed by transmitting a message for address 10 20 00.*
* *Only in the case of Page 1, the screen data will be temporarily displayed immediately after this message is received.*

```
bit     4 3 2 1 0     4 3 2 1 0     4 3 2 1 0     4
      [ * * d00 * * ] [ * * d16 * * ] [ * * d32 * * ] [d48]
      [ * * d01 * * ] [ * * d17 * * ] [ * * d33 * * ] [d49]
      [ * * d02 * * ] [ * * d18 * * ] [ * * d34 * * ] [d50]
      [ * * d03 * * ] [ * * d19 * * ] [ * * d35 * * ] [d51]
      [ * * d04 * * ] [ * * d20 * * ] [ * * d36 * * ] [d52]
      [ * * d05 * * ] [ * * d21 * * ] [ * * d37 * * ] [d53]
      [ * * d06 * * ] [ * * d22 * * ] [ * * d38 * * ] [d54]
      [ * * d07 * * ] [ * * d23 * * ] [ * * d39 * * ] [d55]
      [ * * d08 * * ] [ * * d24 * * ] [ * * d40 * * ] [d56]
      [ * * d09 * * ] [ * * d25 * * ] [ * * d41 * * ] [d57]
      [ * * d10 * * ] [ * * d26 * * ] [ * * d42 * * ] [d58]
      [ * * d11 * * ] [ * * d27 * * ] [ * * d43 * * ] [d59]
      [ * * d12 * * ] [ * * d28 * * ] [ * * d44 * * ] [d60]
      [ * * d13 * * ] [ * * d29 * * ] [ * * d45 * * ] [d61]
      [ * * d14 * * ] [ * * d30 * * ] [ * * d46 * * ] [d62]
      [ * * d15 * * ] [ * * d31 * * ] [ * * d47 * * ] [d63]
        1 2 3 4 5     6 7 8 9 10    11 12 13 14 15    16
```

* *For example, [* * d00 * *] indicates the five dots in the upper left of the display.*
* *The bit pattern of bits 4–0 (lower 5 bits) of the data byte turns the dots on/off. However in the case of d48–d63, only bit 4 turns the dot on/off.*

```
d00: 0--*****
d01: 0--*****
|
d47: 0--*****
d48: 0--*----
|
d63: 0--*----
```

*: dot is unlit for 0, lit for 1
-: dot display is not affected whether this is 0 or 1

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)
10 20 00	00 00 01	00–0A	Display Page	00: Bar Display	--
				01: Page1	
				:	
				0A: Page10	--

* *When this message is received, the display (page) specified by Display Page (address 10 20 00) will be displayed for the duration of the time specified by the following Display Time (address 10 20 01).*

10 20 01	00 00 01	00–0F	Display Time	0–7.2 [sec]	06 (2.86 [sec])

● System Parameters [88]

Parameters affecting the entire unit, such as how the two MIDI IN connectors will function, are called System Parameters.

<MODEL ID = 42H>

Address (H)	Size (H)	Data (H)	Parameter	Description	Default (H)	Description
00 00 7F	00 00 01	00–01	SYSTEM MODE SET [88]	00: MODE-1 (Single Module mode) 01: MODE-2 (Double Module mode) (Rx. only)	00: MODE1	

* *Refer to "System Exclusive messages related to Mode settings" (p.199).*

			CHANNEL MSG RX PORT [88]			
00 01 00	00 00 01	00–01	BLOCK00	PORT A–B	00	PORT A
:	:	:	:	:	:	:
00 01 0F	00 00 01	00–01	BLOCK0F	PORT A–B	00	PORT A
00 01 10	00 00 01	00–01	BLOCK10	PORT A–B	01	PORT B
:	:	:	:	:	:	:
00 01 1F	00 00 01	00–01	BLOCK1F	PORT A–B	01	PORT B

* *You can modify the receiving MIDI port at which channel messages will be received for each BLOCK. We suggest that normally you use PORT A for BLOCK01–0F, and PORT B for BLOCK10–1F. (In this case there is no need to change the setting.)*

* *Refer to p.205 for details of each BLOCK.*

● Patch parameters

❍ Patch Common parameters

In MODE-1 (Single Module mode) this unit functions as a single sound module with 32 Parts. In MODE-2 (Double Module mode) it functions as two sound modules with 16 Parts each. The parameters common to all Parts in each module are called Patch Common parameters.

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 00 00	00 00 04	0018–07E8	MASTER TUNE	-100.0– +100.0 [cent] Use nibblized data.	00 04 00 00	0 [cent]
40 00 01#						
40 00 02#						
40 00 03#						

* *Refer to Section 5. Supplementary Material, "About tuning" (p.215).*

40 00 04	00 00 01	00–7F	MASTER VOLUME (= F0 7F 7F 04 01 00 vv F7)	0–127	7F	127
40 00 05	00 00 01	28–58	MASTER KEY-SHIFT	-24– +24 [semitones]	40	0 [semitones]
40 00 06	00 00 01	01–7F	MASTER PAN	-63 (LEFT)– +63 (RIGHT)	40	0 (CENTER)
40 00 7F	00 00 01	00	MODE SET	00 = GS Reset (Rx. only)		

* *Refer to "System Exclusive messages related to Mode settings" (p.199).*

40 01 00	00 00 10	20–7F	PATCH NAME	16 ASCII Characters		
40 01 : #						
40 01 0F#						
40 01 30	00 00 01	00–07	REVERB MACRO	00: Room 1 01: Room 2 02: Room 3 03: Hall 1 04: Hall 2 05: Plate 06: Delay 07: Panning Delay	04	Hall 2
40 01 31	00 00 01	00–07	REVERB CHARACTER	0–7	04	4
40 01 32	00 00 01	00–07	REVERB PRE-LPF	0–7	00	0
40 01 33	00 00 01	00–7F	REVERB LEVEL	0–127	40	64
40 01 34	00 00 01	00–7F	REVERB TIME	0–127	40	64
40 01 35	00 00 01	00–7F	REVERB DELAY FEEDBACK	0–127	00	0
40 01 37	00 00 01	00–7F	REVERB PREDELAY TIME [88]	0–127 [ms]	00	0 [ms]

* *REVERB MACRO is a macro parameter that allows global setting of reverb parameters. When you select the reverb type with REVERB MACRO, each reverb parameter will be set to the most suitable value.*

* *REVERB CHARACTER is a parameter that changes the reverb algorithm. The value of REVERB CHARACTER corresponds to the REVERB MACRO of the same number.*

* *In MODE-2 (Double Module mode), REVERB PREDELAY TIME cannot be used.*

40 01 38	00 00 01	00–07	CHORUS MACRO	00: Chorus 1 01: Chorus 2 02: Chorus 3 03: Chorus 4 04: Feedback Chorus 05: Flanger 06: Short Delay 07: Short Delay (FB)	02	Chorus 3
40 01 39	00 00 01	00–07	CHORUS PRE-LPF	0–7	00	0
40 01 3A	00 00 01	00–7F	CHORUS LEVEL	0–127	40	64
40 01 3B	00 00 01	00–7F	CHORUS FEEDBACK	0–127	08	8
40 01 3C	00 00 01	00–7F	CHORUS DELAY	0–127	50	80
40 01 3D	00 00 01	00–7F	CHORUS RATE	0–127	03	3
40 01 3E	00 00 01	00–7F	CHORUS DEPTH	0–127	13	19
40 01 3F	00 00 01	00–7F	CHORUS SEND LEVEL TO REVERB	0–127	00	0
40 01 40	00 00 01	00–7F	CHORUS SEND LEVEL TO DELAY [88]	0–127	00	0

* *CHORUS MACRO is a macro parameter that allows global setting of chorus parameters. When you use CHORUS MACRO to select the chorus type, each chorus parameter will be set to the most suitable value.*

* *In MODE-2 (Double Module mode), CHORUS SEND LEVEL TO DELAY cannot be used.*

Address (H)	Size (H)	Data (H)	Parameter	Description	Default (H)	Description
40 01 50	00 00 01	00–09	DELAY MACRO [88]	00: Delay 1 01: Delay 2 02: Delay 3 03: Delay 4 04: Pan Delay 1 05: Pan Delay 2 06: Pan Delay 3 07: Pan Delay 4 08: Delay to Reverb 09: Pan Repeat	00	Delay1
40 01 51	00 00 01	00–07	DELAY PRE-LPF [88]	0–7	00	0
40 01 52	00 00 01	01–73	DELAY TIME CENTER [88]	0.1ms–1sec	61	340 [ms]
40 01 53	00 00 01	01–78	DELAY TIME RATIO LEFT [88]	4–500%	01	4
40 01 54	00 00 01	01–78	DELAY TIME RATIO RIGHT [88]	4–500%	01	4
40 01 55	00 00 01	00–7F	DELAY LEVEL CENTER [88]	0–127	7F	127
40 01 56	00 00 01	00–7F	DELAY LEVEL LEFT [88]	0–127	00	0
40 01 57	00 00 01	00–7F	DELAY LEVEL RIGHT [88]	0–127	00	0
40 01 58	00 00 01	00–7F	DELAY LEVEL [88]	0–127	40	64
40 01 59	00 00 01	00–7F	DELAY FEEDBACK [88]	-64– +63	50	+16
40 01 5A	00 00 01	00–7F	DELAY SEND LEVEL TO REVERB [88]	0–127	00	0

* *DELAY MACRO is a macro parameter that allows global setting of delay parameters. When you use DELAY MACRO to select the delay type, each delay parameter will be set to the most suitable value.*
* *The relation between the DELAY TIME CENTER value and the actual delay time is as follows.*

DELAY TIME	Time Range [ms]	Resolution [ms]
01–14	0.1–2.0	0.1
14–23	2.0–5.0	0.2
23–2D	5.0–10.0	0.5
2D–37	10.0–20.0	1.0
37–46	20.0–50.0	2.0
46–50	50.0–100.0	5.0
50–5A	100.0–200.0	10.0
5A–69	200.0–500.0	20.0
69–73	500.0–1000.0	50.0

* *DELAY TIME RATIO LEFT and DELAY TIME RATIO RIGHT specify the ratio in relation to DELAY TIME CENTER. The resolution is 100/24 (%).*
* *In MODE-2 (Double Module mode), Delay cannot be used.*

Address (H)	Size (H)	Data (H)	Parameter	Description	Default (H)	Description
40 02 00	00 00 01	00–01	EQ LOW FREQ. [88]	200 Hz, 400 Hz	00	200 [Hz]
40 02 01	00 00 01	34–4C	EQ LOW GAIN [88]	-12– +12 dB	40	0
40 02 02	00 00 01	00–01	EQ HIGH FREQ. [88]	3 kHz, 6 kHz	00	3 [kHz]
40 02 03	00 00 01	34–4C	EQ HIGH GAIN [88]	-12– +12 dB	40	0

* *In MODE-2 (Double Module mode), EQ (equalizer) cannot be used.*

40 03 00	00 00 02	00–7F	EFX TYPE [Pro]	00	00	00 Thru
40 03 01#						
40 03 03	00 00 01	00–7F	EFX PARAMETER 1 [Pro]			
40 03 04	00 00 01	00–7F	EFX PARAMETER 2 [Pro]			
40 03 05	00 00 01	00–7F	EFX PARAMETER 3 [Pro]			
40 03 06	00 00 01	00–7F	EFX PARAMETER 4 [Pro]			
40 03 07	00 00 01	00–7F	EFX PARAMETER 5 [Pro]			
40 03 08	00 00 01	00–7F	EFX PARAMETER 6 [Pro]			
40 03 09	00 00 01	00–7F	EFX PARAMETER 7 [Pro]			
40 03 0A	00 00 01	00–7F	EFX PARAMETER 8 [Pro]			
40 03 0B	00 00 01	00–7F	EFX PARAMETER 9 [Pro]			
40 03 0C	00 00 01	00–7F	EFX PARAMETER 10 [Pro]			
40 03 0D	00 00 01	00–7F	EFX PARAMETER 11 [Pro]			
40 03 0E	00 00 01	00–7F	EFX PARAMETER 12 [Pro]			
40 03 0F	00 00 01	00–7F	EFX PARAMETER 13 [Pro]			
40 03 10	00 00 01	00–7F	EFX PARAMETER 14 [Pro]			
40 03 11	00 00 01	00–7F	EFX PARAMETER 15 [Pro]			
40 03 12	00 00 01	00–7F	EFX PARAMETER 16 [Pro]			
40 03 13	00 00 01	00–7F	EFX PARAMETER 17 [Pro]			
40 03 14	00 00 01	00–7F	EFX PARAMETER 18 [Pro]			
40 03 15	00 00 01	00–7F	EFX PARAMETER 19 [Pro]			
40 03 16	00 00 01	00–7F	EFX PARAMETER 20 [Pro]			

