Roland®

GENERAL midi2

XV-5050

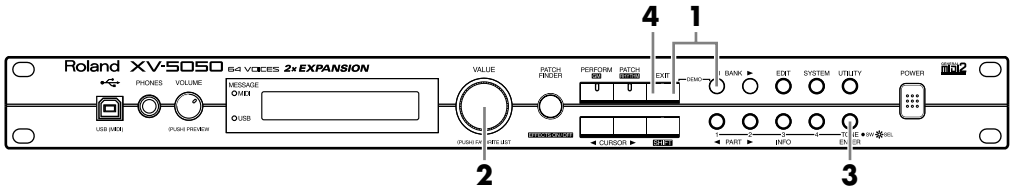
64 VOICES 2× EXPANSION

OWNER'S MANUAL

Thank you, and congratulations on your choice of the Roland XV-5050.

Before using this unit, carefully read the sections entitled: "IMPORTANT SAFETY INSTRUCTIONS" (p. 2), "USING THE UNIT SAFELY" (pp. 3–4), and "IMPORTANT NOTES" (p. 5). 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, Owner's Manual should be read in its entirety. The manual should be saved and kept on hand as a convenient reference.

Listening to the Demo Songs



1. **Hold down the [EXIT] button and press the [◄ BANK] button.**
   The DEMO PLAY screen appears in the display.
2. **Turn the [VALUE] dial to choose the song you want to hear.**
   Choose "CHAIN PLAY" to hear all songs performed in order, starting with the first song.
3. **Press the [ENTER] button to start demo song playback.**
4. **Press the [EXIT] button to stop the performance and return to the song-selection screen.**
   Press the [EXIT] button again to leave the DEMO PLAY screen.

* *No data for the music that is played will be output from MIDI OUT.*

Convention Used in This Manual

- Words enclosed in square brackets indicate buttons or a dial or a knob on the panel.
- (p. **) indicates a reference page.

* *The explanations in this manual include illustrations that depict what should typically be shown by the display. Note, however, that your unit may incorporate a newer, enhanced version of the system (e.g., includes newer sounds), so what you actually see in the display may not always match what appears in the manual.*

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CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

ATTENTION: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR

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

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

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

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

IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS

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

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturers instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Never use with a cart, stand, tripod, bracket, or table except as specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

For the U.K.

WARNING: THIS APPARATUS MUST BE EARTHED
IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.
GREEN-AND-YELLOW: EARTH, BLUE: NEUTRAL, BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN-AND-YELLOW.

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

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

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 perform any internal modifications on the unit. (The only exception would be where this manual provides specific instructions which should be followed in order to put in place user-installable options; see p. 120, p. 122.)

- 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
  - Exposed to rain; or are
  - Dusty; or are
  - Subject to high levels of vibration.

- This unit should be used only with a rack or stand that is recommended by Roland.

- When using the unit with a rack or stand recommended by Roland, the rack or stand must be carefully placed so it is level and sure to remain stable. If not using a rack or stand, you still need to make sure that any location you choose for placing the unit provides a level surface that will properly support the unit, and keep it from wobbling.

- The unit should be connected to a power supply only of the type described in the operating instructions, or as marked on the unit.

⚠WARNING

- Use only the attached power-supply cord.

- Do not excessively twist or bend the power cord, nor place heavy objects on it. Doing so can damage the cord, producing severed elements and short circuits. Damaged cords are fire and shock hazards!

- 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 any objects (e.g., flammable material, coins, pins); or liquids of any kind (water, soft drinks, etc.) to penetrate the unit.

- 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.

⚠WARNING

- 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.

- Always turn the unit off and unplug the power cord before attempting installation of the circuit board (SRX Series; p. 14).

- DO NOT play a CD-ROM disc on a conventional audio CD player. The resulting sound may be of a level that could cause permanent hearing loss. Damage to speakers or other system components may result.

- Do not put anything that contains water (e.g., flower vases) on this unit. Also, avoid the use of insecticides, perfumes, alcohol, nail polish, spray cans, etc., near the unit. Swiftly wipe away any liquid that spills on the unit using a dry, soft cloth.

⚠ CAUTION

- The unit should be located so that its location or position does not interfere with its proper ventilation.

- Always grasp only the plug on the power-supply cord when plugging into, or unplugging from, an outlet or this unit.

- 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 power cord or its plugs with wet hands when plugging into, or unplugging from, an outlet or this unit.

- Before moving the unit, disconnect the power plug from the outlet, and pull out all cords from external devices.

- Before cleaning the unit, turn off the power and unplug the power cord from the outlet (p. 14).

- Whenever you suspect the possibility of lightning in your area, pull the plug on the power cord out of the outlet.

- Install only the specified circuit board(s) (SRX Series). Remove only the specified screws (p. 120, p. 122).

- Should you remove screws, make sure to put them in a safe place out of children's reach, so there is no chance of them being swallowed accidentally.

IMPORTANT NOTES

In addition to the items listed under "IMPORTANT SAFETY INSTRUCTIONS" and "USING THE UNIT SAFELY" on pages 2 and 3, 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).
- 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.
- Although the LCD and LEDs are switched off when the POWER switch is switched off, this does not mean that the unit has been completely disconnected from the source of power. If you need to turn off the power completely, first turn off the POWER switch, then unplug the power cord from the power outlet. For this reason, the outlet into which you choose to connect the power cord's plug should be one that is within easy reach.

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.
- Noise may be produced if wireless communications devices, such as cell phones, are operated in the vicinity of this unit. Such noise could occur when receiving or initiating a call, or while conversing. Should you experience such problems, you should relocate such wireless devices so they are at a greater distance from this unit, or switch them off.
- 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.
- To avoid possible breakdown, do not use the unit in a wet area, such as an area exposed to rain or other moisture.

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 benzine, 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 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.

Additional Precautions

- Do not expose the display to strong light (such as camera flashes), as malfunction may result.
- 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 backup copy of important data you have stored in the unit's memory in 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 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.

Handling CD-ROMs

- Avoid touching or scratching the shiny underside (encoded surface) of the disc. Damaged or dirty CD-ROM discs may not be read properly. Keep your discs clean using a commercially available CD cleaner.

Contents

Advanced Use 37

Features

64-Voice Polyphony and 16-Part Multitimbrality

The XV-5050 is a 16-part multitimbral sound generator that produces up to 64 simultaneous polyphonic voices. It provides ample polyphony, even with Patches containing multiple Tones.

Create Amazingly Expressive Tones

With Patches containing four stereo Tones, as well as four-Tone instruments in Rhythm Sets—you can use up to a total of eight wave types—the XV-5050 takes you the next step beyond Roland's previous generation of JV-Series modules, providing even more precise control and allowing you to create lusher, more expressive sounds.

Powerful Internal Effects, Including COSM Effects

The internal effects have been completely rethought and improved. The reverb, the XV-5050's most central effect, incorporates the high-quality SRV-3030 DSP, allowing the instrument itself to give great spatial definition with superior, clear sound.

In addition, the XV-5050 features Multi-effects (MFX) with 90 kinds of effects, including RSS and 3D Delay, Slicer, and Formant Filter. What's more, the XV-5050 also features a variety of combinations of different effects, such as the Guitar Amp Simulator, made possible with COSM technology; Guitar Multi, which lets you get just the right guitar, bass, and keyboard sounds; Bass Multi, and Keyboard Multi, all of which let you create even more powerful sounds. Furthermore, you can use three different MFX systems when in Performance mode, and use each MFX on any Part you select.

On top of all this, each output is supplied with two-band EQ.

Digital Out for Complete Compatibility with Digital Systems

The XV-5050's output systems not only include four parallel analog outs that can also be used as two stereo pairs, but also S/P DIF digital outputs (optical and coaxial) as well.

Equipped with a USB Connector

The XV-5050 has a USB connector on its front panel, so that you can easily connect your computer.

Supports General MIDI system Level 2

The XV-5050 provides a mode compatible with General MIDI System Level 2, the standard format for desktop music (DTM) systems. The upwardly compatible General MIDI 2 standards pick up where the original General MIDI standard left off, offering enhanced expressive capabilities and even greater compatibility. You can play back commercially available General MIDI-compatible song data.

Greater Expansion Possibilities with the New-Format Wave Expansion Boards

The XV-5050 accepts up to two of Roland's new-format Wave Expansion Boards (SRX Series).

All of this provides you unprecedented power in creating sounds from a massive amount of waveform data.

Featuring the Patch Finder and Phrase Preview Functions

The XV-5050 provides a Patch Finder function that allows you to quickly find Patches of a specified type or category.

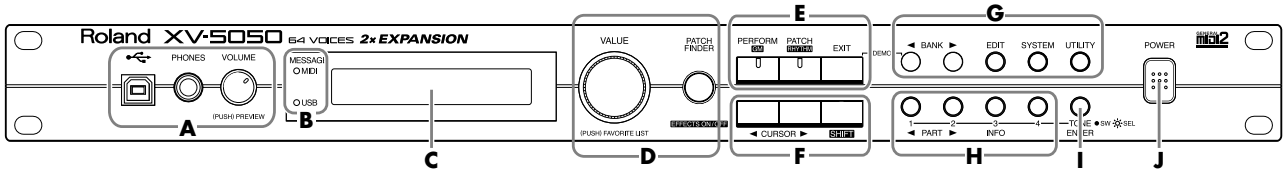
Press the XV-5050's [PHRASE PREVIEW] button to preview the selected Patch with a musically appropriate Phrase.

Registering a Patch in the FAVORITE LIST

You can keep the Patches that you like to use all in one place by registering them on the Favorite List. The FAVORITE LIST gives you immediate access to your favorite Patches, whether they are in the XV-5050 itself, on Wave Expansion Boards, or on memory cards. You can register up to 64 Patches in this list.

Panel Descriptions

Front Panel



A

USB Connector

Use this for connecting a computer to the XV-5050 using a USB cable (p. 35).

PHONES Jack

Headphones are plugged in here (p. 13).

[VOLUME] Knob (PHRASE PREVIEW)

Adjusts the volume from the A (MIX) OUTPUT jacks and PHONES jack. The volume from the OUTPUT B jacks cannot be adjusted.

You can press the knob to listen to the XV-5050 without using any external devices. (Phrase Preview; p. 18)

B

MIDI MESSAGE indicator

This will light when a MIDI message is received via MIDI connector.

USB MESSAGE indicator

This will light when a MIDI message is received via USB connector.

C

Display

Presents a variety of information about the operation being performed.

D

[VALUE] Dial (FAVORITE LIST)

Turn this dial to change a parameter's setting, or "value." If you hold down [SHIFT] as you turn [VALUE], the parameter's value will change by larger increments.

Press this dial in Patch/Rhythm Set mode to display a list showing the collection of your favorite sounds. (Favorite List; p. 33)

[PATCH FINDER] Button

You can choose a Patch using the Patch Finder feature (p. 21).

E

[PERFORM] Button

Press this button to enter Performance mode (p. 23).

Press this button while holding down [SHIFT] to enter General MIDI 2 mode (p. 23).

[PATCH] Button

Press this to enter Patch mode (p. 23).

Press this button while holding down [SHIFT] to enter Rhythm Set mode (p. 23).

[EXIT] Button

Press this button when you wish to return to a mode's PLAY screen, or to cancel an operation before executing it.

Hold [EXIT] and press [◄ BANK] to hear the XV-5050 demo songs.

F

[◄ CURSOR], [CURSOR ►] Buttons

Move the cursor (underline) with these.

[SHIFT] Button

Use [SHIFT] in combination with other buttons. Holding down this button changes the functions of other buttons.

G

[◄ BANK], [BANK ►] Buttons

Choose the Bank with these (p. 21).

[EDIT] Button

Provides access to relevant settings, or "parameters."

[SYSTEM] Button

Press this to enter System mode.

This allows you to make settings that affect the entire XV-5050.

[UTILITY] Button

Press this to enter Utility mode.

This button allows you to perform operations such as saving, copying, initializing, transferring data, write-protecting data, and factory reset operations.

H

TONE SWITCH/SELECT [1]–[4] Buttons

(In Patch/Rhythm Set mode)

Switches each Tone on or off when [TONE] is dark (p. 39).

Chooses a Tone whose settings you wish to change when [TONE] is lit (p. 39).

[◄ PART], [PART ►] Buttons

(In Performance mode)

Chooses a Part whose settings you wish to change (p. 64).

[INFO] Button

(In Performance mode)

Press this to check the receive status of various types of MIDI message for each Part (p. 67).

I

[TONE] Button (ENTER)

Switches the function of the TONE SWITCH/SELECT [1]–[4] buttons.

- When this button is dark, [1]–[4] switches each Tone on or off.
- When this button is lit, [1]–[4] chooses a Tone whose settings you wish to change.

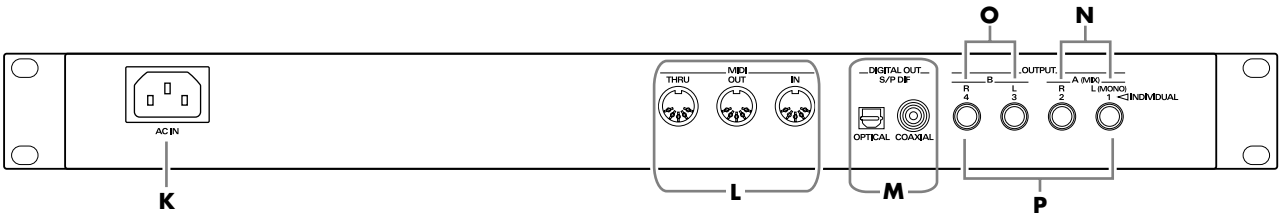
Finalizes a setting value or executes an operation (ENTER).

J

[POWER] Switch

Turns the XV-5050's power on and off (p. 14).

Rear Panel



K

AC Inlet

Connect the included power cable here. (p. 13)

L

MIDI Connectors (IN, OUT, THRU)

These connectors connect the XV-5050 with other MIDI devices, enabling the sending and receiving of MIDI messages. (p. 19)

IN: This connector receives messages from another MIDI device.

Out: This connector transmits messages to another MIDI device.

Thru: MIDI messages received at the MIDI IN connector will be retransmitted from this connector without being changed by the XV-5050.

M

Digital Out Connectors

The XV-5050 features both optical and coaxial digital out connectors (conforming to S/P DIF).

S/P DIF: A digital interface format used for consumer digital audio devices.

N

A (MIX) OUTPUT Jacks (L (MONO), R)

These jacks send audio signals in stereo (L/R) from the XV-5050 to an amp or mixer. For a mono output, use only the L jack. (p. 13)
These jacks are used when the SYSTEM SETUP Mix/Parallel parameter is set to MIX. (p. 107)

* *The XV-5050, as shipped from the factory, routes the output of all PRESET Patches to these jacks.*

O

B OUTPUT Jacks (L, R)

These jacks send audio signals in stereo (L/R) from the XV-5050 to an amp or mixer. (p. 13)

P

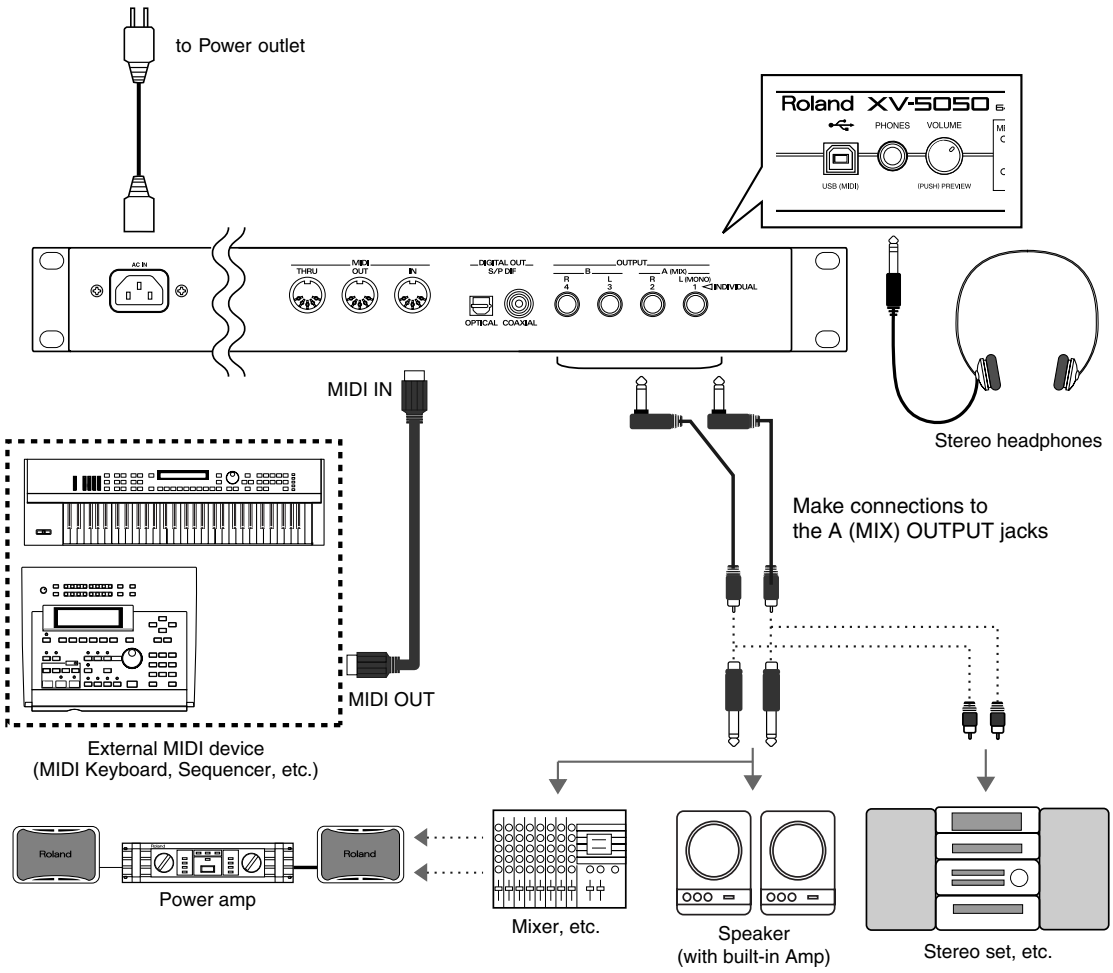
INDIVIDUAL 1–6 OUTPUT Jacks

These jacks output audio signals in mono from the XV-5050 to an amp or mixer. (p. 13)

Getting Ready

Connecting to MIDI Devices and Audio Equipment

The XV-5050 is not equipped with an internal amp or speakers. To hear sound, you will need to connect it to a keyboard amp or audio system, or connect headphones. Refer to the following figure when connecting the XV-5050 with external devices.



1. Before making any connections, confirm that power to all devices has been turned off.

2. Connect the AC power cord included with the XV-5050 to the unit, then plug the other end into a power outlet.

3. Connect audio and MIDI cables as shown in the diagram. If connecting headphones, plug the headphones into the PHONES jack.

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.

Turning the Power On/Off

Turning On the Power

* *Once the connections have been completed (p. 13), 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.*

1. Before turning on the power, confirm the following.

- Are all devices connected properly?
- Are the volume levels on the XV-5050 and any amp or mixer that is connected turned down to the lowest settings?

2. Press XV-5050's [POWER] to turn on the power.

3. Turn on the power to connected external devices.

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.

Turning Off the Power

1. Before turning off the power, confirm the following.

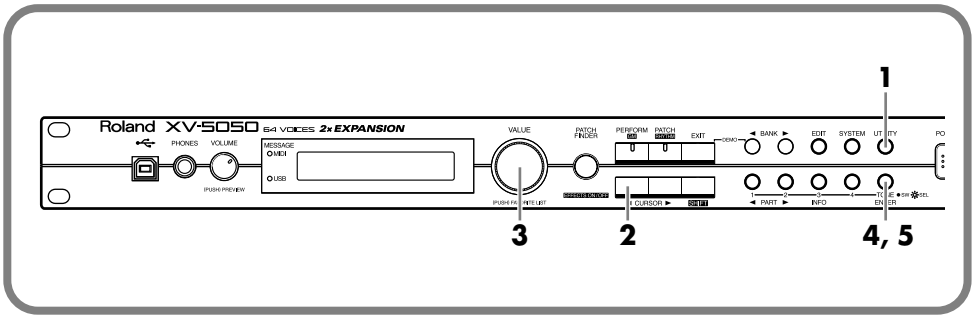
- Are the volume levels on the XV-5050 and any amp or mixer that is connected turned down to the lowest settings?
- Have you saved your data, including data for any sounds you have created? (p. 104)

2. Turn off the power to connected external devices.

3. Press XV-5050's [POWER] to turn off the power.

Restoring the Factory Settings (Factory Reset)

To ensure the XV-5050 operates correctly as described in the procedures found in the Owner's Manual when using the XV-5050 for the first time, be sure to restore the settings to their initial status as shipped.



1. Press [UTILITY] to make its indicator light.

The UTILITY screen appears in the display.

```
WRITE PATCH     [ENT]
US:001(Xtremities  )
```

2. Press [◄ CURSOR] a few times to move the cursor to the upper left of the display.

3. Turn [VALUE] to choose "FACTORY RESET."

```
FACTORY RESET   [ENT]
```

4. Press [ENTER].

The confirmation message "Are You Sure?" appears in the display.

```
FACTORY RESET   [ENT]
   Are You Sure?
```

* *To cancel, press [EXIT]*

5. Press [ENTER] to execute the factory reset.

The PLAY screen returns to the display.

* *If the following display appears, turn [VALUE] to change the displayed ON to OFF. After pressing [ENTER] to turn off the protect, press [ENTER] again to save the settings.*

```
WRITE PROTECT
Internal:          ON
```

NOTE

If any important data you may have created is stored in memory, then running this operation will cause such data to be lost. If there is any data you wish to retain, then save the data to a commercially available memory card or external MIDI device.

MEMO

For more information on Write Protect, refer to page 105.

MEMO

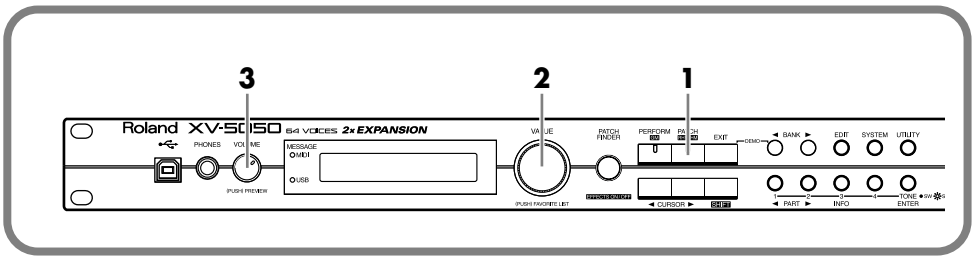
Quick Start

Playing Sounds

The XV-5050 comes with a rich palette of onboard sounds, called "Patches." Let's listen to some Patches in **Patch mode**.

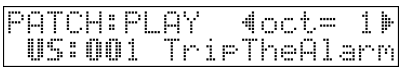
Playing Patches (Phrase Preview)

Even when there's no MIDI keyboard or sequencer connected, the XV-5050 allows you to audition sounds using a number of prepared phrases that are perfectly matched to each Patch (**category**).



1. Press [PATCH] to make its indicator light.

The PATCH PLAY screen appears in the display.



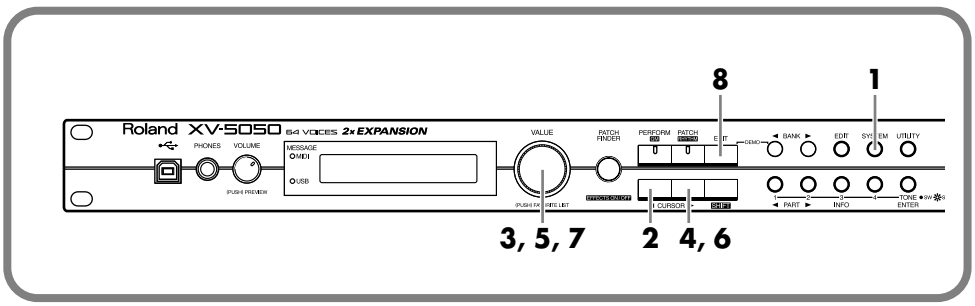
2. Turn [VALUE] to choose a Patch.

3. Press and hold down [VOLUME].

The Patch plays while [VOLUME] is depressed.

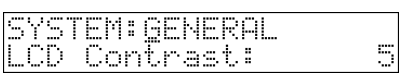
Setting the Way In Which Sounds Are Previewed

You can preview a Patch in any of three ways: "PHRASE" (the Patch plays a phrase), "CHORD" (the Patch plays a chord), or "SINGLE" (the Patch plays a series of notes).



1. Press [SYSTEM] to make its indicator light.

2. Press [◄ CURSOR] a few times to move the cursor to the parameter group in the upper line of the display.



3. Turn [VALUE] to choose "PREVIEW."

4. **Press [CURSOR ►] to move the cursor to the parameter at the lower left of the display.**

5. **Turn [VALUE] to choose the parameter you want to set.**

6. **Press [CURSOR ►] to move the cursor to the value at the lower right of the display.**

7. **Turn [VALUE] to select the desired setting.**

8. **Press [EXIT] to return to the PATCH PLAY screen.**

Parameter	Value	Description
PREVIEW		
Mode	SINGLE, CHORD, PHRASE	**SINGLE:** The notes specified by Key Note 1–4 sound one after another. **CHORD:** The notes specified by Key Note 1–4 play together as a chord. **PHRASE:** The Phrase associated with the Patch's type/category plays.
Key Note 1–4	C-1–G9	Specifies the four notes that sound during a preview when "SINGLE" or "CHORD" is selected for Mode.
Velocity Note 1–4	0–127	Specifies the volume of the four notes that sound when "SINGLE" or "CHORD" is chosen for Mode.

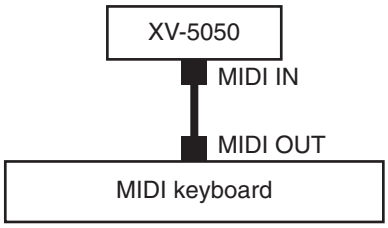
Playing a Patch on the XV-5050 from an External MIDI Device (MIDI Keyboard)

The XV-5050 produces sound in response to MIDI messages it receives from an external MIDI device such as a MIDI keyboard or sequencer.

Try connecting your MIDI keyboard and playing sounds on the XV-5050.

Connecting the MIDI Keyboard

Connect the MIDI keyboard as shown in the following.



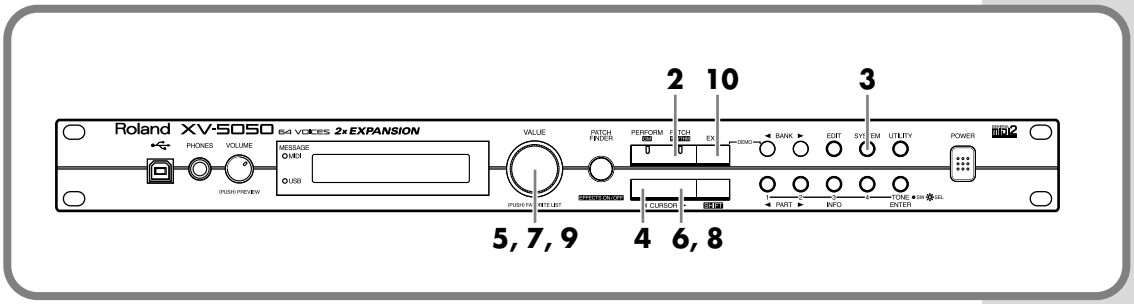
Matching MIDI Channels

In order for the XV-5050 to respond to MIDI data sent by an external MIDI device, both devices must be set to use the same MIDI channel or channels.

Here, in Patch mode, let's set both devices so that they use MIDI Channel 1.

MEMO

Executing a Factory Reset sets the XV-5050's reception channel in Patch mode to "1."



1. Set the send channel of the MIDI keyboard to "1."

Refer to the keyboard's owner's manual for instructions.

2. Press [PATCH] to make its indicator light.

* *If you're using the XV-5050 for the first time – or if you've just performed a Factory Reset – you can skip the following steps and play the XV-5050 from your keyboard right now.*

3. Press [SYSTEM] to make its indicator light.

4. Press [◄ CURSOR] a few times to move the cursor to the upper line of the display.

```
SYSTEM:GENERAL
LCD Contrast:      5
```

5. Turn [VALUE] to choose "MIDI."

```
SYSTEM:MIDI&USB
Control Channel:  16
```

6. Press [CURSOR ►] to move the cursor to the lower left of the display.

7. Turn [VALUE] to choose "Patch Rx Channel."

```
SYSTEM:MIDI&USB
Patch Rx Channel:  3
```

8. Press [CURSOR ►] to move the cursor to the lower right of the display.

9. Turn [VALUE] to choose "1."

```
SYSTEM:MIDI&USB
Patch Rx Channel:  1
```

10. Press [EXIT] to return to the PATCH PLAY screen.

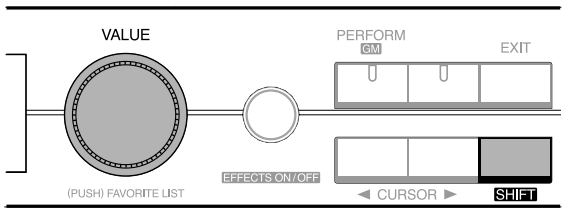
Play the MIDI keyboard to hear the currently selected XV-5050 Patch.

MEMO

You can hold down [SHIFT] and press [PATCH] to enter Rhythm Set mode and play percussion sounds from your MIDI keyboard. To return to the PATCH PLAY screen, press [PATCH].

Choosing a Patch

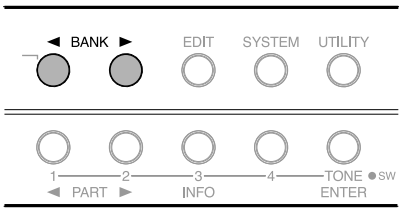
Basic Procedure for Choosing a Patch



On the PATCH PLAY screen, turn [VALUE] to choose the desired Patch.

As you turn [VALUE], press the [VALUE] knob to change values in large steps. You can also hold down [SHIFT] as you turn to change values in large steps.

Choosing a Bank



Press [◄ BANK]/[BANK ►] in Patch mode to select a new **Bank**.

- Pressing [BANK ►] changes the Bank as shown below.

US (User) -> PA (Preset A) -> PB (Preset B) -> . . . -> GM (General MIDI)-> XA (Expansion A) -> XB (Expansion B)

- Pressing [◄ BANK] changes the Bank as below.

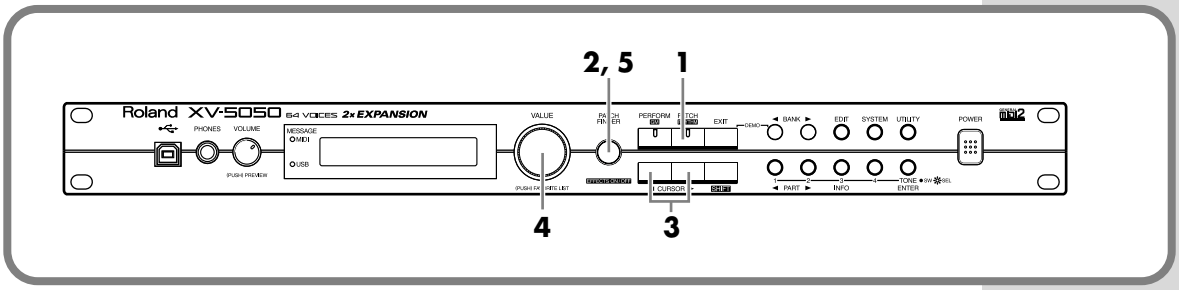
XB (Expansion B)-> XA (Expansion A)-> GM (General MIDI) -> PH (Preset H) -> PG (Preset G) -> . . . -> US (User)

NOTE

You cannot select XA or XP unless a Wave Expansion Board is installed into the corresponding slot.

Choosing a Patch by Category (Patch Finder)

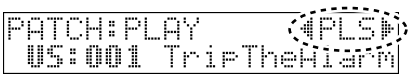
The XV-5050's "Patch Finder" allows you to quickly find any Patch.



1. Press [PATCH] to make its indicator light.

2. Press [PATCH FINDER] to make its indicator light.

The current category appears in the upper right of the display.

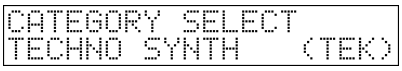


3. Press [◄ CURSOR]/[CURSOR ►] to select the desired category.

4. Turn [VALUE] to choose a Patch in the currently selected category.

5. Press [PATCH FINDER] to turn off its indicator.

* *If you press [VALUE] in Step 3, the CATEGORY SELECT screen appears.*



- On the CATEGORY SELECT screen, turn [VALUE] to choose a category, and then press [VALUE] or [ENTER] to confirm your choice. To find the desired Patch, perform Steps 4 and 5 above.

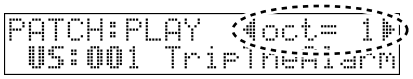
You can select the following categories.

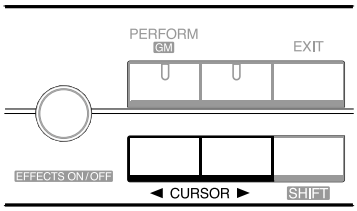
Category Group	Display	Category	Contents
	—	NO ASSIGN	No assign
Piano	PNO	AC.PIANO	Acoustic Piano
	EP	EL.PIANO	Electric Piano
Keys&Organ	KEY	KEYBOARDS	Other Keyboards (Clav, Harpsichord, etc.)
	BEL	BELL	Bell, Bell Pad
	MLT	MALLET	Mallet
	ORG	ORGAN	Electric and Church Organ
	ACD	ACCORDION	Accordion
	HRM	HARMONICA	Harmonica, Blues Harp
Guitar	AGT	AC.GUITAR	Acoustic Guitar
	EGT	EL.GUITAR	Electric Guitar
	DGT	DIST.GUITAR	Distortion Guitar
Bass	BS	BASS	Acoustic and Electric Bass
	SBS	SYNTH BASS	Synth Bass
Orchestral	STR	STRINGS	Strings
	ORC	ORCHESTRA	Orchestra Ensemble
	HIT	HIT&STAB	Orchestra Hit, Hit
	WND	WIND	Winds (Oboe, Clarinet, etc.)
	FLT	FLUTE	Flute, Piccolo
Brass	BRS	AC.BRASS	Acoustic Brass
	SBR	SYNTH BRASS	Synth Brass
	SAX	SAX	Sax
Synth	HLD	HARD LEAD	Hard Synth Lead
	SLD	SOFT LEAD	Soft Synth Lead
	TEK	TECHNO SYNTH	Techno Synth
	PLS	PULSATING	Pulsating Synth
	FX	SYNTH FX	Synth FX (Noise, etc.)
	SYN	OTHER SYNTH	Poly Synth
Pad	BPD	BRIGHT PAD	Bright Pad Synth
	SPD	SOFT PAD	Soft Pad Synth
	VOX	VOX	Vox, Choir
Ethnic	PLK	PLUCKED	Plucked (Harp, etc.)
	ETH	ETHNIC	Other Ethnic
	FRT	FRETTED	Fretted Inst (Mandolin, etc.)
Rhythm&SFX	PRC	PERCUSSION	Percussion
	SFX	SOUND FX	Sound FX
	BTS	BEAT&GROOVE	Beat and Groove
	DRM	DRUMS	Drum Set
	CMB	COMBINATION	Other Patches which use Split and Layer

Setting a Patch's Pitch in Octave Steps (Octave Shift)

In Patch mode, you can easily change the pitch of an entire Patch.

Each time you press [◄ CURSOR]/[CURSOR ►], the pitch changes in one-octave steps. You can adjust a Patch's pitch by as much as +/- 3 octaves.





Switching Modes (Patch, Performance, or Rhythm Set)

In addition to Patch mode, the XV-5050 also features three other modes: Performance mode, Rhythm Set mode, and GM2 mode.

PERFORM (Performance Mode)

Choose this mode when using the XV-5050 as a multitimbral sound module or when changing Performance settings.

When you press [PERFORM], its indicator lights, and you enter Performance mode.

PATCH (Patch Mode)

Choose this mode when playing a single Patch from a keyboard or when changing Patch settings.

When you press [PATCH], its indicator lights, and you enter Patch mode.

RHYTHM (Rhythm Set Mode)

Choose this mode when playing Rhythm Sets from a keyboard or when changing Rhythm Set settings. XV-5050 Rhythm Sets can be used in any Part in a Performance. You can also select the desired multi-effects for a Rhythm Set.

When you hold down [SHIFT] and press [PATCH], the [PATCH] indicator blinks, and you enter Rhythm Set mode.

GM (General MIDI 2 Mode)

Choose this mode when using the XV-5050 as a General MIDI 2 compatible sound module.

When you hold down [SHIFT] and press [PERFORM], the [PERFORM] indicator blinks, and you enter General MIDI 2 mode.

General MIDI is a set of recommendations that standardizes the MIDI capabilities of sound modules. Sound modules and music files that adhere to the General MIDI standard bear the General MIDI logo (GENERAL MIDI). Music files bearing the General MIDI logo can be played back using any General MIDI sound module with essentially the same musical results.

The upwardly compatible General MIDI 2 (GENERAL MIDI2) recommendations pick up where General MIDI leaves off, offering enhanced expressive capabilities and even greater compatibility.

Issues not covered by the original General MIDI standard – such as how sounds are to be edited, and how effects should be handled – are precisely defined in General MIDI 2. Moreover, the available sounds have been expanded. General MIDI 2 compliant sound modules are capable of reliably playing back music files that carry either the General MIDI or General MIDI 2 logo. In some cases, the conventional form of General MIDI, which does not include the new enhancements, is referred to as "General MIDI 1" as a way of distinguishing it from General MIDI 2.

What is a Performance?

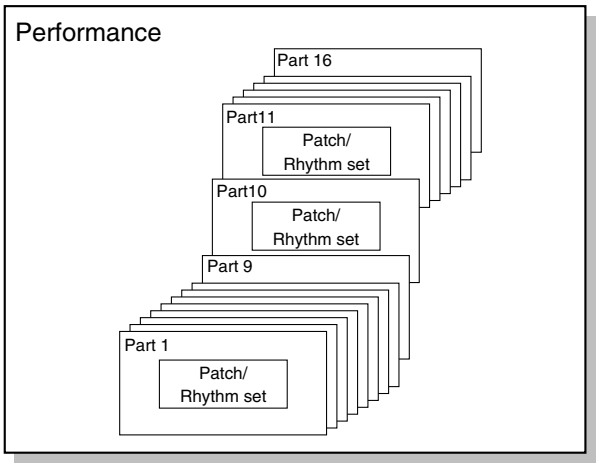
With Performances, you can combine a total of up to sixteen separate Patches and Rhythm Sets to produce complex, rich ensemble textures. In other words, a Performance allows you to produce sixteen separate sounds with a single XV-5050. A sound module that can simultaneously produce multiple sounds – such as the XV-5050 – is called a "multitimbral" sound module.

What is a Rhythm Set?

A Rhythm Set is a group of percussion instrument sounds. Since these sounds are not typically used for performing melodies, it's not necessary to play them at different pitches across a keyboard. However, it is important to be able to play a number of percussion instruments at the same time. A Rhythm Set lets you play different percussion sounds by pressing different keys on your keyboard.

Playing Multiple Layered Patches (Layer)

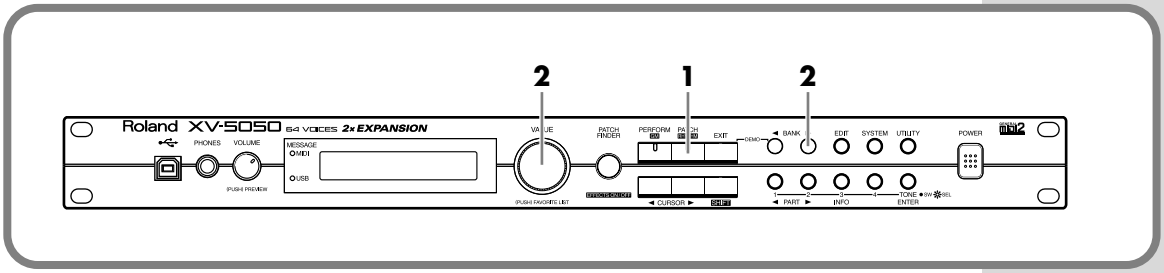
The collected assignment of Patches or Rhythm Sets to the XV-5050's sixteen Parts is referred to as a "Performance."



You can set a number of Parts to the same MIDI reception channel so that their Patches sound at the same time. This type of Performance is referred to as a **Layer**.

Let's try this technique using Performance "PB:001 Dulcimar&Gtr," playing two layered Patches.

Selecting Performance "PB:001 Dulcimar&Gtr"



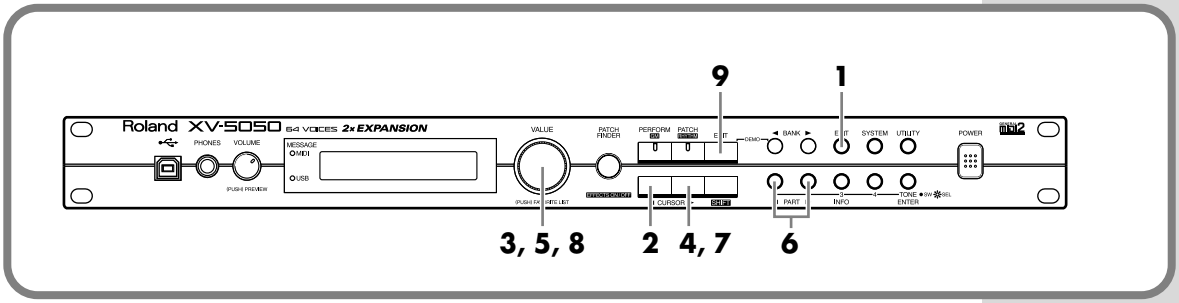
1. Press [PERFORM] to make its indicator light.

2. Use [BANK ►] and [VALUE] to choose "PB:001 Dulcimar&Gtr."

Set the MIDI keyboard send channel to "1," and play the keyboard. Since the Patches for Part 1 and Part 2 are layered, they play together.

Turning a Part On or Off

Let's try turning the Parts used in a Performance on and off.
In Performance PB:001 Dulcimar&Gtr, Parts 1, 2 and 10 are turned on.
Let's try turning Part 2 on and off.



First, make sure Performance "PB:001 Dulcimar&Gtr" is selected.

1. **Press [EDIT] to make its indicator light.**

2. **Press [◄ CURSOR] a few times to move the cursor to the upper line of the display.**

3. **Turn [VALUE] to choose "MIDI."**

```
PERFORM:MIDI        P 1
Rx Channel:           1
```

4. **Press [CURSOR ►] to move the cursor to the lower left of the display.**

5. **Turn [VALUE] to choose "Rx Switch."**

6. **Press [◄ PART]/[PART ►] to choose Part 2.**

```
PERFORM:MIDI        P 2
Rx Switch:           ON
```

7. **Press [CURSOR ►] to move the cursor to the lower right of the display.**

8. **Turn [VALUE] to choose "OFF" or "ON."**

9. **Press [EXIT] to return to the PERFORM PLAY screen.**

Assigning a New Patch to a Part

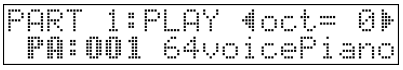
Here's how to change the Patch assigned to a Part in a Performance.

We'll change the patch assigned to Part 2 of Performance "PA:001 Seq:Template" to "PB:018 Slap Bass 1."

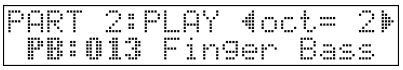
On the PERFORM PLAY screen, choose Performance "PA:001 Seq:Template."

1. Press [PERFORM] and [PATCH] to make their indicators light.

The patch assigned to the current part appears.



2. Press [◄ PART]/[PART ►] to choose Part 2.



3. Turn [VALUE] to choose "018 Slap Bass 1."

4. Press [PERFORM] to return to the PERFORM PLAY screen.

MEMO

Phrase Preview feature is also available in Performance mode. The patch on the current part will sound.

Changing the MIDI Reception Channel of Each Part

On the PERFORM PLAY screen, choose the Performance you wish to use.

1. Press [EDIT] to make its indicator light.

2. Press [◄ CURSOR] a few times to move the cursor to the upper line of the display.

3. Turn [VALUE] to choose "MIDI."

4. Press [CURSOR ►] to move the cursor to the lower left of the display.

5. Turn [VALUE] to choose "Rx Channel."

6. Press [◄ PART]/[PART ►] to choose the Part you wish to set.

7. Press [CURSOR ►] to move the cursor to the lower right of the display.

8. Turn [VALUE] to choose the desired MIDI channel.

9. Press [EXIT] to return to the PERFORM PLAY screen.

MEMO

You can play multiple Parts — and their Patches — simultaneously by setting them to the same MIDI reception channel.

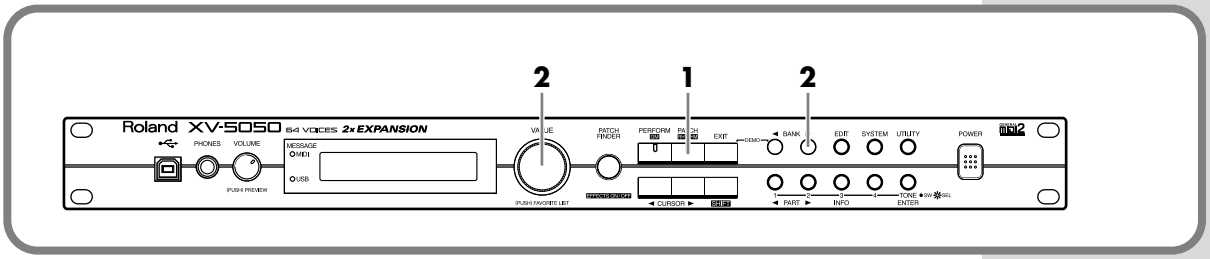
Playing Different Patches In Different Areas of the Keyboard (Split)

In a Performance, you can divide the keyboard into separate ranges and assign a different Patch to each range. This can be done by selecting the same MIDI reception channel for multiple Parts and then changing the pitch range over which each Part plays. This type of keyboard setup is referred to as a **Split**.

A split is like a layer in which the Parts' pitch ranges don't overlap (Playing Multiple Layered Patches).

Let's create a split using Performance "PB:029 Organ/Lead."

Selecting Performance "PB:029 Organ/Lead"



1. Press [PERFORM] to make its indicator light.

2. Use [BANK ►] and [VALUE] to choose "PB:029 Organ/Lead."

Play your MIDI keyboard (MIDI transmit channel = 1).

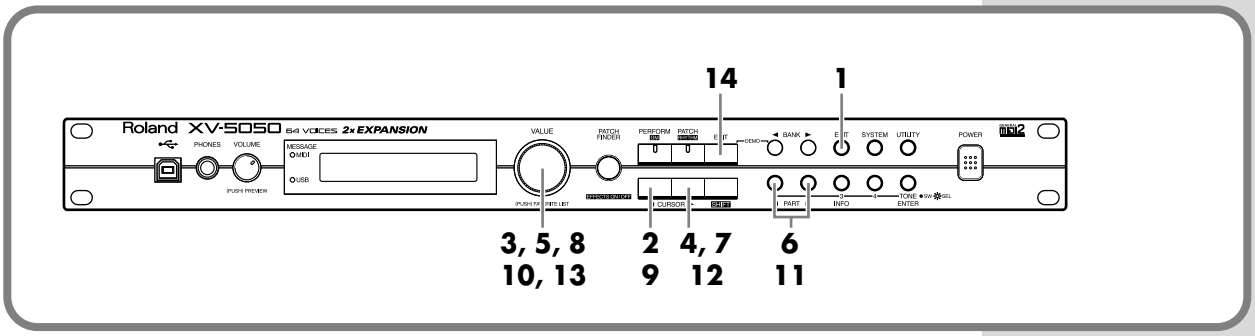
In this Performance, the note range settings for Part 2 and Part 3 are shown below.

Part 2: C4–G9

Part 3: C-1–B3

Setting the Note Range of Each Part

Now let's change the settings so that Part 2 sounds in the C5–G9 range and Part 3 sounds in the C-1–B4 range.



First, make sure Performance "PB:029 Organ/Lead" is chosen.

1. **Press [EDIT] to make its indicator light.**
2. **Press [◄ CURSOR] a few times to move the cursor to the upper line of the display.**
3. **Turn [VALUE] to choose "COMMON."**
4. **Press [CURSOR ►] to move the cursor to the lower left of the display.**
5. **Turn [VALUE] to choose "Key Range Lower."**
6. **Press [◄ PART]/[PART ►] to choose Part 2.**
7. **Press [CURSOR ►] to move the cursor to the lower right of the display.**
8. **Turn [VALUE] to choose "C5."**
9. **Press [◄ CURSOR] to move the cursor to the lower left of the display.**
10. **Turn [VALUE] to choose "Key Range Upper."**
11. **Press [PART ►] to choose Part 3.**
12. **Press [CURSOR ►] to move the cursor to the lower right of the display.**
13. **Turn [VALUE] to choose "B4."**
14. **Press [EXIT] to return to the PERFORM PLAY screen.**

Play your MIDI keyboard and notice how the Part's ranges have changed.

Using an External MIDI Device to Select Patches and Change Other Settings

Selecting Patches and Rhythm Sets

You can change Patches – including the Patches in each Part of a Performance – and Rhythm Sets on the XV-5050 via MIDI Part.

In this example, after setting the send channel for the external MIDI device and the XV-5050's reception channel (Patch Rx Channel) to "1," we'll send a MIDI message from the external MIDI device to select the XV-5050 Patch "PB:018 Slap Bass 1."

MEMO

A Factory Reset sets the reception channel in Patch mode to MIDI Channel 1.

1. Use a MIDI cable to connect the MIDI OUT connector on the external MIDI device to the XV-5050's MIDI IN connector.

2. Press [PATCH] to make its indicator light.

3. Set the channel used for transmission by the external MIDI device and the XV-5050's reception channel to the same MIDI channel (see p. 19).

* *A Factory Reset sets the reception channel in Patch mode to MIDI Channel 1.*

4. Send a Bank Select MSB (Control Number 0) value of "87" to the XV-5050.

* *If you want to select a Rhythm Set, send a value of "86."*

5. Next, send a Bank Select LSB (Control Number 32) value of "65."

6. Send a Program Change with a value of "18."

The Patch name appearing in the display changes to "PB:018 Slap Bass 1."

* *Each Patch or Rhythm Set has a corresponding Bank Select number and Program number, as shown below.*

Patches		Bank Select number		Program number
Bank	Number	MSB	LSB	
US (User)	001–128	87	00	001–128
PA (Preset A)	001–128	87	64	001–128
PB (Preset B)	001–128	87	65	001–128
PC (Preset C)	001–128	87	66	001–128
PD (Preset D)	001–128	87	67	001–128
PE (Preset E)	001–128	87	68	001–128
PF (Preset F)	001–128	87	69	001–128
PG (Preset G)	001–128	87	70	001–128
PH (Preset H)	001–128	87	71	001–128
GM (GM2)	001–256	121	0–	001–128
XA (Expansion A)	001–	93	0–	001–
XB (Expansion B)	001–	93	0–	001–

NOTE

Numbers for XA and XB will be different depending on the Wave Expansion Board you've installed. For more information, refer to the manual for the SRX.

Rhythm Sets		Bank Select number		Program number
Bank	Number	MSB	LSB	
US (User)	001–004	86	00	001–004
PA (Preset A)	001–002	86	64	001–002
PB (Preset B)	001–002	86	65	001–002
PC (Preset C)	001–002	86	66	001–002
PD (Preset D)	001–002	86	67	001–002
PE (Preset E)	001–002	86	68	001–002
PF (Preset F)	001–002	86	69	001–002
PG (Preset G)	001–002	86	70	001–002
PH (Preset H)	001–002	86	71	001–002
GM (GM2)	001–009	120	00	001–057
XA (Expansion A)	001–	92	0–	001–
XB (Expansion B)	001–	92	0–	001–

NOTE

Numbers for XA and XB will be different depending on the Wave Expansion Board you've installed. For more information, refer to the manual for the SRX.

Selecting Performances

To switch Performances, after matching the send channel for the external MIDI device with the XV-5050's Performance Control channel (Control Channel p. 108), send the Bank Select number and Program Change messages.

Upon execution of Factory Reset, **Performance Ctrl-Ch** is set to "16." Here, set the external MIDI device's send channel to "16," then try switching the Performance to PB:029 Organ/Lead.

1. Use a MIDI cable to connect the MIDI OUT connector on the external MIDI device to the XV-5050's MIDI IN connector.

2. Press the [PERFORM] button, lighting the indicator.

The XV-5050 reverts to Performance mode.

3. Set the external MIDI device's send channel to "16."

For instructions on making this setting, refer to the owner's manual for the external MIDI device.

4. Send a Bank Select MSB (Control Number 0) with a value of "85" to the XV-5050.

5. Next, send a Bank Select LSB (Control Number 32) with a value of "65."

6. Send a Program Change with a value of "29."

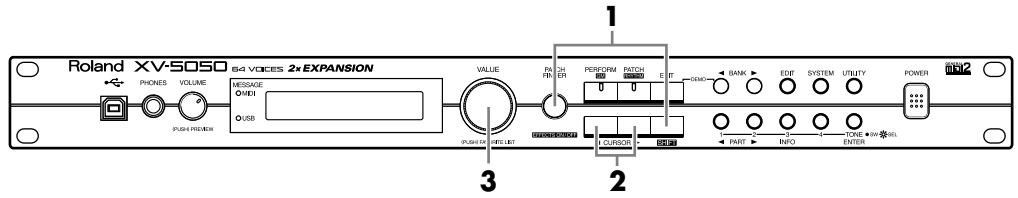
The Performance name appearing in the page changes to PB:029 Organ/Lead.

* *Each Performance has a corresponding Bank Select number and Program number, as shown below.*

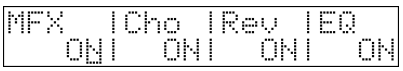
Performances		Bank Select number		Program number
Bank	Number	MSB	LSB	
US (User)	001–064	85	00	001–064
PA (Preset A)	001–032	85	64	001–032
PB (Preset B)	001–032	85	65	001–032

Turning Effects On and Off

You can turn each of the XV-5050's built-in effects processors (multi-effects, chorus, reverb, and equalizer) on or off for the entire XV-5050, regardless of its current mode (Performance, Patch, and Rhythm Set).



1. Hold down [SHIFT] and press [PATCH FINDER] to make its indicator blink.



2. Press [◄ CURSOR]/[CURSOR ►] to choose the effects processor to be turned on or off.

3. Turn [VALUE] to turn the effect on or off.

MFX (Multi-Effects)

The MFX (Multi-Effects) group offers 90 different effect types. In addition to single effects such as distortion and delay, the XV-5050 also provides a number of multiple effects that combine several single effects. The multi-effects group also includes chorus and reverb effects in addition to the separate chorus and reverb described below.

Chorus

Chorus adds fatness and breadth to the sound.

Reverb

Reverb adds an ambience to sounds so they seem to be playing in an actual physical space.

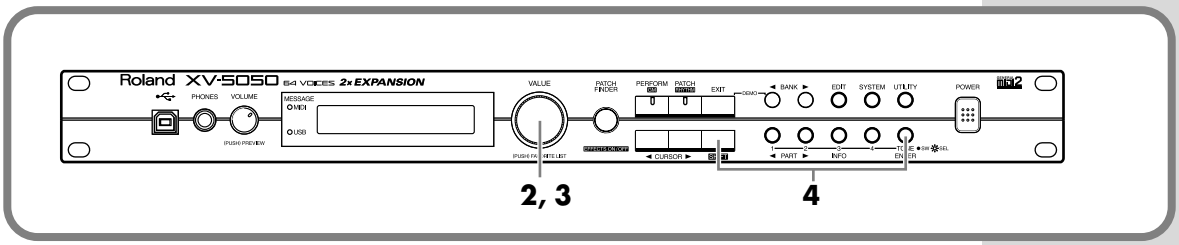
EQ (Equalizer)

Equalizer boosts or cuts specific frequencies within a sound.

Making a List of Your Favorite Patches

Registering a Patch in the FAVORITE LIST

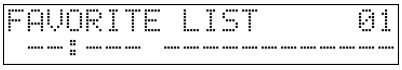
You can bring together your favorite and most frequently used Patches in one place by registering them in the **FAVORITE LIST**. The **FAVORITE LIST** gives you immediate access to your favorite Patches, whether they're in the XV-5050 itself or on Wave Expansion Boards. You can register up to 64 Patches in this list.



1. On the PATCH PLAY screen, choose the Patch you want to register.

2. Press [VALUE].

The FAVORITE LIST screen appears.

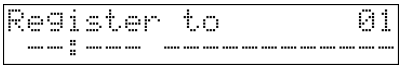


3. Turn [VALUE] to choose the desired registration destination number.

* *There is no factory list of favorites.*

4. Hold down [SHIFT] and press [ENTER] to execute the registration.

Press [SHIFT] to display the Registration screen shown in the figure below.

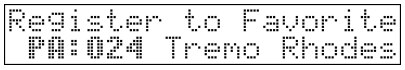


* *To cancel the registration, press [EXIT].*

5. Press [EXIT] to return to the PATCH PLAY screen.

Directly registering to the list on the PATCH/RHYTHM PLAY page

The following display appears when [SHIFT] is pressed while on the PATCH/RHYTHM PLAY page.



If [ENTER] is pressed at this stage, the data is registered to the lowest-numbered opening on the list.

Although the message "COMPLETE" instantly appears in the display when the registration is executed, if the registration cannot be carried out because the list is full, the message "Favorite List Full" is displayed instead.

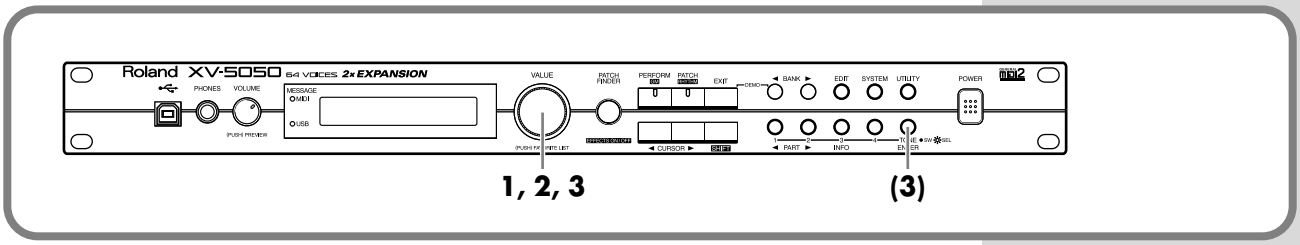
NOTE

When you choose a favorite Patch on a Wave Expansion Board, no sound is produced for the Patch unless the corresponding Wave Expansion Board is installed.

MEMO

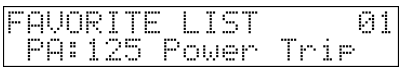
To delete the registration, select the patch you want to delete, and then hold down [SHIFT] and press [EXIT].

Selecting a Patch from the FAVORITE LIST



1. On the PATCH PLAY screen, press [VALUE].

The FAVORITE LIST screen appears.



2. Turn [VALUE] to select the desired Patch.

3. Press [VALUE] or [ENTER] to confirm your choice and return to the previous screen.

* *To cancel the selection, press [EXIT].*

Connecting to a Computer

If you're running music software on your computer, you can use the computer to control the operation of the XV-5050. This allows you to create and play back song data, select sounds on the XV-5050 from the computer, and create new XV-5050 sounds on the computer.

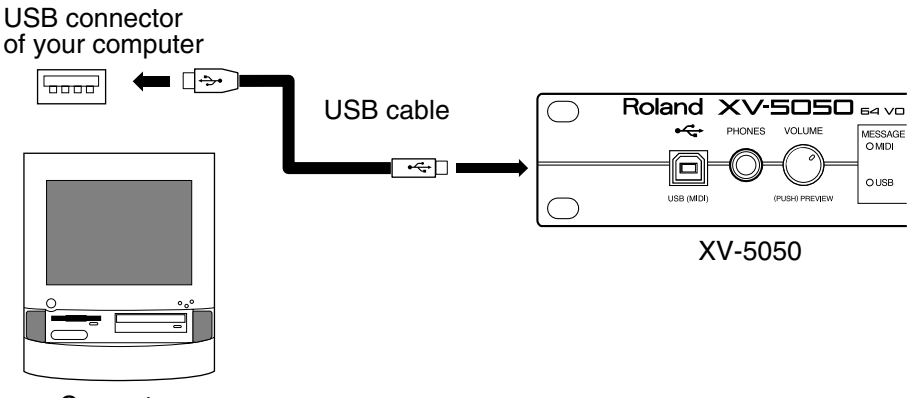
Two Ways to Connect

You can connect the XV-5050 to a computer using either of two methods: **connecting it with a USB connector** and **connecting it with MIDI connectors**.

A USB cable can connect the XV-5050 to your computer's USB connector.

A MIDI interface is required for making MIDI connections with a computer. The MIDI interface is connected to the computer, and two MIDI cables connect the MIDI connectors of the MIDI interface to the XV-5050's MIDI connectors.

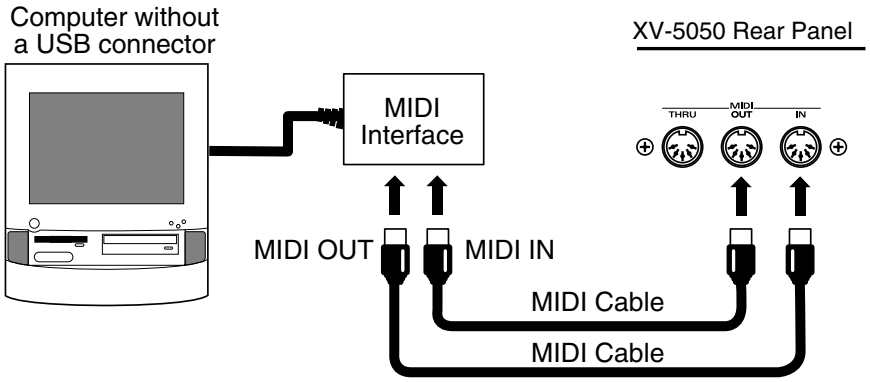
Connecting with USB Connector



MEMO

Once the USB MIDI driver is installed, it's not necessary to turn off the power for your computer or the XV-5050 when using a USB cable to connect your computer to the XV-5050.

Connecting with MIDI Connectors



NOTE

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

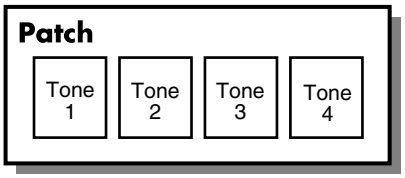
About Patches and Performances

On the XV-5050, sounds are organized according to units called **Tones**, **Patches**, **Rhythm Sets**, and **Performances**. This section describes the relationship between a Patch and a Performance.

What Is a Patch?

The type of sound most commonly played on the XV-5050 is called a **Patch**. A Patch is a combination of **Tones**, which are the smallest units of sound. Each Patch can contain up to four Tones. If we use the analogy of an orchestra, then Patches are the musical instruments of the performers.

* *For information on Tones, see p. 38.*

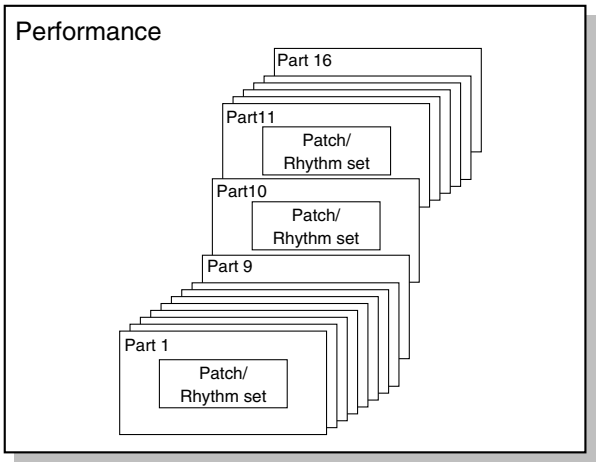


* *You can turn the Tones in a Patch on or off. Only Tones that are turned on are heard when you play the Patch (p. 39).*

What Is a Performance?

It may be easiest to think of a **Performance** as being the orchestra itself.

To continue the orchestra analogy, a Performance is made up of the parts assigned to the respective instruments (called, naturally enough, "Parts"). You can enjoy ensemble play by combining a total of 16 Patches or Rhythm Sets into one such Part.



In other words, a Performance allows you to produce sixteen separate sounds with a single XV-5050.

If You're Playing Back Song Data Using an External MIDI Instrument or Sequencing Program

On the XV-5050, press [PERFORM] so its indicator lights, change to the Performance mode, then start playback of the song data.

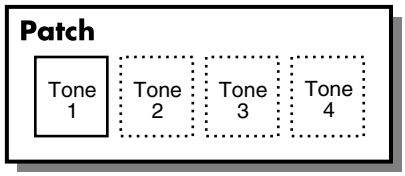
* *The Patch mode is selected by default. Please be aware that if you try to play song data while in the Patch mode, only the sound of one Part is played.*

Advanced Use

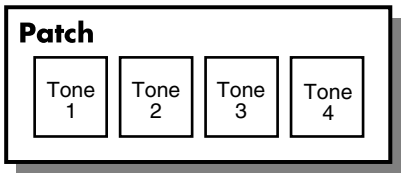
Chapter 1 Creating a Patch

How a Patch Is Organized

The type of sound most commonly played on the XV-5050 is called a **Patch**. Each Patch can contain up to four Tones.



Example 1:A Patch consisting of only one Tone (Tones 2—4 are turned off).



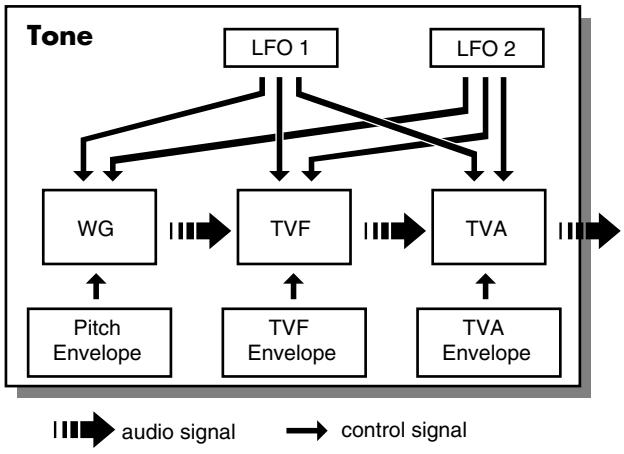
Example 2: A Patch consisting of four Tones.

You can turn the Tones in a Patch on or off. Only Tones that are turned on are heard when you play the Patch. (p. 39)

You can also set the structure of a Patch to specify how Tones 1 and 2 and Tones 3 and 4 are combined. (p. 41)

How a Tone Is Organized

Tones are the smallest programmable unit of sound on the XV-5050, and are the basic building blocks that make up a Patch. You can't play a Tone by itself—it can only be played as part of a Patch or Rhythm Set. A Tone consists of the following five components.



WG (Wave Generator)

This selects the PCM waveform material that provides the basis of the Tone. Two waveforms can be assigned to each Tone.

The XV-5050 has 1083 different waveforms. (See Waveform List p. 138.)

All Patches built into the XV-5050 consist of combinations of Tones based on these waveforms.

TVF (Time Variant Filter)

This specifies how the frequency components of the Tone change.

TVA (Time Variant Amplifier)

This determines how the volume and panning of the Tone change.

Envelope

An envelope applies changes to the Tone over time. There are separate envelopes for pitch, TVF (filter) and TVA (volume). For example, you would use the TVA Envelope to modify the way in which the Tone attacks and decays.

LFO (Low Frequency Oscillator)

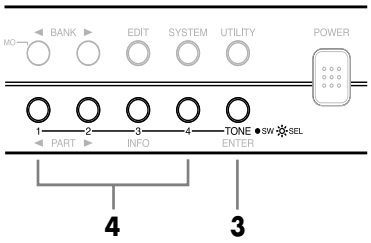
Use the LFO to create cyclical changes—or cyclical "modulation"—in a Tone. Each Tone has two LFOs. An LFO can be applied to the Tone's pitch settings, TVF (filter), and TVA (volume). When an LFO is applied to pitch, a vibrato effect is produced. When an LFO is applied to the TVF cutoff frequency, a wah-wah effect is produced. When an LFO is applied to the TVA volume, a tremolo effect is produced.

Tips for Creating a Patch

- Choose a Patch that's similar to the sound you wish to create.
  When you want to create a new sound, it's a good idea to begin with a Patch that's close to the sound that you have in mind. Starting with a Patch that bears no resemblance to the one you want to create is likely to result in much more programming work for you. (**Choosing a Patch** (p. 21))
- Decide which Tones will sound
  When creating a Patch, it's important to decide which Tones you want to use. It's also important to turn off unused Tones to avoid wasting voices, unnecessarily reducing the number of simultaneous notes you can play. (See "Choosing the Tones That Sound" (p. 39).)
- Check the way in which the Tones are combined
  Structure Type 1&2 and 3&4 are important parameters that determine how the four Tones are combined. Before you select new Tones, make sure you understand how the currently selected Tones are affecting each other. (p. 41)
- Turn off effects
  Since the XV-5050 effects have such a profound impact on its sounds, turn off a Patch's effects during programming so you can more clearly hear the changes you're making. Actually, sometimes just changing effects settings can give you the sound you want. (p. 70)

Choosing the Tones That Sound (Tone On/Off)

Here's how to turn on the Tones that you want to hear in a Patch. You can also use the on/off technique described in this section to audition an individual Tone by turning off all the other Tones in a Patch.

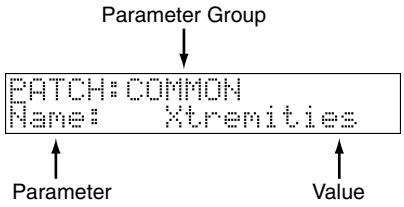


1. **Make sure that the PATCH PLAY screen is displayed.**
2. **Choose the Patch you wish to use.**
3. **If [TONE]'s indicator lights, press [TONE] to make its indicator dark.**
4. **Press TONE SW [1]–[4] to turn the corresponding Tone on so that its indicator lights, or off so that its indicator goes dark.**

Settings Common to the Entire Patch (COMMON)

How to adjust a Patch setting, or "parameter":

1. **Choose the Patch you wish to use.**
2. **Press [EDIT] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the parameter group at the upper line of the display.**



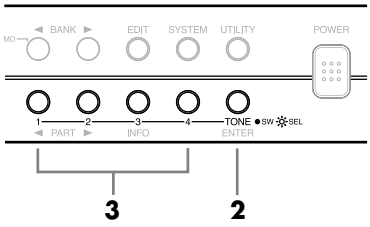
4. **Turn [VALUE] to choose "COMMON."**
5. **Press [CURSOR ►] to move the cursor to the parameter.**
6. **Turn [VALUE] to choose the parameter you want to set.**
7. **Press [CURSOR ►] to move the cursor to the value.**
8. **Turn [VALUE] to choose the desired value.**
9. **Press [EXIT] to return to the PATCH PLAY screen.**
   A "*" symbol appears at the left of the Patch name, indicating that its settings have been changed.

NOTE

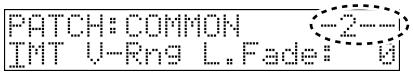
If you turn off the power or choose another Patch while the "*" symbol is displayed, your new Patch settings will be lost. If you wish to preserve them, save the changed Patch using the Write operation. (p. 104)

Selecting a Tone for Editing (Tone Select)

Some parameters can be set independently for each Tone in a Patch.

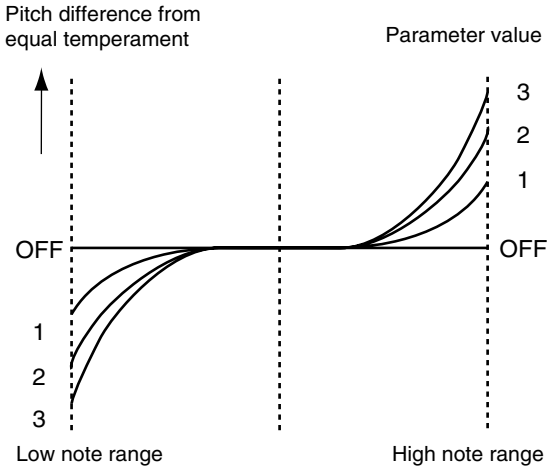


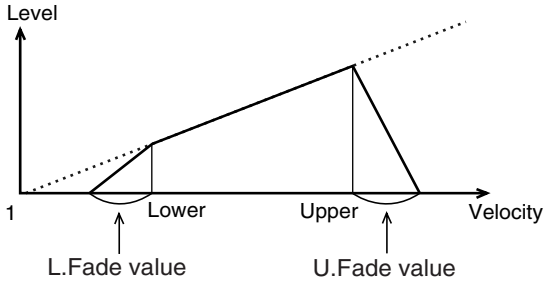
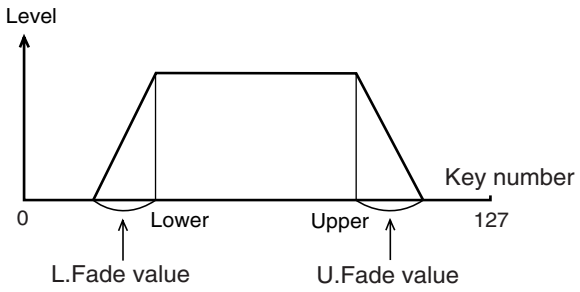
1. **Make sure that the PATCH EDIT screen is displayed.**
2. **Press [TONE] to make its indicator light.**
3. **Press TONE SW [1]–[4] to choose the Tone you wish to set up.**
   Its indicator lights, and the chosen Tone's number appears in the upper right of the display.

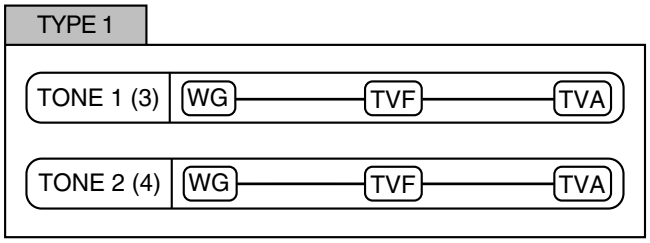


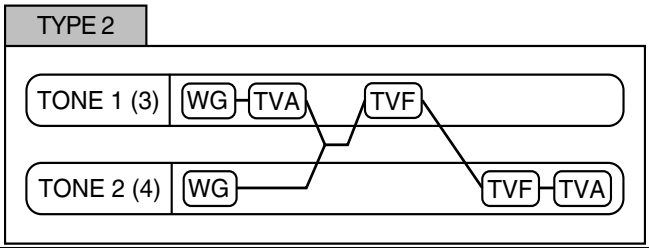
Settings Common to the Entire Patch

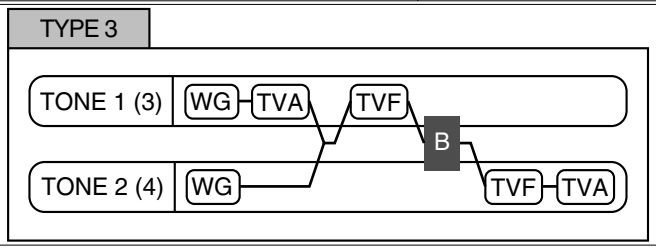
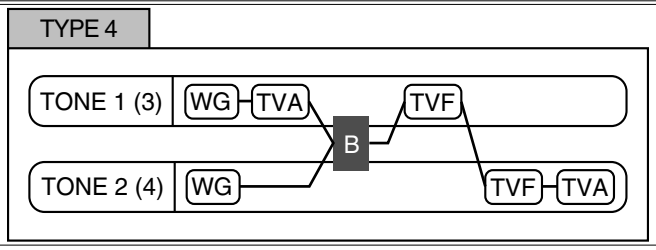
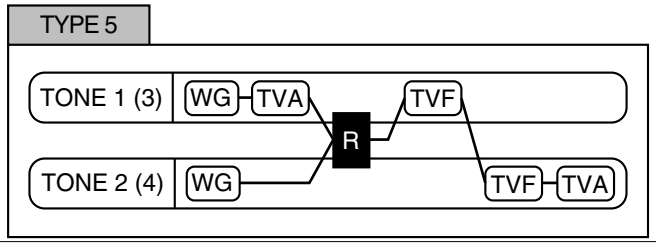
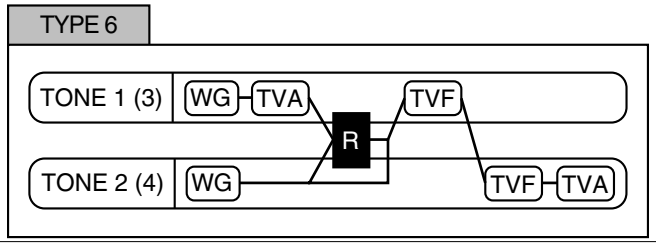
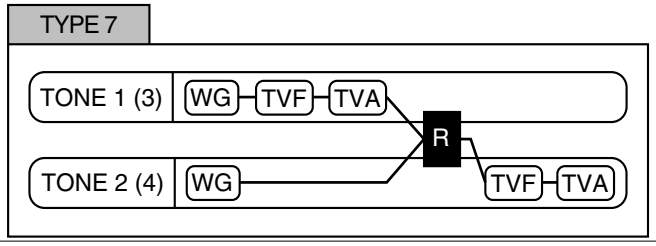
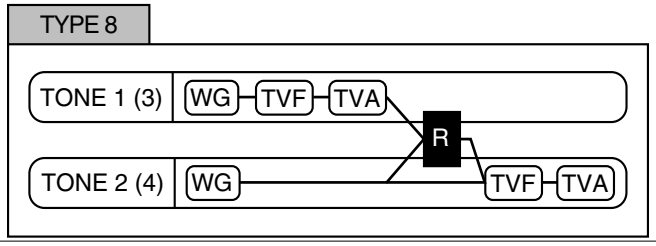
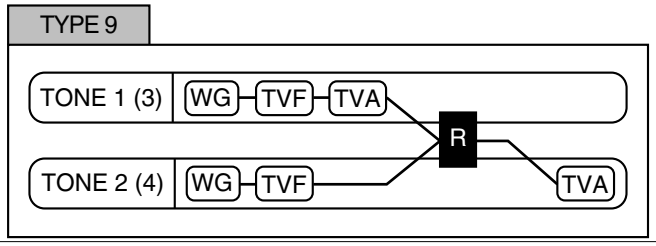
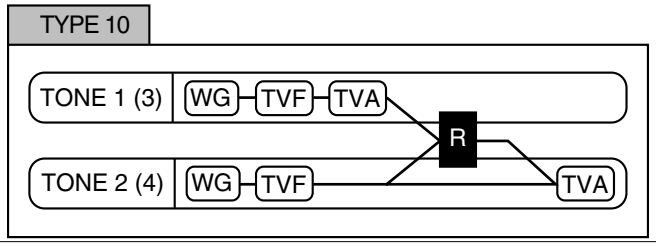
* *Parameters that can be set independently for each Tone are indicated by T."*

Parameter		Value	Description
Name	Patch Name	space, A–Z, a–z, 0–9, ! " # $ % & ' ( ) * + , - . / : ; < = > ? @ [¥] ^ _ ` { | }	You can give a Patch a name of up to 12 characters. Use [◄ CURSOR]/[CURSOR ►] to move the cursor to a character position, and then turn [VALUE] to choose the desired character.
Category	Patch Category	(Refer to p. 22)	Specifies the type, or "category" of the Patch. The Patch Finder uses this setting.
Level	Patch Level	0–127	Specifies the volume of the Patch. * You can specify the level of each Tone in a Patch using the Tone Level parameter (TVA p. 48).
Pan	Patch Pan	L64–63R	Sets the stereo position of the Patch. L64 pans the Patch all the way to the left, 0 is center and 63R pans it hard right. * You can specify the pan setting for each Tone in a Patch using the Tone Pan parameter (TVA p. 48). * While each Tone in a Patch has its own Pan position, the Patch pan setting shifts the entire Patch—including all of its Tones—leftward or rightward.
Analog Feel	Analog Feel Depth	0–127	Specifies the depth of Analog Feel that is applied to the Patch. Traditional analog synthesizers often exhibited a degree of instability in their tuning. The XV-5050's Analog Feel feature can simulate this characteristic.
Ocatve Shift		-3–+3	Sets the pitch of the Patch in units of an octave. * This setting can also be adjusted from the PATCH PLAY screen. (p. 23)
Coarse Tune		-48–+48	Adjusts the pitch of all of the Patch's Tones simultaneously in semitone steps over a range of +/-4 octaves.
Fine Tune		-50–+50	Adjusts the pitch of all of the Patch's Tones simultaneously in 1-cent steps (1/100th of a semitone) over a range of 1/2 semitones up or down.
Stretch Tune	Stretch Tune Depth	OFF, 1, 2, 3	This setting allows you to apply "stretch tuning" to the Patch. Acoustic pianos typically use stretch tuning, with their lower range slightly flatter and their higher range slightly sharper than the actual mathematical tuning ratios dictate. Stretch is therefore useful when programming a Patch intended to sound like a real piano. With a setting of OFF, the Patch's tuning is equal temperament. A setting of 3 produces the greatest difference in the pitch of the low and high ranges. This diagram shows the pitch change relative to equal temperament that occurs in the low and high ranges. Stretch has a subtle effect on the way in which chords resonate. 
Priority	Voice Priority	LAST, LOUDEST	Determines how notes are managed when the XV-5050's maximum polyphony limit is exceeded (64 voices). **LAST:** Gives priority to the last-played voices. Currently-sounding notes are turned off in order, beginning with the first-played note. **LOUDEST:** Gives priority to the voices with the loudest volume. Currently-sounding notes are turned off beginning with the lowest-volume voice.
Output Asgn	Output Assign	MFX, OUTPUT A/B, INDIV 1–4, TONE	Specifies the output destination for the Patch. **MFX:** Sends the Patch into the Multi-Effects. The output destination is determined by the Multi-Effects output setting. **OUTPUT A/B**: Sends the Patch to the selected pair of OUTPUTs, A or B. **INDIV 1–4:** Sends the Patch to the selected INDIVIDUAL output jack, 1–4. **TONE:** Sends each Tone in the Patch to its programmed output destination.
Clock Source	Patch Clock Source	PATCH, SYSTEM	Selects the timing reference to be used by the Patch. The LFO cycle, M-FX changes, phrase loop (break beats), and Tone delay time can be synchronized to a clock, or tempo. **PATCH:** Uses the Patch Tempo. **SYSTEM:** Uses the global System Tempo or clock messages received from an external sequencer.
Tempo	Patch Tempo	20–250	Establishes the Patch's tempo when Clock Source is set to "PATCH." * Clock messages for the Patch Tempo are not transmitted from the MIDI OUT connector.
Cutoff Freq	Cutoff Offset	-63–+63	Simultaneously lowers or raises the individual TVF cutoff frequency values of the Tones in the Patch.
Resonance	Resonance Offset	-63–+63	Simultaneously lowers or raises the individual TVF Resonance values of the Tones in the Patch.