* *Reading EFX TYPE and EFX PARAMETER please refer to p.62, 65.*

Address (H)	Size (H)	Data (H)	Parameter	Description	Default (H)	Description
40 03 17	00 00 01	00–7F	EFX SEND LEVEL TO REVERB [Pro]	0–127	28	40
40 03 18	00 00 01	00–7F	EFX SEND LEVEL TO CHORUS [Pro]	0–127	00	0
40 03 19	00 00 01	00–7F	EFX SEND LEVEL TO DELAY [Pro]	0–127	00	0
40 03 1B	00 00 01	00–7F	EFX CONTROL SOURCE1 [Pro]	Off, CC1–95, CAf, Bend	00	Off
40 03 1C	00 00 01	00–7F	EFX CONTROL DEPTH1 [Pro]	-100–0– +100 [%]	40	0 [%]
40 03 1D	00 00 01	00–7F	EFX CONTROL SOURCE2 [Pro]	Off, CC1–95, CAf, Bend	00	Off
40 03 1E	00 00 01	00–7F	EFX CONTROL DEPTH2 [Pro]	-100–0– +100 [%]	40	0 [%]
40 03 1F	00 00 01	00–7F	EFX SEND EQ SWITCH [Pro]	OFF/ON	01	ON

* *EFX TYPE is a macro parameter which sets various Insertion Effect parameters as a group. When you use EFX TYPE to select an Insertion effect type, the various effect parameters will be set to appropriate values.*
* *In MODE-2 (Double Module mode), EFX SEND TO DELAY and EFX SEND EQ SWITCH cannot be used.*
* *In the case of Mode 2 (Double Module mode), the Insertion effect cannot be used for Parts with a CHANNEL MSG RX PORT (p.203) setting of PORT B.*

❍ Patch Part parameters

The SK-88Pro has 16 Parts in Group A and 16 Parts in Group B. Parameters that can be set individually for each Part are called Patch Part parameters. If you use Exclusive messages to set Patch Part parameters, specify the address by Block number rather than Part number (normally the same number as the MIDI channel). The Block number can be specified as one of 16 blocks, from 0H to FH.
To specify a Part of Group A, use the Block number corresponding to the Part and specify an address of 40 ** ** via PORT A (normally MIDI IN A).
To specify a Part of Group B, use the Block number corresponding to the Part and specify an address of 40 ** ** via PORT B (normally MIDI IN B).
To specify a Part of either Group A or B from a single PORT, specify an address of 40 ** ** for Group A Parts or an address of 50 ** ** for Group B Parts when using PORT A.
Conversely, to specify a Part of either Group A or B from PORT B, specify an address of 50 ** ** for Group A Parts or an address of 40 ** ** for Group B Parts. In other words, when specifying Parts of the opposite side as the PORT being used, use addresses 50 ** **.

The relation between Part number and Block number is as follows.

x...BLOCK NUMBER (0–F),	Part 1	(default MIDIch = 1)	x = 1
	Part 2	(default MIDIch = 2)	x = 2
	:	:	:
	Part 9	(default MIDIch = 9)	x = 9
	Part10	(default MIDIch =10)	x = 0
	Part11	(default MIDIch =11)	x = A
	Part12	(default MIDIch =12)	x = B
	:	:	:
	Part16	(default MIDIch =16)	x = F

In the following map, the Controller numbers of the Control Changes are indicated as CC#.

Address (H)	Size (H)	Data (H)	Parameter	Description	Default Value (H)	Description
40 1x 00	00 00 02	00–7F	TONE NUMBER	CC#00 VALUE 0–127	00	0
40 1x 01#		00–7F		P.C. VALUE 1–128	00	1
40 1x 02	00 00 01	00–10	Rx. CHANNEL	1–16, OFF (Same as the Part number)		
40 1x 03	00 00 01	00–01	Rx. PITCH BEND	OFF/ON	01	ON
40 1x 04	00 00 01	00–01	Rx. CH PRESSURE (CAf)	OFF/ON	01	ON
40 1x 05	00 00 01	00–01	Rx. PROGRAM CHANGE	OFF/ON	01	ON
40 1x 06	00 00 01	00–01	Rx. CONTROL CHANGE	OFF/ON	01	ON
40 1x 07	00 00 01	00–01	Rx. POLY PRESSURE (PAf)	OFF/ON	01	ON
40 1x 08	00 00 01	00–01	Rx. NOTE MESSAGE	OFF/ON	01	ON
40 1x 09	00 00 01	00–01	Rx. RPN	OFF/ON	01	ON
40 1x 0A	00 00 01	00–01	Rx. NRPN	OFF/ON	00 (01*)	OFF (ON*)

* *When "Turn General MIDI System On" is received, Rx. NRPN will be set OFF. When "GS Reset" is received, it will be set ON.*

40 1x 0B	00 00 01	00–01	Rx. MODULATION	OFF/ON	01	ON
40 1x 0C	00 00 01	00–01	Rx. VOLUME	OFF/ON	01	ON
40 1x 0D	00 00 01	00–01	Rx. PANPOT	OFF/ON	01	ON
40 1x 0E	00 00 01	00–01	Rx. EXPRESSION	OFF/ON	01	ON
40 1x 0F	00 00 01	00–01	Rx. HOLD1	OFF/ON	01	ON
40 1x 10	00 00 01	00–01	Rx. PORTAMENTO	OFF/ON	01	ON
40 1x 11	00 00 01	00–01	Rx. SOSTENUTO	OFF/ON	01	ON
40 1x 12	00 00 01	00–01	Rx. SOFT	OFF/ON	01	ON
40 1x 13	00 00 01	00–01	MONO/POLY MODE (= CC# 126 01/CC# 127 00)	Mono/Poly	01	Poly
40 1x 14	00 00 01	00–02	ASSIGN MODE	0 = SINGLE	SC-88/Native MAP	
				1 = LIMITED-MULTI	01	LIMITED-MULTI
				2 = FULL-MULTI	SC-55 MAP	
					00 at x = 0	SINGLE (Drum Part)
					01 at x ≠ 0	LIMITED-MULTI (Normal Part)

* *ASSIGN MODE is the parameter that determines how voice assignment will be handled when sounds overlap on identical note numbers in the same channel (i.e., repeatedly struck notes). This is initialized to a mode suitable for each Part, so for general purposes there is no need to change this.*

40 1x 15	00 00 01	00–02	USE FOR RHYTHM PART	0 = OFF	00 at x ≠ 0	OFF (Normal Part)
				1 = MAP1	01 at x = 0	MAP1 (Drum Part)
				2 = MAP2		

* *This parameter sets the Drum Map of the Part used as the Drum Part. The SK-88Pro can simultaneously (in different Parts) use up to two Drum Maps (MAP1, MAP2). With the initial settings, Part10 (MIDI CH = 10, x = 0) is set to MAP1 (1), and other Parts are set to normal instrumental Parts (OFF(0)).*

40 1x 16	00 00 01	28–58	PITCH KEY SHIFT	-24– +24 [semitones]	40	0 [semitones]
40 1x 17	00 00 02	08–F8	PITCH OFFSET FINE	-12.0– +12.0 [Hz]	08 00	0 [Hz]
40 1x 18#				Use nibblized data.		

* *PITCH OFFSET FINE allows you to alter, by a specified frequency amount, the pitch at which notes will sound. This parameter differs from the conventional Fine Tuning (RPN #1) parameter in that the amount of frequency alteration (in Hertz) will be identical no matter which note is played. When a multiple number of Parts, each of which has been given a different setting for PITCH OFFSET FINE, are sounded by means of an identical note number, you can obtain a Celeste effect.*

40 1x 19	00 00 01	00–7F	PART LEVEL (= CC# 7)	0–127	64	100
40 1x 1A	00 00 01	00–7F	VELOCITY SENSE DEPTH	0–127	40	64
40 1x 1B	00 00 01	00–7F	VELOCITY SENSE OFFSET	0–127	40	64
40 1x 1C	00 00 01	00–7F	PART PANPOT (= CC# 10, except RANDOM)	-64 (RANDOM), -63 (LEFT)– +63 (RIGHT)	40	0 (CENTER)
40 1x 1D	00 00 01	00–7F	KEYBOARD RANGE LOW	(C-1)–(G9)	00	C-1
40 1x 1E	00 00 01	00–7F	KEYBOARD RANGE HIGH	(C-1)–(G9)	7F	G 9
40 1x 1F	00 00 01	00–5F	CC1 CONTROLLER NUMBER	0–95	10	16
40 1x 20	00 00 01	00–5F	CC2 CONTROLLER NUMBER	0–95	11	17

Address (H)	Size (H)	Data (H)	Parameter	Description	Default (H)	Description
40 1x 21	00 00 01	00–7F	CHORUS SEND LEVEL (= CC# 93)	0–127	00	0
40 1x 22	00 00 01	00–7F	REVERB SEND LEVEL (= CC# 91)	0–127	28	40
40 1x 23	00 00 01	00–01	Rx.BANK SELECT	OFF/ON	01 (00*)	ON (OFF*)

* *When "Turn General MIDI System On" is received, Rx.Bank Select will be set OFF. When "GS Reset" or "System Mode Set" is received, it will be set ON.*

40 1x 24	00 00 01	00–01	RX BANK SELECT LSB [88]	OFF/ON	01	ON

* *When RX BANK SELECT LSB = OFF, Bank Select LSB (Bn 20 ll) will be treated as 00H regardless of its value.*

40 1x 2A	00 00 02	00 00–40 00–7F 7F	PITCH FINE TUNE [88] (= RPN#1)	-100–0– +100 [cent]	40 00	0 [cent]
40 1x 2B#						
40 1x 2C	00 00 01	00–7F	DELAY SEND LEVEL [88] (= CC# 94)	0–127	00	0

* *In MODE-2 (Double Module mode), DELAY SEND LEVEL cannot be used.*

40 1x 30	00 00 01	00–7F	TONE MODIFY1 [88] Vibrato Rate (= NRPN# 8)	-64– +63	40	0
40 1x 31	00 00 01	00–7F	TONE MODIFY2 [88] Vibrato Depth (= NRPN# 9)	-64– +63	40	0
40 1x 32	00 00 01	00–7F	TONE MODIFY3 [88] TVF Cutoff Freq. (= NRPN# 32)	-64– +63	40	0
40 1x 33	00 00 01	00–7F	TONE MODIFY4 [88] TVF Resonance (= NRPN# 33)	-64– +63	40	0
40 1x 34	00 00 01	00–7F	TONE MODIFY5 [88] TVF&TVA Env.attack (= NRPN# 99)	-64– +63	40	0
40 1x 35	00 00 01	00–7F	TONE MODIFY6 [88] TVF&TVA Env.decay (= NRPN# 100)	-64– +63	40	0
40 1x 36	00 00 01	00–7F	TONE MODIFY7 [88] TVF&TVA Env.release (= NRPN# 102)	-64– +63	40	0
40 1x 37	00 00 01	00–7F	TONE MODIFY8 [88] Vibrato Delay (= NRPN# 10)	-64– +63	40	0
40 1x 40	00 00 0C	00–7F	SCALE TUNING C	-64– +63 [cent]	40	0 [cent]
40 1x 41#		00–7F	SCALE TUNING C#	-64– +63 [cent]	40	0 [cent]
40 1x 42#		00–7F	SCALE TUNING D	-64– +63 [cent]	40	0 [cent]
40 1x 43#		00–7F	SCALE TUNING D#	-64– +63 [cent]	40	0 [cent]
40 1x 44#		00–7F	SCALE TUNING E	-64– +63 [cent]	40	0 [cent]
40 1x 45#		00–7F	SCALE TUNING F	-64– +63 [cent]	40	0 [cent]
40 1x 46#		00–7F	SCALE TUNING F#	-64– +63 [cent]	40	0 [cent]
40 1x 47#		00–7F	SCALE TUNING G	-64– +63 [cent]	40	0 [cent]
40 1x 48#		00–7F	SCALE TUNING G#	-64– +63 [cent]	40	0 [cent]
40 1x 49#		00–7F	SCALE TUNING A	-64– +63 [cent]	40	0 [cent]
40 1x 4A#		00–7F	SCALE TUNING A#	-64– +63 [cent]	40	0 [cent]
40 1x 4B#		00–7F	SCALE TUNING B	-64– +63 [cent]	40	0 [cent]

* *SCALE TUNING is a function that allows fine adjustment to the pitch of each note in the octave. The pitch of each identically-named note in all octaves will change simultaneously. A setting of ±0 cent (40H) is equal temperament (p.215).*

40 2x 00	00 00 01	28–58	MOD PITCH CONTROL	-24– +24 [semitones]	40	0 [semitones]
40 2x 01	00 00 01	00–7F	MOD TVF CUTOFF CONTROL	-9600– +9600 [cent]	40	0 [cent]
40 2x 02	00 00 01	00–7F	MOD AMPLITUDE CONTROL	-100.0– +100.0 [%]	40	0 [%]
40 2x 03	00 00 01	00–7F	MOD LFO1 RATE CONTROL	-10.0– +10.0 [Hz]	40	0 [Hz]
40 2x 04	00 00 01	00–7F	MOD LFO1 PITCH DEPTH	0–600 [cent]	0A	10 [cent]
40 2x 05	00 00 01	00–7F	MOD LFO1 TVF DEPTH	0–2400 [cent]	00	0 [cent]
40 2x 06	00 00 01	00–7F	MOD LFO1 TVA DEPTH	0–100.0 [%]	00	0 [%]
40 2x 07	00 00 01	00–7F	MOD LFO2 RATE CONTROL	-10.0– +10.0 [Hz]	40	0 [Hz]
40 2x 08	00 00 01	00–7F	MOD LFO2 PITCH DEPTH	0–600 [cent]	00	0 [cent]
40 2x 09	00 00 01	00–7F	MOD LFO2 TVF DEPTH	0–2400 [cent]	00	0 [cent]
40 2x 0A	00 00 01	00–7F	MOD LFO2 TVA DEPTH	0–100.0 [%]	00	0 [%]
40 2x 10	00 00 01	40–58	BEND PITCH CONTROL	0–24 [semitones]	42	2 [semitones]
40 2x 11	00 00 01	00–7F	BEND TVF CUTOFF CONTROL	-9600– +9600 [cent]	40	0 [cent]
40 2x 12	00 00 01	00–7F	BEND AMPLITUDE CONTROL	-100.0– +100.0 [%]	40	0 [%]
40 2x 13	00 00 01	00–7F	BEND LFO1 RATE CONTROL	-10.0– +10.0 [Hz]	40	0 [Hz]
40 2x 14	00 00 01	00–7F	BEND LFO1 PITCH DEPTH	0–600 [cent]	00	0 [cent]
40 2x 15	00 00 01	00–7F	BEND LFO1 TVF DEPTH	0–2400 [cent]	00	0 [cent]
40 2x 16	00 00 01	00–7F	BEND LFO1 TVA DEPTH	0–100.0 [%]	00	0 [%]
40 2x 17	00 00 01	00–7F	BEND LFO2 RATE CONTROL	-10.0– +10.0 [Hz]	40	0 [Hz]
40 2x 18	00 00 01	00–7F	BEND LFO2 PITCH DEPTH	0–600 [cent]	00	0 [cent]
40 2x 19	00 00 01	00–7F	BEND LFO2 TVF DEPTH	0–2400 [cent]	00	0 [cent]
40 2x 1A	00 00 01	00–7F	BEND LFO2 TVA DEPTH	0–100.0 [%]	00	0 [%]
40 2x 20	00 00 01	28–58	CAf PITCH CONTROL	-24– +24 [semitones]	40	0 [semitones]
40 2x 21	00 00 01	00–7F	CAf TVF CUTOFF CONTROL	-9600– +9600 [cent]	40	0 [cent]
40 2x 22	00 00 01	00–7F	CAf AMPLITUDE CONTROL	-100.0– +100.0 [%]	40	0 [%]
40 2x 23	00 00 01	00–7F	CAf LFO1 RATE CONTROL	-10.0– +10.0 [Hz]	40	0 [Hz]
40 2x 24	00 00 01	00–7F	CAf LFO1 PITCH DEPTH	0–600 [cent]	00	0 [cent]
40 2x 25	00 00 01	00–7F	CAf LFO1 TVF DEPTH	0–2400 [cent]	00	0 [cent]
40 2x 26	00 00 01	00–7F	CAf LFO1 TVA DEPTH	0–100.0 [%]	00	0 [%]
40 2x 27	00 00 01	00–7F	CAf LFO2 RATE CONTROL	-10.0– +10.0 [Hz]	40	0 [Hz]
40 2x 28	00 00 01	00–7F	CAf LFO2 PITCH DEPTH	0–600 [cent]	00	0 [cent]
40 2x 29	00 00 01	00–7F	CAf LFO2 TVF DEPTH	0–2400 [cent]	00	0 [cent]
40 2x 2A	00 00 01	00–7F	CAf LFO2 TVA DEPTH	0–100.0 [%]	00	0 [%]

Address (H)	Size (H)	Data (H)	Parameter	Description	Default (H)	Description
40 2x 30	00 00 01	28–58	PAf PITCH CONTROL	-24– +24 [semitones]	40	0 [semitones]
40 2x 31	00 00 01	00–7F	PAf TVF CUTOFF CONTROL	-9600– +9600 [cent]	40	0 [cent]
40 2x 32	00 00 01	00–7F	PAf AMPLITUDE CONTROL	-100.0– +100.0 [%]	40	0 [%]
40 2x 33	00 00 01	00–7F	PAf LFO1 RATE CONTROL	-10.0– +10.0 [Hz]	40	0 [Hz]
40 2x 34	00 00 01	00–7F	PAf LFO1 PITCH DEPTH	0–600 [cent]	00	0 [cent]
40 2x 35	00 00 01	00–7F	PAf LFO1 TVF DEPTH	0–2400 [cent]	00	0 [cent]
40 2x 36	00 00 01	00–7F	PAf LFO1 TVA DEPTH	0–100.0 [%]	00	0 [%]
40 2x 37	00 00 01	00–7F	PAf LFO2 RATE CONTROL	-10.0– +10.0 [Hz]	40	0 [Hz]
40 2x 38	00 00 01	00–7F	PAf LFO2 PITCH DEPTH	0–600 [cent]	00	0 [cent]
40 2x 39	00 00 01	00–7F	PAf LFO2 TVF DEPTH	0–2400 [cent]	00	0 [cent]
40 2x 3A	00 00 01	00–7F	PAf LFO2 TVA DEPTH	0–100.0 [%]	00	0 [%]
40 2x 40	00 00 01	28–58	CC1 PITCH CONTROL	-24– +24 [semitones]	40	0 [semitones]
40 2x 41	00 00 01	00–7F	CC1 TVF CUTOFF CONTROL	-9600– +9600 [cent]	40	0 [cent]
40 2x 42	00 00 01	00–7F	CC1 AMPLITUDE CONTROL	-100.0– +100.0 [%]	40	0 [%]
40 2x 43	00 00 01	00–7F	CC1 LFO1 RATE CONTROL	-10.0– +10.0 [Hz]	40	0 [Hz]
40 2x 44	00 00 01	00–7F	CC1 LFO1 PITCH DEPTH	0–600 [cent]	00	0 [cent]
40 2x 45	00 00 01	00–7F	CC1 LFO1 TVF DEPTH	0–2400 [cent]	00	0 [cent]
40 2x 46	00 00 01	00–7F	CC1 LFO1 TVA DEPTH	0–100.0 [%]	00	0 [%]
40 2x 47	00 00 01	00–7F	CC1 LFO2 RATE CONTROL	-10.0– +10.0 [Hz]	40	0 [Hz]
40 2x 48	00 00 01	00–7F	CC1 LFO2 PITCH DEPTH	0–600 [cent]	00	0 [cent]
40 2x 49	00 00 01	00–7F	CC1 LFO2 TVF DEPTH	0–2400 [cent]	00	0 [cent]
40 2x 4A	00 00 01	00–7F	CC1 LFO2 TVA DEPTH	0–100.0 [%]	00	0 [%]
40 2x 50	00 00 01	28–58	CC2 PITCH CONTROL	-24– +24 [semitones]	40	0 [semitones]
40 2x 51	00 00 01	00–7F	CC2 TVF CUTOFF CONTROL	-9600– +9600 [cent]	40	0 [cent]
40 2x 52	00 00 01	00–7F	CC2 AMPLITUDE CONTROL	-100.0– +100.0 [%]	40	0 [%]
40 2x 53	00 00 01	00–7F	CC2 LFO1 RATE CONTROL	-10.0– +10.0 [Hz]	40	0 [Hz]
40 2x 54	00 00 01	00–7F	CC2 LFO1 PITCH DEPTH	0–600 [cent]	00	0 [cent]
40 2x 55	00 00 01	00–7F	CC2 LFO1 TVF DEPTH	0–2400 [cent]	00	0 [cent]
40 2x 56	00 00 01	00–7F	CC2 LFO1 TVA DEPTH	0–100.0 [%]	00	0 [%]
40 2x 57	00 00 01	00–7F	CC2 LFO2 RATE CONTROL	-10.0– +10.0 [Hz]	40	0 [Hz]
40 2x 58	00 00 01	00–7F	CC2 LFO2 PITCH DEPTH	0–600 [cent]	00	0 [cent]
40 2x 59	00 00 01	00–7F	CC2 LFO2 TVF DEPTH	0–2400 [cent]	00	0 [cent]
40 2x 5A	00 00 01	00–7F	CC2 LFO2 TVA DEPTH	0–100.0 [%]	00	0 [%]

** You may not always be able to obtain the desired effect by modifying the LFO 1 and LFO 2 parameters.*

40 4x 00	00 00 01	00–03	TONE MAP NUMBER [Pro] (= CC#32: Bank number LSB)	MAP 0–3 00: SELECTED 01: SC-55 MAP 02: SC-88 MAP 03: Native MAP	00	SELECTED

** When "GS Reset" is received, this will be 00: SELECTED.*

40 4x 01	00 00 01	01–03	TONE MAP-0 NUMBER [Pro]	01: SC-55 MAP 02: SC-88 MAP 03: Native MAP	(03)	

** When TONE MAP NUMBER is 00, this specifies the MAP. This setting will not be reset when the power is turned on or when "GS Reset," "Turn General MIDI System On" or "System Mode Set" is received.*

40 4x 20	00 00 01	00–01	EQ ON/OFF [88]	OFF/ON	01	ON

** This turns the EQ (equalizer) on/off. In MODE-2 (Double Module mode) it cannot be used.*

40 4x 21	00 00 01	00–03	OUTPUT ASSIGN [Pro]	00: OUTPUT-1 01: OUTPUT-2 02: OUTPUT-2L 03: OUTPUT-2R	00	OUTPUT-1
40 4x 22	00 00 01	00–01	PART EFX ASSIGN [Pro]	00: BYPASS 01: EFX	00	BYPASS

● Drum setup parameters

m: Map number (0 = MAP1, 1 = MAP2)
rr: Drum Part note number (00H–7FH: 0–127)

Address (H)	Size (H)	Data (H)	Parameter	Description
41 m0 00 I # 41 m0 0B#	00 00 0C	20–7F	DRUM MAP NAME	ASCII Character
41 m1 rr	00 00 01	00–7F	PLAY NOTE NUMBER	Pitch coarse
41 m2 rr	00 00 01	00–7F	LEVEL (= NRPN# 26)	TVA level
41 m3 rr	00 00 01	00–7F	ASSIGN GROUP NUMBER	Non, 1–127
41 m4 rr	00 00 01	00–7F	PANPOT (= NRPN# 28, except RANDOM)	-64 (RANDOM), -63 (LEFT)– +63 (RIGHT)
41 m5 rr	00 00 01	00–7F	REVERB SEND LEVEL (= NRPN# 29)	0.0–1.0 Multiplicand of the Part reverb level
41 m6 rr	00 00 01	00–7F	CHORUS SEND LEVEL (= NRPN# 30)	0.0–1.0 Multiplicand of the Part chorus level
41 m7 rr	00 00 01	00–01	Rx. NOTE OFF	OFF/ON
41 m8 rr	00 00 01	00–01	Rx. NOTE ON	OFF/ON
41 m9 rr	00 00 01	00–7F	DELAY SEND LEVEL [88] (= NRPN# 31)	0.0–1.0 Multiplicand of the Part delay level

** When the Drum Set is changed, DRUM SETUP PARAMETER values will all be initialized.*

** It is not possible to simultaneously use both Chorus Send Level and Delay Send Level for a single Drum Instrument.*

● User Instrument

You can modify the parameters of this unit sound to your taste, and save your new settings in Variation numbers 64 or 65 of the Native map/SC-88 map (p.114). A sound saved in this way is called a User Instrument. You can save 256 different sounds in this way.
The parameters you can set are Vibrato, Filter and Envelope.

b: Bank number (0H = GS Variation number 64, 1H = GS Variation number 65)
pp: Program number (00–7F: 1–128)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default (H)	Description
20 b0 pp	00 00 01	01–03	SOURCE TONE# (MAP) [88]	--		
20 b1 pp	00 00 01	00–7F	(CC#00: Bank number MSB) [88]	--		
20 b2 pp	00 00 01	00–7F	(PG#: Program number) [88]	--		
20 b3 pp	00 00 01	00–7F	USER INST MODIFY1-2 [88] Vibrato Rate	-64– +63	40	0
20 b4 pp	00 00 01	00–7F	USER INST MODIFY2-2 [88] Vibrato Depth	-64– +63	40	0
20 b5 pp	00 00 01	00–7F	USER INST MODIFY3-2 [88] TVF Cutoff Freq	-64– +63	40	0
20 b6 pp	00 00 01	00–7F	USER INST MODIFY4-2 [88] TVF Resonance	-64– +63	40	0
20 b7 pp	00 00 01	00–7F	USER INST MODIFY5-2 [88] TVF&TVA Env.attack	-64– +63	40	0
20 b8 pp	00 00 01	00–7F	USER INST MODIFY6-2 [88] TVF&TVA Env.decay	-64– +63	40	0
20 b9 pp	00 00 01	00–7F	USER INST MODIFY7-2 [88] TVF&TVA Env.release	-64– +63	40	0
20 bA pp	00 00 01	00–7F	USER INST MODIFY8-2 [88] Vibrato Delay	-64– +63	40	0