Parameter		Value	Description	
Attack	Attack Time Offset	-63–+63	Simultaneously lowers or raises the individual TVA ENVELOPE T1 values of the Tones in the Patch.	
Release	Release Time Offset	-63–+63	Simultaneously lowers or raises the individual TVA ENVELOPE T4 values of the Tones in the Patch.	
Velocity Sens		-63–+63	Simultaneously lowers or raises the individual TVF VELOCITY V-Cutoff and TVA V-Sens values of the Tones in the Patch.	
TMT With the XV-5050, you can set each Tone's expression range, or "key range." You can also change the way the Tone responds to the force, or "velocity," with which a key is pressed. These settings are collectively referred to as the **TMT (Tone Mix Table)**.				
TMT Vel Control	TMT Velocity Control	OFF, ON, RND	Determines whether Velocity messages from a MIDI keyboard or sequencer are recognized (ON), or ignored (OFF). When set to RND, the Patch's constituent Tones sound randomly, regardless of any Velocity messages.	
TMT V-Rng L.Fade	TMT Velocity Fade Width Lower	0–127	Determines what happens to the Tone's level when the Tone is played at a velocity lower than its specified velocity range. Higher settings result in a more gradual change in volume. If you don't want notes played below the specified velocity range to be heard at all, set this to 0.	T
TMT V-Rng Lower	TMT Velocity Range Lower	1–UPPER	Sets the lowest velocity at which the Tone sounds.	T
TMT V-Rng Upper	TMT Velocity Range Upper	LOWER–127	Sets the highest velocity at which the Tone sounds. * It is not possible to set the Lower value higher than the Upper value, or the Upper value below the Lower value.	T
TMT V-Rng U.Fade	TMT Velocity Fade Width Upper	0–127	Determines what happens to the Tone's level when the Tone is played at a velocity greater than its specified velocity range. Higher settings result in a more gradual change in volume. If you don't want notes played above the specified velocity range to be heard at all, set this to 0.  	T
TMT K-Rng L.Fade	TMT Key Fade Width Lower	0–127	Determines what happens to the Tone's level when a note that's lower than the Tone's specified keyboard range is played. Higher settings result in a more gradual change in volume. If you don't want the Tone to sound at all when a note below the keyboard range is played, set this parameter to 0.	T
TMT K-Rng Lower	TMT Key Range Lower	C-1–UPPER	Specifies the lowest note that causes the Tone to sound.	T
TMT K-Rng Upper	TMT Key Range Upper	LOWER–G9	Specifies the highest note that causes the Tone to sound. * The Lower value cannot be set to a value greater than Upper value, or vice versa.	T
TMT K-Rng U.Fade	TMT Key Fade Width Upper	0–127	Determines what happens to the Tone's level when a note that's higher than the Tone's specified keyboard range is played. Higher settings result in a more gradual change in volume. If you don't want the Tone to sound at all when a note above the keyboard range is played, set this parameter to 0.  	T
Struct Type1&2, 3&4	Structure Type 1&2, 3&4	1–10	Determines how Tone 1 and 2, and Tone 3 and 4 are connected. If you press [CURSOR ▶] while selecting the Structure, the display will graphically show the selected Structure. (To return to the previous screen, press [◀ CURSOR].) The displayed symbols have the following meanings. **W:** WG, **F:** TVF, **A:** TVA, **B:** Booster, **R:** Ring Modulator	





Parameter	Value	Description
TYPE 3 		TYPE 4 
TYPE 5 		TYPE 6 
TYPE 7 		TYPE 8 
TYPE 9 		TYPE 10 
		* If Type 2–10 is selected, turning off one Tone will cause the other Tone to be connected in the simple order of WG/TVF/TVA.
Booster1&2, 3&4	Booster Gain 1&2, 3&4	0, +6, +12, +18 dB	Sets the Booster strength when Struct Type has been set to 3 or 4.

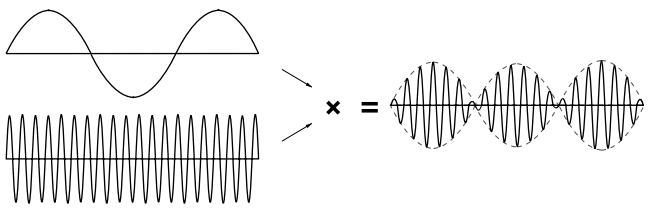
What is a Booster?

A Booster amplifies the incoming signal, causing it to distort. This creates an effect similar to the distortion often used on an electric guitar.

What is a Ring Modulator?

A Ring Modulator mathematically multiplies two Tones, creating a new sound that includes inharmonic overtones that were not present in either of the two original Tones.

Since the difference in pitch between the two Tones changes the overtone structure, an un-pitched "metallic" sound often results. Ring modulation is therefore especially suitable for creating bells and other metallic sounds.



More Advanced Editing of Tones

You can edit the Tones in a Patch with a tremendous degree of detail. Editable parameters are separated into parameter groups as follows.

EFFECTS

Adjusting Effect Settings (p. 70)

CONTROL

Using Controllers to Change How Sounds Are Played (p. 51)

WAVE

Selecting a Waveform (p. 44)

LFO

Applying Vibrato or Tremolo (p. 50)

PITCH

Changing Pitch (p. 45)

TVF

Changing the Brightness with a Filter (p. 46)

TVA

Changing the Volume (p. 48)

The following shows the basic procedure for setting parameter values. For a description of each parameter, refer to the reference page given in the above.

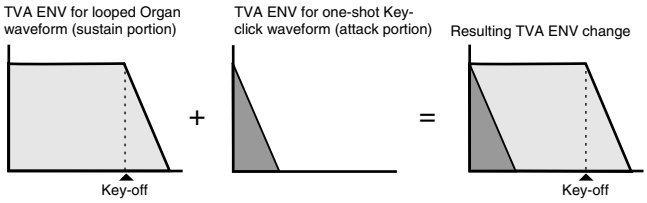
1. **Choose the Patch you wish to set up.**
2. **Press [EDIT] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the parameter group in the upper line of the display.**
4. **Turn [VALUE] to choose the parameter group containing the parameter you wish to set up.**
5. **Press [TONE] to make its indicator light.**
6. **Press TONE SW [1]–[4] to choose the Tone you wish to set up.**
   Its indicator lights, and the chosen Tone's number appears in the upper right of the display.
7. **Press [CURSOR ►] to move the cursor to the parameter name in the lower-left corner of the screen.**
8. **Turn [VALUE] to choose the parameter you wish to set.**
9. **Press [CURSOR ►] to move the cursor to the selected parameter's value.**
10. **Turn [VALUE] to choose the desired value.**
11. **Repeat Steps 3-10 to finish setting up the Patch.**
12. **Press [EXIT] to return to the PATCH PLAY screen.**
    A "*" symbol appears at the left of the Patch name, indicating that its settings have been changed.

NOTE

If you turn off the power or choose another Patch while the "*" symbol is displayed, your new Patch settings will be lost. If you wish to preserve them, save the changed Patch using the Write operation. (p. 104)

Tips for Choosing a Waveform

Because the XV-5050 is designed to create highly realistic sounds, the success of the editing process depends to a large degree on the PCM waveforms upon which Tones are based. Therefore, if you try to create a sound that's totally different from the waveform(s) you're working with, the desired result may be difficult or impossible to achieve.
The XV-5050's internal waveforms fall into the following two groups.
One-shot: These waveforms contain sounds that have short decays. A one-shot waveform records the initial rise and fall of its sound. Some of the XV-5050's one-shot waveforms are sounds that are complete in themselves, such as percussive instrument sounds. The XV-5050 also contains many other one-shot waveforms that are elements of other sounds. These include attack components such as piano-hammer sounds and guitar fret noises.
Looped: These waveforms include sounds with long decays as well as sustained sounds. With looped waveforms, the latter part of the sound plays over and over for as long as the note is held, allowing wave memory to be used more efficiently. The XV-5050's looped waveforms also include components of other sounds, such as piano-string resonant vibrations and the hollow overtones of brass instruments.
The following diagram shows an example of a sound—an electric organ—that combines one-shot and looped waveforms.

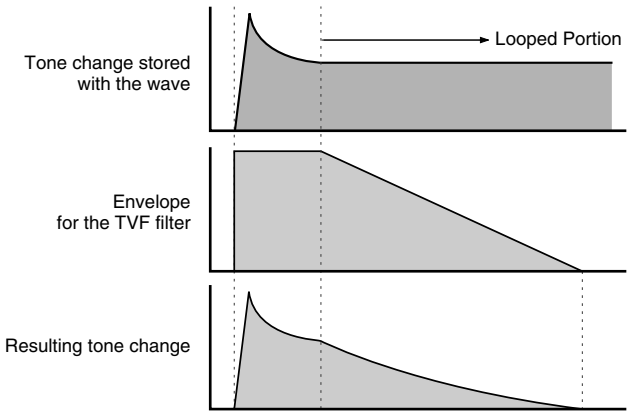


Notes for editing one-shot waveforms

You cannot give a one-shot waveform a longer decay—or make it into a sustaining sound—by using an envelope. If you were to program such an envelope, you would be attempting to shape a portion of the sound that simply doesn't exist, and the envelope would have no effect.

Notes for editing looped waveforms

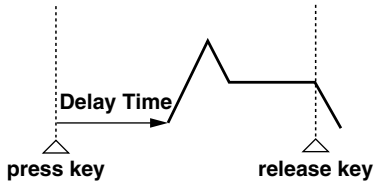
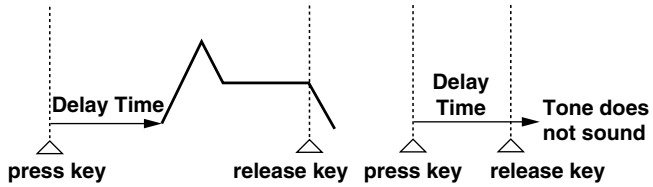
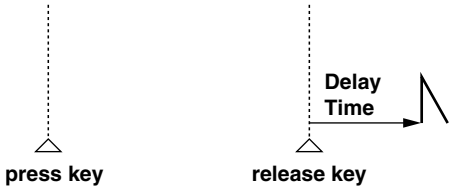
With many acoustic instruments such as piano and sax, extreme timbral changes occur during the first few moments of each note. This initial attack is what defines much of the instrument's character. The XV-5050 provides a variety of waveforms containing realistic acoustic instrument attacks. To obtain the maximum realism when using these waveforms, it's best to leave the filter wide-open during the attack so that all of these important timbral changes are heard. If you use an envelope to modify the attack portion, you may not achieve the result you want. Use enveloping to produce the desired changes in the decay portion of the sound.



If you try to make a waveform's attack seem brighter by lowering the high-frequency content of its decay using the TVF filter, consider the original timbral character of the waveform. If you're making a part of the sound brighter than the original waveform, you should first generate new upper harmonics not present in the original waveform by using the FXM Color and FXM Depth parameters before filtering. This will help you achieve the desired result. To make an entire waveform brighter, try applying an effect such as an enhancer and equalizer before modifying the TVF parameter.

Changing a Waveform (WAVE)

This set of parameters allows you to select the PCM waveform that serves as the basis for the currently selected Tone, apply effects to the waveform, and control its pitch.

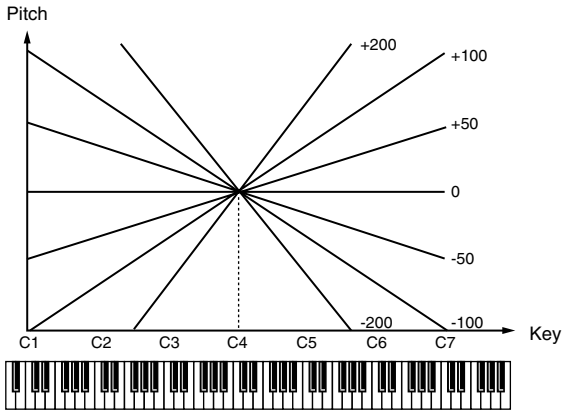
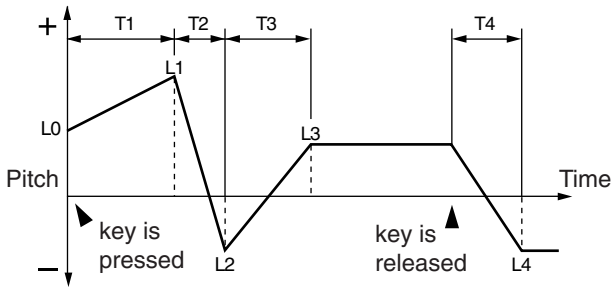
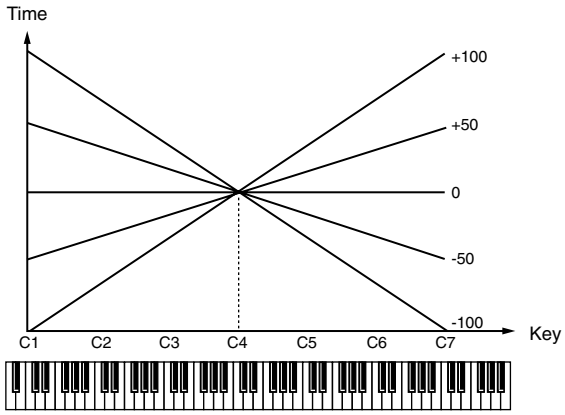
Parameter		Value	Description
WAVE			
Group	Wave Group	INT, XP-A, XP-B	Chooses the desired waveform's group. **INT:** Internal **XP-A, B:** Wave Expansion Boards A, B * It's not possible to select XP-A, B unless a wave expansion board is inserted into the corresponding slot.
L	Wave Number Left	0001–1083	Chooses the desired waveform. You can choose a separate waveform for the XV-5050's left and right channels.
R	Wave Number Right		
Gain	Wave Gain	-6, 0, +6, +12 dB	Specifies the gain (or amplitude) of the waveform. An increase of 6 dB doubles the waveform's gain. If you intend to use the Booster to distort the waveform's sound, set this parameter to its highest value.
Switch	TMT Tone Switch	OFF, ON	Determines whether or not the Tone will be heard in the Patch. In order to make best use of the available number of simultaneous voices, unused Tones should be turned off. * When TONE SW [1]–[4] are turned on or off, this setting is automatically changed.
Tempo Sync	Wave Tempo Sync	OFF, ON	Determines whether the waveform is synchronized (ON) or not synchronized (OFF) to the Patch's tempo.
FXM FXM (Frequency Cross Modulation) uses a specified waveform to apply frequency modulation to the currently selected waveform, creating complex overtones. This can be useful when creating wilder sounds or sound effects.			
FXM Switch	Wave FXM Switch	OFF, ON	Sets whether FXM will be used (ON) or not (OFF).
FXM Color	Wave FXM Color	1–4	Specifies how FXM will perform its frequency modulation. Higher settings result in a grainier sound, while lower settings result in a more metallic sound.
FXM Depth	Wave FXM Depth	0–16	Specifies the depth of the modulation produced by FXM.
Tone Delay This produces a time delay between the moment a key is pressed (or released) and the moment the Tone actually begins to sound. Since you can adjust the timing of each Tone in a Patch, you can create effects in which pressing a single key produces two or more sounds occurring at different times. If you don't wish to use Tone Delay, set Tone Dly to NORMAL and Tone Delay Time to 0.			
Tone Dly	Tone Delay Mode	NORMAL, HOLD, KEY-OFF-NOR, KEY-OFF-DCY	Sets the manner in which the Tone sounds. * If you've selected a Wave that is a decay-type sound (i.e., a sound that fades away naturally even if the key is not released), selecting KEY-OFF-NOR or KEY-OFF-DCY may result in no sound being heard.
	NORMAL: The Tone sounds after the specified Delay Time.  		**HOLD:** The Tone will only sound if the key is held for longer than the specified Delay Time. If the key is released before the Delay Time has elapsed, the Tone will not sound. 
	KEY-OFF-NOR: The Tone doesn't sound while the key is being pressed, but sounds after the specified Delay Time when the key is released.  		**KEY-OFF-DCY:** The Tone doesn't sound while the key is being pressed, but sounds after the specified Delay Time when the key is released. However, for this setting—unlike KEY-OFF-NOR—the TVA envelope of the Tone begins when the key is first pressed. As a result, in most cases, only the decay portion of the sound is heard. 
Tone Delay Time		0–127, note *1	Specifies the time after which the Tone sounds when using Tone Delay. When the Struct Type parameter has a setting of 2–10, the outputs of Tones 1 (3) and 2 (4) are combined with Tone 2 (4). Tone 1 (or 3) settings are ignored.

*1:

(Sixty-fourth-note triplet), (Sixty-fourth note), (Thirty-second-note triplet), (Thirty-second note), (Sixteenth-note triplet), (Dotted thirty-second note), (Sixteenth note), (Eighth-note triplet), (Dotted sixteenth note), (Eighth note), (Quarter-note triplet), (Dotted eighth note), (Quarter note), (Half-note triplet), (Dotted quarter note), (Half note), (Whole-note triplet), (Dotted half note), (Whole note), (Double-note triplet), (Dotted whole note), (Double note)

Changing Pitch (PITCH)

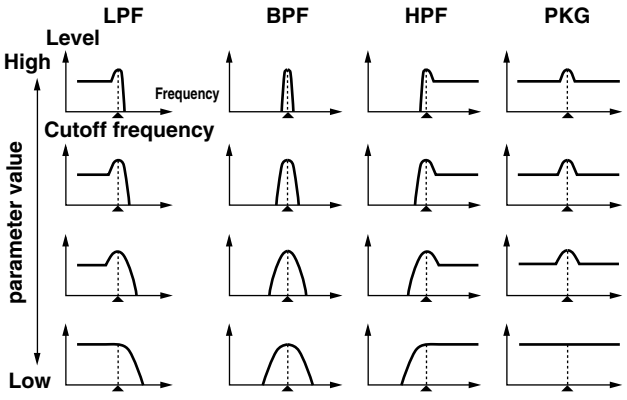
These settings allow you to set the currently selected Tone's pitch.

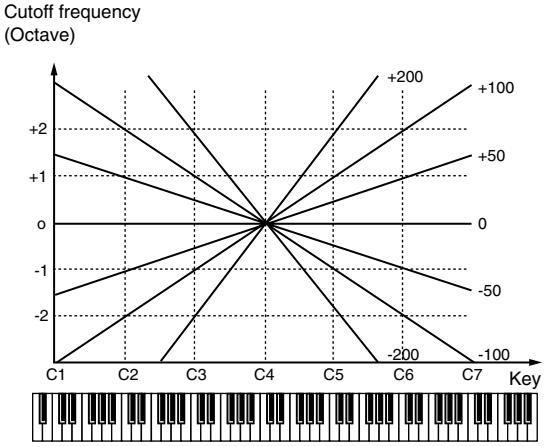
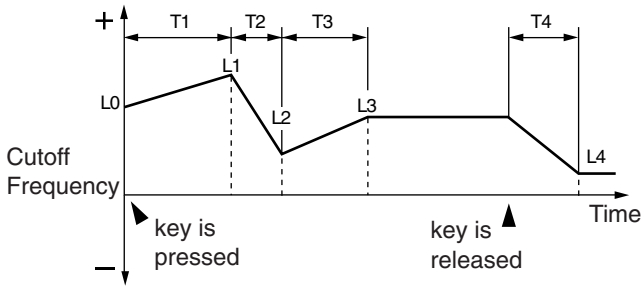
Parameter		Value	Description
PITCH These parameters set the basic pitch of each Tone.			
Coarse Tune	Tone Coarse Tune	-48–+48	Adjusts the pitch of the Tone in semitone steps over a range of +/-4 octaves.
Fine Tune	Tone Fine Tune	-50–+50	Adjusts the pitch of the Tone in 1-cent steps (1/100th of a semitone) over a range of half a semitone up or down.
Random Pitch	Tone Random Pitch Depth	0–1200	Specifies the width of random pitch deviation that occurs each time a key is pressed. If you don't want a random pitch change, set this parameter to 0. The setting is adjustable in units of 1 cent (1/100th of a semitone).
Keyfollow	Wave Pitch Keyfollow	-200–+200	Sets the amount of pitch change that occurs per octave on the keyboard. If you want the pitch to change by one octave for each 12 keys on the keyboard—as on traditional keyboard instruments—set this parameter to +100. For a two-octave pitch change over the span of 12 keys, set this parameter to +200. Negative (-) values cause the Tone's pitch to go down as you go up the keyboard. If you want the same pitch to sound regardless of what key is pressed, set this parameter to 0. 
PITCH ENVELOPE These parameters determine the amount of pitch enveloping—changes to your basic pitch settings that occur over time—the effect of velocity on the pitch envelope, and the basic characteristics of the pitch envelope itself. 			
Envelope Depth	Pitch Envelope Depth	-12–+12	Determines the amount of pitch enveloping to be used—higher settings result in more extreme enveloping. Negative (-) settings invert the direction of the changes made by the Pitch Envelope.
Envelope V-Sens	Pitch Envelope Velocity Sensitivity	-63–+63	Adjust this parameter when you want your keyboard playing dynamics (velocity) to affect the amount of pitch enveloping. With higher settings, there is a greater difference in the amount of enveloping when notes are played softly or when they're played hard. Negative (-) settings reverse the direction of change.
Env Time Keyfl	Pitch Envelope Time Keyfollow	-100–+100	Use this parameter when you want the keyboard location of notes to affect times T2–T4 of the pitch envelope. Higher values for this parameter cause more extreme changes to the T2–T4 settings as you play further away from Middle C (C4)—at Middle C itself, your original T2–T4 settings are in effect. Positive (+) settings cause the times to be shortened for notes above Middle C. Negative (-) settings cause the times to be lengthened for notes above Middle C. 

Parameter		Value	Description
Envelope V-T1	Pitch Envelope Time 1 Velocity Sensitivity	-63–+63	Use this parameter when you want keyboard playing dynamics to affect T1 (Time 1) of the pitch envelope. If you want T1 to be sped up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
Envelope V-T4	Pitch Envelope Time 4 Velocity Sensitivity	-63–+63	Use this parameter when you want key release speed to affect T4 (Time 4) of the pitch envelope. If you want T4 to be sped up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
Envelope L0–L4	Pitch Envelope Level 0–4	-63–+63	Specify the pitch envelope levels. They determine how much the pitch changes from the reference pitch (the value set with Coarse Tune and Fine Tune) at each point. Positive (+) settings cause the pitch to be higher than the standard pitch, and negative (-) settings cause it to be lower.
Envelope T1–T4	Pitch Envelope Time 1–4	0–127	Specify the pitch envelope times. Higher settings lengthen the time until the next pitch is reached. (For example, T2 is the time over which the pitch changes from L1 to L2.)

Changing the Brightness with a Filter (TVF)

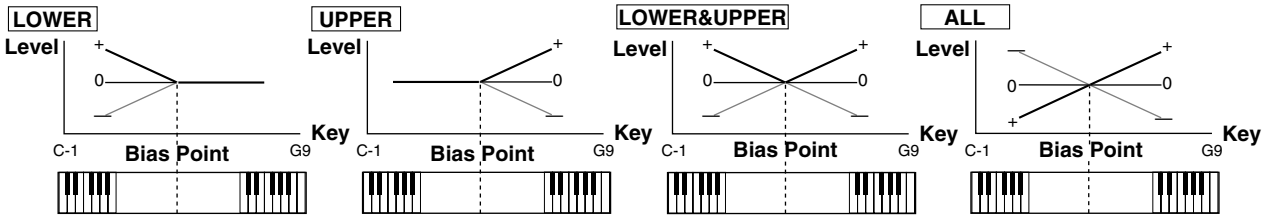
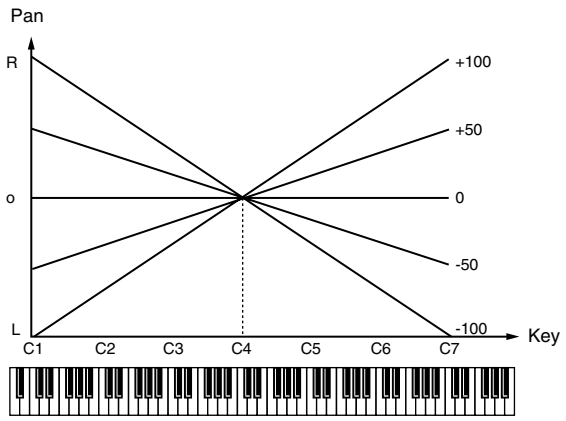
The settings for the TVF (Time Variant Filter) allow you to change a Tone's timbral content by altering its brightness or thickness.

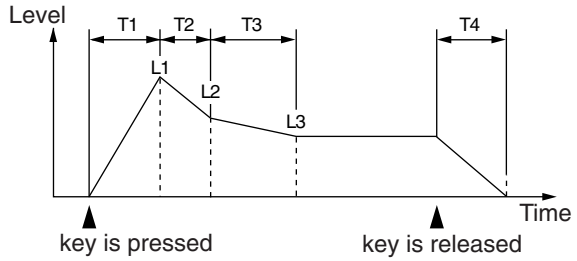
Parameter		Value	Description
TVF			
Filter Type		OFF, LPF, BPF, HPF, PKG, LPF2, LPF3	Selects a filter type. A filter typically reduces, or attenuates, a specific frequency range within a Tone in order to accentuate its other frequencies. **OFF:** No filter is used. **LPF:** A Low Pass Filter reduces the volume of frequencies above the cutoff frequency in order to un-brighten the sound. This is the most common filter used in synthesizers. **BPF:** A Band Pass Filter reduces the volume of frequencies below and above the cutoff frequency range. This is most effective when creating sounds with a strong character since it can accentuate a desired range of frequencies anywhere in the sound. **HPF:** A High Pass Filter reduces the volume of the frequencies below the cutoff frequency. This is suitable for creating percussive sounds by rolling of their lower frequencies, thus emphasizing their higher ones. **PKG:** A Peaking Filter emphasizes frequencies around the cutoff frequency by raising their level. You can use this to create wah-wah effects by employing an LFO to change the cutoff frequency cyclically. **LPF2:** Low Pass Filter 2. This reduces the volume of all frequencies above the cutoff frequency. This differs from LPF in that you can control the amount of the reduction using the TVF ENVELOPE settings while still maintaining a fixed cutoff frequency. This can be very effective with acoustic-instrument-based Tones, since nothing is done to weaken the power and energy of the sound. * This disables the Resonance setting. **LPF3:** Low Pass Filter 3 reduces the volume of frequencies above the cutoff frequency. While similar to LPF2, it reduces the frequencies more gently than LPF2. This can also be effective with acoustic-instrument-based Tones. * This disables the Resonance setting.
Cutoff Frequency		0–127	Adjusts the frequency at which the filter begins to have an effect on the waveform's frequency components. With LPF/LPF2/LPF3 selected for the Filter Type parameter, lower cutoff frequency settings reduce a Tone's upper harmonics for a more rounded, warmer sound. Higher settings make it sound brighter. When Filter Type is BPF, the cutoff frequency setting determines the range of frequencies within the Tone that will be heard. This can be useful when creating sounds that need to stand out. When Filter Type is HPF, higher settings of the cutoff frequency decrease the level of the Tone's low frequencies, preserving its brighter qualities. When Filter Type is PKG, the cutoff frequency setting determines the range of frequencies to be emphasized.
Resonance		0–127	Increases the level of the cutoff frequency itself to add a popular classic synth character to the sound. Excessively high settings can produce oscillation, causing the sound to distort. 

Parameter		Value	Description
Cutof Keyfollow	Cutoff Keyfollow	-200–+200	Use this parameter if you want the cutoff frequency to change according to the key that's pressed. At Middle C (C4), the original Cutoff value is used. Positive (+) settings cause the cutoff frequency to rise for notes higher than Middle C, and negative (-) settings cause the cutoff frequency to fall for notes higher than Middle C. Higher settings produce greater amounts of change to the original Cutoff setting. 
TVF VELOCITY This sets the amount of change to the original cutoff frequency produced in response to differences in velocity, as well as the velocity response curve and velocity's effect on Resonance.			
Cutoff V-Sens	Cutoff Frequency Velocity Sensitivity	-63–+63	Sets the amount of change to the Cutoff setting to be applied as a result of changes in playing velocity. With higher settings, there is a greater amount of change between softly and strongly played notes. Negative (-) settings reverse the direction of change.
Cutoff V-Curve	Cutoff Frequency Velocity Curve	FIXED, 1–7	Chooses one of seven curves that determine how keyboard playing dynamics (velocity) influence the Tone's cutoff frequency. When V-Curve is set to "FIXED," the cutoff frequency remains unchanged regardless of how hard or soft the keys are played. 
Resonance V-Sens	TVF resonance velocity sensitivity	-63– +63	Use this parameter when you want velocity to affect the amount of Resonance. With higher settings, there is a greater difference in the amount of Resonance between softly and strongly played notes. Negative (-) values reverse the direction of the change.
TVF ENVELOPE 			
Envelope Depth	TVF envelope depth	-63– +63	This adjusts the amount of filter enveloping. Higher settings produce more change. Negative (-) values invert the effect of the TVF envelope.
Envelope V-Sens	TVF envelope velocity sensitivity	-63– +63	Use this parameter when you want keyboard playing dynamics (velocity) to affect the depth of the TVF Envelope. With higher settings, there is a greater difference in the TVF envelope depth when you play softly or hard. Negative (-) settings reverse the direction of change.
Envelope V-Crv	TVF envelope velocity curve	FIXED, 1–7	This selects one of seven velocity curves that determine how velocity will affect the depth of the TVF Envelope. When set to "FIXED," the TVF envelope depth remains unchanged, regardless of how hard or soft you play.
Env Time Keyfl	TVF Envelope Time Keyfollow	-100–+100	Use this parameter when you want a note's keyboard position to affect times T2–T4 of the TVF envelope. Higher settings change the times by a greater amount as you move away from Middle C (C4) - at Middle C, the original T1-T4 settings are in effect. Positive (+) settings cause the times to shorten as you play above Middle C. Negative (-) settings cause the times to lengthen as you play above Middle C.
Envelope V-T1	TVF Envelope Time 1 Velocity Sensitivity	-63–+63	Use this parameter when you want keyboard playing dynamics to affect T1 (Time 1) of the TVF envelope. If you want T1 to be sped up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
Envelope V-T4	TVF Envelope Time 4 Velocity Sensitivity	-63–+63	Use this parameter when you want key release speed to affect T4 (Time 4) of the TVF envelope. If you want T4 to be sped up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
Envelope L0–L4	TVF Envelope Level 0–4	0–127	Specify the TVF envelope levels. These settings specify how the cutoff frequency changes at each point, relative to the standard cutoff frequency.
Envelope T1–T4	TVF Envelope Time 1–4	0–127	Specify the TVF envelope times. Higher settings lengthen the time until the next cutoff frequency level is reached. (For example, T2 is the time over which L1 changes to L2.)

Changing the Volume (TVA)

The TVA (Time Variant Amplifier) controls volume changes to the Tone, as well as its stereo positioning.

Parameter		Value	Description
TVA			
Level	Tone Level	0–127	Sets the Tone's basic volume. This setting is useful primarily for adjusting the volume balance between Tones in a Patch. * The overall volume of the Patch is set by the Patch Level (COMMON group p. 40) setting, raising or lowering the Tone level settings of its individual Tones by the selected amount.
Pan	Tone Pan	L64–63R	Specifies the stereo position of the Tone. L64 places the Tone hard left, 0 puts it dead-center and 63R pans it hard right. * The overall panning of the entire Patch is set by the Patch Pan parameter (COMMON group p. 40), shifting the Tone Pan values of its individual Tones leftward or rightward by the selected amount.
Velocity Sens	TVA Level Velocity Sensitivity	-63–+63	Use this setting when you want keyboard touch (velocity) to affect the Tone volume. Set this to a positive value to have the changes in tone volume increase the more forcefully the keys are played; to make the Tone play more softly as you play harder, set this to a negative value.
Velocity Curve	TVA Level Velocity Curve	FIXED, 1–7	Chooses one of seven curves that determine how keyboard playing dynamics (velocity) influence the Tone's volume. When set to "FIXED," the Tone's volume not affected by the force with which the keyboard is played. 
BIAS Use the Bias parameter when you want the position of notes on a keyboard to affect the TVA level. 			
BIas Level		-100–+100	Adjusts the slope of the volume change that occurs in the selected Bias Direction. Higher settings produce greater amounts of change to the Tone's volume. Negative (-) settings reverse the direction of the change.
Bias Point		C-1–G9	Chooses the MIDI key at which the Tone's volume begins to change.
Bias Direction		LOWER, UPPER, LO&UP, ALL	Determines whether the volume of notes above or below the Bias point—or both—changes according to their distance from the Bias Point. **LOWER:** Notes below the Bias Point are affected. **UPPER:** Notes above the Bias Point are affected. **LO&UP:** Notes below and above the Bias Point are affected. **ALL:** The volume of notes across the entire keyboard are biased according to the Bias Level slope, based on their distance from the Bias Point.
PAN MODULATE Use these parameters to dynamically alter the Tone's stereo position as set by the TVA Pan.			
Pan Keyfollow	Tone Pan Keyfollow	-100–+100	Use this parameter when you want each note's keyboard position to affect its stereo location. Higher settings cause a greater shifting of the Tone's original pan position as you move further away from Middle C (C4), where the original stereo TVA Pan value remains in effect. Positive (+) settings cause notes above Middle C to be panned rightward. Negative (-) settings cause them to be panned leftward. 
Pan Random Depth	Tone Random Pan Depth	0–63	Use this parameter to activate random panning, note-by-note. Higher values result in more extreme fluctuations in the Tone's stereo placement.

Parameter		Value	Description
Pan Alternate	Tone Alternate Pan Depth	L63–63R	This setting causes panning to be alternated between left and right each time a key is pressed. Higher values result in a greater left/right width. You can select the stereo placement of the first key using this parameter—its opposite is used for the second note, and so on back and forth. If you want to alternate the pan position of two Tones, set them to the exact opposite L and R settings.
TVA ENVELOPE This specifies the manner in which keyboard velocity affects the times of the TVA envelope.  			
Envelope V-T1	TVA Envelope Time 1 Velocity Sensitivity	-63–+63	Use this parameter when you want keyboard playing dynamics to affect T1 (Time 1) of the TVA envelope. If you want T1 to be sped up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
Envelope V-T4	TVA Envelope Time 4 Velocity Sensitivity	-63–+63	Use this parameter when you want key release speed to affect T4 (Time 4) of the TVA envelope. If you want T4 to be sped up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
Env Time Keyfl	TVA Envelope Time Keyfollow	-100–+100	Use this parameter when you want a note's keyboard position to affect times T2–T4 of the TVA envelope. Higher settings change the times by a greater amount as you move away from Middle C (C4)—at Middle C, the original T1–T4 settings are in effect. Positive (+) settings cause the times to shorten as you play above Middle C. Negative (-) settings cause the times to lengthen as you play above Middle C.
Envelope T1–T4	TVA Envelope Time 1–4	0–127	Specify the TVA envelope times. Higher settings lengthen the time until the next volume level is reached. (For example, T2 is the time over which L1 changes to L2.)
Envelope L1–L3	TVA Envelope Level 1–3	0–127	Specify the TVA envelope levels. These settings specify how the volume changes at each point, relative to the standard volume.

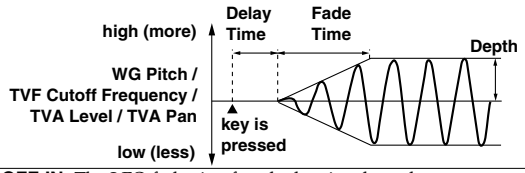
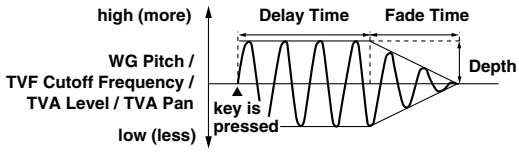
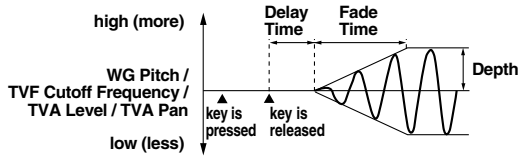
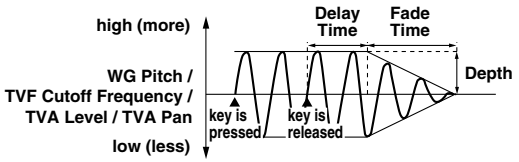
Applying Vibrato or Tremolo (LFO)

The LFO (Low Frequency Oscillator) can alter various Tone settings in a back-and-forth, cyclic manner. Each Tone has two LFOs, and each can apply the desired amount of repetitive change to the Tone's Pitch, TVF cutoff frequency, TVA Level and TVA Pan settings. This can be used as the Matrix Control source (p. 52).

How to Use the LFO

Applying an LFO to the Tone's Pitch settings creates vibrato, applying it to its TVF cutoff frequency creates a wah-wah, and applying it to its TVA Level creates tremolo. When an LFO is applied to the Tone's TVA Pan, the sound moves back and forth, from one side to another, in the stereo field.

Depending on your settings, an LFO can also be used to cyclically exchange two Tones. For example, if you wish to shift back and forth between Tones 1 and 2, select the same LFO settings for both, but set their LFO TVA Depth settings to opposite polarities—set one to a + value, and the other to a - value.

Parameter		Value	Description
LFO Since both LFOs have the same parameters, the following explanations apply to both.			
LFO1(2) Form	LFO1(2) Waveform	SIN, TRI, SAW-UP, SAW-DW, SQR, RND, BEND-UP, BEND-DW, TRP, S&H, CHAOS	Chooses the waveform the LFO is to use. **SIN:** sine wave **TRI:** triangle wave **SAW-UP:** sawtooth wave **SAW-DW:** sawtooth wave (negative polarity) **SQR:** square wave **RND:** random wave **BEND-UP:** Once the attack of the waveform output by the LFO is allowed to develop in standard fashion, the waveform then continues without further change. **BEND-DW:** Once the decay of the waveform output by the LFO is allowed to develop in standard fashion, the waveform then continues without further change. **TRP:** trapezoidal wave **S&H:** sample & hold wave (LFO value is changed one time per cycle) **CHAOS:** chaos wave * When setting BEND-UP or BEND-DW, set the Key Sync parameter to "ON." If this is "OFF," BEND-UP and BEND-DW will have no effect.
LFO1(2) Offset		-100–+100	Adjusts the basic width of the LFO waveform.
LFO1(2) Rate		0–127, note *1	Adjusts the basic modulation rate, or speed, of the LFO. * The Chaos waveform has no wavelength. When the Chaos waveform is selected, the Rate setting has no effect.
LFO1(2) Detune	LFO1(2) Rate Detune	0–127	This setting allows you to adjust the tuning of the LFO waveform.
LFO1(2) Key Sync		OFF, ON	Sets whether you want the LFO cycle to start in sync with the timing of a key press (ON) or not (OFF).
LFO1(2) Fade	LFO1(2) Fade Mode	ON-IN, ON-OUT, OFF-IN, OFF-OUT	Sets how the LFO is applied.
	ON-IN: The LFO fades in after the key is pressed. 		**ON-OUT:** The LFO is immediately applied when the key is pressed, and then fades out. 
	OFF-IN: The LFO fades in after the key is released. 		**OFF-OUT:** The LFO is immediately applied when the key is pressed, and begins fading out when the key is released. 
LFO1(2) Fade Time		0–127	Adjusts the time over which the LFO rises to its full effect or fades away. (Refer to the diagrams for Fade Mode.)
LFO1(2) Delay Time		0–127	Sets the time interval between the moment when a key is pressed (or released) and the moment the LFO begins to take effect. (Refer to the diagrams for Fade Mode.)
LFO1(2) Delay Keyfl	LFO1(2) Delay Keyfollow	-100–+100	Adjusts the value for the LFO1/LFO2 Delay Time parameter depending on the key position, relative to the C4 key (center C). To decrease the time that elapses before the LFO effect is applied—the effect is continuous—with each higher key that is pressed in the upper registers, select a positive value. To increase the elapsed time, select a negative value. Higher values result in greater change. If you don't want the elapsed time before the LFO effect is applied to change according to the key pressed, set this to "0."
LFO1(2) Pitch Depth		-63–+63	Adjusts how much the LFO affects the Tone's pitch.
LFO1(2) TVF Depth		-63–+63	Adjusts how much the LFO affects the Tone's TVF cutoff frequency.
LFO1(2) TVA Depth		-63–+63	Adjusts how much the LFO affects the Tone's TVA Level.
LFO1(2) Pan Depth		-63–+63	Adjusts how much the LFO affects the Tone's TVA Pan.

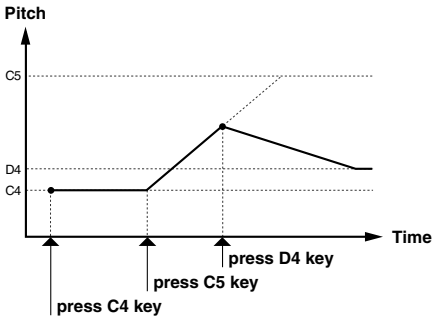
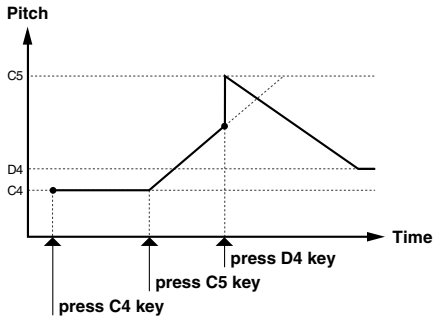
*1:

(Sixty-fourth-note triplet), (Sixty-fourth note), (Thirty-second-note triplet), (Thirty-second note), (Sixteenth-note triplet), (Dotted thirty-second note), (Sixteenth note), (Eighth-note triplet), (Dotted sixteenth note), (Eighth note), (Quarter-note triplet), (Dotted eighth note), (Quarter note), (Half-note triplet), (Dotted quarter note), (Half note), (Whole-note triplet), (Dotted half note), (Whole note), (Double-note triplet), (Dotted whole note), (Double note)

Using Controllers to Change How Sounds Are Played (CONTROL)

The parameters in this group determine how various controllers affect the Patch and its Tones.

* *Parameters that can be set independently for each Tone are indicated by "T."*

Parameter		Value	Description	
CONTROL				
Key Mode Asign		MONO, POLY	Sets how the Patch's notes are played. The MONO setting is effective when playing a solo instrument Patch such as sax or flute. **MONO:** Only one note sounds at a time. * While only a single note sounds, that note may, as usual, consist of multiple Tones. **POLY:** Two or more notes can be played simultaneously.	
Key Mode Legato		OFF, ON	Turn this parameter on when you want to use the Legato feature and off when you don't. Legato is a function that works only when the Key Assign Mode is MONO. When Legato is ON, pressing one key when another is already pressed causes the currently playing note's pitch to change to that of the newly pressed key while continuing to sound. This can be effective when you wish to simulate performance techniques such as a guitarist's hammering on and pulling off strings.	
Key Mode Retrig		OFF, ON	The setting determines whether sounds are replayed or not when performing legato. Normally you will leave this parameter "ON." When Delay Keyfollow is set to OFF, if one key is pressed while another key is held down, only the pitch changes, which with some waveforms may result in an unnatural sound. Set this to "OFF" when performing wind and string phrases or when using modulation with the mono synth keyboard sound. * If the Legato Switch is "OFF," this setting is ignored.	
PORTAMENTO Portamento is a function that causes the Patch's pitch to change smoothly from one note to the next note played. When the Key Mode Asign is MONO, this can be effective in simulating performance techniques such as a violinist's glissando.				
Portamento Sw		OFF, ON	Turn this switch on when you wish to use Portamento.	
Portamento Time		0–127	Sets the time over which one pitch glides to the next.	
Portamento Mode		NORMAL, LEGATO	Chooses the way in which Portamento is applied. **NORMAL:** Portamento is always applied. **LEGATO:** Portamento is applied only for notes played legato (i.e., when you press a second key before releasing the first.)	
Portamento Type		RATE, TIME	Determines the way in which the pitch difference between the two notes affects the time it takes to glide from one note to the next. **RATE:** The time it takes depends on the distance between the two pitches. **TIME:** The time it takes is constant, regardless of how far apart in pitch the notes are.	
Portamento Start		PITCH, NOTE	Portamento begins anew if you press another key during a pitch movement. This setting specifies how the new portamento starts.	
	PITCH: The pitch begins changing immediately to the new note's pitch when its key is pressed. 		**NOTE:** The pitch begins changing to the new note's pitch only after it has first reached its original pitch destination. 	
CTRL Rx MIDI (Tone control receive MIDI) These settings determine each Tone's response to received Pitch Bend, Expression, Pan, Hold1, Damper, and Envelope Mode MIDI messages.				
Rx MIDI Bender	Tone Receive Bender Switch	OFF, ON	If you want the Tone to respond to Pitch Bend messages, turn this parameter on. If not, turn it off.	T
Rx MIDI Express	Tone Receive Expression Switch	OFF, ON	If you want the Tone to respond to Expression messages, turn this on. If not, turn it off.	T
Rx MIDI Pan	Tone Receive Pan Mode	CONT, KEY-ON	**CONTINUOUS:** Pan messages are responded to immediately, instantly changing the stereo position of the Tone. **KEY-ON:** The stereo location of the Tone is changed only when the next note is played. If a Pan message is received while a note is sounding, its stereo location will not change.	T
Rx MIDI Hold-1	Tone Receive Hold 1 Switch	OFF, ON	Set this to ON if you wish the tone to respond to Hold1 messages—these messages cause sounds to continue playing when a sustain/damper pedal is pressed. Set this to OFF when you don't want the Tone to respond to Hold1 messages.	T

Parameter		Value	Description	
Rx MIDI Redamper	Tone Redamper Switch	OFF, ON	If a Hold 1 message is received during the time between a note-off—when you release the key—and the time at which the note actually disappears, any currently sounding notes will be sustained if Redamper is set to ON. To take advantage of this feature, you must also turn on the Tone Receive Hold 1 setting.	T
Env Mode	Tone Envelope Mode	NO-SUS, SUSTAIN	When a loop-type waveform is selected, it normally continues to sound as long as a key is pressed. If you want a note to decay naturally even when the key remains pressed, set this to "NO-SUS." * If a one-shot type Wave is selected, it will not sustain even if this parameter is set to "SUSTAIN."	T
TMT CONTROL				
TMT Control SW		OFF, ON	This setting determines whether or not the TMT is controlled by the Matrix Control. When TMT Velocity Control is set to OFF, turning this parameter on and off is a simple way to switch between playing all Tones or controlling them with the Matrix Control, making this an effective tool for auditioning Tones.	
Bend Range Down	Pitch Bend Range Down	-48–0	Specifies the amount of pitch change that's applied to the Patch's pitch when the Pitch Bend lever is moved fully left (or down on some MIDI controllers).	
Bend Range Up	Pitch Bend Range Up	0–48	Specifies the pitch change that occurs when the Pitch Bend lever is moved fully to the right (or up on some MIDI controllers).	
MATRIX CTRL This selects the parameters to be controlled by Matrix Control Source 1–4 and the Sens settings, as well as the specific Tones whose parameters you wish to control. Up to four destination parameters can be selected for each controller and controlled simultaneously.				
Ctrl 1–4 Src	Matrix Control 1–4 Source	OFF, CC01–31, CC33–95, BEND, AFTER, SYS1–4, VELOCITY, KEYFOLLOW, TEMPO, LFO1, LFO2, PIT-ENV, TVF-ENV, TVA-ENV	Assign one of the following controllers to Control Source 1–4. If you wish to use a controller that will apply to all Patches, or a controller that cannot be directly selected here, select SYS-CTRL1–4, and then select the controller using the Control Source 1–4 parameters (SYSTEM: CONTROL).	
Ctl1–4 Dest1–4	Matrix Control 1–4 Destination 1–4	OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT-LFO1(2), TVF-LFO1(2), TVA-LFO1(2), PAN-LFO1(2), LFO1(2)-RATE, PIT-ATK, PIT-DCY, PIT-REL, TVF-ATK, TVF-DCY, TVF-REL, TVA-ATK, TVA-DCY, TVA-REL, TMT, FXM, MFX-CTRL1–4	Selects a parameter to be controlled.	
Ctl1–4 Sens1–4	Matrix Control 1–4 Sens 1–4	-63–+63	Adjusts the amount of change that occurs in response to controller changes. Negative (-) values invert the change. For LFO rates, negative (-) values slow down the LFO, and positive (+) values speed it up.	
Ctl1–4 Switch1–4	Matrix Control 1–4 Tone Control Switch 1–4	OFF, ON, REVERSE	Selects the Tone to which the two previous parameter settings are applied. "ON" turns signifies that the Tone is selected for control, "OFF" that it's not selected, and "REVERSE" that the change being applied is inverted when applied to this Tone.	T

Adjusting Effect Settings

Refer to "Patch/Rhythm Set Mode Settings" (p. 70).

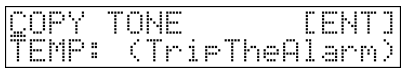
Saving Patches You Create

Refer to "Saving a Patch" (p. 104).

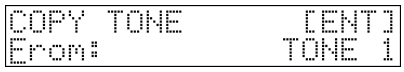
Copying Settings Between Patches (Patch Tone Copy)

Tone settings from a Patch can be copied to the currently selected Patch. You can use this feature to make the Patch-editing process faster and easier.

1. **Make sure that a Patch is selected.**
2. **Press [UTILITY] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the upper left of the display.**
4. **Turn [VALUE] to choose "COPY TONE."**



5. **Press [CURSOR ►] twice to move the cursor to the lower right of the display.**
6. **Turn [VALUE] to choose the Patch containing the settings you wish to copy.**
   "TEMP" means the currently selected Patch.
7. **Use [◄ CURSOR]/[CURSOR ►] and [VALUE] to choose the Tone containing the settings you wish to copy (From), and the Tone to which you want to copy the settings (To).**



8. **Press [ENTER] to execute the Copy.**

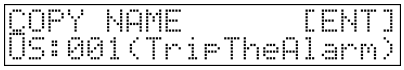
* *To cancel, press [EXIT].*

9. **Press [EXIT] to return to the PATCH PLAY screen.**
   A "*" symbol appears at the left of the Patch name, indicating that the Copy has been executed.

Patch Name Copy

You can copy the name of a Patch to the currently selected Patch.

1. **Select the Patch whose name you wish to change.**
2. **Press [UTILITY] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the upper left of the display.**
4. **Turn [VALUE] to choose "COPY NAME."**



5. **Press [CURSOR ►] to move the cursor to the lower right of the display.**
6. **Turn [VALUE] to choose the Patch whose name you wish to copy.**
7. **Press [ENTER] to execute the Copy.**

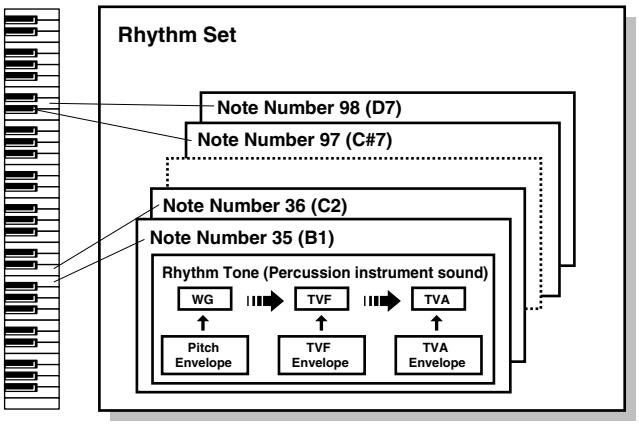
* *To cancel, press [EXIT].*

8. **Press [EXIT] to return to the PATCH PLAY screen.**

Chapter 2. Creating a Rhythm Set

How Percussion Instruments Are Organized

A Rhythm Set is a collection of Rhythm Tones, each of which represents a percussion instrument played on a single key. An instrument consists of the following four elements.



WG (Wave Generator)

This specifies the PCM waveform (or "wave") that forms the basis of the Rhythm Tone - four waveforms can be assigned to each Rhythm Tone. You can also determine how the pitch of the Rhythm Tone will change.

The XV-5050 has 1083 different waveforms. (See Waveform List p. 168.)

All Rhythm Sets built into the XV-5050 consist of Rhythm Tones based on these waveforms.

TVF (Time Variant Filter)

This sets how the frequency characteristics of the Rhythm Tone will change.

TVA (Time Variant Amplifier)

This sets how the Rhythm Tone's volume and stereo positioning will change.

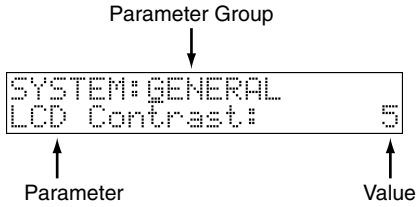
Envelope

An envelope applies changes to the Rhythm Tone over time. There are separate envelopes for pitch, TVF (filter) and TVA (volume). For example, you would use the TVA Envelope to modify the way in which the Rhythm Tone attacks and decays.

Using MIDI Keyboard to Select a Percussion Instrument for Editing

You can set whether you'll be able to select percussion instruments for editing only by operating the XV-5050's front-panel controls or also by pressing keys on a connected MIDI keyboard.

1. **Press [SYSTEM] to make its indicator light.**
2. **Press [◄ CURSOR] a few times to move the cursor to the parameter group in the upper line of the display.**



3. **Turn [VALUE] to choose "GENERAL."**
4. **Press [CURSOR ►] to move the cursor to the parameter at the lower left of the display.**
5. **Turn [VALUE] to choose "Rhy EditKey."**
6. **Press [CURSOR ►] to move the cursor to the value.**
7. **Turn [VALUE] to select the desired setting.**

   PANEL: Percussion instrument sounds can be selected only by using the XV-5050's TONE SW [1]–[4].

   PANEL&MIDI: Percussion instrument sounds can be selected using the XV-5050's TONE SW [1]–[4] or by pressing a key on a connected MIDI keyboard.
8. **Press [EXIT] to return to the previous screen.**

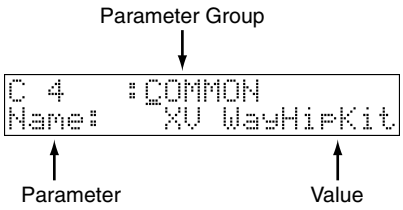
MEMO

For example, if you wish to use the MIDI keyboard to preview the percussion sound, choose "PANEL."

Settings Common to an Entire Rhythm Set

Setting Procedure:

1. **Hold down [SHIFT] and press [PATCH] to make its indicator blink.**
   The XV-5050 enters Rhythm Set mode.
2. **Choose the Rhythm Set you wish to use.**
3. **Press [EDIT] to make its indicator light.**
4. **Press [◄ CURSOR] a few times to move the cursor to the parameter group at the upper line of the display.**



5. **Turn [VALUE] to choose "COMMON."**
6. **Press [CURSOR ►] to move the cursor to the parameter.**
7. **Turn [VALUE] to choose the parameter you want to set.**
8. **Press [CURSOR ►] to move the cursor to the value.**
9. **Turn [VALUE] to choose the desired value.**
10. **Press [EXIT] to return to the RHYTHM PLAY screen.**
    A "*" symbol appears at the left of the Rhythm Set name, indicating that its settings have been changed.

NOTE

If you turn off the power or choose another Rhythm Set while the "*" symbol is displayed, your new Rhythm Set settings will be lost. If you wish to preserve them, save the changed Rhythm Set using the Write operation. (p. 104)

Parameter		Value	Description
COMMON			
Name	Rhythm set name	space, A–Z, a–z, 0–9, ! " # $ % & ' ( ) * + , - . / : ; < = > ? @ [¥] ^ _ ` { | }	You can name a Rhythm Set using up to 12 alphanumeric characters. Use [◄ CURSOR]/[CURSOR ►] to move the cursor, and then turn the [VALUE] knob to select the desired character.
Level	Rhythm set level	0–127	This sets the overall volume of the Rhythm Set. * To set the volume of each Rhythm Tone, use the Tone Level (TVA p. 61).
Output Asgn	Rhythm output assign	MFX, OUTPUT A/B, INDIV 1–4, TONE	This sets the output destination of the Rhythm Set. **MFX:** The Rhythm Set is sent into the Multi-Effects. **OUTPUT A/B:** The Rhythm Set is sent to the selected pair of OUTPUTs, A or B. **INDIV 1–4:** The Rhythm Set is sent to the selected INDIVIDUAL output jack, 1-4. **TONE:** Each Rhythm Tone in the Rhythm Set is sent to its programmed output destination.
Clock Source	Rhythm set clock source	RHYTHM, SYSTEM	The LFO cycle, M-FX changes, phrase loop (break beats), and Tone delay time can be synchronized to a clock, or tempo. The Clock Source setting selects the timing reference to be used by the Rhythm Set. **RHYTHM:** The Rhythm Set Tempo will be used. **SYSTEM:** The global System Tempo or clock messages received from an external sequencer will be used.
Tempo	Rhythm set tempo	20–250	When Clock Source is set to "RHYTHM," this setting establishes the Rhythm Set's tempo. * Clock messages for the Rhythm Tempo are not transmitted from the MIDI OUT jack.

Setting up Individual Rhythm Tones

EFFECTS

Patch/Rhythm Set Mode Settings (p. 70)

CONTROL

Other Settings (p. 61)

WAVE

Modifying a Rhythm Tone's Waveform and Panning (p. 57)

PITCH

Modifying a Rhythm Tone's Pitch (p. 59)

TVF

Modifying the Brightness of a Sound with a Filter (p. 59)

TVA

Making the Volume Change (p. 61)

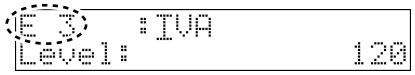
Editing Procedure:

1. **Choose the Rhythm Set you wish to set up.**
2. **Press [EDIT] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the parameter group in the upper line of the display.**
4. **Turn [VALUE] to choose the parameter group containing the parameter you wish to set up.**
5. **Press TONE SW [1]–[4] to choose the Tone you wish to set up.**

   [1]: Selects the key one octave below the currently selected key.
   [2]: Selects the key a semitone below the currently selected key.
   [3]: Selects the key a semitone above the currently selected key.
   [4]: Selects the key one octave above the currently selected key.

   * *You can also press a key on a connected MIDI keyboard to select the desired percussion instrument sound (key). (p. 54)*

   The selected key appears in the upper left of the display.



6. **Press [CURSOR ►] to move the cursor to the parameter name.**
7. **Turn [VALUE] to choose the parameter you wish to set.**
8. **Press [CURSOR ►] to move the cursor to the selected parameter's value.**
9. **Turn [VALUE] to choose the desired value.**
10. **Repeat Steps 3–10 to finish setting up the Rhythm Set.**
11. **Press [EXIT] to return to the RHYTHM PLAY screen.**

    A "*" symbol appears at the left of the Rhythm Set name, indicating that its settings have been changed.

NOTE

If you turn off the power or choose another Rhythm Set while the "*" symbol is displayed, your new Rhythm Set settings will be lost. If you wish to preserve them, save the changed Rhythm Set using the Write operation. (p. 104)

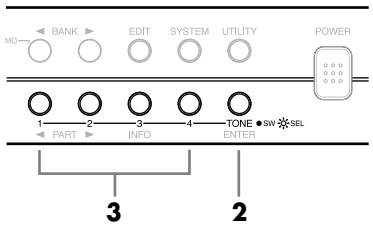
Tips for Choosing Rhythm Tone Waveforms

Refer to p. 43.

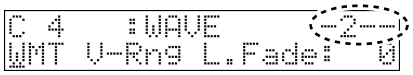
Modifying a Rhythm Tone's Waveform and Panning (WAVE)

Selecting a Waveform for Editing

Some parameters can be set independently for each Waveform in a Rhythm Tone.

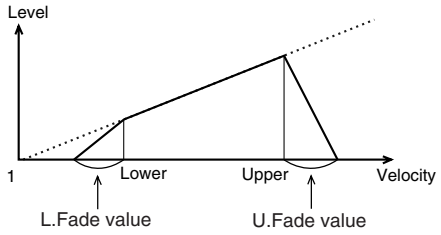


1. **Choose the Rhythm Tone you wish to set up.**
2. **Press [TONE] to make its indicator light.**
3. **Press TONE SW [1]–[4] to choose the waveform you want to set up.**
   [TONE]'s indicator lights, and the Waveform number appears in the upper right of the display.

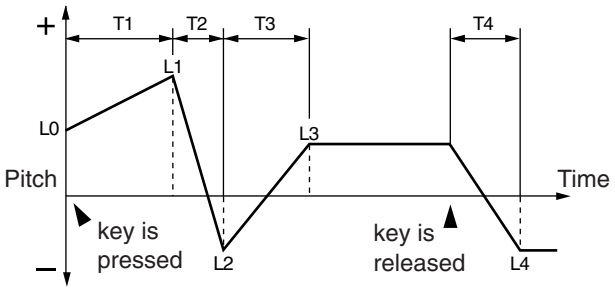


* *Parameters that can be set independently for each Waveform are indicated by "W."*

Parameter		Value	Description	
WAVE				
KeyName	Key name	space, A–Z, a–z, 0–9, ! " # $ % & ' ( ) * + , - . / : ; < = > ? @ [¥] ^ _ ` { | }	You can name a percussion sound (key) using up to 12 alphanumeric characters. Use [◀ CURSOR]/[CURSOR ▶] to move the cursor, and then turn the [VALUE] knob to select the desired character.	
WMT With the XV-5050, up to four stereo Waves can be assigned to a single Rhythm Tone. You can select the way tones sound according to the force with which the keys are played, thus allowing you to create Rhythm Tones featuring great expressive power. This function is called **WMT (Wave Mix Table)**.				
WMT Group	Wave group	INT, XP-A, XP-B	This selects the desired waveform's group. **INT:** Internal **XP-A, B:** Wave Expansion Board A, B * It is not possible to select a Group of a Wave Expansion Board that is not installed.	W
L	Wave number left	0001–1083	This selects the desired waveform by its number. You can choose a separate waveform for each of the XV-5050's left and right channels. The selected wave's name will appear to the right of the wave number parameter.	W
R	Wave number right			
WMT Gain	Wave gain	-6, 0, +6, +12 dB	This specifies the gain (or amplitude) of the waveform. The value changes in 6 dB (decibel) steps—an increase of 6 dB doubles the waveform's gain. If you intend to use the Booster to distort the waveform's sound, set this parameter to its maximum value.	W
WMT Switch	Wave switch	OFF, ON	This specifies whether the Rhythm Tone will sound (ON) or not (OFF). In order to make best use of the available number of simultaneous voices, unused Rhythm Tones should be turned off.	W
WMT Tempo Sync	Wave tempo sync	OFF, ON	This determines whether the waveform is synchronized (ON) or not synchronized (OFF) to the Rhythm Set's tempo.	W
WMT Level	Wave level	0–127	This adjusts the volume of each of the Rhythm Tone's waveforms to establish the desired volume balance between the waves. * The overall volume of each waveform is determined by the Tone Level setting (TVA p. 61) combined with the WMT Wave Tone Level setting.	W
WMT Pan	Wave pan	L64–63R	This establishes the stereo location of the waveform. L64 places it hard left, 0 outs it dead-center and 63R pans it hard right. * The overall panning of the entire Rhythm Tone is set by the Tone Pan parameter (TVA p. 61), offsetting the WMT Wave Pan value.	W
WMT Random Pan	Wave random pan switch	OFF, ON	Use this setting to cause the waveform's panning to change randomly each time a key is pressed (ON) or not (OFF). The range of the panning change is set by the Tone Rhythm Pan Depth setting (TVA p. 61).	W
WMT AlternatePan	Wave alternate pan switch	OFF, ON, REV	Set this to ON to pan the Wave according to the Alternate pan depth (TVA p. 61) settings, or to REVERSE when you want the panning reversed. If you do not want the panning to change each time a key is pressed, set this to OFF.	W
WMT Coarse Tune	Wave coarse tune	-48– +48	This adjusts the pitch of Rhythm Tone in semitone steps (-4– +4 octaves).	W
WMT Fine Tune	Wave fine tune	-50– +50	This adjusts the pitch of the Rhythm Tone in 1-cent steps (1/100th of a semitone) over a range of half a semitone up or down.	W

Parameter		Value	Description	
FXM FXM (Frequency cross modulation) uses a specified waveform to apply frequency modulation to the currently selected waveform, creating complex overtones. This can be useful when creating wilder sounds or sound effects.				
WMT FXM Switch	Wave FXM switch	OFF, ON	This sets whether FXM will be used (ON) or not (OFF).	W
WMT FXM Color	Wave FXM color	1–4	This specifies how FXM will perform its frequency modulation. Higher settings result in a grainier sound, while lower settings result in a more metallic sound.	W
WMT FXM Depth	Wave FXM depth	0–16	This specifies the depth of the modulation produced by FXM.	W
WMT V-Rng L.Fade	WMT velocity fade width lower	0–127	This determines what will happen to the waveform's level when it is played at a velocity lower than its specified velocity range. Higher settings produce a more gradual change in volume. If you don't want notes played outside the specified velocity range to be heard at all, set this to 0.	W
WMT V-Rng Lower	WMT velocity range lower	1–UPPER	This sets the lowest velocity at which the waveform will sound. This feature is useful when you want different waveforms to be heard depending on how hard you play the Rhythm Set.	W
WMT V-Rng Upper	WMT velocity range upper	LOWER–127	This sets the highest velocity at which the waveform will sound. This feature is useful when you want different waveforms to be heard depending on how hard you play the Rhythm Set. * It is not possible to set the Lower value higher than the Upper value, or the Upper value below the Lower value.	W
WMT V-Rng U.Fade	WMT velocity fade width upper	0–127	This determines what will happen to the waveform's level when it is played at a velocity upper than its specified velocity range. Higher settings produce a more gradual change in volume. If you don't want notes played outside the specified velocity range to be heard at all, set this to 0.  	W
WMT Vel Control	WMT velocity control	OFF, ON, RND	This determines whether Velocity range settings will be recognized (ON), or ignored (OFF). When set to RND, the Rhythm Set's constituent Waves will sound randomly, regardless of any Velocity messages.	

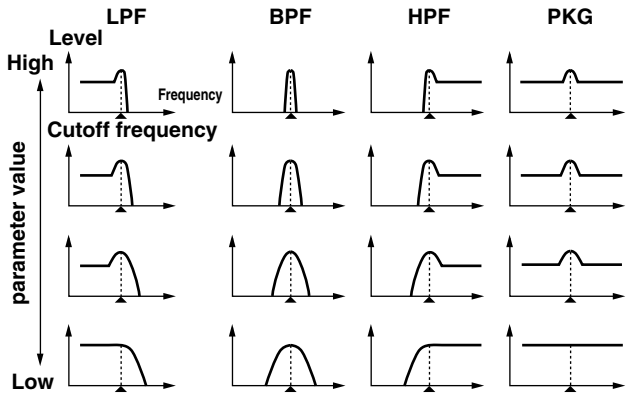
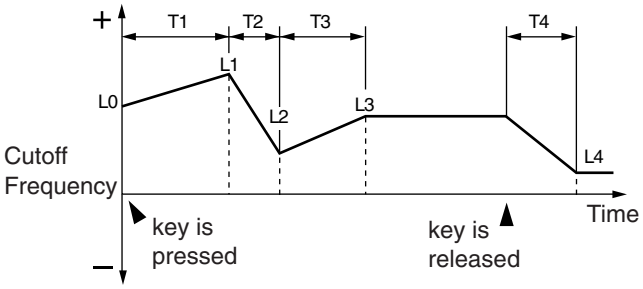
Modifying a Rhythm Tone's Pitch (PITCH)

Parameter		Value	Description
PITCH			
Coarse Tune	Rhythm tone coarse tune	C-1–G9	This selects the basic pitch at which the Rhythm Tone will play.
Fine Tune	Rhythm tone fine tune	-50– +50	This adjusts the pitch of the percussion instrument sound in 1-cent steps (1/100th of a semitone) over a range of half a semitone up or down.
Random Pitch	Random pitch depth	0–1200	This specifies the width of random pitch deviation that will occur each time a key is pressed. If you don't want random pitch changes, set it to 0. The parameter can be adjusted in units of 1 cent (1/100th of a semitone).
PITCH ENVELOPE These parameters determine the amount of pitch enveloping—changes to your basic pitch settings that occur over time—the effect of velocity on the pitch envelope, and the basic characteristics of the pitch envelope itself.  			
Envelope Depth	Pitch envelope depth	-12– +12	This determines the amount of pitch enveloping to be used—higher settings result in more extreme enveloping. Negative (-) settings invert the direction of the changes made by the Pitch Envelope.
Envelope V-Sens	Pitch envelope velocity sensitivity	-63– +63	Adjust this parameter when you want your keyboard playing dynamics (velocity) to affect the amount of pitch enveloping. With higher settings, there will be a greater difference in the amount of enveloping when notes are played softly or when they're played hard. Negative (-) settings will reverse the direction of change.
Envelope V-T1	Pitch envelope time 1 velocity sensitivity	-63– +63	Use this parameter when you want keyboard playing dynamics (velocity) to affect T1 (Time 1) of the pitch envelope. With higher settings, the T1 value will change more significantly depending on whether you play softly or with greater force. With positive (+) settings, greater keyboard velocity will reduce the T1 setting. With negative (-) settings, greater keyboard velocity will increase the T1 setting.
Envelope V-T4	Pitch envelope time 4 velocity sensitivity	-63– +63	Use this parameter when you want key-off velocity—the speed at which you release a key—to affect T4 (Time 4) of the pitch envelope. With higher settings, the T4 value will change more significantly depending on whether you release the key slowly or quickly. With positive (+) settings, faster key-off velocity will reduce the T4 setting. With negative (-) settings, faster key-off velocity will increase the T4 setting.
Envelope L0–L4	Pitch envelope level 0–4	-63– +63	Specify the pitch envelope levels. They determine how much the pitch changes from the reference pitch (the value set with Coarse Tune and Fine Tune) at each point. Positive (+) settings cause the pitch to be higher than the standard pitch, and negative (-) settings cause it to be lower.
Envelope T1–T4	Pitch envelope time 1–4	0–127	Specify the pitch envelope times. Higher settings lengthen the time until the next pitch is reached. (For example, T2 is the time over which the pitch changes from L1 to L2.)

Modifying the Brightness of a Sound with a Filter (TVF)

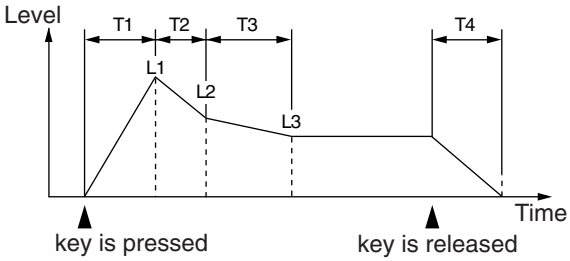
The settings for the TVF (Time Variant Filter) allow you to change a Rhythm Tone's timbral content by altering its brightness or thickness.

Parameter		Value	Description
TVF			
Filter Type	Filter type	OFF, LPF, BPF, HPF, PKG, LPF2, LPF3	This selects a filter type. A filter typically reduces, or attenuates, a specific frequency range within a Tone in order to accentuate its other frequencies. **OFF:** No filter is used. **LPF:** A Low Pass Filter reduces the volume of frequencies above the cutoff frequency in order to round off, or unbrighten, the sound. This is the most common filter used in synthesizers. **BPF:** A Band Pass Filter reduces the volume of frequencies below and above the cutoff frequency range. This is most effective when creating sounds with strong characteristics since it can accentuate a desired range of frequencies anywhere in the sound. **HPF:** A High Pass Filter reduces the volume of the frequencies below the cutoff frequency. This is suitable for creating percussive sounds by rolling of their lower frequencies, thus emphasizing their higher ones. **PKG:** A Peaking Filter emphasizes frequencies around the cutoff frequency by raising their level. You can use this to create wah-wah effects by employing an LFO to change the cutoff frequency cyclically. **LPF2:** Low Pass Filter 2. This reduces the volume of all frequencies above the cutoff frequency. This differs from LPF in that you can control the amount of the reduction using the TVF ENVELOPE settings while still maintaining a fixed cutoff frequency. This can be very effective with acoustic-instrument-based Tones, since nothing is done to weaken the power and energy of the sound. * This disables the Resonance setting. **LPF3:** Low Pass Filter 3 reduces the volume of frequencies above the cutoff frequency. While similar to LPF2, it filter reduces the frequencies more gently than LPF2. This can be very effective with acoustic-instrument-based Tones, since nothing is done to weaken the power and energy of the sound. * This disables the Resonance setting.
Cutoff Frequency	Cutoff frequency	0–127	This selects the frequency at which the filter begins to have an effect on the waveform's frequency components. With LPF/LPF2/LPF3 selected for the Filter Type parameter, lower cutoff frequency settings reduce a Rhythm Tone's upper harmonics for a more rounded, warmer sound. Higher settings make it sound brighter. When Filter Type is BPF, the cutoff frequency setting determines the range of frequencies within the Rhythm Tone that will be heard. This can be useful when creating distinctive sounds. When Filter Type is HPF, higher settings of the cutoff frequency decrease the level of the Rhythm Tone's low frequencies, preserving its brighter qualities. When Filter Type is PKG, the cutoff frequency setting determines the range of frequencies to be emphasized.

Parameter		Value	Description
Resonance	Resonance	0–127	This increases the level of the cutoff frequency to add a popular classic synth character to the sound. Excessively high settings can produce oscillation, causing the sound to distort. 
TVF VELOCITY This sets the amount of change to the original cutoff frequency in response to differences in velocity, as well as the velocity response curve and velocity's effect on Resonance.			
Cutoff V-Sens	TVF cutoff velocity sensitivity	-63–+63	This sets the amount of change to the Cutoff setting to be applied as a result of changes in playing velocity. With higher settings, there is a greater amount of change between softly and strongly played notes. Negative (-) settings reverse the direction of change.
Cutoff V-Curve	TVF cutoff velocity curve	FIXED, 1–7	This selects one of seven curves that determine how keyboard playing dynamics (velocity) influence the Rhythm Tone's cutoff frequency. When V-Curve is set to "FIXED," the cutoff frequency remains unchanged regardless of how hard or soft the keys are played. 
Resonance V-Sens	TVF resonance velocity sensitivity	-63–+63	Use this parameter when you want velocity to affect the amount of Resonance. With higher settings, there is a greater difference in the amount of Resonance between softly and strongly played notes. Negative (-) values reverse the direction of the change.
TVF ENVELOPE These parameters determine the amount of filter enveloping—changes to your original cutoff frequency setting that occur over time—the effect of velocity on the TVF envelope, and the basic characteristics of the TVF envelope itself. 			
Envelope Depth	TVF envelope depth	-63–+63	This adjusts the amount of filter enveloping. Higher settings produce more change. Negative (-) values invert the effect of the TVF envelope.
Envelope V-Sens	TVF envelope velocity sensitivity	-63–+63	Use this parameter when you want keyboard playing dynamics (velocity) to affect the depth of the TVF Envelope. With higher settings, there is a greater difference in the TVF envelope depth when you play softly or hard. Negative (-) settings reverse the direction of change.
Envelope V-Crv	TVF envelope velocity curve	FIXED, 1–7	This selects one of seven velocity curves that determine how velocity will affect the depth of the TVF Envelope. The selected curve is displayed graphically to the right of its value. When set to "FIXED," the TVF envelope depth remains unchanged, regardless of how hard or soft you play.
Envelope V-T1	TVF envelope time 1 velocity sensitivity	-63–+63	Use this parameter when you want keyboard playing dynamics (velocity) to affect T1 (Time 1) of the TVF envelope. With higher settings, the T1 value will change more significantly depending on whether you play softly or with greater force. With positive (+) settings, greater keyboard velocity will reduce the T1 setting. With negative (-) settings, greater keyboard velocity will increase the T1 setting. Use this parameter when you want velocity to affect T1 (time) of the TVF envelope. For higher settings, there will be a greater difference between softly and strongly played notes. For positive (+) settings, keyboard velocity will speed up the T1 time. For negative (-) settings, keyboard velocity will slow down the T1 time.
Envelope V-T4	TVF envelope time 4 velocity sensitivity	-63–+63	Use this parameter when you want key-off velocity—the speed at which you release a key—to affect T4 (Time 4) of the TVF envelope. With higher settings, the T4 value will change more significantly depending on whether you release the key slowly or quickly. With positive (+) settings, faster key-off velocity will reduce the T4 setting. With negative (-) settings, faster key-off velocity will increase the T4 setting.
Envelope L0–L4	TVF envelope level 0–4	0–127	Specify the TVF envelope levels. These settings specify how the cutoff frequency changes at each point, relative to the standard cutoff frequency.
Envelope T1–T4	TVF envelope time 1–4	0–127	Specify the TVF envelope times. Higher settings lengthen the time until the next cutoff frequency level is reached. (For example, T2 is the time over which L1 changes to L2.)

Making the Volume Change (TVA)

The TVA (Time Variant Amplifier) controls the Rhythm Tone's volume changes and stereo positioning.

Parameter		Value	Description
TVA			
Level	Rhythm tone level	0–127	This sets the Rhythm Tone's basic volume. This setting is useful primarily for adjusting the volume balance between Rhythm Tones in a Rhythm Set. * The overall volume of the Rhythm Set is set by the Level (Rhythm Set Level, COMMON group p. 55) setting, raising or lowering the Tone level settings of its individual Rhythm Tones by the selected amount.
Pan	Rhythm tone pan	L64–63R	This specifies the stereo position of the Rhythm Tone. L64 places the Rhythm Tone hard left, 0 puts it dead-center and 63R pans it hard right.
Pan Random	Random pan depth	0–63	Use this parameter to activate random panning, note-by-note. Higher values result in more extreme fluctuations in the Rhythm Tone's stereo placement.
Pan Alternate	Alternate pan depth	L63–63R	This setting causes panning to be alternated between left and right each time a key is pressed. Higher values result in a greater left/right width. You can select the stereo placement of the first key using this parameter—its opposite will be used for the second note, and so on back and forth. If you want to alternate the pan position of two Rhythm Tones, set them to the exact opposite L and R settings.
TVA VELOCITY			
Velocity Sens	TVA level velocity sensitivity	-63– +63	Use this setting when you want keyboard touch (velocity) to affect the Rhythm Tone volume. Set this to a positive value to have the changes in tone volume increase the more forcefully the keys are played; to make the Rhythm Tone play more softly as you play harder, set this to a negative value.
Velocity Curve	TVA level velocity curve	FIXED, 1–7	This setting allows you to select from seven velocity curves that determine how the force with which the keyboard is played is to affect the Rhythm Tone's volume. When set to "FIXED," the Rhythm Tone's volume will not be affected by the force with which the keyboard is played.  1 2 3 4 5 6 7
TVA ENVELOPE This specifies the manner in which keyboard velocity will affect the times of the TVA envelope.  			
Envelope V-T1	TVA envelope time 1 velocity sensitivity	-63– +63	Use this parameter when you want keyboard playing dynamics (velocity) to affect T1 (Time 1) of the TVA envelope. With higher settings, the T1 value will change more significantly depending on whether you play softly or with greater force. With positive (+) settings, greater keyboard velocity will reduce the T1 setting. With negative (-) settings, greater keyboard velocity will increase the T1 setting.
Envelope V-T4	TVA envelope time 4 velocity sensitivity	-63– +63	Use this parameter when you want key-off velocity—the speed at which you release a key—to affect T4 (Time 4) of the TVA envelope. With higher settings, the T4 value will change more significantly depending on whether you release the key slowly or quickly. With positive (+) settings, faster key-off velocity will reduce the T4 setting. With negative (-) settings, faster key-off velocity will increase the T4 setting.
Envelope T1–T4	TVA envelope time 1–4	0–127	Specify the TVA envelope times. Higher settings lengthen the time until the next volume level is reached. (For example, T2 is the time over which L1 changes to L2.)
Envelope L1–L3	(TVA envelope level 1–3	0–127	Specify the TVA envelope levels. These settings specify how the volume changes at each point, relative to the standard volume.