● User Drum Set

You can modify Drum Instrument parameters to your liking, and save this data as a Drum Set. A Drum Set saved in this way is called a User Drum Set. You can save up to two Drum Sets, and since each set contains 128 instrumental sounds, this provides a total of 256 instrumental sounds (Drum Instruments). You can also give each User Drum Set a name of your choice. User Drum Sets are stored in Drum Set numbers 65 and 66 of the Native map/SC-88 map.

d: Drum Set number (0H = User Drum Set number 65, 1H = User Drum Set number 66)
rr: Drum Part note number (00–7F)

Address (H)	Size (H)	Data (H)	Parameter	Description
21 d0 00 : 21 d0 0B#	00 00 0C	20–7F	USER DRUM SET NAME [88] (ASCII 12 characters)	32–127
21 d1 rr	00 00 01	00–7F	PLAY NOTE [88]	0–127
21 d2 rr	00 00 01	00–7F	LEVEL [88]	0–127
21 d3 rr	00 00 01	00–7F	ASSIGN GROUP [88]	0–127
21 d4 rr	00 00 01	00–7F	PAN [88]	0–127
21 d5 rr	00 00 01	00–7F	REVERB SEND LEVEL [88]	0–127
21 d6 rr	00 00 01	00–7F	CHORUS SEND LEVEL [88]	0–127
21 d7 rr	00 00 01	00–01	RX NOTE OFF [88]	OFF/ON
21 d8 rr	00 00 01	00–01	RX NOTE ON [88]	OFF/ON
21 d9 rr	00 00 01	00–7F	DELAY SEND LEVEL [88]	0–127
21 dA rr	00 00 01	01–03	SOURCE DRUM SET# (MAP) [88]	1–3
21 dB rr	00 00 01	00–7F	(PG#: Program number) [88]	0–127
21 dC rr	00 00 01	00–7F	SOURCE NOTE NUMBER [88]	0–127

● User Effect

You can modify the Insertion Effect parameters as desired and store them as an effect type. Effect types that are stored in this way are referred to as User Effects. 64 different effect types can be stored. These are stored in effect type numbers 40 00H through 40 3FH.

pp: LSB number of EFX TYPE (00–3F: 1–64)

Address (H)	Size (H)	Data (H)	Parameter
22 00 pp	00 00 02	--	SOURCE EFX TYPE [Pro]
22 01 pp#			
22 03 pp	00 00 01	00–7F	EFX PARAMETER 1 [Pro]
22 04 pp	00 00 01	00–7F	EFX PARAMETER 2 [Pro]
22 05 pp	00 00 01	00–7F	EFX PARAMETER 3 [Pro]
22 06 pp	00 00 01	00–7F	EFX PARAMETER 4 [Pro]
22 07 pp	00 00 01	00–7F	EFX PARAMETER 5 [Pro]
22 08 pp	00 00 01	00–7F	EFX PARAMETER 6 [Pro]
22 09 pp	00 00 01	00–7F	EFX PARAMETER 7 [Pro]
22 0A pp	00 00 01	00–7F	EFX PARAMETER 8 [Pro]
22 0B pp	00 00 01	00–7F	EFX PARAMETER 9 [Pro]
22 0C pp	00 00 01	00–7F	EFX PARAMETER 10 [Pro]
22 0D pp	00 00 01	00–7F	EFX PARAMETER 11 [Pro]
22 0E pp	00 00 01	00–7F	EFX PARAMETER 12 [Pro]
22 0F pp	00 00 01	00–7F	EFX PARAMETER 13 [Pro]
22 10 pp	00 00 01	00–7F	EFX PARAMETER 14 [Pro]
22 11 pp	00 00 01	00–7F	EFX PARAMETER 15 [Pro]
22 12 pp	00 00 01	00–7F	EFX PARAMETER 16 [Pro]
22 13 pp	00 00 01	00–7F	EFX PARAMETER 17 [Pro]
22 14 pp	00 00 01	00–7F	EFX PARAMETER 18 [Pro]
22 15 pp	00 00 01	00–7F	EFX PARAMETER 19 [Pro]
22 16 pp	00 00 01	00–7F	EFX PARAMETER 20 [Pro]

● User Patch

All Patch Common and Patch Part parameters (limited to Part 1 and Part 2) can be adjusted as desired, and saved as a Patch. Patches saved in this way are referred to as User Patches. 16 different User Patches can be saved.

❍ User Patch Common

pp: Patch number (00–0F: 1–16)

Address (H)	Size (H)	Data (H)	Parameter	Description
23 pp 00	00 00 04	0018–07E8	MASTER TUNE [Pro]	-100.0– +100.0 [cent]
23 pp 01#				
23 pp 02#				
23 pp 03#				
23 pp 04	00 00 01	00–7F	MASTER VOLUME [Pro]	0–127
23 pp 05	00 00 01	28–58	MASTER KEY-SHIFT [Pro]	-24– +24 [semitones]
23 pp 06	00 00 01	01–7F	MASTER PAN [Pro]	-63– +63
23 pp 08	00 00 10	20–7F	PATCH NAME [Pro]	16 ASCII Characters
23 pp : #				
23 pp 17#				
23 pp 18	00 00 01	00–07	REVERB MACRO [Pro]	Room 1–PanDelay
23 pp 19	00 00 01	00–07	REVERB CHARACTER [Pro]	0–7
23 pp 1A	00 00 01	00–07	REVERB PRE-LPF [Pro]	0–7
23 pp 1B	00 00 01	00–7F	REVERB LEVEL [Pro]	0–127
23 pp 1C	00 00 01	00–7F	REVERB TIME [Pro]	0–127
23 pp 1D	00 00 01	00–7F	REVERB DELAY FEEDBACK [Pro]	0–127
23 pp 1F	00 00 01	00–7F	REVERB PREDELAY TIME [Pro]	0–127 [ms]

* *In MODE-2 (Double Module mode), REVERB PREDELAY TIME cannot be used.*

23 pp 20	00 00 01	00–07	CHORUS MACRO [Pro]	Chorus 1–SDelayFB
23 pp 21	00 00 01	00–07	CHORUS PRE-LPF [Pro]	0–7
23 pp 22	00 00 01	00–7F	CHORUS LEVEL [Pro]	0–127
23 pp 23	00 00 01	00–7F	CHORUS FEEDBACK [Pro]	0–127
23 pp 24	00 00 01	00–7F	CHORUS DELAY [Pro]	0–127
23 pp 25	00 00 01	00–7F	CHORUS RATE [Pro]	0–127
23 pp 26	00 00 01	00–7F	CHORUS DEPTH [Pro]	0–127
23 pp 27	00 00 01	00–7F	CHORUS SEND LEVEL TO REVERB [Pro]	0–127
23 pp 28	00 00 01	00–7F	CHORUS SEND LEVEL TO DELAY [Pro]	0–127

* *In MODE-2 (Double Module mode), CHORUS SEND LEVEL TO DELAY cannot be used.*

23 pp 29	00 00 01	00–09	DELAY MACRO [Pro]	Delay 1–PanRepeat
23 pp 2A	00 00 01	00–07	DELAY PRE-LPF [Pro]	0–7
23 pp 2B	00 00 01	01–73	DELAY TIME CENTER [Pro]	0.1ms–1sec
23 pp 2C	00 00 01	01–78	DELAY TIME RATIO LEFT [Pro]	4–500%
23 pp 2D	00 00 01	01–78	DELAY TIME RATIO RIGHT [Pro]	4–500%
23 pp 2E	00 00 01	00–7F	DELAY LEVEL CENTER [Pro]	0–127
23 pp 2F	00 00 01	00–7F	DELAY LEVEL LEFT [Pro]	0–127
23 pp 30	00 00 01	00–7F	DELAY LEVEL RIGHT [Pro]	0–127
23 pp 31	00 00 01	00–7F	DELAY LEVEL [Pro]	0–127
23 pp 32	00 00 01	00–7F	DELAY FEEDBACK [Pro]	-64– +63
23 pp 33	00 00 01	00–7F	DELAY SEND LEVEL TO REVERB [Pro]	0–127

* *In MODE-2 (Double Module mode), DELAY cannot be used.*

23 pp 34	00 00 01	00–01	EQ LOW FREQ [Pro]	200 Hz, 400 Hz
23 pp 35	00 00 01	34–4C	EQ LOW GAIN [Pro]	-12– +12 dB
23 pp 36	00 00 01	00–01	EQ HIGH FREQ [Pro]	3 kHz, 6 kHz
23 pp 37	00 00 01	34–4C	EQ HIGH GAIN [Pro]	-12– +12 dB

* *In MODE-2 (Double Module mode), EQ cannot be used.*

23 pp 40	00 00 02	00–7F	EFX TYPE [Pro]
23 pp 41#			
23 pp 43	00 00 01	00–7F	EFX PARAMETER 1 [Pro]
23 pp 44	00 00 01	00–7F	EFX PARAMETER 2 [Pro]
23 pp 45	00 00 01	00–7F	EFX PARAMETER 3 [Pro]
23 pp 46	00 00 01	00–7F	EFX PARAMETER 4 [Pro]
23 pp 47	00 00 01	00–7F	EFX PARAMETER 5 [Pro]
23 pp 48	00 00 01	00–7F	EFX PARAMETER 6 [Pro]
23 pp 49	00 00 01	00–7F	EFX PARAMETER 7 [Pro]
23 pp 4A	00 00 01	00–7F	EFX PARAMETER 8 [Pro]
23 pp 4B	00 00 01	00–7F	EFX PARAMETER 9 [Pro]
23 pp 4C	00 00 01	00–7F	EFX PARAMETER 10 [Pro]
23 pp 4D	00 00 01	00–7F	EFX PARAMETER 11 [Pro]
23 pp 4E	00 00 01	00–7F	EFX PARAMETER 12 [Pro]
23 pp 4F	00 00 01	00–7F	EFX PARAMETER 13 [Pro]
23 pp 50	00 00 01	00–7F	EFX PARAMETER 14 [Pro]
23 pp 51	00 00 01	00–7F	EFX PARAMETER 15 [Pro]
23 pp 52	00 00 01	00–7F	EFX PARAMETER 16 [Pro]
23 pp 53	00 00 01	00–7F	EFX PARAMETER 17 [Pro]
23 pp 54	00 00 01	00–7F	EFX PARAMETER 18 [Pro]
23 pp 55	00 00 01	00–7F	EFX PARAMETER 19 [Pro]
23 pp 56	00 00 01	00–7F	EFX PARAMETER 20 [Pro]
23 pp 57	00 00 01	00–7F	EFX SEND LEVEL TO REVERB [Pro]
23 pp 58	00 00 01	00–7F	EFX SEND LEVEL TO CHORUS [Pro]
23 pp 59	00 00 01	00–7F	EFX SEND LEVEL TO DELAY [Pro]
23 pp 5B	00 00 01	00–7F	EFX CONTROL SOURCE1 [Pro]
23 pp 5C	00 00 01	00–7F	EFX CONTROL DEPTH1 [Pro]
23 pp 5D	00 00 01	00–7F	EFX CONTROL SOURCE2 [Pro]
23 pp 5E	00 00 01	00–7F	EFX CONTROL DEPTH2 [Pro]
23 pp 5F	00 00 01	00–7F	EFX SEND EQ SWITCH [Pro]

* *In the case of Mode 2 (Double Module mode), the Insertion effect cannot be used for Parts with a CHANNEL MSG RX PORT (p.203) setting of PORT B.*

❍ User Patch Part

2a: Patch Part number (Part1: a = 4, Part2: a = 6)
2b: Patch Part number (Part1: b = 5, Part2: b = 7)
pp: Patch number (00–0F: 1–16)

Address (H)	Size (H)	Data (H)	Parameter	Description
2a pp 00	00 00 02	00–7F	TONE NUMBER [Pro]	CC#00 Value: 0–127 Program Change Value: 1–128
2a pp 01#		00–7F		
2a pp 02	00 00 01	00–10	Rx. CHANNEL [Pro]	1–16, OFF
2a pp 03	00 00 01	00–01	Rx. PITCH BEND [Pro]	OFF/ON
2a pp 04	00 00 01	00–01	Rx. CH PRESSURE (CAf) [Pro]	OFF/ON
2a pp 05	00 00 01	00–01	Rx. PROGRAM CHANGE [Pro]	OFF/ON
2a pp 06	00 00 01	00–01	Rx. CONTROL CHANGE [Pro]	OFF/ON
2a pp 07	00 00 01	00–01	Rx. POLY PRESSURE (PAf) [Pro]	OFF/ON
2a pp 08	00 00 01	00–01	Rx. NOTE MESSAGE [Pro]	OFF/ON
2a pp 09	00 00 01	00–01	Rx. RPN [Pro]	OFF/ON
2a pp 0A	00 00 01	00–01	Rx. NRPN [Pro]	OFF/ON
2a pp 0B	00 00 01	00–01	Rx. MODULATION [Pro]	OFF/ON
2a pp 0C	00 00 01	00–01	Rx. VOLUME [Pro]	OFF/ON
2a pp 0D	00 00 01	00–01	Rx. PANPOT [Pro]	OFF/ON
2a pp 0E	00 00 01	00–01	Rx. EXPRESSION [Pro]	OFF/ON
2a pp 0F	00 00 01	00–01	Rx. HOLD1 [Pro]	OFF/ON
2a pp 10	00 00 01	00–01	Rx. PORTAMENTO [Pro]	OFF/ON
2a pp 11	00 00 01	00–01	Rx. SOSTENUTO [Pro]	OFF/ON
2a pp 12	00 00 01	00–01	Rx. SOFT [Pro]	OFF/ON
2a pp 13	00 00 01	00–01	MONO/POLY MODE [Pro]	Mono/Poly
2a pp 14	00 00 01	00–02	ASSIGN MODE [Pro]	SINGLE–FULL MULTI
2a pp 15	00 00 01	00–02	USE FOR RHYTHM PART [Pro]	OFF–MAP2
2a pp 16	00 00 01	28–58	PITCH KEY SHIFT [Pro]	-24– +24 [semitones]
2a pp 17	00 00 02	08–F8	PITCH OFFSET FINE [Pro]	-12.0– +12.0 [Hz]
2a pp 19	00 00 01	00–7F	PART LEVEL [Pro]	0–127
2a pp 1A	00 00 01	00–7F	VELOCITY SENSE DEPTH [Pro]	0–127
2a pp 1B	00 00 01	00–7F	VELOCITY SENSE OFFSET [Pro]	0–127
2a pp 1C	00 00 01	00–7F	PART PANPOT [Pro]	Random, L63–R63
2a pp 1D	00 00 01	00–7F	KEYBOARD RANGE LOW [Pro]	0–127
2a pp 1E	00 00 01	00–7F	KEYBOARD RANGE HIGH [Pro]	0–127
2a pp 1F	00 00 01	00–5F	CC1 CONTROLLER NUMBER [Pro]	0–95
2a pp 20	00 00 01	00–5F	CC2 CONTROLLER NUMBER [Pro]	0–95
2a pp 21	00 00 01	00–7F	CHORUS SEND LEVEL [Pro]	0–127
2a pp 22	00 00 01	00–7F	REVERB SEND LEVEL [Pro]	0–127
2a pp 23	00 00 01	00–01	Rx.BANK SELECT [Pro]	OFF/ON
2a pp 24	00 00 01	00–01	RX BANK SELECT LSB [Pro]	OFF/ON
2a pp 2A	00 00 02	00 00–7F 7F	PITCH FINE TUNE [Pro]	-100–0– +100 [cent]
2a pp 2B#				
2a pp 2C	00 00 01	00–7F	DELAY SEND LEVEL [Pro]	0–127

** In MODE-2 (Double Module mode), DELAY SEND LEVEL cannot be used.*

2a pp 30	00 00 01	00–7F	TONE MODIFY1 [Pro] Vibrato Rate	-64– +63
2a pp 31	00 00 01	00–7F	TONE MODIFY2 [Pro] Vibrato Depth	-64– +63
2a pp 32	00 00 01	00–7F	TONE MODIFY3 [Pro] TVF Cutoff Freq	-64– +63
2a pp 33	00 00 01	00–7F	TONE MODIFY4 [Pro] TVF Resonance	-64– +63
2a pp 34	00 00 01	00–7F	TONE MODIFY5 [Pro] TVF&TVA Env.attack	-64– +63
2a pp 35	00 00 01	00–7F	TONE MODIFY6 [Pro] TVF&TVA Env.decay	-64– +63
2a pp 36	00 00 01	00–7F	TONE MODIFY7 [Pro] TVF&TVA Env.release	-64– +63
2a pp 37	00 00 01	00–7F	TONE MODIFY8 [Pro] Vibrato Delay	-64– +63
2a pp 40	00 00 0C	00–7F	SCALE TUNING C [Pro]	-64– +63 [cent]
2a pp : #				
2a pp 4B#		00–7F	SCALE TUNING B [Pro]	-64– +63 [cent]
2a pp 50	00 00 01	28–58	MOD PITCH CONTROL [Pro]	-24– +24 [semitones]
2a pp 51	00 00 01	00–7F	MOD TVF CUTOFF CONTROL [Pro]	-9600– +9600 [cent]
2a pp 52	00 00 01	00–7F	MOD AMPLITUDE CONTROL [Pro]	-100.0– +100.0 [%]
2a pp 53	00 00 01	00–7F	MOD LFO1 RATE CONTROL [Pro]	-10.0– +10.0 [Hz]
2a pp 54	00 00 01	00–7F	MOD LFO1 PITCH DEPTH [Pro]	0–600 [cent]
2a pp 55	00 00 01	00–7F	MOD LFO1 TVF DEPTH [Pro]	0–2400 [cent]
2a pp 56	00 00 01	00–7F	MOD LFO1 TVA DEPTH [Pro]	0–100.0 [%]
2a pp 57	00 00 01	00–7F	MOD LFO2 RATE CONTROL [Pro]	-10.0– +10.0 [Hz]
2a pp 58	00 00 01	00–7F	MOD LFO2 PITCH DEPTH [Pro]	0–600 [cent]
2a pp 59	00 00 01	00–7F	MOD LFO2 TVF DEPTH [Pro]	0–2400 [cent]
2a pp 5A	00 00 01	00–7F	MOD LFO2 TVA DEPTH [Pro]	0–100.0 [%]

Address (H)	Size (H)	Data (H)	Parameter	Description
2a pp 60	00 00 01	40–58	BEND PITCH CONTROL [Pro]	0–24 [semitones]
2a pp 61	00 00 01	00–7F	BEND TVF CUTOFF CONTROL [Pro]	-9600– +9600 [cent]
2a pp 62	00 00 01	00–7F	BEND AMPLITUDE CONTROL [Pro]	-100.0– +100.0 [%]
2a pp 63	00 00 01	00–7F	BEND LFO1 RATE CONTROL [Pro]	-10.0– +10.0 [Hz]
2a pp 64	00 00 01	00–7F	BEND LFO1 PITCH DEPTH [Pro]	0–600 [cent]
2a pp 65	00 00 01	00–7F	BEND LFO1 TVF DEPTH [Pro]	0–2400 [cent]
2a pp 66	00 00 01	00–7F	BEND LFO1 TVA DEPTH [Pro]	0–100.0 [%]
2a pp 67	00 00 01	00–7F	BEND LFO2 RATE CONTROL [Pro]	-10.0– +10.0 [Hz]
2a pp 68	00 00 01	00–7F	BEND LFO2 PITCH DEPTH [Pro]	0–600 [cent]
2a pp 69	00 00 01	00–7F	BEND LFO2 TVF DEPTH [Pro]	0–2400 [cent]
2a pp 6A	00 00 01	00–7F	BEND LFO2 TVA DEPTH [Pro]	0–100.0 [%]
2a pp 70	00 00 01	28–58	CAf PITCH CONTROL [Pro]	-24– +24 [semitones]
2a pp 71	00 00 01	00–7F	CAf TVF CUTOFF CONTROL [Pro]	-9600– +9600 [cent]
2a pp 72	00 00 01	00–7F	CAf AMPLITUDE CONTROL [Pro]	-100.0– +100.0 [%]
2a pp 73	00 00 01	00–7F	CAf LFO1 RATE CONTROL [Pro]	-10.0– +10.0 [Hz]
2a pp 74	00 00 01	00–7F	CAf LFO1 PITCH DEPTH [Pro]	0–600 [cent]
2a pp 75	00 00 01	00–7F	CAf LFO1 TVF DEPTH [Pro]	0–2400 [cent]
2a pp 76	00 00 01	00–7F	CAf LFO1 TVA DEPTH [Pro]	0–100.0 [%]
2a pp 77	00 00 01	00–7F	CAf LFO2 RATE CONTROL [Pro]	-10.0– +10.0 [Hz]
2a pp 78	00 00 01	00–7F	CAf LFO2 PITCH DEPTH [Pro]	0–600 [cent]
2a pp 79	00 00 01	00–7F	CAf LFO2 TVF DEPTH [Pro]	0–2400 [cent]
2a pp 7A	00 00 01	00–7F	CAf LFO2 TVA DEPTH [Pro]	0–100.0 [%]
2b pp 00	00 00 01	28–58	PAf PITCH CONTROL [Pro]	-24– +24 [semitones]
2b pp 01	00 00 01	00–7F	PAf TVF CUTOFF CONTROL [Pro]	-9600– +9600 [cent]
2b pp 02	00 00 01	00–7F	PAf AMPLITUDE CONTROL [Pro]	-100.0– +100.0 [%]
2b pp 03	00 00 01	00–7F	PAf LFO1 RATE CONTROL [Pro]	-10.0– +10.0 [Hz]
2b pp 04	00 00 01	00–7F	PAf LFO1 PITCH DEPTH [Pro]	0–600 [cent]
2b pp 05	00 00 01	00–7F	PAf LFO1 TVF DEPTH [Pro]	0–2400 [cent]
2b pp 06	00 00 01	00–7F	PAf LFO1 TVA DEPTH [Pro]	0–100.0 [%]
2b pp 07	00 00 01	00–7F	PAf LFO2 RATE CONTROL [Pro]	-10.0– +10.0 [Hz]
2b pp 08	00 00 01	00–7F	PAf LFO2 PITCH DEPTH [Pro]	0–600 [cent]
2b pp 09	00 00 01	00–7F	PAf LFO2 TVF DEPTH [Pro]	0–2400 [cent]
2b pp 0A	00 00 01	00–7F	PAf LFO2 TVA DEPTH [Pro]	0–100.0 [%]
2b pp 10	00 00 01	28–58	CC1 PITCH CONTROL [Pro]	-24– +24 [semitones]
2b pp 11	00 00 01	00–7F	CC1 TVF CUTOFF CONTROL [Pro]	-9600– +9600 [cent]
2b pp 12	00 00 01	00–7F	CC1 AMPLITUDE CONTROL [Pro]	-100.0– +100.0 [%]
2b pp 13	00 00 01	00–7F	CC1 LFO1 RATE CONTROL [Pro]	-10.0– +10.0 [Hz]
2b pp 14	00 00 01	00–7F	CC1 LFO1 PITCH DEPTH [Pro]	0–600 [cent]
2b pp 15	00 00 01	00–7F	CC1 LFO1 TVF DEPTH [Pro]	0–2400 [cent]
2b pp 16	00 00 01	00–7F	CC1 LFO1 TVA DEPTH [Pro]	0–100.0 [%]
2b pp 17	00 00 01	00–7F	CC1 LFO2 RATE CONTROL [Pro]	-10.0– +10.0 [Hz]
2b pp 18	00 00 01	00–7F	CC1 LFO2 PITCH DEPTH [Pro]	0–600 [cent]
2b pp 19	00 00 01	00–7F	CC1 LFO2 TVF DEPTH [Pro]	0–2400 [cent]
2b pp 1A	00 00 01	00–7F	CC1 LFO2 TVA DEPTH [Pro]	0–100.0 [%]
2b pp 20	00 00 01	28–58	CC2 PITCH CONTROL [Pro]	-24– +24 [semitones]
2b pp 21	00 00 01	00–7F	CC2 TVF CUTOFF CONTROL [Pro]	-9600– +9600 [cent]
2b pp 22	00 00 01	00–7F	CC2 AMPLITUDE CONTROL [Pro]	-100.0– +100.0 [%]
2b pp 23	00 00 01	00–7F	CC2 LFO1 RATE CONTROL [Pro]	-10.0– +10.0 [Hz]
2b pp 24	00 00 01	00–7F	CC2 LFO1 PITCH DEPTH [Pro]	0–600 [cent]
2b pp 25	00 00 01	00–7F	CC2 LFO1 TVF DEPTH [Pro]	0–2400 [cent]
2b pp 26	00 00 01	00–7F	CC2 LFO1 TVA DEPTH [Pro]	0–100.0 [%]
2b pp 27	00 00 01	00–7F	CC2 LFO2 RATE CONTROL [Pro]	-10.0– +10.0 [Hz]
2b pp 28	00 00 01	00–7F	CC2 LFO2 PITCH DEPTH [Pro]	0–600 [cent]
2b pp 29	00 00 01	00–7F	CC2 LFO2 TVF DEPTH [Pro]	0–2400 [cent]
2b pp 2A	00 00 01	00–7F	CC2 LFO2 TVA DEPTH [Pro]	0–100.0 [%]
2b pp 30	00 00 01	00–03	TONE MAP NUMBER [Pro]	MAP 0–3
2b pp 31	00 00 01	01–03	TONE MAP-0 NUMBER [Pro]	SC-55 MAP–Native MAP
2b pp 33	00 00 01	00–01	EQ ON/OFF [Pro]	OFF/ON
2b pp 34	00 00 01	00–03	OUTPUT ASSIGN [Pro]	OUTPUT-1–OUTPUT-2R
2b pp 35	00 00 01	00–01	PART EFX ASSIGN [Pro]	BYPASS–EFX

Section 4. Bulk Dump

Bulk Dump allows you to transmit a large amount of data at once, and is convenient for storing settings for the entire unit on a computer or sequencer.
To make this unit perform a Bulk Dump transmission, send it a "Bulk Dump Request" message. Bulk Dump Request uses the Data Request 1 (RQ1) format, but unlike when transmitting individual parameters, the "Size" specified by the request message refers not to size of the data but rather specifies the contents of the data. For the data contents corresponding to each Size, refer to "Parameter Dump."
When this unit receives a Bulk Dump Request, it will transmit a Bulk Dump in the format given below.
This unit is also able to transmit a list of its internal sounds. This function can be used to display a list of sounds on a computer.