Other Settings (CONTROL)

Parameter		Value	Description
CONTROL			
Bend Range	Rhythm tone pitch bend range	0–48	Specifies the amount of pitch change that will occur when you move the Pitch Bend Lever.
Env Mode	Rhythm tone envelope mode	NO-SUS, SUSTAIN	When a loop-type waveform is selected, it will normally continue to sound as long as a key is pressed. If you want a note to decay naturally even when the key remains pressed, set this to "NO-SUSTAIN." * If a one-shot type Wave is selected, it will not sustain even if this parameter is set to "SUSTAIN."
Mute Group	Mute group	OFF, 1–31	The Mute Group function allows you to designate two or more Rhythm Tones that are not allowed to sound simultaneously. For example, in a real-world acoustic drum set, an open hi-hat and a closed hi-hat sound will never occur simultaneously, since they're produced by the same instrument. To simulate this behavior on the XV-5050, you can set the open and closed hi-hat Rhythm Tones to the same Mute Group. You can have up to 31 Mute Groups per Rhythm Set. If you do not want a Rhythm Tone to use a Mute Group, turn the feature off.
Assign Type	Assign type	MULTI, SINGLE	This setting determines whether a Rhythm Tone note that is playing is stopped when the same note is played again (SINGLE), or whether it will continue to play, layered with the new note.
Rx MIDI (Receive MIDI) These parameters determine how each Rhythm Tone in a Rhythm Set will respond to received Expression/Pan/Hold 1 MIDI messages.			
Rx MIDI Express	Rhythm tone receive expression switch	OFF, ON	If you want the Rhythm Tone to respond to Expression messages, turn this parameter on. If not, turn it off.
Rx MIDI Pan	Rhythm tone receive pan mode	CONT, KEY-ON	**CONT:** Pan messages will be responded to immediately, instantly changing the stereo position of the Rhythm Tone. **KEY-ON:** The stereo location of the Rhythm Tone will be changed only when the next note is played. If a Pan message is received while a note is sounding, its stereo location will not change.
Rx MIDI Hold-1	Rhythm tone receive hold 1 switch	OFF, ON	If you want the Tone to respond to Hold 1 messages, turn this parameter on. If not, turn it off.

Effects Settings

Refer to “Patch/Rhythm Set Mode Settings” (p. 70).

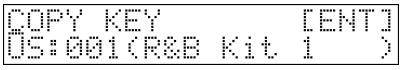
Saving Rhythm Sets You Create

Refer to “Saving a Rhythm Set” (p. 104).

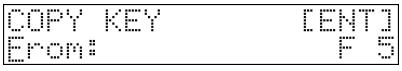
Copying the Settings of Another Rhythm Tone (Rhythm Key Copy)

Rhythm Tone settings from any Rhythm Set can be copied to any key of the currently selected Rhythm Set. This function can save time and effort when creating a Rhythm Set.

1. **Make sure that a Rhythm Tone (destination) is selected.**
2. **Press [UTILITY] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the upper left of the display.**
4. **Turn [VALUE] to choose "COPY KEY."**



5. **Press [CURSOR ►] twice to move the cursor to the lower right of the display.**
6. **Turn [VALUE] to choose the Rhythm Set containing the settings you wish to copy.**
   "TEMP" means the currently selected Rhythm Set.
7. **Use [◄ CURSOR]/[CURSOR ►] and [VALUE] to choose the Rhythm Set containing the settings you wish to copy (From), and the Rhythm Set to which you want to copy the settings (To).**



8. **Press [ENTER] to execute the Copy.**

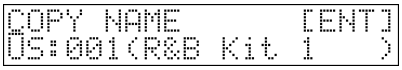
* *To cancel, press [EXIT].*

9. **Press [EXIT] to return to the RHYTHM PLAY screen.**
   A "*" symbol appears at the left of the Rhythm Set name, indicating that the Copy has been executed.

Rhythm Set Name Copy

You can copy the name of a Rhythm Set to the current Rhythm Set.

1. **Select the Rhythm Set whose name you wish to change.**
2. **Press [UTILITY] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the upper left of the display.**
4. **Turn [VALUE] to choose "COPY NAME."**



5. **Press [CURSOR ►] to move the cursor to the parameter at the lower left of the display.**
6. **Turn [VALUE] to choose the desired Rhythm Set whose name you wish to copy.**
7. **Press [ENTER] to execute the Copy.**

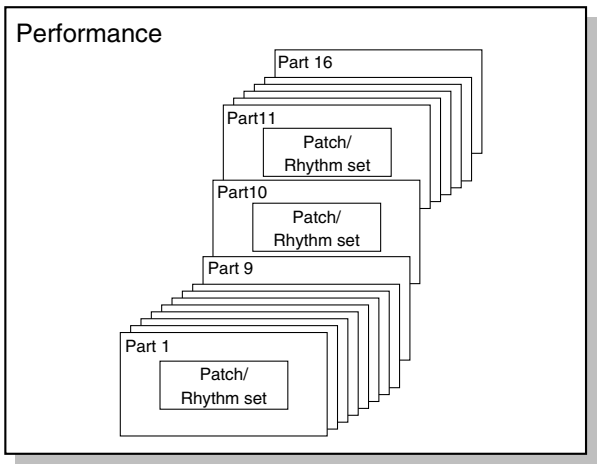
* *To cancel, press [EXIT].*

8. **Press [EXIT] to return to the RHYTHM PLAY screen.**

Chapter 3 Creating a Performance

How a Performance Is Organized

In the XV-5050's Performance mode, you can play and control up to 16 instrument sounds at the same time, including Patches and/or Rhythm Sets. Such a set of sounds, as well as an effect setup, can be saved as a "Performance." Each Performance is comprised of 16 "Parts," each of which controls one of its sounds. Because the XV-5050 sound generator can play multiple sounds at the same time, it's called a "multitimbral sound module."



Basic Ways to Use Performances

There are three basic ways to use Performances.

Playing Multiple Layered Patches (Layer)

Refer to "Quick Start" (p. 25).

Playing Different Patches In Different Areas of the Keyboard (Split)

Refer to "Quick Start" (p. 28).

Using the XV-5050 as a Multitimbral Sound Module

In Performance mode, you can use the XV-5050 as a 16-part multitimbral sound module. Let's try choosing some Parts and their sounds, and then play the multiple Parts together as a Performance. The basic steps for doing this include:

- Choosing the Parts to Play (p. 63)
- Choosing a Patch for each Part (p. 65)
- Setting the Parts' MIDI reception channels (p. 67)

After you've completed setting up your Performance, try playing a sequence from your computer or sequencer using the Performance's sounds.

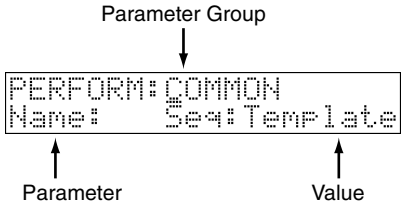
Turning a Part On or Off

Turn on each Part you wish to use.

1. **Choose the Performance you wish to use.**
2. **Press [EDIT] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the parameter group in the upper line of the display.**
4. **Turn [VALUE] to select "MIDI."**
5. **Press [CURSOR ►] to move the cursor to the parameter.**
6. **Turn [VALUE] to select "Rx Switch."**
7. **Press [CURSOR ►] to move the cursor to the value.**
8. **Press [◄ PART]/[PART ►] to select the Part you wish to turn on or off.**
9. **Turn [VALUE] to select "ON."**
10. **Press [EXIT] to return to the PERFORM PLAY screen.**

How to Adjust a Performance Setting

1. **Choose the Performance you wish to use.**
2. **Press [EDIT] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the parameter group in the upper line of the display.**



4. **Turn [VALUE] to choose "COMMON."**
5. **Press [CURSOR ►] to move the cursor to the parameter.**
6. **Turn [VALUE] to choose the parameter you want to set.**
7. **Press [CURSOR ►] to move the cursor to the value.**
8. **Turn [VALUE] to choose the desired value.**
9. **Press [EXIT] to return to the PERFORM PLAY screen.**

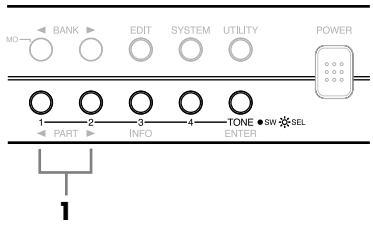
   A "*" symbol appears at the left of the Performance name, indicating that its settings have been changed.

NOTE

If you turn off the power or choose another Performance while the "*" symbol is displayed, your new Performance settings will be lost. If you wish to preserve them, save the changed Performance using the Write operation. (p. 104)

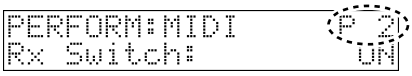
Selecting a Part for Editing

Some parameters can be set independently for each Part in a Performance.



1. In the PERFORMANCE EDIT screen, press [◄ PART]/[PART ►] to choose the Part whose parameters you wish to edit.

The selected Part's number appears in the upper right of the display.



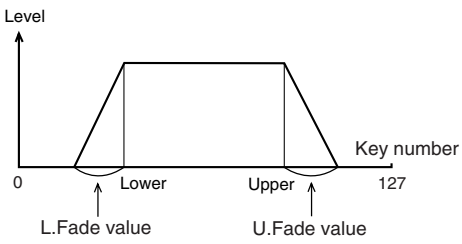
Establishing Settings for an Entire Performance (COMMON)

* *Parameters that can be set independently for each Part are indicated by "P."*

Parameter		Value	Description
COMMON			
Name	Performance Name	space, A–Z, a–z, 0–9, ! " # $ % & ' ( ) * + , - . / : ; < = > ? @ [¥] ^ _ ` { | }	You can give a Performance a name of up to 12 characters. Use [◄ CURSOR]/[CURSOR ►] to move the cursor to a character position, and then turn [VALUE] to choose the desired character.

Setting the Keyboard Range

You can set each Part's keyboard range (Key Range), the area on the keyboard in which the Part sounds. Adjust Part Key Ranges when you wish to divide the keyboard into areas with a different Patch in each area — this is called a "split."

Parameter		Value	Description	
COMMON				
Key Range L.Fade	Part Keyboard Fade Width Lower	0–127	Determines what happens to the Part's level when a note that's lower than its specified keyboard range is played. Higher settings result in a more gradual change in volume. If you don't want the Part to sound at all when a note below the keyboard range is played, set this parameter to 0.	P
Key Range Lower	Part Keyboard Range Lower	C-1–UPPER	Specifies the lowest note that causes the Part to play its sound.	P
Key Range Upper	Part Keyboard Range Upper	LOWER–G9	Specifies the highest note that causes the Part to play its sound. * It is not possible to set Lower to a value greater than the Upper value, or Upper to a value less than the Lower value.	P
Key Range U.Fade	Part Keyboard Fade Width Upper	0–127	Determines what happens to the Part's level when a note that's higher than its specified keyboard range is played. Higher settings result in a more gradual change in volume. If you don't want the Part to sound at all when a note above the keyboard range is played, set this parameter to 0. 	P

Other Settings

Parameter		Value	Description
COMMON			
MFX Control Ch	Multi-Effects Control Channel	1–16, OFF	Sets the channel that controls Multi-effects assigned to the Performance.
Solo Part Select		OFF, 1–16	Select the Part whose sound you want to hear. Parts other than the Part you choose here will not sound.

Settings for Each Part

Choosing a Part's Patch or Rhythm Set

You can choose the Patch or Rhythm Set that assigned to each Part.

Parameter		Value	Description
PART			
Part Type		PATCH, RHYTHM	Select the type of sound the Part plays.
Part Group		USER, PR-A–H, GM, XP-A, XP-B	Chooses the group (Bank) to which the desired Patch or Rhythm Set belongs. * It is not possible to choose XP-A, XP-B unless a wave expansion board is inserted into the corresponding slot. (p. 120)
(US:001–XB:***)	Patch/Rhythm Set Number	US:001–XB:***	Chooses the desired Patch or Rhythm Set by its number.

Setting a Part's Volume, Pan, Pitch, and Polyphony

You can set a Part's volume, panning, and the number of notes it can play simultaneously.

Parameter		Value	Description
PART			
Level	Part Level	0–127	Sets the volume of the Part. This setting's main purpose is to adjust the volume balance between Parts.
Pan	Part Pan	L64–63R	Specifies the stereo position of the Part's sound. L64 pans the sound hard left, 0 puts it dead-center and 63R pans it hard right.
Voice Rsv	Voice Reserve	0–63, FULL	Specifies the number of voices that reserved for each Part when more than 64 voices are played simultaneously. * It is not possible for the settings of all Parts to total an amount greater than 64. The remaining number of available voices is displayed in round brackets at the right of this parameter. Pay attention to this readout as you make set the Voice Reserve parameter.

Calculating the Number of Voices Being Used

The number of notes, or "voices," that the XV-5050 can sound simultaneously depends on the number of Tones in the Patches you're using and the number of keys being pressed. For example, if you play one note using a Patch that consists of only one Tone, you'll use up one voice of polyphony. XV-5050 Tones may use two Waveforms. If a Patch's Tone uses two Waveforms, the number of voices it requires is doubled. If two keys are pressed with a Patch that has four Tones, and each Tone uses two Waveforms, a total of sixteen voices are used.

This number is obtained by performing the following calculation. Count the number of Tones with two Waveforms and multiply this number by 2. Add the number of Tones that use one Waveform. Multiply this total by the number of keys pressed.

The XV-5050 can play up to 64 Tones simultaneously. When you're using the XV-5050 multitimbrally, keep this in mind, and adjust your Voice Reserve settings so that each Part is guaranteed at least the minimum number of voices it requires.

Editing the Attack and Release of a Part's Sound

You can determine how a Part plays a sound by setting it to modify the sound's programmed cutoff frequency, Resonance, Velocity Sense, and TVF and TVA Envelope attack and release time settings.

Parameter		Value	Description
PART			
Cutoff Offset	Part Cutoff Offset	-64–+63	Raises or lowers the TVF cutoff frequency settings for each of the Tones in the Part's sound.
Resonance Offset	Part Resonance Offset	-64–+63	Raises or lowers the TVF Resonance settings for each of the Tones in the Part's sound.
Attack Offset	Part Attack Time Offset	-64–+63	Raises or lowers the TVF/TVA attack time (T1) settings for each of the Tones in the Part's sound.
Decay Offset	Part Decay Offset	-64–+63	Raises or lowers the TVF/TVA attack time (T2 and T3) settings for each of the Tones in the Part's sound.
Release Offset	Part Release Time Offset	-64–+63	Raises or lowers the TVF/TVA release time (T4) settings for each of the Tones in the Part's sound.
Vibrato Rate	Part Vibrato Rate	-64–+63	Adjusts the vibrato speed (the rate at which the pitch is modulated). The pitch will be modulated more rapidly for higher settings and more slowly with lower settings.
Vibrato Depth	Part Vibrato Depth	-64–+63	Adjusts the depth of the vibrato effect (the depth at which the pitch is modulated). The pitch will be modulated more greatly for higher settings, and less with lower settings.
Vibrato Delay	Part Vibrato Delay	-64–+63	Adjusts the delay time until the vibrato (pitch modulation) effect begins. Higher settings will produce a longer delay time before vibrato begins, while lower settings produce a shorter time.
Velocity Sens	Part Velocity Sensitivity Offset	-63–+63	Raises or lowers the VELOCITY V-Cutoff and the TVA V-Sens settings for each of the Tones in the Part's sound.

Changing the Pitch

You can set the pitch and bend range each Part uses when playing its sound.

Parameter		Value	Description
PART			
Octave Shift	Part Octave Shift	-3–+3	Adjusts the pitch of the Part's sound up or down in units of an octave (+/-3 octaves).
Coarse Tune	Part Coarse Tune	-48–+48	Adjusts the pitch of the Part's sound up or down in semitone steps over a range of +/-4 octaves.
Fine Tune	Part Fine Tune	-50–+50	Adjusts the pitch of the Part's sound up or down in 1-cent steps (1/100th of a semitone) over a range of half a semitone up or down.
Bend Range	Part Pitch Bend Range	0–24, PATCH	Specifies the amount of pitch change that occurs when you move the Pitch Bend Lever. This overrides the sound's own pitch-bend settings. The amount of pitch change downward or upward that occurs when the lever is moved is the same for both its left and right directions (or down and up on some MIDI controllers). When PATCH is chosen, the bend range settings for the assigned Patch take effect.

Changing the Way a Part's Sound is Played

You can set the MONO/POLY, Legato and Portamento each Part uses when playing its sound.

Parameter		Value	Description
PART			
Mono/Poly	Part Mono/Poly	MONO, POLY, PATCH	Sets how the Patch's notes play. The MONO setting is effective when playing a solo instrument Patch such as sax or flute. **MONO:** Only one note sounds at a time. **POLY:** Two or more notes can be played simultaneously. **PATCH:** The Part uses the Patch's Mono/Poly setting.
Legato Switch	Part Legato Switch	OFF, ON, PATCH	Turn this parameter on when you want to use the Legato feature and off when you don't. Legato is a feature that works only when the Key Assign Mode is MONO. When Legato is ON, pressing one key when another is already pressed causes the currently playing note's pitch to change to that of the newly pressed key while continuing to sound. This can be effective when you wish to simulate performance techniques such as a guitarist's hammering on and pulling off strings. When PATCH is selected, the Patch's own settings take effect.
Portamento SW	Part Portamento Switch	OFF, ON, PATCH	Specifies whether the portament effect is applied (ON) or not (OFF). When PATCH is selected, the settings for the assigned Patch take effect.
Portamento Time	Part Portamento Time	0–127, PATCH	Specifies the time over which the pitch changes. Higher settings cause the pitch change to the next note to take more time. When PATCH is chosen, the settings for the assigned Patch take effect.

What is Portamento?

Portamento is an effect that smoothly changes the pitch from the first-played key to the next-played key. When Key Assign is MONO, applying portamento produces an effect similar to the slide performance technique of a violinist. Portamento can also be applied when Key Assign is polyphonic (POLY).

Scale Tune

The XV-5050 allows you to use temperaments other than equal temperament.
One set of Scale Tune settings can be created in Patch mode. In Performance mode, each Part can have its own Scale Tune settings.

* *The selected scale applies to MIDI messages received from an external MIDI device as well as to local sound generation.*

Parameter		Value	Description
PART			
Key C–B Scale	Key Scale C–B	-64– +63	Adjusts the pitch of each note in one-cent steps (1/100th of a semitone) relative to its equal-tempered pitch.

<Equal Temperament>

This scale divides an octave into 12 equal parts using the tuning system that is most widely used in Western music.

<Pure Temperament>

With this tuning, the three fundamental chords sound richer compared to equal temperament. This effect only applies to one key, and transposition can produce less-pleasing results.

<Arabian Scale>

In this scale, E and B are a quarter note lower, and C#, F# and G# are a quarter-note higher compared to equal temperament. The intervals between G and B, C and E, F and G#, Bb and C#, and Eb and F# have a natural third-the interval between a major third and a minor third. On the XV-5050, you can use Arabian temperament in the three keys of G, C and F.

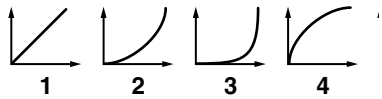
Example: Tonic C

Note name	Equal temperament	Pure temperament	Arabian scale temperament
C	0	0	-6
C#	0	-8	+45
D	0	+4	-2
Eb	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
Bb	0	+14	-10
B	0	-12	-49

Establishing a Part's MIDI Settings

* *Parameters that can be set independently for each Part are indicated by "P."*

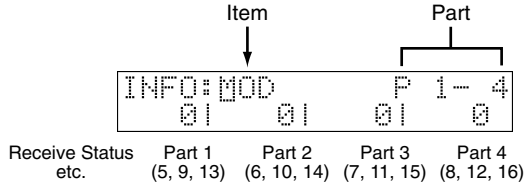
* *Parameters that can be set independently for each MIDI channel are indicated by "C."*
To choose the MIDI channel whose parameters you wish to set, press [◄ PART]/[PART ►].
The selected MIDI channel's number appears in the upper right of the display.

Parameter		Value	Description	
MIDI				
Rx Channel	Receive Channel	1–16	Sets the MIDI channel to which the Part responds.	P
Rx Switch	Receive Switch	OFF, ON	This enables (ON) or disables (OFF) the Part's response to received MIDI messages.	P
Mute Switch		OFF, MUTE	This silences, or "mutes," the Part when set to MUTE. * Although the Part's sound is muted, the Part still receives MIDI messages. Thus, even when the Part's sound is switched on or off during playback of a song, the Part continues to keep up with the latest received MIDI data.	P
Rx Bank Select	Receive Bank Select Switch	OFF, ON	Sets whether the Part responds to received MIDI Bank Select messages (ON) or not (OFF).	C
Rx Prog Change	Receive Program Change Switch	OFF, ON	Sets whether the Part responds to received MIDI Program Change messages (ON) or not (OFF).	C
Rx Volume	Receive Volume Switch	OFF, ON	Sets whether the Part responds to received MIDI Volume messages (ON) or not (OFF).	C
Rx Pan	Receive Pan Switch	OFF, ON	Sets whether the Part responds to received MIDI Pan messages (ON) or not (OFF).	C
Rx Expression	Receive Expression Switch	OFF, ON	Sets whether the Part responds to received MIDI Expression messages (ON) or not (OFF).	C
Rx Hold-1	Receive Hold 1 Switch	OFF, ON	Sets whether the Part responds to received MIDI Hold 1 messages (ON) or not (OFF).	C
Rx Bender	Receive Pitch Bend Switch	OFF, ON	Sets whether the Part responds to received MIDI Bender messages (ON) or not (OFF).	C
Rx Modulation	Receive Modulation Switch	OFF, ON	Sets whether the Part responds to received MIDI Modulation messages (ON) or not (OFF).	C
Rx Ch Pressure	Receive Channel Pressure Switch	OFF, ON	Sets whether the Part responds to received MIDI Aftertouch messages (ON) or not (OFF).	C
Rx Poly Pressure	Receive Polyphonic Pressure Switch	OFF, ON	Sets whether the Part responds to received MIDI Polyphonic Aftertouch messages (ON) or not (OFF).	C
Velocity Curve		OFF, 1–4	For each Part, you can select from among four velocity curves to find the one that best matches the touch of the MIDI keyboard connected to the XV-5050. Set this to "OFF" if you're using the MIDI keyboard's own velocity curve.  1 2 3 4	C
Phase Lock	Phase Lock Switch	OFF, ON	This setting activates (ON) or de-activates (OFF) synchronization of the timing of Parts that share a common MIDI channel. * When Part sounds are layered on top of each other as a result of sharing a MIDI channel, there may be a discrepancy in their timing. The Phase Lock feature can synchronize the sounds so that they start precisely at the same time. However, since this delays the sounds slightly in order to line them up, turn this feature off when it's not needed.	C

Confirming MIDI Information for Each Part (INFO)

In this display you can check the receive status of various types of MIDI message for each Part. This is a convenient way to check that the sound generator is responding correctly to messages from the keyboard or external MIDI controllers.

1. In Performance mode, press [INFO].



2. Turn [VALUE] to choose the item you wish to confirm.

3. Press [◄ PART]/[PART ►] to choose the Part you wish to confirm.

4. Press [INFO] or [EXIT] to return to the previous screen.

Adjusting Effect Settings

Refer to "Performance Mode Settings" (p. 72).

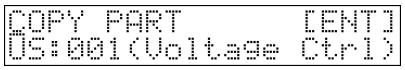
Saving Performances You Create

Refer to "Saving a Performance" (p. 104).

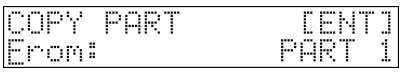
Copying Settings from One Part to Another (Performance Part Copy)

Part settings from any Performance can be copied to the currently selected Part. This can save you time when setting up Parts.

1. **Make sure that a Part is selected.**
2. **Press [UTILITY] to make its indicator light.**
3. **Press [◄ CURSOR] some times to move the cursor to the upper left of the display.**
4. **Turn [VALUE] to choose "COPY PART."**



5. **Press [CURSOR ►] twice to move the cursor to the lower right of the display.**
6. **Turn [VALUE] to choose the Performance containing the Part whose settings you wish to copy.**
   "TEMP" means the currently selected Performance.
7. **Use [◄ CURSOR]/[CURSOR ►] and [VALUE] to select the Part whose settings you want to copy (From) and the Part to which you want to copy those settings (To).**



8. **Press [ENTER] to execute the Copy.**

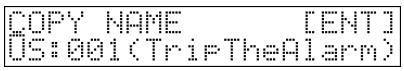
* *To cancel, press [EXIT].*

9. **Press [EXIT] to return to the PERFORM PLAY screen.**
   A "*" symbol appears at the left of the Performance name, indicating that the Copy has been executed.

Performance Name Copy

You can copy the name from any Performance to the current Performance.

1. **Select the Performance whose name you want to change.**
2. **Press [UTILITY] to make its indicator light.**
3. **Press [◄ CURSOR] some times to move the cursor to the upper left of the display.**
4. **Turn [VALUE] to choose "COPY NAME."**



5. **Press [CURSOR ►] to move the cursor to the lower right of the display.**
6. **Turn [VALUE] to choose the desired Performance whose name you wish to copy.**
7. **Press [ENTER] to execute the Copy.**

* *To cancel, press [EXIT].*

8. **Press [EXIT] to return to the PERFORM PLAY screen.**

Chapter 4 Using the XV-5050 Effects

This chapter explains how effects are applied in Patch/Rhythm Set mode or Performance mode.

For information about the application of effects in GM mode, refer to "Making Effects Settings in GM Mode (EFFECTS)" (p. 112).

Effect Types

The XV-5050 has the following four onboard effect processors, and settings can be made independently for each.

MFX (Multi-Effects)

The Multi-effects are multi-purpose effects that completely change the sound type by changing the sound itself. Contained are 90 different effects types; select and use the type that suits your aims. In addition to effects types composed of simple effects such as Distortion, Flanger, and other such effects, you can also set up a wide variety of other effects, even connecting effects in series or in parallel. Furthermore, while chorus and reverb can be found among the Multi-effects types, the following chorus and reverb are handled with a different system.

NOTE
In GM mode, you cannot use Multi-effects.

Chorus

Chorus adds fatness and breadth to the sound. You can select whether to use this as a chorus effect or a delay effect.

NOTE
A GM-exclusive Chorus can be used in GM mode.

Reverb

Reverb adds an ambience to sounds so they seem to be playing in an actual physical space. Five different types are offered, so you can select and use the type that suits your purpose.

NOTE
A GM-exclusive Reverb is used in GM mode.

EQ (Equalizer)

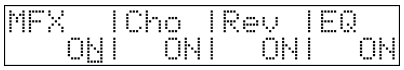
Equalizer boosts or cuts specific frequencies within a sound to adjust the tone.

* *Equalizer is set in System mode (p. 109).*

Turning Effects On/Off

The XV-5050's onboard effects can be turned on/off as a whole. Turn these settings OFF when you wish to listen to the unprocessed sound as you create a sound, or when you wish to use external effects processors instead of the built-in effects.

1. **Hold down [SHIFT] and press [PATCH FINDER] to make its indicator blinking.**



2. **Press [◄ CURSOR]/[CURSOR ►] to select the effect that you wish to turn on/off.**
3. **Turn [VALUE] to select ON or OFF.**

MEMO
Effect ON/OFF settings are global XV-5050 settings. These settings cannot be made for each Patch or Performance individually.

Patch/Rhythm Set Mode Settings

Only one Multi-effect, Chorus, or Reverb effect can be set for each Patch or Rhythm Set. You cannot apply differing types of Multi-effects, Chorus, or Reverb to each of the Tones or Rhythm Tones comprising the Patch or Rhythm Set.

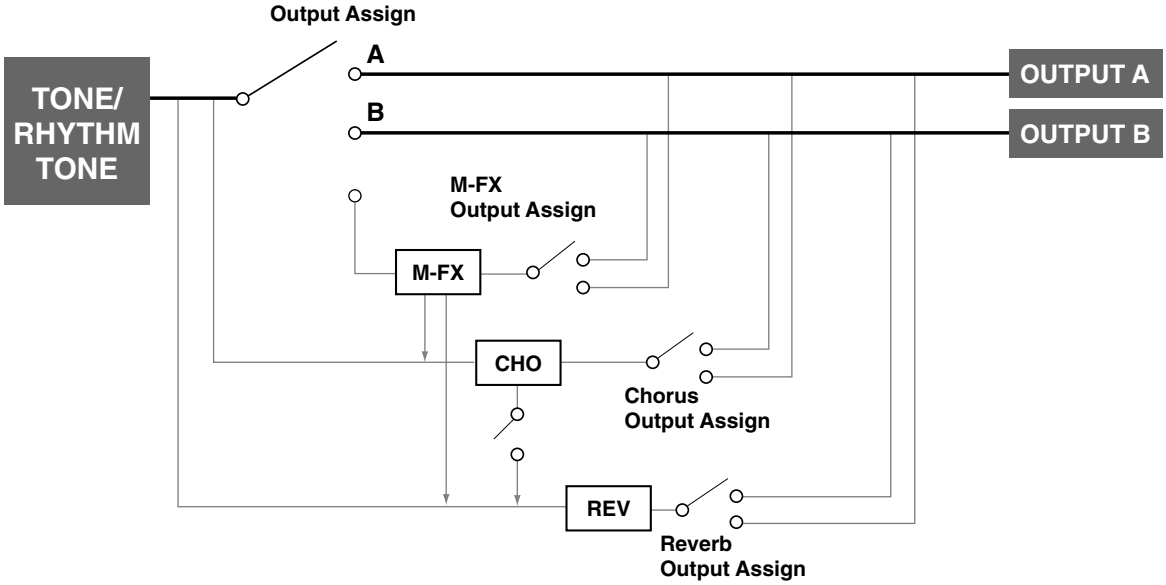
Basic Process of Making Effects Settings

When applying effects in Patch/Rhythm Set mode, the following procedure is used to make the settings.

1. **Setting the Output Method of the Direct Sound (Output Assign)**
   Settings determining whether or not the signal passes through the Multi-effects, the jack used to output the sound, and the type of output (stereo or mono) are made for each individual Patch or Rhythm Set, or each Tone or Rhythm Tone. -> (p. 71)
2. **Setting the Amount of Each Effect Applied (Send Level)**
   Set the level (volume) of each effect signal to be sent for each Tone or Rhythm Tone. -> (p. 71)
3. **Making Multi-Effects Settings**
   Select the type of Multi-effects to be used, and set the parameters for the selected Multi-effect. -> (pp. 74–101)
4. **Setting the Multi-Effects Controller**
   When using MIDI messages to change the Multi-effects parameters in realtime, select the Multi-effects controller. -> (p. 74)
5. **Setting the Output Destination and Volume for the Sounds Passing Through the Multi-Effects**
   Select the output jack and set the output level (volume) of the sounds passing through the Multi-effects. You can also apply Chorus or Reverb to the sound that passes through Multi-effects. -> (p. 74)
6. **Making Chorus Settings**
   Select the Chorus type to be used, and set each of the parameters for the selected Chorus. -> (p. 74, p. 102)
7. **Setting the Output Destination and Volume for the Sounds Passing Through the Chorus**
   Select the output jack and set the output level (volume) of the sounds passing through the Chorus. You can also apply Reverb to the sound that passes through Chorus. -> (p. 74)
8. **Making Reverb Settings**
   Select the Reverb type to be used, and set each of the parameters for the selected Reverb. -> (p. 74, p. 103)
9. **Setting the Output Destination and Volume for the Sounds Passing Through the Reverb**
   Select the output jack and set the output level (volume) of the sounds passing through the Reverb. -> (p. 74)

Audio Signal Flow

The audio path of direct sounds or sounds that have been passed through the effects in Patch/Rhythm Set mode is shown in the figure below.



Setting Procedure

You can set the direct sound's output method and the amount of effect applied for each Tone or Rhythm Tone individually.

1. **Choose the Patch/Rhythm Set you wish to use.**
2. **Press [EDIT] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the parameter group in the upper line of the display.**
4. **Turn [VALUE] to choose "EFFECTS."**
5. **Press [CURSOR ►] to move the cursor to the parameter.**
6. **Turn [VALUE] to choose the parameter you want to set.**
7. **Choose the Tone/Rhythm Tone for which you want to make settings.**

   For more information on how to choose Tone/Rhythm Tone, refer to pages 39 and 56.
8. **Press [CURSOR ►] to move the cursor to the value.**
9. **Turn [VALUE] to select the desired setting.**
10. **Press [EXIT] to return to the PATCH/RHYTHM PLAY screen.**

    A "*" symbol appears at the left of the Patch/Rhythm Set name, indicating that its settings have been changed.

NOTE

If you turn off the power or choose another Patch/Rhythm Set while the "*" symbol is displayed, your new Patch/Rhythm Set settings will be lost. If you wish to preserve them, save the changed Patch/Rhythm Set using the Write operation. (p. 104)

Parameter		Value	Description
EFFECTS			
Output Asgn	Tone Output Assign	MFX, OUTPUT A/B, INDIV 1–4	Sets the direct sound's output method for each Tone or Rhythm Tone. **MFX:** Output in stereo through Multi-effects. You can also apply Chorus or Reverb to the sound that passes through Multi-effects. **OUTPUT A/B:** Output to the OUTPUT A (MIX) / B jacks in stereo without passing through Multi-effects. **INDIV 1–4:** Output to the INDIVIDUAL 1–4 jack in mono without passing through Multi-effects.
Output Level	Tone Output Level	0–127	Sets the direct sound's volume for each Tone or Rhythm Tone. When Multi-effects are being applied, this sets the amount of the effect that is applied; when Multi-effects are not applied, this sets the volume of the direct sound.
Chorus Send	Tone Chorus Send Level	0–127	Sets the chorus depth for individual Tone/Rhythm Tone. If you don't want to add the Chorus effect, set it to 0.
Reverb Send	Tone Reverb Send Level	0–127	Sets the reverb depth for individual Tone/Rhythm Tone. If you don't want to add the Reverb effect, set it to 0.

NOTE

- When the Output Assign parameter (p. 40)/(p. 55) is set to anything but TONE, the setting made here has no effect.
- When the Struct Type (PATCH:COMMON) parameter has a setting of Type 2–10, the outputs of Tones 1 and 2 will be combined with Tone 2, and the outputs of Tones 3 and 4 will be combined with Tone 4. For this reason, the setting of Tone 1 will follow the setting of Tone 2, and the setting of Tone 3 will follow the setting of Tone 4 (p. 41).
- When outputting in mono, the Pan setting is disabled.
- Chorus and Reverb are output in mono at all times.
- When the settings are such that signals are split and output from the INDIVIDUAL 1 jack and INDIVIDUAL 2 jack, and no plug is inserted in the INDIVIDUAL 2 jack, the sounds from INDIVIDUAL 1 and INDIVIDUAL 2 are mixed together, then output from the INDIVIDUAL 1 jack. This sound comprises the sounds from the INDIVIDUAL 1 and 2 jacks.

MEMO

If the Mix/Parallel parameter (SYSTEM:GENERAL) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 107).

For more on how to set each effect, refer to the pages shown below.

- Multi-effects -> (p. 74, pp. 75–101)
- Chorus -> (p. 74, p. 102)
- Reverb -> (p. 74, p. 103)

Performance Mode Settings

Three different Multi-effects can be used in a Performance.
Select which of these three Multi-effects to use with Part Output MFX Select. With this parameter, the same Multi-effects are applied to all selected Parts. You can adjust the amount of effect to be applied to the Parts by adjusting their Send Levels to each of the effect units.
The Send Level setting for each Tone can also influence effect intensity.
Furthermore, you can take the Multi-effects you have applied to a Patch in a Part and apply them to the entire Performance, or just part of the Performance.

Basic Process of Making Effects Settings

When applying effects in Performance mode, the following procedure is used to make the settings.

1. **Setting the Output Method Used by the Direct Sound (Output Assign)**

   Settings determining whether or not the signal passes through the Multi-effects, the jack used to output the sound, and the type of output (stereo or mono) for each Part. You can also settings for a Patch or Rhythm Set assigned to a Part. -> (p. 73)

2. **Setting the Amount of Each Effect Applied (Send Level)**

   Sets the level (volume) of each effect signal to be sent for each Part. -> (p. 73)

3. **Making Multi-Effects Settings**

   Select the type of Multi-effects to be used, and set the parameters for the selected Multi-effect. You can also Multi-effects settings for a Patch or Rhythm Set assigned to a Part. -> (pp. 74–101)

4. **Setting the Multi-Effects Controller**

   When using MIDI messages to change the Multi-effects parameters in realtime, select the Multi-effects controller. -> (p. 74)

5. **Setting the Output Destination and Volume for the Sounds Passing Through the Multi-Effects**

   Select the output jack and set the output level (volume) of the sounds passing through the Multi-effects. You can also apply Chorus or Reverb to the sound that passes through Multi-effects. -> (p. 74)

6. **Making Chorus Settings**

   Select the Chorus type to be used, and set each of the parameters for the selected Chorus. -> (p. 74, p. 102)

7. **Setting the Output Destination and Volume for the Sounds Passing Through the Chorus**

   Select the output jack and set the output level (volume) of the sounds passing through the Chorus. You can also apply Reverb to the sound that passes through Chorus. -> (p. 74)

8. **Making Reverb Settings**

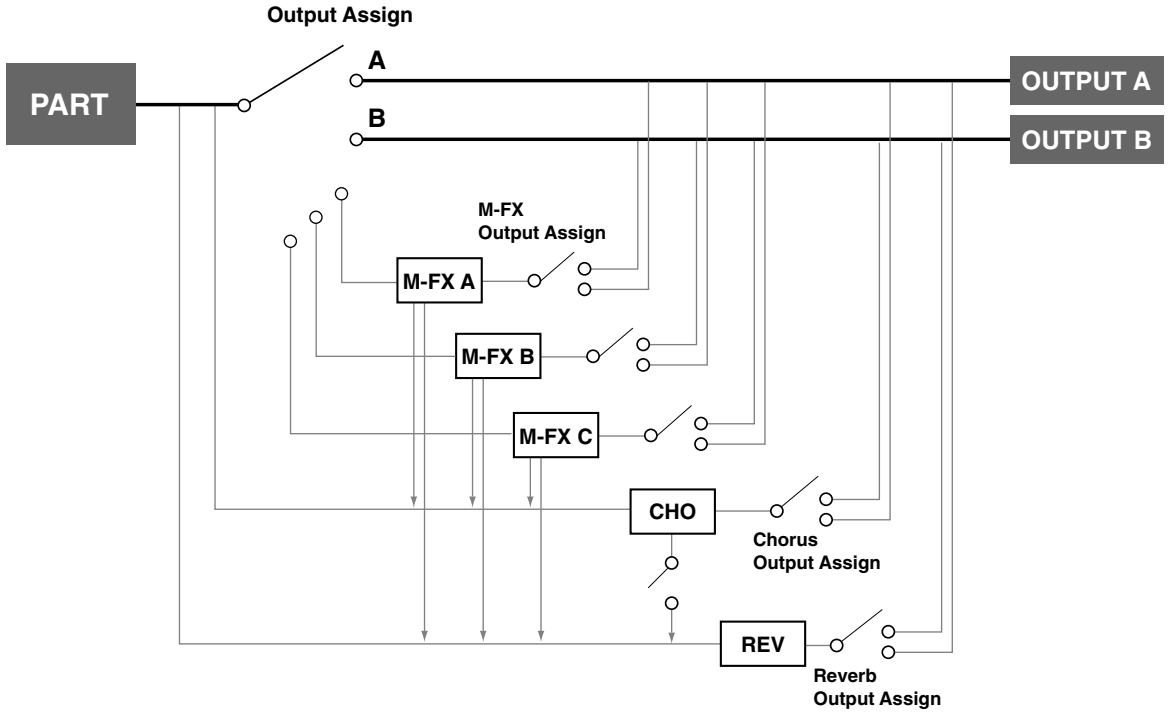
   elect the Reverb type to be used, and set each of the parameters for the selected Reverb. -> (p. 74, p. 103)

9. **Setting the Output Destination and Volume for the Sounds Passing Through the Reverb**

   Select the output jack and set the output level (volume) of the sounds passing through the Reverb. -> (p. 74)

Audio Signal Flow

The audio path of direct sounds or sounds that have been passed through the effects in Performance mode is shown in the figure below.



Setting Procedure

Here, set the way the direct sound is output and the amount of each effect to be applied. The settings made here determine whether or not the signal passes through the Multi-effects, the jack used to output the sound, and the type of output (stereo or mono).

1. **Choose the Performance Set you wish to use.**
2. **Press [EDIT] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the parameter group in the upper line of the display.**
4. **Turn [VALUE] to choose "EFFECTS."**
5. **Press [CURSOR ►] to move the cursor to the parameter.**
6. **Turn [VALUE] to choose the parameter you want to set.**
7. **Press [◄ PART]/[PART ►] to choose the Part for which you want to make settings.**
8. **Press [CURSOR ►] to move the cursor to the value.**
9. **Turn [VALUE] to select the desired setting.**
10. **Press [EXIT] to return to the PERFORM PLAY screen.**

    A "*" symbol appears at the left of the Performance name, indicating that its settings have been changed.

NOTE

If you turn off the power or choose another Performance while the "*" symbol is displayed, your new Performance settings will be lost. If you wish to preserve them, save the changed Performance using the Write operation. (p. 104)

Parameter		Value	Description
EFFECTS			
Output Asgn	Part Output Assign	MFX, OUTPUT A/B, INDIV 1–4, PATCH	Sets the direct sound's output method for each Part. **MFX:** Output in stereo through Multi-effects. You can also apply Chorus or Reverb to the sound that passes through Multi-effects. **OUTPUT A/B:** Output to the OUTPUT A (MIX)/B jacks in stereo without passing through Multi-effects. **INDIV 1–4:** Output to the INDIVIDUAL 1–4 jack in mono without passing through Multi-effects. **PATCH:** The Part's output destination is determined by the settings of the Patch or Rhythm Set assigned to the Part.
Output Level	Part Output Level	0–127	Sets the direct sound's volume for each Part.
Chorus Send	Part Chorus Send Level	0–127	Adjusts the amount of Chorus for each Part. If you don't want to add the Chorus effect, set it to 0.
Reverb Send	Part Reverb Send Level	0–127	Adjusts the amount of Reverb for each Part. If you don't want to add the Reverb effect, set it to 0.
Output Select	Part Output MFX Select	MFX-A–C	Selects which of the three Multi-effects is to be used.

NOTE

- When outputting in mono, the Pan setting is disabled.
- Chorus and Reverb are output in mono at all times.
- When the settings are such that signals are split and output from the INDIVIDUAL 1 jack and INDIVIDUAL 2 jack, and no plug is inserted in the INDIVIDUAL 2 jack, the sounds from INDIVIDUAL 1 and INDIVIDUAL 2 are mixed together, then output from the INDIVIDUAL 1 jack. This sound comprises the sounds from the INDIVIDUAL 1 and 2 jacks.

MEMO

If the Mix/Parallel parameter (SYSTEM:GENERAL) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 107).

HINT

When the Output Assign parameter is set to PATCH, the output level settings for the Patch or Rhythm Set as well as the Part go into effect. If you want the various level settings of the Patch/Rhythm Set to be reflected as they are, set the various Part levels to 127 (maximum).

For more on how to set each effect, refer to the pages shown below.

- Multi-effects -> (p. 74, pp. 75–101)
- Chorus -> (p. 74, p. 102)
- Reverb -> (p. 74, p. 103)

Multi-Effects Settings

Parameter		Value	Description
EFFECTS MFX			
Source	Multi-Effects Source	PERFORM, PART 1–16	Selects the Multi-effects parameter settings that will be used by the Performance. If you wish to use the Performance settings, select PERFORM. If you wish to use the settings of the Patch/Rhythm Set assigned to one of the Parts, select the Part number.
Type	Multi-Effects Type	00 (THROUGH) –90	Use this parameter to select from among the 90 available Multi-effects. * For details on Multi-effects parameters, refer to "Multi-Effects Parameters" (p. 75).
Ctrl Src 1–4	Multi-Effects Control Source 1–4	OFF, CC01–31, CC33–95, BEND, AFTER, SYS1–4	Selects the Control Source to be used for changing the Multi-effects parameters.
Ctrl Dest 1–4	Multi-Effects Control Destination 1–4	Refer to "Multi-Effects Parameters" (p. 75).	Selects the Multi-effects parameter to be controlled using Ctrl Src 1–4. The parameters that can be selected depend on which type of Multi-effects is set to MFX Type.
Ctrl Sens 1–4	Multi-Effects Control Sensitivity 1–4	-63– +63	If you wish to modify the selected parameter in a positive (+) direction—i.e., a higher value, toward the right, or faster, etc.—from its current setting, select a positive (+) value. If you wish to modify the selected parameter in a negative (-) direction—i.e., a lower value, toward the left, or slower, etc.—from its current setting, select a negative (-) value. Higher numbers produce a greater amount of change.
Output Asgn	Multi-Effects Output Assign	OUTPUT A/B	Adjusts the output destination of the sound that has passed through the Multi-effects. **OUTPUT A:** Output to the OUTPUT A (MIX) jacks in stereo. **OUTPUT B:** Output to the OUTPUT B jacks in stereo.
Output Dry Send	Multi-Effects Dry Send Level	0–127	Adjusts the volume of the sound that has passed through the Multi-effects.
Output Cho Send	Multi-Effects Chorus Send Level	0–127	Adjusts the amount of Chorus for the sound that passes through Multi-effects. If you don't want to add the Chorus effect, set it to 0.
Output Rev Send	Multi-Effects Reverb Send Level	0–127	Adjusts the amount of Reverb for the sound that passes through Multi-effects. If you don't want to add the Reverb effect, set it to 0.

Chorus Settings

Parameter		Value	Description
EFFECTS CHO			
Source	Chorus Source	PERFORM, PART 1–16	Selects the Chorus parameter settings that will be used by the Performance. If you wish to use the Performance settings, select PERFORM. If you wish to use the settings of the Patch/Rhythm Set assigned to one of the Parts, select the Part number.
Type	Chorus Type	OFF, CHORUS, DELAY, GM2 CHORUS	Selects either Chorus or Delay. * For details on Chorus parameters, refer to "Chorus Parameters" (p. 102).
Output Asgn	Chorus Output Assign	OUTPUT A/B	Selects the pair of OUTPUT jacks to which the Chorus sound is routed when Chorus Output Select is set to MAIN or MAIN+REV. **OUTPUT A:** Output to the OUTPUT A (MIX) jacks in stereo. **OUTPUT B:** Output to the OUTPUT B jacks in stereo.
Level	Chorus Level	0–127	Adjusts the volume of the sound that has passed through chorus.
Out Select	Chorus Output Select	MAIN, REV, MAIN+REV	Specifies how the sound routed through Chorus will be output. **MAIN:** Output to the OUTPUT jacks in stereo. **REV:** Output to Reverb in mono. **MAIN+REV:** Output to the OUTPUT jacks in stereo, and to Reverb in mono.

Reverb Settings

Parameter		Value	Description
EFFECTS REV			
Source	Reverb Source	PERFORM, PART 1–16	Selects the Reverb parameter settings that will be used by the Performance. If you wish to use the Performance settings, select PERFORM. If you wish to use the settings of the Patch/Rhythm Set assigned to one of the Parts, select the Part number.
Type	Reverb Type	OFF, REVERB, SRV ROOM, SRV HALL, SRV PLATE, GM2 REVERB	Selects the type of Reverb. * For details on Reverb parameters, refer to "Reverb Parameters" (p. 103).
Output Asgn	Reverb Output Assign	OUTPUT A/B	Specifies how the sound routed through Reverb will be output. **OUTPUT A:** Output to the OUTPUT A (MIX) jacks in stereo. **OUTPUT B:** Output to the OUTPUT B jacks in stereo.
Level	Reverb Level	0–127	Adjusts the volume of the sound that has passed through Reverb.

Multi-Effects Parameters

The multi-effects feature 90 different kinds of effects. Some of the effects consist of two or more different effects connected in series or in parallel.

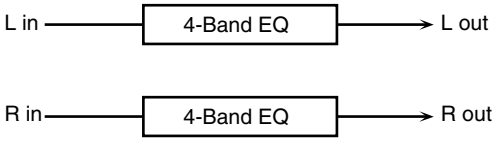
Parameters marked with a sharp "#" can be simultaneously controlled using the selected controller.

1:	STEREO EQ	◆	(p. 76)
2:	OVERDRIVE	◆	(p. 76)
3:	DISTORTION	◆	(p. 76)
4:	PHASER	◆	(p. 76)
5:	SPECTRUM	◆	(p. 76)
6:	ENHANCER	◆	(p. 76)
7:	AUTO WAH	◆	(p. 77)
8:	ROTARY	◆	(p. 77)
9:	COMPRESSOR	◆	(p. 77)
10:	LIMITER	◆	(p. 77)
11:	HEXA-CHORUS	◆	(p. 78)
12:	TREMOLO CHO	◆	(p. 78)
13:	SPACE-D	◆	(p. 78)
14:	St CHORUS	◆	(p. 78)
15:	St FLANGER	◆	(p. 79)
16:	STEP FLANGER	◆	(p. 79)
17:	St DELAY	◆	(p. 79)
18:	MOD DELAY	◆	(p. 80)
19:	3 TAP DELAY	◆	(p. 80)
20:	4 TAP DELAY	◆	(p. 80)
21:	TM CTRL DLY	◆	(p. 81)
22:	2V PCH SHIFT	◆	(p. 81)
23:	FB PCH SHIFT	◆	(p. 81)
24:	REVERB		(p. 81)
25:	GATED REVERB		(p. 82)
26:	OD -> CHORUS	◆	(p. 82)
27:	OD -> FLANGER	◆	(p. 82)
28:	OD -> DELAY	◆	(p. 82)
29:	DIST -> CHORUS	◆	(p. 83)
30:	DIST -> FLANGER	◆	(p. 83)
31:	DIST -> DELAY	◆	(p. 83)
32:	ENH -> CHORUS	◆	(p. 83)
33:	ENH -> FLANGER	◆	(p. 83)
34:	ENH -> DELAY	◆	(p. 83)
35:	CHORUS -> DELAY	◆	(p. 84)
36:	FLG -> DELAY	◆	(p. 84)
37:	CHO -> FLANGER	◆	(p. 84)
38:	CHORUS/DELAY	◆	(p. 84)
39:	FLG/DELAY	◆	(p. 84)
40:	CHO/FLANGER	◆	(p. 85)
41:	St PHASER	◆	(p. 85)
42:	KEYSYNC FLG		(p. 85)
43:	FORMANT FLTR		(p. 86)
44:	RING MOD	◆	(p. 86)
45:	MLT TAP DLY	◆	(p. 86)
46:	REVERSE DLY		(p. 86)
47:	SHUFFLE DLY		(p. 87)
48:	3D DELAY		(p. 87)
49:	3V PCH SHIFT		(p. 87)
50:	LOFI COMP		(p. 88)
51:	LOFI NOISE		(p. 88)
52:	SPEAKER SIM	◆	(p. 88)
53:	OVERDRIVE 2	◆	(p. 88)
54:	DISTORTION 2	◆	(p. 89)
55:	STEREO COMP	◆	(p. 89)
56:	St LIMITER	◆	(p. 89)
57:	GATE	◆	(p. 89)
58:	SLICER	◆	(p. 90)
59:	ISOLATOR		(p. 90)
60:	3D CHORUS		(p. 90)
61:	3D FLANGER		(p. 91)
62:	TREMOLO	◆	(p. 91)
63:	AUTO PAN	◆	(p. 91)
64:	St PHASER 2		(p. 91)
65:	St AUTO WAH		(p. 92)
66:	St FORMN FLT		(p. 92)
67:	MLT TAP DLY2		(p. 92)
68:	REVERSE DLY2		(p. 92)
69:	SHUFFLE DLY2		(p. 93)
70:	3D DELAY 2		(p. 93)
71:	ROTARY 2		(p. 93)
72:	ROTARY MULTI		(p. 94)
73:	KEYBD MULTI		(p. 94)
74:	RHODES MULTI		(p. 95)
75:	JD MULTI		(p. 95)
76:	St LOFI COMP		(p. 96)
77:	St LOFI NOIZ		(p. 96)
78:	GTR AMP SIM		(p. 97)
79:	STEREO OD		(p. 97)
80:	STEREO DIST		(p. 97)
81:	GTR MULTI A		(p. 98)
82:	GTR MULTI B		(p. 98)
83:	GTR MULTI C		(p. 99)
84:	CL GTR MLT A		(p. 99)
85:	CL GTR MLT B		(p. 100)
86:	BASS MULTI		(p. 100)
87:	ISOLATOR 2		(p. 101)
88:	St SPECTRUM		(p. 101)
89:	3D AUTO SPIN		(p. 101)
90:	3D MANUAL		(p. 101)

If a multi-effect marked by a "◆" symbol is selected as the MFX-A multi-effect in Performance mode, three types (MFX-A–MFX-C) of multi-effect can be used simultaneously. Only multi-effects marked by this symbol can be selected for MFX-B and MFX-C.

1: STEREO EQ (Stereo Equalizer)

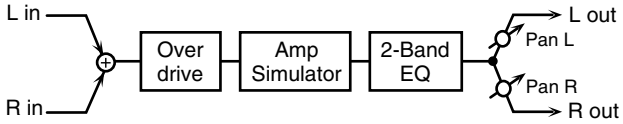
This is a four-band stereo equalizer (low, mid x 2, high).



Parameter	Value	Description
Low Freq	200, 400 Hz	Frequency of the low range
Low Gain	-15-+15 dB	Gain of the low frequency range
Mid1 Freq	200-8000 Hz	Frequency of Middle Range 1
Mid1 Gain	-15-+15 dB	Gain of Middle Range 1
Mid1 Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of Middle Range 1 Select a higher Q value to narrow Middle Range 1.
Mid2 Freq	200-8000 Hz	Frequency of Middle Range 2
Mid2 Gain	-15-+15 dB	Gain of Middle Range 2
Mid2 Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of Middle Range 2 Select a higher Q value to narrow Middle Range 2.
High Freq	2000, 4000, 8000 Hz	Frequency of the high range
High Gain	-15-+15 dB	Gain of the high frequency range
Level #	0-127	Output level

2: OVERDRIVE

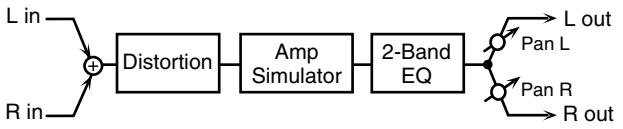
Creates a soft distortion similar to that produced by vacuum tube amplifiers.



Parameter	Value	Description
Drive #	0-127	Amount of distortion Also changes the volume.
Amp Type	SMALL, BUILT-IN, 2-STACK, 3-STACK	Type of guitar amp **SMALL:** small amp **BUILT-IN:** single-unit type amp **2-STACK:** large double-stack amp **3-STACK:** large triple-stack amp
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level	0-127	Output level
Pan #	L64-63R	Stereo location of the OVERDRIVE output

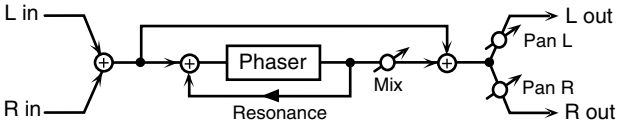
3: DISTORTION

Produces a more intense distortion than Overdrive. The parameters are the same as for "2: OVERDRIVE."



4: PHASER

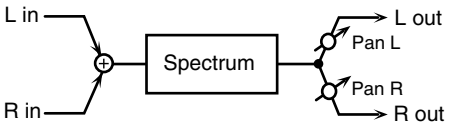
Adds a phase-shifted sound to the original sound, producing a swirling modulation that creates spaciousness and depth.



Parameter	Value	Description
Manual #	100-8000 Hz	Adjusts the basic frequency at which the sound will be modulated.
Rate #	0.05-10.00 Hz	Frequency of modulation
Depth	0-127	Depth of modulation
Resonance	0-127	Amount of feedback
Mix Level	0-127	Level of the phase-shifted sound
Level	0-127	Output Level
Pan	L64-63R	Stereo location of the PHASER output

5: SPECTRUM

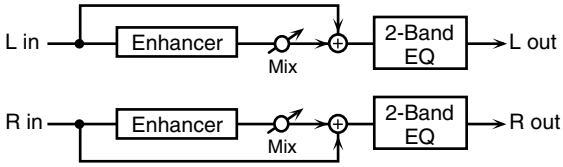
This is a type of filter that modifies the timbre by boosting or cutting the level of specific frequencies. It is similar to an equalizer, but has eight frequency points fixed at locations most useful for adding character to the sound.



Parameter	Value	Description
250Hz Gain	-15-+15 dB	Gain of each frequency band
500Hz Gain		
1000Hz Gain		
1250Hz Gain		
2000Hz Gain		
3150Hz Gain		
4000Hz Gain		
8000Hz Gain		
Band Width Q	0.5, 1.0, 2.0, 4.0, 8.0	Simultaneously adjusts the width of the adjusted ranges for all of the frequency bands.
Level #	0-127	Output level
Pan #	L64-63R	Stereo location of the SPECTRUM output

6: ENHANCER

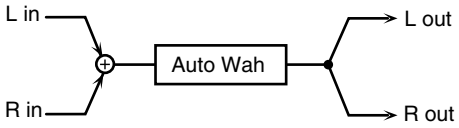
Controls the overtone structure of the high frequencies, adding sparkle and brightness to the sound.



Parameter	Value	Description
Sens #	0-127	Sensitivity of the enhancer
Mix #	0-127	Level of the overtones generated by the enhancer
Low Gain	-15-+15 dB	Gain of the low frequency range of frequencies
High Gain	-15-+15 dB	Gain of the high frequency range of frequencies
Level	0-127	Output level

7: AUTO WAH

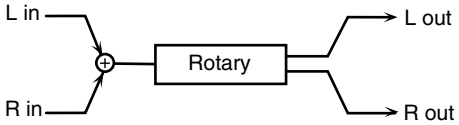
A filter that turns on and off to create a cyclical change in timbre.



Parameter	Value	Description
Filter Type	LPF, BPF	Type of filter **LPF:** The wah effect is applied over a wide frequency range. **BPF:** The wah effect is applied over a narrow frequency range
Sens	0-127	Adjusts the sensitivity with which the filter is controlled.
Manual #	0-127	Adjusts the center frequency at which the effect is applied.
Peak	0-127	Adjusts the amount of the wah effect that occurs in the range of the center frequency. Set a higher value for Q to narrow the range to be affected.
Rate #	0.05-10.00 Hz	Frequency of modulation
Depth	0-127	Depth of modulation
Level	0-127	Output level

8: ROTARY

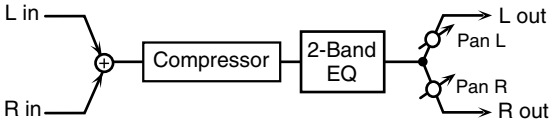
The Rotary effect simulates the sound of the rotary speakers often used with the classic electric organs. Since the movement of the high-range and low-range rotors can be set independently, the unique characteristics of these speakers can be simulated quite accurately. This effect is most suitable for electric organ Patches.



Parameter	Value	Description
Speed #	SLOW, FAST	Simultaneously switches the rotational speed of the low frequency rotor and high frequency rotor. **SLOW:** Slows down the speed to the Slow Rate. **FAST:** Speeds up the speed to the Fast Rate.
Low Slow	0.05-10.00 Hz	Slow speed (SLOW) of the low-frequency rotor
Low Fast	0.05-10.00 Hz	Fast speed (FAST) of the low-frequency rotor
Low Accel	0-15	Adjusts the time it takes the low frequency rotor to reach the newly selected speed when switching between fast and slow speeds. Lower values result in longer transitions.
Low Level	0-127	Volume of the low frequency rotor
High Slow	0.05-10.00 Hz	Settings for the high-frequency rotor The parameters are the same as for the low-frequency rotor
High Fast	0.05-10.00 Hz	
High Accel	0-15	
High Level	0-127	
Separation	0-127	Stereo width of the sound
Level #	0-127	Output level

9: COMPRESSOR

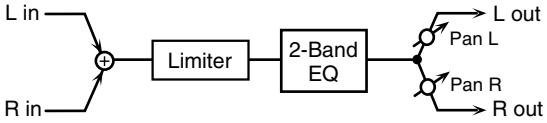
Flattens out high levels and boosts low levels, smoothing out fluctuations in volume.



Parameter	Value	Description
Attack	0-127	Sets the speed at which compression starts
Sustain	0-127	Sets the duration of the compression.
Post Gain	0, +6, +12, +18 dB	Adjusts the output gain.
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level #	0-127	Output level
Pan #	L64-63R	Stereo location of the COMPRESSOR output

10: LIMITER

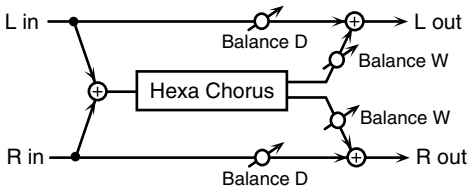
Compresses signals that exceed a specified volume level, preventing distortion from occurring.



Parameter	Value	Description
Threshold	0-127	Adjusts the volume at which compression begins
Ratio	1.5:1, 2:1, 4:1, 100:1	Compression ratio
Release	0-127	Adjusts the time after the signal volume falls below the Threshold Level until compression is no longer applied.
Post Gain	0, +6, +12, +18 dB	Adjusts the output gain.
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level #	0-127	Output level
Pan #	L64-63R	Stereo location of the LIMITER output

11: HEXA-CHORUS

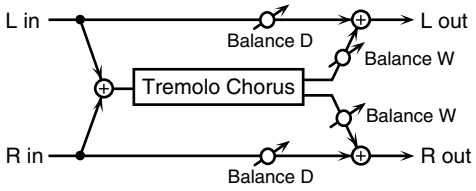
Uses a six-phase chorus (six layers of chorused sound) to give richness and spaciousness to the sound.



Parameter	Value	Description
Rate #	0.05-10.00 Hz	Frequency of modulation
Depth	0-127	Depth of modulation
Depth Deviation	-20-+20	Adjusts the difference in modulation depth between each chorus layer.
Pre Delay	0.0-100.0 ms	Adjusts the time until chorusing is heard.
Delay Deviation	0-20	Adjusts the differences in Pre Delay between each chorus layer.
Pan Deviation	0-20	Adjusts the difference in stereo location between each chorus layer. **0:** All chorus layers are in the center. **20:** The chorus layers are spaced at 60-degree intervals relative to the center.
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus sound (W)
Level	0-127	Output level

12: TREMOLO CHO (Tremolo Chorus)

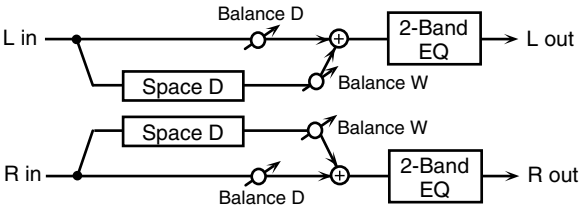
This is a chorus effect with added Tremolo (cyclic modulation of volume).



Parameter	Value	Description
Cho Rate	0.05-10.00 Hz	Modulation frequency of the chorus effect
Chorus Depth	0-127	Modulation depth of the chorus effect
Pre Delay	0.0-100.0 ms	Adjusts the time until the chorus sound is heard.
Treml Rate #	0.05-10.00 Hz	Modulation frequency of the tremolo effect
Phase	0-180 deg	Depth of the tremolo effect
Treml Separation	0-127	Spread of the tremolo effect
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the tremolo chorus sound (W)
Level	0-127	Output level

13: SPACE-D

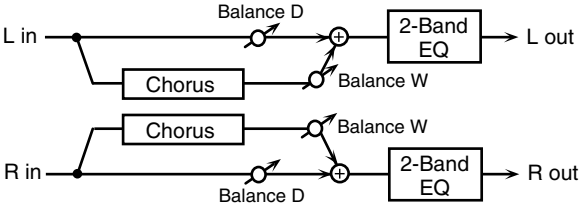
This is a multiple chorus that applies two-phase modulation in stereo. It creates no audible modulation, yet produces a transparent chorus effect.



Parameter	Value	Description
Cho Rate #	0.05-10.00 Hz	Frequency of modulation
Cho Depth	0-127	Depth of modulation
Cho Phase	0-180 deg	Spatial spread of the sound
Pre Delay	0.0-100.0 ms	Adjusts the time until the chorus sound is heard.
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus sound (W)
Level	0-127	Output level

14: St CHORUS (Stereo Chorus)

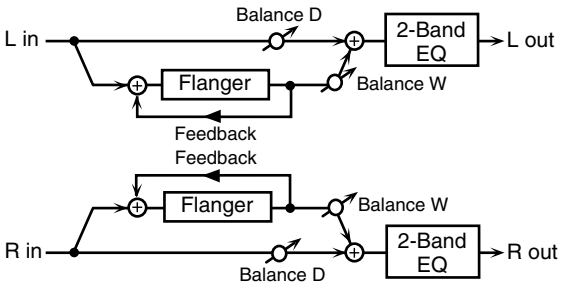
This is a stereo chorus. A filter is provided so that you can adjust the timbre of the chorused sound.



Parameter	Value	Description
Rate #	0.05-10.00 Hz	Frequency of modulation
Depth	0-127	Depth of modulation
Phase	0-180 deg	Spatial spread of the sound
Pre Delay	0.0-100.0 ms	Adjusts the time until the chorus sound is heard.
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus sound (W)
Level	0-127	Output level

15: St FLANGER (Stereo Flanger)

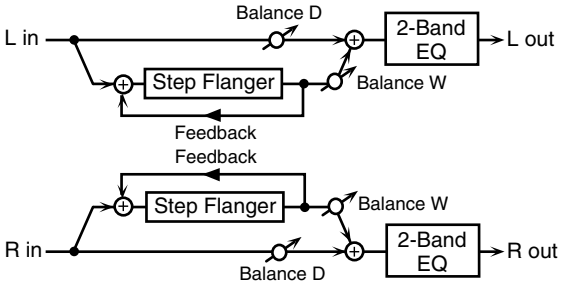
This is a stereo flanger. (The LFO has the same phase for left and right.) It produces a metallic resonance that rises and falls somewhat like a jet airplane taking off or landing. A filter is provided so that you can adjust the timbre of the flanged sound.



Parameter	Value	Description
Rate #	0.05-10.00 Hz	Frequency of modulation
Depth	0-127	Depth of modulation
Feedback #	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
Phase	0-180 deg	Spatial spread of the sound
Pre Delay	0.0-100.0 ms	Adjusts the time until the flanger sound is heard.
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance	D100:0W-D0:100W	Volume balance between the direct sound (D) and the flanger sound (W)
Level	0-127	Output level

16: STEP FLANGER

This is a flanger in which the flanger pitch changes in steps. The speed at which the pitch changes can also be specified in terms of a note value based on a specified tempo.

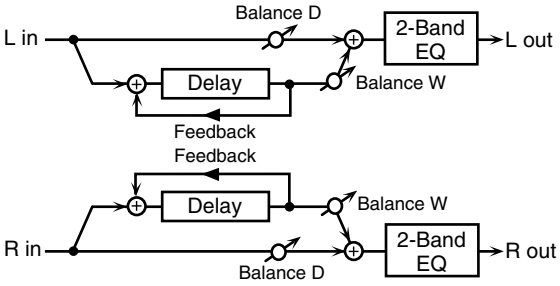


Parameter	Value	Description
Rate	0.05-10.00 Hz	Frequency of modulation
Depth	0–127	Depth of modulation
Feedback #	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
Phase	0-180 deg	Spatial spread of the sound
Pre Delay	0.0-100.0 ms	Adjusts the time until the flanger sound is heard.
Step Rate #	0.10-20.00 Hz, note *1	Rate (period) of pitch change
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance	D100:0W-D0:100W	Volume balance between the direct sound (D) and the flanger sound (W)
Level	0-127	Output level

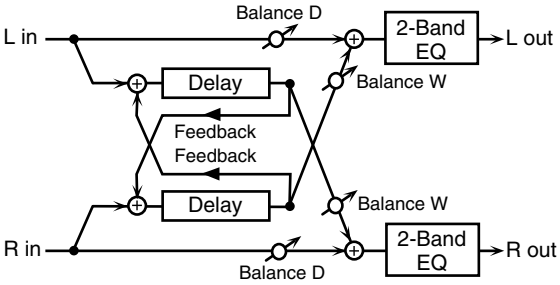
17: St DELAY (Stereo Delay)

This is a stereo delay.

When Mode is NORMAL:



When Mode is CROSS:

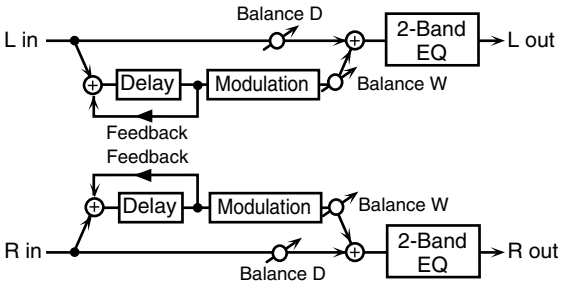


Parameter	Value	Description
Delay L	0.0-500.0 ms	Adjusts the time until the delay sound is heard.
Delay R		
Feedback #	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
Mode	NORMAL, CROSS	Selects the way in which delay sound is fed back into the effect. (See the figures above.)
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Phase L	NORMAL, INVERT	Phase of the delay sound
Phase R		
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Level	0-127	Output level

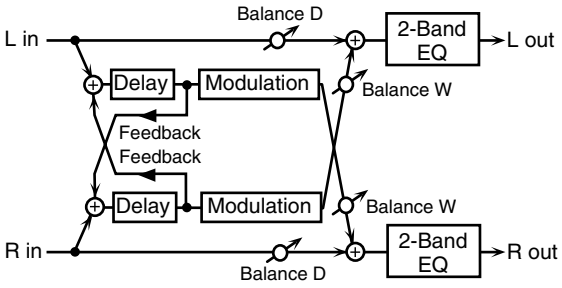
18: MOD DELAY (Modulation Delay)

Adds modulation to the delayed sound, producing an effect similar to a flanger.

When Mode is NORMAL:



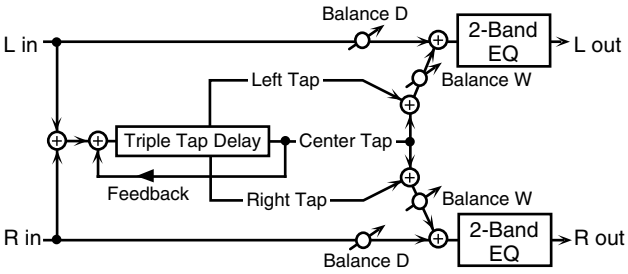
When Mode is CROSS:



Parameter	Value	Description
Delay Left	0.0-500.0 ms	Adjusts the time until the delay sound is heard.
Delay Right		
Feedback	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
Mode	NORMAL, CROSS	Selects the way in which delay sound is fed back into the effect (See the figures above.)
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Rate #	0.05-10.00 Hz	Frequency of modulation
Depth	0-127	Depth of modulation
Phase	0-180 deg	Spatial spread of the sound
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Level	0-127	Output level

19: 3 TAP DELAY (Triple Tap Delay)

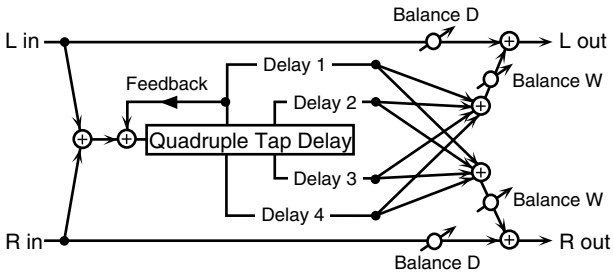
Produces three delay sounds; center, left and right.

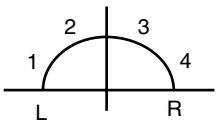


Parameter	Value	Description
Delay C	200-1000 ms, note *1	Adjusts the time until the delay sound is heard.
Delay L		
Delay R		
Feedback #	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you do not want to filter out any high frequencies, set this parameter to BYPASS.
Delay C Level	0-127	Volume of each delay
Delay L Level		
Delay R Level		
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Level	0-127	Output level

20: 4 TAP DELAY (Quadruple Tap Delay)

This effect has four delays.



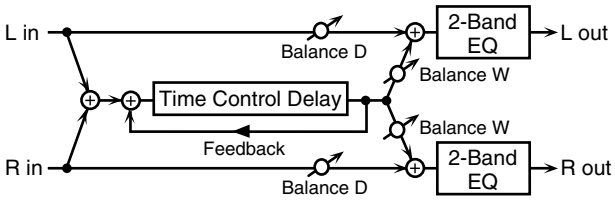


Stereo location of each delay

Parameter	Value	Description
Delay 1	200-1000 ms, note *1	Adjusts the time until the delay sound is heard.
Delay 2		
Delay 3		
Delay 4		
Feedback #	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you do not want to filter out any high frequencies, set this parameter to BYPASS.
Delay Level 1	0-127	Volume of each delay
Delay Level 2		
Delay Level 3		
Delay Level 4		
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Level	0-127	Output level

21: TM CTRL DLY (Time Control Delay)

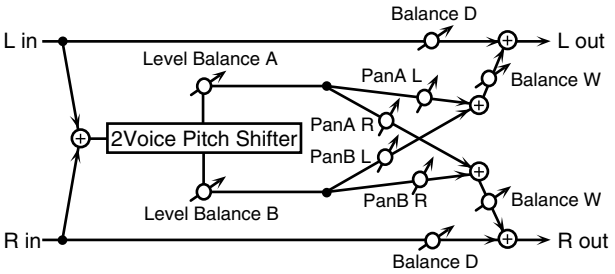
This effect allows you to use a specified controller — the controller selected in EFX Control Source — to control the delay time and pitch in realtime. Lengthening the delay lowers the pitch, and shortening it raises the pitch.



Parameter	Value	Description
Delay #	200-1000 ms	Adjusts the time until the delay is heard.
Acceleration	0-15	Adjusts the time over which the Delay Time changes from the current setting to a specified new setting. The rate of change for the Delay Time directly affects the rate of pitch change.
Feedback #	-98-+98 %	Adjusts the amount of the delay that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you do not want to filter out any high frequencies, set this parameter to BYPASS.
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance	D100:0W-D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Level	0-127	Output level
Pan	L64-63R	Stereo location of the delay

22: 2V PCH SHIFT (2-Voice Pitch Shifter)

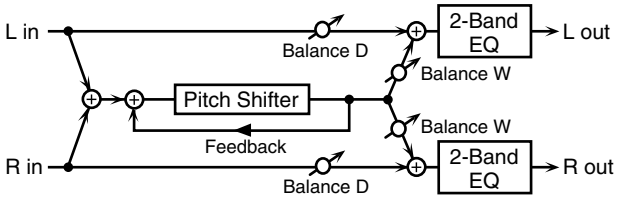
Shifts the pitch of the original sound. This 2-voice pitch shifter has two pitch shifters, and can add two pitch-shifted versions of the original sound.



Parameter	Value	Description
Coarse A #1	-24-+12 semi	Adjusts the pitch of Pitch Shift A in semitone steps.
Fine A #1	-100-+100 cent	Adjusts the pitch of Pitch Shift A in 2-cent steps.
Pre Dly A	0.0-500 ms	Adjusts the time until Pitch Shift A is heard.
Pan A	L64-63R	Stereo location of Pitch Shift A
Coarse B #2	-24-+12 semi	Settings for Pitch Shift B The parameters are the same as for Pitch Shift A.
Fine B #2	-100-+100 cent	
Pre Dly B	0.0-500.0 ms	
Pan B	L64-63R	
Mode	1, 2, 3, 4, 5	Setting a higher value for this parameter results in a slower response, but steadier pitch.
Level Bal	A100:0B-A0:100B	Volume balance between Pitch Shift A and Pitch Shift B
Balance	D100:0W-D0:100W	Volume balance between the direct sound (D) and the pitch shifted sound (W)
Level	0-127	Output level

23: FB PCH SHIFT (Feedback Pitch Shifter)

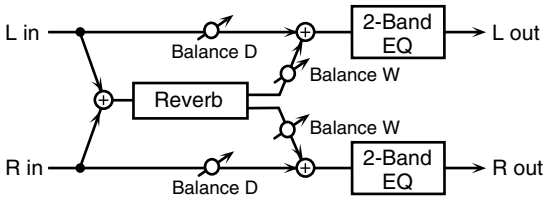
This allows the pitch-shifted sound to be fed back into the effect.



Parameter	Value	Description
Coarse #1	-24-+12 semi	Adjusts the pitch of the pitch-shifted sound in semitone steps.
Fine #1	-100-+100 cent	Adjusts the pitch of the pitch-shifted sound in 2-cent steps.
Pre Delay	0.0-500.0 ms	Adjusts the time until the pitch shifted sound is heard.
Mode	1, 2, 3, 4, 5	Setting a higher value for this parameter results in a slower response, but steadier pitch.
Feedback #	-98-+98 %	Adjusts the amount of the pitch-shifted sound that's fed back into the effect. Negative (-) settings invert the phase.
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance	D100:0W-D0:100W	Volume balance between the direct sound (D) and the pitch-shifted sound (W)
Level	0-127	Output level
Pan	L64-63R	Stereo location of the pitch-shifted sound

24: REVERB

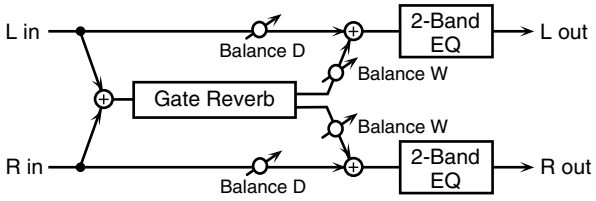
Adds reverberation to the sound, simulating an acoustic space.



Parameter	Value	Description
Type	ROOM1, ROOM2, STAGE1, STAGE2, HALL1, HALL2	Type of reverb **ROOM1:** dense reverb with short decay **ROOM2:** sparse reverb with short decay **STAGE1**: reverb with fewer early reflections **STAGE2:** reverb with strong early reflections **HALL1:** clear reverb **HALL2:** rich reverb
Pre Delay	0.0-100.0 ms	Adjusts the time until the reverb is heard.
Time #	0-127	Duration of reverberation
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which the reverb is reduced in level. As the frequency is set lower, more of the high frequencies are cut, resulting in a softer and more muted reverb. If you don't want to cut any high frequencies, set this parameter to BYPASS.
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the reverb sound (W)
Level	0-127	Output level

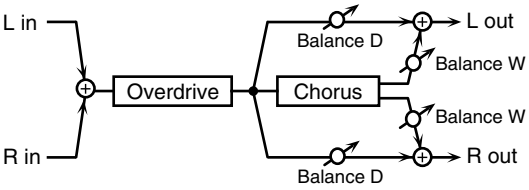
25: GATED REVERB

This is a special type of reverb in which the reverb is cut off without being allowed to decay naturally.



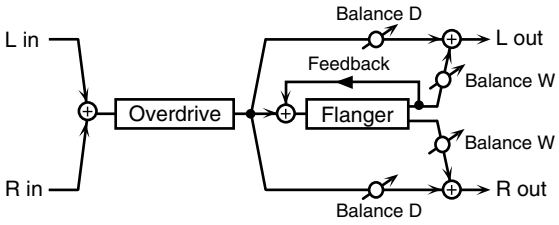
Parameter	Value	Description
Type	NORMAL, REVERSE, SWEEP1, SWEEP2	Type of reverb **NORMAL:** conventional gated reverb **REVERSE:** backwards reverb **SWEEP1:** the reverb moves from right to left **SWEEP2:** the reverb moves from left to right
Pre Delay	0.0-100.0 ms	Adjusts the time until the reverb sound is heard.
Gate Time	5-500 ms	Adjusts the time from when the reverb is first heard until it disappears.
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the reverb sound (W)
Level #	0-127	Output level

26: OD -> CHORUS



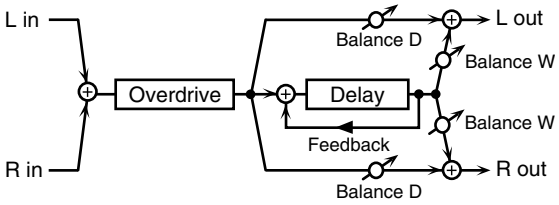
Parameter	Value	Description
OD Drive	0-127	Degree of distortion Also changes the volume.
OD Pan #	L64-63R	Stereo location of the overdrive
Cho Rate	0.05-10.00 Hz	Frequency of modulation
Cho Depth	0-127	Depth of modulation
Cho Delay	0.0-100.0 ms	Adjusts the time until the chorus sound is heard.
Cho Balance #	D100:0W-D0:100W	Adjusts the volume balance between the sound sent through the chorus (W) and the sound that's not sent through the chorus (D).
Level	0-127	Output level

27: OD -> FLANGER



Parameter	Value	Description
OD Drive	0-127	Degree of distortion Also changes the volume.
OD Pan #	L64-63R	Stereo location of the overdrive
Flg Rate	0.05-10.00 Hz	Frequency of modulation
Flg Depth	0-127	Depth of modulation
Flg Feedback	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
Flg Delay	0.0-100.0 ms	Adjusts the time until the flanger is heard.
Flg Balance #	D100:0W-D0:100W	Adjusts the volume balance between the sound sent through the flanger (W) and the sound that's not sent through the flanger (D).
Level	0-127	Output level

28: OD -> DELAY

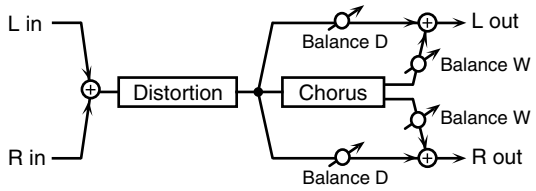


Parameter	Value	Description
OD Drive	0-127	Degree of distortion Also changes the volume.
OD Pan #	L64-63R	Stereo location of the overdrive
Delay Time	0.0-500.0 ms	Adjusts the time until the delay is heard.
Dly Feedback	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
Dly HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Dly Balance #	D100:0W-D0:100W	Adjusts the volume balance between the sound sent through the delay (W) and the sound that's not sent through the delay (D).
Level	0-127	Output level

29: DIST -> CHORUS

The parameters are essentially the same as in "26: OD -> CHORUS," with the exception of the following two.