■ Parameter Dump

❍ Parameter Dump Request (receive only) [Pro]

This is a command that requests a set of parameter data, and uses "Data Request 1 (RQ1)" format. The Size specifies the requested data contents.

Address: 0C 00 00

Size:	
00 00 00: ALL	request a dump of all parameters
00 00 01: ALL 1	use this when not using USER TONE BANK or USER DRUM SET
00 00 02: ALL 2	use this when USER TONE BANK, USER DRUM SET and DRUM SETUP settings have not been modified
00 00 10: 16-part GS 1	use this when using only 16 Parts
00 00 11: 16-part GS 2	use this when using only 16 Parts, and DRUM SETUP settings have not been modified
00 01 00: USER TONE BANK (ALL)	request a dump of all USER TONE BANK data
00 01 40: USER TONE BANK #64	request a dump of USER TONE BANK #64 data (128 sounds)
00 01 41: USER TONE BANK #65	request a dump of USER TONE BANK #65 data (128 sounds)
00 02 00: USER DRUM SET (ALL)	request a dump of all USER DRUM SET data
00 02 40: USER DRUM SET #65	request a dump of USER DRUM SET #65 data
00 02 41: USER DRUM SET #66	request a dump of USER DRUM SET #66 data
00 03 00: USER EFX	request a dump of USER EFX data
00 04 00: USER PATCH	request a dump of USER PATCH data

Example) Dump request for all parameters: F0 41 DEV 42 11 0C 00 00 00 00 00 74 F7

Normally, using ALL (00 00 00) provides the greatest predictability, but the amount of data is very large, and transmission requires approximately 25 seconds. In order to reduce transmission time and data volume, we suggest that you request a dump only of the necessary data. Panel button operations allow you to transmit dumps of ALL, ALL 1, 16-part GS 1, 16-part GS 2, USER TONE BANK (ALL), USER DRUM SET (ALL), USER EFX, USER PATCH.

❍ Parameter Dump [Pro]

When a Parameter Dump Request is received, or when panel operations initiate a dump transmission, the following data will be transmitted in "Data Set 1 (DT1)" format.

Address	Description	Number of packets	ALL	16-part ALL1	16-part ALL2	GS1	GS2	USER TONE BANK ALL	USER TONE BANK #64	USER TONE BANK #65	USER DRUM SET ALL	USER DRUM SET #65	USER DRUM SET #66	USER EFX	USER PATCH
2A 00 00–2A 0F 7F	USER EFX #1–64	16	❍											❍	
2B 00 00–2B 5F 7F	USER PATCH #1–16	96	❍												❍
08 00 00–08 00 7F	SETUP	1	❍	❍	❍	❍	❍								
28 00 00–28 0A 7F	USER TONE BANK #64	11	❍					❍	❍						
28 10 00–28 1A 7F	USER TONE BANK #65	11	❍					❍		❍					
29 00 00–29 0B 0F	USER DRUM SET #65	12	❍								❍	❍			
29 10 00–29 1B 0F	USER DRUM SET #66	12	❍								❍		❍		
48 1D 10–48 26 0F	PATCH EXTENSION A	9	❍	❍	❍	❍	❍								
48 00 00–48 1D 0F	SYSTEM/PATCH A	30	❍	❍	❍	❍	❍								
49 00 00–49 1F 7F	DRUM SETUP A	32	❍	❍		❍									
58 1D 10–58 26 0F	PATCH EXTENSION B	9	❍	❍	❍										
58 00 00–58 1D 0F	SYSTEM/PATCH B	30	❍	❍	❍										
59 00 00–59 1F 7F	DRUM SETUP B	32	❍	❍											

This table lists the data contents that will be transmitted when panel buttons are used to request a dump, or when a Parameter Dump Request is received at MIDI IN A. When a Parameter Dump Request is received at MIDI IN B, A and B will be reversed for PATCH EXTENSION, SYSTEM/PATCH and DRUM SETUP.

* *When data dumped by this unit is reloaded into this unit, be aware that the data may not be set correctly if the transmission order of the packets is changed, if the time interval between packets is changed, or if other messages are inserted between packets.*
* *The Parameter Dump data of this unit includes data for GS format compatible devices, and this data is compatible in both directions. However, depending on the settings of parameters which are newly extended on this unit, the musical result may differ.*
* *If this unit does not operate correctly with Bulk Dump data from another GS format compatible device, first initialize this unit (p.25) before retransmitting the data.*
* *When another GS format compatible device receives Parameter Dump data that was transmitted by this unit, it may display a message such as "Address Error," but this is because the parameter addresses newly extended on this unit were not recognized by the other device. Parameters which could be recognized by that device have been correctly set.*

■ Dumping a List of Internal Sounds

● Instrument List Dump

❍ Instrument List Dump Request (request only) [Pro]

This command requests a bulk dump of a list of the preset sounds (Instruments) in internal memory, and uses "Data Request 1 (RQ1)" format. The Size specifies the contents of the requested data.

Address: 0C 00 01
Size: 00 00 00 : ALL
00 00 01 : SC-55 MAP
00 00 02 : SC-88 MAP
00 00 03 : Native MAP
00 mm bb mm = MAP# 01–03 (01 = SC-55 MAP, 02 = SC-88 MAP, 03 = Native MAP)
bb = BANK# 00–7F

❍ Instrument List Dump (transmit only) [Pro]

When Instrument List Dump Request is received, the sound names of the specified map will be transmitted continuously in the format given below, where 16 bytes are used for each sound name. The Address of the transmitted data is 0C 00 01 for all packets. User Bank sound names are not transmitted.

DUMP FORMAT:

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
CC0	MAP	PC	00	TONE NAME(ASCII 12 Characters)											

CC0: Variation number
MAP: MAP number 01 = SC-55 MAP, 02 = SC-88 MAP, 03 = Native MAP
PC: Program number

● Drum Set List Dump

❍ Drum Set List Dump Request (receive only) [Pro]

This command requests a bulk dump transmission of a list of preset Drum Sets in internal memory, and uses "Data Request 1 (RQ1)" format. The Size specifies the desired data contents.

Address: 0C 00 02
Size: 00 00 00: ALL
00 00 01: SC-55 MAP
00 00 02: SC-88 MAP
00 00 03: Native MAP

❍ Drum Set List Dump (transmit only) [Pro]

When a Drum Set List Dump Request is received, the Drum Set names of the specified MAP will be transmitted successively in the format given below, where 16 bytes are used for each sound. The Address of the transmitted data will be 0C 00 02 for each packet.

DUMP FORMAT:

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	MAP	PC	00	DRUM TONE NAME(ASCII 12 Characters)											

MAP: MAP number 01 = SC-55 MAP, 02 = SC-88 MAP, 03 = Native MAP
PC: Program number

● Drum Instrument List Dump

❍ Drum Instrument List Dump Request (receive only) [Pro]

This command requests a bulk dump transmission of the Instrument list of an internal preset Drum Sets, and uses "Data Request 1 (RQ1)" format. The Size specifies the desired data contents.

Address: 0C 00 03
Size: 00 mm pp mm = MAP# 01–03
(01 = SC-55 map, 02 = SC-88 map, 03 = Native map)
pp = Drum Set# 00–7F (same as PC#)

❍ Drum Instrument List Dump (transmit only) [Pro]

When a Drum Instrument List Dump Request is received, the Drum Instrument names of the specified Drum Set will be transmitted in the following format where 16 bytes are used for each Drum Instrument name. The address of the transmitted data will be 0C 00 03 for each packet.

DUMP FORMAT:

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	MAP	PC	KEY	DRUM TONE NAME(ASCII 12 Characters)											

MAP: MAP number 01 = SC-55 MAP, 02 = SC-88 MAP, 03 = Native MAP
PC: Program number
KEY : Note number

● Insertion Effect List Dump

❍ Insertion Effect List Dump Request (receive only) [Pro]

This command requests a bulk dump transmission of the Insertion effect list of an internal memory, and uses "Data Request 1 (RQ1)" format. The Size specifies the desired data contents.

Address: 0C 00 04
Size: 00 00 00: ALL

❍ Insertion Effect List Dump (transmit only) [Pro]

When an Insertion Effect List Dump Request is received, the specified Insertion Effect names will be transmitted in the following format where 20 bytes are used for each Effect name. The address of the transmitted data will be 0C 00 04 for each packet.

DUMP FORMAT:

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	10	11	12	13
MSB	LSB	00	00	EFFECT NAME(ASCII 15 Characters)															

MSB: Category
LSB: Type

● Preset Patch List Dump

❍ Preset Patch List Dump Request (receive only) [Pro]

This command requests a bulk dump transmission of the preset Patch list of an internal memory, and uses "Data Request 1 (RQ1)" format. The Size specifies the desired data contents.

Address: 0C 00 05
Size: 00 00 00: ALL

❍ Preset Patch List Dump (transmit only) [Pro]

When a Preset Patch List Dump Request is received, the specified preset Patch names will be transmitted in the following format where 20 bytes are used for each Patch name. The address of the transmitted data will be 0C 00 05 for each packet.

DUMP FORMAT:

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	10	11	12	13
00	00	PC	00	PATCH NAME(ASCII 16 Characters)															

PC: Program number

Section 5. Supplementary Material

● Decimal and Hexadecimal table

(An 'H' is appended to the end of numbers in hexadecimal notation.)
In MIDI documentation, data values and addresses/sizes of Exclusive messages etc. are expressed as hexadecimal values for each 7 bits. The following table shows how these correspond to decimal numbers.

Dec.	Hex.	Dec.	Hex.	Dec.	Hex.	Dec.	Hex.
0	00H	32	20H	64	40H	96	60H
1	01H	33	21H	65	41H	97	61H
2	02H	34	22H	66	42H	98	62H
3	03H	35	23H	67	43H	99	63H
4	04H	36	24H	68	44H	100	64H
5	05H	37	25H	69	45H	101	65H
6	06H	38	26H	70	46H	102	66H
7	07H	39	27H	71	47H	103	67H
8	08H	40	28H	72	48H	104	68H
9	09H	41	29H	73	49H	105	69H
10	0AH	42	2AH	74	4AH	106	6AH
11	0BH	43	2BH	75	4BH	107	6BH
12	0CH	44	2CH	76	4CH	108	6CH
13	0DH	45	2DH	77	4DH	109	6DH
14	0EH	46	2EH	78	4EH	110	6EH
15	0FH	47	2FH	79	4FH	111	6FH
16	10H	48	30H	80	50H	112	70H
17	11H	49	31H	81	51H	113	71H
18	12H	50	32H	82	52H	114	72H
19	13H	51	33H	83	53H	115	73H
20	14H	52	34H	84	54H	116	74H
21	15H	53	35H	85	55H	117	75H
22	16H	54	36H	86	56H	118	76H
23	17H	55	37H	87	57H	119	77H
24	18H	56	38H	88	58H	120	78H
25	19H	57	39H	89	59H	121	79H
26	1AH	58	3AH	90	5AH	122	7AH
27	1BH	59	3BH	91	5BH	123	7BH
28	1CH	60	3CH	92	5CH	124	7CH
29	1DH	61	3DH	93	5DH	125	7DH
30	1EH	62	3EH	94	5EH	126	7EH
31	1FH	63	3FH	95	5FH	127	7FH

* *Decimal values such as MIDI channel, Bank Select, and Program Change are listed as one greater than the values given in the above table.*
* *A 7-bit byte can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bit bytes would indicate a value of aa x 128 + bb.*
* *In the case of values which have a ± sign, 00H = -64, 40H = ±0, and 7FH = +63, so that the decimal expression would be 64 less than the value given in the above chart. In the case of two types, 00 00H = -8192, 40 00H = ±0, and 7F 7FH = +8191. For example if aa bbH were expressed as decimal, this would be aa bbH - 40 00H = aa x 128 + bb - 64 x 128.*
* *Data marked "Use nibbled data" is expressed in hexadecimal in 4-bit units. A value expressed as a 2-byte nibble 0a 0bH has the value of a x 16 + b.*

<Example 1> What is the decimal expression of 5AH ?