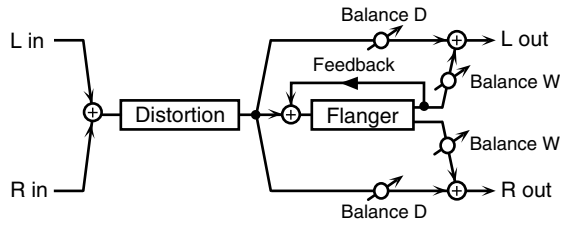
OD Drive -> Dist Drive, OD Pan -> Dist Pan



30: DIST -> FLANGER

The parameters are essentially the same as in "27: OD -> FLANGER," with the exception of the following two.

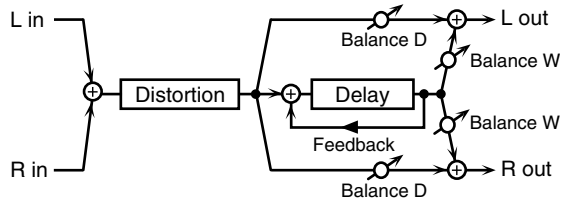
OD Drive -> Dist Drive, OD Pan -> Dist Pan



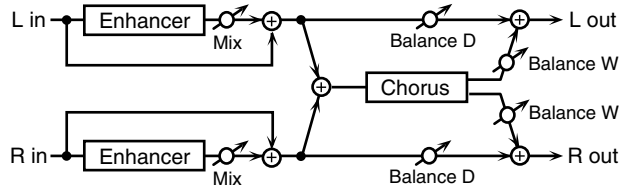
31: DIST -> DELAY

The parameters are essentially the same as in "28: OD -> DELAY," with the exception of the following two.

OD Drive -> Dist Drive, OD Pan -> Dist Pan

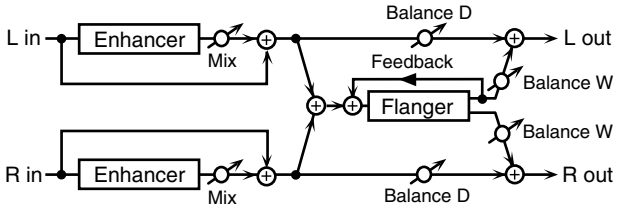


32: ENH -> CHORUS



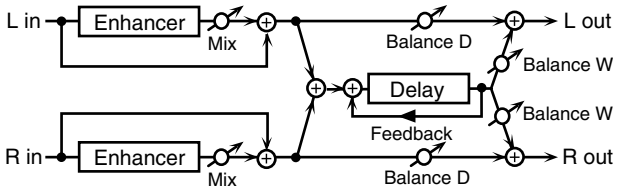
Parameter	Value	Description
Enhancer Sens #	0-127	Sensitivity of the enhancer
Enhancer Mix	0-127	Level of the overtones generated by the enhancer
Cho Rate	0.05-10.00 Hz	Frequency of modulation
Cho Depth	0-127	Depth of modulation
Cho Delay	0.0-100.0 ms	Adjusts the time until the chorus is heard.
Cho Balance #	D100:0W-D0:100W	Adjusts the volume balance between the sound sent through the chorus (W) and the sound that's not sent through the chorus (D).
Level	0-127	Output level

33: ENH -> FLANGER



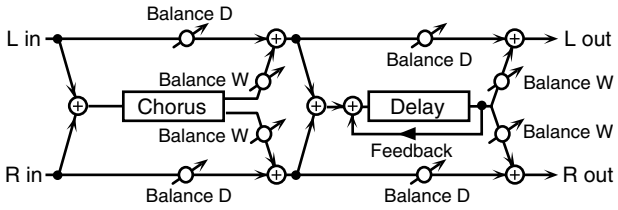
Parameter	Value	Description
Enhancer Sens #	0-127	Sensitivity of the enhancer
Enhancer Mix	0-127	Level of the overtones generated by the enhancer
Flg Rate	0.05-10.00 Hz	Frequency of modulation
Flg Depth	0-127	Depth of modulation
Flg Feedback	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
Flg Delay	0.0-100.0 ms	Adjusts the time until the flanger is heard.
Flg Balance #	D100:0W-D0:100W	Adjusts the volume balance between the sound sent through the flanger (W) and the sound that's not sent through the flanger (D).
Level	0-127	Output level

34: ENH -> DELAY



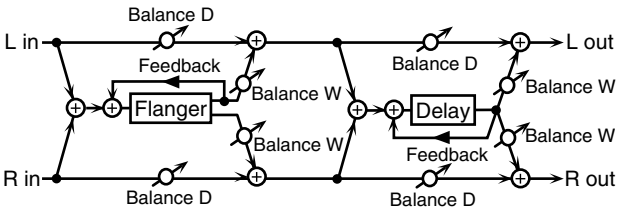
Parameter	Value	Description
Enhancer Sens #	0-127	Sensitivity of the enhancer
Enhancer Mix	0-127	Level of the overtones generated by the enhancer
Delay Time	0.0-500.0 ms	Adjusts the time until the delay is heard.
Dly Feedback	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings will invert the phase.
Dly HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Dly Balance #	D100:0W-D0:100W	Adjusts the volume balance between the sound sent through the delay (W) and the sound that's not sent through the delay (D).
Level	0-127	Output level

35: CHORUS -> DELAY



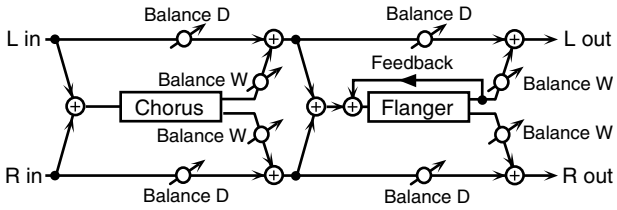
Parameter	Value	Description
Cho Rate	0.05-10.00 Hz	Frequency of modulation
Cho Depth	0-127	Depth of modulation
Cho Delay	0.0-100.0 ms	Adjusts the time until the chorus is heard.
Cho Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus sound (W)
Delay Time	0.0-500.0 ms	Adjusts the time until the delay is heard.
Dly Feedback	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
Dly HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you do not want to filter out any the high frequencies, set this parameter to BYPASS.
Dly Balance #	D100:0W-D0:100W	Adjusts the volume balance between the sound sent through the delay (W) and the sound that's not sent through the delay (D).
Level	0-127	Output level

36: FLG -> DELAY



Parameter	Value	Description
Flg Rate	0.05-10.00 Hz	Frequency of modulation
Flg Depth	0-127	Depth of modulation
Flg Feedback	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
Flg Delay	0.0-100.0 ms	Adjusts the time until the flanger is heard.
Flg Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the flanger sound (W)
Delay Time	0.0-500.0 ms	Adjusts the time until the delay sound is heard.
Dly Feedback	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
Dly HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you do not want to filter out any high frequencies, set this parameter to BYPASS.
Dly Balance #	D100:0W-D0:100W	Adjusts the volume balance between the sound sent through the delay (W) and the sound that's not sent through the delay (D).
Level	0-127	Output level

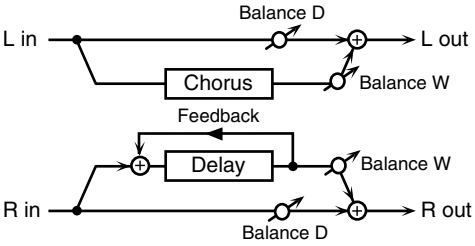
37: CHO -> FLANGER



Parameter	Value	Description
Cho Delay	0.0-100.0 ms	Adjusts the time until the chorus is heard.
Cho Rate	0.05-10.00 Hz	Modulation frequency of the chorus effect
Cho Depth	0-127	Modulation depth of the chorus effect
Cho Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus sound (W)
Flg Rate	0.05-10.00 Hz	Modulation frequency of the flanger effect
Flg Depth	0-127	Modulation depth of the flanger effect
Flg Feedback	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
Flg Delay	0.0-100.0 ms	Adjusts the time until the flanger sound is heard.
Flg Balance #	D100:0W-D0:100W	Adjusts the volume balance between the sound sent through the flanger (W) and the sound that's not sent through the flanger (D).
Level	0-127	Output level

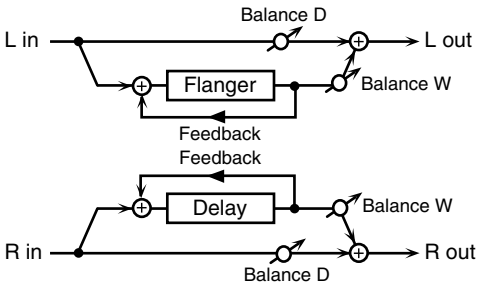
38: CHORUS/DELAY

The parameters are the same as for "35: CHORUS -> DELAY." However, the Delay Balance parameter adjusts the volume balance between the direct sound and the delay sound.



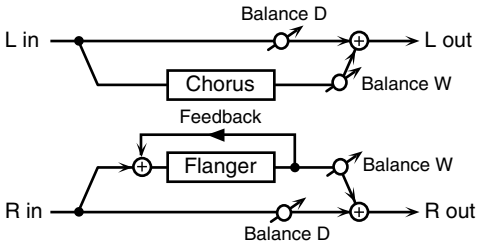
39: FLG/DELAY

The parameters are the same as for "36: FLG -> DELAY." However, the Delay Balance parameter adjusts the volume balance between the direct sound and the delay sound.



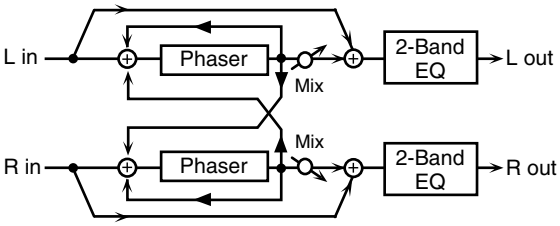
40: CHO/FLANGER

The parameters are the same as for "37: CHO -> FLANGER." However, the Flanger Balance parameter adjusts the volume balance between the direct sound and the flanger sound.



41: St PHASER (Stereo Phaser)

This is a stereo phaser. With the Step effects, you can also make stepped changes in the pitch of sounds to which the Phaser effect is applied.

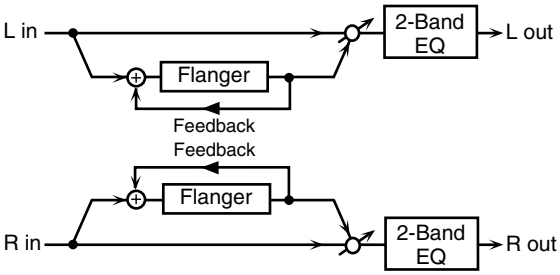


Parameter	Value	Description
Type	1, 2	Type of phaser Type 2 adds more of the phaser effect to the high frequencies than Type 1.
Mode	4-STAGE, 8-STAGE	Number of stages in the phaser
Polarity	INVERSE, SYNCHRO	Selects whether the left and right phase of the modulation are the same or opposite each other. **INVERSE:** The left and right phase are opposite. When using a mono source, this spreads the sound in stereo. **SYNCHRO:** The left and right phase are the same. Select this when working with a stereo source.
Manual #	0-127	Adjusts the basic frequency from which the sound is modulated.
Rate #	0.05-10.00 Hz, note *2	Frequency of modulation
Depth	0-127	Depth of modulation
Resonance	0-127	Amount of feedback
X-Feedback	-98-+98 %	Adjusts the amount of the phaser sound that's fed back into the effect. Negative (-) settings invert the phase.
Mix	0-127	Level of the phase-shifted sound
Step Switch	OFF, ON	Determines whether the pitch is changed in a stepped fashion (ON) or not (OFF).
Step Rate #	0.10-20.00 Hz, note *2	Rate (period) of pitch change
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level	0-127	Output level

42: KEYSYNC FLG (Keysync Flanger)

This effect controls the Flanger by resetting the effect at the volume of the sound sent into to the effect, restarting from the same pitch each time the Flanger is reset.

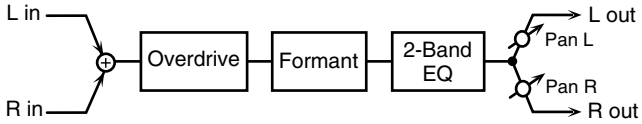
This parameter lets your playing dynamics on the keyboard control the flanger effect.



Parameter	Value	Description
LFO Rate #	0.05-10.00 Hz, note *2	Frequency of modulation
LFO Depth	0-127	Depth of modulation
Feedback #	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
Phase	0-180 deg	Spatial spread of the sound
Pre Delay	0.0-100 ms	Adjusts the time until the flanger is heard.
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Step Sw	OFF, ON	Determines whether the pitch is changed in a stepped fashion (ON) or not (OFF).
Step Rate #	0.10-20.00 Hz, note *2	Rate (period) of pitch change
Keysync	OFF, ON	Determines whether the Flanger LFO is reset by the input signal (ON) or not (OFF).
Threshold	0-127	Adjusts the volume level at which the reset is applied.
Ksync Phase	0-360 deg	LFO phase when the LFO is reset
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the flanger sound (W)
Level	0-127	Output level

43: FORMANT FLTR (Formant Filter)

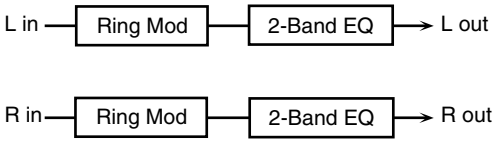
Adds a vowel character to the sound, making it similar to a human voice.



Parameter	Value	Description
Drive Switch	OFF, ON	Turns Drive on/off.
Drive #	0-127	Degree of distortion Also changes the volume.
Vowel1	a, e, i, o, u	Selects the vowel.
Vowel2		
Rate #	0.05-10.00 Hz, note *2	Frequency at which the two vowels switch
Depth #	0-127	Effect depth
Manual #	0-100	Adjusts the point at which the two vowels switch. When set to 50, Vowels 1 and 2 switch in the same amount of time. Setting this lower than 50 increases the time for Vowel 1; setting this higher than 50 decreases the time for Vowel 1.
Keysync	OFF, ON	Determines whether the LFO for switching the vowels is reset by the input signal (ON) or not (OFF).
Threshold	0-127	Volume level at which reset is applied
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level	0-127	Output level
Pan	L64-63R	Stereo location of the output

44: RING MOD (Ring Modulator)

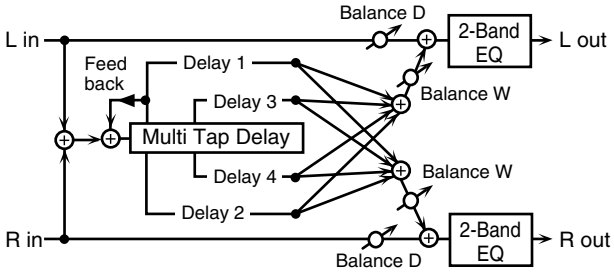
This is an effect that applies amplitude modulation (AM) to the input signal, producing bell-like sounds. You can also change the modulation frequency in response to changes in the volume of the sound sent into the effect.



Parameter	Value	Description
Frequency #	0-127	Adjusts the frequency at which modulation is applied.
Modulator	OFF, SOURCE, A, B	Selects the source sound for the envelope controlling the modulation. **SOURCE:** The frequency is modulated according to the envelope of the sound sent into the multi-effects **A, B:** The frequency is modulated according to the envelope of the direct sound sent to the OUTPUT A or OUTPUT B jacks
Monitor	OFF, ON	Determines whether the input signal used as the modulator is included in the effect output (ON) or not (OFF). * This parameter is disabled when Modulator is set to OFF or SOURCE.
Sens #	0-127	Adjusts the amount of frequency modulation applied.
Polarity	UP, DOWN	Determines whether the frequency modulation moves towards higher frequencies (UP) or lower frequencies (DOWN).
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level

45: MLT TAP DLY (Multi Tap Delay)

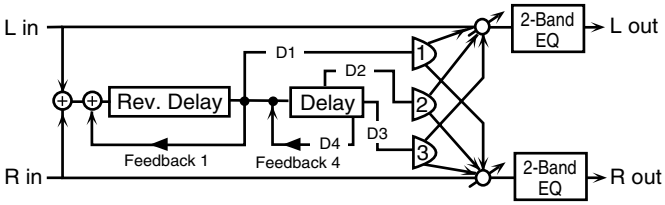
This effect provides four delays. Each of the Delay Time parameters can be set to a note length based on the selected tempo. You can also set the panning and level of each delay sound.



Parameter	Value	Description
Delay 1-4	0-1800 ms, note *2	Adjusts the time until Delays 1-4 are heard.
Feedback #	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any the high frequencies, set this parameter to BYPASS.
Delay Level 1-4	0-127	Output level of Delays 1-4
Delay Pan 1-4	L64-63R	Stereo location of Delays 1-4
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level

46: REVERSE DLY (Reverse Delay)

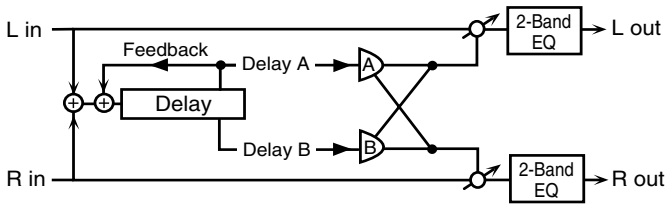
Adds the reverse of the input sound as a delay.



Parameter	Value	Description
Delay 1-4	0-900 ms, note *2	Adjusts the time until Delays 1-4 are heard.
Feedback 1 #	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
Feedback 4 #		
HF Damp 1	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you do not want to filter out any high frequencies, set this parameter to BYPASS.
HF Damp 4		
Delay Level 1-3	0-127	Output level of Delays 1-3 sound
Delay Pan 1-3	L64-63R	Stereo location of Delays 1-3 sound
Threshold	0-127	Volume level at which the reverse delay begins
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level

47: SHUFFLE DLY (Shuffle Delay)

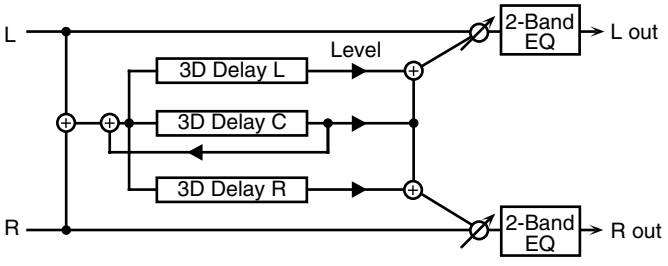
Adds a shuffle to the delay sound, giving the sound a bouncy delay effect with a swing feel.



Parameter	Value	Description
Delay #	0-1800 ms, note *2	Adjusts the time until the delay sound is heard.
Shuffle Rate #	0-100 %	Adjusts the ratio (as a percentage) of the time that elapses before Delay B sounds relative to the time that elapses before the Delay A sounds. When set to 100%, the delay times are the same.
Acceleration	0-15	Adjusts the time over which the Delay Time changes from the current setting to its specified new setting.
Feedback #	-98-+98 %	Adjusts the amount of the delay that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Pan A	L64-63R	Stereo location of Delay A
Pan B	L64-63R	Stereo location of Delay B
Level Bal	A100:0B-A0:100B	Volume balance between Delay A and Delay B
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level

48: 3D DELAY

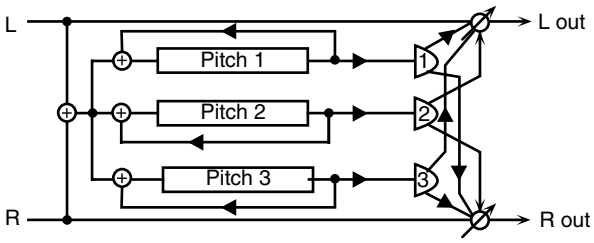
This applies a 3D effect to the delay sound. The delay sound is positioned 90 degrees left and 90 degrees right.



Parameter	Value	Description
Delay C	0-1800 ms, note *2	Adjusts the time until the delay is heard.
Delay L		
Delay R		
Feedback #	-98-+98 %	Adjusts the amount of the delay that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Level C	0-127	Output level of the delay sound
Level L		
Level R		
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Output Mode	SPEAKER, PHONES	Selects the method by which the effect is sent to the OUTPUT jacks. The optimal 3D effect is achieved if you select SPEAKER when using speakers, or PHONES when using headphones.
Level	0-127	Output level

49: 3V PCH SHIFT (3-Voice Pitch Shifter)

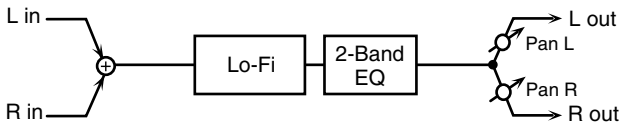
This 3-voice pitch shifter has three pitch shifters, and can add three pitch-shifted signals to the original sound.



Parameter	Value	Description
Coarse 1 #1	-24-+12 semi	Adjusts the pitch of Pitch Shift 1 in semitone steps.
Fine 1 #1	-100-+100 cent	Adjusts the pitch of Pitch Shift 1 in 2-cent steps.
Feedback 1 #	-98-+98 %	Adjusts the amount of the Pitch Shift 1 sound that's fed back into the effect. Negative (-) settings invert the phase.
Pre Dly 1	0.0-500.0 ms	Adjusts the time until Pitch Shift 1 is heard.
Level 1	0-127	Output level of Pitch Shift 1
Pan 1	L64-63R	Stereo location of Pitch Shift 1
Coarse 2 #2	-24-+12 semitone	Settings of the Pitch Shift 2 The parameters are the same as for Pitch Shift 1.
Fine 2 #2	-100-+100 cent	
Feedback 2 #	-98-+98 %	
Pre Dly 2	0.0-500 ms	
Level 2	0-127	
Pan 2	L64-63R	
Coarse 3 #3	-24-+12 semitone	Settings of Pitch Shift 3
Fine 3 #3	-100-+100 cent	The parameters are the same as for Pitch Shift 1.
Feedback 3 #	-98-+98 %	
Pre Dly 3	0.0-500 ms	
Level 3	0-127	
Pan 3	L64-63R	
Mode	1, 2, 3, 4, 5	Setting a higher value for this parameter results in a slower response, but steadier pitch.
Balance	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level

50: LOFI COMP (Lo-Fi Compress)

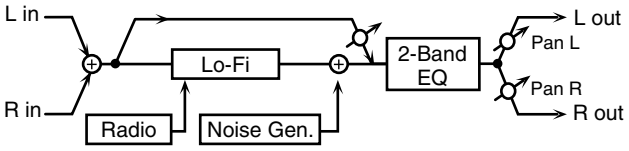
This is an effect that intentionally degrades the sound quality for creative purposes.



Parameter	Value	Description
LoFi Type	1-9	Degrades the sound quality. The sound quality grows poorer as this value is increased.
Pre Filter	1-6	Selects the type of filter applied to the sound before it passes through the Lo-Fi effect.
Post Filter 1	1-6	Adjusts the type of filter applied to the sound after it passes through the Lo-Fi effect.
Post Filter 2	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff **HPF:** cuts the frequency range below the Cutoff
Post Cutoff	200-8000 Hz	Basic frequency of the filter
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level
Pan	L64-63R	Stereo location of the output

51: LOFI NOISE (Lo-Fi Noise)

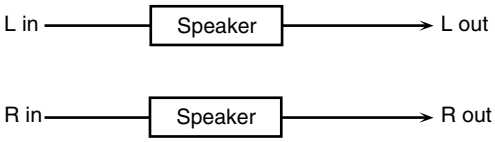
In addition to a Lo-Fi effect, this effect also generates various types of noise, such as radio noise and disc noise.



Parameter	Value	Description
LoFi Type	1-9	Degrades the sound quality. The sound quality grows poorer as this value is increased.
Post Flter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff **HPF:** cuts the frequency range below the Cutoff
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Radio Detune #	0-127	Simulates the tuning noise of a radio. As this value is raised, the tuning drifts further.
Radio N Level	0-127	Volume of the radio noise
Disc Noise Type	LP, EP, SP, RND	Type of record noise The frequency at which the noise is heard depends on the selected type.
Disc N LPF	200-8000 Hz, BYPASS	Adjusts the cutoff frequency of the low pass filter applied to the record noise. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Disc N Level	0-127	Volume of the record noise
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level
Pan	L64-63R	Stereo location of the output

52: SPEAKER SIM (Speaker Simulator)

Simulates speaker types and mic settings used to capture the speaker's sound.



Parameter	Value	Description
Type	(See the table below.)	Type of speaker
Mic Setting	1, 2, 3	Adjusts the location of the mic capturing the sound of the speaker. This can be adjusted in three steps, from 1 to 3 with the mic becoming more distant as the value is raised.
Mic Level #	0-127	Volume of the microphone
Direct Level #	0-127	Volume of the direct sound
Level #	0-127	Output level

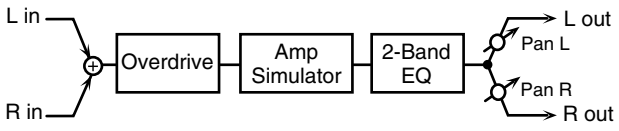
Specifications for each Speaker Type

The speaker column indicates the diameter of each speaker unit (in inches) and the number of units.

Type	Cabinet	Speaker	Micro-phone
SMALL 1	small open-back enclosure	10	dynamic
SMALL 2	small open-back enclosure	10	dynamic
MIDDLE	open back enclosure	12 x 1	dynamic
JC-120	open back enclosure	12 x 2	dynamic
BUILT IN 1	open back enclosure	12 x 2	dynamic
BUILT IN 2	open back enclosure	12 x 2	condenser
BUILT IN 3	open back enclosure	12 x 2	condenser
BUILT IN 4	open back enclosure	12 x 2	condenser
BUILT IN 5	open back enclosure	12 x 2	condenser
BG STACK 1	sealed enclosure	12 x 2	condenser
BG STACK 2	large sealed enclosure	12 x 2	condenser
MS STACK 1	large sealed enclosure	12 x 4	condenser
MS STACK 2	large sealed enclosure	12 x 4	condenser
METAL STACK	large double stack	12 x 4	condenser
2-STACK	large double stack	12 x 4	condenser
3-STACK	large triple stack	12 x 4	condenser

53: OVERDRIVE 2

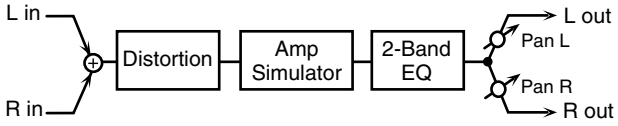
This is an overdrive that provides heavy distortion.



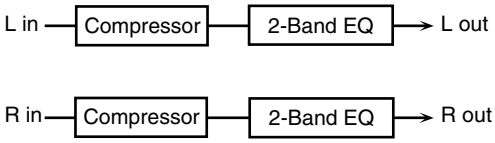
Parameter	Value	Description
Drive #	0-127	Degree of distortion Also changes the volume.
Tone	0-127	Sound quality of the Overdrive effect
Amp Simulator Sw	OFF, ON	Turns the Amp Simulator on/off.
Amp Type	SMALL, BUILT-IN, 2-STACK, 3-STACK	Type of guitar amp **SMALL:** small amp **BUILT-IN:** single-unit type amp **2-STACK:** large double stack amp **3-STACK:** large triple stack amp
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level	0-127	Output level
Pan #	L64-63R	Stereo location of the output

54: DISTORTION 2

This is a distortion effect that provides heavy distortion. The parameters are the same as for "53: OVERDRIVE 2."

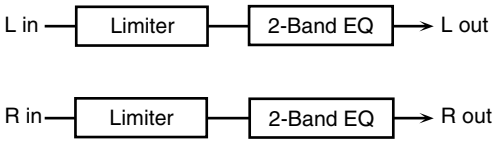


55: STEREO COMP (Stereo Compressor)



Parameter	Value	Description
Attack	0-127	Sets the speed at which compression starts
Sustain	0-127	Adjusts the duration of the compression.
Post Gain	0, +6, +12, +18 dB	Adjusts the output gain.
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level #	0-127	Output level

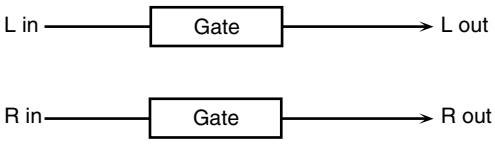
56: St LIMITER (Stereo Limiter)



Parameter	Value	Description
Threshold	0-127	Adjusts the volume at which compression begins.
Ratio	1.5:1, 2:1, 4:1, 100:1	Compression ratio
Release	0-127	Adjusts the time from when the volume falls below the Threshold Level until compression is no longer applied.
Post Gain	0, +6, +12, +18 dB	Adjusts the output gain.
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level #	0-127	Output level

57: GATE

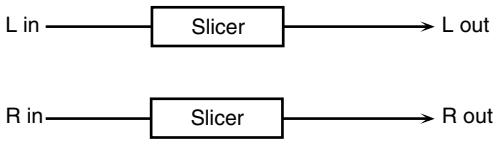
Cuts the reverb's delay according to the volume of the sound sent into the effect. Use this when you want to create an artificial-sounding decrease in the reverb's decay.



Parameter	Value	Description
Mode	GATE, DUCK	Type of gate **GATE (Gated Reverb):** When the source volume falls below a certain level, the gate closes, cutting off the tail of the reverb. **DUCK (Ducking Reverb):** When the source volume gets high enough, the gate closes, creating a ducking reverb-type effect. The reverb stops when the input signal becomes so loud that the sound becomes unclear.
Attack	0-127	Adjusts the time it takes for the gate to fully open after being triggered.
Hold	0-127	Adjusts the time it takes for the gate to start closing after the source sound falls beneath the Threshold.
Release	0-127	Adjusts the time it takes the gate to fully close after the hold time.
Key	SOURCE, A, B	Selects the source sound that acts as the trigger for closing the gate. **SOURCE:** The gate is closed by the sound sent into the Multi-effects. **A, B:** The gate is closed by the direct sound sent to the OUTPUT A or OUTPUT B jacks
Threshold	0-127	Volume level at which the gate begins to close
Monitor	OFF, ON	Determines whether the sound used as the gate trigger is included in the effect output (ON) or not (OFF). * This parameter is disabled when Key is set to SOURCE.
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level

58: SLICER

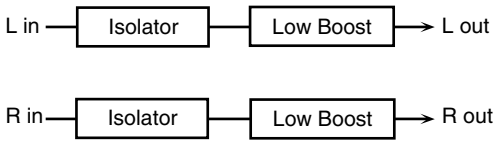
By applying successive cuts to the sound, this effect turns a conventional sound into a sound that appears to be played as a backing phrase. This is especially effective when applied to sustain-type sounds.



Parameter	Value	Description
Level Beat 1-1–4-4	0-127	For a single measure containing four quarter notes, this sets the level of each sixteenth note when the measure is divided into sixteenth notes.
Rate #	0.05-10.00 Hz, note *2	Cycle for one measure
Attack	0-127	Speed at which the volume changes between beats
Reset Trigger #	OFF, SOURCE, A, B	Selects the source sound that acts as the trigger resetting the one-measure pattern. **OFF:** The pattern is not reset, even if the input signal is present. **SOURCE:** The pattern is reset by the sound sent into the multi-effects. **A, B:** The pattern is reset by the direct sound sent to the OUTPUT A or OUTPUT B jacks. * When Reset Trigger is selected as the MFX Control parameter, you can use an external MIDI device to reset the pattern.
Reset Threshold	0-127	Volume level at which the reset begins
Reset Monitor	OFF, ON	Determines whether the sound used as the reset trigger is included in the effect output (ON) or not (OFF). * This parameter is disabled when Reset Trigger is set to OFF or SOURCE.
Beat Chg Mode	LEGATO, SLASH	Sets the manner in which the volume changes as one beat progresses to the next. **LEGATO:** The change in volume from one beat's level to the next remains unaltered. If the level of a following beat is the same as the one preceding it, there is no change in volume. **SLASH:** The level is momentarily set to 0 before progressing to the level of the next beat. This change in volume occurs even if the level of the following beat is the same as the preceding beat.
Shuffle #	0-127	Timing of volume changes in levels for even-numbered Beats (Beat 1-2/Beat 1-4/Beat 2-2/...). The higher the value, the later the beat progresses.
Level	0-127	Output level

59: ISOLATOR

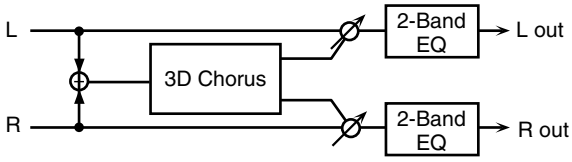
This is an equalizer that radically cuts the volume of selected frequencies, allowing you to create special effects cutting the volume in various ranges.



Parameter	Value	Description
Low # Mid # High #	-60-+4 dB	These boost and cut each of the High, Middle, and Low frequency ranges. At -60 dB, the sound becomes inaudible. 0 dB is equivalent to the input level of the sound.
AntiPhase Low Sw	OFF, ON	Turns the Anti-Phase function on and off for the Low frequency ranges. When turned on, a stereo copy of the sound is phase-inverted and added to the signal.
AntiPhase LowLev	0-127	Adjusts the level settings for the Low frequency ranges. Adjusting this level for certain frequencies allows you to lend emphasis to specific elements within a sound. (This is effective only for stereo source.)
AntiPhase Mid Sw	OFF, ON	Settings of the Anti-Phase function for the Middle frequency ranges The parameters are the same as for the Low frequency ranges.
AntiPhase MidLev	0-127	
Low Boost Sw	OFF, ON	Turns Low Booster on/off. This emphasizes the bottom frequencies to create a heavy bass sound.
Low Boost Level	0-127	Increasing this value gives you a heavier low end. * Depending on the Isolator and filter settings, this effect may be hard to hear.
Level	0-127	Output level

60: 3D CHORUS

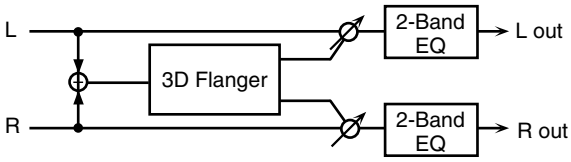
This applies 3D chorusing to a sound. The chorus is positioned 90 degrees left and 90 degrees right.



Parameter	Value	Description
LFO Rate #	0.05-10.00 Hz, note *2	Frequency of modulation
LFO Depth	0-127	Modulation depth of the chorus effect
Phase	0-180 deg	Spatial spread of the sound
Pre Delay	0.0-100.0 ms	Adjusts the time until the chorus is heard.
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus sound (W)
Output Mode	SPEAKER, PHONES	Selects the method by which the effect is sent to the OUTPUT jacks. The optimal 3D effect is if you select SPEAKER when using speakers, or PHONES when using headphones.
Level	0-127	Output level

61: 3D FLANGER

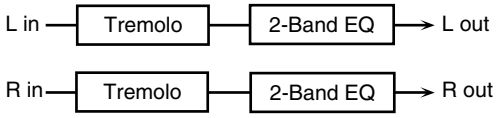
This applies a 3D effect to the flanger sound. The flanger sound is positioned 90 degrees left and 90 degrees right.

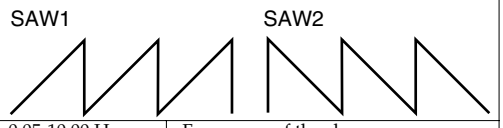


Parameter	Value	Description
LFO Rate #	0.05-10.00 Hz, note *2	Frequency of modulation
LFO Depth	0-127	Depth of modulation
Feedback #	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
Phase	0-180 deg	Spatial spread of the sound
Pre Delay	0.0-100.0 ms	Adjusts the time until the flanger sound is heard.
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Step Sw	OFF, ON	Determines whether the pitch is changed in a stepped fashion (ON) or not (OFF).
Step Rate #	0.10-20.00 Hz, note *2	Rate (period) of pitch change
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the flanger sound (W)
Output Mode	SPEAKER, PHONES	Select the method by which the effect is sent to the OUTPUT jacks. The optimal 3D effect is achieved if you select SPEAKER when using speakers, or PHONES when using headphones.
Level	0-127	Output level

62: TREMOLO

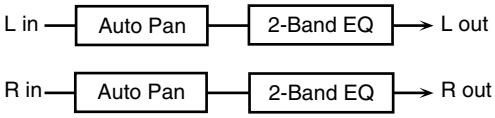
Cyclically modulates the volume to add tremolo to the sound.

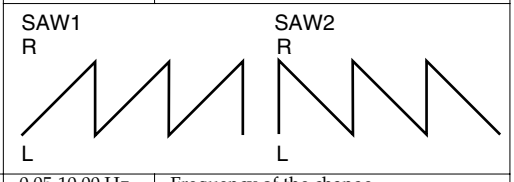


Parameter	Value	Description
Mod Wave	TRI, SQR, SIN, SAW1, SAW2	Modulation Wave **TRI:** triangle wave **SQR:** square wave **SIN:** sine wave **SAW1/2:** sawtooth wave
		
Rate #	0.05-10.00 Hz, note *2	Frequency of the change
Depth #	0-127	Depth to which the effect is applied
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level	0-127	Output level

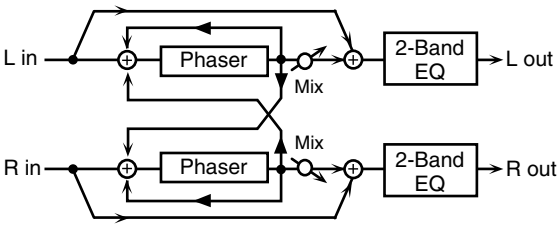
63: AUTO PAN

Cyclically modulates the stereo location of the sound.



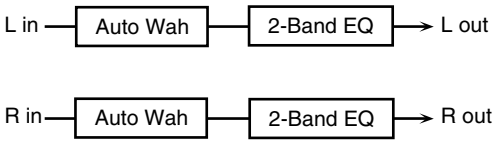
Parameter	Value	Description
Mod Wave	TRI, SQR, SIN, SAW1, SAW2	Modulation Wave **TRI:** triangle wave **SQR:** square wave **SIN:** sine wave **SAW1/2:** sawtooth wave
		
Rate #	0.05-10.00 Hz, note *2	Frequency of the change
Depth #	0-127	Depth to which the effect is applied
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level	0-127	Output level

64: St PHASER 2 (Stereo Phaser 2)



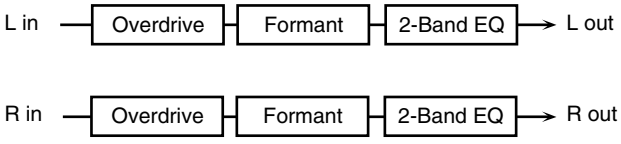
Parameter	Value	Description
Type	1, 2	Type of phaser Type 2 adds more of the phaser effect to the high frequencies than Type 1.
Mode	4-STAGE, 8-STAGE, 12-STAGE, 16-STAGE	Number of stages in the phaser
Polarity	INVERSE, SYNCHRO	Selects whether the left and right phase of the modulation are the same or opposite each other. **INVERSE:** The left and right phase are opposite. When using a mono source, this spreads the sound. **SYNCHRO:** The left and right phase are the same. Select this when inputting a stereo source.
Manual #	0-127	Adjusts the basic frequency from which the sound is modulated.
Rate #	0.05-10.00 Hz, note *2	Frequency of modulation
Depth	0-127	Depth of modulation
Resonance	0-127	Amount of feedback
X-Feedback	-98-+98 %	Adjusts the amount of the phaser sound that's fed back into the effect. Negative (-) settings invert the phase.
Mix Level	0-127	Level of the phase-shifted sound
Step Sw	OFF, ON	Determines whether the pitch is changed in a stepped fashion (ON) or not (OFF).
Step Rate #	0.10-20.00 Hz, note *2	Rate (period) of pitch change
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level	0-127	Output level

65: St AUTO WAH (Stereo Auto Wah)



Parameter	Value	Description
Filter Type	LPF, BPF	Type of filter **LPF:** The wah effect is applied over a wide frequency range. **BPF:** The wah effect is applied over a narrow frequency range.
Sens #	0-127	Adjusts the sensitivity with which the filter is controlled.
Manual #	0-127	Adjusts the center frequency at which the effect is applied.
Peak	0-127	Adjusts the amount of the wah effect that occurs in the center frequency range. Set a higher value for Q to narrow the affect range.
Rate #	0.05-10.00 Hz, note *2	Frequency of modulation
Depth #	0-127	Depth of modulation
Polarity	UP, DOWN	Sets the direction in which the frequency changes when the auto-wah filter is modulated. **UP:** The filter changes toward a higher frequency. **DOWN:** The filter changes toward a lower frequency.
Phase #	0-180 deg	Adjusts the degree of phase shift of the left and right sounds when the wah effect is applied.
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level	0-127	Output level

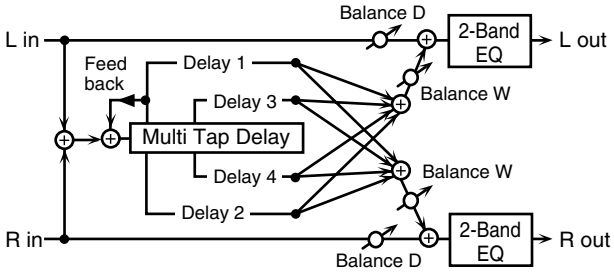
66: ST FORMN FLT (Stereo Formant Filter)



Parameter	Value	Description
Drive Sw	OFF, ON	Turns Drive on/off.
Drive #	0-127	Degree of distortion Also changes the volume.
Vowel 1	a, e, i, o, u	Selects the vowel.
Vowel 2		
Rate #	0.05-10.00 Hz, note *2	Frequency at which the two vowels switch
Depth #	0-127	Effect depth
Manual #	0-100	Adjusts the point at which the two vowels switch. When set to 50, Vowels 1 and 2 switch in the same amount of time. Setting this lower than 50 increases the time for Vowel 1; setting this higher than 50 decreases the time for Vowel 1.
Phase #	0-180 deg	Adjusts the phase shift of the left and right sounds when the two vowels are switched.
Keysync Sw	OFF, ON	Determines whether the LFO for switching the vowels is reset according to the input sound (ON) or not (OFF).
Keysync Thresh	0-127	Volume level at which reset is applied
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level	0-127	Output level

67: MLT TAP DLY2 (Multi Tap Delay 2)

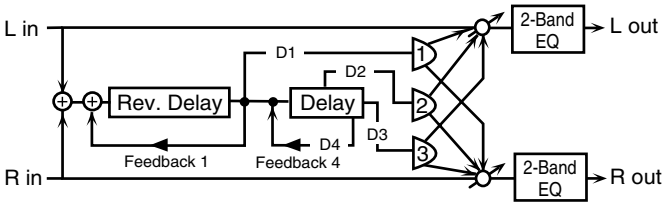
This allows you to achieve longer delay times (max. 3000 ms) for the Multi-Tap Delay function.



Parameter	Value	Description
Delay 1-4	0-3000 ms, note *2	Adjusts the time until Delay 1-4s are heard.
Feedback #	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Delay Level 1-4	0-127	Output level of Delays 1-4
Delay Pan 1-4	L64-63R	Stereo location of Delays 1-4
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level

68: REVERSE DLY2 (Reverse Delay 2)

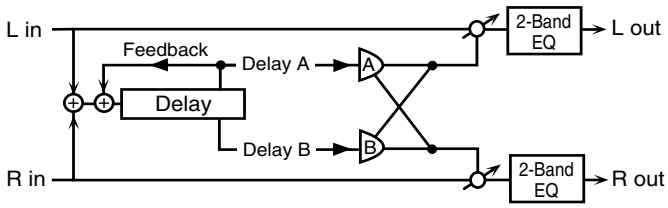
This allows you to achieve longer delay times (max. 1500 ms) for the Reverse Delay function.



Parameter	Value	Description
Delay 1-4	0-1500 ms, note *2	Adjusts the time until Delays 1-4 are heard.
Feedback 1 #	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
Feedback 4 #		
HF Damp 1	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
HF Damp 4		
Delay Level 1-3	0-127	Output level of Delays 1-3
Delay Pan 1-3	L64-63R	Stereo location of Delays 1-3
Threshold	0-127	Volume level at which the reverse delay begins
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level

69: SHUFFLE DLY2 (Shuffle Delay 2)

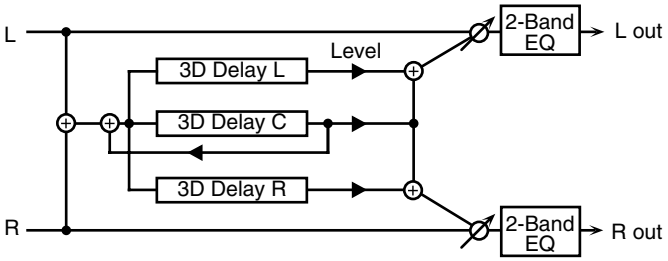
This allows you to achieve longer delay times (max. 3000 ms) for the Shuffle Delay function.



Parameter	Value	Description
Delay #	0-3000 ms, note *2	Adjusts the time until the delay is heard.
Shuffle Rate #	0-100 %	Sets the ratio (as a percentage) of the time that elapses before Delay B sounds relative to the time that elapses before Delay A sounds. When set to 100%, the delay times are the same.
Acceleration	0-15	Adjusts the time over which the Delay Time changes from the current setting to a specified new setting.
Feedback #	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Pan A, B	L64-63R	Stereo location of the Delays A and B
Level Bal	A100:0B-A0:100B	Volume balance between Delay A and Delay B
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level

70: 3D DELAY 2

This allows you to achieve longer delay times (max. 3000 ms) for the 3D Delay function.

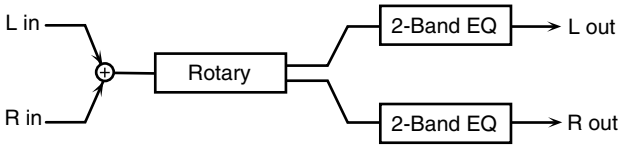


Parameter	Value	Description
Delay C	0-3000 ms, note *2	Adjusts the time until the delay is heard.
Delay L		
Delay R		
Feedback #	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Level C	0-127	Output level of the delay sound
Level L		
Level R		
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Output Mode	SPEAKER, PHONES	Select the method by which the effect is sent to the OUTPUT jacks. The optimal 3D effect is achieved if you select SPEAKER when using speakers, or PHONES when using headphones.
Level	0-127	Output level

71: ROTARY 2

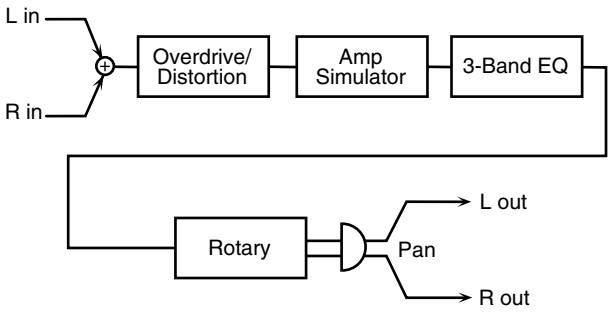
This type provides for a second type of rotary speaker simulation, with a low-end boost.

This effect features the same specifications as the VK-7's built-in rotary speaker.



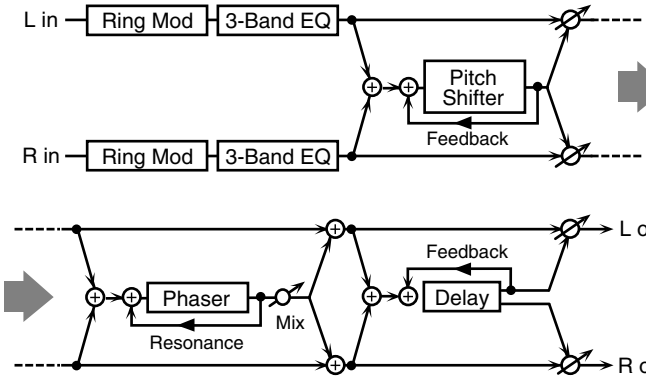
Parameter	Value	Description
Speed #	SLOW, FAST	Rotational speed of the rotating speaker
Brake #	OFF, ON	Switches the rotation of the rotary speaker. When this is turned off, the rotation gradually stops. When it's turned on, the rotation gradually resumes.
Spread	0-10	Sets the rotary speaker stereo image. The higher the value set, the wider the stereo image.
Low Slow	0.05-10.00 Hz, note *2	Low-speed rotation rate of the woofer
Low Fast	0.05-10.00 Hz, note *2	High-speed rotation rate of the woofer
Low Trans Up	0-127	Adjusts the rate at which the woofer rotation speeds up when the rotation is switched from Slow to Fast.
Low Trans Down	0-127	Adjusts the rate at which the woofer rotation when the rotation is switched from Fast to Slow.
Low Level	0-127	Volume of the woofer
High Slow	0.05-10.00 Hz, note *2	Settings for the tweeter The parameters are the same as for the woofer.
High Fast	0.05-10.00 Hz, note *2	
High Trans Up	0-127	
High Trans Down	0-127	
HIgh Level	0-127	
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level #	0-127	Output level

72: ROTARY MULTI



Parameter	Value	Description
OD/Dist		
Switch	OFF, ON	Turns the Overdrive/Distortion on/off.
Type	OVERDRIVE, DISTORTION	Selects either Overdrive or Distortion.
Drive #	0-127	Degree of distortion Also changes the volume.
Tone	0-127	Sound quality of the Overdrive/Distortion effect
Level	0-127	Volume of the Overdrive/Distortion sound
Amp Simulator		
Switch	OFF, ON	Turns the Amp Simulator on/off.
Type	SMALL, BUILT-IN, 2-STACK, 3-STACK	Type of guitar amp **SMALL:** small amp **BUILT-IN:** single-unit type amp **2-STACK:** large double stack amp **3-STACK:** large triple stack amp
3 Band EQ		
Switch	OFF, ON	Turns the 3 Band EQ on/off.
Low Gain	-15-+15 dB	Gain of the low frequency range
Mid Freq	200-8000 Hz	Frequency of the middle range
Mid Gain	-15-+15 dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Gain	-15-+15 dB	Gain of the high frequency range
Rotary		
Switch	OFF, ON	Turns the Rotary on/off.
Speed #	SLOW, FAST	Rotational speed of both the low-range and the high-range rotors
Low Freq Slow	0.05-10.00 Hz, note *2	Speed of the low-range rotor for the slow-speed setting
Low Freq Fast	0.05-10.00 Hz, note *2	Speed of the low-range rotor for the fast-speed setting
Low Freq Accel	0-15	Adjusts the time over which the rotation speed of the low-range rotor changes from slow-speed to fast-speed (or fast-speed to slow-speed) rotation. Lower values produce longer times.
Low Freq Level	0-127	Volume of the low-range rotor
HIgh Freq Slow	0.05-10.00 Hz, note *2	Settings of the high-range rotor The parameters are the same as for the low-range rotor.
High Freq Fast	0.05-10.00 Hz, note *2	
High Freq Accel	0-15	
High Freq Level	0-127	
Separation	0-127	Spatial spread of the rotary sound
Output		
Level	0-127	Output level
Pan	L64-63R	Stereo location of the output

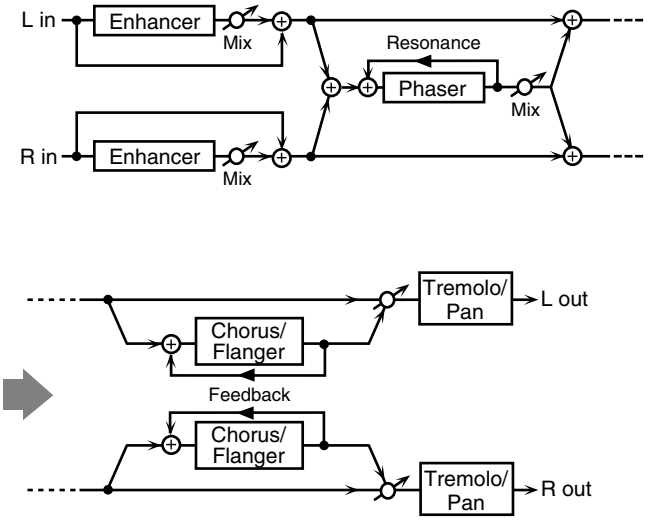
73: KEYBD MULTI (Keyboard Multi)

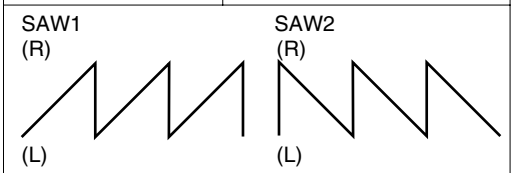


* *Ring Modulator is an effect that applies amplitude modulation (AM) to the input signal, producing bell-like sounds.*

Parameter	Value	Description
Ring Mod		
Switch	OFF, ON	Turns the Ring Modulator on/off.
Freq #	0-127	Frequency at which modulation is applied
Bal #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the ring modulated sound (W)
3 Band EQ		
Switch	OFF, ON	Turns the 3 Band EQ on/off.
Low Gain	-15-+15 dB	Gain of the low frequency range
Mid Freq	200-8000 Hz	Frequency of the middle frequency range
Mid Gain	-15-+15 dB	Gain of the middle frequency range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle frequency range Set a higher value for Q to narrow the frequency range to be affected.
High Gain	-15-+15 dB	Gain of the high frequency range
Pitch Shift		
Switch	OFF, ON	Turns the Pitch Shifter on/off
Mode	1, 2, 3, 4, 5	Setting a higher value for this parameter results in a slower response, but steadier pitch.
Coarse #1	-24-+12 semi	Adjusts the pitch of the pitch-shifted sound in semitone steps.
Fine #1	-100-+100 cent	Adjusts the pitch of the pitch-shifted sound in 2-cent steps.
Dly	0.0-500.0 ms	Adjusts the time until the pitch-shifted sound is heard.
Feedback #	-98-+98 %	Adjusts the amount of the pitch-shifted sound that's fed back into the effect. Negative (-) settings invert the phase.
Balance	D100:0W-D0:100W	Volume balance between the direct sound (D) and the pitch shifted sound (W)
Phaser		
Switch	OFF, ON	Turns the Phaser on/off.
Mode	4-STAGE, 8-STAGE	Number of stages in the phaser
Manual #	0-127	Adjusts the basic frequency from which the sound is modulated.
Rate #	0.05-10.00 Hz, note *2	Frequency of modulation
Depth	0-127	Depth of modulation
Resonance	0-127	Amount of feedback
Mix	0-127	Level of the phase-shifted sound
Delay		
Switch	OFF, ON	Turns the Delay on/off.
Time L	0-3000 ms, note *2	Adjusts the time until the delay is heard.
Time R		
Feedback	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Output		
Level	0-127	Output level

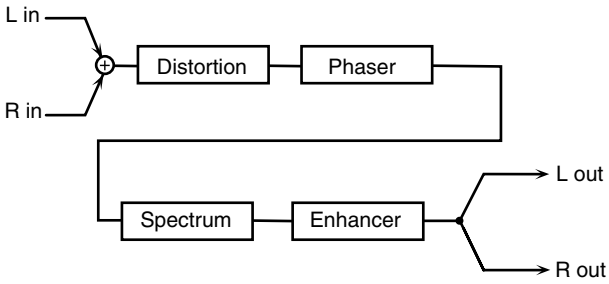
74: RHODES MULTI



Parameter	Value	Description
Enhancer		
Switch	OFF, ON	Turns the Enhancer on/off.
Sens #	0-127	Sensitivity of the enhancer
Mix	0-127	Level of the overtones generated by the enhancer
Phaser		
Switch	OFF, ON	Turns the Phaser on/off.
Mode	4-STAGE, 8-STAGE	Number of stages in the phaser
Manual #	0-127	Adjusts the basic frequency from which the sound is modulated.
Rate #	0.05-10.00 Hz, note *2	Frequency of modulation
Depth	0-127	Depth of modulation
Resonance	0-127	Amount of feedback
Mix	0-127	Level of the phase-shifted sound
Cho/Flg		
Switch	OFF, ON	Turns the Chorus/Flanger on/off.
Type	CHORUS, FLANGER	Selects either Chorus or Flanger.
Rate	0.05-10.00 Hz, note *2	Frequency of modulation
Depth	0-127	Depth of modulation
Feedback	-98-+98 %	Adjusts the amount of the flanger sound that is fed back into the effect. Negative (-) settings invert the phase.
Pre Dly	0.0-100.0 ms	Adjusts the time until the chorus/flanger is heard.
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus/flanger sound (W)
Tre/Pan		
Switch	OFF, ON	Turns Tremolo/Pan on/off.
Type	TREMOLO, AUTO PAN	Selects either Tremolo or Pan.
Mod Wave	TRI, SQR, SIN, SAW1, SAW2	Modulation Wave **TRI:** triangle wave **SQR:** square wave **SIN:** sine wave **SAW1/2:** sawtooth wave
		
Rate #	0.05-10.00 Hz, note *2	Frequency of modulation
Depth #	0-127	Depth of modulation
Output		
Level	0-127	Output level

75: JD MULTI

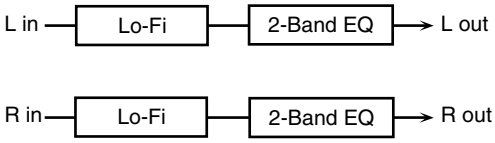
This allows the Distortion (DS), Phaser (PH), Spectrum (SP), and Enhancer (EH) effects to be connected in series in any desired order.



Parameter	Value	Description
Sequence	DS-PH-SP-EN : EN-SP-PH-DS	Order in which effects are connected
Dist		
Switch	OFF, ON	Turns the Distortion on/off.
Type	MELLOW DRIVE, OVERDRIVE, CRY DRIVE, MELLOW DIST, LIGHT DIST, FAT DIST, FUZZ DIST	Type of distortion **MELLOW DRIVE:** A soft, mellow distortion; somewhat dark sounding. **OVERDRIVE:** The classic sound of an overdriven tube amp. **CRY DRIVE:** Distortion with a high-frequency boost. **MELLOW DIST:** Sounds like the distortion you'd get from a really big amp. **LIGHT DIST:** A distortion with an intense, brilliant feel. **FAT DIST:** Boosted lows and highs gives this one a thick, fat sound. **FUZZ DIST:** Like FAT DIST, but with even more distortion.
Drive #	0-100	Amount of distortion
Level	0-100	Distortion output level
Phaser		
Switch	OFF, ON	Turns the Phaser on/off.
Manual #	50 Hz-15.0 kHz	Adjusts the basic frequency from which the sound is modulated.
Rate #	0.1-10.0 Hz	Frequency of modulation
Depth #	0-100	Depth of modulation
Resonance #	0-100	Amount of feedback
Mix Level #	0-100	Level of the phase-shifted sound
Spectrum		
Switch	OFF, ON	Turns the Spectrum on/off.
Band1 (250Hz)	-15-+15 dB	Gain of each frequency band
Band2 (500Hz)		
Band3 (1000Hz)		
Band4 (2000Hz)		
Band5 (4000Hz)		
Band6 (8000Hz)		
Width	1, 2, 3, 4, 5	Simultaneously adjusts the width of all frequency bands.
Enhancer		
Switch	OFF, ON	Turns the Enhancer on/off.
Sens	0-100	Sensitivity of the enhancer
Mix Level #	0-100	Level of the overtones generated by the enhancer
Output		
Level	0-127	Output level
Pan	L64-63R	Stereo location of the output

76: St LOFI COMP (Stereo Lo-Fi Compress)

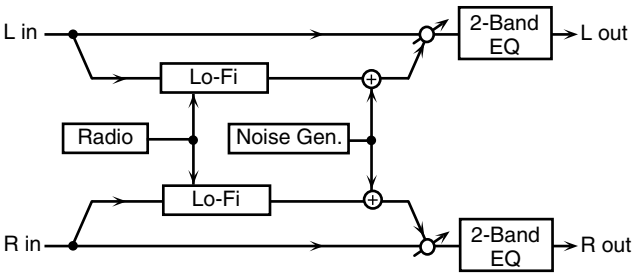
This is a stereo Lo-Fi compressor. It deliberately degrades the sound quality for creative effect.



Parameter	Value	Description
LoFi Type	1-9	Degrades the sound quality. The sound quality grows poorer as this value is increased.
Pre Filter	1-6	Adjusts the type of filter applied to the sound before it passes through the Lo-Fi effect.
Post Filter 1	1-6	Adjusts the type of filter applied to the sound after it passes through the Lo-Fi effect.
Post Filter 2	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff **HPF:** cuts the frequency range below the Cutoff
Post Cutoff	200-8000 Hz	Basic frequency of the filter
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level

77: St LOFI NOIZ (Stereo Lo-Fi Noise)

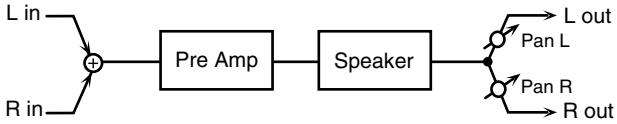
This is a stereo Lo-Fi noise. In addition to a Lo-Fi effect, this effect also generates various types of noise such as radio noise and disc noise.



Parameter	Value	Description
LoFi Type	1-9	Degrades the sound quality. The sound quality grows poorer as this value is increased.
Post Filter	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff **HPF:** cuts the frequency range below the Cutoff
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Hum N Type	50 Hz, 60 Hz	Type of hum noise
Hum N LPF	200-8000 Hz, BYPASS	Adjusts the cutoff frequency of the low pass filter applied to the hum noise. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Hum N Level	0-127	Volume of the hum noise
Radio Detune #	0-127	Simulates the tuning noise of a radio. As this value is raised, the tuning drifts further.
RadioNoise Level	0-127	Volume of the radio noise
W/P Noise Type	WHITE, PINK	Selects either white noise or pink noise.
W/P LPF	200-8000 Hz, BYPASS	Adjusts the cutoff frequency of the low pass filter applied to the white noise or pink noise. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
White/Pink Level	0-127	Volume of the white noise or pink noise
Disc N Type	LP, EP, SP, RND	Type of record noise The frequency at which the noise is heard depends on the selected type.
Disc N LPF	200-8000 Hz, BYPASS	Adjusts the cutoff frequency of the low pass filter applied to the record noise. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Disc N Level	0-127	Volume of the record noise
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0-127	Output level

78: GTR AMP SIM (Guitar Amp Simulator)

This is an effect that simulates the sound of a guitar amplifier.



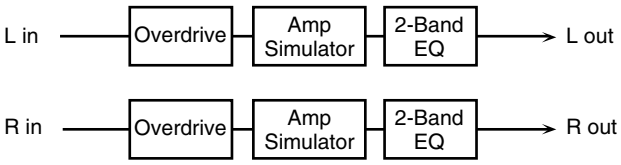
Parameter	Value	Description
Amp Simulator Sw	OFF, ON	Turns the amp switch on/off.
Amp Type	JC-120, CLEAN TWIN, MATCH DRIVE, BG LEAD, MS1959I, MS1959II, MS1959I+II, SLDN LEAD, METAL 5150, METAL LEAD, OD-1, OD-2 TURBO, DISTORTION, FUZZ	Type of guitar amp
Amp Volume #	0-127	Volume and amount of distortion of the amp
Amp Master Vol #	0-127	Volume of the entire pre-amp
Amp Gain	LOW, MID, HIGH	Amount of pre-amp distortion
Amp Presence	0-127 (MATCH DRIVE: -127 - 0)	Tone for the ultra-high frequency range
Amp Bright	OFF, ON	Turning this "On" produces a sharper and brighter sound. * This parameter applies to the "JC-120," "CLEAN TWIN," and "BG LEAD" Pre Amp Types.
Amp Bass Amp Middle Amp Treble	0-127	Tone of the bass/mid/treble frequency range * Middle cannot be set if "MATCH DRIVE" is selected as the Pre Amp Type.
Speaker Switch	OFF, ON	Determines whether the signal passes through the speaker (ON), or not (OFF).
SP Type	(See the table below.)	Type of speaker
Mic Setting	1, 2, 3	Adjusts the location of the mic that's capturing the sound of the speaker. This can be adjusted in three steps, from 1 to 3, with the mic becoming more distant as the value increases.
Mic Level	0-127	Volume of the microphone
Direct Level	0-127	Volume of the direct sound
Level #	0-127	Output level
Pan #	L64-63R	Stereo location of the output

Specifications for each Speaker Type

The speaker column indicates the diameter of each speaker unit (in inches) and the number of units.

Type	Cabinet	Speaker	Microphone
SMALL 1	small open-back enclosure	10	dynamic
SMALL 2	small open-back enclosure	10	dynamic
MIDDLE	open back enclosure	12 x 1	dynamic
JC-120	open back enclosure	12 x 2	dynamic
BUILT IN 1	open back enclosure	12 x 2	dynamic
BUILT IN 2	open back enclosure	12 x 2	condenser
BUILT IN 3	open back enclosure	12 x 2	condenser
BUILT IN 4	open back enclosure	12 x 2	condenser
BUILT IN 5	open back enclosure	12 x 2	condenser
BG STACK 1	sealed enclosure	12 x 2	condenser
BG STACK 2	large sealed enclosure	12 x 2	condenser
MS STACK 1	large sealed enclosure	12 x 4	condenser
MS STACK 2	large sealed enclosure	12 x 4	condenser
METAL STACK	large double stack	12 x 4	condenser
2-STACK	large double stack	12 x 4	condenser
3-STACK	large triple stack	12 x 4	condenser

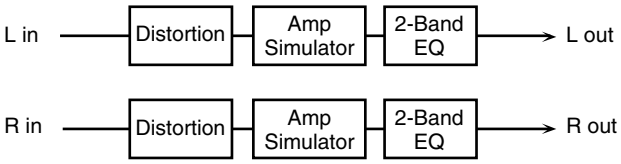
79: STEREO OD (Stereo Overdrive)



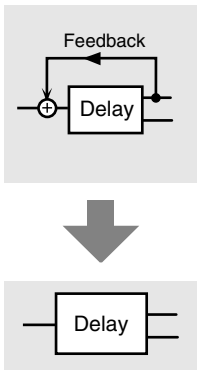
Parameter	Value	Description
Drive #	0-127	Degree of distortion Also changes the volume.
Tone	0-127	Sound quality of the Overdrive effect
Amp Switch	OFF, ON	Turns the Amp Simulator on/off.
Amp Type	SMALL, BUILT-IN, 2-STACK, 3-STACK	Type of guitar amp **SMALL:** small amp **BUILT-IN:** single-unit type amp **2-STACK:** large double stack amp **3-STACK:** large triple stack amp
Low Gain	-15-+15 dB	Gain of the low frequency range
High Gain	-15-+15 dB	Gain of the high frequency range
Level	0-127	Output level

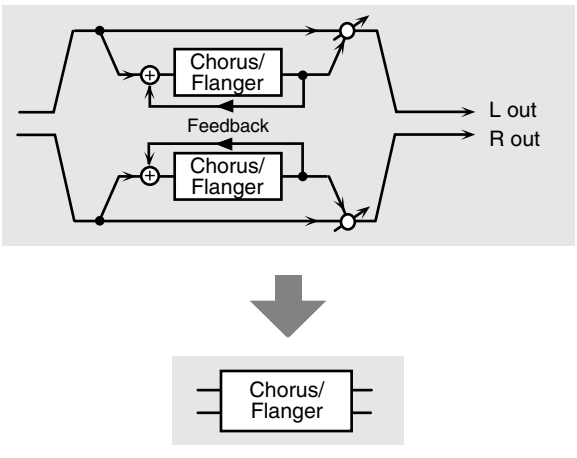
80: STEREO DIST (Stereo Distortion)

The parameters are the same as for "79: STEREO OD."

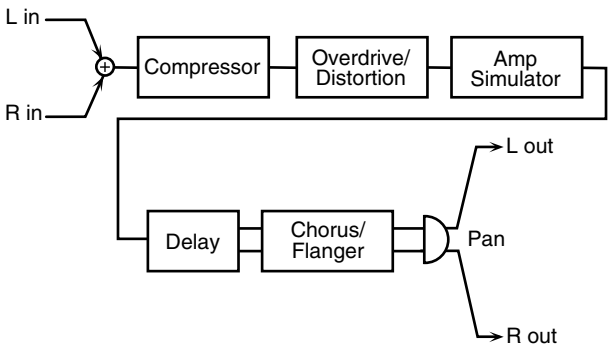


In this section, the Delay and Chorus/Flanger are depicted in diagrams. When these same effects are discussed later on, these diagrams also apply.



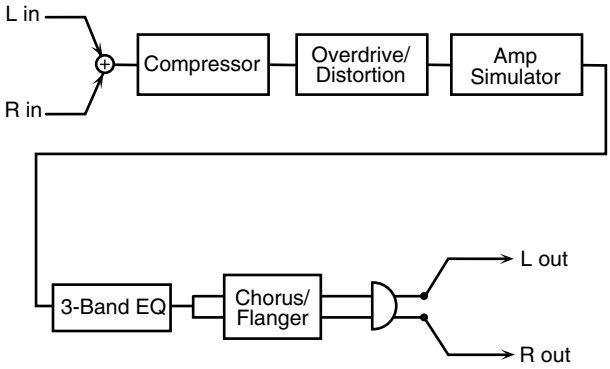


81: GTR MULTI A (Guitar Multi A)



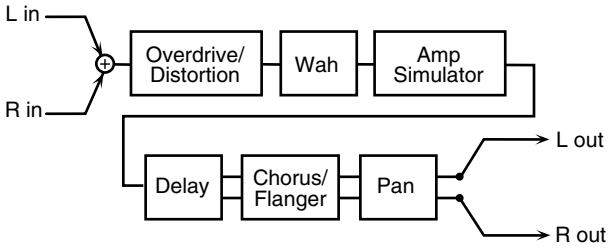
Parameter	Value	Description
Compressor		
Switch	OFF, ON	Turns the Compressor on/off.
Attack	0-127	Sets the speed at which compression starts
Sustain	0-127	Adjusts the duration of the compression.
Level #	0-127	Volume of the Compressor sound
OD/Dist		
Switch	OFF, ON	Turns the Overdrive/Distortion on/off.
Type	OVERDRIVE, DISTORTION	Selects either Overdrive or Distortion.
Drive #	0-127	Amount of distortion Also changes the volume.
Tone	0-127	Sound quality of the Overdrive/Distortion effect
Level	0-127	Volume of the Overdrive/Distortion sound
Amp Simulator		
Switch	OFF, ON	Turns the Amp Simulator on/off.
Type	SMALL, BUILT-IN, 2-STACK, 3-STACK	Type of guitar amp **SMALL:** small amp **BUILT-IN:** single-unit type amp **2-STACK:** large double stack amp **3-STACK:** large triple stack amp
Delay		
Switch	OFF, ON	Turns the Delay on/off.
Time L Time R	0-3000 ms, note *2	Adjusts the time until the delay is heard.
Feedback	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Cho/Flg		
Switch	OFF, ON	Turns the Chorus/Flanger on/off.
Type	CHORUS, FLANGER	Selects either Chorus or Flanger.
Rate	0.05-10.00 Hz, note *2	Frequency of modulation
Depth	0-127	Depth of modulation
Feedback	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
PreDly	0.0-100.0 ms	Adjusts the time until the chorus/flanger is heard.
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus/flanger sound (W)
Output		
Level	0-127	Output level
Pan	L64-63R	Stereo location of the output

82: GTR MULTI B (Guitar Multi B)



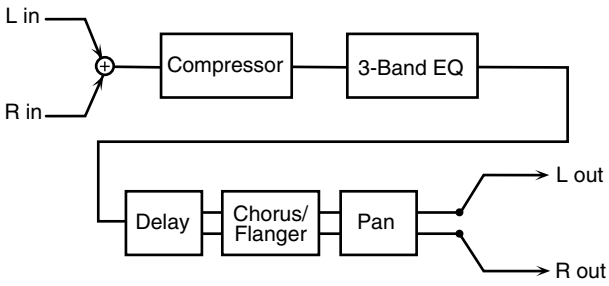
Parameter	Value	Description
Compressor		
Switch	OFF, ON	Turns the Compressor on/off.
Attack	0-127	Sets the speed at which compression starts
Sustain	0-127	Adjusts the duration of the compression.
Level #	0-127	Volume of the Compressor sound
OD/Dist		
Switch	OFF, ON	Turns the Overdrive/Distortion on/off.
Type	OVERDRIVE, DISTORTION	Selects either Overdrive or Distortion.
Drive #	0-127	Degree of distortion Also changes the volume.
Tone	0-127	Sound quality of the Overdrive/Distortion effect
Level	0-127	Volume of the Overdrive/Distortion sound
Amp Simulator		
Switch	OFF, ON	Turns the Amp Simulator on/off.
Type	SMALL, BUILT-IN, 2-STACK, 3-STACK	Type of guitar amp **SMALL:** small amp **BUILT-IN:** single-unit type amp **2-STACK:** large double stack amp **3-STACK:** large triple stack amp
3 Band EQ		
Switch	OFF, ON	Turns the 3 Band EQ on/off.
Low Gain	-15-+15 dB	Gain of the low frequency range
Mid Freq	200-8000 Hz	Frequency of the middle frequency range
Mid Gain	-15-+15 dB	Gain of the middle frequency range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle frequency range Set a higher value for Q to narrow the frequency range to be affected.
High Gain	-15-+15 dB	Gain of the high frequency range
Cho/Flg		
Switch	OFF, ON	Turns the Chorus/Flanger on/off.
Type	CHORUS, FLANGER	Selects either Chorus or Flanger.
Rate	0.05-10.00 Hz, note *2	Frequency of modulation
Depth	0-127	Depth of modulation
Feedback	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
PreDly	0.0-100.0 ms	Adjusts the time until the chorus/flanger is heard.
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus/flanger sound (W)
Output		
Level	0-127	Output level
Pan	L64-63R	Stereo location of the output

83: GTR MULTI C (Guitar Multi C)



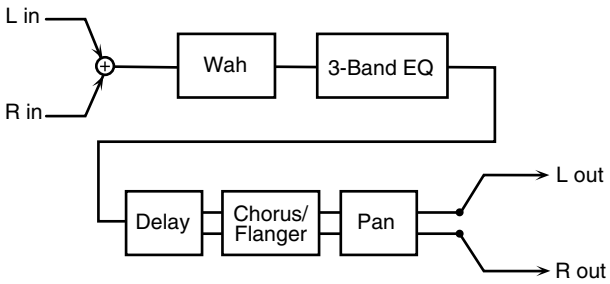
Parameter	Value	Description
OD/Dist		
Switch	OFF, ON	Turns the Overdrive/Distortion on/off.
Type	OVERDRIVE, DISTORTION	Selects either Overdrive or Distortion.
Drive #	0-127	Degree of distortion Also changes the volume.
Tone	0-127	Sound quality of the Overdrive/Distortion effect
Level	0-127	Volume of the Overdrive/Distortion sound
Wah		
Switch	OFF, ON	Turns the Auto Wah on/off.
Filter Type	LPF, BPF	Type of filter **LPF:** The wah effect is applied over a wide frequency range. **BPF:** The wah effect is applied over a narrow frequency range.
Rate	0.05-10.00 Hz, note *2	Frequency of modulation
Depth	0-127	Depth of modulation
Sens	0-127	Adjusts the sensitivity with which the filter is controlled.
Manual #	0-127	Adjusts the center frequency at which the effect is applied.
Peak	0-127	Adjusts the amount of the wah effect that occurs in the center frequency range. Set a higher value for Q to narrow the affect frequency range.
Amp Simulator		
Switch	OFF, ON	Turns the Amp Simulator on/off.
Type	SMALL, BUILT-IN, 2-STACK, 3-STACK	Type of guitar amp **SMALL:** small amp **BUILT-IN:** single-unit type amp **2-STACK:** large double stack amp **3-STACK:** large triple stack amp
Delay		
Switch	OFF, ON	Turns the Delay on/off.
Time L	0-3000 ms, note *2	Adjusts the time until the delay is heard.
Time R		
Feedback	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Cho/Flg		
Switch	OFF, ON	Turns the Chorus/Flanger on/off.
Type	CHORUS, FLANGER	Selects either Chorus or Flanger.
Rate	0.05-10.00 Hz, note *2	Frequency of modulation
Depth	0-127	Depth of modulation
Feedback	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
PreDly	0.0-100.0 ms	Adjusts the time until the chorus/flanger is heard.
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus/flanger sound (W)
Output		
Level	0-127	Output level
Pan	L64-63R	Stereo location of the output

84: CL GTR MLT A (Clean Guitar Multi A)



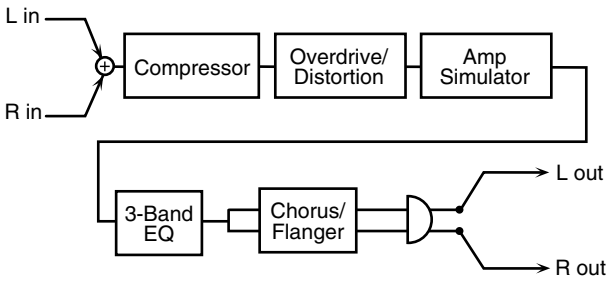
Parameter	Value	Description
Compressor		
Switch	OFF, ON	Turns the Compressor on/off.
Attack	0-127	Sets the speed at which compression starts
Sustain	0-127	Adjusts the duration of the compression.
Level #	0-127	Volume of the Compressor sound
3 Band EQ		
Switch	OFF, ON	Turns the 3 Band EQ on/off.
Low Gain	-15-+15 dB	Gain of the low frequency range
Mid Freq	200-8000 Hz	Frequency of the middle frequency range
Mid Gain	-15-+15 dB	Gain of the middle frequency range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle frequency range Set a higher value for Q to narrow the affected frequency range.
High Gain	-15-+15 dB	Gain of the high frequency range
Delay		
Switch	OFF, ON	Turns the Delay on/off.
Time L	0-3000 ms, note*2	Adjusts the time until the delay is heard.
Time R		
Feedback	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Cho/Flg		
Switch	OFF, ON	Turns the Chorus/Flanger on/off.
Type	CHORUS, FLANGER	Selects either Chorus or Flanger.
Rate	0.05-10.00 Hz, note *2	Frequency of modulation
Depth	0-127	Depth of modulation
Feedback	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
Pre Delay	0.0-100.0 ms	Adjusts the time until the chorus/flanger is heard.
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus/flanger sound (W)
Output		
Level	0-127	Output level
Pan	L64-63R	Stereo location of the output

85: CL GTR MLT B (Clean Guitar Multi B)



Parameter	Value	Description
Wah		
Switch	OFF, ON	Turns the Auto Wah on/off.
Filter Type	LPF, BPF	Type of filter **LPF:** The wah effect is applied over a wide frequency range. **BPF:** The wah effect is applied over a narrow frequency range.
Rate	0.05-10.00 Hz, note *2	Frequency of modulation
Mod Depth	0-127	Depth of modulation
Sens	0-127	Adjusts the sensitivity with which the filter is controlled.
Manual #	0-127	Adjusts the center frequency at which the effect is applied.
Peak	0-127	Adjusts the amount of the wah effect that occurs in the center frequency range. Set a higher value for Q to narrow the affected frequency range.
3 Band EQ		
Switch	OFF, ON	Turns the 3 Band EQ on/off.
Low Gain	-15-+15 dB	Gain of the low frequency range
Mid Freq	200-8000 Hz	Frequency of the middle frequency range
Mid Gain	-15-+15 dB	Gain of the middle frequency range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle frequency range Set a higher value for Q to narrow the affect frequency range.
High Gain	-15-+15 dB	Gain of the high frequency range
Delay		
Switch	OFF, ON	Turns the Delay on/off.
Time L	0-3000 ms, note *2	Adjusts the time until the delay is heard.
Time R		
Feedback	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Cho/Flg		
Switch	OFF, ON	Turns the Chorus/Flanger on/off.
Type	CHORUS, FLANGER	Selects either Chorus or Flanger.
Rate	0.05-10.00 Hz, note *2	Frequency of modulation
Depth	0-127	Depth of modulation
Feedback	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
PreDly	0.0-100.0 ms	Adjusts the time until the chorus/flanger sound is heard.
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus/flanger sound (W)
Output		
Level	0-127	Output level
Pan	L64-63R	Stereo location of the output

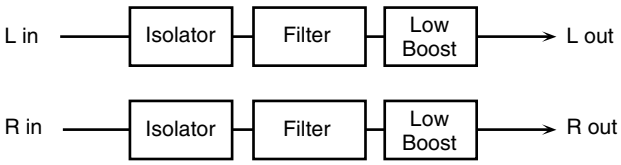
86: BASS MULTI



Parameter	Value	Description
Compressor		
Switch	OFF, ON	Turns the Compressor on/off.
Attack	0-127	Sets the speed at which compression starts
Sustain	0-127	Adjusts the duration of the compression.
Level #	0-127	Volume of the Compressor sound
OD/Dist		
Switch	OFF, ON	Turns the Overdrive/Distortion on/off.
Type	OVERDRIVE, DISTORTION	Selects either Overdrive or Distortion.
Drive #	0-127	Degree of distortion Also changes the volume.
Level	0-127	Volume of the Overdrive/Distortion sound
Amp Simulator		
Switch	OFF, ON	Turns the Amp Simulator on/off.
Type	SMALL, BUILT-IN, 2-STACK	Type of bass amp **SMALL:** small amp **BUILT-IN:** single-unit type amp **2-STACK:** large double stack amp
3 Band EQ		
Switch	OFF, ON	Turns the 3 Band EQ on/off.
Low Gain	-15-+15 dB	Gain of the low frequency range
Mid Freq	200-8000 Hz	Frequency of the middle frequency range
Mid Gain	-15-+15 dB	Gain of the middle frequency range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle frequency range Set a higher value for Q to narrow the affected frequency range.
High Gain	-15-+15 dB	Gain of the high frequency range
Cho/Flg		
Switch	OFF, ON	Turns the Chorus/Flanger on/off.
Type	CHORUS, FLANGER	Selects either Chorus or Flanger.
Rate	0.05-10.00 Hz, note *2	Frequency of modulation
Depth	0-127	Depth of modulation
Feedback	-98-+98 %	Adjusts the amount of the flanger sound that's fed back into the effect. Negative (-) settings invert the phase.
PreDly	0.0-100.0 ms	Adjusts the time until the chorus/flanger is heard.
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cutoff Freq	200-8000 Hz	Basic frequency of the filter
Balance #	D100:0W-D0:100W	Volume balance between the direct sound (D) and the chorus/flanger sound (W)
Output		
Level	0-127	Output level
Pan	L64-63R	Stereo location of the output

87: ISOLATOR 2

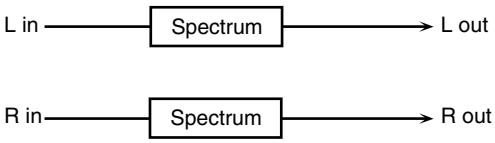
This adds a filter to the ISOLATOR effect. Isolator is an equalizer that radically cuts the volume of selected frequencies, allowing you to create special effects to the sound by cutting the volume in various frequency ranges.



Parameter	Value	Description
Level Low #	-60-+4 dB	These boost and cut each of the High, Middle, and Low frequency ranges. At -60 dB, the sound becomes inaudible. 0 dB is equivalent to the input level of the sound.
Level Middle #		
Level High #		
AntiPhase Low Sw	OFF, ON	Turns the Anti-Phase function on and off for the Low frequency ranges. When turned on, a stereo copy of the sound is phase-inverted and added to the signal.
AntiPhase Lo Lev	0-127	Adjusts the level settings for the Low frequency ranges. Adjusting this level for certain frequencies allows you to lend emphasis to specific elements within a sound. (This is effective only for stereo source.)
AntiPhase Mid Sw	OFF, ON	Settings of the Anti-Phase function for the Middle frequency ranges The parameters are the same as for the Low frequency ranges.
AntiPhase MidLev	0-127	
Filter Switch	OFF, ON	Turns the filter on/off.
Filter Type	LPF, BPF, HPF, NOTCH	Type of filter **LPF:** Passes frequencies below the Cutoff. **BPF:** Passes frequencies near the Cutoff. **HPF:** Passes frequencies above the Cutoff. **NOTCH:** Passes frequencies other than those near the Cutoff.
Cutoff Freq	0-127	Basic frequency of the filter The closer to zero this is set, the lower the cutoff frequency becomes; set it closer to 127, and the cutoff frequency becomes higher.
Resonance	0-127	Resonance level of the filter Raising the setting increases the resonance volume near the cutoff frequency.
Filter Slope	-12, -24 dB	Filter's attenuation slope **-24 dB per octave:** steep **-12 dB per octave:** gentle
Filter Gain	0-24 dB	Compensates for volume reductions in selected frequency ranges caused by some filters. The level of compensation increases as the value is increased, thus raising the volume.
Low Boost Sw	OFF, ON	Turns Low Booster on/off. This emphasizes the bottom frequencies to create a heavy bass sound.
Low Boost Level	0-127	Increasing this value gives you a heavier low end. * Depending on the Isolator and filter settings, this effect may be hard to hear.
Level	0-127	Output level

88: St SPECTRUM (Stereo Spectrum)

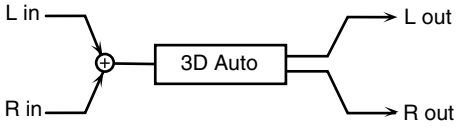
This is a stereo spectrum. Spectrum is a type of filter that modifies the timbre by boosting or cutting the levels of specific frequency ranges.



Parameter	Value	Description
250Hz Gain	-15-+15 dB	Gain of each frequency band
500Hz Gain		
1000Hz Gain		
1250Hz Gain		
2000Hz Gain		
3150Hz Gain		
4000Hz Gain		
8000Hz Gain		
Band Width Q	0.5, 1.0, 2.0, 4.0, 8.0	Simultaneously adjusts the width of all the frequency bands.
Level #	0-127	Output level

89: 3D AUTO SPIN

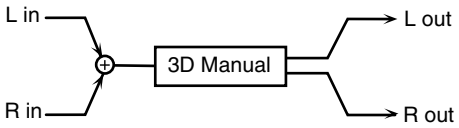
Spins the sound across the stereo field.



Parameter	Value	Description
Azimuth	L180-R180	Sets the location at which the sound stops when rotation ends. A setting of "0" positions the sound in the center.
Speed #	0.05-10.00 Hz, note *2	Speed of rotation
Clockwise	-, +	Direction of rotation **-:** counterclockwise rotation **+:** clockwise rotation
Turn #	OFF, ON	Stops or starts the rotation. **ON:** The sound rotates. **OFF:** Rotation stops at the location specified by Azimuth.
Output Mode	SPEAKER, PHONES	Selects the method by which the effect is sent to the OUTPUT jacks. The optimal 3D effect is achieved if you select SPEAKER when using speakers, or PHONES when using headphones.
Level	0-127	Output level

90: 3D MANUAL

Places the 3D effect at a desired location.



Parameter	Value	Description
Azimuth #	L180-R180	Specifies the location. A setting of "0" positions the sound in the center.
Output Mode	SPEAKER, PHONES	Selects the method by which the effect is sent to the OUTPUT jacks. The optimal 3D effect is achieved if you select SPEAKER when using speakers, or PHONES when using headphones.
Level	0-127	Output level

When Using 3D Effects

The following 3D effects utilize RSS (Roland Sound Space) technology to create a spaciousness that cannot be produced by delay, reverb, chorus, etc.

48: 3D DELAY

60: 3D CHORUS

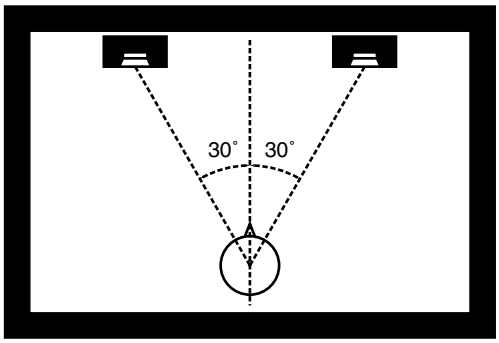
61: 3D FLANGER

70: 3D DELAY 2

89: 3D AUTO SPIN

90: 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 be realized.

Each of these effects has an "Output Mode" parameter. If the sound from the OUTPUT jacks is to be heard through speakers, set this parameter to "SPEAKER." If the sound is to be heard through headphones, set it to "PHONES." This ensures that the optimal 3D effect is achieved. If this parameter is not set correctly, the full 3D effect may not be realized.

note *1:

(Sixteenth note), (Eighth-note triplet), (Dotted sixteenth note), (Eighth note), (Half-note triplet), (Dotted eighth note), (Quarter note), (Half-note triplet), (Dotted quarter note), (Half note),

note *2:

(Sixty-fourth-note triplet), (Sixty-fourth note), (Thirty-second-note triplet), (Thirty-second note), (Sixteenth-note triplet), (Dotted thirty-second note), (Sixteenth note), (Eighth-note triplet), (Dotted sixteenth note), (Eighth note), (Quarter-note triplet), (Dotted eighth note), (Quarter note), (Half-note triplet), (Dotted quarter note), (Half note), (Whole-note triplet), (Dotted half note), (Whole note), (Double-note triplet), (Dotted whole note), (Double note)

Chorus Parameters

The XV-5050's Chorus effect unit can also be used as a stereo delay unit.

These settings allow you to select chorus or delay, and the characteristics of the selected effect type.

Parameter	Value	Description
Type	0 (OFF), 1 (CHORUS), 2 (DELAY), 3 (GM2 CHORUS)	Selects either Chorus or Delay. **0 (OFF):** Neither Chorus or Delay is used. **1 (CHORUS):** Chorus is used. **2 (DELAY):** Delay is used. **3 (GM2 CHORUS):** GM2 Chorus is used.
Type: 1 (CHORUS)		
Cho Rate	0.05-10.00 Hz	Frequency of modulation
Cho Depth	0-127	Depth of modulation
Cho PreDly	0.0-100.0 ms	Adjusts the time until the chorus is heard.
Chorus Feedback	0-127	Adjusts the amount of the chorus sound that's fed back into the effect.
Cho Filter Type	OFF, LPF, HPF	Type of filter **OFF:** no filter is used **LPF:** cuts the frequency range above the Cutoff Freq **HPF:** cuts the frequency range below the Cutoff Freq
Cho Cutoff	200-8000 Hz	Basic frequency of the filter
Cho Phase	0-180 deg	Spatial spread of the sound
Type: 2 (DELAY)		
Delay L Delay R Delay C	0-1000 ms, note	Adjusts the time until the delay is heard.
Dly Feedback	-98-+98 %	Adjusts the amount of the delay sound that's fed back into the effect. Negative (-) settings invert the phase.
Dly HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. If you don't want to filter out any high frequencies, set this parameter to BYPASS.
Dly L Level Dly R Level Dly C Level	0-127	Volume of each delay
Type: 3 (GM2 CHORUS)		
Chorus Level	0-127	Volume of the chorus sound
Chorus Feedback	0-127	Adjusts the amount of the chorus sound that's fed back into the effect.
Chorus Pre-LPF	0-7	Cuts the high frequency range of the sound coming into the chorus. Higher values cut more high frequencies.
Chorus Delay	0-127	Adjusts the time until the chorus is heard.
Chorus Rate	0-127	Frequency of modulation
Chorus Depth	0-127	Depth of modulation
Chorus Send to Rev	0-127	Adjusts the amount of chorus sound sent to the reverb.

note:

(Sixty-fourth-note triplet), (Sixty-fourth note), (Thirty-second-note triplet), (Thirty-second note), (Sixteenth-note triplet), (Dotted thirty-second note), (Sixteenth note), (Eighth-note triplet), (Dotted sixteenth note), (Eighth note), (Quarter-note triplet), (Dotted eighth note), (Quarter note), (Half-note triplet), (Dotted quarter note), (Half note), (Whole-note triplet), (Dotted half note), (Whole note), (Double-note triplet), (Dotted whole note), (Double note)

Reverb Parameters

These settings allow you to select the desired type of reverb and its characteristics.

Parameter	Value	Description
Type	0 (OFF), 1 (REVERB), 2 (SRV ROOM), 3 (SRV HALL), 4 (SRV PLATE), 5 (GM2 REVERB)	Type of reverb **0 (OFF):** Reverb is not used. **1 (REVERB):** Normal reverb **2 (SRV ROOM):** This simulates typical room acoustic reflections. **3 (SRV HALL):** This simulates typical concert hall acoustic reflections. **4 (SRV PLATE):** This simulates a reverb plate, a popular type of artificial reverb unit that derives its sound from the vibration of a metallic plate. **5 (GM2 REVERB):** GM2 Reverb
Type: 1 (REVERB)		
Reverb Type	ROOM1, ROOM2, STAGE1, STAGE2, HALL1, HALL2, DELAY, PAN-DELAY	Type of reverb/delay **ROOM1:** short reverb with high density **ROOM2:** short reverb with low density **STAGE1:** reverb with greater late reverberation **STAGE2:** reverb with strong early reflections **HALL1:** very clear-sounding reverb **HALL2:** rich reverb **DELAY:** conventional delay effect **PAN-DELAY:** delay effect with echoes that pan left and right
Reverb Time	0-127	Time length of reverberation (Type: ROOM1-HALL2) Delay time (Type: DELAY, PAN-DELAY)
Rev HF Damp	200-8000 Hz, BYPASS	Adjusts the frequency above which the high-frequency content of the reverb sound is cut, or "damped." If you don't want to damp the high frequencies, set this parameter to BYPASS.
Reverb Feedback	0-127	Adjusts the amount of delay feedback when the Type setting is DELAY or PAN-DELAY.
Type: 2 (SRV ROOM) / 3 (SRV HALL) / 4 (SRV PLATE)		
Pre Delay	0.0-100.0 ms	Adjusts the time until the reverb is heard.
Time	0-127	Duration of reverb
Size	1-8	Size of the simulated room or hall
High Cut	160 Hz-12.5 kHz, BYPASS	Adjusts the frequency above which the high-frequency content of the reverb is filtered out. If you don't want to reduce the reverb's high frequencies, set this parameter to BYPASS.
Density	0-127	Density of reverb
Diffusion	0-127	Adjusts the change in the density of the reverb over time. The higher the value, the more the density increases with time. (The effect of this setting is most pronounced with long reverb times.)
LF Damp	50-4000 Hz, BYPASS	Adjusts the frequency below which the low-frequency content of the reverb sound is reduced, or "damped." If you don't want to damp the high frequencies, set this parameter to BYPASS.
LF Damp Gain	-36-0 dB	Adjusts the amount of damping applied to the frequency range selected with LF Damp. With a setting of "0," there's no reduction of the reverb's low-frequency content.
HF Damp	4000 Hz-12.5 kHz, BYPASS	Adjusts the frequency above which the high-frequency content of the reverb sound is reduced, or "damped." If you don't want to damp the high frequencies, set this parameter to BYPASS.
HF Damp Gain	-36-0 dB	Adjusts the amount of damping applied to the frequency range selected with HF Damp. With a setting of "0," there's no reduction of the reverb's high-frequency content.
Type: 5 (GM2 REVERB)		
Level	0-127	Output level of reverbration
Character	0-7	Type of reverb **0–5:** reverb **6, 7:** delay
Pre-LPF	0-7	Cuts the high frequency range of the sound coming into the reverb. Higher values cut more high frequencies.
Time	0-127	Duration of reverb
Delay Feedback	0-127	Adjusts the amount of the delay sound that's fed back into the effect when the Reverb Character setting is 6 or 7.

Copying Effect Settings

You can copy the effect settings from any Patch, Performance, or Rhythm Set into the currently selected Patch, Performance, or Rhythm Set. This can save a great deal of time and effort when setting up effects.

1. **Make sure that the Performance, Patch or Rhythm Set you wish to copy is selected.**
2. **Press [UTILITY] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the parameter group at the upper line of the display.**
4. **Turn [VALUE] to choose "COPY EFFECT."**
5. **USE [◄ CURSOR]/[CURSOR ►] and [VALUE] to choose the desired settings.**
6. **Press [ENTER] to execute the Copy.**

   * *To cancel, press [EXIT].*
7. **Press [EXIT] to return to the appropriate PLAY screen.**

   A "*" symbol will appear at the left of the Patch/Performance/Rhythm Set name, indicating that the Copy has been executed.

Parameter	Value	Description
Source	PERFORM, PATCH, RHYTHM	Selects the source containing the settings you wish to copy.
(Performance/Patch/Rhythm Set name)		
Type	MFX, CHORUS, REVERB	Selects the effect type of the source.
From	MFX-A–C	Selects the Multi-effects to copy the settings from. * This can be set only when "PERFORM" is selected for Source and "MFX" is selected for Type.
To	MFX-A–C	Selects the Multi-effects to which you want to copy the settings. * This can be set only when "PERFORM" is selected for Source and "MFX" is selected for Type.

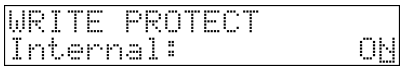
Chapter 5 Saving a Sound You Create

Saving Edits to the XV-5050's Internal Memory (WRITE)

If you turn the power off or select another Patch, Rhythm Set, or Performance after you have modified a Patch, Rhythm Set or Performance, the changes you have made will be lost. If you wish to preserve the data, store it into the XV-5050's USER memory.

Internal Write Protect

The Internal Write Protect setting is provided to help prevent the accidental overwriting of data in the USER memory. When saving new data to the USER memory, you must turn off Internal Write Protect. If you attempt to write data when it is on, the following display will appear.

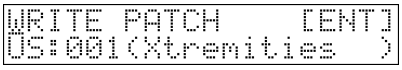


Change the displayed ON to OFF and press [ENTER] to turn Internal Write Protect off. Press [ENTER] once again, and the data will be written into the USER memory.

Once you disable Internal Write Protect, it will remain disabled until the XV-5050's power is turned off.

Saving a Patch (PATCH WRITE)

1. **Make sure that the Patch you wish to save is selected.**
2. **Press [UTILITY] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the upper left of the display.**
4. **Turn [VALUE] to select "WRITE PATCH."**



5. **Press [CURSOR ►] to move the cursor to the lower right of the display.**
6. **Turn [VALUE] to select the number of the memory location in which you wish to save the Patch (USER area).**
7. **Press [ENTER] to save the Patch.**
   * *To cancel the procedure, press [EXIT].*
8. **Press [EXIT] to return to the PATCH PLAY screen.**

HINT

By holding down [SHIFT] and pressing [UTILITY], you can move directly to the PATCH WRITE screen.

Saving a Rhythm Set

1. **Make sure that the Rhythm Set you wish to save is selected.**
2. **Press [UTILITY] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the upper left of the display.**
4. **Turn [VALUE] to select "WRITE RHYTHM."**

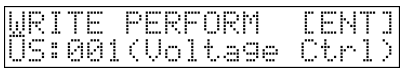
5. **Press [CURSOR ►] to move the cursor to the lower right of the display.**
6. **Turn [VALUE] to select the number of the memory location in which you wish to save the Rhythm Set (USER area).**
7. **Press [ENTER] to save the Rhythm Set.**
   * *To cancel the procedure, press [EXIT].*
8. **Press [EXIT] to return to the RHYTHM PLAY screen.**

HINT

By holding down [SHIFT] and pressing [UTILITY], you can move directly to the RHYTHM WRITE screen.

Saving a Performance

1. **Make sure that Performance you wish to save is selected.**
2. **Press [UTILITY] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the upper left of the display.**
4. **Turn [VALUE] to select "WRITE PERFORM."**

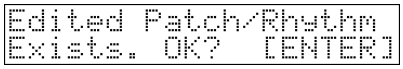


5. **Press [CURSOR ►] to move the cursor to the lower right of the display.**
6. **Turn [VALUE] to select the number of the memory location in which you wish to save the Performance (USER area).**
7. **Press [ENTER] to save the Performance.**
   * *To cancel the procedure, press [EXIT].*
8. **Press [EXIT] to return to the PERFORM PLAY screen.**

HINT

By holding down [SHIFT] and pressing [UTILITY], you can move directly to the PERFORM WRITE screen.

If you change a Patch's/Rhythm Set's settings without having saved the Patch/Rhythm Set, and then attempt to save the Performance, tho following message appears in the display.



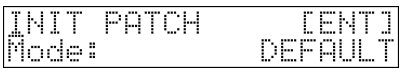
When you press [ENTER], the settings of the Performance alone are saved; changes in the settings of Patches/Rhythm Sets will not be saved. If you do want to save the settings of Patches/Rhythm Sets, press [EXIT], save the Patch or Rhythm Set with its changed settings first, and then save the Performance.

Initializing a Sound (INIT)

This feature resets all of the parameters in the current Patch, Performance, Rhythm Set or Rhythm Tone to their standard or factory default settings (INITIALIZE).

* *When you play a Patch, Performance, Rhythm Set or Rhythm Tone, you're actually playing it from the XV-5050's Temporary memory — the Patch, Performance, Rhythm Set or Rhythm Tone is instantly copied into the Temporary memory when you select it. During initialization, only the copy is affected, not the version saved in memory. If you wish to restore all of the XV-5050's settings to their factory values, perform a Factory Reset. (p. 15)*

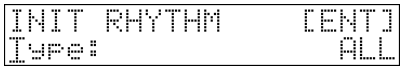
1. **Select the Performance, Patch or Rhythm Set you wish to initialize.**
2. **Press [UTILITY] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the upper left of the display.**
4. **Turn [VALUE] to select "INIT PATCH (RHYTHM, PERFORM)."**



5. **Press [CURSOR ►] to move the cursor to the lower right of the display.**
6. **Turn [VALUE] to select the Initialize mode.**
7. **Press [ENTER].**
   When the initialization is finished, "Complete" appears momentarily in the display.
8. **Press [EXIT] to return to the previous screen.**

Parameter		Value	Description
Mode	Initialize Mode	DEFAULT, PRESET	**DEFAULT:** This resets the data currently in the Temporary memory to the standard values called "initial data": INIT PATCH, INIT PERFORM or INIT SET. Use this setting when you wish to create a sound from scratch. **PRESET:** This copies the factory settings of the memory location in which the Patch, Performance, Rhythm Set or Rhythm Tone is stored into the Temporary memory.

The Rhythm Set Initialize operation can also be used to initialize the settings of only an individual percussion instrument sound (key) that you specify. In this case, move the cursor to the lower left of the display, and turn [VALUE] to select the percussion instrument sound that you wish to initialize.

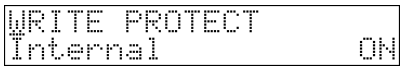


Parameter	Value	Description
Type	ALL, ONE KEY	**ALL:** The Rhythm Set will be initialized. **ONE KEY:** A Rhythm Tone (key) will be initialized.
Key	A0–C8	When Type is set to "ONE KEY," this selects the Rhythm Tone (key) that will be initialized. * This will not appear when Type is set to "ALL."

Protecting the Internal Memory (PROTECT)

This feature helps prevent the accidental overwriting of USER memory to ensure that Patch, Performance or Rhythm Set data is not accidentally erased.

1. **Press [UTILITY] to make its indicator light.**
2. **Press [◄ CURSOR] a few times to move the cursor to the upper left of the display.**
3. **Turn [VALUE] to select "WRITE PROTECT."**



4. **Press [CURSOR ►] to move the cursor to the lower left of the display.**
5. **Turn [VALUE] to select the parameter you wish to set.**
6. **Press [CURSOR ►] to move the cursor to the lower right of the display.**
7. **Turn [VALUE] to select ON or OFF.**
8. **Press [EXIT] to return to the previous screen.**

Parameter		Value	Description
Internal	Internal Write Protect	OFF, ON	Prevents the Write operation from accidentally overwriting USER memory locations. When this is set ON, the data cannot be written. Data can be only written when Internal Write Protect is off. When the XV-5050's power is turned on, this setting is automatically turned on, — you will need to turn it off before writing data to the USER memory. It is also possible to turn this setting off during the Write procedure.
Exclusive	Exclusive Protect	OFF, ON	Prevents System Exclusive messages received from an external MIDI device from rewriting USER memory settings. When this feature is on, the data cannot be rewritten by System Exclusive messages. When it is off, data can be rewritten, even if the Internal Write Protect setting is set to ON.

Transmitting Sound Settings (XFER)

You can transmit sound generator or System settings that are in the XV-5050's memory to an external MIDI device or to the XV-5050's USER memory.

Transmitting to an External MIDI Device

The act of transmitting Patch, Performance, Rhythm Set or System data to an external MIDI device is called a "**Bulk Dump**." You can perform a bulk dump when two XV-5050s are connected to each other, or when you wish to store Patch, Performance, Rhythm Set or System data on an external MIDI device as a safety backup of your XV-5050 data.

1. **Press [UTILITY] to make its indicator light.**
2. **Press [◄ CURSOR] a few times to move the cursor to the upper left of the display.**
3. **Turn [VALUE] to select "XFER TO MIDI."**

4. **Use [◄ CURSOR]/[CURSOR ►] and [VALUE] to select the data to be transmitted.**
5. **Press [ENTER] to execute the data transmission.**
   * *To interrupt the transmission of data, press [EXIT].*
6. **Press [EXIT] to return to the previous screen.**

Parameter		Value	Description
Type	Data Type	ALL, PERFORM, PATCH, RHYTHM, SETUP, SYSTEM	Specifies the type of data to be transmitted. **ALL:** Performance, Patch, and Rhythm Set **PERFORM:** Performance **PATCH:** Patch **RHYTHM:** Rhythm Set **SETUP:** Setup **SYSTEM:** System
Block	Source Block	USER, TEMP, CTRL	Specifies the source of the data to be transmitted. **USER:** Data from USER memory will be transmitted. **TEMP:** Data in Temporary memory will be transmitted. **CTRL:** The status of Performances, including Performance Bank Selects and Program Changes, are not sent as Exclusive messages, but rather as MIDI Channel messages. For more on the transmitted MIDI channel messages, refer to "MIDI Implementation." (p. 154)

Select the data to be transmitted by choosing one of the combinations shown below.

For example, if you wish to transmit the USER group Patches 001–020, you would specify "Type: PATCH, Block: USER, From: 1, To: 20."

Type	Block	From/To
ALL	USER	
	TEMP	
PERFORM	USER	1–64
	TEMP (*1)	
	TEMP+PATCH (*2)	
	CTRL	
PATCH	USER	1–128
	TEMP	
RHYTHM	USER	1–4
	TEMP	
SETUP	USER	
SYSTEM	USER	

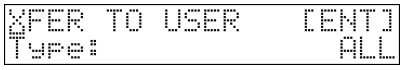
*1: The current Performance

*2: The current Performance and the Patch or Rhythm Set assigned to each Part of the Performance

Transmitting to User Memory

You can transmit Patch, Performance or Rhythm Set settings to the USER memory.

1. **Press [UTILITY] to make its indicator light.**
2. **Press [◄ CURSOR] a few times to move the cursor to the upper left of the display.**
3. **Turn [VALUE] to select "XFER TO USER."**



4. **Use [◄ CURSOR]/[CURSOR ►] and [VALUE] to select the data to be transmitted.**
5. **Press [ENTER] to execute the data transmission.**
   * *To interrupt the transmission of data, press [EXIT].*
6. **Press [EXIT] to return to the previous screen.**

Parameter		Value	Description
Type	Data Type	ALL, PERFORM, PATCH, RHYTHM	Specifies the type of data to be transmitted. **ALL:** Performance, Patch, and Rhythm Set **PERFORM:** Performance **PATCH:** Patch **RHYTHM:** Rhythm Set
Block	Source Block	USER, PR-A–H, XP-A/B	Specifies the source of the data to be transmitted. **USER:** Data from USER memory will be transmitted. **PR-A–H:** Preset A–H data will be transmitted. **XP-A/B:** Data from a Wave Expansion Board will be transmitted. * XP-A/F can be selected only if the corresponding Wave Expansion Board is installed.
Destination		1–***	Sets the transmission destination to USER. If the Type parameter has been set to PERFORM, PATCH, or RHYTHM, you must specify the first memory location number of the transmission destination.

You can specify the data to be transmitted by selecting the appropriate combination shown below.

For example, if you wish to transmit only the PR-A group Patch 001, specify "Type: PATCH, Block: PR-A, From: 1, To: 1."

If the selected data is too large to fit completely into the transmission destination, as much of the data as will fit will be transmitted, starting at the first number of the specified transmission destination.

(Example)

Type: PATCH, Block: PR-A, From: 1, To: 5, Destination: 127

If data is transmitted with the above settings, only the two PR-A group Patches 01 and 02 will be successfully transmitted — to USER group Patches 127 and 128 — since you will have attempted to send five Patches to the last two USER memory locations: 127 and 128. Had you selected 124 as a destination, memory locations 124–128 would have accommodated all five Patches.

Type	Block	From/To
ALL	PR-A, B (*1)	
PERFORM	USER (*2)	1–64
	PR-A, B	1–32
PATCH	USER (*2)	1–128
	PR-A–H	1–128
	XP-A, B	(*3)
RHYTHM	USER (*2)	1–4
	PR-A–H	1–2
	XP-A, B	(*3)

*1: Since there are no others, Performances other than PR-A/B cannot be selected.

*2: Move data within the User Memory in block units. The Move destination Patch is overwritten.

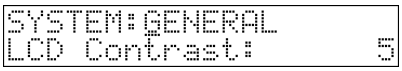
*3: Depends on the Wave Expansion Board installed

* *If the number sent exceeds the capacity of the User memory, then transmission of the data stops the moment the memory is filled.*

Chapter 6 Other Settings/Status Checks

Setting Procedure:

1. **Press [SYSTEM] to make its indicator light.**
2. **Press [◄ CURSOR] a few times to move the cursor to the parameter group in the upper line of the display.**



3. **Turn [VALUE] to choose the parameter group containing the parameter you wish to set up.**
4. **Press [CURSOR ►] to move the cursor to the parameter name in the lower-left corner of the screen.**
5. **Turn [VALUE] to choose the parameter you wish to set.**
6. **Press [CURSOR ►] to move the cursor to the selected parameter's value.**
7. **Turn [VALUE] to choose the desired value.**
8. **Press [EXIT] to return to the previous screen.**

Making Overall Settings

Parameter		Value	Description
GENERAL			
LCD Contrast		1–10	This adjusts the contrast/brightness of the display. Higher values will make the characters darker.
PowerUp Mode		LAST-ST, DEFAULT	Sets the condition of the XV-5050 when its power is turned on. **LAST-ST:** The XV-5050 will power up exactly as it was when it was turned off. **DEFAULT:** The XV-5050 will be ready to play Patch "US:001."
Master Level		0–127	Adjusts the volume of the entire XV-5050.
Clock Source	System Clock Source	INT, MIDI, USB	Specifies the tempo clock of the system. **INT:** The internal clock **MIDI:** An external clock received via MIDI IN connector **USB:** An external clock received via USB connector
System Tempo		20–250	Sets the system tempo. * When Clock Source is set to "MIDI" or "USB," the tempo will synchronize to the clock messages received from an external device, so the tempo value will be ignored.
Mix/Parallel	Output Mix/ Parallel	MIX, PARALEL	**MIX:** Signals that are set to be output from jacks other than the A (MIX) OUTPUT jacks are mixed and output from the A (MIX) OUTPUT jacks. This setting allows you to quickly route everything through headphones when you are creating sounds, or to combine all of your sounds into two outputs when sending the XV-5050's signal to a mixer that has only two channels. When MIX is selected, sound routed to the INDIVIDUAL OUTPUT 3 jack is sent to the left A (MIX) OUTPUT jack, and sound routed to the INDIVIDUAL OUTPUT 4 jack are sent to the right A (MIX) OUTPUT jack. **PARALEL:** Sounds are routed to output jacks according to their output settings.
Patch Remain	Patch Remain Switch	OFF, ON	This specifies whether you want the notes that are sounding to remain (ON) or turn off (OFF) when you select a new Patch or Rhythm Set in Patch mode. In addition, when "ON" is selected, the Volume and Pan data, and the Key Mode and other settings received via MIDI (CC 5, 7, 10, 65, 68, 71–74, RPN 0, 1, 2, MONO ON, POLY ON) are passed on.
Rhy EditKey	Rhythm Edit Key	PANEL, PNL&MIDI	You can set whether you'll be able to select percussion instruments for editing only by pressing the XV-5050's front-panel buttons or also by pressing keys on a connected MIDI keyboard. **PANEL:** Percussion instrument sounds can be selected only by using the XV-5050's TONE SELECT [1]–[4]. **PNL&MIDI:** Percussion instrument sounds can be selected using the XV-5050's TONE SELECT [1]–[4] and by pressing a key on a connected MIDI keyboard.
Output Gain		-12, -6, 0, +6, +12 dB	This adjusts the output gain from the XV-5050's Analog Out and Digital Out. When, for example, there are relatively few voices being sounded, boosting the output gain can let you attain the most suitable output level for recording and other purposes.

HINT

By holding down [SHIFT] and pressing [SYSTEM], you can move directly to the LCD Contrast screen.

Selecting Common Controllers

These settings allow you to choose four MIDI controllers for global use when controlling the parameters of any Patch or Performance. The settings in each Patch or Performance will determine whether the two controllers you choose here will actually be used. In each Patch or Performance, you will also need to specify the parameters to be controlled.

Parameter		Value	Description
CONTROL			
Sys Ctrl Src1–4	System Control Source 1–4	OFF, CC01–31, 33–95, BEND, AFTER	**OFF:** No controller is used. **CC01–95:** Controller numbers 1–95 (except for 32) **BEND:** Pitch Bend **AFTER:** Aftertouch

Establishing the MIDI and USB Settings

Setting the MIDI Channel

The XV-5050 produces sound, and can change its internal settings in response to MIDI messages that it receives from other devices. In order for this to occur, the MIDI transmission channels of the external device must match the MIDI reception channels of the XV-5050.

Parameter		Value	Description
MIDI&USB			
Control Channel	Performance Control Channel	1–16, OFF	When changing Performances by MIDI messages from the external device, set the transmit channel of the external device and this channel to the same channel. * When you perform a Factory Reset operation, Control Channel is reset to "16."
Patch Rx Channel	Patch/Rhythm Set Receive Channel	1–16	Set this channel to use an external MIDI device (such as a MIDI keyboard) for playing Patches and Rhythm Sets, or to have Patches or Rhythm Sets changed as the result of MIDI messages.

Making Global Settings

Parameter		Value	Description
MIDI&USB			
Rx Prog Change	Receive Program Change Switch	OFF, ON	Specifies whether Program Change messages will be received (ON), or not (OFF).
Rx Bank Select	Receive Bank Select Switch	OFF, ON	Specifies whether Bank Select messages will be received (ON), or not (OFF).
Rx GM1 System On	Receive GM-ON Exclusive Switch	OFF, ON	Specifies whether GM-ON (General MIDI System On) messages will be received (ON), or not (OFF).
Rx GM2 System On	Receive GM2-ON Exclusive Switch	OFF, ON	Specifies whether GM Level2-ON (General MIDI Level 2 System On) messages will be received (ON), or not (OFF).
Rx GS Reset	Receive GS Reset Exclusive Switch	OFF, ON	Specifies whether GS Reset messages will be received (ON), or not (OFF).
Device ID	Device ID Number	17–32	When transmitting or receiving System Exclusive messages, set this parameter to match the device ID number of the other MIDI device.
Rx Exclusive	Receive System Exclusive Switch	OFF, ON	Specifies whether System Exclusive messages will be received (ON), or not (OFF).
Tx Edit Data	Transmit Edit Data Switch	OFF, ON	When Patch, Performance or Rhythm Set settings are modified, you can specify whether the modified settings will be transmitted as System Exclusive data (ON), or not (OFF).

Specifying the Reception Status for Each Tone

You can enable or disable the response to received MIDI messages for each Part of a Performance, each Tone of a Patch, and each Rhythm Tone of a Rhythm Set.

For more information about setting the MIDI response of Parts in a Performance, check out "Establishing a Part's MIDI Settings (p. 67)."

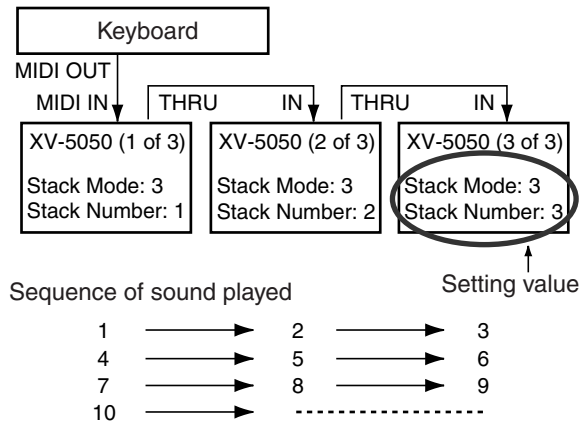
For more information about the settings for a Patch, refer to "Using Controllers to Change How Sounds Are Played (CONTROL)/CTRL Rx MIDI (Tone control receive MIDI)" (p. 51).

For more about setting the MIDI response of Rhythm Tones in a Rhythm Set, refer to "Other Settings (CONTROL)/Rx MIDI (Receive MIDI)" (p. 61).

Connecting Two or More XV-5050s to Increase Polyphony

The Stack feature allows you to combine two or more XV-5050 units to increase the number of voices that can be played simultaneously. You can connect and use up to eight XV-5050s.

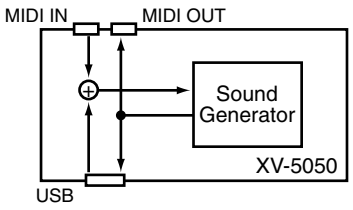
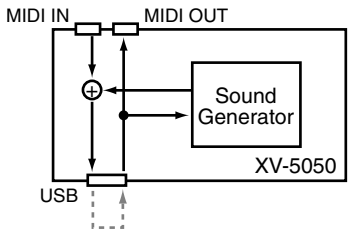
Usage with Three Connected Units



Parameter	Value	Description
MIDI&USB		
Stack Mode	OFF, 2–8	When using more than one XV-5050, set this parameter to 2–8. When not using the Stack feature, set the parameter to OFF. If Stack mode is turned off, the Stack feature will not operate, and each XV-5050 will attempt to sound all of the note messages that it receives.
Stack Number	1–8	When the Stack feature is enabled, this parameter selects the XV-5050 that is to function as the primary/first unit—this is the XV-5050 that will sound the first 64 voices.

* *The Stack feature will not operate when using Patches in which Key Mode Asgn is set to "MONO" or whose Portamento Switch is "ON" (p. 51), or for Rhythm Sets. Patches for which the Key Mode Asgn is "MONO" or whose Portamento Switch is "ON" will be sounded by the first XV-5050, and Rhythm Sets will be sounded by the second XV-5050.*

Making USB-Related Settings

Parameter		Value	Description
MIDI&USB			
MIDI-USB Thru		OFF, ON	**OFF:** MIDI messages arriving at the MIDI IN and the USB connectors are all sent to the sound generator. **ON:** MIDI messages arriving at the MIDI IN connector are output as is from the USB connector, while the MIDI messages that arrive at the USB connector are output through the MIDI OUT connector. * When this parameter is set to "ON," the sound generator receives MIDI messages only from the USB connector. For the sound generator to receive MIDI messages from the MIDI IN connector, the MIDI Thru function on your computer must be set to "ON."
			MIDI-USB Thru = OFF  **MIDI-USB Thru = ON**  * MIDI messages received at MIDI IN are routed through the computer to the sound generator.
USB Descript	USB Descripter	VENDER, GENERIC	**VENDER:** Select this when using the supplied driver with a USB connection. **GENERIC:** Select this when using a generic USB driver included with the OS with a USB connection.

* *Changes in the settings for these parameters won't take effect until you've saved the changes (p. 110), and then switched off the power and turned it on again.*

Setting the Way In Which Sounds Are Previewed

You can preview (p. 18) a Patch in any of three ways: "PHRASE" (the Patch plays a phrase), "CHORD" (the Patch plays a chord), or "SINGLE" (the Patch plays a series of notes).

Parameter		Value	Description
PREVIEW			
Mode	Preview Mode	SINGLE, CHORD, PHRASE	**SINGLE:** The notes specified by Key Note 1–4 sound one after another. **CHORD:** The notes specified by Key Note 1–4 play together as a chord. **PHRASE:** The Phrase associated with the Patch's type/category plays.
Key Note 1–4	Preview Key Note 1–4	C-1–G9	Specifies the four notes that sound during a preview when "SINGLE" or "CHORD" is selected for Mode.
Velocity Note 1–4	Preview Velocity Note 1–4	0–127	Specifies the volume of the four notes that sound when "SINGLE" or "CHORD" is selected for Mode.

Making the Equalizer Settings

You can set the equalization for each of the output jacks.

ON and OFF are applied to all of the equalizers as a group. (p. 69)

Parameter		Value	Description
EQ			
EQ1–4 Low Freq	Equalizer 1–4 Low Frequency	200, 400 Hz	Selects the frequency of the low range.
EQ1–4 Low Gain	Equalizer 1–4 Low Gain	-15– +15 dB	Specifies the low-frequency gain (amount of boost or cut).
EQ1–4 Hi Freq	Equalizer 1–4 High Frequency	2000, 4000, 8000 Hz	Selects the frequency of the high range.
EQ1–4 Hi Gain	Equalizer 1–4 High Gain	-15– +15 dB	Specifies the high-frequency gain (amount of boost or cut).

Adjusting the Overall Tuning of the XV-5050

Master Tune and Master Key Shift

The Master Tune and Master Key Shift settings are common to all Patches, Performances, Rhythm Sets, and the GM Mode.

Parameter	Value	Description
TUNE		
Master Tune	415.3–466.2 Hz	Adjusts the overall tuning of the XV-5050. The setting is expressed as the frequency played by the A4 key.
Master Key Shift	-24– +24	Shifts the overall pitch of the XV-5050 in semitone steps.

Scale Tune

The XV-5050 allows you to use temperaments other than equal temperament.

One set of Scale Tune settings can be created in Patch mode. In Performance mode, each Part can have its own Scale Tune settings.

* *The selected scale applies to MIDI messages received from an external MIDI device as well as to local sound generation.*

Parameter		Value	Description
TUNE			
Scale Tune	Scale Tune Switch	OFF, ON	Turn this on when you wish to use a tuning scale other than equal temperament.
Key C–B Scale	Key Scale C–B	-64– +63	Adjusts the pitch of each note in one-cent steps (1/100th of a semitone) relative to its equal-tempered pitch.

<Equal Temperament>

This scale divides an octave into 12 equal parts using the tuning system that is most widely used in Western music.

<Pure Temperament>

With this tuning, the three fundamental chords sound richer compared to equal temperament. This effect only applies to one key, and transposition can produce less-pleasing results.

<Arabian Scale>

In this scale, E and B are a quarter note lower, and C#, F# and G# are a quarter-note higher compared to equal temperament. The intervals between G and B, C and E, F and G#, Bb and C#, and Eb and F# have a natural third-the interval between a major third and a minor third. On the XV-5050, you can use Arabian temperament in the three keys of G, C and F.

Example: Tonic C

Note name	Equal temperament	Pure temperament	Arabian scale temperament
C	0	0	-6
C#	0	-8	+45
D	0	+4	-2
Eb	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
Bb	0	+14	-10
B	0	-12	-49

Confirming the Current Status

On this display, you can view the names of the installed Wave Expansion Boards and check the version of the XV-5050's system program.

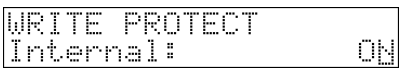
Parameter		Description
INFO		
XA, XB	Expansion Board A, B	Shows the names of Wave Expansion Boards installed in slots EXP A/B. Slots without any boards installed are shown as "----------."
Program Version		Shows the version of the XV-5050's system program.

Saving the System Settings

1. **While [SYSTEM]'s indicator lights, press [UTILITY] to make its indicator light.**
2. **Press [ENTER] to save the current settings.**

   If the following display appears, turn [VALUE] to change the displayed ON to OFF.

   After pressing [ENTER] to turn off the protect, press [ENTER] again to save the settings.



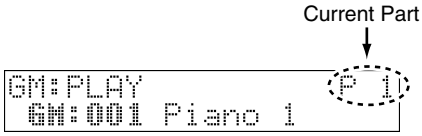
* *For more details on WRITE PROTECT, refer to page 105.*

Chapter 7 Using the XV-5050 as a General MIDI Sound Module

The XV-5050 features a GM mode-a convenient way to play back or create GM score data (music files for General MIDI sound module). You're able to play back commercial GM score data releases and even modify various parameter settings for enhanced musical expression.

Entering GM Mode

Basically GM mode is similar to a special kind of Performance in which a General MIDI System Rhythm Set is assigned to Part 10, and General MIDI System Patches are assigned to other Parts.
But however, you can't store GM mode settings in user memory.



The GM PLAY page shows a Patch or Rhythm Set assigned to each Part.

Each time you enter GM mode, the GM Drum Set is assigned to Part 10, and Piano 1 is assigned to other Parts. You can also select other GM Patches and GM Drum Sets for each Part to match the performance.

1. **While holding down [SHIFT], press [PERFORM] to blink its indicator.**
   GM PLAY page appears.
2. **To change the current Part, press [◄ PART] or [PART ►].**
3. **To change the GM Patch or GM Rhythm Set assigned to the Part, perform the same procedure as you do when you select a Patch or Rhythm Set.**

Initializing the Sound Generator for General MIDI System Basic Settings

To play back a GM score correctly, the sound generator must first be initialized to basic GM system settings. The XV-5050's sound generator is initialized in the following situations:

- When the XV-5050 is switched to GM mode
- When it receives a GM System On message from an external MIDI device
- When a GM System On message is encountered in the song data being played back
- When the XV-5050's power is turned on
- When you execute the GM Initialize function

GM/GM2 System On Message

The GM/GM2 System On messages put the unit in a state that conforms to the General MIDI System and initializes a General MIDI-compatible sound generator.
If the Rx GM On/Rx GM2 On parameter (SYSTEM/MIDI/SYSTEM MIDI) is set OFF, General MIDI/General MIDI 2 System On messages cannot be received.

Playing Back a GM Score

When the XV-5050 is in GM mode, it plays back GM scores correctly. But beyond this, the XV-5050 provides many extended features not defined in GM System specifications, and if you create music files using these extended features, your song may not play back correctly on other GM-compatible sound modules.

NOTE

The beginning of a GM score normally contains a GM System On message. So if you play back a GM score starting in the top of a song, XV-5050 will switch itself to GM mode. But if you play back a GM score starting in the middle of a song, XV-5050 may not switch itself to GM mode, and the GM score may not play back correctly. So to be safe, it's recommended to manually set the XV-5050 to GM mode before playing back a GM score.

MEMO

although the XV-5050 can also be compatible with the GS format by receiving a GS Reset MIDI message, Roland's Sound Canvas Series (including the SC-8850 and SC-8820) features a different sound module system and extended tone map, you may be unable to get MIDI data (GS music data) created especially for use only with the Sound Canvas series of devices to play back properly.

Muting a Specific Part

When you switch over to GM mode, all Parts will be set to receive MIDI messages. To turn off a specific Part so that it will not sound, set the Receive Switch to OFF for the Part. (p. 113)

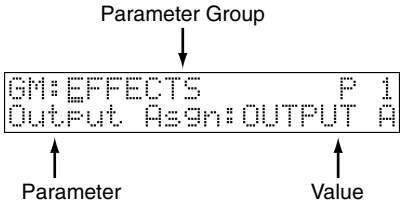
Modifying GM Mode Settings

GM mode also offers parameters that you can modify for each Part. You can modify settings like effects, pan and level to customize a GM score playback to your preference.

NOTE

You cannot store GM mode settings in internal memory (User Memory).

1. **While holding down [SHIFT], press [PERFORM] to enter GM mode.**
2. **Press [EDIT] to light its indicator.**
3. **Press [◄ CURSOR] a few times to move the cursor to the parameter group in the upper line of the display.**



4. **Turn [VALUE] to choose the parameter group containing the parameter you wish to set up.**
5. **Press [CURSOR ►] to move the cursor to the parameter name in the lower-left corner of the screen.**
6. **Turn [VALUE] to choose the parameter you wish to set.**
7. **Press [CURSOR ►] to move the cursor to the selected parameter's value.**
8. **Turn [VALUE] to choose the desired value.**
9. **Press [EXIT] to return to the GM PLAY screen.**

Making Effects Settings in GM Mode (EFFECTS)

In GM mode, a GM-exclusive Chorus and Reverb can be used. Chorus and Reverb can be set independently.

Chorus: Adds depth and spaciousness to the sound.

Reverb: Adds the reverberation characteristics of halls or auditoriums.

NOTE

In GM mode, you cannot use Multi-effects.

The XV-5050's onboard effects can be turned on/off as a whole. For details, refer to "Turning Effects On/Off" (p. 69).

Basic Process of Making Effects Settings

When applying effects in GM mode, the following procedure is used to make the settings.

1. **Setting the Output Method of the Direct Sound (Output Assign)**

   The settings made here determine for each Part whether or not the jack used to output the sound, and the type of output (stereo or mono).

2. **Setting the Amount of Each Effect Applied (Send Level)**

   Sets the level (volume) of each effect signal to be sent for each Part.

3. **Making Chorus Settings**

   Select the Chorus type to be used, and set each of the parameters for the selected Chorus.

4. **Setting the Output Destination for the Sounds Passing Through the Chorus**

   Select the output jack from which the sounds passing through the Chorus will be output. You can also apply Reverb to the sound that passes through Chorus.

5. **Making Reverb Settings**

   Select the Reverb type to be used, and set each of the parameters for the selected Reverb.

6. **Setting the Output Destination for the Sounds Passing Through the Reverb**

   Select the output jack from which the sounds passing through the Reverb will be output.

OUTPUT

Parameter		Value	Description
EFFECTS			
Output Asgn	Output assign	OUTPUT A/B	Sets the direct sound's output method for each Part. **OUTPUT A:** Output to the OUTPUT A (MIX) jacks in stereo. **OUTPUT B:** Output to the OUTPUT B jacks in stereo.
Output Level	Output level	0–127	Sets the direct sound's volume for each Part.
Chorus Send	Chorus send level	0–127	Adjusts the amount of Chorus for each Part. If you don't want to add the Chorus effect, set it to 0.
Reverb Send	Reverb send level	0–127	Adjusts the amount of Reverb for each Part. If you don't want to add the Reverb effect, set it to 0.

MEMO

If the Mix/Parallel parameter (p. 107) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo.

NOTE

Chorus and Reverb are output in mono at all times.

GM CHORUS

Parameter		Value	Description
EFFECTS			
Cho Type	Chorus type	CHORUS 1–4, FB CHORUS, FLANGER, SHORT DLY, SHORT FB	Selects the type of Chorus. **CHORUS 1–4:** Chorus 1–4 **FB CHORUS:** Feedback chorus **FLANGER:** Flanger **SHORT DLY:** Short delay **SHORT FB:** Short feedback
Chorus Rate	Chorus rage	0–127	Specifies the modulation frequency of the Chorus sound.
Chorus Depth	Chorus depth	0–127	Sets the depth of the modulations of the Chorus sound.
Chorus Feedback	Chorus feedback level	0–127	Adjusts the amount of Chorus sound that is returned (fed back) to the Chorus. Higher settings will create a more complex Chorus effect.
Chorus Rev Send	Chorus reverb send level	0–127	Adjusts the amount of Reverb to be applied to the sound routed through Chorus. If you don't want to add the Reverb effect, set it to 0.
Chorus Output Asgn	Chorus output assign	A, B	Specifies how the sound routed through Chorus will be output. **A:** Output to the OUTPUT A (MIX) jacks in stereo. **B:** Output to the OUTPUT B jacks in stereo.

MEMO

If the Mix/Parallel parameter (p. 107) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo.

GM REVERB

Parameter		Value	Description
EFFECTS			
Rev Type	Reverb type	SMALL ROOM, MEDIUM ROOM, LARGE ROOM, MEDIUM HALL, LARGE HALL, PLATE, DELAY, PAN DELAY	Selects the type of Reverb. **SMALL ROOM:** Reverb resembling that obtained in a small room. **MEDIUM ROOM:** Reverb resembling that obtained in a somewhat larger room. **LARGE ROOM:** Reverb resembling that obtained in a large room. **MEDIUM HALL:** Reverb resembling that obtained in a medium-sized concert hall. **LARGE HALL:** Reverb resembling that obtained in a large concert hall. **PLATE:** Plate-type reverb effect. **DELAY:** Conventional delay effect **PAN DELAY:** Delay effect with echoes that pan left and right
Reverb Time	Reverb time	0–127	Adjusts the length of the Reverb time.
Reverb Output Asgn	Reverb output assign	A, B	Specifies how the sound routed through Reverb will be output. **A:** Output to the OUTPUT A (MIX) jacks in stereo. **B:** Output to the OUTPUT B jacks in stereo.
Rev Output Level	Reverb output level	0–127	Output level of reverberation

MEMO

If the Mix/Parallel parameter (p. 107) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo.

Making Settings for Receiving MIDI (MIDI)

These parameters determine how each Part will transmit and receive MIDI messages.

Parameter		Value	Description
MIDI			
Rx Channel	MIDI receive channel	1–16, OFF	Sets the MIDI receive channel for each Part.
Rx Switch	Receive switch	OFF, ON	Specifies whether each Part will receive Note messages (ON), or not (OFF).
Mute Switch	Mute switch	OFF, MUTE	Mute Sw temporarily mutes (ON) or releases the mute (OFF) for the performance of each Part. * The Mute Sw parameter does not turn the Part off, but rather mutes the sound by setting the volume to 0. Therefore, MIDI messages are still received.

Making Settings for Each Part (PART)

Here you can select the GM Patch/Rhythm Set assigned to each Part, and set the volume, pan, and pitch of each Part.

Parameter		Value	Description
PART			
Part Type	Part type	PATCH, RHYTHM	Sets the assignment of a GM Patch (PATCH) or GM Rhythm Set (RHYTHM) to each of the Parts.
Num	Number	001–256 / 001–009	Selects the desired GM Patch or Rhythm Set by its number. * In GM mode, Patches or Rhythm Sets other than the GM Patches and Rhythm Sets in PR-H cannot be selected. Furthermore, GM Patches and Rhythm Sets cannot be edited.
Level	Level	0–127	Adjusts the volume of an individual Part. This setting's main purpose is to adjust the volume balance between Parts.
Pan	Pan	RND, L63–63R	Adjusts the pan of each Part. L64 is far left, 0 is center, and 63R is far right.
Coarse Tune	Coarse tune	-48– +48	Adjusts the pitch of the Part's sound up or down in semitone steps (+/-4 octaves).
Fine Tune	Fine tune	-50– +50	Adjusts the pitch of the Part's sound up or down in 1-cent steps (+/-50 cents).
Cutoff Offset	Part cutoff offset	-6– +63	Adjusts the cutoff frequency for the GM Patch or Rhythm Set assigned to a Part.
Resonance Offset	Part resonance offset	-64– +63	Adjusts the Resonance for the GM Patch or Rhythm Set assigned to a Part.
Attack Offset	Part attack time offset	-64– +63	Adjusts the TVA Envelope Attack Time for the GM Patch or Rhythm Set assigned to a Part.
Release Offset	Part release time offset	-64– +63	Adjusts the TVA Envelope Release Time for the GM Patch or Rhythm Set assigned to a Part.
Bend Range	Pitch bend range	0–24	Specifies the amount of pitch change in semitones (2 octaves) that will occur when the Pitch Bend Lever is moved. The amount of change when the lever is tilted is set to the same value for both left and right sides.
Mono/Poly	Part mono/poly	MONO, POLY	Set Mono/Poly to MONO when the GM Patch assigned to the Part is to be played monophonically, or to MONO when the GM Patch is to be played polyphonically. * For the Part to which the GM Rhythm Set is assigned, this setting will be ignored.
Portamento Sw	Part portamento switch	OFF, ON	Determines whether the Portamento effect will be applied (ON) or not (OFF). Turn this parameter ON when you want to apply Portamento and OFF when you don't.
Portamento Time	Part portamento time	0–127	Adjusts the time over which the pitch will change. Higher settings will cause the pitch change to the next note to take more time.

What is Portamento?

Portamento is an effect which smoothly changes the pitch from the first-played key to the next-played key. With the Mono/Poly parameter set to MONO, portamento is especially effective when simulating playing techniques such as a violin glissandos. Portamento can also be applied when this parameter is polyphonic.

Chapter 8 Examples of Applications Using the XV-5050

Controlling the XV-5050 in Realtime Using an External MIDI Device

External MIDI controllers — modulation lever, foot switch, expression pedal, etc. — can be used to modify Multi-Effects settings or Tone settings in realtime.

Changing Multi-Effects Settings From an External MIDI Device

The parameters that can be changed via MIDI are determined by the selected Multi-Effects (MFX) Type.
This applies to the MFX Type parameters described in pages ** to ** that have an appended "#" mark.

1. **Choose the Patch or Performance you wish to use.**
2. **Press [EDIT] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the parameter group at the upper line of the display.**
4. **Turn [VALUE] to choose "EFFECTS."**
5. **Press [CURSOR ►] and turn [VALUE] to choose "Type" (MFX Type) for the parameter.**
6. **Press [CURSOR ►] and turn [VALUE] to choose the MFX type you wish to use.**
7. **Press [◄ CURSOR]/[CURSOR ►] to move the cursor to the parameter/value that you wish to adjust.**
8. **Turn [VALUE] to select the desired setting.**

PATCH MFX CTRL (Patch MFX Control)

* *You cannot choose these parameters when the MFX Type is set to "00 THROUGH."*

Ctrl Src 1–4 (MFX Control Source 1–4)

OFF	No controller is used.
CC01–95	Controller numbers 1–95 (except for 32)
BEND	Pitch Bend
AFTER	Aftertouch
SYS1–4	System Control 1–4

Ctrl Dest 1–4 (MFX Control Destination 1–4)

This chooses the Multi-Effects parameter to be controlled using the MFX Control Source 1–4.

Ctrl Sens 1–4 (MFX Control Sens 1–4)

If you wish to change the selected parameter in a positive (+) direction — i.e., a higher value, toward the right, or faster, etc. — from its current setting, choose a positive (+) value. If you wish to change the selected parameter in a negative (-) direction — i.e., a lower value, toward the left, or slower, etc. — from its current setting, choose a negative (-) value. Higher numbers produce a greater amount of change.

Changing Tone Settings

You can use the Matrix Control parameter to manipulate Tone settings in realtime.

Choosing the MIDI Messages Used for Control and the Parameters to Be Changed

1. **Choose the Patch you wish to use.**
2. **Press [EDIT] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the parameter group at the upper line of the display.**
4. **Turn [VALUE] to choose "CONTROL."**
5. **Press [CURSOR ►] and turn [VALUE] to select "Ctrl 1 Src"–"Ctrl 4 Src" for the parameter.**
6. **Press [CURSOR ►] and turn [VALUE] to select the control source.**
7. **Press [◄ CURSOR]/[CURSOR ►] to move the cursor to the parameter/value that you wish to adjust.**
8. **Turn [VALUE] to select the parameter to be controlled (Dest), the control sensitivity (Sens) and the desired Tone (Switch).**

Matrix Control

Select the controllers you want to use to control a specific Tone parameter. Four control sources are assigned to each Patch.

Ctrl 1–4 Src (Matrix Control 1–4 Source)

Assign one of the following controllers to Control Source 1–4. If you wish to use a controller that applies to all Patches, or a controller that cannot be directly specified here, choose SYS-CTRL1–4, and then choose the controller using the Control Source 1–4 parameters (SYS CTRL ASSIGN page).

OFF	No controller is used.
CC01-95	Controller numbers 1–95 (except for 32)
BEND	Pitch Bend
AFTER	Aftertouch
SYS1–4	System Control 1–4
VELOCITY	
KEYFOLLOW	
TEMPO	
LFO1(2)	
PIT-ENV	Pitch Envelope
TVF-ENV	TVF Envelope
TVA-ENV	TVA Envelope

MATRIX CTR1–4 (Matrix control 1–4)

This select the parameters to be controlled in the Matrix Control 1–4 Source and the Sens settings, as well as the Tone to which they're applied. Up to four parameters can be specified for each controller and controlled simultaneously.

Ctl1–4 Dest1–4 (Matrix Control 1–4 Destination 1–4)

This chooses the parameters to be controlled.

OFF	No control	
PCH	Pitch	PITCH parameters (p. 45)
CUT	Cutoff Frequency	TVF parameters (p. 46)
RES	Resonance	
LEV	Level	TVA parameters (p. 48)
PAN		
DRY	Dry Level	EFFECTS parameters (p. 74)
CHO	Chorus Send	
REV	Reverb Send	
PIT-LFO1(2)	LFO1(2) Pitch Depth	LFO parameters (p. 50)
TVF-LFO1(2)	LFO1(2) TVF Depth	
TVA-LFO1(2)	LFO1(2) TVA Depth	
PAN-LFO1(2)	LFO1(2) Pan Depth	
LFO1(2)-RATE	LFO1(2) Rate	
PIT-ATK	Pitch Envelope Attack Time	PITCH parameters (p. 45)
PIT-DCY	Pitch Envelope Decay Time	
PIT-REL	Pitch Envelope Release Time	
TVF-ATK	TVF Envelope Attack Time	TVF parameters (p. 46)
TVF-DCY	TVF Envelope Decay Time	
TVF-REL	TVF Envelope Release Time	
TVA-ATK	TVA Envelope Attack Time	TVA parameters (p. 48)
TVA-DCY	TVA Envelope Decay Time	
TVA-REL	TVA Envelope Release Time	
TMT		COMMON parameters (p. 41)
FXM	Wave FXM Depth	WAVE parameter (p. 44)
MFX1–4	MFX CTRL1–4	EFFECTS parameters (p. 74)

Ctl1–4 Sens1–4 (Matrix Control 1–4 Sens 1–4)

This adjusts the amount of change that occurs in response to controller movements. Negative (-) values invert the change. For example, with LFO Depth, the phase is reversed when a negative Sens value is chosen. With LFO Rate, setting Sens to a negative value increases the cycle length, slowing down the LFO, while setting it to positive value shortens the cycle, speeding it up.

Ctl1–4 Switch1–4 (Matrix Control 1–4 Tone Control Switch 1–4)

This selects the Tone to be controlled using the two previous parameter settings. "ON" activates the control of a Tone, "OFF" de-activates it, and "REVERSE" reverses the (+) or (-) nature of the change being applied.

Applications for Patches

Syncing the LFO Cycle to the System Tempo

1. **Choose the Patch you wish to synchronize on the PATCH PLAY screen.**
2. **Set the Patch Clock Source parameter (PATCH:COMMON screen) to SYSTEM.**
3. **Set the beat length of the RATE (PATCH:LFO screen) of each Tone to match the System Tempo.**
4. **Set the System Clock Source parameter (SYSTEM:GENERAL screen) to INT.**

   * *When the System Clock Source parameter is set to MIDI or USB, you can synchronize the LFO cycle to an external device.*
5. **If the System Tempo (SYSTEM:GENERAL screen) changes, the LFO Rate changes along with it.**
6. **Set the modulation depth as desired using LFO Depth (PATCH:LFO screen) for each Tone.**

Synchronizing Multi-Effects to the System Tempo

You can change Multi-Effects parameter values in time with the System Tempo when you've selected the following values for the Type MFX parameter.

Type	MFX Parameter
16: STEP FLANGER	Step Rate
19: 3 TAP DELAY	Delay C/L/R
20: 4 TAP DELAY	Delay 1–4
41: St PHASER	Rate, Step Rate
42: KEYSYNC FLG	LFO Rate, Step Rate
43: FORMANT FLTR	Rate
45: MLT TAP DLY	Delay 1–4
46: REVERSE DLY	Delay 1–4
47: SHUFFLE DLY	Delay
48: 3D DELAY	Delay C/L/R
58: SLICER	Rate
60: 3D CHORUS	LFO Rate
61: 3D FLANGER	LFO Rate, Step Rate
62: TREMOLO	Rate
63: AUTO PAN	Rate
64: St PHASER 2	Rate, Step Rate
65: St AUTO WAH	Rate
66: St FORMN FLT	Rate
67: MLT TAP DLY2	Delay 1–4
68: REVERSE DLY2	Delay 1–4
69: SHUFFLE DLY2	Delay
70: 3D DELAY 2	Delay C/L/R
71: ROTARY 2	Low Slow/Fast, High Slow/Fast
72: ROTARY MULTI	Low Freq Slow/Fast, High Freq Slow/Fast
73: KEYBD MULTI	Phaser Rate, Delay Time L/R
74: RHODES MULTI	Phaser Rate, Cho/Flg Rate, Tre/Pan Rate
81: GTR MULTI A	Delay Time L/R, Cho/Flg Rate
82: GTR MULTI B	Cho/Flg Rate
83: GTR MULTI C	Wah Rate, Delay Time L/R, Cho/Flg Rate
84: CL GTR MLT A	Delay Time L/R, Cho/Flg Rate
85: CL GTR MLT B	Wah Rate, Delay Time L/R, Cho/Flg Rate
86: BASS MULTI	Cho/Flg Rate
89: 3D AUTO SPIN	Speed

Here's an example in which STEP FLANGER is used for the Multi-Effects.

1. **Choose a Patch on the PATCH PLAY screen.**
2. **Set its Patch Clock Source (PATCH:COMMON screen) to SYSTEM.**
3. **Make sure that MFX Type (PATCH:EFFECTS screen) is set to STEP FLANGER.**
   If not, reset it so that it is.
4. **Make sure that Step Rate (PATCH:EFFECTS screen) is set to a note — not a numerical — value. If necessary, reset it so that it is.**
5. **Set System Clock Source (SYSTEM:GENERAL screen) to INT.**

   * *When System Clock Source is set to MIDI, you can synchronize the Multi-Effect to the tempo of an external MIDI device.*
6. **When the System Tempo (SYSTEM:GENERAL screen) changes, the STEP FLANGER's Step Rate changes along with it.**

Making a Tone's Delay Time Match the System Tempo

1. **Choose a Patch on the PATCH PLAY screen.**
2. **Set its Patch Clock Source (PATCH:COMMON screen) to SYSTEM.**
3. **Set Tone Delay Time (PATCH:WAVE screen) to a note length — not a numerical value — in relation to the synchronization tempo.**
4. **Set System Clock Source (SYSTEM:GENERAL screen) to INT.**

   * *When System Clock Source is set to MIDI, you can synchronize the Tone's delay to the tempo of an external MIDI device.*
5. **When System Tempo (SYSTEM:GENERAL screen) changes, the Tone's delay time changes along with it.**

Using a Pedal Switch to Change the Rotary Speed of the Rotary Effect

1. **Connect a pedal switch (DP-2, DP-6, etc.) to your external MIDI controller (MIDI keyboard, etc.).**
2. **Set the pedal switch of the external MIDI controller to generate FOOT TYPE (CC04) control-change messages.**

   * *To learn how to set up the pedal switch, refer to the external MIDI controller's owner's manual.*
3. **Choose "PA:050 Perky B" on the PATCH PLAY screen.**
   This Patch uses ROTARY as its Multi-Effect.
4. **Set Ctrl Src 1 (PATCH:EFFECTS screen) to CC04.**
5. **Set Ctrl Dest 1 to SPEED, and Ctrl Sens 1 to +63.**
6. **When you wish to speed up the rotary effect, press the pedal switch. Release the pedal switch to slow down the rotary effect.**

Playing Phrase Loops at a System's Tempo

An optional Wave Expansion Board can contain Patches based on waveforms that are timed — in BPM — phrase loops. You can play these phrase loops in sync with the System Tempo.

1. **On the PATCH PLAY screen, choose a Patch that uses a phrase loop.**
2. **Set Patch Clock Source (PATCH:COMMON screen) to SYSTEM.**
3. **On the PATCH:WAVE screen, view the Wave Number (L/R).**
   Press TONE SEL [1]–[4] to find a Tone that uses phrase-loop waveforms.
   The waveform name appears at the right side of the display. Waveform names that have a BPM number in the first part of the name (such as "132:WAVE NAME") are phrase loop waveforms.
4. **Set Tone Delay Time to 0.**
   If you choose a value other than 0, a delay will be applied, and you will not be able to play the Patch normally.
5. **Set System Clock Source (SYSTEM:GENERAL screen) to INT.**

   * *When System Clock Source is set to MIDI, you can synchronize the phrase loop to the tempo of an external MIDI device.*
6. **When the System Tempo (SYSTEM:GENERAL screen) changes, the speed of the phrase loop changes along with it.**

   * *The phrase loop sounds at the system's tempo regardless of which key you press. The settings for pitch and FXM are ignored.*

Changing Part Settings from an External MIDI Device

By sending Control Change messages for different Part settings, including volume, panning, and pitch, you can change these settings remotely from an external MIDI device connected to the XV-5050. This lets you control fade-ins and fade-outs, open and close filters, and exercise other controls in realtime from the external MIDI device.

The parameters that can be used for changing the settings, and the Control Change messages that can be used to change the values, are shown below.

* *For more detailed information about Control Change messages, please refer to "MIDI Implementation" p. 154).*

* *To change multi-effects, reverb, or chorus effects from an external MIDI device, send a "System Exclusive message" (p. 157).*

Remotely Controlling Volume (p. 154)

- Volume: Controller number 7

Remotely Controlling Stereo Positioning (p. 154)

- Panpot: Controller number 10

Remotely Applying Portamento (p. 154, p. 155)

- Portament: Controller number 65 (Portamento switch), Controller number 5 (Portamento time)

Remotely Changing Sounds' Attack and Release Time (p. 155)

- Release Time: Controller number 72
- Attack Time: Controller number 73

Remotely Changing the Cutoff Frequency (p. 155)

- Cutoff: Controller number 74

Remotely Changing Resonance (p. 155)

- Resonance: Controller number 71

Remotely Changing the Amount of Internal Chorus/Reverb (p. 156)

- Effect 3 (Chorus Send Level): Controller number 93
- Effect 1 (Reverb Send Level): Controller number 91

Remotely Changing Pitch (p. 158)

- Coarse: Controller number 100 (value is 0), Controller number 101 (value is 2), Controller number 6 (value is 16–112)
- Fine: Controller number 100 (value is 0), Controller number 101 (value is 1), Controller number 6 (value is 32–96), Controller number 38 (value is 0–127)

* *When changing the Coarse parameter, set the amount of change in pitch using Control Number 6 (Data Entry MSB) value. There is no change in pitch when the value is set to "64." The pitch is raised as the value increases from 64, and is lowered as the value decreases below 64.*

* *When changing the Fine parameter, set the amount of change in pitch using Control Number 6 (Data Entry MSB) and Control Number 38 (Data Entry LSB) settings. There is no change in pitch when Data Entry MSB is set to "64" and Data Entry LSB to "0." The pitch is raised as the respective values increase, and lowered as the respective values decrease.*

Remotely Specifying the Range of Pitch Bend (p. 156)

- Bend Range: Controller number 100 (value is 0), Controller number 101 (value is 0), Controller number 6 (value is 0–12)

Procedure

1. **Enable the external MIDI device to send a Control Change message.**

   For example, if you want to change the volume level, set the external MIDI device to send Control Number 7 (Volume message). In this case, the MIDI channel is matched to the MIDI channel of the Part whose volume you want to change.

   * *For information on how to set up your external MIDI controller, refer to its owner's manual.*

2. **Operate the external MIDI device — adjust its controls, play its sequencer, etc. — to send the desired MIDI messages.**

   * *As sound changes occur, displayed parameter values reflect the changes you make.*

About RPN

"RPN" (Registered Parameter Number) is an extended MIDI message activated by a previous Control Change message.

Use an RPN when you want to remotely change the XV-5050's Pitch or Pitch Bend range settings. An RPN has an superior part (RPN MSB) and a subordinate part (RPN LSB). The RPN MSB (Control Number 101) informs the XV-5050 that an RPN setting is to follow, and the RPN LSB (Control Number 100) value tells the XV-5050 which parameter is to be set. Finally, a Data Entry (Control Change 6) message sets the desired value.

Once the XV-5050 has received an RPN parameter, all further Data Entry messages on that MIDI channel are applied to that parameter. In order to prevent accidental changes, once the desired setting has been made for the parameter, we recommend that RPN be set to "Null."

For example, to raise the pitch of a certain Part by one half-step (semitone) send the following Control Change message from the external MIDI device.

- Controller number 100: value "0"
- Controller number 101: value "2"
- Controller number 6: value "65"
- Controller number 100: value "127" <- RPN null
- Controller number 101: value "127" <- RPN null

* *For more detailed information about RPN messages, please refer to "MIDI Implementation" (p. 154).*

Applications for Matrix Control

Controlling the TMT with the LFO and Changing the Tone's Timing

When TMT (Tone Mix Table) is selected as the Matrix Control destination, you can use the Control Source controller to change the time at which Tones in a Patch are played.

Here is an example of a Patch using LFO1 as a Control Source. The time at which the Tone plays is based on LFO1's amplitude value.

1. **Select "PE:043 Morph Pad" on the PATCH PLAY screen.**
2. **Set TMT V-Rng Lower and Upper (PATCH:COMMON screen, p. 41) for Tones 1 and 2 as follows.**

	L	:	U
tone = 1	1	:	64
tone = 2	65	:	127

3. **Set TMT V-Rng L.Fade and U.Fade to 10 for Tones 1 and 2.**
   This makes the Tones fade in and out smoothly outside their velocity ranges.
4. **Set TMT Vel Control to OFF.**
   This setting disables the V-Rng settings made in Step 2 and causes the two Tones to sound simultaneously, regardless of the velocity — the force with which keys are played — received from your MIDI keyboard or sequencer.
5. **Set TMT Control Sw (PATCH:CONTROL screen, p. 52) to ON.**
   This setting allows the TMT to be controlled by the Matrix Control Controller. The following chart shows all the relationships between the TMT Velocity Control and TMT Ctrl Sw.

	(1)	(2)	(3)	(4)
TMT Vel Control	ON	OFF	ON	OFF
TMT Control Sw	OFF	OFF	ON	ON

(1)(3): The Velocity Control settings are enabled, and the two Tones are switched on or off according to the velocity data received from the MIDI keyboard or sequencer.

(2): The Velocity Control settings and TMT control via Matrix Control are disabled, and the two Tones play simultaneously, regardless of the velocity data received from the MIDI keyboard or sequencer.

(4): TMT Matrix Control is enabled, and the timing of the Tones changes according to the Control Source controller data.

* *The TMT Vel Control settings are given priority when both TMT Vel Control and TMT Control Sw are set to ON.*

6. **Choose LFO1 as the Ctrl 1 Src (PATCH:CONTROL screen, p. 52).**
7. **Set Ctl1 Dest1 to TMT, Ctl1 Sens1 to +63, and Ctl1 Switch1 for TONE 1 and 2 to ON.**
8. **Set the LFO1 Form and Rate (PATCH:LFO screen) for each of the Tones as shown below.**

	TONE 1	TONE 2
Form:	SIN	SIN
Rate:	64	127

9. **Choose the Number for Tones 1 and 2 (PATCH:WAVE screen, p. 44).**
10. **Press [EXIT] to return to the PATCH PLAY screen.**

Other possible applications include synchronizing the Control Source LFO rate to the tempo, assigning Modulation and other parameters to the Control Source, and changing the Tone in realtime from a MIDI keyboard or other such device.

Appendices

Installing the Wave Expansion Board

The XV-5050 can be further expanded with the installation of up to two optional wave expansion boards (SRX Series). Wave data is stored in these wave expansion boards. Also stored are Patches and Rhythm Sets that use the Wave data from the wave expansion boards, allowing these to be called up directly for use.

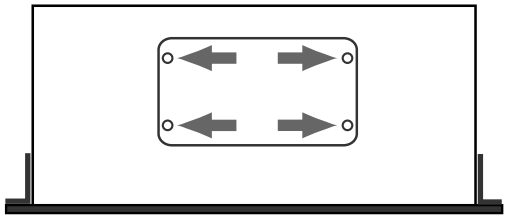
Cautions When Installing an Wave Expansion Board

- To avoid the risk of damage to internal components that can be caused by static electricity, please carefully observe the following whenever you handle the board.
  - Before you touch the board, always first grasp a metal object (such as a water pipe), so you are sure that any static electricity you might have been carrying has been discharged.
  - When handling the board, grasp it only by its edges. Avoid touching any of the electronic components or connectors.
  - Save the bag in which the board was originally shipped, and put the board back into it whenever you need to store or transport it.
- Use a Philips screwdriver that is suitable for the size of the screw (a number 2 screwdriver). If an unsuitable screwdriver is used, the head of the screw may be stripped.
- To remove a screw, rotate the screwdriver counter-clockwise. To tighten a screw, rotate the screwdriver clockwise.

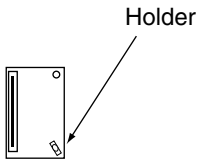
- When installing Wave Expansion Boards, remove only the specified screws.
- Be careful that the screws you remove do not drop into the interior of the XV-5050.
- Do not leave the cover in a detached state. Be sure to reattach it after the Wave Expansion Boards have been installed.
- Do not touch any of the printed circuit pathways or connection terminals.
- Be careful not to cut your hand on the edge of the installation bay.
- Never use excessive force when installing a circuit board. If it doesn't fit properly on the first attempt, remove the board and try again.
- When circuit board installation is complete, double-check your work.
- Always turn the unit off and unplug the power cord before attempting installation of the circuit board (SRX series; p. 14).
- Install only the specified circuit board(s) (SRX series). Remove only the specified screws (p. 120).

How to Install a Wave Expansion Board

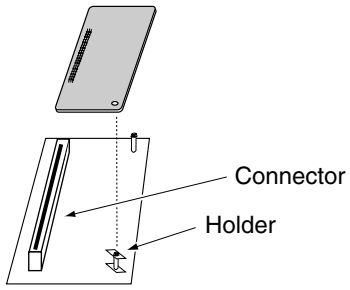
1. **Before installing the wave expansion board, turn off the power to the XV-5050 and to any device connected to the XV-5050.**
2. **Remove only the top panel screws specified in the following figure.**



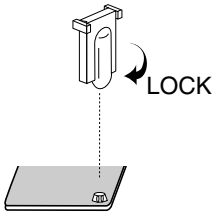
3. **Remove the cover.**
4. **Orient the board holder as shown in the figure.**



5. **Slots are provided inside the XV-5050 for SRX Series boards. Referring to the diagram below, plug the wave expansion board's connector into the connector in the wave expansion board slot, and simultaneously insert the board holder into the hole in the Wave expansion board.**



6. **Use the locking hardware included with the wave expansion board to rotate the board holder to the LOCK position and fasten the wave expansion board.**



7. **Using the screws removed in Step 2, refasten the cover in its original position.**

   This completes the installation of the wave expansion board.

Next, check to make sure the board has been installed properly.

1. **Use the procedure in "Turning On the Power" (p. 14) to turn the power on.**
2. **Press [SYSTEM] to make its indicator light.**
3. **Press [◄ CURSOR] a few times to move the cursor to the parameter group in the upper line of the display.**
4. **Turn [VALUE] to choose "INFO."**
5. **Press [CURSOR ►] to move the cursor to the parameter at the lower left of the display.**
6. **Turn [VALUE] to choose "XA (XB)." Verify that the name of the Wave Expansion Board is displayed next to the slot name.**
7. **Press [EXIT] to return to the PLAY screen.**

   If no board has been installed, or if the wave expansion board is not being recognized properly, "----------" appears in the display.

NOTE

If "----------" appears next to the name of the slot in which the board was installed, it may be that the wave expansion board is not being recognized properly. Use the procedure in "Turning Off the Power" (p. 14) to turn the power off, then reinstall the wave expansion board correctly.

Installation de la carte d'extension Wave
(French language for Canadian Safety Standard)

French language
for Canadian Safety Standard

Les cartes d'exten-sion Wave contiennent des donnees Wave, aussi bien que des morceaux musicaux et des ensembles rythmiques utilisant ces donnees, auxquelles on peut directement acceder dans la zone temporaire et les faire jouer.

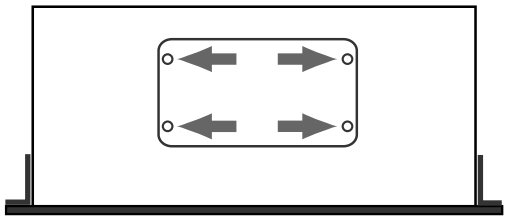
Précautions à prendre lors de l'installation d'une carte d'expansion Wave

- Veuillez suivre attentivement les instructions suivantes quand vous manipulez la carte afin d'éviter tout risque d'endommagement des pièces internes par l'électricité statique.
  - Toujours toucher un objet métallique relié à la terre (comme un tuyau par exemple) avant de manipuler la carte pour vous décharger de l'électricité statique que vous auriez pu accumuler.
  - Lorsque vous manipulez la carte, la tenir par les côtés. Évitez de toucher aux composants ou aux connecteurs.
  - Conservez le sachet d'origine dans lequel était la carte lors de l'envoi et remettez la carte dedans si vous devez la ranger ou la transporter.
- Utiliser un tournevis cruciforme correspondant à la taille de la vis (un tournevis numéro 2). En cas d'utilisation d'un tournevis inapproprié, la tête de la vis pourrait être endommagée.
- Pour enlever les vis, tourner le tournevis dans le sens contraire des aiguilles d'une montre. Pour resserrer, tourner dans le sens des aiguilles d'une montre.

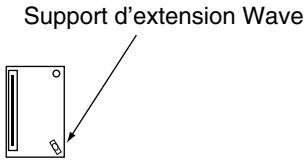
- Lors de l'insertion de la carte d'extension Wave, enlevez seulement les vis indiquées dans les instructions.
- Veillez à ne pas laisser tomber de vis dans le châssis du XV-5050.
- Ne pas laisser le panneau de protection avant détaché. S'assurer de l'avoir rattacher après avoir installé le disque dur.
- Ne pas toucher aux circuits imprimés ou aux connecteurs.
- Veillez à ne pas vous couper les doitgs sur le bord de l'ouverture d'installation.
- Ne jamais forcer lors de l'installation de la carte de circuits imprimés. Si la carte s'ajuste mal au premier essai, enlevez la carte et recommencez l'installation.
- Quand l'installation de la carte de circuits imprimés est terminée, revérifiez si tout est bien installé.
- Toujours éteindre et débrancher l'appareil avant de commencer l'installation de la carte. (SRX series; p. 14).
- N'installez que les cartes de circuits imprimes spécifiées (SRX series). Enlevez seulement les vis indiquées (p. 122).

Installation d'une carte d'expansion Wave

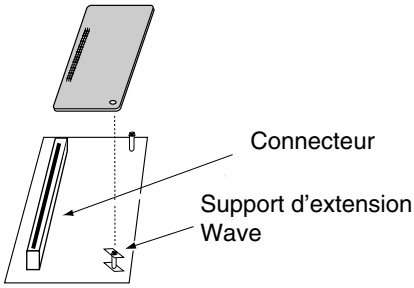
1. **Avant d'installer la carte d'extension, éteindre le XV-5050 et tous les appareils qui y sont reliés.**
2. **N'enlever que les vis spécifiées sur le schéma suivant.**



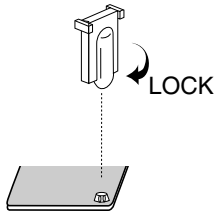
3. **Enlever la plaque protectrice.**
4. **Orienter le support à carte tel qu'indiqué sur le schéma.**



5. **Dans l'appareil, vous trouverez des emplacements pour carte à extension de série SRX. En vous référant au schéma ci-dessous, insérer le connecteur de la carte d'extension à l'emplacement correspondant tout en enfonçant simultanément le support à carte dans les trous de celle-ci.**



6. **À l'aide de l'outil fourni à cet effet avec la carte, faire tourner en position "LOCK" le support à carte afin de bien la fixer.**



7. **Remettre la plaque à sa place et la fixer à l'aide des vis enlevées à l'étape 2.**
   Ceci complète l'installation de la carte d'extension.