From the preceding table, 5AH = 90

<Example 2> What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?

From the preceding table, since 12H = 18 and 34H = 52
18 x 128 + 52 = 2356

<Example 3> What is the decimal expression of the nibbled value 0A 03 09 0D ?

From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13
((10 x 16 + 3) x 16 + 9) x 16 + 13 = 41885

<Example 4> What is the nibbled expression of the decimal value 1258?

16)_1258
16)___78 ... 10
16)____4 ... 14
0 ... 4

Since from the preceding table, 0 = 00H, 4 = 04H, 14 = 0EH, 10 = 0AH, the answer is 00 04 0E 0AH.

● Examples of actual MIDI messages

<Example 1> 92 3E 5F

9n is the Note-on status, and n is the MIDI channel number. Since 2H = 2, 3EH = 62, and 5FH = 95, this is a Note-on message with MIDI CH = 3, note number 62 (note name is D4), and velocity 95.

<Example 2> CE 49

CnH is the Program Change status, and n is the MIDI channel number. Since EH = 14 and 49H = 73, this is a Program Change message with MIDI CH = 15, Program number 74 (Flute in GS).

<Example 3> EA 00 28

EnH is the Pitch Bend Change status, and n is the MIDI channel number. The 2nd byte (00H = 0) is the LSB and the 3rd byte (28H = 40) is the MSB, but Pitch Bend value is a signed number in which 40 00H (= 64 x 12 + 80 = 8192) is 0, so this Pitch Bend value is

28 00H - 40 00H = 40 x 12 + 80 - (64 x 12 + 80) = 5120 - 8192 = -3072

If the Pitch Bend Sensitivity is set to 2 semitones, -8192 (00 00H) will cause the pitch to change -200 cents, so in this case -200 x (-3072) / (-8192) = -75 cents of Pitch Bend is being applied to MIDI channel 11.

<Example 4> B3 64 00 65 00 06 0C 26 00 64 7F 65 7F

BnH is the Control Change status, and n is the MIDI channel number. For Control Changes, the 2nd byte is the Controller number, and the 3rd byte is the value. In a case in which two or more messages consecutive messages have the same status, MIDI has a provision called "running status" which allows the status byte of the second and following messages to be omitted. Thus, the above messages have the following meaning.

B3 64 00	MIDI ch.4, lower byte of RPN parameter number:	00H
(B3) 65 00	(MIDI ch.4) upper byte of RPN parameter number:	00H
(B3) 06 0C	(MIDI ch.4) upper byte of parameter value:	0CH
(B3) 26 00	(MIDI ch.4) lower byte of parameter value:	00H
(B3) 64 7F	(MIDI ch.4) lower byte of RPN parameter number:	7FH
(B3) 65 7F	(MIDI ch.4) upper byte of RPN parameter number:	7FH

In other words, the above messages specify a value of 0C 00H for RPN parameter number 00 00H on MIDI channel 4, and then set the RPN parameter number to 7F 7FH.

RPN parameter number 00 00H is Pitch Bend Sensitivity, and the MSB of the value indicates semitone units, so a value of 0CH = 12 sets the maximum Pitch Bend range to ±12 semitones (1 octave). (On GS sound sources the LSB of Pitch Bend Sensitivity is ignored, but the LSB should be transmitted anyway (with a value of 0) so that operation will be correct on any device.)

Once the parameter number has been specified for RPN or NRPN, all Data Entry messages transmitted on that same channel will be valid, so after the desired value has been transmitted, it is a good idea to set the parameter number to 7F 7FH to prevent accidents. This is the reason for the (B3) 64 7F (B3) 65 7F at the end.

It is not desirable for performance data (such as Standard MIDI File data) to contain many events with running status as given in <Example 4>. This is because if playback is halted during the song and then rewound or fast-forwarded, the sequencer may not be able to transmit the correct status, and the sound source will then misinterpret the data. Take care to give each event its own status.

It is also necessary that the RPN or NRPN parameter number setting and the value setting be done in the proper order. On some sequencers, events occurring in the same (or consecutive) clock may be transmitted in an order different than the order in which they were received. For this reason it is a good idea to slightly skew the time of each event (about 1 tick for TPQN = 96, and about 5 ticks for TPQN = 480).

* *TPQN: Ticks Per Quarter Note*

● Example of an Exclusive message and calculating a Checksum

Roland Exclusive messages (RQ1, DT1) are transmitted with a checksum at the end (before F7) to make sure that the message was correctly received. The value of the checksum is determined by the address and data (or size) of the transmitted Exclusive message.

How to calculate the checksum (hexadecimal numbers are indicated by 'H')

The checksum is a value derived by adding the address, size and checksum itself and inverting the lower 7 bits.
Here's an example of how the checksum is calculated. We will assume that in the Exclusive message we are transmitting, the address is aa bb ccH and the data or size is dd ee ffH.

aa + bb + cc + dd + ee + ff = sum
sum / 128 = quotient ... remainder
128 - remainder = checksum

<Example 1> Setting REVERB MACRO to ROOM 3

According to the "Parameter Address Map," the REVERB MACRO Address is 40 01 30H, and ROOM 3 is a value of 02H. Thus,

F0	41	10	42	12	40 01 30	02	??	F7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)

(1) Exclusive status, (2) ID (Roland), (3) Device ID (17),
(4) Model ID (GS), (5) Command ID (DT1), (6) End of Exclusive

Next we calculate the checksum.

40H + 01H + 30H + 02H = 64 + 1 + 48 + 2 = 115 (sum)
115 (sum) / 128 = 0 (quotient) ... 115 (remainder)
checksum = 128 - 115 (remainder) = 13 = 0DH

This means that F0 41 10 42 12 40 01 30 02 0D F7 is the message we transmit.

<Example 2> Requesting transmission of the LEVEL for DRUM MAP 1 NOTE NUMBER 75 (D#5; Claves)

NOTE NUMBER 75 (D#5) is 4BH in hexadecimal.
According to the "Parameter Address Map," LEVEL of NOTE NUMBER 75 (D#5; Claves) in DRUM MAP 1 has an Address of 41 02 4BH and a Size of 00 00 01H. Thus,

F0	41	10	42	11	41 02 4B	00 00 01	??	F7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)

(1) Exclusive status, (2) ID (Roland), (3) Device ID (17),
(4) Model ID (GS), (5) Command ID (RQ1), (6) End of Exclusive

Next we calculate the checksum.

41H + 02H + 4BH + 00H + 00H + 01H = 65 + 2 + 75 + 0 + 0 + 1 = 143 (sum)
143 (sum) / 128 = 1 (quotient) ... 15 (remainder)
checksum = 128 - 15 (remainder) = 113 = 71H

This means that F0 41 10 42 11 41 02 4B 00 00 01 71 F7 is the message we transmit.

● About tuning

In MIDI, individual Parts are tuned by sending RPN #1 (Master Fine Tuning) to the appropriate MIDI channel.
In MIDI, an entire device is tuned by either sending RPN #1 to all MIDI channels being used, or by sending a System Exclusive MASTER TUNE (address 40 00 00H).
RPN #1 allows tuning to be specified in steps of approximately 0.012 cents (to be precise, 100/8192 cent), and System Exclusive MASTER TUNE allows tuning in steps of 0.1 cent. One cent is 1/100th of a semitone.
The values of RPN #1 (Master Fine Tuning) and System Exclusive MASTER TUNE are added together to determine the actual pitch sounded by each Part.

Frequently used tuning values are given in the following table for your reference. Values are in hexadecimal (decimal in parentheses).

Hz at A4	cent	RPN #1	Sys.Ex. (40 00 00)
445.0	+19.56	4C 43 (+1603)	00 04 0C 04 (+196)
444.0	+15.67	4A 03 (+1283)	00 04 09 0D (+157)
443.0	+11.76	47 44 (+964)	00 04 07 06 (+118)
442.0	+7.85	45 03 (+643)	00 04 04 0F (+79)
441.0	+3.93	42 42 (+322)	00 04 02 07 (+39)
440.0	0	40 00 (0)	00 04 00 00 (0)
439.0	-3.94	3D 3D (-323)	00 03 0D 09 (-39)
438.0	-7.89	3A 7A (-646)	00 03 0B 01 (-79)

<Example> Set the tuning of MIDI channel 3 to A4 = 442.0 Hz

Send RPN#1 to MIDI channel 3. From the above table, the value is 45 03H.

B2 64 00	MIDI ch.3, lower byte of RPN parameter number:	00H
(B2) 65 01	(MIDI ch.3) upper byte of RPN parameter number:	01H
(B2) 06 45	(MIDI ch.3) upper byte of parameter value:	45H
(B2) 26 03	(MIDI ch.3) lower byte of parameter value:	03H
(B2) 64 7F	(MIDI ch.3) lower byte of RPN parameter number:	7FH
(B2) 65 7F	(MIDI ch.3) upper byte of RPN parameter number:	7FH

● The Scale Tune Feature (address: 40 1x 40)

The scale Tune feature allows you to finely adjust the individual pitch of the notes from C through B. Though the settings are made while working with one octave, the fine adjustments will affect all octaves. By making the appropriate Scale Tune settings, you can obtain a complete variety of tuning methods other than equal temperament. As examples, three possible types of scale setting are explained below.

❍ Equal Temperament

This method of tuning divides the octave into 12 equal parts. It is currently the most widely used form of tuning,
especially in occidental music. On this unit, the default settings for the Scale Tune feature produce equal temperament.

❍ Just Temperament (Keynote C)

The three main chords resound much more beautifully than with equal temperament, but this benefit can only be obtained in one key. If transposed, the chords tend to become ambiguous. The example given involves settings for a key in which C is the keynote.

❍ Arabian Scale

By altering the setting for Scale Tune, you can obtain a variety of other tunings suited for ethnic music. For example, the settings introduced below will set the unit to use the Arabian Scale.

Example Settings

Note name	Equal Temperament	Just Temperament (Keynote C)	Arabian Scale
C	0	0	-6
C#	0	-8	+45
D	0	+4	-2
D#	0	+16	-12
E	0	-14	-51
F	0	-2	-8
F#	0	-10	+43
G	0	+2	-4
G#	0	+14	+47
A	0	-16	0
A#	0	+14	-10
B	0	-12	-49

For example, to set the tune (C–B) of the Part1 Arabian Scale, send the data as follows:
F0 41 10 42 12 40 11 40 3A 6D 3E 34 0D 38 6B 3C 6F 40 36 0F 76 F7

SOUND Canvas
Model SK-88Pro

Date : Dec. 1, 1997
Version : 1.00

MIDI Implementation Chart

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default	x	1-16	
	Changed	x	1-16	
Mode	Default	Mode 3	Mode 3	
	Message	x	Mode 3, 4 (M=1)	*2
	Altered	**********		
Note Number		0-127	0-127	
	: True Voice	**********	0-127	
Velocity	NOTE ON	o	o	
	NOTE OFF	o	x	
Aftertouch	Key's	x	o *1	
	Ch's	o *3	o *1	
Pitch Bend		o	o *1	
Control Change	1-31, 33-95	o (selectable) *3		
	0, 32	x	o *1	Bank Select
	1	o *3	o *1	Modulation
	5	o *3	o *1	Portament Time
	6, 38	o *3	o *1	Data Entry
	7	o *3	o *1	Volume
	10	o *3	o *1	Panpot
	11	o *3	o *1	Expression
	64	o *3	o *1	Hold 1
	65	o *3	o *1	Portament
	66	o *3	o *1	Sostenuto
	67	o *3	o *1	Soft
	84	o *3	o *1	Portament Control
	91	o *3	o (Reverb) *1	Effect 1 (Reverb Send Level)
	93	o *3	o (Chorus) *1	Effect 3 (Chorus Send Level)
	94	o *3	o (Delay) *1	Effect 4 (Delay Send Level)
	98, 99	o *3	x *1	NRPN LSB, MSB
	100, 101	x	o *1	RPN LSB, MSB
Program Change		x	o *1	
	: True #	**********	0-127	Program Number 1-128
System Exclusive		o	o *1	
System Common	: Song Pos	x	x	
	: Song Sel	x	x	
	: Tune	x	x	
System Real Time	: Clock	x	x	
	: Commands	x	x	
Aux Messages	: All Sounds OFF	x	o (120, 126, 127)	
	: Reset All Controllers	x	o	
	: Local ON/OFF	x	o (122)	
	: All Notes OFF	x	o (123-125)	
	: Active Sensing	o	o	
	: Reset	x	x	
Notes		*1 o x is selectable *2 Recognize as M=1 even if M 1. *3 Whatever has been assigned to the knobs or slider will be transmitted.		