French language
for Canadian Safety Standard

Les manipulations suivantes vous permettront de verifier si votre carte a ete correctement installee.

1. **Allumer votre appareil en suivant les instructions de la p.14.**
2. **Appuyer sur [SYSTEM] pour allumer le voyant lumineux.**
3. **Appuyer sur [◄ CURSOR] quelques fois pour déplacer le curseur jusqu'au groupe de paramètres sur la première ligne affichée.**
4. **Tourner le bouton [VALUE] afin de sélectionner " INFO ".**
5. **Appuyer sur [CURSOR ►] pour déplacer le curseur jusqu'au paramètre dans le coin inférieur gauche de l'affichage.**
6. **Tourner le bouton [VALUE] pour sélectionner " XA (XB) ". S'assurer que le nom de la carte d'expansion Wave est affiché en regard du nom de la fente.**
7. **Appuyer sur [EXIT] pour revenir à l'écran PLAY.**
   L'affichage suivant apparaitra. S'il n'y a aucune carte installee ou si la carte est incorrectement installee, l'affichage [----------] apparaitra.

* *Si l'affichage [----------] apparait a cote du nom de l'emplacement dans lequel vous avez installe la carte, il est possible que la carte d'extension ait ete mal installee. Eteindre l'appareil en suivant les instructions a cet effet a la p.14 et reinstaller la carte.*

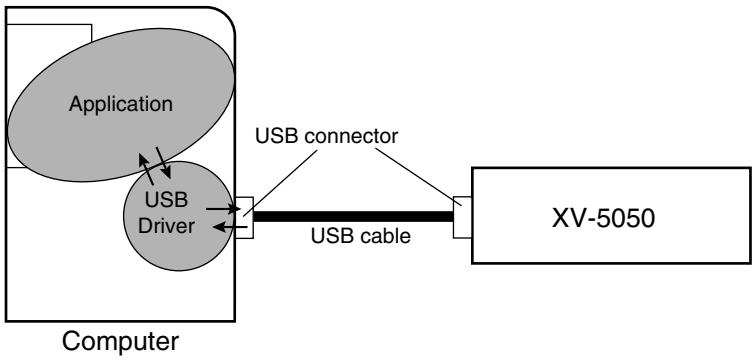
Installing & Setup the Driver

In order to use the XV-5050 with your computer, you must first install the USB MIDI Driver. The USB MIDI Driver is included in the "XV-5050 Driver CD-ROM."

What is the USB MIDI Driver?

The USB MIDI Driver is a software which passes data between the XV-5050 and the application (sequencer software, etc.) that is running on the USB-connected computer.

The USB MIDI Driver sends data from the application to the XV-5050, and passes data from the XV-5050 to the application.



The explanation about installing and setup the driver is organized according to the computer and MIDI driver that you are using. Please proceed to the following pages.

Windows 98 / Me Users → p. 125

Windows 2000 Users → p. 128

Using OMS on the Macintosh → p. 132

Using FreeMIDI on the Macintosh → p. 134

NOTE

The XV-5050 cannot be used with Windows 95 or Windows NT.

Windows 98 / Me Users

Use the following procedure to install the XV-5050 Driver.

* *Disconnect the XV-5050 from your computer before starting up Windows.*

1. With all USB cables disconnected, start up Windows. (except the keyboard and mouse)

2. Exit all applications before you begin installing the driver.

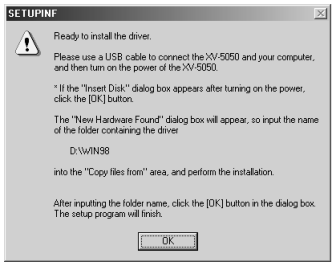
3. Insert the XV-5050 Driver CD-ROM into the CD-ROM drive.

4. From the Windows Start menu, select "Run."

5. In the "Open" field of the dialog box that appears, enter "D:\Win98\Setupinf.exe" and click "OK."

* *Enter the drive name* ***D:*** *appropriate for the drive name of your CD-ROM drive.*

6. The SETUPINF dialog box appears, and the display indicates "Ready to install the driver.---"



* *Don't click "OK" here.*

NOTE

If the XV-5050 is already connected to your computer and a message of **"Add New Hardware Wizard"** is displayed, go to the **XV-5050 Driver CD-ROM** folder named **Win98**, open the file **README_E.HTM**, and read the **"Troubleshooting"** section entitled "You attempted to install using the above procedure, but were not able to."

NOTE

If you wish to use the XV-5050 at the same time as another USB device connected to your computer, disconnect the other USB device from the USB connector before installing the XV-5050 driver. If another USB device is connected to your computer when you install the XV-5050 driver, the XV-5050 driver may not be installed correctly.

NOTE

The **"Win98\Setupinf.exe"** file cannot be used on Windows 2000.

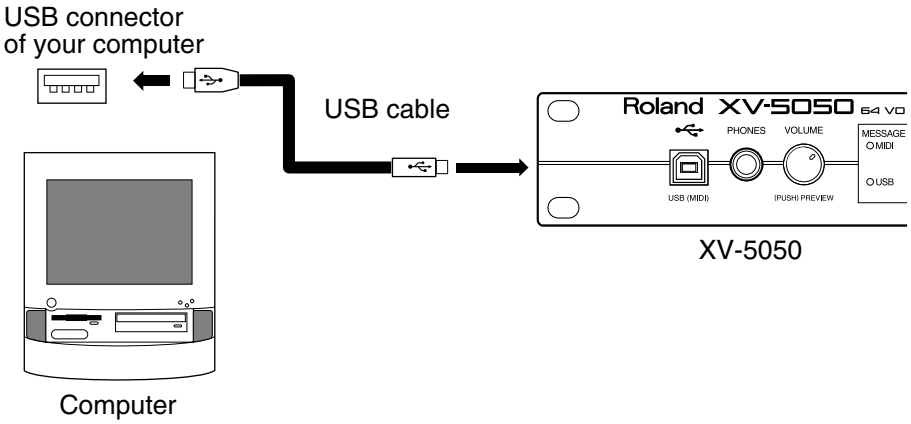
NOTE

To check the drive name of your CD-ROM drive, double-click the **My Computer** icon.

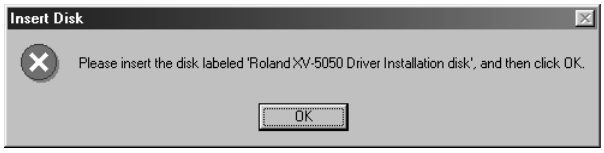
NOTE

If the **"Ready to install the driver.---"** dialog box does not appear, go to the **XV-5050 Driver CD-ROM** folder named **Win98**, open the **README_E.HTM** file, and read the section entitled **"Installation."**

7. Use the USB cable to connect the XV-5050 and your computer.



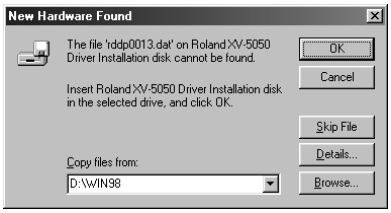
8. In some cases, the "Insert Disk" dialog box may appear. Click "OK."



9. The "New Hardware Found" dialog box will appear.

In the **"Copy files from"** area, input **"D:\Win98"** and click the **"OK"** button. Installation will be completed.

* *Change the drive name D: to match the drive name of your CD-ROM drive. For example if your CD-ROM drive is named Q:, you would input "Q:\Win98".*



10. Click "OK" button in the "SETUPINF" dialog box.

Then refer to **Specifying the Output Destination for MIDI Data** (the section that follows), and make settings for the XV-5050 to be used from your computer. The XV-5050 cannot be used unless you make these settings.

NOTE

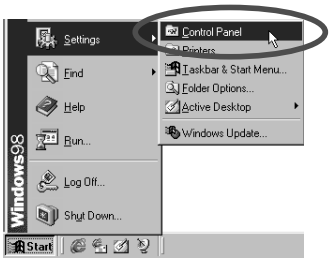
To prevent malfunction and/or damage to speakers or other devices, always turn down the volume, and turn off the power on all devices before making any connections.

Specifying the Output Destination for MIDI Data

Here you can make settings for using the USB MIDI driver with applications such as the **"Media Player"** that is included with Windows.

Windows 98 users

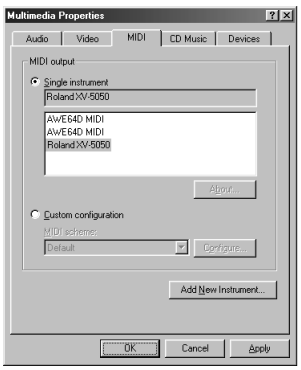
1. **Click the Windows [Start] button, select [Settings] from the menu that appears, and select [Control Panel].**



2. **In the Control Panel, double-click the [Multimedia] icon.**

3. **In Multimedia Properties, click the [MIDI] tab.**

   In the **"MIDI Output"** field select **[Roland XV-5050]**.

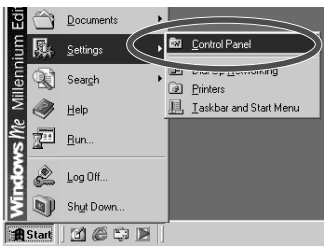


4. **Click [OK].**

5. **Start up Windows Media Player or Media Player, select a MIDI file, and play back.**

Windows Me users

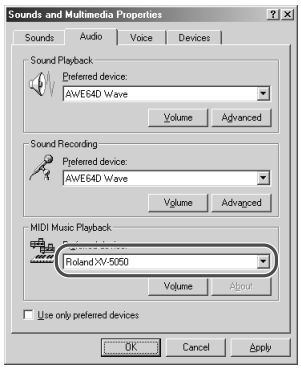
1. **Click the Windows [Start] button, select [Settings] from the menu that appears, and select [Control Panel].**



2. **In the Control Panel, double-click the [Sounds and Multimedia] icon.**

3. **In Sounds and Multimedia Properties, click the [Audio] tab.**

   In the **"MIDI Music Playback"** field, select **[Roland XV-5050]**.



4. **Click [OK].**

5. **Start up Windows Media Player or Media Player, select a MIDI file, and play back.**

NOTE

If you are using the XV-5050 with a sequencer, do not disconnect the MIDI cable connected to the XV-5050 while a song is playing back.

MEMO

Windows Media Player is located in **Start** menu -> **Programs**-**Accessories**-**Entertainment**-**Windows Media Player**.

MEMO

Depending on your settings, **"Sounds and Multimedia"** may not appear in the **"Control Panel."** In this case, click **"View all Control Panel options."**

MEMO

Windows Media Player is located in **Start** menu -> **Programs**-**Accessories**-**Entertainment**-**Windows Media Player**.

Windows 2000 Users

Use the following procedure to install the XV-5050 driver.

* *Disconnect the XV-5050 from your computer before starting up Windows.*

* *To install the driver, you must log on to Windows as the* ***Administrator*** *or other user with the privileges of the Administrators group. For more information regarding this, consult your computer system administrator.*

1. With all USB cables disconnected, start up Windows. (except the keyboard and mouse)

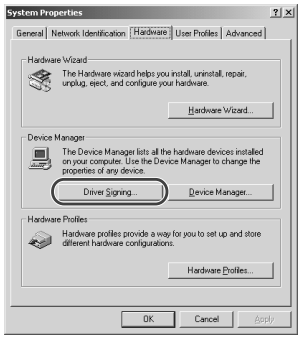
2. Log onto Windows as an Administrator, or other user that is a member of the Administrators group.

3. Exit all applications before performing the installation.

4. Make "Driver Signing" settings.

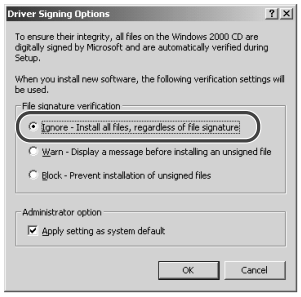
Open the **"Control Panel,"** and double-click **"System."**

Click the **"Hardware"** tab, and then click the **"Driver Signing"** button. The **"Driver Signing Options"** dialog box appears.



5. Make sure that "File signature verification" is set to "Ignore."

If it is set to **"Ignore,"** click **"OK."** If not, make a note of the current setting; then change it to **"Ignore"** and click the **"OK"** button.



6. Click the "OK" button to close "System Properties."

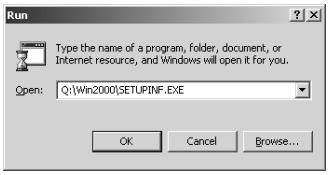
7. Insert the XV-5050 Driver CD-ROM into the CD-ROM drive.

8. From the Windows Start menu, select "Run."

NOTE

If the XV-5050 is already connected to your computer and a message of **"Found New Hardware Wizard"** is displayed, go to the **XV-5050 Driver CD-ROM** folder named **Win2000**, open the file **README_E.HTM**, and read the **"Troubleshooting"** section entitled **"You attempted to install using the above procedure, but were not able to."**

9. **In the "Open" field of the dialog box that appears, enter "D:\Win2000\Setupinf.exe" and click [OK].**



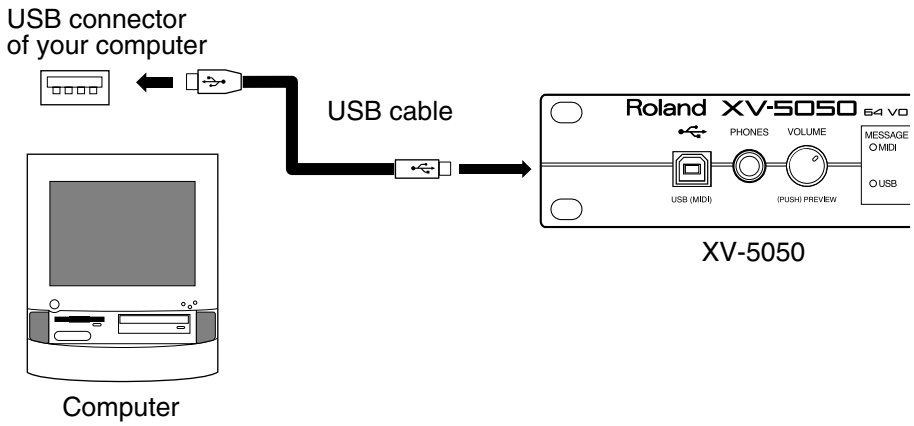
NOTE
The **"Win2000\Setupinf.exe"** file cannot be used on Windows 98/Me.

* *Enter the drive name D: appropriate for the drive name of your CD-ROM drive.*

10. **The SETUPINF dialog box appear, and the display indicates "Ready to install the driver.-"**

* *Don't click "OK" here.*

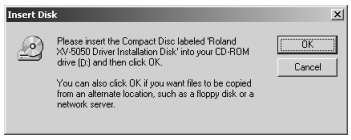
11. **Use the USB cable to connect the XV-5050 and your computer.**



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.

12. **The "Insert Disk" dialog box appears.**

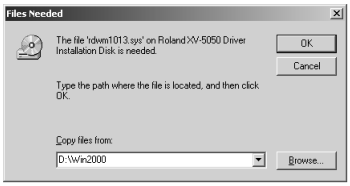
Click the **"OK"** button.



13. **The "Files Needed" dialog box appears.**

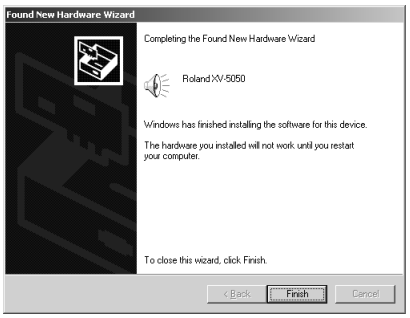
In the **"Copy files from"** area, input **"D:\Win2000"** and click the **"OK"** button. Installation will be completed.

* *Change the drive name D: to match the drive name of your CD-ROM drive. For example if your CD-ROM drive is named Q:, you would input "Q:\Win2000".*



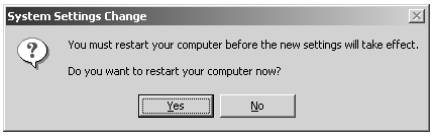
14. The "Found New Hardware Wizard" will appear.

Make sure that **"Roland XV-5050"** is displayed, and click the **"Finish"** button.



15. The "System Settings Change" dialog box will appear.

Click the **"Yes"** button and restart Windows.



16. If you changed the setting for "Verify file signature" in step 5, set it back to the previous setting.

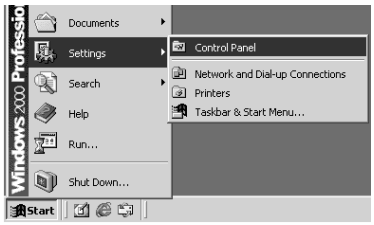
(To restore the setting, the Administrator or user belonging to the Administrators group must log on to Windows.)

Then refer to **"Specifying the Output Destination for MIDI Data"** (the section that follows), and make settings for the XV-5050 to be used from your computer. The XV-5050 cannot be used unless you make these settings.

Specifying the Output Destination for MIDI Data

Here you can make settings for using the XV-5050 driver with applications such as the **"Media Player"** that is included with Windows.

1. Click the Windows [Start] button, select [Settings] from the menu that appears, and select [Control Panel].

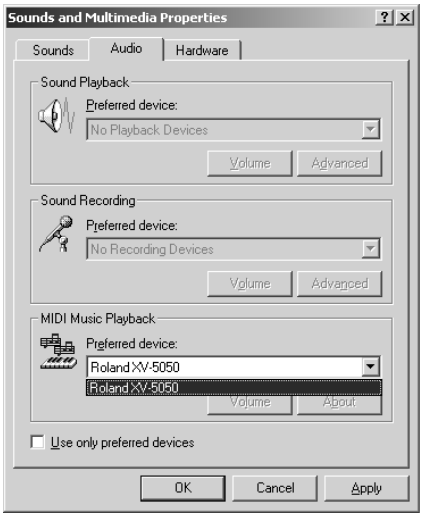


2. In the Control Panel, double-click the [Sounds and Multimedia] icon.

3. Click the "Audio" tab, and in "MIDI Music Playback," select "Roland XV-5050."

4. Click [OK].

5. Start up Windows Media Player or Media Player, select a MIDI file, and play back.



NOTE

If you are using the XV-5050 with a sequencer, do not disconnect the MIDI cable connected to the XV-5050 while a song is playing back.

MEMO

Windows Media Player is located in **Start** menu -> **Programs**-**Accessories**-**Entertainment**-**Windows Media Player**.

Deleting the USB MIDI Driver

If you were not able to install the XV-5050 driver according to the procedure, or if you are unable to use the XV-5050 even after installing the driver, you must delete the driver.

After deleting the driver, use the procedure described in **"Installing & Setup the Driver"** (p. 124) to re-install the driver.

For details on how to delete the driver, refer to the explanation provided in the on-line manual within the XV-5050 Driver CD-ROM.

Windows 98 / Me users

In the XV-5050 Driver CD-ROM folder Win98, open the README_E.HTM file and read "To uninstall."

Windows 2000 users

In the XV-5050 Driver CD-ROM folder Win2000, open the README_E.HTM file and read "To uninstall."

Using OMS on the Macintosh

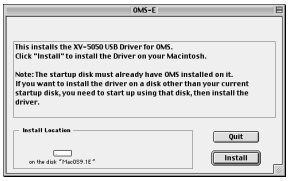
Installing the XV-5050 Driver

Use the following procedure to install the XV-5050 driver.

* *Disconnect the XV-5050 from your Macintosh before installing the driver.*
* *Exit all applications before you begin installing the driver.*
* *The **XV-5050 OMS Driver** included on the disc is provided as an additional module that allows the XV-5050 to be used with OMS. In order to use it, OMS must already be installed on the start-up hard disk.*

1. In the "XV Driver E" folder of the CD-ROM, double-click the "OMS-E" icon.

2. Make sure that OMS is already installed in the location where the driver will be installed, and click [Install].

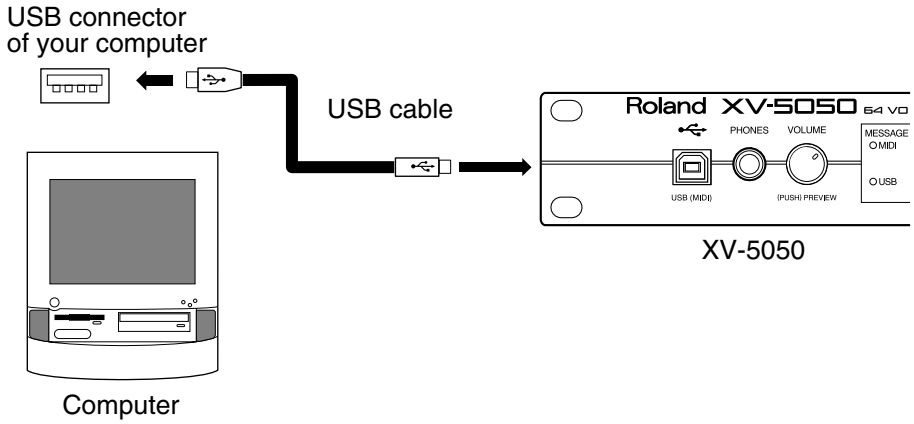


3. If the following message appears, click [Continue] and all other currently-running applications will be exited, and installation will continue.

4. When installation is completed, the following dialog box appears. Click [Restart] to restart your Macintosh.

OMS settings

1. Use the USB cable to connect the XV-5050 and your Macintosh.



2. Double-click the "OMS Setup" icon.

MEMO
You can download OMS from the Web site of Opcode System, Inc.

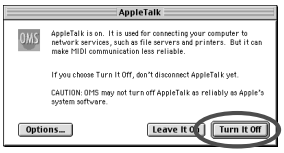
MEMO
About detailed information for OMS, refer to the Owner's Manual of OMS.

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.

NOTE
If you are using the XV-5050 with a sequencer, do not disconnect the MIDI cable connected to the XV-5050 while a song is playing back.

3. If the "Apple Talk" dialog box appears, click [Turn It Off].

Then, in the dialog box that appears next, click **[OK]**.

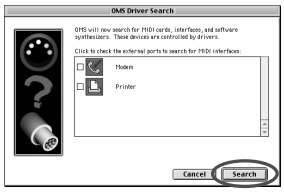


4. The "Create a New Studio setup" dialog box appears.

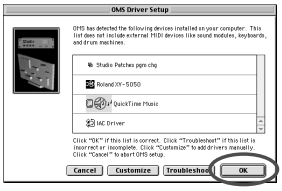
Click **[OK]**.

5. The "OMS Driver Search" dialog box appears.

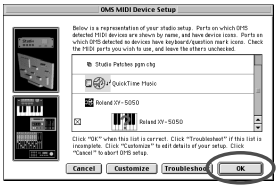
Click **[Search]**.



6. After the search has been completed, make sure that "Roland XV-5050" is listed in the "OMS Driver Setup" dialog box, and click [OK].



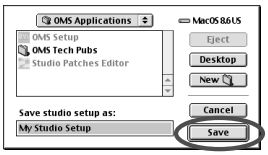
7. After making sure that the XV-5050 is listed in the "OMS MIDI Device Setup" dialog box, click the check box for XV-5050, and click [OK].



8. Change the name of the keyboard icon to "Port 1" or any other names except "XV-5050."

9. The "Save" dialog box appears.

Input the desired file name, and click **[Save]**.



10. Select [Test Studio] in the [Studio Menu] and check it in order to verify whether sound is produced.

11. In the "My Studio Setup Window," click the keyboard icon.

When you move the mouse pointer near the keyboard icon, the pointer will change to the shape of an eighth note. Verify that you can hear sound from your XV-5050.

12. After you have finished the above check, exit OMS Setup.

This completes driver settings.

MEMO

If the **"Create a New Studio setup"** dialog box does not appear, click **[New Studio setup]** in the **[File]** menu.

NOTE

The following step will cause a relatively loud sound to be produced by the XV-5050, so turn down the volume of your XV-5050 before continuing.

Using FreeMIDI on the Macintosh

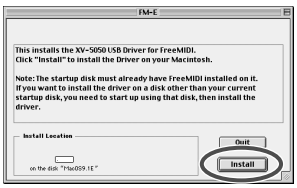
Installing the XV-5050 Driver

Use the following procedure to install the XV-5050 driver.

* *Disconnect the XV-5050 from your Macintosh before installing the driver.*
* *Exit all applications before you begin installing the driver.*
* *The **XV-5050 FreeMIDI Driver** included on the disc is provided as an additional module that allows the XV-5050 to be used with FreeMIDI. In order to use it, FreeMIDI must already be installed on the start-up hard disk.*

1. In the "XV-5050 Driver E" folder of the CD-ROM, double-click the "FM-E" icon.

2. Make sure that FreeMIDI is already installed in the location where the driver will be installed, and click [Install].



3. When installation is completed, click [Restart] to restart your Macintosh.

This completes installation of the XV-5050 Driver.

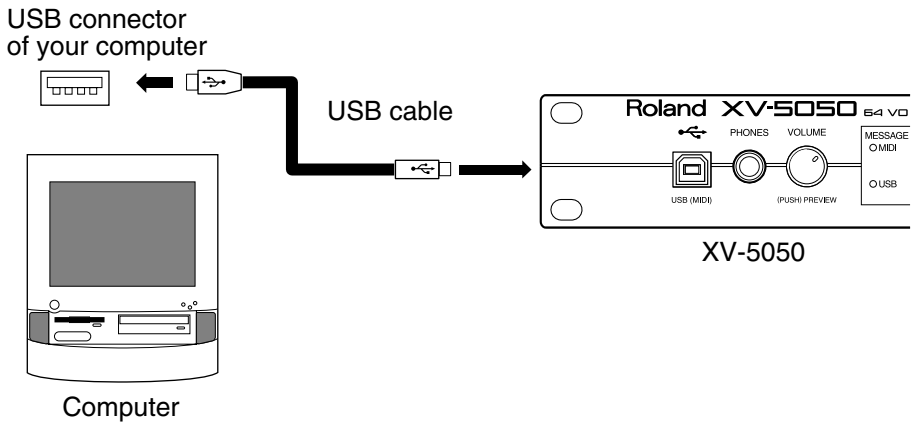
Next you will make FreeMIDI settings.

MEMO
You can download FreeMIDI from the Web site of Mark of the Unicorn, Inc.

MEMO
About detailed information for FreeMIDI, refer to the owner's manual of FreeMIDI.

FreeMIDI settings

1. Use the USB cable to connect the XV-5050 and your Macintosh.

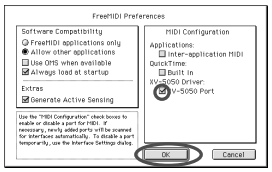


2. Open the "FreeMIDI Applications" folder, and double-click the "FreeMIDI Setup" icon.

3. The first time FreeMIDI is started up, a "Welcome to FreeMIDI!" dialog box will appear. Click [Continue].

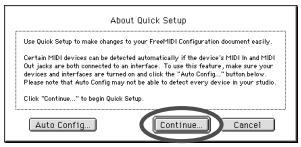
If this is the second or later time, select "FreeMIDI Preferences" from the File menu.

4. In the "FreeMIDI Preferences" dialog box, check "XV-5050 Port" which is located below XV-5050 Driver in MIDI Configuration, and click [OK].

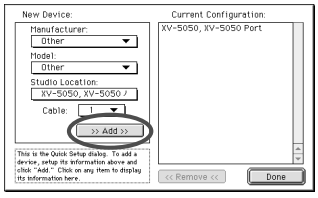


5. The About Quick Setup dialog box appears.

Click **[Continue]**.

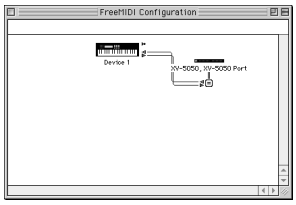


6. In the dialog box that appears, select the "XV-5050" in "Studio Location," and click [>>Add>>].

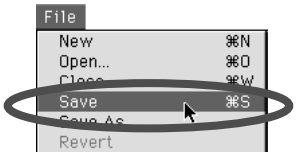


7. When settings are complete, click [Done].

A setting window like the following appears.



8. From the File menu, select [Save], and save your settings.



This completes driver settings.

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.

NOTE
If you are using the XV-5050 with a sequencer, do not disconnect the MIDI cable connected to the XV-5050 while a song is playing back.

MEMO
There will be a version number following **"FreeMIDI Setup"** as the actual icon name.

NOTE
If the dialog box does not show **"XV-5050 Driver,"** check whether the XV-5050 is connected correctly, and start up **FreeMIDI Setup** once again.

NOTE
If the **"About Quick Setup"** dialog box is not displayed, select **"Quick Setup..."** from the **"Configuration"** menu.

NOTE
This is one example of a setting window. The window that appears will depend on your setup.

Troubleshooting

If no sound can be heard, or if the unit does not perform as you expect, check the following points first. If this does not resolve the problem, contact your dealer or a nearby Roland service station.

* *If a message appears during operation, consult the following section* ***Error Messages*** *(p. 137).*

Problem	Cause	Action
No sound	Is the VOLUME lowered?	Check the VOLUME knob, and the volume settings on the connected amp/mixer, etc.
	Have connections been made correctly?	If there is sound in the headphones, it is possible that the connection cables are broken, or that the amp or mixer is malfunctioning. Check the connection cables and other devices once again.
	Is the MIDI receive channel correct?	Make sure that the MIDI transmit channel of the connected device matches the receive channel of the XV-5050 (p. 19).
	Are the Tone, Patch and Part level settings excessively low?	Check the level settings of each Tone, Patch and each Part. (Tone p. 48, Patch p. 40, Part p. 65)
	Are Tones or Parts turned off?	Check the on/off settings of each Tone and each Part. (Tone p. 39, Part p. 63)
	Are the key range settings correct?	Check the key range settings of each Tone and each Part. (Tone p. 41, Part p. 64)
	Has the volume been lowered by volume/expression messages received from an external device?	The volume will return to normal when the power is turned on once again. When a Performance is selected, the reception status for each type of message can be viewed in the [INFO] screen (p. 67).
	Are the effect settings correct?	Check settings such as Effect On/Off (p. 69), and Effect Balance and Level (pp. 75–103).
	Are the output destination settings correct?	Check the Output Assign and MFX Output Assign settings. (p. 74)
	Is MIDI-USB Thru turned on?	Turn the MIDI-USB Thru parameter off, or turn on the MIDI Thru parameter in the connected computer (p. 109).
Pitch is wrong	Is the Master Tune setting correct?	Check the setting. (p. 110)
	Is Scale Tune selected?	Check the setting. (p. 110)
	Are the pitch settings for each Tone and each Part correct?	Check each setting. (Tone p. 45, Part p. 66)
	Have pitch bend messages received from an external device caused the pitch to "stick"?	The pitch will return to normal when the power is turned on. If a Performance is selected, the [INFO] screen (p. 67) allows you to check the reception status of each type of messages.
Effects do not apply	Are MFX, CHORUS, and REVERB turned off?	Hold down [SHIFT] and press [PATCH FINDER] to check each setting. (p. 69)
	Are the various effect settings correct?	If the send levels to each effect are at 0, effects will not apply. Check each setting. (p. 74)
		Even if the send level to each effect is above 0, effects will not apply if the MFX Output Level, Chorus Level, and Reverb Level are set to 0. Check each setting. (p. 74)
		If Output Assign is set to PATCH for each Part of the Performance, the sound will be output according to the Output Assign settings of the Patch (for each Tone) which is assigned to those Parts. This means that if the Output Assign of (each Tone in) the Patch is set to PATCH, the MFX sound will not be output. (p. 40)
MIDI messages are not received correctly	Are the receive channel and receive switch settings correct?	Check the settings for the MIDI receive channel (p. 108) and the various switches for reception of MIDI messages (p. 108).
	Are the exclusive receive settings correct?	In order for system exclusive messages to be received, the Device ID Number must match that of the transmitting device, and the System Exclusive receive switch must be on. (p. 108) Also, if you wish to rewrite data in the USER group, the System Exclusive message Protect Switch must be turned off as well. (p. 105)
	Is the DEMO PLAY screen displayed?	When the DEMOPLAY screen is displayed, MIDI messages received from an external device will be ignored.
Song data does not playback correctly	Are you playing back from the middle of the song?	The beginning of a General MIDI score song contains a GM System On message. In some cases, a General MIDI Score cannot be played back correctly unless this message is received.
	Are you playing back GS format song data?	Since the XV-5050 is a General MIDI system compatible sound source, there may be cases in which GS format song data will not playback correctly.
	Is the Patch mode selected?	When song data is played back in the Patch mode, only the sound of a single Part is played. Change to the Performance mode, then play the song data.

Error Messages

If there has been a mistake in operation, or if the XV-5050 is unable to continue processing as you directed, an error message will appear in the display. Take the appropriate action for the displayed error message.

* *This section gives the error messages in alphabetical order.*

Message	Situation	Action
MIDI Buffer Full	Due to an inordinate volume of MIDI messages received, the XV-5050 has failed to process them properly.	Reduce the amount of MIDI messages to be transmitted.
MIDI Communication Error	It is possible that the power has been turned off for the MIDI device connected to the XV-5050's MIDI IN connector.	Check the power of the connected MIDI device.
	It is possible that a MIDI cable has been pulled out or has a short.	Check the MIDI cable.
Receive Data Error	A MIDI message was received incorrectly.	If the same error message is displayed repeatedly, there is a problem with the MIDI messages that are being transmitted to the XV-5050.
USB Off Line	It is possible that the power has been turned off for the computer connected to the XV-5050's USB connector.	Check the power of the connected computer.
	It is possible that a USB cable has been pulled out or has a short.	Check the USB cable.
User Memory Damaged	The data in user memory has been lost.	Use the Factory Reset function (p. 15) to initialize the memory to the factory settings.
User Memory Write Protected	The Internal parameter (PROTECT; p. 105) is turned ON.	Turn the Internal parameter OFF.
	The Exclusive parameter (PROTECT; p. 105) is turned ON, and Exclusive messages cannot be received.	Turn the Exclusive parameter OFF.

Waveform List

No.	Wave Name
1	StGrand pA L
2	StGrand pA R
3	StGrand pB L
4	StGrand pB R
5	StGrand pC L
6	StGrand pC R
7	StGrand fA L
8	StGrand fA R
9	StGrand fB L
10	StGrand fB R
11	StGrand fC L
12	StGrand fC R
13	Ac Piano2 pA
14	Ac Piano2 pB
15	Ac Piano2 pC
16	Ac Piano2 fA
17	Ac Piano2 fB
18	Ac Piano2 fC
19	Ac Piano1 A
20	Ac Piano1 B
21	Ac Piano1 C
22	Piano Thump
23	Piano Up TH
24	Piano Atk
25	MKS-20 P3 A
26	MKS-20 P3 B
27	MKS-20 P3 C
28	SA Rhodes 1A
29	SA Rhodes 1B
30	SA Rhodes 1C
31	SA Rhodes 2A
32	SA Rhodes 2B
33	SA Rhodes 2C
34	Dyn Rhd mp A
35	Dyn Rhd mp B
36	Dyn Rhd mp C
37	Dyn Rhd mf A
38	Dyn Rhd mf B
39	Dyn Rhd mf C
40	Dyn Rhd ff A
41	Dyn Rhd ff B
42	Dyn Rhd ff C
43	Wurly soft A
44	Wurly soft B
45	Wurly soft C
46	Wurly hard A
47	Wurly hard B
48	Wurly hard C
49	E.Piano 1A
50	E.Piano 1B
51	E.Piano 1C
52	E.Piano 2A
53	E.Piano 2B
54	E.Piano 2C
55	E.Piano 3A
56	E.Piano 3B
57	E.Piano 3C
58	MK-80 EP A
59	MK-80 EP B
60	MK-80 EP C
61	EP Hard
62	EP Distone
63	Clear Keys
64	D-50 EP A
65	D-50 EP B
66	D-50 EP C
67	Celesta
68	Music Box
69	Music Box 2
70	Clav 1A
71	Clav 1B
72	Clav 1C
73	Clav 2A
74	Clav 2B
75	Clav 2C
76	Clav 3A
77	Clav 3B
78	Clav 3C
79	Clav 4A
80	Clav 4B
81	Clav 4C
82	Clav Wave
83	MIDI Clav
84	HarpsiWave A
85	HarpsiWave B
86	HarpsiWave C
87	Jazz Organ 1
88	Jazz Organ 2
89	Organ 1
90	Organ 2
91	Organ 3
92	Organ 4
93	60's Organ1
94	60's Organ2
95	60's Organ3
96	60's Organ4
97	Full Organ
98	Full Draw
99	Rock Organ
100	RockOrg1 A L
101	RockOrg1 A R
102	RockOrg1 B L
103	RockOrg1 B R
104	RockOrg1 C L
105	RockOrg1 C R
106	RockOrg2 A L
107	RockOrg2 A R
108	RockOrg2 B L
109	RockOrg2 B R
110	RockOrg2 C L
111	RockOrg2 C R
112	RockOrg3 A L
113	RockOrg3 A R
114	RockOrg3 B L
115	RockOrg3 B R
116	RockOrg3 C L
117	RockOrg3 C R
118	Dist. Organ
119	Rot.Org Slw
120	Rot.Org Fst
121	Pipe Organ
122	Soft Nylon A
123	Soft Nylon B
124	Soft Nylon C
125	Nylon Gtr A
126	Nylon Gtr B
127	Nylon Gtr C
128	Nylon Str
129	6-Str Gtr A
130	6-Str Gtr B
131	6-Str Gtr C
132	StlGtr mp A
133	StlGtr mp B
134	StlGtr mp C
135	StlGtr mf A
136	StlGtr mf B
137	StlGtr mf C
138	StlGtr ff A
139	StlGtr ff B
140	StlGtr ff C
141	StlGtr sld A
142	StlGtr sld B
143	StlGtr sld C
144	StlGtr Hrm A
145	StlGtr Hrm B
146	StlGtr Hrm C
147	Gtr Harm A
148	Gtr Harm B
149	Gtr Harm C
150	Jazz Gtr A
151	Jazz Gtr B
152	Jazz Gtr C
153	LP Rear A
154	LP Rear B
155	LP Rear C
156	Rock lead 1
157	Rock lead 2
158	Comp Gtr A
159	Comp Gtr B
160	Comp Gtr C
161	Comp Gtr A+
162	Mute Gtr 1
163	Mute Gtr 2A
164	Mute Gtr 2B
165	Mute Gtr 2C
166	Muters
167	Pop Strat A
168	Pop Strat B
169	Pop Strat C
170	JC Strat A
171	JC Strat B
172	JC Strat C
173	JC Strat A+
174	JC Strat B+
175	JC Strat C+
176	Clean Gtr A
177	Clean Gtr B
178	Clean Gtr C
179	Stratus A
180	Stratus B
181	Stratus C
182	Scrape Gut
183	Strat Sust
184	Strat Atk
185	OD Gtr A
186	OD Gtr B
187	OD Gtr C
188	OD Gtr A+
189	Heavy Gtr A
190	Heavy Gtr B
191	Heavy Gtr C
192	Heavy Gtr A+
193	Heavy Gtr B+
194	Heavy Gtr C+
195	PowerChord A
196	PowerChord B
197	PowerChord C
198	EG Harm
199	Gt.FretNoise
200	Syn Gtr A
201	Syn Gtr B
202	Syn Gtr C
203	Harp 1A
204	Harp 1B
205	Harp 1C
206	Harp Harm
207	Pluck Harp
208	Banjo A
209	Banjo B
210	Banjo C
211	Sitar A
212	Sitar B
213	Sitar C
214	E.Sitar A
215	E.Sitar B
216	E.Sitar C
217	Santur A
218	Santur B
219	Santur C
220	Dulcimer A
221	Dulcimer B
222	Dulcimer C
223	Shamisen A
224	Shamisen B
225	Shamisen C
226	Koto A
227	Koto B
228	Koto C
229	Taishokoto A
230	Taishokoto B
231	Taishokoto C
232	Pick Bass A
233	Pick Bass B
234	Pick Bass C
235	Fingerd Bs A
236	Fingerd Bs B
237	Fingerd Bs C
238	E.Bass
239	P.Bass 1
240	P.Bass 2
241	Stick
242	Fretless A
243	Fretless B
244	Fretless C
245	Fretless 2A
246	Fretless 2B
247	Fretless 2C
248	UprightBs 1
249	UprightBs 2A
250	UprightBs 2B
251	UprightBs 2C
252	Ac.Bass A
253	Ac.Bass B
254	Ac.Bass C
255	Slap Bass 1
256	Slap & Pop
257	Slap Bass 2
258	Slap Bass 3
259	Jz.Bs Thumb
260	Jz.Bs Slap 1
261	Jz.Bs Slap 2
262	Jz.Bs Slap 3
263	Jz.Bs Pop
264	Funk Bass1
265	Funk Bass2
266	Syn Bass A
267	Syn Bass C
268	Syn Bass
269	Syn Bass 2 A
270	Syn Bass 2 B
271	Syn Bass 2 C
272	Mini Bs 1A
273	Mini Bs 1B
274	Mini Bs 1C
275	Mini Bs 2
276	Mini Bs 2+
277	MC-202 Bs A
278	MC-202 Bs B
279	MC-202 Bs C
280	Hollow Bs
281	Flute 1A
282	Flute 1B
283	Flute 1C
284	Jazz Flute A
285	Jazz Flute B
286	Jazz Flute C
287	Flute Tone
288	Piccolo A
289	Piccolo B
290	Piccolo C
291	Blow Pipe
292	Pan Pipe
293	BottleBlow
294	Rad Hose
295	Shakuhachi
296	Shaku Atk
297	Flute Push
298	Clarinet A
299	Clarinet B
300	Clarinet C
301	Oboe mf A
302	Oboe mf B
303	Oboe mf C
304	Oboe f A
305	Oboe f B
306	Oboe f C
307	E.Horn A
308	E.Horn B
309	E.Horn C
310	Bassoon A
311	Bassoon B
312	Bassoon C
313	T_Recorder A
314	T_Recorder B
315	T_Recorder C
316	Sop.Sax A
317	Sop.Sax B
318	Sop.Sax C
319	Sop.Sax mf A
320	Sop.Sax mf B
321	Sop.Sax mf C
322	Alto mp A
323	Alto mp B
324	Alto mp C
325	Alto Sax 1A
326	Alto Sax 1B
327	Alto Sax 1C
328	T.Breathy A
329	T.Breathy B
330	T.Breathy C
331	SoloSax A
332	SoloSax B
333	SoloSax C
334	Tenor Sax A
335	Tenor Sax B
336	Tenor Sax C
337	T.Sax mf A
338	T.Sax mf B
339	T.Sax mf C
340	Bari.Sax f A
341	Bari.Sax f B
342	Bari.Sax f C
343	Bari.Sax A
344	Bari.Sax B
345	Bari.Sax C
346	Syn Sax
347	Chanter
348	Harmonica A
349	Harmonica B
350	Harmonica C
351	OrcUnisonA L
352	OrcUnisonA R
353	OrcUnisonB L
354	OrcUnisonB R
355	OrcUnisonC L
356	OrcUnisonC R
357	BrassSectA L
358	BrassSectA R
359	BrassSectB L
360	BrassSectB R
361	BrassSectC L
362	BrassSectC R
363	Tpt Sect. A
364	Tpt Sect. B
365	Tpt Sect. C
366	Tb Sect A
367	Tb Sect B
368	Tb Sect C
369	T.Sax Sect A
370	T.Sax Sect B
371	T.Sax Sect C
372	Flugel A
373	Flugel B
374	Flugel C
375	FlugelWave

No.	Wave Name	No.	Wave Name	No.	Wave Name	No.	Wave Name	No.	Wave Name
376	Trumpet 1A	451	Voice Aahs B	526	MMM VOX	601	TVF_Trig	676	Rock SN f R
377	Trumpet 1B	452	Voice Aahs C	527	Lead Wave	602	Org Click	677	Rock Rim p L
378	Trumpet 1C	453	Voice Oohs1A	528	Synth Reed	603	Cut Noiz	678	Rock Rim p R
379	Trumpet 2A	454	Voice Oohs1B	529	Synth Saw 1	604	Bass Body	679	Rock Rim mfL
380	Trumpet 2B	455	Voice Oohs1C	530	Synth Saw 2	605	Flute Click	680	Rock Rim mfR
381	Trumpet 2C	456	Voice Oohs2A	531	Syn Saw 2inv	606	Gt&BsNz MENU	681	Rock Rim f L
382	HarmonMute1A	457	Voice Oohs2B	532	Synth Saw 3	607	Ac.BassNz 1	682	Rock Rim f R
383	HarmonMute1B	458	Voice Oohs2C	533	JD Syn Saw 2	608	Ac.BassNz 2	683	Rock Gst L
384	HarmonMute1C	459	Choir 1A	534	FAT Saw	609	El.BassNz 1	684	Rock Gst R
385	Trombone 1	460	Choir 1B	535	JP-8 Saw A	610	El.BassNz 2	685	Snare Ghost
386	Trombone 2 A	461	Choir 1C	536	JP-8 Saw B	611	DistGtrNz 1	686	Jazz SN p L
387	Trombone 2 B	462	Oohs Chord L	537	JP-8 Saw C	612	DistGtrNz 2	687	Jazz SN p R
388	Trombone 2 C	463	Oohs Chord R	538	P5 Saw A	613	DistGtrNz 3	688	Jazz SN mf L
389	Tuba A	464	Male Ooh A	539	P5 Saw B	614	DistGtrNz 4	689	Jazz SN mf R
390	Tuba B	465	Male Ooh B	540	P5 Saw C	615	SteelGtrNz 1	690	Jazz SN f L
391	Tuba C	466	Male Ooh C	541	P5 Saw2 A	616	SteelGtrNz 2	691	Jazz SN f R
392	French 1A	467	Org Vox A	542	P5 Saw2 B	617	SteelGtrNz 3	692	Jazz SN ff L
393	French 1C	468	Org Vox B	543	P5 Saw2 C	618	SteelGtrNz 4	693	Jazz SN ff R
394	F.Horns A	469	Org Vox C	544	D-50 Saw A	619	SteelGtrNz 5	694	Jazz Rim p L
395	F.Horns B	470	Org Vox	545	D-50 Saw B	620	SteelGtrNz 6	695	Jazz Rim p R
396	F.Horns C	471	ZZZ Vox	546	D-50 Saw C	621	SteelGtrNz 7	696	Jazz Rim mfL
397	Violin A	472	Bell VOX	547	Synth Square	622	Sea	697	Jazz Rim mfR
398	Violin B	473	Kalimba	548	JP-8 SquareA	623	Thunder	698	Jazz Rim f L
399	Violin C	474	JD Kalimba	549	JP-8 SquareB	624	Windy	699	Jazz Rim f R
400	Violin 2 A	475	Klmba Atk	550	JP-8 SquareC	625	Stream	700	Jazz Rim ffL
401	Violin 2 B	476	Wood Crak	551	DualSquare A	626	Bubble	701	Jazz Rim ffR
402	Violin 2 C	477	Block	552	DualSquare C	627	Bird	702	Brush Slap
403	Cello A	478	Gamelan 1	553	DualSquareA+	628	Dog Bark	703	Brush Swish
404	Cello B	479	Gamelan 2	554	JD SynPulse1	629	Horse	704	Jazz Swish p
405	Cello C	480	Gamelan 3	555	JD SynPulse2	630	Telephone 1	705	Jazz Swish f
406	Cello 2 A	481	Log Drum	556	JD SynPulse3	631	Telephone 2	706	909 SN 1
407	Cello 2 B	482	Hooky	557	JD SynPulse4	632	Creak	707	909 SN 2
408	Cello 2 C	483	Tabla	558	Synth Pulse1	633	Door Slam	708	808 SN
409	Cello Wave	484	Marimba Wave	559	Synth Pulse2	634	Engine	709	Rock Roll L
410	Pizz	485	Xylo	560	JD SynPulse5	635	Car Stop	710	Rock Roll R
411	STR Attack A	486	Xylophone	561	Sync Sweep	636	Car Pass	711	Jazz Roll
412	STR Attack B	487	Vibes	562	Triangle	637	Crash	712	Brush Roll
413	STR Attack C	488	Bottle Hit	563	JD Triangle	638	Gun Shot	713	Dry Stick
414	DolceStr.A L	489	Glockenspiel	564	Sine	639	Siren	714	Dry Stick 2
415	DolceStr.A R	490	Tubular	565	Metal Wind	640	Train	715	Side Stick
416	DolceStr.B L	491	Steel Drums	566	Wind Agogo	641	Jetplane	716	Woody Stick
417	DolceStr.B R	492	Pole lp	567	Feedbackwave	642	Starship	717	RockStick pL
418	DolceStr.C L	493	Fanta Bell A	568	Spectrum	643	Breath	718	RockStick pR
419	DolceStr.C R	494	Fanta Bell B	569	CrunchWind	644	Laugh	719	RockStick fL
420	JV Strings L	495	Fanta Bell C	570	ThroatWind	645	Scream	720	RockStick fR
421	JV Strings R	496	FantaBell A+	571	Pitch Wind	646	Punch	721	Dry Kick
422	JV Strings A	497	Org Bell	572	JD Vox Noise	647	Heart	722	Maple Kick
423	JV Strings C	498	AgogoBells	573	Vox Noise	648	Steps	723	Rock Kick p
424	JP Strings1A	499	FingerBell	574	BreathNoise	649	Machine Gun	724	Rock Kick mf
425	JP Strings1B	500	DIGI Bell 1	575	Voice Breath	650	Laser	725	Rock Kick f
426	JP Strings1C	501	DIGI Bell 1+	576	White Noise	651	Thunder 2	726	Jazz Kick p
427	JP Strings2A	502	JD Cowbell	577	Pink Noise	652	AmbientSN pL	727	Jazz Kick mf
428	JP Strings2B	503	Bell Wave	578	Rattles	653	AmbientSN pR	728	Jazz Kick f
429	JP Strings2C	504	Chime	579	Ice Rain	654	AmbientSN fL	729	Jazz Kick
430	PWM	505	Crystal	580	Tin Wave	655	AmbientSN fR	730	Pillow Kick
431	Pulse Mod	506	2.2 Bellwave	581	Anklungs	656	Wet SN p L	731	JazzDry Kick
432	Soft Pad A	507	2.2 Vibwave	582	Wind Chimes	657	Wet SN p R	732	Lite Kick
433	Soft Pad B	508	Digiwave	583	Orch. Hit	658	Wet SN f L	733	Old Kick
434	Soft Pad C	509	DIGI Chime	584	Tekno Hit	659	Wet SN f R	734	Hybrid Kick
435	Fantasynth A	510	JD DIGIChime	585	Back Hit	660	Dry SN p	735	Hybrid Kick2
436	Fantasynth B	511	BrightDigi	586	Philly Hit	661	Dry SN f	736	Verb Kick
437	Fantasynth C	512	Can Wave 1	587	Scratch 1	662	Sharp SN	737	Round Kick
438	D-50 HeavenA	513	Can Wave 2	588	Scratch 2	663	Piccolo SN	738	MplLmtr Kick
439	D-50 HeavenB	514	Vocal Wave	589	Scratch 3	664	Maple SN	739	70s Kick 1
440	D-50 HeavenC	515	Wally Wave	590	Shami	665	Old Fill SN	740	70s Kick 2
441	Fine Wine	516	Brusky lp	591	Org Atk 1	666	70s SN	741	Dance Kick
442	D-50 Brass A	517	Wave Scan	592	Org Atk 2	667	SN Roll	742	808 Kick
443	D-50 Brass B	518	Wire String	593	Sm Metal	668	Natural SN1	743	909 Kick 1
444	D-50 Brass C	519	Nasty	594	StrikePole	669	Natural SN2	744	909 Kick 2
445	D-50 BrassA+	520	Wave Table	595	Thrill	670	Ballad SN	745	Rock TomL1 p
446	Doo	521	Klack Wave	596	Switch	671	Rock SN p L	746	Rock TomL2 p
447	Pop Voice	522	Spark VOX	597	Tuba Slap	672	Rock SN p R	747	Rock Tom M p
448	Syn Vox 1	523	JD Spark VOX	598	Plink	673	Rock SN mf L	748	Rock Tom H p
449	Syn Vox 2	524	Cutters	599	Plunk	674	Rock SN mf R	749	Rock TomL1 f
450	Voice Aahs A	525	EML 5th	600	EP Atk	675	Rock SN f L	750	Rock TomL2 f

Waveform List

No.	Wave Name
751	Rock Tom M f
752	Rock Tom H f
753	Rock Flm L1
754	Rock Flm L2
755	Rock Flm M
756	Rock Flm H
757	Jazz Tom L p
758	Jazz Tom M p
759	Jazz Tom H p
760	Jazz Tom L f
761	Jazz Tom M f
762	Jazz Tom H f
763	Jazz Flm L
764	Jazz Flm M
765	Jazz Flm H
766	Maple Tom 1
767	Maple Tom 2
768	Maple Tom 3
769	Maple Tom 4
770	808 Tom
771	Verb Tom Hi
772	Verb Tom Lo
773	Dry Tom Hi
774	Dry Tom Lo
775	Rock ClHH1 p
776	Rock ClHH1mf
777	Rock ClHH1 f
778	Rock ClHH2 p
779	Rock ClHH2mf
780	Rock ClHH2 f
781	Jazz ClHH1 p
782	Jazz ClHH1mf
783	Jazz ClHH1 f
784	Jazz ClHH2 p
785	Jazz ClHH2mf
786	Jazz ClHH2 f
787	Cl HiHat 1
788	Cl HiHat 2
789	Cl HiHat 3
790	Cl HiHat 4
791	Cl HiHat 5
792	Rock OpHH p
793	Rock OpHH f
794	Jazz OpHH p
795	Jazz OpHH mf
796	Jazz OpHH f
797	Op HiHat
798	Op HiHat 2
799	Rock PdHH p
800	Rock PdHH f
801	Jazz PdHH p
802	Jazz PdHH f
803	Pedal HiHat
804	Pedal HiHat2
805	Dance Cl HH
806	909 NZ HiHat
807	70s Cl HiHat
808	70s Op HiHat
809	606 Cl HiHat
810	606 Op HiHat
811	909 Cl HiHat
812	909 Op HiHat
813	808 Claps
814	HumanClapsEQ
815	Tight Claps
816	Hand Claps
817	Finger Snaps
818	Rock RdCym1p
819	Rock RdCym1f
820	Rock RdCym2p
821	Rock RdCym2f
822	Jazz RdCym p
823	Jazz RdCymmf
824	Jazz RdCym f
825	Ride 1
826	Ride 2
827	Ride Bell
828	Rock CrCym1p
829	Rock CrCym1f
830	Rock CrCym2p
831	Rock CrCym2f
832	Rock Splash
833	Jazz CrCym p
834	Jazz CrCym f
835	Crash Cymbal
836	Crash 1
837	Rock China
838	China Cym
839	Cowbell
840	Wood Block
841	Claves
842	Bongo Hi
843	Bongo Lo
844	Cga Open Hi
845	Cga Open Lo
846	Cga Mute Hi
847	Cga Mute Lo
848	Cga Slap
849	Timbale
850	Cabasa Up
851	Cabasa Down
852	Cabasa Cut
853	Maracas
854	Long Guiro
855	Tambourine 1
856	Tambourine 2
857	Open Triangl
858	Cuica
859	Vibraslap
860	Timpani
861	Timp3 pp
862	Timp3 mp
863	Applause
864	Syn FX Loop
865	Loop 1
866	Loop 2
867	Loop 3
868	Loop 4
869	Loop 5
870	Loop 6
871	Loop 7
872	R8 Click
873	Metronome 1
874	Metronome 2
875	MC500 Beep 1
876	MC500 Beep 2
877	Low Saw
878	Low Saw inv
879	Low P5 Saw
880	Low Pulse 1
881	Low Pulse 2
882	Low Square
883	Low Sine
884	Low Triangle
885	Low White NZ
886	Low Pink NZ
887	DC
888	REV Orch.Hit
889	REV TeknoHit
890	REV Back Hit
891	REV PhillHit
892	REV Steel DR
893	REV Tin Wave
894	REV AmbiSNpL
895	REV AmbiSNpR
896	REV AmbiSNfL
897	REV AmbiSNfR
898	REV Wet SNpL
899	REV Wet SNpR
900	REV Wet SNfL
901	REV Wet SNfR
902	REV Dry SN
903	REV PiccloSN
904	REV Maple SN
905	REV OldFilSN
906	REV 70s SN
907	REV SN Roll
908	REV NatrlSN1
909	REV NatrlSN2
910	REV BalladSN
911	REV RkSNpL
912	REV RkSNpR
913	REV RkSNmfL
914	REV RkSNmfR
915	REV RkSNfL
916	REV RkSNfR
917	REV RkRimpL
918	REV RkRimpR
919	REV RkRimmfL
920	REV RkRimmfR
921	REV RkRimfL
922	REV RkRimfR
923	REV RkGstL
924	REV RkGstR
925	REV SnareGst
926	REV JzSNpL
927	REV JzSNpR
928	REV JzSNmfL
929	REV JzSNmfR
930	REV JzSNfL
931	REV JzSNfR
932	REV JzSNffL
933	REV JzSNffR
934	REV JzRimpL
935	REV JzRimpR
936	REV JzRimmfL
937	REV JzRimmfR
938	REV JzRimfL
939	REV JzRimfR
940	REV JzRimffL
941	REV JzRimffR
942	REV Brush 1
943	REV Brush 2
944	REV Brush 3
945	REV JzSwish1
946	REV JzSwish2
947	REV 909 SN 1
948	REV 909 SN 2
949	REV RkRoll L
950	REV RkRoll R
951	REV JzRoll
952	REV Dry Stk
953	REV DrySick
954	REV Side Stk
955	REV Wdy Stk
956	REV RkStk1L
957	REV RkStk1R
958	REV RkStk2L
959	REV RkStk2R
960	REV Thrill
961	REV Dry Kick
962	REV Mpl Kick
963	REV RkKik p
964	REV RkKik mf
965	REV RkKik f
966	REV JzKik p
967	REV JzKik mf
968	REV JzKik f
969	REV Jaz Kick
970	REV Pillow K
971	REV Jz Dry K
972	REV LiteKick
973	REV Old Kick
974	REV Hybrid K
975	REV HybridK2
976	REV 70s K 1
977	REV 70s K 2
978	REV Dance K
979	REV 909 K 2
980	REV RkTomL1p
981	REV RkTomL2p
982	REV RkTomM p
983	REV RkTomH p
984	REV RkTomL1f
985	REV RkTomL2f
986	REV RkTomM f
987	REV RkTomH f
988	REV RkFlmL1
989	REV RkFlmL2
990	REV RkFlm M
991	REV RkFlm H
992	REV JzTomL p
993	REV JzTomM p
994	REV JzTomH p
995	REV JzTomL f
996	REV JzTomM f
997	REV JzTomH f
998	REV JzFlm L
999	REV JzFlm M
1000	REV JzFlm H
1001	REV MplTom2
1002	REV MplTom4
1003	REV 808Tom
1004	REV VerbTomH
1005	REV VerbTomL
1006	REV DryTom H
1007	REV DryTom M
1008	REV RkClH1 p
1009	REV RkClH1mf
1010	REV RkClH1 f
1011	REV RkClH2 p
1012	REV RkClH2mf
1013	REV RkClH2 f
1014	REV JzClH1 p
1015	REV JzClH1mf
1016	REV JzClH1 f
1017	REV JzClH2 p
1018	REV JzClH2mf
1019	REV JzClH2 f
1020	REV Cl HH 1
1021	REV Cl HH 2
1022	REV Cl HH 3
1023	REV Cl HH 4
1024	REV Cl HH 5
1025	REV RkOpHH p
1026	REV RkOpHH f
1027	REV JzOpHH p
1028	REV JzOpHHmf
1029	REV JzOpHH f
1030	REV Op HiHat
1031	REV OpHiHat2
1032	REV RkPdHH p
1033	REV RkPdHH f
1034	REV JzPdHH p
1035	REV JzPdHH f
1036	REV PedalHH
1037	REV PedalHH2
1038	REV Dance HH
1039	REV 70s ClHH
1040	REV 70s OpHH
1041	REV 606 ClHH
1042	REV 606 OpHH
1043	REV 909 NZHH
1044	REV 909 OpHH
1045	REV HClapsEQ
1046	REV TghtClps
1047	REV FingSnap
1048	REV RealCLP
1049	REV RkRCym1p
1050	REV RkRCym1f
1051	REV RkRCym2p
1052	REV RkRCym2f
1053	REV JzRCym p
1054	REV JzRCymmf
1055	REV JzRCym f
1056	REV Ride 1
1057	REV Ride 2
1058	REV RideBell
1059	REV RkCCym1p
1060	REV RkCCym1f
1061	REV RkCCym2p
1062	REV RkCCym2f
1063	REV RkSplash
1064	REV JzCCym p
1065	REV JzCCym f
1066	REV CrashCym
1067	REV Crash 1
1068	REV RkChina
1069	REV China
1070	REV Cowbell
1071	REV WoodBlck
1072	REV Claves
1073	REV Conga
1074	REV Timbale
1075	REV Maracas
1076	REV Guiro
1077	REV Tamb 1
1078	REV Tamb 2
1079	REV Cuica
1080	REV Timpani
1081	REV Timp3 pp
1082	REV Timp3 mp
1083	REV Metro

Patch List

US (User Group)

No.	Name	Voice	Key Assign	No.	Name	Voice	Key Assign
001	Rhodes Trem	2	POLY	065	COSM Searing	3	MONO
002	Hydrogen	4	POLY	066	XV Upright	1	POLY
003	Groovedigger	4	POLY	067	Muscle Bass	2	MONO
004	Miasma	1	POLY	068	Brassy Symph	4	POLY
005	Thick Steel	4	POLY	069	BiggieBrass2	5	POLY
006	Hold A Chord	6	POLY	070	Peking Opera	7	POLY
007	Aftertouchin	4	POLY	071	5th Element	4	POLY
008	Talking Box	3	MONO	072	MetaXV	8	POLY
009	GenerationXV	4	POLY	073	Traffic Pad	4	POLY
010	Ionizer	4	POLY	074	5ths in 4ths	4	POLY
011	Piano+AirPad	5	POLY	075	Trance Fair	8	MONO
012	Wurly Gum	2	POLY	076	Spectre	4	POLY
013	Voxfuzz Klav	4	POLY	077	Borealis	4	POLY
014	Soaring Hrns	6	POLY	078	Cutting X	4	MONO
015	Ambi Voices	8	POLY	079	Blues Harp	2	POLY
016	Solo SoprSax	1	MONO	080	Brash Bass	2	POLY
017	Lunar Strngs	4	POLY	081	Saw Grits	1	MONO
018	BrushingSaw1	8	POLY	082	LegatoJupitr	1	MONO
019	R&Ballad Mix	6	POLY	083	Tape Orch	4	POLY
020	Xtremities	4	MONO	084	FatSynBrass	4	POLY
021	Fat Strings	3	POLY	085	UltraSmooth	2	POLY
022	Throbulax	2	POLY	086	Spread Pad	2	POLY
023	GlobalWarmup	4	POLY	087	West End Bs	5	MONO
024	Vortex	4	POLY	088	Phunky DC	2	MONO
025	Sub Zero	4	MONO	089	Valve Job	4	POLY
026	Rhythm Sync	1	POLY	090	BatonStrings	3	POLY
027	OvertoneScan	4	POLY	091	ClassicJPpad	2	POLY
028	20.000 miles	5	MONO	092	VeloClikOrgn	2	POLY
029	Chordbender	4	POLY	093	Soft Nylon	4	POLY
030	Atlantis	5	POLY	094	Swell Strat	1	POLY
031	Buster Bass	2	MONO	095	Tap Bass	1	POLY
032	Two+Ensemble	5	POLY	096	Ticker Bass	4	MONO
033	Enchanted XV	3	MONO	097	VoyagerBrass	3	POLY
034	Double Helix	4	POLY	098	Swingin'Bari	3	POLY
035	Blue Mutes	2	POLY	099	Bend a Chord	4	POLY
036	Wedding Mass	5	POLY	100	Flyin' High	3	MONO
037	Grounded Bs	2	MONO	101	Try this!	2	MONO
038	Vocovox Wave	1	MONO	102	Tekno Pizz	1	POLY
039	Lead 4x Vlns	4	POLY	103	Complex Echo	1	POLY
040	PhazeWahClav	6	POLY	104	BadJuju	7	POLY
041	Digibell Pad	4	POLY	105	Silk Road	4	POLY
042	Rocker Org	6	POLY	106	2.2 Strings	5	POLY
043	Pianomonics	4	POLY	107	Brite Vox 1	4	POLY
044	Plug n' Play	2	POLY	108	MinorIncidnt	4	MONO
045	Crying Solo	2	POLY	109	SparklePiano	6	POLY
046	Grand XV	4	POLY	110	Fat Rhodes	3	POLY
047	LookMaNoFret	3	MONO	111	Verby Organ	2	POLY
048	TB Squelch	2	POLY	112	Prelude	4	POLY
049	Henry VIII	8	POLY	113	BoutiqueSine	1	POLY
050	Reel Slam	4	POLY	114	Froggy Bass	1	MONO
051	SwellEnsembl	4	POLY	115	Digisquelch	4	POLY
052	Amped Wurlie	3	POLY	116	Galactic	8	POLY
053	NewR&RBrass	8	POLY	117	Generator	4	MONO
054	Triumph Brs	3	POLY	118	Funky Tube	1	POLY
055	McThrob	2	POLY	119	Dream 2002	3	POLY
056	Soaring Sqr	4	MONO	120	11th Space	7	POLY
057	Over the top	2	MONO	121	Etheraaahl	2	POLY
058	Power Stack	3	POLY	122	Tape Q	4	POLY
059	Contemplate	2	POLY	123	EastrnEurope	3	POLY
060	Rholitzer	3	POLY	124	TempoMadness	4	POLY
061	Chime Bells	4	POLY	125	Phaser Dyno	3	POLY
062	IslandSpirit	3	POLY	126	8VCO MonoSyn	8	MONO
063	Distorted B	1	POLY	127	TechnoSurf 1	2	POLY
064	Double Steel	8	POLY	128	Cold Roadz	4	POLY

PA (Preset A Group)

No.	Name	Voice	Key Assign	No.	Name	Voice	Key Assign
001	64voicePiano	1	POLY	065	Dual Profs	3	POLY
002	Bright Piano	1	POLY	066	Saw Mass	4	POLY
003	Classique	2	POLY	067	Poly Split	4	POLY
004	Nice Piano	3	POLY	068	Poly Brass	3	POLY
005	Piano Thang	3	POLY	069	Stackoid	4	POLY
006	Power Grand	3	POLY	070	Poly Rock	4	POLY
007	House Piano	2	POLY	071	D-50 Stack	4	POLY
008	E.Grand	1	POLY	072	Fantasia JV	4	POLY
009	MIDIed Grand	3	POLY	073	Jimmee Dee	4	POLY
010	Piano Blend	3	POLY	074	Heavenals	4	POLY
011	West Coast	4	POLY	075	Mallet Pad	4	POLY
012	PianoStrings	4	POLY	076	Huff N Stuff	3	POLY
013	Bs/Pno+Brs	4	POLY	077	Puff 1080	2	POLY
014	Waterhodes	2	POLY	078	BellVox 1080	4	POLY
015	S.A.E.P.	3	POLY	079	Fantasy Vox	4	POLY
016	SA Rhodes 1	4	POLY	080	Square Keys	2	POLY
017	SA Rhodes 2	2	POLY	081	Childlike	4	POLY
018	Stiky Rhodes	3	POLY	082	Music Box	3	POLY
019	Dig Rhodes	2	POLY	083	Toy Box	2	POLY
020	Nylon EPiano	4	POLY	084	Wave Bells	4	POLY
021	Nylon Rhodes	4	POLY	085	Tria Bells	4	POLY
022	Rhodes Mix	3	POLY	086	Beauty Bells	4	POLY
023	PsychoRhodes	2	POLY	087	Music Bells	2	POLY
024	Tremo Rhodes	4	POLY	088	Pretty Bells	2	POLY
025	MK-80 Rhodes	1	POLY	089	Pulse Key	3	POLY
026	MK-80 Phaser	1	POLY	090	Wide Tubular	4	POLY
027	Delicate EP	2	POLY	091	AmbienceVibe	4	POLY
028	Octa Rhodes1	4	POLY	092	Warm Vibes	2	POLY
029	Octa Rhodes2	4	POLY	093	Dyna Marimba	1	POLY
030	JV Rhodes+	4	POLY	094	Bass Marimba	4	POLY
031	EP+Mod Pad	4	POLY	095	Nomad Perc	3	POLY
032	Mr.Mellow	4	POLY	096	Ethno Metals	4	POLY
033	Comp Clav	1	POLY	097	Islands Mlt	4	POLY
034	Klavinet	4	POLY	098	Steelin Keys	3	POLY
035	Winger Clav	4	POLY	099	Steel Drums	1	POLY
036	Phaze Clav 1	2	POLY	100	Voicey Pizz	3	POLY
037	Phaze Clav 2	1	POLY	101	Sitar	2	POLY
038	Phuzz Clav	2	POLY	102	Drone Split	4	POLY
039	Chorus Clav	1	POLY	103	Ethnopluck	4	POLY
040	Claviduck	2	POLY	104	Jamisen	2	POLY
041	Velo-Rez Clv	1	POLY	105	Dulcimer	2	POLY
042	Clavicembalo	4	POLY	106	East Melody	2	POLY
043	Analog Clav1	1	POLY	107	MandolinTrem	4	POLY
044	Analog Clav2	1	POLY	108	Nylon Gtr	1	POLY
045	Metal Clav	3	POLY	109	Gtr Strings	3	POLY
046	Full Stops	2	POLY	110	Steel Away	3	POLY
047	Ballad B	3	POLY	111	Heavenly Gtr	4	POLY
048	Mellow Bars	4	POLY	112	12str Gtr 1	2	POLY
049	AugerMentive	3	POLY	113	12str Gtr 2	3	POLY
050	Perky B	2	POLY	114	Jz Gtr Hall	1	POLY
051	The Big Spin	3	POLY	115	LetterFrmPat	4	POLY
052	Gospel Spin	3	POLY	116	Jazz Scat	3	POLY
053	Roller Spin	3	POLY	117	Lounge Gig	3	POLY
054	Rocker Spin	3	POLY	118	JC Strat	1	POLY
055	Tone Wh.Solo	3	POLY	119	Twin Strats	3	POLY
056	Purple Spin	4	POLY	120	JV Strat	2	POLY
057	60's LeadORG	2	POLY	121	Syn Strat	2	POLY
058	Assalt Organ	3	POLY	122	Rotary Gtr	2	POLY
059	D-50 Organ	2	POLY	123	Muted Gtr	1	POLY
060	Cathedral	4	POLY	124	SwitchOnMute	2	POLY
061	Church Pipes	4	POLY	125	Power Trip	2	POLY
062	Poly Key	3	POLY	126	Crunch Split	4	POLY
063	Poly Saws	4	POLY	127	Rezodrive	2	MONO
064	Poly Pulse	4	POLY	128	RockYurSocks	4	MONO

Voice: number of voice

PB (Preset B Group)

No.	Name	Voice	Key Assign	No.	Name	Voice	Key Assign
001	Dist Gtr 1	3	POLY	065	Analog Seq	2	POLY
002	Dist Gtr 2	3	POLY	066	Impact Vox	4	POLY
003	R&R Chunk	4	POLY	067	TeknoSoloVox	2	POLY
004	Phripphuzz	1	MONO	068	X-Mod Man	2	POLY
005	Grungeroni	3	POLY	069	Paz <==> Zap	1	MONO
006	Black Widow	4	POLY	070	4 Hits 4 You	4	POLY
007	Velo-Wah Gtr	1	POLY	071	Impact	4	POLY
008	Mod-Wah Gtr	2	POLY	072	Phase Hit	3	POLY
009	Pick Bass	1	MONO	073	Tekno Hit 1	2	POLY
010	Hip Bass	2	POLY	074	Tekno Hit 2	2	POLY
011	Perc.Bass	3	MONO	075	Tekno Hit 3	4	POLY
012	Homey Bass	2	MONO	076	Reverse Hit	3	POLY
013	Finger Bass	1	MONO	077	SquareLead 1	3	POLY
014	Nylon Bass	2	POLY	078	SquareLead 2	2	POLY
015	Ac.Upright	1	MONO	079	You and Luck	2	MONO
016	Wet Fretls	1	MONO	080	Belly Lead	4	POLY
017	Fretls Dry	2	POLY	081	WhistlinAtom	2	POLY
018	Slap Bass 1	2	POLY	082	Edye Boost	2	MONO
019	Slap Bass 2	1	MONO	083	MG Solo	4	MONO
020	Slap Bass 3	1	MONO	084	FXM Saw Lead	4	MONO
021	Slap Bass 4	2	POLY	085	Sawteeth	3	MONO
022	4 Pole Bass	1	MONO	086	Smoothe	2	MONO
023	Tick Bass	4	MONO	087	MG Lead	2	MONO
024	House Bass	3	MONO	088	MG Interval	4	MONO
025	Mondo Bass	3	MONO	089	Pulse Lead 1	3	POLY
026	Clk AnalogBs	2	MONO	090	Pulse Lead 2	4	MONO
027	Bass In Face	2	POLY	091	Little Devil	4	MONO
028	101 Bass	2	MONO	092	Loud SynLead	4	MONO
029	Noiz Bass	2	MONO	093	Analog Lead	2	MONO
030	Super Jup Bs	2	POLY	094	5th Lead	2	MONO
031	Occitan Bass	3	POLY	095	Flute	2	POLY
032	Hugo Bass	4	MONO	096	Piccolo	1	POLY
033	Multi Bass	2	POLY	097	VOX Flute	4	POLY
034	Moist Bass	2	MONO	098	Air Lead	2	POLY
035	BritelowBass	4	MONO	099	Pan Pipes	2	POLY
036	Untamed Bass	3	MONO	100	Airplaaane	4	POLY
037	Rubber Bass	3	MONO	101	Taj Mahal	1	POLY
038	Stereoww Bs	3	MONO	102	Raya Shaku	3	POLY
039	Wonder Bass	3	MONO	103	Oboe mf	1	POLY
040	Deep Bass	2	POLY	104	Oboe Express	2	POLY
041	Super JX Bs	2	MONO	105	Clarinet mp	1	POLY
042	W<RED>-Bass	4	POLY	106	ClariExpress	2	POLY
043	HI-Ring Bass	3	POLY	107	Mitzva Split	4	POLY
044	Euro Bass	2	MONO	108	ChamberWinds	4	POLY
045	SinusoidRave	1	MONO	109	ChamberWoods	3	POLY
046	Alternative	2	MONO	110	Film Orch	4	POLY
047	Acid Line	1	MONO	111	Sop.Sax mf	2	POLY
048	Auto TB-303	3	MONO	112	Alto Sax	3	POLY
049	Hihat Tekno	2	POLY	113	AltoLead Sax	3	POLY
050	Velo Tekno 1	3	MONO	114	Tenor Sax	3	POLY
051	Raggatronic	4	POLY	115	Baritone Sax	3	POLY
052	Blade Racer	4	POLY	116	Take A Tenor	4	POLY
053	S&H Pad	1	POLY	117	Sax Section	4	POLY
054	Syncrosonix	3	POLY	118	Bigband Sax	4	POLY
055	Fooled Again	1	POLY	119	Harmonica	2	POLY
056	Alive	3	POLY	120	Harmo Blues	2	POLY
057	Velo Tekno 2	2	POLY	121	BluesHarp	1	POLY
058	Rezoid	4	POLY	122	Hillbillys	4	POLY
059	Raverborg	4	POLY	123	French Bags	4	POLY
060	Blow Hit	4	POLY	124	Majestic Tpt	1	MONO
061	Hammer Bell	3	POLY	125	Voluntare	2	POLY
062	Seq Mallet	2	POLY	126	2Trumpets	2	POLY
063	Intentions	3	POLY	127	Tpt Sect	4	POLY
064	Pick It	3	POLY	128	Mute TP mod	4	POLY

PC (Preset C Group)

No.	Name	Voice	Key Assign	No.	Name	Voice	Key Assign
001	Harmon Mute	1	POLY	065	Harmonicum	2	POLY
002	Tp&Sax Sect	4	POLY	066	D-50 Heaven	2	POLY
003	Sax+Tp+Tb	3	POLY	067	Afro Horns	3	POLY
004	Brass Sect	4	POLY	068	Pop Pad	4	POLY
005	Trombone	1	POLY	069	Dreamesque	4	POLY
006	Hybrid Bones	4	POLY	070	Square Pad	4	POLY
007	Noble Horns	4	POLY	071	JP-8 Hollow	4	POLY
008	Massed Horns	3	POLY	072	JP-8Haunting	4	POLY
009	Horn Swell	4	POLY	073	Heirborne	4	POLY
010	Brass It!	4	POLY	074	Hush Pad	4	POLY
011	Brass Attack	3	POLY	075	Jet Pad 1	2	POLY
012	Archimede	3	POLY	076	Jet Pad 2	2	POLY
013	Rugby Horn	3	POLY	077	Phaze Pad	3	POLY
014	MKS-80 Brass	2	POLY	078	Phaze Str	4	POLY
015	True ANALOG	2	POLY	079	Jet Str Ens	2	POLY
016	Dark Vox	2	POLY	080	Pivotal Pad	4	POLY
017	RandomVowels	4	POLY	081	3D Flanged	1	POLY
018	Angels Sing	2	POLY	082	Fantawine	4	POLY
019	Pvox Oooze	3	POLY	083	Glassy Pad	3	POLY
020	Longing...	3	POLY	084	Moving Glass	1	POLY
021	Arasian Morn	4	POLY	085	Glasswaves	3	POLY
022	Beauty Vox	3	POLY	086	Shiny Pad	4	POLY
023	Mary-AnneVox	4	POLY	087	ShiftedGlass	2	POLY
024	Belltree Vox	4	POLY	088	Chime Pad	3	POLY
025	Vox Panner	2	POLY	089	Spin Pad	2	POLY
026	Spaced Voxx	4	POLY	090	Rotary Pad	4	POLY
027	Glass Voices	3	POLY	091	Dawn 2 Dusk	3	POLY
028	Tubular Vox	4	POLY	092	Aurora	4	POLY
029	Velo Voxx	2	POLY	093	Strobe Mode	4	POLY
030	Wavox	3	POLY	094	Albion	2	POLY
031	Doos	1	POLY	095	Running Pad	4	POLY
032	Synvox Comps	4	POLY	096	Stepped Pad	4	POLY
033	Vocal Oohz	3	POLY	097	Random Pad	4	POLY
034	LFO Vox	1	POLY	098	SoundtrkDANC	4	POLY
035	St.Strings	2	POLY	099	Flying Waltz	4	POLY
036	Warm Strings	4	POLY	100	Vanishing	1	POLY
037	Somber Str	4	POLY	101	5th Sweep	4	POLY
038	Marcato	2	POLY	102	Phazweep	4	POLY
039	Bright Str	2	POLY	103	Big BPF	4	POLY
040	String Ens	4	POLY	104	MG Sweep	4	POLY
041	TremoloStrng	2	POLY	105	CeremonyTimp	3	POLY
042	Chambers	3	POLY	106	Dyno Toms	4	POLY
043	ViolinCello	4	POLY	107	Sands ofTime	4	POLY
044	Symphonique	4	POLY	108	Inertia	4	POLY
045	Film Octaves	4	POLY	109	Vektogram	4	POLY
046	Film Layers	4	POLY	110	Crash Pad	4	POLY
047	Bass Pizz	4	POLY	111	Feedback VOX	4	POLY
048	Real Pizz	3	POLY	112	Cascade	1	POLY
049	Harp On It	3	POLY	113	Shattered	2	POLY
050	Harp	2	POLY	114	NextFrontier	2	POLY
051	JP-8 Str 1	2	POLY	115	Pure Tibet	1	POLY
052	JP-8 Str 2	3	POLY	116	Chime Wash	4	POLY
053	E-Motion Pad	4	POLY	117	Night Shade	4	POLY
054	JP-8 Str 3	4	POLY	118	Tortured	4	POLY
055	Vintage Orch	4	POLY	119	Dissimilate	4	POLY
056	JUNO Strings	3	POLY	120	Dunes	4	POLY
057	Gigantalog	4	POLY	121	Ocean Floor	1	POLY
058	PWM Strings	3	POLY	122	Cyber Space	3	POLY
059	Warmth	2	POLY	123	Biosphere	2	POLY
060	ORBit Pad	2	POLY	124	Variable Run	4	POLY
061	Deep Strings	2	POLY	125	Ice Hall	2	POLY
062	Pulsify	4	POLY	126	ComputerRoom	4	POLY
063	Pulse Pad	4	POLY	127	Inverted	4	POLY
064	Greek Power	4	POLY	128	Terminate	3	POLY

Voice: number of voice

PD (Preset D Group)