Mode 1: OMNI ON, POLY
Mode 2: OMNI ON, MONO
Mode 3: OMNI OFF, POLY
Mode 4: OMNI OFF, MONO

o: Yes
x: No

SPECIFICATIONS

Model: Sound Canvas SK-88Pro (General MIDI System/GS format)

● Number of Parts
32

● Maximum Polyphony
64 (voices)

● Internal Memory

Sound map:	3 (Native map, SC-88 map, SC-55 map)
Preset sounds:	1117
Drum Set:	42 (including 3 SFX Sets)
User sounds:	256
User Drum Set:	2
User Effect:	64
Preset Patch:	128 (with Effect)
User Patch:	16

● Effects
Reverb (8 types)
Chorus (8 types)
Delay (10 types)
2 band equalizer
Insertion Effect (64 types)

● Keyboard
37 keys (with velocity)

● Indicators
Custom LCD (backlit LCD)

● Connectors
MIDI connectors (IN A, IN B, OUT)
Input jacks (stereo)
Output 1 jacks (stereo)
Output 2 jacks (stereo)
Headphones jack
Computer connector
Hold Pedal jack
Control Pedal jack

● Power Supply
DC 9V (AC adaptor)

● Current Draw
700 mA

● Dimensions
666 (W) x 234 (D) x 93 (H) mm
26-1/4 (W) x 9-1/4 (D) x 3-11/16 (H) inches

● Weight
4.1 kg (excluding AC adaptor)
9 lbs 1 oz

● Accessories
Owner's manual
AC adaptor
ACI-120 (for 117 V AC countries)
ACI-230 (for 230 V AC countries)
ACB-240E (for the U.K./Hong Kong)
ACB-240A (for Australia/New Zealand/Papua New Guinea)

* *Use Roland ACI or ACB adaptor depending on the voltage system in your country.*

● Options
Computer cable
RSC-15AT (for PC)
RSC-15APL (for Apple Macintosh series)

* *In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.*

INDEX FOR THE DISPLAY

INDEX FOR PARAMETERS

* : Parameters which can be set in a Patch
# : Parameters which can be transmitted as Individual data

INDEX

Number/Symbol

A

B

C

D

E

F

G

H

I

K

L

M

N

O

P

R

S

T

U

V

X

< MEMO >

Information

When you need repair service, call your nearest Roland Service Center or authorized Roland distributor in your country as shown below.

ARGENTINA
Instrumentos Musicales S.A.
Florida 638
(1005) Buenos Aires
ARGENTINA
TEL: (01) 394 4029

BRAZIL
Roland Brasil Ltda.
R. Coronel Octaviano da Silveira
203 05522-010
Sao Paulo BRAZIL
TEL: (011) 843 9377

CANADA
Roland Canada Music Ltd. (Head Office)
5480 Parkwood Way Richmond
B. C., V6V 2M4 CANADA
TEL: (0604) 270 6626

Roland Canada Music Ltd. (Toronto Office)
Unit 2, 109 Woodbine Downs
Blvd, Etobicoke, ON
M9W 6Y1 CANADA
TEL: (0416) 213 9707

MEXICO
Casa Veerkamp, s.a. de c.v.
Av. Toluca No. 323 Col. Olivar de los Padres 01780 Mexico D.F.
MEXICO
TEL: (525) 668 04 80

La Casa Wagner de Guadalajara s.a. de c.v.
Av. Corona No. 202 S.J.
Guadalajara, Jalisco Mexico
C.P.44100 MEXICO
TEL: (03) 613 1414

PANAMA
Productos Superiores, S.A.
Apartado 655 - Panama 1
REP. DE PANAMA
TEL: 26 3322

U. S. A.
EDIROL Corporation North America
808 Harrison Ave. PO Box 4919
Blaine, WA, 98231-4919,
U. S. A.
TEL: (800) 380 2580

VENEZUELA
Musicland Digital C.A.
Av. Francisco de Miranda,
Centro Parque de Cristal, Nivel
C2 Local 20 Caracas
VENEZUELA
TEL: (02) 285 9218

AUSTRALIA
Roland Corporation Australia Pty. Ltd.
38 Campbell Avenue
Dee Why West. NSW 2099
AUSTRALIA
TEL: (02) 9982 8266

NEW ZEALAND
Roland Corporation (NZ) Ltd.
97 Mt. Eden Road, Mt. Eden,
Auckland 3, NEW ZEALAND
TEL: (09) 3098 715

CHINA
Beijing Xinghai Musical Instruments Co., Ltd.
6 Huangmuchang Chao Yang
District, Beijing, CHINA
TEL: (010) 6774 7491

HONG KONG
Tom Lee Music Co., Ltd. Service Division
22-32 Pun Shan Street, Tsuen
Wan, New Territories,
HONG KONG
TEL: 2415 0911

INDONESIA
PT Galestra Inti
Kompleks Perkantoran
Duta Merlin Blok F. No.6—7
Jl. Gajah Mada No.3—5,
Jakarta 10130,
INDONESIA
TEL: (021) 6335416

KOREA
Cosmos Corporation Service Station
261 2nd Floor Nak-Won Arcade
Jong-Ro ku, Seoul, KOREA
TEL: (02) 742 8844

MALAYSIA
Bentley Music SDN BHD
140 & 142, Jalan Bukit Bintang
55100 Kuala Lumpur, MALAYSIA
TEL: (03) 2443333

PHILIPPINES
G.A. Yupangco & Co. Inc.
339 Gil J. Puyat Avenue
Makati, Metro Manila 1200,
PHILIPPINES
TEL: (02) 899 9801

SINGAPORE
Swee Lee Company
BLOCK 231, Bain Street #03-23
Bras Basah Complex,
SINGAPORE 180231
TEL: 3367886

CRISTOFORI MUSIC PTE LTD
Blk 3014, Bedok Industrial Park E,
#02-2148, SINGAPORE 489980
TEL: 243 9555

TAIWAN
ROLAND TAIWAN ENTERPRISE CO., LTD.
Room 5, 9fl. No. 112 Chung Shan
N.Road Sec.2, Taipei, TAIWAN,
R.O.C.
TEL: (02) 561 3339

THAILAND
Theera Music Co. , Ltd.
330 Verng Nakorn Kasem, Soi 2,
Bangkok 10100, THAILAND
TEL: (02) 2248821

VIETNAM
Saigon music distributor
160 Nguyen Dinh Chieu St. Dist 3
Ho chi minh City
VIETNAM
TEL: 88-242531

BAHRAIN
Moon Stores
Bad Al Bahrain Road,
P.O.Box 20077
State of BAHRAIN
TEL: 211 005

ISRAEL
Halilit P. Greenspoon & Sons Ltd.
8 Retzif Fa'aliya Hashnya St.
Tel-Aviv-Yafo ISRAEL
TEL: (03) 6823666

JORDAN
AMMAN Trading Agency
Prince Mohammed St. P. O. Box
825 Amman 11118 JORDAN
TEL: (06) 641200

KUWAIT
Easa Husain Al-Yousifi
P.O. Box 126 Safat 13002
KUWAIT
TEL: 5719499

LEBANON
A. Chahine & Fils
P.O. Box 16-5857 Gergi Zeidan St.
Chahine Building, Achrafieh
Beirut, LEBANON
TEL: (01) 335799

OMAN
OHI Electronics & Trading Co. LLC
P. O. Box 889 Muscat
Sultanate of OMAN
TEL: 959085

QATAR
Badie Studio & Stores
P.O.Box 62,
DOHA QATAR
TEL: 423554

SAUDI ARABIA
Abdul Latif S. Al-Ghamdi Trading Establishment
Middle East Commercial Center
Al-Khobar Dharan Highway
W./hamood st.
P. O. Box 3631 Al-Khober
31952 SAUDIARABIA
TEL: (03) 898 2332

SYRIA
Technical Light & Sound Center
Khaled Ibn Al Walid St.
P.O.Box 13520
Damascus - SYRIA
TEL: (011) 2235 384

TURKEY
Barkat Sanayi ve Ticaret
Siraselvier Cad. Guney Ishani No.
86/6 Taksim, Istanbul TURKEY
TEL: (0212) 2499324

U.A.E
Zak Electronics & Musical Instruments Co.
Zabeel Road, Al Sherooq Bldg.,
No. 14, Grand Floor DUBAI
U.A.E.
P.O. Box 8050DUBAI, U.A.E
TEL: (04) 360715

EGYPT
Al Fanny Trading Office
9, Ebn Hagar El Askalany Street,
Ard El Golf, Heliopolis, Cairo,
11341 EGYPT
TEL: (02) 4171828
(02) 4185531

KENYA
Musik Land Limited
P.O Box 12183 Moi Avenue
Nairobi Republic of KENYA
TEL: (2) 338 346

REUNION
Maison FO - YAM Marcel
25 Rue Jules MermanZL
Chaudron - BP79 97491
Ste Clotilde REUNION
TEL: 28 29 16

SOUTH AFRICA
That Other Music Shop (PTY) Ltd.
11 Melle Street (Cnr Melle and
Juta Street)
Braamfontein 2001
Republic of SOUTH AFRICA
TEL: (011) 403 4105

Paul Bothner (PTY) Ltd.
17 Werdmuller Centre Claremont
7700
Republic of SOUTH AFRICA
TEL: (021) 64 4030

AUSTRIA
E. Dematte &Co.
Neu-Rum Siemens-Strasse 4
6063 Innsbruck AUSTRIA
TEL: (0512) 26 44 260

BELGIUM/HOLLAND/ LUXEMBOURG
Roland Benelux N. V.
Houtstraat 1 B-2260 Oevel-
Westerlo BELGIUM
TEL: (014) 575811

BELORUSSIA
TUSHE
UL. Rabkorovskaya 17
220001 MINSK
TEL: (0172) 764-911

CYPRUS
Radex Sound Equipment Ltd.
17 Diagorou St., P.O.Box 2046,
Nicosia CYPRUS
TEL: (02) 453 426

DENMARK
Roland Scandinavia A/S
Langebrogade 6 Post Box 1937
DK-1023 Copenhagen K.
DENMARK
TEL: 32 95 3111

FRANCE
MUSIKENGRO
Zac de Folliouses 01706
Les Echets Miribel FRANCE
TEL: 472 26 2700

FINLAND
Roland Scandinavia As, Filial Finland
Lauttasaarentie 54 B
Fin-00201 Helsinki, FINLAND
TEL: (9) 682 4020

GERMANY
Roland Elektronische Musikinstrumente Handelsgesellschaft mbH.
Oststrasse 96, 22844 Norderstedt,
GERMANY
TEL: (040) 52 60090

GREECE
V. Dimitriadis & Co. Ltd.
20, Alexandras St. & Bouboulinas
54 St. 106 82 Athens, GREECE
TEL: (01) 8232415

HUNGARY
Intermusica Ltd.
Warehouse Area 'DEPO' Pf.83
H-2046 Torokbalint, HUNGARY
TEL: (23) 511011

IRELAND
The Dublin Service Centre Audio Maintenance Limited
11 Brunswick Place Dublin 2
Republic of IRELAND
TEL: (01) 677322

ITALY
Roland Italy S. p. A.
Viale delle Industrie, 8
20020 Arese Milano, ITALY
TEL: (02) 93581311

NORWAY
Roland Scandinavia Avd. Kontor Norge
Lilleakerveien 2 Postboks 95
Lilleaker N-0216 Oslo
NORWAY
TEL: 273 0074

POLAND
P. P. H. Brzostowicz Marian
UL. Blokowa 32, 03624 Warszawa
POLAND
TEL: (022) 679 44 19

PORTUGAL
Caius - Tecnologias Audio e Musica , Lda.
Rue de SANTA Catarina 131
4000 Porto, PORTUGAL
TEL: (02) 38 4456

RUSSIA
Slami Music Company
Sadojava-Triumfalnaja st., 16
103006 Moscow, RUSSIA
TEL: 095 209 2193

SPAIN
Roland Electronics de España, S. A.
Calle Bolivia 239 08020 Barcelona,
SPAIN
TEL: (93) 308 1000

SWEDEN
Roland Scandinavia A/S SWEDISH SALES OFFICE
Danvik Center 28, 2 tr.
S-131 30 Nacka SWEDEN
TEL: (08) 702 0020

SWITZERLAND
Roland (Switzerland) AG
Musitronic AG
Gerberstrasse 5, CH-4410 Liestal,
SWITZERLAND
TEL: (061) 921 1615

UKRAINE
TIC-TAC
Mira Str. 19/108
P.O.Box 180
295400 Munkachevo, UKRAINE
TEL: (03131) 414-40

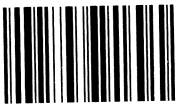
UNITED KINGDOM
Roland (U.K.) Ltd., Swansea Office
Atlantic Close, Swansea
Enterprise Park SWANSEA
West Glamorgan SA7 9FJ,
UNITED KINGDOM
TEL: (01792) 700139

As of December, 10, 1997

Roland®

71451889

UPC 71451889



:098:

Roland Corporation

01346289 '98-1-A3-11D