No.	Name	Voice	Key Assign	No.	Name	Voice	Key Assign
001	Echo Piano	3	POLY	065	Civilization	3	POLY
002	Upright Pno	3	POLY	066	Mental Chord	4	MONO
003	RD-1000	3	POLY	067	House Chord	4	MONO
004	Player's EP	2	POLY	068	Sequalog	4	POLY
005	D-50 Rhodes	4	POLY	069	Booster Bips	2	POLY
006	Innocent EP	2	POLY	070	VintagePlunk	4	MONO
007	Echo Rhodes	4	POLY	071	Plik-Plok	2	POLY
008	See-Thru EP	3	POLY	072	RingSequence	4	POLY
009	FM BellPiano	3	POLY	073	Cyber Swing	4	POLY
010	Ring E.Piano	4	POLY	074	Keep :-)	2	POLY
011	Soap Opera	1	POLY	075	Resojuice	2	MONO
012	Dirty Organ	3	POLY	076	B'on d'moov!	3	POLY
013	Surf's Up!	2	POLY	077	Dist TB-303	2	MONO
014	Organesque	3	POLY	078	Temple of JV	4	POLY
015	pp Harmonium	1	POLY	079	Planet Asia	4	POLY
016	PieceOfCheez	1	POLY	080	Afterlife	3	POLY
017	Harpsy Clav	2	POLY	081	Trancing Pad	2	POLY
018	Exotic Velo	4	POLY	082	Pulsatronic	3	POLY
019	HolidayCheer	4	POLY	083	Cyber Dreams	3	POLY
020	Morning Lite	2	POLY	084	Warm Pipe	1	MONO
021	Prefab Chime	3	POLY	085	Pure Pipe	2	POLY
022	Belfry Chime	3	POLY	086	SH-2000	2	MONO
023	Stacc.Heaven	4	POLY	087	X..? Whistle	3	POLY
024	2.2 Bell Pad	4	POLY	088	Jay Vee Solo	3	POLY
025	Far East	4	POLY	089	Progresso Ld	4	MONO
026	Wire Pad	3	POLY	090	Adrenaline	4	POLY
027	PhaseBlipper	2	POLY	091	Enlighten	4	POLY
028	Sweep Clav	3	POLY	092	Glass Blower	3	POLY
029	Glider	2	POLY	093	Earth Blow	2	POLY
030	Solo Steel	4	POLY	094	JX SqrCarpet	2	POLY
031	DesertCrystl	4	POLY	095	Dimensional	2	POLY
032	Clear Guitar	3	POLY	096	Jupiterings	2	POLY
033	Solo Strat	3	POLY	097	Analog Drama	3	POLY
034	Feed Me!	4	POLY	098	Rich Dynapad	4	POLY
035	Tube Smoke	2	POLY	099	Silky Way	2	POLY
036	Creamy	2	POLY	100	Gluey Pad	3	POLY
037	Blusey OD	2	POLY	101	BandPass Mod	2	POLY
038	Grindstone	2	POLY	102	Soundtraque	2	POLY
039	OD 5ths	3	POLY	103	Translucence	4	POLY
040	East Europe	2	POLY	104	Darkshine	4	POLY
041	Dulcitar	4	POLY	105	D'light	2	POLY
042	Atmos Harp	4	POLY	106	December Sky	4	POLY
043	Pilgrimage	4	POLY	107	Octapad	3	POLY
044	202 Rude Bs	2	MONO	108	JUNO Power!	4	POLY
045	2pole Bass	2	MONO	109	Spectrum Mod	4	POLY
046	4pole Bass	2	MONO	110	Stringsheen	3	POLY
047	Phaser MC	2	POLY	111	GR500 TmpDly	2	POLY
048	Miniphaser	2	POLY	112	Mod DirtyWav	3	POLY
049	Acid TB	1	MONO	113	Silicon Str	4	POLY
050	Full Orchest	4	POLY	114	D50FantaPerc	3	POLY
051	Str + Winds	4	POLY	115	Rotodreams	3	POLY
052	Flute 2080	2	POLY	116	Blue Notes	4	POLY
053	Scat Flute	2	POLY	117	RiversOfTime	4	POLY
054	Sax Choir	4	POLY	118	Phobos	2	POLY
055	Ballad Trump	4	POLY	119	2 0 8 0	4	POLY
056	Sm.Brass Grp	4	POLY	120	Unearthly	4	POLY
057	Royale	4	POLY	121	Glistening	4	POLY
058	Brass Mutes	2	POLY	122	Sci-Fi Str	3	POLY
059	Breathy Brs	3	POLY	123	Shadows	4	POLY
060	3 Osc Brass	3	POLY	124	Helium Queen	4	MONO
061	P5 Polymod	2	POLY	125	Sci-Fi FX x4	1	POLY
062	Triumph Brs	3	POLY	126	Perky Noize	3	POLY
063	Techno Dream	3	POLY	127	Droplet	3	POLY
064	Organizer	3	POLY	128	Rain Forest	4	POLY

PE (Preset E Group)

No.	Name	Voice	Key Assign	No.	Name	Voice	Key Assign
001	Grand XV	4	POLY	065	St. Choir	4	POLY
002	Contemplate	2	POLY	066	SampleThe80s	2	POLY
003	Rock Piano	2	POLY	067	Sacred Tree	2	POLY
004	RockPiano Ch	3	POLY	068	VP330 OctEko	2	POLY
005	Pianomonics	4	POLY	069	XV Strings	3	POLY
006	Piano+SftPad	4	POLY	070	Fat Strings	3	POLY
007	WarmVoxPiano	4	POLY	071	Dolce p/m/f	6	POLY
008	Y2K Concerto	8	POLY	072	Sad Strings	6	POLY
009	Piano+AirPad	5	POLY	073	Lush Strings	4	POLY
010	ChoraLeader	8	POLY	074	Strings4Film	6	POLY
011	SparklePiano	6	POLY	075	Marcato Str	4	POLY
012	Retro Rhodes	3	POLY	076	End Titles	4	POLY
013	Fat Rhodes	3	POLY	077	ChmbrQuartet	4	POLY
014	Rhodes Trem	2	POLY	078	ChamberSect.	4	POLY
015	Phaser Dyno	3	POLY	079	FullChmbrStr	6	POLY
016	Hit Rhodes	3	POLY	080	Tape Strings	2	POLY
017	Sweet Tynes	4	POLY	081	Henry VIII	8	POLY
018	Pluk Rhodes	3	POLY	082	Prelude	4	POLY
019	Rhodes Trip	2	POLY	083	Str&Brs Orch	7	POLY
020	AmbiRhodes	4	POLY	084	Hornz	5	POLY
021	Rholitzer	3	POLY	085	TudorFanfare	4	POLY
022	Wurlie	2	POLY	086	ChamberPlyrs	4	POLY
023	FM Delight	2	POLY	087	Flute/Clari	2	POLY
024	Cutter Clav	2	POLY	088	Orch Reeds	3	POLY
025	Mute Clav D6	3	POLY	089	Dual Flutes	3	POLY
026	PhazeWahClav	6	POLY	090	Jazzer Flute	2	POLY
027	St.Harpsichd	4	POLY	091	LegatoBamboo	4	MONO
028	3PartInventn	4	POLY	092	Ambience Flt	4	POLY
029	Soft Perky	5	POLY	093	The Andes	1	POLY
030	Fullness	5	POLY	094	Deja Vlute	4	MONO
031	Paleface 1	2	POLY	095	Simply Brass	2	POLY
032	Paleface 2	4	POLY	096	FullSt Brass	5	POLY
033	Soft B	2	POLY	097	Dragnet	4	POLY
034	British B	4	POLY	098	NewR&RBrass	8	POLY
035	Rocker Org	6	POLY	099	Tower Trumps	5	POLY
036	Split B	6	POLY	100	BigBrassBand	5	POLY
037	PercInterval	8	POLY	101	Lil'BigHornz	6	POLY
038	Happy 60s	2	POLY	102	VoyagerBrass	3	POLY
039	96 Years	1	POLY	103	Symph Horns	3	POLY
040	Glory Us Rok	2	POLY	104	Trombone Atm	3	POLY
041	Church Harmn	4	POLY	105	XV Trombone	2	POLY
042	Cathdr Harmn	5	POLY	106	XV Trumpet	3	POLY
043	Morph Pad	8	POLY	107	JupiterHorns	2	POLY
044	Air Pad	3	POLY	108	Solo SoprSax	1	MONO
045	Soft Padding	2	POLY	109	Solo AltoSax	2	MONO
046	Warmth Pad	2	POLY	110	XV DynoTenor	3	POLY
047	ClassicJPpad	2	POLY	111	Honker Bari	2	POLY
048	Jupiter Str	2	POLY	112	Full Saxz	7	POLY
049	Fat Pad	4	POLY	113	Soaring Hrns	6	POLY
050	GR700 Pad	3	POLY	114	Glass Orbit	3	POLY
051	Paradise	3	POLY	115	5th Atm /Aft	2	POLY
052	Moonchimes	3	POLY	116	Lo-fi Sweep	2	POLY
053	SusPed Swap	4	POLY	117	Modular Life	4	POLY
054	PhasingPad	2	POLY	118	Oscillations	4	POLY
055	Ethereal Str	4	POLY	119	Combing	2	POLY
056	Velcropad	4	POLY	120	Rolling 5ths	4	POLY
057	NothrnLights	4	POLY	121	Analogue Str	4	POLY
058	Sun Dive	7	POLY	122	Lunar Strngs	4	POLY
059	Brite Vox 1	4	POLY	123	BPFsweep Mod	3	POLY
060	Brite Vox 2	4	POLY	124	Queen V	6	POLY
061	Ooh)Aah Mod	4	POLY	125	SkinnyBounce	2	POLY
062	Vocals: Ooh	4	POLY	126	SquareBounce	3	POLY
063	Vocals: Scat	6	POLY	127	Galactic	8	POLY
064	Vocals: Boys	6	POLY	128	Powerwiggle	3	POLY

Voice: number of voice

PF (Preset F Group)

No.	Name	Voice	Key Assign
001	80s Retrosyn	2	POLY
002	Power Stack	3	POLY
003	Don't Jump	8	POLY
004	Big Bubbles	3	POLY
005	X-mod Sweep	1	POLY
006	Bag O' Bones	6	POLY
007	AirSoThin	2	POLY
008	Analogical	4	POLY
009	Waspy Pulse	2	POLY
010	Soaring Saws	6	MONO
011	Square Roots	2	MONO
012	BOG	3	MONO
013	Talking Box	3	MONO
014	Retro Lead	2	MONO
015	LivingInSync	2	MONO
016	Leads United	4	MONO
017	Dirty Sync	2	MONO
018	DistortaSync	1	MONO
019	Blistering	2	MONO
020	Guttural	8	MONO
021	Flyin' High	3	MONO
022	Soft Tooth	2	MONO
023	Soaring Sqr	4	MONO
024	Soaring Sync	4	MONO
025	Nasal Spray	2	MONO
026	Lamb Lead	2	MONO
027	Creamer	2	MONO
028	Sine System	4	MONO
029	Soft Nylon	4	POLY
030	Nylozzicato	3	POLY
031	Mutezzicato	3	POLY
032	Hybrid Nylon	3	POLY
033	XV SteelGt 1	4	POLY
034	XV SteelGt 2	4	POLY
035	Comp'Steel	4	POLY
036	Double Steel	8	POLY
037	Folk Guitar	4	POLY
038	SpanishNight	5	POLY
039	Plug n' Play	2	POLY
040	Fab 4 Guitar	4	POLY
041	Searing Lead	3	MONO
042	Punker	2	POLY
043	LouderPlease	3	POLY
044	XV Upright	1	POLY
045	XV Ac.Bass	4	POLY
046	LookMaNoFret	3	MONO
047	XV Fretless	1	POLY
048	Basic F'less	1	MONO
049	8-str F'less	2	POLY
050	Tap Bass	1	POLY
051	Pop Bass	1	POLY
052	P.Bs Chorus	4	MONO
053	TremCho Bs	2	POLY
054	Creamy Bass	2	MONO
055	Buster Bass	2	MONO
056	TB Squelch	2	POLY
057	Ticker Bass	4	MONO
058	Muscle Bass	2	MONO
059	Grounded Bs	2	MONO
060	West End Bs	5	MONO
061	Snap Bass	2	MONO
062	700 Bassboy	3	MONO
063	8VCO MonoSyn	8	MONO
064	ResoMoist Bs	4	MONO
065	Kickin' Bass	2	MONO
066	Sub Zero	4	MONO
067	Liquid Bass	2	MONO
068	Hefty Bass	2	MONO
069	Severe Ow Bs	4	MONO
070	Chime Bells	4	POLY
071	Celestabox	1	POLY
072	Brass Tubes	4	POLY
073	Dreams East	3	POLY
074	Synergistic	2	POLY
075	Andreas Cave	4	POLY
076	AmbiPizza	5	POLY
077	Voxy Nylon	3	POLY
078	EastrnEurope	3	POLY
079	Celtic Harp	2	POLY
080	Reso Sitar	2	POLY
081	The Ganges	3	POLY
082	MountainFolk	2	POLY
083	Byzantine	4	POLY
084	AsiaPlectrum	8	POLY
085	VelHarp)Harm	3	POLY
086	Pluckaphone	4	POLY
087	Slap Timps	4	POLY
088	Suite Combo	6	POLY
089	Jet Voxs	3	POLY
090	Dirty Hit	4	POLY
091	MOVE!	6	MONO
092	Reel Slam	4	POLY
093	OffTheRecord	4	POLY
094	2ndRateChord	4	MONO
095	RageInYouth	3	POLY
096	MinorIncidnt	4	MONO
097	Phunky DC	2	MONO
098	Agent X	7	POLY
099	Winky	8	POLY
100	Looney 2nz	8	POLY
101	Shortrave	2	POLY
102	DeeperBeeper	2	MONO
103	Percolator	4	POLY
104	Filter Morph	4	POLY
105	Choir Bounce	4	POLY
106	Rippling	1	POLY
107	SteppingPhsr	3	POLY
108	Trance Fair	8	MONO
109	GermanBounce	4	POLY
110	Acid JaZZ	5	MONO
111	Cutter>ModWh	2	POLY
112	Blades	4	POLY
113	Mad Bender	6	POLY
114	Shapeshifter	4	POLY
115	ForestMoon	8	POLY
116	Predator 2	8	POLY
117	Dark Side	8	POLY
118	The Beast	6	POLY
119	X-mod Reso	1	POLY
120	Planet Meta	7	POLY
121	Nexus	8	POLY
122	Halographix	2	POLY
123	Moon Rise	8	POLY
124	Gruvacious	5	POLY
125	Windy Dunes	4	POLY
126	Ice Blasts	4	POLY
127	Ringy Thingy	8	MONO
128	Atmospherics	4	POLY

PG (Preset G Group)

No.	Name	Voice	Key Assign
001	Power Octs	6	POLY
002	WaterPiano2	3	POLY
003	Swimming EP	8	POLY
004	XV Crystal	4	POLY
005	Cold Roadz	4	POLY
006	Backrhodes	3	POLY
007	Amped Wurlie	3	POLY
008	Dirty Wurlie	4	POLY
009	Musicbox XV	3	POLY
010	Klubb Organ	2	POLY
011	Drew's Bee	3	POLY
012	Velvet Organ	2	POLY
013	Distorted B	1	POLY
014	Radikal B	1	POLY
015	Boogie Organ	4	POLY
016	Mood Ringz	4	POLY
017	Wedo-Wodo	4	POLY
018	S.O.S.trings	4	POLY
019	Syncronicity	4	POLY
020	DanceMachina	4	MONO
021	Vox Chopper	4	POLY
022	SlicingSyVox	2	POLY
023	PressureDome	4	POLY
024	Quasar /Aft	4	POLY
025	Ionizer	4	POLY
026	MilleniumStr	6	POLY
027	Bounce Baby!	1	POLY
028	Bounce Daddy	2	POLY
029	Bounce Mama!	3	POLY
030	Bounce Noize	2	POLY
031	What a Gate!	7	MONO
032	Mini Sequenz	4	POLY
033	Slice & Dice	4	POLY
034	BrushingSaw1	8	POLY
035	BrushingSaw2	8	POLY
036	Cultivate	5	POLY
037	5080 Random	4	POLY
038	XV Stepping	5	POLY
039	India Garden	6	POLY
040	Belly Pad	3	POLY
041	Spectre	4	POLY
042	SoaringHrns2	7	POLY
043	Sabbath Day	4	POLY
044	XV BlowPad	4	POLY
045	White Arcade	3	POLY
046	Borealis	4	POLY
047	OvertoneScan	4	POLY
048	Whisper Vox	4	POLY
049	Jupiter 21	4	POLY
050	Filt Strings	3	POLY
051	HybStringsXV	4	POLY
052	Soft Symphny	7	POLY
053	Wood Symphny	7	POLY
054	HybOrchestra	8	POLY
055	Brassy Symph	4	POLY
056	Biggie Brass	4	POLY
057	BiggieBrass2	5	POLY
058	LA Sax's	4	POLY
059	Wind Wood	4	POLY
060	Lonely Oboe	2	MONO
061	Harmonica XV	1	POLY
062	Tooters Lead	3	POLY
063	Digi Phased	4	POLY
064	Synth Ethics	4	POLY
065	Harm is Fine	3	POLY
066	D-2000	4	POLY
067	Ackward East	4	POLY
068	Powersoaker	4	MONO
069	Mean Thing	2	MONO
070	Jet Sync	2	MONO
071	Crying Solo	2	POLY
072	Southern Fry	2	POLY
073	Strum Distrt	2	POLY
074	Match Drive	3	POLY
075	Stacked	3	POLY
076	2-Stack Over	2	POLY
077	COSM Searing	3	MONO
078	COSM Loud Gt	3	POLY
079	Blue Mutes	2	POLY
080	Metal 5150	3	POLY
081	Crunch Phase	2	POLY
082	Alt Dist Gtr	2	POLY
083	So nice!	8	POLY
084	Punch Bass	1	MONO
085	COSM Bass	4	POLY
086	Stream Bell	5	POLY
087	Shuffle Bell	4	POLY
088	Echo Vibe	2	POLY
089	Tremolo Vibe	2	POLY
090	True Vibe	2	POLY
091	Marimbula	3	POLY
092	Hit Bitz	4	POLY
093	80s LoFi Hit	4	POLY
094	Auto Chord	4	POLY
095	3rdTeenChord	4	POLY
096	Bend a Chord	4	POLY
097	DiscreteChrd	4	POLY
098	Ambi Voices	8	POLY
099	Say Yeah !	2	POLY
100	Xcuse me	2	POLY
101	5ths in 4ths	4	POLY
102	Pretty Ugly	2	POLY
103	Con Sequence	2	POLY
104	BermudaShort	2	POLY
105	Saw n' 202	2	POLY
106	Technoheadz	4	POLY
107	Boss'd Synth	4	MONO
108	Cross Fire	2	POLY
109	Techno Cave	2	MONO
110	Generator	4	MONO
111	GenderBender	4	MONO
112	Xtremities	4	MONO
113	AM 05:59	4	MONO
114	Happy Brass	8	POLY
115	Runaway Rez	2	POLY
116	Dropplets	4	POLY
117	Indian Guru	4	POLY
118	Cosmic Rain	1	POLY
119	Trying Winds	3	POLY
120	Space Whiz	2	POLY
121	DigitalDrone	2	POLY
122	Space Race	1	POLY
123	Bowed Bell	2	POLY
124	X-Tension	2	POLY
125	DUB!!!	4	POLY
126	Dream Diver	6	POLY
127	Flashback	4	POLY
128	St.LoFiNoise	2	POLY

Voice: number of voice

PH (Preset H Group)

No.	Name	Voice	Key Assign	No.	Name	Voice	Key Assign
001	Hall Grand	2	POLY	065	Froggy Bass	1	MONO
002	Warm pF Mix	6	POLY	066	Tape Orch	4	POLY
003	R&Ballad Mix	6	POLY	067	Tekno Pizz	1	POLY
004	PingE Piano	2	POLY	068	TechnoSurf 1	2	POLY
005	Hybrid EP	3	POLY	069	TechnoSurf 2	2	POLY
006	Wurly Gum	2	POLY	070	Double Helix	4	POLY
007	Wurli World	3	POLY	071	Rhythm Sync	1	POLY
008	Voxfuzz Klav	4	POLY	072	TMT Scanner	4	POLY
009	Light Keys	3	POLY	073	Complex Echo	1	POLY
010	Digibell Pad	4	POLY	074	Groovedigger	4	POLY
011	IslandSpirit	3	POLY	075	20.000 miles	5	MONO
012	Ambient Wood	2	POLY	076	Vortex	4	POLY
013	VeloClikOrgn	2	POLY	077	man@work	4	MONO
014	Verby Organ	2	POLY	078	XVoCode	4	POLY
015	Wedding Mass	5	POLY	079	Auto Riff	2	POLY
016	Blues Harp	2	POLY	080	Digisquelch	4	POLY
017	Thick Steel	4	POLY	081	TripTheAlarm	4	POLY
018	SteelRelease	4	POLY	082	Aftertouchin	4	POLY
019	Two+Ensemble	5	POLY	083	Throbulax	2	POLY
020	Harmless	2	POLY	084	KeysEnsemble	6	POLY
021	Swell Strat	1	POLY	085	Cheepy Synth	2	POLY
022	StratSeq'nce	4	POLY	086	Funky Tube	1	POLY
023	Cutting X	4	MONO	087	Hydrogen	4	POLY
024	Hurtin'Tubes	3	POLY	088	Promenade	3	POLY
025	Stringless	4	POLY	089	Ray Tracer	2	POLY
026	Stick Chopz	4	POLY	090	Skinny	2	POLY
027	Fundamental	3	POLY	091	Dream 2002	3	POLY
028	Brash Bass	2	POLY	092	DrawbarHeavn	4	POLY
029	ChamberQrt.1	4	POLY	093	Lo-fiBellPad	4	POLY
030	Lead 4x Vlns	4	POLY	094	GemniStrings	5	POLY
031	BatonStrings	3	POLY	095	Down2Earth	7	POLY
032	UltraSmooth	2	POLY	096	Silk Road	4	POLY
033	Hold A Chord	6	POLY	097	Mr.Swirly	4	POLY
034	My Orchestra	4	POLY	098	MetaXV	8	POLY
035	SwellEnsembl	4	POLY	099	FloatingVox	3	POLY
036	Valve Job	4	POLY	100	Spread Pad	2	POLY
037	T8 Brass	3	POLY	101	Aliastrings	4	POLY
038	FatSynBrass	4	POLY	102	GlobalWarmup	4	POLY
039	Ambient Sax	4	MONO	103	2.2 Strings	5	POLY
040	Swingin'Bari	3	POLY	104	Aftermath	4	POLY
041	Saw Grits	1	MONO	105	11th Space	7	POLY
042	JD Multi Ld	1	MONO	106	Cloud 9	5	POLY
043	Over the top	2	MONO	107	Traffic Pad	4	POLY
044	Try this!	2	MONO	108	Nanolog Pad	4	POLY
045	BoutiqueSine	1	POLY	109	Etheraaahl	2	POLY
046	Drifter	6	POLY	110	Pipe Dream	4	MONO
047	Enchanted XV	3	MONO	111	Cairo lead	3	POLY
048	Water Tubes	6	POLY	112	Lochscapes	2	POLY
049	Waterfront	5	POLY	113	Celtic Song	4	POLY
050	Peking Opera	7	POLY	114	Blown Str.	2	POLY
051	LegatoJupitr	1	MONO	115	Mind Games	4	POLY
052	Atlantis	5	POLY	116	BadJuju	7	POLY
053	LF Comb Hit	4	POLY	117	Eleanor	2	POLY
054	Backspinner	5	POLY	118	RadioHymn	3	POLY
055	Tape Q	4	POLY	119	Miasma	1	POLY
056	Technogrunge	3	POLY	120	SubmarinBand	7	POLY
057	Chordbender	4	POLY	121	I Will Lead	8	POLY
058	Dance Zipper	4	MONO	122	LatheOfHeavn	8	POLY
059	5th Element	4	POLY	123	CrystalGlass	1	POLY
060	Fuzzy Logic	2	POLY	124	Upwind Glata	4	POLY
061	Sproing	2	POLY	125	Thor's Drums	4	POLY
062	McThrob	2	POLY	126	TempoMadness	4	POLY
063	Space Bassed	4	POLY	127	GenerationXV	4	POLY
064	Vocovox Wave	1	MONO	128	Wedding Gig	4	POLY

Voice: number of voice

GM (GM2 Group)

No.	Name	Voice	LSB	PC
001	Piano 1	4	0	1
002	Piano 1w	2	1	
003	European Pf	1	2	
004	Piano 2	4	0	2
005	Piano 2w	1	1	
006	Piano 3	1	0	3
007	Piano 3w	1	1	
008	Honky-tonk	2	0	4
009	Honky-tonk 2	2	1	
010	E.Piano 1	2	0	5
011	St.Soft EP	2	1	
012	FM+SA EP	2	2	
013	Wurly	2	3	
014	E.Piano 2	2	0	6
015	Detuned EP 2	2	1	
016	St.FM EP	2	2	
017	EP Legend	2	3	
018	EP Phase	2	4	
019	Harpsichord	1	0	7
020	Coupled Hps.	2	1	
021	Harpsi.w	1	2	
022	Harpsi.o	2	3	
023	Clav.	1	0	8
024	Pulse Clav	1	1	
025	Celesta	1	0	9
026	Glockenspiel	1	0	10
027	Music Box	1	0	11
028	Vibraphone	2	0	12
029	Vibraphone w	2	1	
030	Marimba	1	0	13
031	Marimba w	1	1	
032	Xylophone	1	0	14
033	Tubular-bell	1	0	15
034	Church Bell	1	1	
035	Carillon	1	2	
036	Santur	1	0	16
037	Organ 1	2	0	17
038	Trem. Organ	2	1	
039	60's Organ 1	1	2	
040	70's E.Organ	2	3	
041	Organ 2	2	0	18
042	Chorus Or.2	2	1	
043	Perc. Organ	2	2	
044	Organ 3	2	0	19
045	Church Org.1	1	0	20
046	Church Org.2	2	1	
047	Church Org.3	2	2	
048	Reed Organ	1	0	21
049	Puff Organ	2	1	
050	Accordion Fr	2	0	22
051	Accordion It	2	1	
052	Harmonica	1	0	23
053	Bandoneon	2	0	24
054	Nylon-str.Gt	1	0	25
055	Ukulele	1	1	
056	Nylon Gt.o	2	2	
057	Nylon Gt.2	2	3	
058	Steel-str.Gt	1	0	26
059	12-str.Gt	2	1	
060	Mandolin	2	2	
061	Steel + Body	2	3	
062	Jazz Gt.	1	0	27
063	Pedal Steel	1	1	
064	Clean Gt.	1	0	28
065	Chorus Gt.	2	1	
066	Mid Tone GTR	1	2	
067	Muted Gt.	1	0	29
068	Funk Pop	1	1	
069	Funk Gt.2	2	2	
070	Jazz Man	2	3	
071	Overdrive Gt	2	0	30
072	Guitar Pinch	2	1	
073	DistortionGt	2	0	31
074	Feedback Gt.	2	1	
075	Dist Rtm GTR	2	2	
076	Gt.Harmonics	1	0	32
077	Gt. Feedback	1	1	
078	Acoustic Bs.	1	0	33
079	Fingered Bs.	1	0	34
080	Finger Slap	2	1	
081	Picked Bass	1	0	35
082	Fretless Bs.	1	0	36
083	Slap Bass 1	1	0	37
084	Slap Bass 2	2	0	38
085	Synth Bass 1	1	0	39
086	SynthBass101	1	1	
087	Acid Bass	1	2	
088	Clavi Bass	2	3	
089	Hammer	2	4	
090	Synth Bass 2	2	0	40
091	Beef FM Bass	2	1	
092	RubberBass 2	2	2	
093	Attack Pulse	1	3	
094	Violin	1	0	41
095	Slow Violin	1	1	
096	Viola	1	0	42
097	Cello	1	0	43
098	Contrabass	1	0	44
099	Tremolo Str	1	0	45
100	PizzicatoStr	1	0	46
101	Harp	1	0	47
102	Yang Qin	2	1	
103	Timpani	1	0	48
104	Strings	2	0	49
105	Orchestra	3	1	
106	60s Strings	2	2	
107	Slow Strings	1	0	50
108	Syn.Strings1	2	0	51
109	Syn.Strings3	2	1	
110	Syn.Strings2	2	0	52
111	Choir Aahs	2	0	53
112	Chorus Aahs	2	1	
113	Voice Oohs	1	0	54
114	Humming	2	1	
115	SynVox	1	0	55
116	Analog Voice	1	1	
117	OrchestraHit	2	0	56
118	Bass Hit	2	1	
119	6th Hit	2	2	
120	Euro Hit	2	3	
121	Trumpet	1	0	57
122	Dark Trumpet	1	1	
123	Trombone	1	0	58
124	Trombone 2	1	1	
125	Bright Tb	1	2	
126	Tuba	1	0	59
127	MutedTrumpet	1	0	60
128	MuteTrumpet2	1	1	
129	French Horns	2	0	61
130	Fr.Horn 2	2	1	
131	Brass 1	3	0	62
132	Brass 2	2	1	
133	Synth Brass1	2	0	63
134	Pro Brass	2	1	
135	Oct SynBrass	2	2	
136	Jump Brass	3	3	
137	Synth Brass2	2	0	64
138	SynBrass sfz	2	1	
139	Velo Brass 1	2	2	
140	Soprano Sax	1	0	65
141	Alto Sax	1	0	66
142	Tenor Sax	2	0	67
143	Baritone Sax	1	0	68
144	Oboe	2	0	69
145	English Horn	1	0	70
146	Bassoon	1	0	71
147	Clarinet	1	0	72
148	Piccolo	1	0	73
149	Flute	1	0	74
150	Recorder	1	0	75
151	Pan Flute	1	0	76
152	Bottle Blow	2	0	77
153	Shakuhachi	2	0	78
154	Whistle	1	0	79
155	Ocarina	2	0	80
156	Square Wave	2	0	81
157	MG Square	1	1	
158	2600 Sine	1	2	
159	Saw Wave	2	0	82
160	OB2 Saw	1	1	
161	Doctor Solo	2	2	
162	Natural Lead	2	3	
163	SequencedSaw	2	4	
164	Syn.Calliope	2	0	83
165	Chiffer Lead	2	0	84
166	Charang	2	0	85
167	Wire Lead	2	1	
168	Solo Vox	2	0	86
169	5th Saw Wave	2	0	87
170	Bass & Lead	2	0	88
171	Delayed Lead	2	1	
172	Fantasia	2	0	89
173	Warm Pad	1	0	90
174	Sine Pad	2	1	
175	Polysynth	2	0	91
176	Space Voice	2	0	92
177	Itopia	2	1	
178	Bowed Glass	3	0	93
179	Metal Pad	3	0	94
180	Halo Pad	2	0	95
181	Sweep Pad	1	0	96
182	Ice Rain	2	0	97
183	Soundtrack	2	0	98
184	Crystal	2	0	99
185	Syn Mallet	1	1	
186	Atmosphere	2	0	100
187	Brightness	2	0	101
188	Goblin	2	0	102
189	Echo Drops	1	0	103
190	Echo Bell	2	1	
191	Echo Pan	2	2	
192	Star Theme	2	0	104
193	Sitar	1	0	105
194	Sitar 2	2	1	
195	Banjo	1	0	106
196	Shamisen	1	0	107
197	Koto	2	0	108
198	Taisho Koto	1	1	
199	Kalimba	1	0	109
200	Bagpipe	2	0	110
201	Fiddle	1	0	111
202	Shanai	1	0	112
203	Tinkle Bell	3	0	113
204	Agogo	1	0	114
205	Steel Drums	1	0	115
206	Woodblock	1	0	116
207	Castanets	1	1	
208	Taiko	3	0	117
209	Concert BD	2	1	
210	Melo. Tom 1	1	0	118
211	Melo. Tom 2	1	1	
212	Synth Drum	2	0	119
213	808 Tom	2	1	
214	Elec Perc	1	2	
215	Reverse Cym.	1	0	120
216	Gt.FretNoise	1	0	121
217	Gt.Cut Noise	1	1	
218	String Slap	1	2	
219	Breath Noise	1	0	122
220	Fl.Key Click	1	1	
221	Seashore	1	0	123
222	Rain	1	1	
223	Thunder	1	2	
224	Wind	1	3	
225	Stream	2	4	
226	Bubble	2	5	
227	Bird	2	0	124
228	Dog	1	1	
229	Horse-Gallop	1	2	
230	Bird 2	1	3	
231	Telephone 1	1	0	125
232	Telephone 2	1	1	
233	DoorCreaking	1	2	
234	Door	1	3	
235	Scratch	2	4	
236	Wind Chimes	2	5	
237	Helicopter	2	0	126
238	Car-Engine	1	1	
239	Car-Stop	1	2	
240	Car-Pass	1	3	
241	Car-Crash	2	4	
242	Siren	1	5	
243	Train	1	6	
244	Jetplane	2	7	
245	Starship	2	8	
246	Burst Noise	2	9	
247	Applause	2	0	127
248	Laughing	1	1	
249	Screaming	1	2	
250	Punch	1	3	
251	Heart Beat	1	4	
252	Footsteps	1	5	
253	Gun Shot	1	0	128
254	Machine Gun	1	1	
255	Lasergun	1	2	
256	Explosion	2	3	

Voice: number of voice LSB: Bank Select LSB, MSB is all 121 PC: Program Change Number Key Assign: all POLY

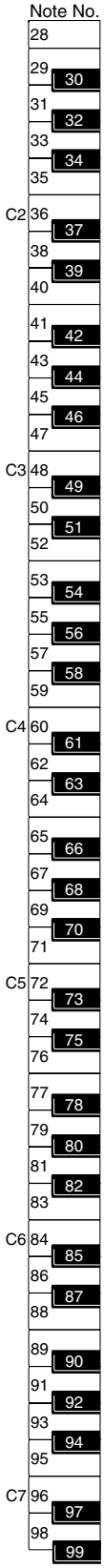
Rhythm Set List

US (User Group)

Note No.	001 R&B Kit 1	002 House Kit	003 XV WayHipKit	004 XV Jazz Kit
28	Dance Kick	House Kick 6	808 Kick	JazzDry Kick
29	Dry Kick	House Kick 5	Dry Kick	Pillow Kick
30	R&B1 SN Roll	House ClHH 3	WHip Sweep	Jazz Swish
31	Hybrid Kick	House Kick 4	Noisy Kick	Hybrid Kick2
32	R&B1 SN Ghst	Reso Stick	WHip RimShot	Snare Ghost
33	Round Kick	House Kick 3	Hybrid Kick	MplLmtr Kick
34	R&B 1 PdHH	House OpHH 2	WHip PdHH	Jazz PdHH
35	R&B 1 Kick 2	House Kick 2	WHip OldKick	JazzDry Kick
C2 36	R&B 1 Kick 1	House Kick 1	WHip 909Kick	Jazz Kick
37	R&B 1 Stick	House Stick	WHip Stik	Dry Stick 2
38	R&B 1 SN 1	House SN 1	WHip 70s Snr	Jazz SN
39	Snare Ghost	House Claps	WHip Clap	Snare Ghost
40	R&B 1 SN 2	House SN 2	WHip Snare	Jazz Rim
41	R&B 1 Tom L	House NzTomL	SciHip Tom L	Jazz Tom L
42	R&B 1 ClHH 1	House ClHH 1	WHip ClHH 1	Jazz ClHH1
43	Rock Flm L	808 Tom L	WHip Tom L	Jazz Flm L
44	R&B 1 ClHH 2	House ClHH 2	WHip ClHH 2	Jazz ClHH2
45	R&B 1 Tom M	House NzTomM	SciHip Tom M	Jazz Tom M
46	R&B 1 OpHH	House OpHH	WHip Op HH	Jazz OpHH
47	Rock Flm M	808 Tom M	WHip Tom M	Jazz Flm M
C3 48	R&B 1 Tom H	House NzTomH	SciHip Tom H	Jazz Tom H
49	R&B 1 CrCym1	House CrCym	Crash Cymbal	Jazz CrCym
50	Rock Flm H	808 Tom H	WHip Tom H	Jazz Flm H
51	Rock RdCym1	House FbkCym	Rock RdCym 1	Jazz RdCym
52	R&B 1 CrCym2	House SN 3	Rock CrCym 1	Rock RdCym1
53	Rock RdCym2	House FSnaps	Rock RdCym 2	Rock RdCym2
54	Tambourine 1	House ClHH 4	Tambourine	Tambourine 1
55	Rock CrCym2	House Cowbel	Rock CrCym 2	Crash 1
56	Cowbell Lo	House ClHH 5	LoFiCowbell1	Cowbell Lo
57	Crash 1	House WBlock	Crash	Crash 2
58	Cowbell Hi	House OpHH 3	LoFiCowbell2	Cowbell Hi
59	Ride Bell	House Claps2	Ride Bell	Ride Bell
C4 60	Bongo Hi	House Cabasa	Cga Mute Hi	Cga Mute Hi
61	Bongo Lo	House WCrak	Cga Mute Lo	Cga Mute Lo
62	Cga Mute Hi	House VoxNz	LoFi Cga Slp	Cga Slap
63	Cga Open Hi	House Kick 7	LoFi Cga Hi	Cga Open Hi
64	Cga Open Lo	Timp 3	LoFi Cga Lo	Cga Open Lo
65	Timbale Hi	House Bird	El.TimbaleHi	Timbale Hi
66	Timbale Lo	House Gun	El.TimbaleLo	Timbale Lo
67	R&B 1 AgBel1	House FBell	El.Agogo Hi	AgogoBellsHi
68	R&B 1 AgBel2	House Rattle	El.Agogo Lo	AgogoBellsLo
69	R&B 1 AgBel3	House RvOHit	NoisyCabasa1	Cabasa Up
70	Maracas	House Noize1	Nz Blip	Maracas
71	606 Cl HiHat	House Noize2	Digi Pulse 1	ShortWhistle
C5 72	606 Cl HiHat	House BongoL	Digi Pulse 2	Long Whistle
73	606 Op HiHat	House BongoH	LoFi Guiro	Short Guiro
74	Long Guiro	House Tambrn	WHip Noise 1	Long Guiro
75	Claves	House Heart	WHip Noise 2	Claves
76	Wood BlockHi	House CgaSlp	WHip Noise 3	WoodBlock Hi
77	Wood BlockLo	House CgMute	WHip Noise 4	WoodBlock Lo
78	R&B 1 Pizz	House Tri	Digi Tamb. 1	Mute Cuica
79	R&B 1 Gmlan1	House Vibra	Digi Tamb. 2	Open Cuica
80	R&B 1 Gmlan2	House FXLoop	Mute Triangl	Mute Triangl
81	R&B 1 BtlHit	House Aplase	Open Triangl	Open Triangl
82	R&B 1 ThrilL	House Chord	NoisyCabasa2	Cabasa Cut
83	R&B 1 ThrilH	House OrcHit	Nz Spectrum	Spectrum
C6 84	808 SN	House Spectr	LoFi Block	Wind Chimes
85	R&B 1 WdBlk	House Train	Rattle Block	Wood Block
86	R&B 1 CgSlap	House StrSip	Steps	Mute Surdo
87	Dry Tom L	House Crunch	WHip Noise 5	Open Surdo
88	Lite Kick	House Tel2	Creak	Lite Kick
89	Hybrid Kick2	House Bubble	Bubble	Hybrid Kick2
90	Old Kick	Bird	Door Slam	Old Kick
91	Pop Voice	House Gun 2	Sci Punch	Pop Voice
92	Wind Agogo	House Metro	Noise Fall	Wind Agogo
93	R&B 1 OpHH	House BakHit	WHip Noise 6	Op HiHat 2
94	Anklungs	House TekHit	WHip Noise 7	Anklungs
95	R&B 1 OpHH	House SNRoll	Org Click	Op HiHat 2
C7 96	Metronome 2	House Loop	Metronome 2	Metronome 2
97	R8 Click	R8 Click	R8 Click	R8 Click
98	Metronome 1	Metronome 1	Metronome 1	Metronome 1
99	R&B 1 HClaps	Hand Claps	Hand Claps	Hand Claps
100	R&B 1 CrCym1	House Tom2 L	-----	-----
101	Rock RdCym2	House Tom2 M	-----	-----
102	Tambourine 1	House Rim	-----	-----
103	Rock CrCym2	House Tom2 H	-----	-----

Rhythm Set List

Note No.	PA (Preset A Group) 001 PopDrumSet 1	PA (Preset A Group) 002 PopDrumSet 2	PB (Preset B Group) 001 PowerDrumSet	PB (Preset B Group) 002 RaveDrumSet	PC (Preset C Group) 001 JazzDrumSet2	PC (Preset C Group) 002 OrchDrumSet
28	-----	-----	-----	-----	-----	-----
29	-----	-----	-----	-----	-----	-----
30	-----	-----	-----	-----	-----	-----
31	-----	-----	-----	-----	-----	-----
32	-----	-----	-----	-----	-----	-----
33	-----	-----	-----	-----	-----	-----
34	-----	-----	-----	-----	-----	-----
35	Verb Kick	Hybrid Kick	Verb Kick	808 Kick	Round Kick	Old Kick
C2 36	Hybrid Kick	Round Kick	Round Kick	Round Kick	Old Kick	Round Kick
37	Side Stick	Dry Stick 2	Dry Stick 2	Side Stick	Side Stick	Side Stick
38	Natural SN2	Piccolo SN	Piccolo SN	808 SN	Ballad SN	Ballad SN
39	808 Claps	Hand Claps	808 Claps	808 Claps	Hand Claps	808 Claps
40	SN Roll	Piccolo SN	Natural SN2	808 SN	SN Roll	SN Roll
41	Verb Tom Lo	Verb Tom Lo	Verb Tom Lo	808 Kick	Verb Tom Lo	Timpani
42	Cl HiHat 4	Cl HiHat 4	Cl HiHat 4	606 Cl HiHat	Cl HiHat 5	Timpani
43	Verb Tom Lo	Verb Tom Lo	Verb Tom Lo	Tekno Hit	Dry Tom Lo	Timpani
44	Cl HiHat 5	Cl HiHat 5	Pedal HiHat2	606 Cl HiHat	Pedal HiHat2	Timpani
45	Verb Tom Hi	Verb Tom Hi	Verb Tom Lo	808 Kick	Verb Tom Lo	Timpani
46	Op HiHat 2	Op HiHat 2	Op HiHat 2	606 Op HiHat	Op HiHat 2	Timpani
47	Verb Tom Hi	Verb Tom Hi	Verb Tom Lo	Tekno Hit	Dry Tom Lo	Timpani
C3 48	Verb Tom Hi	Verb Tom Hi	Verb Tom Hi	808 Kick	Verb Tom Hi	Timpani
49	Crash 1	Crash 1	Crash 1	Crash 1	Crash 1	Timpani
50	Verb Tom Hi	Verb Tom Hi	Verb Tom Hi	Tekno Hit	Dry Tom Hi	Timpani
51	Ride 2	Ride 1	Ride 1	Voice Breath	Ride 2	Timpani
52	China Cym	China Cym	China Cym	MC500 Beep 1	China Cym	Timpani
53	Ride Bell	Ride Bell	Ride Bell	MC500 Beep 2	Ride Bell	Timpani
54	Tambourine 1	Tambourine 1	Tambourine 1	R8 Click	Tambourine 1	Tambourine 1
55	Crash 1	Crash 1	Crash 1	Pizz	Crash 1	Crash 1
56	Cowbell	Cowbell	Cowbell	DIGI Bell 1	Cowbell	Cowbell
57	Crash 1	Crash 1	Crash 1	Rattles	Crash 1	Crash 1
58	Cowbell	Cowbell	Vibraslap	Ride Bell	Vibraslap	Ride 1
59	Ride Bell	Ride Bell	Ride 1	REV Tamb 1	Ride 2	Ride 2
C4 60	Cga Mute Hi	Cga Mute Hi	Bongo Hi	2.2 Vibwave	Bongo Hi	Bongo Hi
61	Cga Mute Lo	Cga Mute Lo	Bongo Lo	Low Pink NZ	Bongo Lo	Bongo Lo
62	Cga Slap	Cga Slap	Cga Mute Hi	Kalimba	Cga Mute Hi	Cga Mute Hi
63	Cga Open Hi	Cga Open Hi	Cga Open Hi	Metal Wind	Cga Open Hi	Cga Open Hi
64	Cga Open Lo	Cga Open Lo	Cga Open Lo	Lead Wave	Cga Open Lo	Cga Open Lo
65	Timbale	Timbale	Timbale	Tin Wave	Timbale	Timbale
66	Timbale	Timbale	Timbale	AgogoBells	Timbale	Timbale
67	AgogoBells	AgogoBells	AgogoBells	Lite Kick	AgogoBells	AgogoBells
68	AgogoBells	AgogoBells	AgogoBells	AgogoBells	AgogoBells	AgogoBells
69	Cabasa Up	Cabasa Up	Cabasa Up	Lite Kick	Cabasa Up	Cabasa Up
70	Maracas	Maracas	Maracas	AgogoBells	Maracas	Maracas
71	Soft Pad A	Cabasa Down	Soft Pad A	Gtr Harm A	Soft Pad A	Soft Pad A
C5 72	Soft Pad B	Cabasa Cut	Soft Pad B	Gtr Harm A	Brush Swish	Soft Pad B
73	Long Guiro	808 Kick	Long Guiro	Piano Thump	Long Guiro	Long Guiro
74	Long Guiro	808 SN	Long Guiro	Natural SN1	Long Guiro	Long Guiro
75	Claves	DIGI Bell 1	Claves	Hand Claps	Claves	Claves
76	Wood Block	808 SN	Wood Block	Natural SN1	Wood Block	Wood Block
77	Wood Block	808 Kick	Wood Block	808 SN	Metronome 2	Wood Block
78	Cuica	Spectrum	Cuica	PowerChord B	Cuica	Cuica
79	Cuica	808 Kick	Cuica	Hybrid Kick2	Cuica	Cuica
80	Open Triangl	Spectrum	Open Triangl	PowerChord B	Open Triangl	Open Triangl
81	Open Triangl	808 Kick	Open Triangl	Gt.FretNoise	Open Triangl	Open Triangl
82	Cabasa Cut	Spectrum	Maracas	Banjo B	Cabasa Cut	Cabasa Cut
83	Spectrum	808 Kick	Ice Rain	Slap Bass 1	Spectrum	Spectrum
C6 84	Wind Chimes	808 Kick	Wind Chimes	Oboe mf A	Wind Chimes	Wind Chimes
85	Wood Block	Feedbackwave	Claves	Shakuhachi	Wood Block	Wood Block
86	Cga Slap	808 Kick	808 SN	Pizz	Cga Slap	Cga Slap
87	Dry Tom Lo	Feedbackwave	Verb Tom Hi	Syn Vox 1	Dry Tom Lo	Dry Tom Lo
88	Lite Kick	Pop Voice	Piccolo SN	Voice Aahs A	Lite Kick	Applause
89	Hybrid Kick2	Pop Voice	Scratch 3	Voice Oohs2A	Hybrid Kick2	Hybrid Kick2
90	Old Kick	Wind Agogo	Tin Wave	Pop Voice	Old Kick	Cl HiHat 4
91	Pop Voice	Pop Voice	Spectrum	Male Ooh A	Natural SN2	Round Kick
92	Wind Agogo	Wind Agogo	REV Steel DR	Voice Breath	Natural SN1	Pedal HiHat2
93	Op HiHat 2	Op HiHat 2	REV Tin Wave	Org Vox C	Brush Swish	Natural SN2
94	Anklungs	Anklungs	REV PiccloSN	Vox Noise	Brush Roll	Op HiHat 2
95	Op HiHat 2	Op HiHat 2	REV Crash 1	Vox Noise	Brush Slap	Brush Slap
C7 96	Metronome 2	Metronome 2	Metronome 2	Applause	Metronome 2	Brush Swish
97	R8 Click	R8 Click	R8 Click	R8 Click	R8 Click	Brush Roll
98	Metronome 1	Metronome 1	Metronome 1	Metronome 2	Metronome 1	SN Roll
99	-----	-----	-----	-----	-----	-----



Note No.	PD (Preset D Group) 001 PowerDrmSet2	PD (Preset D Group) 002 PowerRaveSet	PE (Preset E Group) 001 XV Pop Kit	PE (Preset E Group) 002 XV Rock Kit	PF (Preset F Group) 001 XV Jazz Kit	PF (Preset F Group) 002 XV Rust Kit
28	-----	-----	Dance Kick	Dance Kick	JazzDry Kick	70s Kick 2
29	-----	-----	Dry Kick	Round Kick	Pillow Kick	Old Kick
30	-----	-----	Rock Roll	Rock Roll	Jazz Swish	Rock Roll
31	-----	-----	Hybrid Kick	Jazz Kick	Hybrid Kick2	909 Kick 2
32	-----	-----	Snare Ghost	Rock Gst	Snare Ghost	Rock Gst
33	-----	-----	Round Kick	Verb Kick	MplLmtr Kick	909 Kick 1
34	-----	-----	Rock PdHH	Rock PdHH	Jazz PdHH	Rock PdHH
35	Verb Kick	Verb Kick	Hybrid Kick2	Maple Kick	JazzDry Kick	808 Kick
C2 36	Round Kick	Round Kick	Old Kick	Rock Kick	Jazz Kick	Dance Kick
37	Dry Stick 2	Dry Stick 2	Side Stick	RockStick	Dry Stick 2	RockStick
38	Piccolo SN	Piccolo SN	Wet SN	Rock SN	Jazz SN	Old Fill SN
39	808 Claps	808 Claps	Snare Ghost	Rock Gst	Snare Ghost	Rock Gst
40	SN Roll	Natural SN2	AmbientSN	Rock Rim	Jazz Rim	Rock SN
41	Verb Tom Lo	Verb Tom Lo	Maple Tom 3	Rock TomL2	Jazz Tom L	Elec.Tom L2
42	Cl HiHat 4	Cl HiHat 4	Rock ClHH2	Rock ClHH2	Jazz ClHH1	Rock ClHH1
43	Verb Tom Lo	Verb Tom Lo	Rock Flm L2	Rock Flm L2	Jazz Flm L	Elec.Tom L1
44	Pedal HiHat2	Pedal HiHat2	Rock ClHH1	Rock ClHH1	Jazz ClHH2	Rock ClHH2
45	Verb Tom Lo	Verb Tom Lo	Maple Tom 2	Rock Tom M	Jazz Tom M	Elec.Tom M
46	Op HiHat 2	Op HiHat 2	Rock OpHH	Rock OpHH	Jazz OpHH	Rock OpHH
47	Verb Tom Lo	Verb Tom Lo	Rock Flm M	Rock Flm M	Jazz Flm M	Elec.Tom M
C3 48	Verb Tom Hi	Verb Tom Hi	Maple Tom 1	Rock Tom H	Jazz Tom H	Elec.Tom H
49	Crash 1	Crash 1	Crash Cymbal	Rock CrCym1	Jazz CrCym	Rock CrCym1
50	Verb Tom Hi	Verb Tom Hi	Rock Flm H	Rock Flm H	Jazz Flm H	Elec.Tom H
51	Ride 1	Ride 1	Rock RdCym1	Rock RdCym1	Jazz RdCym	Rock RdCym1
52	China Cym	China Cym	Crash 1	Rock China	Rock RdCym1	Rock CrCym2
53	Ride Bell	Ride Bell	Rock RdCym2	Rock RdCym2	Rock RdCym1	Rock RdCym2
54	Tambourine 1	Tambourine 1	Tambourine 2	Tambourine 2	Tambourine 1	Tambourine 1
55	Crash 1	Crash 1	Rock CrCym2	Rock CrCym2	Crash 1	Rock Splash
56	Cowbell	Cowbell	Cowbell Lo	Cowbell Lo	Cowbell Lo	Cowbell
57	Crash 1	Crash 1	Crash 1	Crash 1	Crash 1	China Cym
58	Vibraslap	Vibraslap	Cowbell Hi	Cowbell Hi	Cowbell Hi	Vibraslap
59	Ride 1	Ride 1	Ride Bell	Ride Bell	Ride Bell	70s Kick 2
C4 60	Bongo Hi	Bongo Hi	Cga Mute Hi	Cga Mute Hi	Cga Mute Hi	70s Kick 1
61	Bongo Lo	Bongo Lo	Cga Mute Lo	Cga Mute Lo	Cga Mute Lo	Dry Stick
62	Cga Mute Hi	Cga Mute Hi	Cga Slap	Cga Slap	Cga Slap	70s SN
63	Cga Open Hi	Cga Open Hi	Cga Open Hi	Cga Open Hi	Cga Open Hi	Finger Snaps
64	Cga Open Lo	Cga Open Lo	Cga Open Lo	Cga Open Lo	Cga Open Lo	HumanClapsEQ
65	Timbale	Timbale	Timbale Hi	Timbale Hi	Timbale Hi	JD Cowbell
66	Timbale	Timbale	Timbale Lo	Timbale Lo	Timbale Lo	70s Cl HiHat
67	AgogoBells	AgogoBells	AgogoBellsHi	AgogoBellsHi	AgogoBellsHi	AgogoBells
68	AgogoBells	AgogoBells	AgogoBellsLo	AgogoBellsLo	AgogoBellsLo	70s Cl HiHat
69	Cabasa Up	AgogoBells	Cabasa Up	Cabasa Up	Cabasa Up	909 NZ HiHat
70	Maracas	Maracas	Maracas	Maracas	Maracas	70s Op HiHat
71	Soft Pad A	606 Cl HiHat	ShortWhistle	ShortWhistle	ShortWhistle	Cabasa Up
C5 72	Soft Pad B	606 Cl HiHat	Long Whistle	Long Whistle	Long Whistle	Long Whistle
73	Long Guiro	606 Op HiHat	Short Guiro	Short Guiro	Short Guiro	REV RkOpHH f
74	Long Guiro	Long Guiro	Long Guiro	Long Guiro	Long Guiro	Tambourine 2
75	Claves	Claves	Claves	Claves	Claves	REV JzOpHH f
76	Wood Block	Wood Block	WoodBlock Hi	WoodBlock Hi	WoodBlock Hi	Scratch 2
77	Wood Block	Wood Block	WoodBlock Lo	WoodBlock Lo	WoodBlock Lo	Mute Triangl
78	Cuica	Pizz	Mute Cuica	Mute Cuica	Mute Cuica	909 Cl HiHat
79	Cuica	Syn Vox 1	Open Cuica	Open Cuica	Open Cuica	Open Triangl
80	Open Triangl	Voice Aahs A	Mute Triangl	Mute Triangl	Mute Triangl	909 Cl HiHat
81	Open Triangl	Voice Oohs2A	Open Triangl	Open Triangl	Open Triangl	Cabasa
82	Maracas	Male Ooh A	Cabasa Cut	Cabasa Cut	Cabasa Cut	909 Op HiHat
83	Ice Rain	Ice Rain	Spectrum	Spectrum	Spectrum	Spectrum
C6 84	Wind Chimes	808 SN	Wind Chimes	Wind Chimes	Wind Chimes	Maple Kick
85	Claves	808 SN	Wood Block	Wood Block	Wood Block	Woody Stick
86	808 SN	808 SN	Mute Surdo	Mute Surdo	Mute Surdo	Maple SN
87	Verb Tom Hi	Hand Claps	Open Surdo	Open Surdo	Open Surdo	SN Roll
88	Piccolo SN	Voice Breath	Lite Kick	Lite Kick	Lite Kick	Maple Tom 3
89	Scratch 3	Scratch 3	Hybrid Kick2	Hybrid Kick2	Hybrid Kick2	909 Kick 1
90	Tin Wave	Tin Wave	Old Kick	Old Kick	Old Kick	Old Kick
91	Spectrum	Crash 1	Pop Voice	Pop Voice	Pop Voice	808 Kick
92	REV Steel DR	Ride Bell	Wind Agogo	Wind Agogo	Wind Agogo	909 SN 2
93	REV Tin Wave	REV Tin Wave	Op HiHat 2	Op HiHat 2	Op HiHat 2	909 SN 1
94	REV PiccloSN	DIGI Bell 1	Anklungs	Anklungs	Anklungs	808 SN
95	REV Crash 1	Metal Wind	Op HiHat 2	Op HiHat 2	Op HiHat 2	Dance Kick
C7 96	Metronome 2	Applause	Metronome 2	Metronome 2	Metronome 2	REV Timp3
97	R8 Click	R8 Click	R8 Click	R8 Click	R8 Click	R8 Click
98	Metronome 1	Metronome 1	Metronome 1	Metronome 1	Metronome 1	Metronome 2
99	-----	-----	Hand Claps	Hand Claps	Hand Claps	808 Claps

Rhythm Set List

PG (Preset G Group)

PH (Preset H Group)

Note No.	PG 001 XV WayHipKit	PG 002 XV Bully Kit	PH 001 R&B Kit 1	PH 002 House Kit
28	808 Kick	808 Kick	Dance Kick	House Kick 6
29	Dry Kick	Jazz Kick	Dry Kick	House Kick 5
30	WHip Sweep	Jazz Roll	R&B1 SN Roll	House ClHH 3
31	Noisy Kick	Old Kick	Hybrid Kick	House Kick 4
32	WHip RimShot	Brush Slap	R&B1 SN Ghst	Reso Stick
33	Hybrid Kick	Hybrid Kick	Round Kick	House Kick 3
34	WHip PdHH	Bully PdHH	R&B 1 PdHH	House OpHH 2
35	WHip OldKick	909 Kick 1	R&B 1 Kick 2	House Kick 2
C2 36	WHip 909Kick	909 Kick 2	R&B 1 Kick 1	House Kick 1
37	WHip Stik	Woody Stick	R&B 1 Stick	House Stick
38	WHip 70s Snr	909 Snare	R&B 1 SN 1	House SN 1
39	WHip Clap	808 Claps	Snare Ghost	House Claps
40	WHip Snare	808 Snare	R&B 1 SN 2	House SN 2
41	SciHip Tom L	Bully Tom L2	R&B 1 Tom L	House NzTomL
42	WHip ClHH 1	Bully ClHH 1	R&B 1 ClHH 1	House ClHH 1
43	WHip Tom L	Bully Tom L1	Rock Flm L	808 Tom L
44	WHip ClHH 2	Bully ClHH 2	R&B 1 ClHH 2	House ClHH 2
45	SciHip Tom M	Bully Tom M	R&B 1 Tom M	House NzTomM
46	WHip Op HH	Bully OpHH	R&B 1 OpHH	House OpHH
47	WHip Tom M	Bully Tom M	Rock Flm M	808 Tom M
C3 48	SciHip Tom H	Bully Tom H	R&B 1 Tom H	House NzTomH
49	Crash Cymbal	Crash	R&B 1 CrCym1	House CrCym
50	WHip Tom H	Bully Tom H	Rock Flm H	808 Tom H
51	Rock RdCym 1	Ride	Rock RdCym1	House FbkCym
52	Rock CrCym 1	China Cym	R&B 1 CrCym2	House SN 3
53	Rock RdCym 2	Ride Bell	Rock RdCym2	House FSnaps
54	Tambourine	Tambourine	Tambourine 1	House ClHH 4
55	Rock CrCym 2	Crash	Rock CrCym2	House Cowbel
56	LoFiCowbell1	Cowbell 1	Cowbell Lo	House ClHH 5
57	Crash	Cymbal	Crash 1	House WBlock
58	LoFiCowbell2	Cowbell 2	Cowbell Hi	House OpHH 3
59	Ride Bell	Rock RdCym	Ride Bell	House Claps2
C4 60	Cga Mute Hi	LoFi Cga MtH	Bongo Hi	House Cabasa
61	Cga Mute Lo	LoFi Cga MtL	Bongo Lo	House WCrak
62	LoFi Cga Slp	LoFi Cga Slp	Cga Mute Hi	House VoxNz
63	LoFi Cga Hi	LoFi Cga OpH	Cga Open Hi	House Kick 7
64	LoFi Cga Lo	LoFi Cga OpL	Cga Open Lo	Timp 3
65	El.TimbaleHi	Timbale Hi	Timbale Hi	House Bird
66	El.TimbaleLo	Timbale Lo	Timbale Lo	House Gun
67	El.Agogo Hi	AgogoBell Hi	R&B 1 AgBel1	House FBell
68	El.Agogo Lo	AgogoBell Lo	R&B 1 AgBel2	House Rattle
69	NoisyCabasa1	Cabasa Up	R&B 1 AgBel3	House RvOHit
70	Nz Blip	Maracas	Maracas	House Noize1
71	Digi Pulse 1	Noise Stop	606 Cl HiHat	House Noize2
C5 72	Digi Pulse 2	Noise Open	606 Cl HiHat	House BongoL
73	LoFi Guiro	Rattles Stop	606 Op HiHat	House BongoH
74	WHip Noise 1	Rattles	Long Guiro	House Tambrn
75	WHip Noise 2	Claves	Claves	House Heart
76	WHip Noise 3	StrikePole	Wood BlockHi	House CgaSlp
77	WHip Noise 4	GtrBody Hit	Wood BlockLo	House CgMute
78	Digi Tamb. 1	LoFi Cuica 1	R&B 1 Pizz	House Tri
79	Digi Tamb. 2	LoFi Cuica 2	R&B 1 Gmlan1	House Vibra
80	Mute Triangl	Mute Triangl	R&B 1 Gmlan2	House FXLoop
81	Open Triangl	Open Triangl	R&B 1 BtlHit	House Aplase
82	NoisyCabasa2	Cabasa Cut	R&B 1 ThrilL	House Chord
83	Nz Spectrum	Spectrum	R&B 1 ThrilH	House OrcHit
C6 84	LoFi Block	Wind Chimes	808 SN	House Spectr
85	Rattle Block	Steps	R&B 1 WdBlk	House Train
86	Steps	GtrString Nz	R&B 1 CgSlap	House StrSip
87	WHip Noise 5	BreathNoise	Dry Tom L	House Crunch
88	Creak	REV 909 Kick	Lite Kick	House Tel2
89	Bubble	REV 909 Snr	Hybrid Kick2	House Bubble
90	Door Slam	Pitch Wind	Old Kick	Bird
91	Sci Punch	Oohs Chord L	Pop Voice	House Gun 2
92	Noise Fall	Metal Wind	Wind Agogo	House Metro
93	WHip Noise 6	909 Op HiHat	R&B 1 OpHH	House BakHit
94	WHip Noise 7	SlowAnklungs	Anklungs	House TekHit
95	Org Click	Block	R&B 1 OpHH	House SNRoll
C7 96	Metronome 2	Metronome 2	Metronome 2	House Loop
97	R8 Click	R8 Click	R8 Click	R8 Click
98	Metronome 1	Metronome 1	Metronome 1	Metronome 1
99	Hand Claps	Hand Claps	R&B 1 HClaps	Hand Claps
100	-----	-----	R&B 1 CrCym1	House Tom2 L
101	-----	-----	Rock RdCym2	House Tom2 M
102	-----	-----	Tambourine 1	House Rim
103	-----	-----	Rock CrCym2	House Tom2 H

GM (GM2 Group)

Note No.	001 (PC: 1) GM2 STANDARD	002 (PC: 9) GM2 ROOM	003 (PC: 17) GM2 POWER	004 (PC: 25) GM2 ELECTRIC	005 (PC: 26) GM2 ANALOG	006 (PC: 33) GM2 JAZZ
27	High-Q	High-Q	High-Q	High-Q	High-Q	High-Q
28	Slap	Slap	Slap	Slap	Slap	Slap
29	ScratchPush	ScratchPush	ScratchPush	ScratchPush	ScratchPush	ScratchPush
30	ScratchPull	ScratchPull	ScratchPull	ScratchPull	ScratchPull	ScratchPull
31	Sticks	Sticks	Sticks	Sticks	Sticks	Sticks
32	SquareClick	SquareClick	SquareClick	SquareClick	SquareClick	SquareClick
33	Mtrnm.Click	Mtrnm.Click	Mtrnm.Click	Mtrnm.Click	Mtrnm.Click	Mtrnm.Click
34	Mtrnm. Bell	Mtrnm. Bell	Mtrnm. Bell	Mtrnm. Bell	Mtrnm. Bell	Mtrnm. Bell
35	Mix Kick	Mix Kick	Mix Kick	Mix Kick	Mix Kick	Jazz Kick 2
C2 36	Standard KK1	Standard KK1	Power Kick1	Elec Kick 1	TR-808 Kick	Jazz Kick 1
37	Side Stick	Side Stick	Side Stick	Side Stick	808 Rimshot	Side Stick
38	Standard SN1	Standard SN1	Dance Snare1	Elec. Snare	808 Snare 1	Standard SN1
39	909 HandClap	909 HandClap	909 HandClap	909 HandClap	909 HandClap	909 HandClap
40	Elec Snare 3	Elec Snare 3	Elec Snare 3	Elec Snare 2	Elec Snare 3	Elec Snare 3
41	Real Tom 6	Room Tom 5	Rock Tom 4	Synth Drum 2	808 Tom 2	Real Tom 6
42	Close HiHat2	Close HiHat2	Close HiHat2	Close HiHat2	TR-808 CHH	Close HiHat2
43	Real Tom 6	Room Tom 5	Rock Tom 4	Synth Drum 2	808 Tom 2	Real Tom 6
44	Pedal HiHat2	Pedal HiHat2	Pedal HiHat2	Pedal HiHat2	808__chh	Pedal HiHat2
45	Real Tom 4	Room Tom 2	Rock Tom 4	Synth Drum 2	808 Tom 2	Real Tom 4
46	Open HiHat2	Open HiHat2	Open HiHat2	Open HiHat2	TR-808 OHH	Open HiHat2
47	Real Tom 4	Room Tom 2	Rock Tom 4	Synth Drum 2	808 Tom 2	Real Tom 4
C3 48	Real Tom 1	Room Tom 2	Rock Tom 1	Synth Drum 2	808 Tom 2	Real Tom 1
49	Crash Cym.1	Crash Cym.1	Crash Cym.1	Crash Cym.1	808 Crash	Crash Cym.1
50	Real Tom 1	Room Tom 2	Rock Tom 1	Synth Drum 2	808 Tom 2	Real Tom 1
51	Ride Cymbal	Ride Cymbal	Ride Cymbal	Ride Cymbal	Ride Cymbal	Ride Cymbal
52	ChinaCymbal	ChinaCymbal	ChinaCymbal	ReverseCymbl	ChinaCymbal	ChinaCymbal
53	Ride Bell	Ride Bell	Ride Bell	Ride Bell	Ride Bell	Ride Bell
54	Tambourine	Tambourine	Tambourine	Tambourine	Tambourine	Tambourine
55	Splash Cym.	Splash Cym.	Splash Cym.	Splash Cym.	Splash Cym.	Splash Cym.
56	Cowbell	Cowbell	Cowbell	Cowbell	808cowbe	Cowbell
57	Crash Cym.2	Crash Cym.2	Crash Cym.2	Crash Cym.2	Crash Cym.2	Crash Cym.2
58	Vibraslap	Vibraslap	Vibraslap	Vibraslap	Vibraslap	Vibraslap
59	Ride Cymbal	Ride Cymbal	Ride Cymbal	Ride Cymbal	Ride Cymbal	Ride Cymbal
C4 60	Bongo High	Bongo High	Bongo High	Bongo High	Bongo High	Bongo High
61	Bongo Lo	Bongo Lo	Bongo Lo	Bongo Lo	Bongo Lo	Bongo Lo
62	Mute H.Conga	Mute H.Conga	Mute H.Conga	Mute H.Conga	808 Conga	Mute H.Conga
63	Conga Hi Opn	Conga Hi Opn	Conga Hi Opn	Conga Hi Opn	808 Conga	Conga Hi Opn
64	Conga Lo Opn	Conga Lo Opn	Conga Lo Opn	Conga Lo Opn	808 Conga	Conga Lo Opn
65	High Timbale	High Timbale	High Timbale	High Timbale	High Timbale	High Timbale
66	Low Timbale	Low Timbale	Low Timbale	Low Timbale	Low Timbale	Low Timbale
67	Agogo	Agogo	Agogo	Agogo	Agogo	Agogo
68	Agogo	Agogo	Agogo	Agogo	Agogo	Agogo
69	Cabasa	Cabasa	Cabasa	Cabasa	Cabasa	Cabasa
70	Maracas	Maracas	Maracas	Maracas	808marac	Maracas
71	ShrtWhistle	ShrtWhistle	ShrtWhistle	ShrtWhistle	ShrtWhistle	ShrtWhistle
C5 72	LongWhistle	LongWhistle	LongWhistle	LongWhistle	LongWhistle	LongWhistle
73	Short Guiro	Short Guiro	Short Guiro	Short Guiro	Short Guiro	Short Guiro
74	Long Guiro	Long Guiro	Long Guiro	Long Guiro	Long Guiro	Long Guiro
75	Claves	Claves	Claves	Claves	808clave	Claves
76	Woodblock	Woodblock	Woodblock	Woodblock	Woodblock	Woodblock
77	Woodblock	Woodblock	Woodblock	Woodblock	Woodblock	Woodblock
78	Mute Cuica	Mute Cuica	Mute Cuica	Mute Cuica	Mute Cuica	Mute Cuica
79	Open Cuica	Open Cuica	Open Cuica	Open Cuica	Open Cuica	Open Cuica
80	MuteTriangl	MuteTriangl	MuteTriangl	MuteTriangl	MuteTriangl	MuteTriangl
81	OpenTriangl	OpenTriangl	OpenTriangl	OpenTriangl	OpenTriangl	OpenTriangl
82	Shaker	Shaker	Shaker	Shaker	Shaker	Shaker
83	Jingle Bell	Jingle Bell	Jingle Bell	Jingle Bell	Jingle Bell	Jingle Bell
C6 84	Bell Tree	Bell Tree	Bell Tree	Bell Tree	Bell Tree	Bell Tree
85	Castanets	Castanets	Castanets	Castanets	Castanets	Castanets
86	Mute Surdo	Mute Surdo	Mute Surdo	Mute Surdo	Mute Surdo	Mute Surdo
87	Open Surdo	Open Surdo	Open Surdo	Open Surdo	Open Surdo	Open Surdo
88	-----	-----	-----	-----	-----	-----

PC: Program Change Number Bank Select MSB is all 120, LSB is all 0

Rhythm Set List

GM (GM2 Group)

Note No.	007 (PC: 41) GM2 BRUSH	008 (PC: 49) GM2 ORCHSTRA	009 (PC: 57) GM2 SFX
27	High-Q	Close HiHat2	-----
28	Slap	Pedal HiHat2	-----
29	ScratchPush	Open HiHat2	-----
30	ScratchPull	Ride Cymbal	-----
31	Sticks	Sticks	-----
32	SquareClick	SquareClick	-----
33	Mtrnm.Click	Mtrnm.Click	-----
34	Mtrnm. Bell	Mtrnm. Bell	-----
35	Jazz Kick 2	Concert BD	-----
C2 36	Jazz Kick 1	ConcertBD Mt	-----
37	Side Stick	Side Stick	-----
38	Brush Swirl	Concert Snr	-----
39	Brush Slap1	Castanets	High-Q
40	Brush Swirl	Concert Snr	Slap
41	Real Tom 6	Timpani	ScratchPush
42	Close HiHat2	Timpani	ScratchPull
43	Real Tom 6	Timpani	Sticks
44	Pedal HiHat2	Timpani	SquareClick
45	Real Tom 4	Timpani	Mtrnm.Click
46	Open HiHat2	Timpani	Mtrnm. Bell
47	Real Tom 4	Timpani	Gt.FretNoiz
C3 48	Real Tom 1	Timpani	Gt.CutNoise
49	Crash Cym.1	Timpani	Gt.CutNoise
50	Real Tom 1	Timpani	String Slap
51	Ride Cymbal	Timpani	Fl.KeyClick
52	ChinaCymbal	Timpani	Laughing
53	Ride Bell	Timpani	Screaming
54	Tambourine	Tambourine	Punch
55	Splash Cym.	Splash Cym.	Heart Beat
56	Cowbell	Cowbell	Footsteps
57	Crash Cym.2	Con.Cymbal2	Footsteps
58	Vibraslap	Vibraslap	Applause
59	Ride Cymbal	Concert Cym.	Creaking
C4 60	Bongo High	Bongo High	Door
61	Bongo Lo	Bongo Lo	Scratch
62	Mute H.Conga	Mute H.Conga	Wind Chimes
63	Conga Hi Opn	Conga Hi Opn	Car-Engine
64	Conga Lo Opn	Conga Lo Opn	Car-Stop
65	High Timbale	High Timbale	Car-Pass
66	Low Timbale	Low Timbale	Car-Crash
67	Agogo	Agogo	Siren
68	Agogo	Agogo	Train
69	Cabasa	Cabasa	Jetplane
70	Maracas	Maracas	Helicopter
71	ShrtWhistle	ShrtWhistle	Starship
C5 72	LongWhistle	LongWhistle	Gun Shot
73	Short Guiro	Short Guiro	Machine Gun
74	Long Guiro	Long Guiro	Lasergun
75	Claves	Claves	Explosion
76	Woodblock	Woodblock	Dog
77	Woodblock	Woodblock	HorseGallop
78	Mute Cuica	Mute Cuica	Bird
79	Open Cuica	Open Cuica	Rain
80	MuteTriangl	MuteTriangl	Thunder
81	OpenTriangl	OpenTriangl	Wind
82	Shaker	Shaker	Seashore
83	Jingle Bell	Jingle Bell	Stream
C6 84	Bell Tree	Bell Tree	Bubble
85	Castanets	Castanets	-----
86	Mute Surdo	Mute Surdo	-----
87	Open Surdo	Open Surdo	-----
88	-----	Applause	-----

PC: Program Change Number Bank Select MSB is all 120, LSB is all 0

Performance List

US (User Group)

No.	Name	No.	Name
001	Soaring 5050	033	WayHipKits
002	Analog Stack	034	Symphony JV
003	Watta Gate!	035	BellyPad5050
004	Road2Heaven	036	DulcitarStk
005	My Orchestra	037	Nebular Vox
006	R&B Kit 1	038	Cosmic Dawn
007	AggressiveXV	039	Labyrinth
008	Big Bottom	040	S&H Pad
009	ComplexEcho+	041	EasternSplit
010	Flying Keys	042	Bully Kit
011	Nirvana	043	TeknoSplit 1
012	PhsDyno&Bs	044	ChildrenSplt
013	StPhaserStak	045	Organ / Lead
014	Hit it! RSS	046	Pad / Lead
015	Barococo	047	Bass / Lead
016	BellPad 5050	048	S&H / Pad
017	Dulcimar&Gtr	049	Seq:Template
018	Springy	050	Seq:Techno
019	InstantScore	051	Seq:House
020	Voltage Ctrl	052	Seq:Hip-Hop
021	StereoSlicer	053	Seq:Pop
022	5050 Bells	054	Seq:FunkRock
023	House Kit	055	Seq:HardRock
024	BlisteringXV	056	Seq:Blues
025	XV SweepPad	057	Seq:Ac.Jazz
026	Andreas Cave	058	Seq:Cont.Jz
027	Pad/SqrLd XV	059	Seq:BigBand
028	HybStr 5050	060	Seq:Latin
029	Old Friends	061	Seq:NewAge
030	FM BellLayer	062	Seq:Orch
031	SlicedTrance	063	Seq:Film
032	CrystalVoxXV	064	Seq:GM2Temp

PA (Preset A Group)

No.	Name
001	Seq:Template
002	Seq:Techno
003	Seq:House
004	Seq:Hip-Hop
005	Seq:Pop
006	Seq:FunkRock
007	Seq:HardRock
008	Seq:Blues
009	Seq:Ac.Jazz
010	Seq:Cont.Jz
011	Seq:BigBand
012	Seq:Latin
013	Seq:NewAge
014	Seq:Orch
015	Seq:Film
016	Seq:GM2Temp
017	Soaring 5050
018	Analog Stack
019	Watta Gate!
020	Road2Heaven
021	My Orchestra
022	R&B Kit 1
023	AggressiveXV
024	Big Bottom
025	ComplexEcho+
026	Flying Keys
027	Nirvana
028	PhsDyno&Bs
029	StPhaserStak
030	Hit it! RSS
031	Barococo
032	BellPad 5050

PB (Preset B Group)

No.	Name
001	Dulcimar&Gtr
002	Springy
003	InstantScore
004	Voltage Ctrl
005	StereoSlicer
006	5050 Bells
007	House Kit
008	BlisteringXV
009	XV SweepPad
010	Andreas Cave
011	Pad/SqrLd XV
012	HybStr 5050
013	Old Friends
014	FM BellLayer
015	SlicedTrance
016	CrystalVoxXV
017	WayHipKits
018	Symphony JV
019	BellyPad5050
020	DulcitarStk
021	Nebular Vox
022	Cosmic Dawn
023	Labyrinth
024	S&H Pad
025	EasternSplit
026	Bully Kit
027	TeknoSplit 1
028	ChildrenSplt
029	Organ / Lead
030	Pad / Lead
031	Bass / Lead
032	S&H / Pad

Demo Song List

1. Turbulent © 2001 Roland Corporation

2. Take Control © 2001 Roland Corporation

3. No Return © 2001 Roland Corporation

4. Grow Up © 2001 Roland Corporation

NOTE

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MIDI Implementation

Model: XV-5050
Date: Oct. 4, 2001
Version: 1.00

1. Receive data

■Channel Voice Messages

* Not received in Performance mode when the Receive Switch parameter (PERFORM/MIDI) is OFF.

●Note off

Status	2nd byte	3rd byte
8nH	kkH	vvH
9nH	kkH	00H
n = MIDI channel number:		0H - FH (ch.1 - 16)
kk = note number:		00H - 7FH (0 - 127)
vv = note off velocity:		00H - 7FH (0 - 127)

* Not received when the Envelope Mode parameter (PATCH/CONTROL and RHYTHM/CONTROL) is NO-SUS.

●Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
kk = note number:		00H - 7FH (0 - 127)
vv = note on velocity:		01H - 7FH (1 - 127)

●Polyphonic Key Pressure

Status	2nd byte	3rd byte
AnH	kkH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
kk = note number:		00H - 7FH (0 - 127)
vv = Polyphonic Key Pressure:		00H - 7FH (0 - 127)

* Not received in Performance mode when the Receive Poly Key Pressure parameter (PERFORM/MIDI) is OFF.

●Control Change

* If the corresponding Controller number is selected for the Patch Control Source 1, 2, 3 or 4 parameter (PATCH/CONTROL), the corresponding effect will occur.
* If a Controller number that corresponds to the System Control Source 1, 2, 3 or 4 parameter (SYSTEM/CONTROL) is selected, the specified effect will apply if Patch Control Source 1, 2, 3 or 4 parameter (PATCH/CONTROL) is set to SYS-CTRL1, SYS-CTRL2, SYS-CTRL3 or SYS-CTRL4.

❍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 - 16)
mm, ll = Bank number:		00 00H - 7F 7FH (bank.1 - bank.16384)

* Not received in Performance mode when the Receive Bank Select (PERFORM/MIDI) is OFF.
* The Performances, Patches, and Rhythms corresponding to each Bank Select are as follows.
* The SRX series corresponding to each Bank Select are to see the SRX series owner's manual.

BANK SELECT MSB	LSB	PROGRAM NUMBER	GROUP	NUMBER
085	000	001 – 064	User Performance	001 – 064
	064	001 – 032	Preset Performance A	001 – 032
	065	001 – 032	Preset Performance B	001 – 032
	:		:	
086	000	001 – 004	User Rhythm	001 – 004
	064	001 – 002	Preset Rhythm A	001 – 002
	065	001 – 002	Preset Rhythm B	001 – 002
	:		:	
087	000	001 – 128	User Patch	001 – 128
	064	001 – 128	Preset Patch A	001 – 128
	065	001 – 128	Preset Patch B	001 – 128
	:		:	
092	000 –	001 –	SRX Rhythm	001 –
	:		:	
093	000 –	001 –	SRX Patch	001 –
	:		:	
120		001 – 057	GM Rhythm	001 – 009
121	000 –	001 – 128	GM Patch	001 – 256

❍Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Modulation depth:		00H - 7FH (0 - 127)

* Not received in Performance mode when the Receive Modulation parameter (PERFORM/MIDI) is OFF.

❍Breath type (Controller number 2)

Status	2nd byte	3rd byte
BnH	02H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127)

❍Foot type (Controller number 4)

Status	2nd byte	3rd byte
BnH	04H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127)

❍Portamento Time (Controller number 5)

Status	2nd byte	3rd byte
BnH	05H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Portamento Time:		00H - 7FH (0 - 127)

* In Performance mode the Part Portamento Time parameter (PERFORM/PART) will 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 - 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 - 16)
vv = Volume:		00H - 7FH (0 - 127)

* Not received in Performance mode when the Receive Volume parameter (PERFORM/MIDI) is OFF.
* In Performance mode the Part Level parameter (PERFORM/PART) will change.

❍Balance (Controller number 8)

Status	2nd byte	3rd byte
BnH	08H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Balance:		00H - 7FH (0 - 127)

❍Panpot (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Panpot:		00H - 40H - 7FH (Left - Center - Right)

* Not received in Performance mode when the Receive Pan parameter (PERFORM/MIDI) is OFF.
* In Performance mode the Part Pan parameter (PERFORM/PART) will change.

❍Expression (Controller number 11)

Status	2nd byte	3rd byte
BnH	0BH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Expression:		00H - 7FH (0 - 127)

* Not received when Tone Receive Expression parameter (PATCH/CONTROL or RHYTHM/CONTROL) is OFF.
* Not received in Performance mode when Receive Expression parameter (PERFORM/MIDI) is OFF.

❍Hold 1 (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127) 0-63 = OFF, 64-127 = ON

* Not received when Tone Receive Hold-1 parameter (PATCH/CONTROL or RHYTHM/CONTROL) is OFF.
* Not received in Performance mode when Receive Hold-1 parameter (PERFORM/MIDI) is OFF.

❍Portamento (Controller number 65)

Status	2nd byte	3rd byte
BnH	41H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127) 0 - 63 = OFF, 64 - 127 = ON

* In Performance mode the Part Portamento Switch parameter (PERFORM/PART) will change.

❍Sostenuto (Controller number 66)

Status	2nd byte	3rd byte
BnH	42H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 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 - 16)	
vv = Control value:	00H - 7FH (0 - 127) 0 - 63 = OFF, 64 - 127 = ON	

❍Legato Foot Switch (Controller number 68)

Status	2nd byte	3rd byte
BnH	44H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127) 0 - 63 = OFF, 64 - 127 = ON

* In Performance mode the Part Legato Switch parameter (PERFORM/PART) will change.

❍Hold-2 (Controller number 69)

Status	2nd byte	3rd byte
BnH	45H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127)

* A hold movement isn't done.

❍Resonance (Controller number 71)

Status	2nd byte	3rd byte
BnH	47H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv= Resonance value (relative change):		00H - 40H - 7FH (-64 - 0 - +63),

* In Performance mode the Part Resonance Offset parameter (PERFORM/PART) will change.

❍Release Time (Controller number 72)

Status	2nd byte	3rd byte
BnH	48H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Release Time value (relative change):		00H - 40H - 7FH (-64 - 0 - +63)

* In Performance mode the Part Release Time Offset parameter (PERFORM/PART) will change.

❍Attack time (Controller number 73)

Status	2nd byte	3rd byte
BnH	49H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Attack time value (relative change):		00H - 40H - 7FH (-64 - 0 - +63)

* In Performance mode the Part Attack Time Offset parameter (PERFORM/PART) will change.

❍Cutoff (Controller number 74)

Status	2nd byte	3rd byte
BnH	4AH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Cutoff value (relative change):		00H - 40H - 7FH (-64 - 0 - +63)

* In Performance mode the Part Cutoff Offset parameter (PERFORM/PART) will change.

❍Decay Time (Controller number 75)

Status	2nd byte	3rd byte
BnH	4BH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Decay Time value (relative change):		00H - 40H - 7FH (-64 - 0 - +63)

* In Performance mode the Part Decay Time Offset parameter (PERFORM/PART) will change.

❍Vibrato Rate (Controller number 76)

Status	2nd byte	3rd byte
BnH	4CH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Vibrato Rate value (relative change):		00H - 40H - 7FH (-64 - 0 - +63)

* In Performance mode the Part Vibrato Rate parameter (PERFORM/PART) will change.

❍Vibrato Depth (Controller number 77)

Status	2nd byte	3rd byte
BnH	4DH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Vibrato Depth Value (relative change):		00H - 40H - 7FH (-64 - 0 - +63)

* In Performance mode the Part Vibrato Depth parameter (PERFORM/PART) will change.

❍Vibrato Delay (Controller number 78)

Status	2nd byte	3rd byte
BnH	4EH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Vibrato Delay value (relative change):		00H - 40H - 7FH (-64 - 0 - +63)

* In Performance mode the Part Vibrato Delay parameter (PERFORM/PART) will change.

❍General Purpose Controller 5 (Controller number 80)

Status	2nd byte	3rd byte
BnH	50H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127)

* The Tone Level parameter (PATCH/TVA) of Tone 1 will change.

❍General Purpose Controller 6 (Controller number 81)

Status	2nd byte	3rd byte
BnH	51H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127)

* The Tone Level parameter (PATCH/TVA) of Tone 2 will change.

❍General Purpose Controller 7 (Controller number 82)

Status	2nd byte	3rd byte
BnH	52H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127)

* The Tone Level parameter (PATCH/TVA) of Tone 3 will change.

❍General Purpose Controller 8 (Controller number 83)

Status	2nd byte	3rd byte
BnH	53H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127)

* The Tone Level parameter (PATCH/TVA) of Tone 4 will change.

❍Portamento control (Controller number 84)

Status	2nd byte	3rd byte
BnH	54H	kkH
n = MIDI channel number:		0H - FH (ch.1 - 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.

❍Effect 1 (Reverb Send Level) (Controller number 91)

Status	2nd byte	3rd byte
BnH	5BH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Reverb Send Level:		00H - 7FH (0 - 127)

* In Performance mode the Part Reverb Send Level parameter (PERFORM/EFFECTS) will change.

❍Effect 3 (Chorus Send Level) (Controller number 93)

Status	2nd byte	3rd byte
BnH	5DH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Chorus Send Level:		00H - 7FH (0 - 127)

* In Performance mode the Part Chorus Send Level parameter (PERFORM/EFFECTS) will change.

❍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 - 16)
mm = upper byte (MSB) of parameter number specified by RPN
ll = lower byte (LSB) of parameter number specified by RPN

<<< RPN >>>
Control Changes include RPN (Registered Parameter Numbers), which are extended.
When using RPNs, first RPN (Controller numbers 100 and 101; they can be sent in any order) should be sent in order to select the parameter, then Data Entry (Controller numbers 6 and 38) should be sent to set the value. Once RPN messages are received, Data Entry messages that is received at the same MIDI channel after that are recognized as changing toward the value of the RPN messages. In order not to make any mistakes, transmitting RPN Null is recommended after setting parameters you need.

This device receives the following RPNs.

RPN MSB, LSB	Data entry MSB, LSB	Notes
00H, 00H	mmH, llH	Pitch Bend Sensitivity mm: 00H - 18H (0 - 24 semitones) ll: ignored (processed as 00H) Up to 2 octave can be specified in semitone steps.
* In Performance mode, the Part Bend Range parameter (PERFORM/PART) will change.		
00H, 01H	mmH, llH	Channel Fine Tuning mm, ll: 20 00H - 40 00H - 60 00H (-4096 x 100 / 8192 - 0 - +4096 x 100 / 8192 cent)
* In Performance mode, the Part Fine Tune parameter (PERFORM/PART) will change.		
00H, 02H	mmH, llH	Channel Coarse Tuning mm: 10H - 40H - 70H (-48 - 0 - +48 semitones) ll: ignored (processed as 00H)
* In Performance mode, the Part Coarse Tune parameter (PERFORM/PART) will change.		
00H, 05H	mmH, llH	Modulation Depth Range mm: 00 00H - 06 00H (0 - 16384 x 600 / 16384 cent)
* Not received in Patch mode.		
7FH, 7FH	---, ---	RPN null RPN and NRPN will be set as "unspecified." Once this setting has been made, subsequent Parameter values that were previously set will not change. mm, ll: ignored

●Program Change

Status	2nd byte	
CnH	ppH	
n = MIDI channel number:		0H - FH (ch.1 - 16)
pp = Program number:		00H - 7FH (prog.1 - prog.128)

* Not received in Performance mode when the Receive Program Change parameter (PERFORM/MIDI) is OFF.

●Channel Pressure

Status	2nd byte	
DnH	vvH	
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Channel Pressure:		00H - 7FH (0 - 127)

* Not received in Performance mode when the Receive Channel Pressure parameter (PERFORM/MIDI) is OFF.

●Pitch Bend Change

Status	2nd byte	3rd byte
EnH	llH	mmH
n = MIDI channel number:		0H - FH (ch.1 - 16)
mm, ll = Pitch Bend value:		00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

* Not received when the Tone Receive Bender parameter (PATCH/CONTROL) is OFF.
* Not received in Performance mode when the Receive Pitch Bend parameter (PERFORM/MIDI) is OFF.

■Channel Mode Messages

* Not received in Performance mode when the Receive Switch parameter (PERFORM/MIDI) is OFF.

●All Sounds Off (Controller number 120)

Status	2nd byte	3rd byte
BnH	78H	00H

n = MIDI channel number: 0H - FH (ch.1 - 16)

* When this message is received, all notes currently sounding on the corresponding channel will be turned off.

●Reset All Controllers (Controller number 121)

Status	2nd byte	3rd byte
BnH	79H	00H

n = MIDI channel number: 0H - FH (ch.1 - 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)
Breath Type	0 (min)
Expression	127 (max) However the controller will be at minimum.
Hold 1	0 (off)
Sostenuto	0 (off)
Soft	0 (off)
Hold 2	0 (off)
RPN	unset; previously set data will not change
NRPN	unset; previously set data will not change

●All Notes Off (Controller number 123)

Status	2nd byte	3rd byte
BnH	7BH	00H

n = MIDI channel number: 0H - FH (ch.1 - 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 - 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 - 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 - 16)
mm = mono number:		00H - 10H (0 - 16)

* The same processing will be carried out as when All Notes Off is received.
* In Performance mode, the Part Mono/Poly parameter (PERFORM/PART) will change.

●POLY (Controller number 127)

Status	2nd byte	3rd byte
BnH	7FH	00H

n = MIDI channel number: 0H - FH (ch.1 - 16)

* The same processing will be carried out as when All Notes Off is received.
* In Performance mode, the Part Mono/Poly parameter (PERFORM/PART) will change.

■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: This is the ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message. 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)

Of the System Exclusive messages received by this device, the Universal Non-realtime messages and the Universal Realtime messages and the Data Request (RQ1) messages and the Data Set (DT1) messages will be set automatically.

●Universal Non-realtime System Exclusive Messages

❍Identity Request Message

Status	Data byte	Status
F0H	7EH, dev, 06H, 01H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (dev: 10H - 1FH, 7FH)
06H	Sub ID#1 (General Information)
01H	Sub ID#2 (Identity Request)
F7H	EOX (End Of Exclusive)

* When this message is received, Identity Reply message (p. 161) will be transmitted.

❍GM1 System On

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 1 On)
F7H	EOX (End Of Exclusive)

* When this messages is received, this instrument will turn to the GM mode.
* Not received when the Receive GM1 System On parameter (SYSTEM/MIDI&USB) is OFF.

❍GM2 System On

Status	Data byte	Status
F0H	7EH 7FH 09H 03H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (General MIDI Message)
03H	Sub ID#2 (General MIDI 2 On)
F7H	EOX (End Of Exclusive)

* When this messages is received, this instrument will turn to the GM mode.
* Not received when the Receive GM2 System On parameter (SYSTEM/MIDI&USB) is OFF.

❍GM System Off

Status	Data byte	Status
F0H	7EH, 7F, 09H, 02H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (General MIDI Message)
02H	Sub ID#2 (General MIDI Off)
F7H	EOX (End Of Exclusive)

* When this messages is received, this instrument will return to the Performance mode.

●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)
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.
* The Master Level parameter (SYSTEM/GENERAL) will change.

❍Master Fine Tuning

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 03H, llH, mmH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
03H	Sub ID#2 (Master Fine Tuning)
llH	Master Fine Tuning LSB
mmH	Master Fine Tuning MSB
F7H	EOX (End Of Exclusive)

mm, ll: 00 00H - 40 00H - 7F 7FH (-100 - 0 - +99.9 [cents])

* The Master Tune parameter (SYSTEM/GENERAL) will change.

❍Master Coarse Tuning

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 04H, llH, mmH	F7

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
04H	Sub ID#2 (Master Coarse Tuning)
llH	Master Coarse Tuning LSB
mmH	Master Coarse Tuning MSB
F7H	EOX (End Of Exclusive)

llH:	ignored (processed as 00H)
mmH:	28H - 40H - 58H (-24 - 0 - +24 [semitones])

* The Master Key Shift parameter (SYSTEM/GENERAL) will change.

●Global Parameter Control

* Not received in Patch mode.

❍Reverb Parameters

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 05H, 01H, 01H, 01H, 01H, 01H, ppH, vvH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
05H	Sub ID#2 (Global Parameter Control)
01H	Slot path length
01H	Parameter ID width
01H	Value width
01H	Slot path MSB
01H	Slot path LSB (Effect 0101: Reverb)
ppH	Parameter to be controlled.
vvH	Value for the parameter.
	pp=0 Reverb Type
	vv = 00H Small Room
	vv = 01H Medium Room
	vv = 02H Large Room
	vv = 03H Medium Hall
	vv = 04H Large Hall
	vv = 08H Plate
	pp=1 Reverb Time
	vv = 00H - 7FH 0 - 127
F7H	EOX (End Of Exclusive)

❍Chorus Parameters

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 05H, 01H, 01H, 01H, 01H, 02H, ppH, vvH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
05H	Sub ID#2 (Global Parameter Control)
01H	Slot path length
01H	Parameter ID width
01H	Value width
01H	Slot path MSB
02H	Slot path LSB (Effect 0102: Chorus)
ppH	Parameter to be controlled.
vvH	Value for the parameter.
	pp=0 Chorus Type
	vv=0 Chorus1
	vv=1 Chorus2
	vv=2 Chorus3
	vv=3 Chorus4
	vv=4 FB Chorus
	vv=5 Flanger
	pp=1 Mod Rate
	vv= 00H - 7FH 0 - 127
	pp=2 Mod Depth
	vv = 00H - 7FH 0 - 127
	pp=3 Feedback
	vv = 00H - 7FH 0 - 127
	pp=4 Send To Reverb
	vv = 00H - 7FH 0 - 127
F7H	EOX (End Of Exclusive)

❍Channel Pressure

Status	Data byte	Status
F0H	7FH, 7FH, 09H, 01H, 0nH, ppH, rrH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (Controller Destination Setting)
01H	Sub ID#2 (Channel Pressure)
0nH	MIDI Channel (00 - 0F)
ppH	Controlled parameter
rrH	Controlled range
	pp=0 Pitch Control
	rr = 28H - 58H -24 - +24 [semitones]
	pp=1 Filter Cutoff Control
	rr = 00H - 7FH -9600 - +9450 [cents]
	pp=2 Amplitude Control
	rr = 00H - 7FH 0 - 200%
	pp=3 LFO Pitch Depth
	rr = 00H - 7FH 0 - 600 [cents]
	pp=4 LFO Filter Depth
	rr = 00H - 7FH 0 - 2400 [cents]
	pp=5 LFO Amplitude Depth
	rr = 00H - 7FH 0 - 100%
F7H	EOX (End Of Exclusive)

❍Controller

Status	Data byte	Status
F0H	7FH, 7FH, 09H, 03H, 0nH, ccH, ppH, rrH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (Controller Destination Setting)
03H	Sub ID#2 (Control Change)
0nH	MIDI Channel (00 - 0F)
ccH	Controller number (01 - 1F, 40 - 5F)
ppH	Controlled parameter
rrH	Controlled range
	pp=0 Pitch Control
	rr = 28H - 58H -24 - +24 [semitones]
	pp=1 Filter Cutoff Control
	rr = 00H - 7FH -9600 - +9450 [cents]
	pp=2 Amplitude Control
	rr = 00H - 7FH 0 - 200%
	pp=3 LFO Pitch Depth
	rr = 00H - 7FH 0 - 600 [cents]
	pp=4 LFO Filter Depth
	rr = 00H - 7FH 0 - 2400 [cents]
	pp=5 LFO Amplitude Depth
	rr = 00H - 7FH 0 - 100%
F7H	EOX (End Of Exclusive)

❍Scale/Octave Tuning Adjust

Status	Data byte	Status
F0H	7EH, 7FH, 08H, 08H, ffH, ggH, hhH, ssH...	F7

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
08H	Sub ID#1 (MIDI Tuning Standard)
08H	Sub ID#2 (scale/octave tuning 1-byte form)
ffH	Channel/Option byte 1
	bits 0 to 1 = channel 15 to 16
	bit 2 to 6 = Undefined
ggH	Channel byte 2
	bits 0 to 6 = channel 8 to 14
hhH	Channel byte 3
	bits 0 to 6 = channel 1 to 7
ssH	12 byte tuning offset of 12 semitones from C to B
	00H = -64 [cents]
	40H = 0 [cents] (equal temperament)
	7FH = +63 [cents]
F7H	EOX (End Of Exclusive)

❍Key-based Instrument Controllers

Status	Data byte	Status
F0H	7FH, 7FH, 0AH, 01H, 0nH, kkH, nnH, vvH	F7H

Byte	Explanation	
F0H	Exclusive status	
7FH	ID number (universal realtime message)	
7FH	Device ID (Broadcast)	
0AH	Sub ID#1 (Key-Based Instrument Control)	
01H	Sub ID#2 (Controller)	
0nH	MIDI Channel (00 - 0FH)	
kkH	Key Number	
nnH	Control Number	
vvH	Value	
	nn=07H Level	
	vv = 00H - 7FH	0 - 200% (Relative)
	nn=0AH	Pan
	vv = 00H - 7FH	Left - Right (Absolute)
	nn=5BH	Reverb Send
	vv = 00H - 7FH	0 - 127 (Absolute)
	nn=5D	Chorus Send
	vv = 00H - 7FH	0 - 127 (Absolute)
:	:	
F7	EOX (End Of Exclusive)	

* This parameter affects drum instruments only.

●Data Transmission

This instrument can use exclusive messages to exchange many varieties of internal settings with other devices.
The model ID of the exclusive messages used by this instrument is 00H 10H.

❍Data Request 1 RQ1 (11H)

This message requests the other device to transmit data. The address and size indicate the type and amount of data that is requested.
When a Data Request message is received, if the device is in a state in which it is able to transmit data, and if the address and size are appropriate, the requested data is transmitted as a Data Set 1 (DT1) message. If the conditions are not met, nothing is transmitted.

Status	data byte	status
F0H	41H, dev, 00H, 10H, 11H, aaH, bbH, ccH, ddH, ssH, ttH, uuH, vvH, sum	F7H

Byte	Remarks
F0H	Exclusive status
41H	ID number (Roland)
dev	device ID (dev: 10H - 1FH, 7FH)
00H	model ID #1 (XV-5050)
10H	model ID #2 (XV-5050)
11H	command ID (RQ1)
aaH	address MSB
bbH	address
ccH	address
ddH	address LSB
ssH	size MSB
ttH	size
uuH	size
vvH	size LSB
sum	checksum
F7H	EOX (End Of Exclusive)

* The size of data that can be transmitted at one time is fixed for each type of data. And data requests must be made with a fixed starting address and size. Refer to the address and size given in "Parameter Address Map" (p. 162).
* For the checksum, refer to (p. 174).
* Not received when the Receive Exclusive parameter (SYSTEM/MIDI&USB) is OFF.

❍Data set 1 DT1 (12H)

Status	Data byte	Status
F0H	41H, dev, 00H, 10H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number (Roland)	
dev	Device ID (dev: 00H - 1FH, 7FH)	
00H	Model ID #1 (XV-5050)	
10H	Model ID #2 (XV-5050)	
12H	Command ID (DT1)	
aaH	Address MSB:	upper byte of the starting address of the data to be sent
bbH	Address:	upper middle byte of the starting address of the data to be sent
ccH	Address:	lower middle byte of the starting address of the data to be sent
ddH	Address LSB:	lower byte of the starting address of the data to be sent.
eeH	Data:	the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
:	:	
ffH	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 "Parameter Address Map" (p. 162).
* Data larger than 256 bytes will be divided into packets of 256 bytes or less, and each packet will be sent at an interval of about 20 ms.
* Regarding the checksum, please refer to (p. 174)
* Not received when the Receive Exclusive parameter (SYSTEM/MIDI&USB) is OFF.

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: 10H - 1FH, 7FH)
42H	Model ID (GS)
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 will be transmitted from the specified starting address and size. Refer to the address and size given in "Parameter Address Map" (p. 162).
* Data larger than 256 bytes will be divided into packets of 256 bytes or less, and each packet will be sent at an interval of about 20 ms.
* Regarding the checksum, please refer to (p. 174)
* Not received when the Receive Exclusive parameter (SYSTEM/MIDI&USB) is OFF.

2. Data Transmission

■Channel Voice Messages

When execute the Data Transfer, following Control Changes and Program Change will transmit.

●Control Change

❍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 - 16)
mm, ll = Bank number:		00 00H - 7F 7FH (bank.1 - bank.16384)

❍Portamento Time (Controller number 5)

Status	2nd byte	3rd byte
BnH	05H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Portamento Time:		00H - 7FH (0 - 127)

❍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 - 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 - 16)
vv = Volume:		00H - 7FH (0 - 127)

❍Panpot (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Panpot:		00H - 40H - 7FH (Left - Center - Right),

❍Portamento (Controller number 65)

Status	2nd byte	3rd byte
BnH	41H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Control value:		00H - 7FH (0 - 127) 0 - 63 = OFF, 64 - 127 = ON

❍Resonance (Controller number 71)

Status	2nd byte	3rd byte
BnH	47H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv= Resonance value (relative change):		00H - 40H - 7FH (-64 - 0 - +63)

❍Release Time (Controller number 72)

Status	2nd byte	3rd byte
BnH	48H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Release Time value (relative change):		00H - 40H - 7FH (-64 - 0 - +63)

❍Attack time (Controller number 73)

Status	2nd byte	3rd byte
BnH	49H	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Attack time value (relative change):		00H - 40H - 7FH (-64 - 0 - +63)

❍Cutoff (Controller number 74)

Status	2nd byte	3rd byte
BnH	4AH	vvH
n = MIDI channel number:		0H - FH (ch.1 - 16)
vv = Cutoff value (relative change):		00H - 40H - 7FH (-64 - 0 - +63)

❍Decay Time (Controller number 75)

Status	2nd byte	3rd byte
BnH	4BH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Decay Time value (relative change): 00H - 40H - 7FH (-64 - 0 - +63)

❍Vibrato Rate (Controller number 76)

Status	2nd byte	3rd byte
BnH	4CH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Vibrato Rate value (relative change): 00H - 40H - 7FH (-64 - 0 - +63)

❍Vibrato Depth (Controller number 77)

Status	2nd byte	3rd byte
BnH	4DH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Vibrato Depth value (relative change): 00H - 40H - 7FH (-64 - 0 - +63)

❍Vibrato Delay (Controller number 78)

Status	2nd byte	3rd byte
BnH	4EH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Vibrato Delay value (relative change): 00H - 40H - 7FH (-64 - 0 - +63)

❍Effect 1 (Reverb Send Level) (Controller number 91)

Status	2nd byte	3rd byte
BnH	5BH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Reverb Send Level: 00H - 7FH (0 - 127)

❍Effect 3 (Chorus Send Level) (Controller number 93)

Status	2nd byte	3rd byte
BnH	5DH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
vv = Chorus Send Level: 00H - 7FH (0 - 127)

❍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 - 16)
mm = upper byte (MSB) of parameter number specified by RPN
ll = lower byte (LSB) of parameter number specified by RPN

<<< RPN >>>
Control Changes include RPN (Registered Parameter Numbers), which are extended.
When using RPNs, first RPN (Controller numbers 100 and 101; they can be sent in any order) should be sent in order to select the parameter, then
Data Entry (Controller numbers 6 and 38) should be sent to set the value. Once RPN messages are received, Data Entry messages that is received at the same MIDI channel after that are recognized as changing toward the value of the RPN messages. In order not to make any mistakes, transmitting RPN Null is recommended after setting parameters you need.

This device transmits the following RPNs.

RPN MSB, LSB	Data entry MSB, LSB	Notes
00H, 00H	mmH, llH	Pitch Bend Sensitivity mm: 00H - 18H (0 - 24 semitones) ll: ignored (processed as 00H)
00H, 01H	mmH, llH	Channel Fine Tuning mm, ll: 20 00H - 40 00H - 60 00H (-4096 x 100 / 8192 - 0 - +4096 x 100 / 8192 cent)
00H, 02H	mmH, llH	Channel Coarse Tuning mm: 10H - 40H - 70H (-48 - 0 - +48 semitones) ll: ignored (processed as 00H)
00H, 05H	mmH, llH	Modulation Depth Range mm, ll:00 00H - 06 00H (0 - 16384 x 600 / 16384 cent)
7FH, 7FH	---, ---	RPN null

RPN and NRPN will be set as "unspecified." Once this setting has been made, subsequent

●Program Change

Status	2nd byte
CnH	ppH

n = MIDI channel number: 0H - FH (ch.1 - 16)
pp = Program number: 00H - 7FH (prog.1 - prog.128)

■System Exclusive Messages

Universal Non-realtime System Exclusive Message and Data Set 1 (DT1) are the only System Exclusive messages transmitted by the XV-5050.

●Universal Non-realtime System Exclusive Message

❍Identity Reply Message

Receiving Identity Request Message, the XV-5050 send this message.

Status	Data byte	Status
F0H	7EH, dev, 06H, 02H, 41H, 10H, 01H, 02H, 02H, 03H, 00H, 00H, 00H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (dev: 10H - 1FH)
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
10H 01H	Device family code
02H 02H	Device family number code
03H 00H 00H 00H	Software revision level
F7H	EOX (End of Exclusive)

●Data Transmission

❍Data set 1 DT1 (12H)

Status	Data byte	Status
F0H	41H, dev, 00H, 10H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum	F7H

Byte	Explanation	
F0H	Exclusive status	
41H	ID number (Roland)	
dev	Device ID (dev: 00H - 1FH, 7FH)	
00H	Model ID #1 (XV-5050)	
10H	Model ID #2 (XV-5050)	
12H	Command ID (DT1)	
aaH	Address MSB:	upper byte of the starting address of the data to be sent
bbH	Address:	upper middle byte of the starting address of the data to be sent
ccH	Address:	lower middle byte of the starting address of the data to be sent
ddH	Address LSB:	lower byte of the starting address of the data to be sent.
eeH	Data:	the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
:	:	
ffH	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 "Parameter Address Map" (p. 162).
* Data larger than 256 bytes will be divided into packets of 256 bytes or less, and each packet will be sent at an interval of about 20 ms.

3. Parameter Address Map

* Transmission of "#" marked address is divided to some packets. For example, ABH in hexadecimal notation will be divided to 0AH and 0BH, and is sent/received in this order.

* "<*>" marked address or parameters are ignored when the XV-5050 received them.

■XV-5050 (Model ID = 00H 10H)

Start Address	Description	
01 00 00 00	Setup	*1–1
02 00 00 00	System	*1–2
10 00 00 00	Temporary Performance	*1–3
11 00 00 00	Temporary Patch/Rhythm (Performance Mode Part 1)	*1–4
11 20 00 00	Temporary Patch/Rhythm (Performance Mode Part 2)	
:		
14 60 00 00	Temporary Patch/Rhythm (Performance Mode Part 16)	
1F 00 00 00	Temporary Patch/Rhythm (Patch Mode)	
20 00 00 00	User Performance (01)	*1–3
20 01 00 00	User Performance (02)	
:		
20 3F 00 00	User Performance (64)	
30 00 00 00	User Patch (001)	*1–4–1
30 01 00 00	User Patch (002)	
:		
30 7F 00 00	User Patch (128)	
40 00 00 00	User Rhythm (001)	*1–4–2
40 10 00 00	User Rhythm (002)	
:		
41 30 00 00	User Rhythm (004)	

1-2 System

Offset Address	Description	
00 00 00	System Common	*1–2–1
00 02 00	System EQ	*1–2–2

1-4 Temporary Patch/Rhythm

Offset Address	Description	
00 00 00	Temporary Patch	*1–4–1
10 00 00	Temporary Rhythm	*1–4–2

1-3 Performance

Offset Address	Description	
00 00 00	Performance Common	*1–3–1
00 02 00	Performance Common MFXA	*1–3–2
00 04 00	Performance Common Chorus	*1–3–3
00 06 00	Performance Common Reverb	*1–3–4
00 08 00	Performance Common MFXB	*1–3–2
00 0A 00	Performance Common MFXC	*1–3–2
00 10 00	Performance MIDI (Channel 1)	*1–3–5
00 11 00	Performance MIDI (Channel 2)	
:		
00 1F 00	Performance MIDI (Channel 16)	
00 20 00	Performance Part (Part 1)	*1–3–6
00 21 00	Performance Part (Part 2)	
:		
00 2F 00	Performance Part (Part 16)	

1-4-1 Patch

Offset Address	Description	
00 00 00	Patch Common	*1–4–1–1
00 02 00	Patch Common MFX	*1–4–1–2
00 04 00	Patch Common Chorus	*1–4–1–3
00 06 00	Patch Common Reverb	*1–4–1–4
00 10 00	Patch TMT (Tone Mix Table)	*1–4–1–5
00 20 00	Patch Tone (Tone 1)	*1–4–1–6
00 22 00	Patch Tone (Tone 2)	
00 24 00	Patch Tone (Tone 3)	
00 26 00	Patch Tone (Tone 4)	

1-4-2 Rhythm

Offset Address	Description	
00 00 00	Rhythm Common	*1–4–2–1
00 02 00	Rhythm Common MFX	*1–4–2–2
00 04 00	Rhythm Common Chorus	*1–4–2–3
00 06 00	Rhythm Common Reverb	*1–4–2–4
00 10 00	Rhythm Tone (Key # 21)	*1–4–2–5
00 12 00	Rhythm Tone (Key # 22)	
:		
01 3E 00	Rhythm Tone (Key # 108)	

1-1 Setup

Offset Address		Description	
00 00	0000 0aaa	Sound Mode PATCH, PERFORM, GM1, GM2, GS	(1 – 5)
00 01	0aaa aaaa	(reserved)	
00 02	0aaa aaaa	(reserved)	
00 03	0aaa aaaa	(reserved)	
00 04	0aaa aaaa	Performance Bank Select MSB (CC# 0)	(0 – 127)
00 05	0aaa aaaa	Performance Bank Select LSB (CC# 32)	(0 – 127)
00 06	0aaa aaaa	Performance Program Number (PC)	(0 – 127)
00 07	0aaa aaaa	Patch Bank Select MSB (CC# 0)	(0 – 127)
00 08	0aaa aaaa	Patch Bank Select LSB (CC# 32)	(0 – 127)
00 09	0aaa aaaa	Patch Program Number (PC)	(0 – 127)
00 0A	0000 000a	MFX Switch	(0 – 1) BYPASS, ON
00 0B	0000 000a	Chorus Switch	(0 – 1) OFF, ON
00 0C	0000 000a	Reverb Switch	(0 – 1) OFF, ON
00 0D	0000 aaaa	Transpose Value	(59 – 70) –5 – +6
00 0E	0000 0aaa	Octave Shift	(61 – 67) –3 – +3
00 00 00 0F	Total Size		

1-2-1 System Common

Offset Address		Description	
# 00 00	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Master Tune	(24 – 2024) –100.0 – 100.0 [cent]
00 04	00aa aaaa	Master Key Shift	(40 – 88) –24 – +24
00 05	0aaa aaaa	Master Level	(0 – 127)
00 06	0000 000a	Scale Tune Switch	(0 – 1) OFF, ON
00 07	0000 000a	Patch Remain	(0 – 1) OFF, ON
00 08	0000 000a	Mix/Parallel	(0 – 1) MIX, PARALLEL
00 09	000a aaaa	Performance Control Channel	(0 – 16) 1 – 16, OFF
00 0A	000a aaaa	(reserved)	
00 0B	0000 aaaa	Patch Receive Channel	(0 – 15) 1 – 16
00 0C	0aaa aaaa	Patch Scale Tune for C	(0 – 127) –64 – +63
00 0D	0aaa aaaa	Patch Scale Tune for C#	(0 – 127) –64 – +63
00 0E	0aaa aaaa	Patch Scale Tune for D	(0 – 127) –64 – +63
00 0F	0aaa aaaa	Patch Scale Tune for D#	(0 – 127) –64 – +63
00 10	0aaa aaaa	Patch Scale Tune for E	(0 – 127) –64 – +63
00 11	0aaa aaaa	Patch Scale Tune for F	(0 – 127) –64 – +63
00 12	0aaa aaaa	Patch Scale Tune for F#	(0 – 127) –64 – +63
00 13	0aaa aaaa	Patch Scale Tune for G	(0 – 127) –64 – +63
00 14	0aaa aaaa	Patch Scale Tune for G#	(0 – 127) –64 – +63
00 15	0aaa aaaa	Patch Scale Tune for A	(0 – 127) –64 – +63
00 16	0aaa aaaa	Patch Scale Tune for A#	(0 – 127) –64 – +63
00 17	0aaa aaaa	Patch Scale Tune for B	(0 – 127) –64 – +63
00 18	0aaa aaaa	System Control 1 Source OFF, CC01 – CC31, CC33 – CC95, BEND, AFT	(0 – 97)
00 19	0aaa aaaa	System Control 2 Source OFF, CC01 – CC31, CC33 – CC95, BEND, AFT	(0 – 97)
00 1A	0aaa aaaa	System Control 3 Source OFF, CC01 – CC31, CC33 – CC95, BEND, AFT	(0 – 97)
00 1B	0aaa aaaa	System Control 4 Source OFF, CC01 – CC31, CC33 – CC95, BEND, AFT	(0 – 97)
00 1C	0000 000a	Receive Program Change	(0 – 1) OFF, ON
00 1D	0000 000a	Receive Bank Select	(0 – 1) OFF, ON
00 1E	0000 000a	System Clock Source	(0 – 2) INT, MIDI, USB
# 00 1F	0000 aaaa 0000 bbbb	System Tempo	(20 – 250)
00 00 00 21	Total Size		

1-2-2 System EQ

Offset Address		Description	
00 00	0000 000a	EQ Switch	(0 – 1) BYPASS, ON
00 01	0000 000a	EQ1 Low Frequency	(0 – 1) 200, 400 [Hz]
00 02	000a aaaa	EQ1 Low Gain	(0 – 30) –15 – +15
00 03	0000 00aa	EQ1 High Frequency	(0 – 2) 2000, 4000, 8000 [Hz]
00 04	000a aaaa	EQ1 High Gain	(0 – 30) –15 – +15
00 05	0000 000a	EQ2 Low Frequency	(0 – 1) 200, 400 [Hz]
00 06	000a aaaa	EQ2 Low Gain	(0 – 30) –15 – +15
00 07	0000 00aa	EQ2 High Frequency	(0 – 2) 2000, 4000, 8000 [Hz]
00 08	000a aaaa	EQ2 High Gain	(0 – 30) –15 – +15
00 09	0000 000a	EQ3 Low Frequency	(0 – 1) 200, 400 [Hz]
00 0A	000a aaaa	EQ3 Low Gain	(0 – 30) –15 – +15
00 0B	0000 00aa	EQ3 High Frequency	(0 – 2) 2000, 4000, 8000 [Hz]
00 0C	000a aaaa	EQ3 High Gain	(0 – 30) –15 – +15
00 0D	0000 000a	EQ4 Low Frequency	(0 – 1) 200, 400 [Hz]
00 0E	000a aaaa	EQ4 Low Gain	(0 – 30) –15 – +15
00 0F	0000 00aa	EQ4 High Frequency	(0 – 2) 2000, 4000, 8000 [Hz]

	00 10	000a aaaa	EQ4 High Gain (0 – 30) −15 – +15
00 00 00 11	Total Size		

1-3-1 Performance Common

Offset Address		Description	
	00 00	0aaa aaaa	Performance Name 1 (32 – 127) 32 – 127 [ASCII]
	00 01	0aaa aaaa	Performance Name 2 (32 – 127) 32 – 127 [ASCII]
	00 02	0aaa aaaa	Performance Name 3 (32 – 127) 32 – 127 [ASCII]
	00 03	0aaa aaaa	Performance Name 4 (32 – 127) 32 – 127 [ASCII]
	00 04	0aaa aaaa	Performance Name 5 (32 – 127) 32 – 127 [ASCII]
	00 05	0aaa aaaa	Performance Name 6 (32 – 127) 32 – 127 [ASCII]
	00 06	0aaa aaaa	Performance Name 7 (32 – 127) 32 – 127 [ASCII]
	00 07	0aaa aaaa	Performance Name 8 (32 – 127) 32 – 127 [ASCII]
	00 08	0aaa aaaa	Performance Name 9 (32 – 127) 32 – 127 [ASCII]
	00 09	0aaa aaaa	Performance Name 10 (32 – 127) 32 – 127 [ASCII]
	00 0A	0aaa aaaa	Performance Name 11 (32 – 127) 32 – 127 [ASCII]
	00 0B	0aaa aaaa	Performance Name 12 (32 – 127) 32 – 127 [ASCII]
	00 0C	00aa aaaa	Solo Part Select (0 – 32) OFF, 1 – 16, 17 – 32<*>
	00 0D	000a aaaa	MFX Control Channel (0 – 16) 1 – 16, OFF
	00 0E	0000 000a	MFX Control MIDI1<*> (0 – 1) OFF, ON
	00 0F	0000 000a	MFX Control MIDI2<*> (0 – 1) OFF, ON
	00 10	0aaa aaaa	Voice Reserve 1 (0 – 64) 0 – 63, FULL
	00 11	0aaa aaaa	Voice Reserve 2 (0 – 64) 0 – 63, FULL
	00 12	0aaa aaaa	Voice Reserve 3 (0 – 64) 0 – 63, FULL
	00 13	0aaa aaaa	Voice Reserve 4 (0 – 64) 0 – 63, FULL
	00 14	0aaa aaaa	Voice Reserve 5 (0 – 64) 0 – 63, FULL
	00 15	0aaa aaaa	Voice Reserve 6 (0 – 64) 0 – 63, FULL
	00 16	0aaa aaaa	Voice Reserve 7 (0 – 64) 0 – 63, FULL
	00 17	0aaa aaaa	Voice Reserve 8 (0 – 64) 0 – 63, FULL
	00 18	0aaa aaaa	Voice Reserve 9 (0 – 64) 0 – 63, FULL
	00 19	0aaa aaaa	Voice Reserve 10 (0 – 64) 0 – 63, FULL
	00 1A	0aaa aaaa	Voice Reserve 11 (0 – 64) 0 – 63, FULL
	00 1B	0aaa aaaa	Voice Reserve 12 (0 – 64) 0 – 63, FULL
	00 1C	0aaa aaaa	Voice Reserve 13 (0 – 64) 0 – 63, FULL
	00 1D	0aaa aaaa	Voice Reserve 14 (0 – 64) 0 – 63, FULL
	00 1E	0aaa aaaa	Voice Reserve 15 (0 – 64) 0 – 63, FULL
	00 1F	0aaa aaaa	Voice Reserve 16 (0 – 64) 0 – 63, FULL
	00 20	0aaa aaaa	Voice Reserve 17<*> (0 – 64) 0 – 63, FULL
	00 21	0aaa aaaa	Voice Reserve 18<*> (0 – 64) 0 – 63, FULL
	00 22	0aaa aaaa	Voice Reserve 19<*> (0 – 64) 0 – 63, FULL
	00 23	0aaa aaaa	Voice Reserve 20<*> (0 – 64) 0 – 63, FULL
	00 24	0aaa aaaa	Voice Reserve 21<*> (0 – 64) 0 – 63, FULL
	00 25	0aaa aaaa	Voice Reserve 22<*> (0 – 64) 0 – 63, FULL
	00 26	0aaa aaaa	Voice Reserve 23<*> (0 – 64) 0 – 63, FULL
	00 27	0aaa aaaa	Voice Reserve 24<*> (0 – 64) 0 – 63, FULL
	00 28	0aaa aaaa	Voice Reserve 25<*> (0 – 64) 0 – 63, FULL
	00 29	0aaa aaaa	Voice Reserve 26<*> (0 – 64) 0 – 63, FULL
	00 2A	0aaa aaaa	Voice Reserve 27<*> (0 – 64) 0 – 63, FULL
	00 2B	0aaa aaaa	Voice Reserve 28<*> (0 – 64) 0 – 63, FULL
	00 2C	0aaa aaaa	Voice Reserve 29<*> (0 – 64) 0 – 63, FULL
	00 2D	0aaa aaaa	Voice Reserve 30<*> (0 – 64) 0 – 63, FULL
	00 2E	0aaa aaaa	Voice Reserve 31<*> (0 – 64) 0 – 63, FULL
	00 2F	0aaa aaaa	Voice Reserve 32<*> (0 – 64) 0 – 63, FULL
	00 30	00aa aaaa	MFXA Source (0 – 32) PERFORM, 1 – 16, 17 – 32<*>
	00 31	00aa aaaa	MFXB Source<*> (0 – 32) PERFORM, 1 – 32
	00 32	00aa aaaa	MFXC Source<*> (0 – 32) PERFORM, 1 – 32
	00 33	00aa aaaa	Chorus Source (0 – 32) PERFORM, 1 – 16, 17 – 32<*>
	00 34	00aa aaaa	Reverb Source (0 – 32) PERFORM, 1 – 16, 17 – 32<*>
00 00 00 35	Total Size		

1-3-2 Performance Common MFX

Offset Address		Description	
	00 00	0aaa aaaa	MFX Type (0 – 127)
	00 01	0aaa aaaa	MFX Dry Send Level (0 – 127)
	00 02	0aaa aaaa	MFX Chorus Send Level (0 – 127)
	00 03	0aaa aaaa	MFX Reverb Send Level (0 – 127)
	00 04	0000 00aa	MFX Output Assign (0 – 3) A, B, C<*>, D<*>
	00 05	0aaa aaaa	MFX Control 1 Source (0 – 101) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4
	00 06	0aaa aaaa	MFX Control 1 Sens (1 – 127) −63 – +63
	00 07	0aaa aaaa	MFX Control 2 Source (0 – 101) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4
	00 08	0aaa aaaa	MFX Control 2 Sens (1 – 127) −63 – +63
	00 09	0aaa aaaa	MFX Control 3 Source (0 – 101) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4
	00 0A	0aaa aaaa	MFX Control 3 Sens (1 – 127) −63 – +63
	00 0B	0aaa aaaa	MFX Control 4 Source (0 – 101) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4
	00 0C	0aaa aaaa	MFX Control 4 Sens (1 – 127) −63 – +63
	00 0D	000a aaaa	MFX Control Assign 1 (0 – 16) OFF, 1 – 16
	00 0E	000a aaaa	MFX Control Assign 2 (0 – 16) OFF, 1 – 16
	00 0F	000a aaaa	MFX Control Assign 3 (0 – 16) OFF, 1 – 16
	00 10	000a aaaa	MFX Control Assign 4 (0 – 16) OFF, 1 – 16
#	00 11	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 1 (12768 – 52768) −20000 – +20000
#	00 15	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 2 (12768 – 52768) −20000 – +20000
#	00 19	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 3 (12768 – 52768) −20000 – +20000
#	00 1D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 4 (12768 – 52768) −20000 – +20000
#	00 21	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 5 (12768 – 52768) −20000 – +20000
#	00 25	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 6 (12768 – 52768) −20000 – +20000
#	00 29	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 7 (12768 – 52768) −20000 – +20000
#	00 2D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 8 (12768 – 52768) −20000 – +20000
#	00 31	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 9 (12768 – 52768) −20000 – +20000
#	00 35	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 10 (12768 – 52768) −20000 – +20000
#	00 39	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 11 (12768 – 52768) −20000 – +20000
#	00 3D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 12 (12768 – 52768) −20000 – +20000
#	00 41	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 13 (12768 – 52768) −20000 – +20000
#	00 45	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 14 (12768 – 52768) −20000 – +20000
#	00 49	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 15 (12768 – 52768) −20000 – +20000
#	00 4D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 16 (12768 – 52768) −20000 – +20000
#	00 51	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 17 (12768 – 52768) −20000 – +20000
#	00 55	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 18 (12768 – 52768) −20000 – +20000
#	00 59	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 19 (12768 – 52768) −20000 – +20000
#	00 5D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 20 (12768 – 52768) −20000 – +20000
#	00 61	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 21 (12768 – 52768) −20000 – +20000
#	00 65	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 22 (12768 – 52768)

			−20000 – +20000
# 00 69	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 23	(12768 – 52768) −20000 – +20000
# 00 6D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 24	(12768 – 52768) −20000 – +20000
# 00 71	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 25	(12768 – 52768) −20000 – +20000
# 00 75	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 26	(12768 – 52768) −20000 – +20000
# 00 79	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 27	(12768 – 52768) −20000 – +20000
# 00 7D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 28	(12768 – 52768) −20000 – +20000
# 01 01	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 29	(12768 – 52768) −20000 – +20000
# 01 05	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 30	(12768 – 52768) −20000 – +20000
# 01 09	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 31	(12768 – 52768) −20000 – +20000
# 01 0D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 32	(12768 – 52768) −20000 – +20000
00 00 01 11	Total Size		

1-3-3 Performance Common Chorus

Offset Address		Description	
00 00	0000 aaaa	Chorus Type	(0 – 3) OFF, CHORUS, DELAY, GM2 CHORUS
00 01	0aaa aaaa	Chorus Level	(0 – 127)
00 02	0000 00aa	Chorus Output Assign	(0 – 3) A, B, C<*>, D<*>
00 03	0000 00aa	Chorus Output Select	(0 – 2) MAIN, REV, MAIN+REV
# 00 04	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Chorus Parameter 1	(12768 – 52768) −20000 – +20000
# 00 08	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Chorus Parameter 2	(12768 – 52768) −20000 – +20000
# 00 0C	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Chorus Parameter 3	(12768 – 52768) −20000 – +20000
# 00 10	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Chorus Parameter 4	(12768 – 52768) −20000 – +20000
# 00 14	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Chorus Parameter 5	(12768 – 52768) −20000 – +20000
# 00 18	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Chorus Parameter 6	(12768 – 52768) −20000 – +20000
# 00 1C	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Chorus Parameter 7	(12768 – 52768) −20000 – +20000
# 00 20	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Chorus Parameter 8	(12768 – 52768) −20000 – +20000
# 00 24	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Chorus Parameter 9	(12768 – 52768) −20000 – +20000
# 00 28	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Chorus Parameter 10	(12768 – 52768) −20000 – +20000
# 00 2C	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Chorus Parameter 11	(12768 – 52768) −20000 – +20000
# 00 30	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Chorus Parameter 12	(12768 – 52768) −20000 – +20000
00 00 00 34	Total Size		

1-3-4 Performance Common Reverb

Offset Address		Description	
00 00	0000 aaaa	Reverb Type	(0 – 5) OFF, REVERB, SRV ROOM, SRV HALL, SRV PLATE, GM2 REVERB
00 01	0aaa aaaa	Reverb Level	(0 – 127)
00 02	0000 00aa	Reverb Output Assign	(0 – 3) A, B, C<*>, D<*>
# 00 03	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 1	(12768 – 52768) −20000 – +20000
# 00 07	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 2	(12768 – 52768) −20000 – +20000
# 00 0B	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 3	(12768 – 52768) −20000 – +20000
# 00 0F	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 4	(12768 – 52768) −20000 – +20000
# 00 13	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 5	(12768 – 52768) −20000 – +20000
# 00 17	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 6	(12768 – 52768) −20000 – +20000
# 00 1B	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 7	(12768 – 52768) −20000 – +20000
# 00 1F	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 8	(12768 – 52768) −20000 – +20000
# 00 23	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 9	(12768 – 52768) −20000 – +20000
# 00 27	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 10	(12768 – 52768) −20000 – +20000
# 00 2B	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 11	(12768 – 52768) −20000 – +20000
# 00 2F	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 12	(12768 – 52768) −20000 – +20000
# 00 33	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 13	(12768 – 52768) −20000 – +20000
# 00 37	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 14	(12768 – 52768) −20000 – +20000
# 00 3B	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 15	(12768 – 52768) −20000 – +20000
# 00 3F	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 16	(12768 – 52768) −20000 – +20000
# 00 43	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 17	(12768 – 52768) −20000 – +20000
# 00 47	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 18	(12768 – 52768) −20000 – +20000
# 00 4B	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 19	(12768 – 52768) −20000 – +20000
# 00 4F	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Reverb Parameter 20	(12768 – 52768) −20000 – +20000
00 00 00 53	Total Size		

1-3-5 Performance MIDI

Offset Address		Description	
00 00	0000 000a	Receive Program Change	(0 – 1) OFF, ON
00 01	0000 000a	Receive Bank Select	(0 – 1) OFF, ON
00 02	0000 000a	Receive Bender	(0 – 1) OFF, ON
00 03	0000 000a	Receive Polyphonic Key Pressure	(0 – 1) OFF, ON
00 04	0000 000a	Receive Channel Pressure	(0 – 1) OFF, ON
00 05	0000 000a	Receive Modulation	(0 – 1) OFF, ON
00 06	0000 000a	Receive Volume	(0 – 1) OFF, ON
00 07	0000 000a	Receive Pan	(0 – 1) OFF, ON
00 08	0000 000a	Receive Expression	(0 – 1) OFF, ON
00 09	0000 000a	Receive Hold–1	(0 – 1) OFF, ON

Offset Address		Description	
00 0A	0000 000a	Phase Lock	(0 – 1) OFF, ON
00 0B	0000 0aaa	Velocity Curve Type	(0 – 4) OFF, 1 – 4
00 00 00 0C	Total Size		

1-3-6 Performance Part

Offset Address		Description	
00 00	0000 aaaa	Receive Channel	(0 – 15) 1 – 16
00 01	0000 000a	Receive Switch	(0 – 1) OFF, ON
00 02	0000 000a	Receive MIDI1<*>	(0 – 1) OFF, ON
00 03	0000 000a	Receive MIDI2<*>	(0 – 1) OFF, ON
00 04	0aaa aaaa	Patch Bank Select MSB (CC# 0)	(0 – 127)
00 05	0aaa aaaa	Patch Bank Select LSB (CC# 32)	(0 – 127)
00 06	0aaa aaaa	Patch Program Number (PC)	(0 – 127)
00 07	0aaa aaaa	Part Level (CC# 7)	(0 – 127)
00 08	0aaa aaaa	Part Pan (CC# 10)	(0 – 127) L64 – 63R
00 09	0aaa aaaa	Part Coarse Tune (RPN# 2)	(16 – 112) –48 – +48
00 0A	0aaa aaaa	Part Fine Tune (RPN# 1)	(14 – 114) –50 – +50
00 0B	0000 00aa	Part Mono/Poly (MONO ON/POLY ON)	(0 – 2) MONO, POLY, PATCH
00 0C	0000 00aa	Part Legato Switch (CC# 68)	(0 – 2) OFF, ON, PATCH
00 0D	000a aaaa	Part Pitch Bend Range (RPN# 0)	(0 – 25) 0 – 24, PATCH
00 0E	0000 00aa	Part Portamento Switch (CC# 65)	(0 – 2) OFF, ON, PATCH
# 00 0F	0000 aaaa 0000 bbbb	Part Portamento Time (CC# 5)	(0 – 128) 0 – 127, PATCH
00 11	0aaa aaaa	Part Cutoff Offset (CC# 74)	(0 – 127) –64 – +63
00 12	0aaa aaaa	Part Resonance Offset (CC# 71)	(0 – 127) –64 – +63
00 13	0aaa aaaa	Part Attack Time Offset (CC# 73)	(0 – 127) –64 – +63
00 14	0aaa aaaa	Part Release Time Offset (CC# 72)	(0 – 127) –64 – +63
00 15	0000 0aaa	Part Octave Shift	(61 – 67) –3 – +3
00 16	0aaa aaaa	Part Velocity Sens Offset	(1 – 127) –63 – +63
00 17	0aaa aaaa	Keyboard Range Lower	(0 – 127) C–1 – UPPER
00 18	0aaa aaaa	Keyboard Range Upper	(0 – 127) LOWER – G9
00 19	0aaa aaaa	Keyboard Fade Width Lower	(0 – 127)
00 1A	0aaa aaaa	Keyboard Fade Width Upper	(0 – 127)
00 1B	0000 000a	Mute Switch	(0 – 1) OFF, MUTE
00 1C	0aaa aaaa	Part Dry Send Level	(0 – 127)
00 1D	0aaa aaaa	Part Chorus Send Level (CC# 93)	(0 – 127)
00 1E	0aaa aaaa	Part Reverb Send Level (CC# 91)	(0 – 127)
00 1F	0000 aaaa	Part Output Assign	(0 – 13) MFX, A, B, C<*>, D<*>, 1, 2, 3, 4, 5<*>, 6<*>, 7<*>, 8<*>, PATCH
00 20	0000 00aa	Part Output MFX Select	(0 – 2) MFXA, MFXB, MFXC
00 21	0aaa aaaa	Part Decay Time Offset (CC# 75)	(0 – 127) –64 – +63
00 22	0aaa aaaa	Part Vibrato Rate (CC# 76)	(0 – 127) –64 – +63
00 23	0aaa aaaa	Part Vibrato Depth (CC# 77)	(0 – 127) –64 – +63
00 24	0aaa aaaa	Part Vibrato Delay (CC# 78)	(0 – 127) –64 – +63
00 25	0aaa aaaa	Part Scale Tune for C	(0 – 127) –64 – +63
00 26	0aaa aaaa	Part Scale Tune for C#	(0 – 127) –64 – +63
00 27	0aaa aaaa	Part Scale Tune for D	(0 – 127) –64 – +63
00 28	0aaa aaaa	Part Scale Tune for D#	(0 – 127) –64 – +63
00 29	0aaa aaaa	Part Scale Tune for E	(0 – 127) –64 – +63
00 2A	0aaa aaaa	Part Scale Tune for F	(0 – 127) –64 – +63
00 2B	0aaa aaaa	Part Scale Tune for F#	(0 – 127) –64 – +63
00 2C	0aaa aaaa	Part Scale Tune for G	(0 – 127) –64 – +63
00 2D	0aaa aaaa	Part Scale Tune for G#	(0 – 127) –64 – +63
00 2E	0aaa aaaa	Part Scale Tune for A	(0 – 127) –64 – +63
00 2F	0aaa aaaa	Part Scale Tune for A#	(0 – 127) –64 – +63
00 30	0aaa aaaa	Part Scale Tune for B	(0 – 127) –64 – +63
00 00 00 31	Total Size		

1-4-1-1 Patch Common

Offset Address		Description	
00 00	0aaa aaaa	Patch Name 1	(32 – 127) 32 – 127 [ASCII]
00 01	0aaa aaaa	Patch Name 2	(32 – 127) 32 – 127 [ASCII]
00 02	0aaa aaaa	Patch Name 3	(32 – 127) 32 – 127 [ASCII]
00 03	0aaa aaaa	Patch Name 4	(32 – 127) 32 – 127 [ASCII]
00 04	0aaa aaaa	Patch Name 5	(32 – 127) 32 – 127 [ASCII]
00 05	0aaa aaaa	Patch Name 6	(32 – 127) 32 – 127 [ASCII]
00 06	0aaa aaaa	Patch Name 7	(32 – 127) 32 – 127 [ASCII]
00 07	0aaa aaaa	Patch Name 8	(32 – 127) 32 – 127 [ASCII]
00 08	0aaa aaaa	Patch Name 9	(32 – 127) 32 – 127 [ASCII]
00 09	0aaa aaaa	Patch Name 10	(32 – 127) 32 – 127 [ASCII]
00 0A	0aaa aaaa	Patch Name 11	(32 – 127) 32 – 127 [ASCII]
00 0B	0aaa aaaa	Patch Name 12	(32 – 127) 32 – 127 [ASCII]
00 0C	0aaa aaaa	Patch Category	(0 – 127)
00 0D	0000 000a	Tone Type<*>	(0 – 1) 4TONES, MULTI–PARTIAL
00 0E	0aaa aaaa	Patch Level	(0 – 127)
00 0F	0aaa aaaa	Patch Pan	(0 – 127) L64 – 63R
00 10	0000 000a	Patch Priority	(0 – 1) LAST, LOUDEST
00 11	0aaa aaaa	Patch Coarse Tune	(16 – 112) –48 – +48
00 12	0aaa aaaa	Patch Fine Tune	(14 – 114) –50 – +50
00 13	0000 0aaa	Octave Shift	(61 – 67) –3 – +3
00 14	0000 00aa	Stretch Tune Depth	(0 – 3) OFF, 1 – 3
00 15	0aaa aaaa	Analog Feel	(0 – 127)
00 16	0000 000a	Mono/Poly	(0 – 1) MONO, POLY
00 17	0000 000a	Legato Switch	(0 – 1) OFF, ON
00 18	0000 000a	Legato Retrigger	(0 – 1) OFF, ON
00 19	0000 000a	Portamento Switch	(0 – 1) OFF, ON
00 1A	0000 000a	Portamento Mode	(0 – 1) NORMAL, LEGATO
00 1B	0000 000a	Portamento Type	(0 – 1) RATE, TIME
00 1C	0000 000a	Portamento Start	(0 – 1) PITCH, NOTE
00 1D	0aaa aaaa	Portamento Time	(0 – 127)
00 1E	0000 000a	Patch Clock Source	(0 – 1) PATCH, SYSTEM
# 00 1F	0000 aaaa 0000 bbbb	Patch Tempo	(20 – 250)
00 21	0000 000a	One Shot Mode<*>	(0 – 1) OFF, ON
00 22	0aaa aaaa	Cutoff Offset	(1 – 127) –63 – +63
00 23	0aaa aaaa	Resonance Offset	(1 – 127) –63 – +63
00 24	0aaa aaaa	Attack Time Offset	(1 – 127) –63 – +63
00 25	0aaa aaaa	Release Time Offset	(1 – 127) –63 – +63
00 26	0aaa aaaa	Velocity Sens Offset	(1 – 127) –63 – +63
00 27	0000 aaaa	Patch Output Assign	(0 – 13) MFX, A, B, C<*>, D<*>, 1, 2, 3, 4, 5<*>, 6<*>, 7<*>, 8<*>, TONE
00 28	0000 000a	TMT Control Switch	(0 – 1) OFF, ON
00 29	00aa aaaa	Pitch Bend Range Up	(0 – 48)
00 2A	00aa aaaa	Pitch Bend Range Down	(0 – 48)
00 2B	0aaa aaaa	Matrix Control 1 Source	(0 – 109) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4, VELOCITY, KEYFOLLOW, TEMPO, LFO1, LFO2, PIT–ENV, TVF–ENV, TVA–ENV
00 2C	00aa aaaa	Matrix Control 1 Destination 1	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX–CTRL1, MFX–CTRL2, MFX–CTRL3, MFX–CTRL4
00 2D	0aaa aaaa	Matrix Control 1 Sens 1	(1 – 127) –63 – +63
00 2E	00aa aaaa	Matrix Control 1 Destination 2	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX–CTRL1, MFX–CTRL2, MFX–CTRL3, MFX–CTRL4
00 2F	0aaa aaaa	Matrix Control 1 Sens 2	(1 – 127) –63 – +63
00 30	00aa aaaa	Matrix Control 1 Destination 3	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX–CTRL1, MFX–CTRL2, MFX–CTRL3, MFX–CTRL4
00 31	0aaa aaaa	Matrix Control 1 Sens 3	(1 – 127) –63 – +63
00 32	00aa aaaa	Matrix Control 1 Destination 4	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX–CTRL1, MFX–CTRL2, MFX–CTRL3, MFX–CTRL4
00 33	0aaa aaaa	Matrix Control 1 Sens 4	(1 – 127) –63 – +63
00 34	0aaa aaaa	Matrix Control 2 Source	(0 – 109) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4, VELOCITY, KEYFOLLOW, TEMPO, LFO1, LFO2, PIT–ENV, TVF–ENV, TVA–ENV
00 35	00aa aaaa	Matrix Control 2 Destination 1	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX–CTRL1, MFX–CTRL2,

			MFX-CTRL3, MFX-CTRL4
00 36	0aaa aaaa	Matrix Control 2 Sens 1	(1 – 127) –63 – +63
00 37	00aa aaaa	Matrix Control 2 Destination 2	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX-CTRL1, MFX-CTRL2, MFX-CTRL3, MFX-CTRL4
00 38	0aaa aaaa	Matrix Control 2 Sens 2	(1 – 127) –63 – +63
00 39	00aa aaaa	Matrix Control 2 Destination 3	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX-CTRL1, MFX-CTRL2, MFX-CTRL3, MFX-CTRL4
00 3A	0aaa aaaa	Matrix Control 2 Sens 3	(1 – 127) –63 – +63
00 3B	00aa aaaa	Matrix Control 2 Destination 4	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX-CTRL1, MFX-CTRL2, MFX-CTRL3, MFX-CTRL4
00 3C	0aaa aaaa	Matrix Control 2 Sens 4	(1 – 127) –63 – +63
00 3D	0aaa aaaa	Matrix Control 3 Source	(0 – 109) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4, VELOCITY, KEYFOLLOW, TEMPO, LFO1, LFO2, PIT–ENV, TVF–ENV, TVA–ENV
00 3E	00aa aaaa	Matrix Control 3 Destination 1	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX-CTRL1, MFX-CTRL2, MFX-CTRL3, MFX-CTRL4
00 3F	0aaa aaaa	Matrix Control 3 Sens 1	(1 – 127) –63 – +63
00 40	00aa aaaa	Matrix Control 3 Destination 2	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX-CTRL1, MFX-CTRL2, MFX-CTRL3, MFX-CTRL4
00 41	0aaa aaaa	Matrix Control 3 Sens 2	(1 – 127) –63 – +63
00 42	00aa aaaa	Matrix Control 3 Destination 3	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX-CTRL1, MFX-CTRL2, MFX-CTRL3, MFX-CTRL4
00 43	0aaa aaaa	Matrix Control 3 Sens 3	(1 – 127) –63 – +63
00 44	00aa aaaa	Matrix Control 3 Destination 4	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX-CTRL1, MFX-CTRL2, MFX-CTRL3, MFX-CTRL4
00 45	0aaa aaaa	Matrix Control 3 Sens 4	(1 – 127) –63 – +63
00 46	0aaa aaaa	Matrix Control 4 Source	(0 – 109) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4, VELOCITY, KEYFOLLOW, TEMPO, LFO1, LFO2, PIT–ENV, TVF–ENV, TVA–ENV
00 47	00aa aaaa	Matrix Control 4 Destination 1	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX-CTRL1, MFX-CTRL2, MFX-CTRL3, MFX-CTRL4
00 48	0aaa aaaa	Matrix Control 4 Sens 1	(1 – 127) –63 – +63
00 49	00aa aaaa	Matrix Control 4 Destination 2	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX-CTRL1, MFX-CTRL2, MFX-CTRL3, MFX-CTRL4
00 4A	0aaa aaaa	Matrix Control 4 Sens 2	(1 – 127) –63 – +63
00 4B	00aa aaaa	Matrix Control 4 Destination 3	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX-CTRL1, MFX-CTRL2, MFX-CTRL3, MFX-CTRL4
00 4C	0aaa aaaa	Matrix Control 4 Sens 3	(1 – 127) –63 – +63
00 4D	00aa aaaa	Matrix Control 4 Destination 4	(0 – 33) OFF, PCH, CUT, RES, LEV, PAN, DRY, CHO, REV, PIT–LFO1, PIT–LFO2, TVF–LFO1, TVF–LFO2, TVA–LFO1, TVA–LFO2, PAN–LFO1, PAN–LFO2, LFO1–RATE, LFO2–RATE, PIT–ATK, PIT–DCY, PIT–REL, TVF–ATK, TVF–DCY, TVF–REL, TVA–ATK, TVA–DCY, TVA–REL, TMT, FXM, MFX-CTRL1, MFX-CTRL2, MFX-CTRL3, MFX-CTRL4
00 4E	0aaa aaaa	Matrix Control 4 Sens 4	(1 – 127) –63 – +63
00 00 00 4F	Total Size		

1-4-1-2 Patch Common MFX

Offset Address		Description	
00 00	0aaa aaaa	MFX Type	(0 – 127)
00 01	0aaa aaaa	MFX Dry Send Level	(0 – 127)
00 02	0aaa aaaa	MFX Chorus Send Level	(0 – 127)
00 03	0aaa aaaa	MFX Reverb Send Level	(0 – 127)
00 04	0000 00aa	MFX Output Assign	(0 – 3) A, B, C<*>, D<*>
00 05	0aaa aaaa	MFX Control 1 Source	(0 – 101) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4
00 06	0aaa aaaa	MFX Control 1 Sens	(1 – 127) –63 – +63
00 07	0aaa aaaa	MFX Control 2 Source	(0 – 101) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4
00 08	0aaa aaaa	MFX Control 2 Sens	(1 – 127) –63 – +63
00 09	0aaa aaaa	MFX Control 3 Source	(0 – 101) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4
00 0A	0aaa aaaa	MFX Control 3 Sens	(1 – 127) –63 – +63
00 0B	0aaa aaaa	MFX Control 4 Source	(0 – 101) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4
00 0C	0aaa aaaa	MFX Control 4 Sens	(1 – 127) –63 – +63
00 0D	000a aaaa	MFX Control Assign 1	(0 – 16) OFF, 1 – 16
00 0E	000a aaaa	MFX Control Assign 2	(0 – 16) OFF, 1 – 16
00 0F	000a aaaa	MFX Control Assign 3	(0 – 16) OFF, 1 – 16
00 10	000a aaaa	MFX Control Assign 4	(0 – 16) OFF, 1 – 16
# 00 11	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 1	(12768 – 52768) –20000 – +20000
# 00 15	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 2	(12768 – 52768) –20000 – +20000
# 00 19	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 3	(12768 – 52768) –20000 – +20000
# 00 1D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 4	(12768 – 52768) –20000 – +20000
# 00 21	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 5	(12768 – 52768) –20000 – +20000
# 00 25	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 6	(12768 – 52768) –20000 – +20000
# 00 29	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 7	(12768 – 52768) –20000 – +20000
# 00 2D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 8	(12768 – 52768) –20000 – +20000
# 00 31	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 9	(12768 – 52768) –20000 – +20000
# 00 35	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 10	(12768 – 52768) –20000 – +20000
# 00 39	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 11	(12768 – 52768) –20000 – +20000
# 00 3D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 12	(12768 – 52768) –20000 – +20000
# 00 41	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 13	(12768 – 52768) –20000 – +20000
# 00 45	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 14	(12768 – 52768) –20000 – +20000
# 00 49	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 15	(12768 – 52768) –20000 – +20000
# 00 4D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 16	(12768 – 52768) –20000 – +20000
# 00 51	0000 aaaa 0000 bbbb 0000 cccc		

	0000 dddd	MFX Parameter 17	(12768 – 52768) –20000 – +20000
# 00 55	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 18	(12768 – 52768) –20000 – +20000
# 00 59	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 19	(12768 – 52768) –20000 – +20000
# 00 5D	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 20	(12768 – 52768) –20000 – +20000
# 00 61	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 21	(12768 – 52768) –20000 – +20000
# 00 65	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 22	(12768 – 52768) –20000 – +20000
# 00 69	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 23	(12768 – 52768) –20000 – +20000
# 00 6D	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 24	(12768 – 52768) –20000 – +20000
# 00 71	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 25	(12768 – 52768) –20000 – +20000
# 00 75	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 26	(12768 – 52768) –20000 – +20000
# 00 79	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 27	(12768 – 52768) –20000 – +20000
# 00 7D	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 28	(12768 – 52768) –20000 – +20000
# 01 01	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 29	(12768 – 52768) –20000 – +20000
# 01 05	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 30	(12768 – 52768) –20000 – +20000
# 01 09	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 31	(12768 – 52768) –20000 – +20000
# 01 0D	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	MFX Parameter 32	(12768 – 52768) –20000 – +20000
00 00 01 11	Total Size		

1-4-1-3 Patch Common Chorus

Offset Address		Description	
00 00	0000 aaaa	Chorus Type	(0 – 3) OFF, CHORUS, DELAY, GM2 CHORUS
00 01	0aaa aaaa	Chorus Level	(0 – 127)
00 02	0000 00aa	Chorus Output Assign	(0 – 3) A, B, C<*>, D<*>
00 03	0000 00aa	Chorus Output Select	(0 – 2) MAIN, REV, MAIN+REV
# 00 04	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Chorus Parameter 1	(12768 – 52768) –20000 – +20000
# 00 08	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Chorus Parameter 2	(12768 – 52768) –20000 – +20000
# 00 0C	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Chorus Parameter 3	(12768 – 52768) –20000 – +20000
# 00 10	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Chorus Parameter 4	(12768 – 52768) –20000 – +20000
# 00 14	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Chorus Parameter 5	(12768 – 52768) –20000 – +20000
# 00 18	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Chorus Parameter 6	(12768 – 52768) –20000 – +20000
# 00 1C	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Chorus Parameter 7	(12768 – 52768) –20000 – +20000
# 00 20	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Chorus Parameter 8	(12768 – 52768) –20000 – +20000
# 00 24	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Chorus Parameter 9	(12768 – 52768) –20000 – +20000
# 00 28	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Chorus Parameter 10	(12768 – 52768) –20000 – +20000
# 00 2C	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Chorus Parameter 11	(12768 – 52768) –20000 – +20000
# 00 30	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Chorus Parameter 12	(12768 – 52768) –20000 – +20000
00 00 00 34	Total Size		

1-4-1-4 Patch Common Reverb

Offset Address		Description	
00 00	0000 aaaa	Reverb Type	(0 – 5) OFF, REVERB, SRV ROOM, SRV HALL, SRV PLATE, GM2 REVERB
00 01	0aaa aaaa	Reverb Level	(0 – 127)
00 02	0000 00aa	Reverb Output Assign	(0 – 3) A, B, C<*>, D<*>
# 00 03	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 1	(12768 – 52768) –20000 – +20000
# 00 07	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 2	(12768 – 52768) –20000 – +20000
# 00 0B	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 3	(12768 – 52768) –20000 – +20000
# 00 0F	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 4	(12768 – 52768) –20000 – +20000
# 00 13	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 5	(12768 – 52768) –20000 – +20000
# 00 17	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 6	(12768 – 52768) –20000 – +20000
# 00 1B	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 7	(12768 – 52768) –20000 – +20000
# 00 1F	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 8	(12768 – 52768) –20000 – +20000
# 00 23	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 9	(12768 – 52768) –20000 – +20000
# 00 27	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 10	(12768 – 52768) –20000 – +20000
# 00 2B	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 11	(12768 – 52768) –20000 – +20000
# 00 2F	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 12	(12768 – 52768) –20000 – +20000
# 00 33	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 13	(12768 – 52768) –20000 – +20000
# 00 37	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 14	(12768 – 52768) –20000 – +20000
# 00 3B	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 15	(12768 – 52768) –20000 – +20000
# 00 3F	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 16	(12768 – 52768) –20000 – +20000
# 00 43	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 17	(12768 – 52768) –20000 – +20000
# 00 47	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 18	(12768 – 52768) –20000 – +20000
# 00 4B	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 19	(12768 – 52768) –20000 – +20000
# 00 4F	0000 aaaa 0000 bbbb 0000 cccc		
	0000 dddd	Reverb Parameter 20	(12768 – 52768) –20000 – +20000
00 00 00 53	Total Size		

1-4-1-5 Patch TMT (Tone Mix Table)

Offset Address		Description	
00 00	0000 aaaa	Structure Type 1 & 2	(0 – 9) 1 – 10
00 01	0000 00aa	Booster 1 & 2	(0 – 3) 0, +6, +12, +18 [dB]
00 02	0000 aaaa	Structure Type 3 & 4	(0 – 9) 1 – 10
00 03	0000 00aa	Booster 3 & 4	(0 – 3) 0, +6, +12, +18 [dB]
00 04	0000 00aa	TMT Velocity Control	(0 – 2) OFF, ON, RANDOM
00 05	0000 000a	TMT1 Tone Switch	(0 – 1) OFF, ON
00 06	0aaa aaaa	TMT1 Keyboard Range Lower	(0 – 127) C–1 – UPPER
00 07	0aaa aaaa	TMT1 Keyboard Range Upper	(0 – 127) LOWER – G9
00 08	0aaa aaaa	TMT1 Keyboard Fade Width Lower	(0 – 127)
00 09	0aaa aaaa	TMT1 Keyboard Fade Width Upper	(0 – 127)
00 0A	0aaa aaaa	TMT1 Velocity Range Lower	(1 – 127) 1 – UPPER
00 0B	0aaa aaaa	TMT1 Velocity Range Upper	(1 – 127) LOWER – 127
00 0C	0aaa aaaa	TMT1 Velocity Fade Width Lower	(0 – 127)
00 0D	0aaa aaaa	TMT1 Velocity Fade Width Upper	(0 – 127)
00 0E	0000 000a	TMT2 Tone Switch	(0 – 1) OFF, ON
00 0F	0aaa aaaa	TMT2 Keyboard Range Lower	(0 – 127) C–1 – UPPER
00 10	0aaa aaaa	TMT2 Keyboard Range Upper	(0 – 127) LOWER – G9
00 11	0aaa aaaa	TMT2 Keyboard Fade Width Lower	(0 – 127)
00 12	0aaa aaaa	TMT2 Keyboard Fade Width Upper	(0 – 127)
00 13	0aaa aaaa	TMT2 Velocity Range Lower	(1 – 127) 1 – UPPER
00 14	0aaa aaaa	TMT2 Velocity Range Upper	(1 – 127) LOWER – 127
00 15	0aaa aaaa	TMT2 Velocity Fade Width Lower	(0 – 127)
00 16	0aaa aaaa	TMT2 Velocity Fade Width Upper	(0 – 127)
00 17	0000 000a	TMT3 Tone Switch	(0 – 1) OFF, ON
00 18	0aaa aaaa	TMT3 Keyboard Range Lower	(0 – 127) C–1 – UPPER
00 19	0aaa aaaa	TMT3 Keyboard Range Upper	(0 – 127) LOWER – G9
00 1A	0aaa aaaa	TMT3 Keyboard Fade Width Lower	(0 – 127)
00 1B	0aaa aaaa	TMT3 Keyboard Fade Width Upper	(0 – 127)
00 1C	0aaa aaaa	TMT3 Velocity Range Lower	(1 – 127) 1 – UPPER
00 1D	0aaa aaaa	TMT3 Velocity Range Upper	(1 – 127) LOWER – 127
00 1E	0aaa aaaa	TMT3 Velocity Fade Width Lower	(0 – 127)
00 1F	0aaa aaaa	TMT3 Velocity Fade Width Upper	(0 – 127)
00 20	0000 000a	TMT4 Tone Switch	(0 – 1) OFF, ON
00 21	0aaa aaaa	TMT4 Keyboard Range Lower	(0 – 127) C–1 – UPPER
00 22	0aaa aaaa	TMT4 Keyboard Range Upper	(0 – 127) LOWER – G9
00 23	0aaa aaaa	TMT4 Keyboard Fade Width Lower	(0 – 127)
00 24	0aaa aaaa	TMT4 Keyboard Fade Width Upper	(0 – 127)
00 25	0aaa aaaa	TMT4 Velocity Range Lower	(1 – 127) 1 – UPPER
00 26	0aaa aaaa	TMT4 Velocity Range Upper	(1 – 127) LOWER – 127
00 27	0aaa aaaa	TMT4 Velocity Fade Width Lower	(0 – 127)
00 28	0aaa aaaa	TMT4 Velocity Fade Width Upper	(0 – 127)
00 00 00 29	Total Size		

1-4-1-6 Patch Tone

Offset Address		Description	
00 00	0aaa aaaa	Tone Level	(0 – 127)
00 01	0aaa aaaa	Tone Coarse Tune	(16 – 112) –48 – +48
00 02	0aaa aaaa	Tone Fine Tune	(14 – 114) –50 – +50
00 03	000a aaaa	Tone Random Pitch Depth	(0 – 30) 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200
00 04	0aaa aaaa	Tone Pan	(0 – 127) L64 – 63R
00 05	000a aaaa	Tone Pan Keyfollow	(54 – 74) –100 – +100
00 06	00aa aaaa	Tone Random Pan Depth	(0 – 63)
00 07	0aaa aaaa	Tone Alternate Pan Depth	(1 – 127) L63 – 63R
00 08	0000 000a	Tone Env Mode	(0 – 1) NO–SUS, SUSTAIN
00 09	0000 00aa	Tone Delay Mode	(0 – 3) NORMAL, HOLD, KEY–OFF–NORMAL, KEY–OFF–DECAY
# 00 0A	0000 aaaa 0000 bbbb	Tone Delay Time	(0 – 149) 0 – 127, MUSICAL–NOTES
00 0C	0aaa aaaa	Tone Dry Send Level	(0 – 127)
00 0D	0aaa aaaa	Tone Chorus Send Level (MFX)	(0 – 127)
00 0E	0aaa aaaa	Tone Reverb Send Level (MFX)	(0 – 127)
00 0F	0aaa aaaa	Tone Chorus Send Level (non MFX)	(0 – 127)
00 10	0aaa aaaa	Tone Reverb Send Level (non MFX)	(0 – 127)
00 11	0000 aaaa	Tone Output Assign	(0 – 12) MFX, A, B, C<*>, D<*>, 1, 2, 3, 4, 5<*>, 6<*>, 7<*>, 8<*>
00 12	0000 000a	Tone Receive Bender	(0 – 1) OFF, ON
00 13	0000 000a	Tone Receive Expression	(0 – 1) OFF, ON
00 14	0000 000a	Tone Receive Hold–1	(0 – 1) OFF, ON
00 15	0000 000a	Tone Receive Pan Mode	(0 – 1) CONTINUOUS, KEY–ON
00 16	0000 000a	Tone Redamper Switch	(0 – 1) OFF, ON
00 17	0000 00aa	Tone Control 1 Switch 1	(0 – 2) OFF, ON, REVERSE
00 18	0000 00aa	Tone Control 1 Switch 2	(0 – 2) OFF, ON, REVERSE
00 19	0000 00aa	Tone Control 1 Switch 3	(0 – 2) OFF, ON, REVERSE
00 1A	0000 00aa	Tone Control 1 Switch 4	(0 – 2) OFF, ON, REVERSE
00 1B	0000 00aa	Tone Control 2 Switch 1	(0 – 2) OFF, ON, REVERSE
00 1C	0000 00aa	Tone Control 2 Switch 2	(0 – 2) OFF, ON, REVERSE
00 1D	0000 00aa	Tone Control 2 Switch 3	(0 – 2) OFF, ON, REVERSE
00 1E	0000 00aa	Tone Control 2 Switch 4	(0 – 2) OFF, ON, REVERSE
00 1F	0000 00aa	Tone Control 3 Switch 1	(0 – 2) OFF, ON, REVERSE
00 20	0000 00aa	Tone Control 3 Switch 2	(0 – 2) OFF, ON, REVERSE
00 21	0000 00aa	Tone Control 3 Switch 3	(0 – 2) OFF, ON, REVERSE
00 22	0000 00aa	Tone Control 3 Switch 4	(0 – 2) OFF, ON, REVERSE
00 23	0000 00aa	Tone Control 4 Switch 1	(0 – 2) OFF, ON, REVERSE
00 24	0000 00aa	Tone Control 4 Switch 2	(0 – 2) OFF, ON, REVERSE
00 25	0000 00aa	Tone Control 4 Switch 3	(0 – 2) OFF, ON, REVERSE
00 26	0000 00aa	Tone Control 4 Switch 4	(0 – 2) OFF, ON, REVERSE
00 27	0000 00aa	Wave Group Type	(0 – 3) INT, SR–JV80, SRX, SAMPLE<*>
# 00 28	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Wave Group ID	(0 – 16384) OFF, 1 – 16384
# 00 2C	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Wave Number L (Mono)	(0 – 16384) OFF, 1 – 16384
# 00 30	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Wave Number R	(0 – 16384) OFF, 1 – 16384
00 34	0000 00aa	Wave Gain	(0 – 3) –6, 0, +6, +12 [dB]
00 35	0000 000a	Wave FXM Switch	(0 – 1) OFF, ON
00 36	0000 00aa	Wave FXM Color	(0 – 3) 1 – 4
00 37	000a aaaa	Wave FXM Depth	(0 – 16)
00 38	0000 000a	Wave Tempo Sync	(0 – 1) OFF, ON
00 39	00aa aaaa	Wave Pitch Keyfollow	(44 – 84) –200 – +200
00 3A	000a aaaa	Pitch Env Depth	(52 – 76) –12 – +12
00 3B	0aaa aaaa	Pitch Env Velocity Sens	(1 – 127) –63 – +63
00 3C	0aaa aaaa	Pitch Env Time 1 Velocity Sens	(1 – 127) –63 – +63
00 3D	0aaa aaaa	Pitch Env Time 4 Velocity Sens	(1 – 127) –63 – +63
00 3E	000a aaaa	Pitch Env Time Keyfollow	(54 – 74) –100 – +100
00 3F	0aaa aaaa	Pitch Env Time 1	(0 – 127)
00 40	0aaa aaaa	Pitch Env Time 2	(0 – 127)
00 41	0aaa aaaa	Pitch Env Time 3	(0 – 127)
00 42	0aaa aaaa	Pitch Env Time 4	(0 – 127)
00 43	0aaa aaaa	Pitch Env Level 0	(1 – 127) –63 – +63
00 44	0aaa aaaa	Pitch Env Level 1	(1 – 127) –63 – +63
00 45	0aaa aaaa	Pitch Env Level 2	(1 – 127) –63 – +63
00 46	0aaa aaaa	Pitch Env Level 3	(1 – 127) –63 – +63
00 47	0aaa aaaa	Pitch Env Level 4	(1 – 127) –63 – +63
00 48	0000 0aaa	TVF Filter Type	(0 – 6) OFF, LPF, BPF, HPF, PKG, LPF2, LPF3
00 49	0aaa aaaa	TVF Cutoff Frequency	(0 – 127)
00 4A	00aa aaaa	TVF Cutoff Keyfollow	(44 – 84) –200 – +200
00 4B	0000 0aaa	TVF Cutoff Velocity Curve	(0 – 7) FIXED, 1 – 7
00 4C	0aaa aaaa	TVF Cutoff Velocity Sens	(1 – 127) –63 – +63
00 4D	0aaa aaaa	TVF Resonance	(0 – 127)
00 4E	0aaa aaaa	TVF Resonance Velocity Sens	(1 – 127) –63 – +63
00 4F	0aaa aaaa	TVF Env Depth	(1 – 127) –63 – +63
00 50	0000 0aaa	TVF Env Velocity Curve	(0 – 7) FIXED, 1 – 7
00 51	0aaa aaaa	TVF Env Velocity Sens	(1 – 127) –63 – +63
00 52	0aaa aaaa	TVF Env Time 1 Velocity Sens	(1 – 127) –63 – +63
00 53	0aaa aaaa	TVF Env Time 4 Velocity Sens	(1 – 127) –63 – +63
00 54	000a aaaa	TVF Env Time Keyfollow	(54 – 74) –100 – +100
00 55	0aaa aaaa	TVF Env Time 1	(0 – 127)
00 56	0aaa aaaa	TVF Env Time 2	(0 – 127)
00 57	0aaa aaaa	TVF Env Time 3	(0 – 127)
00 58	0aaa aaaa	TVF Env Time 4	(0 – 127)
00 59	0aaa aaaa	TVF Env Level 0	(0 – 127)
00 5A	0aaa aaaa	TVF Env Level 1	(0 – 127)
00 5B	0aaa aaaa	TVF Env Level 2	(0 – 127)
00 5C	0aaa aaaa	TVF Env Level 3	(0 – 127)
00 5D	0aaa aaaa	TVF Env Level 4	(0 – 127)
00 5E	000a aaaa	Bias Level	(54 – 74) –100 – +100
00 5F	0aaa aaaa	Bias Position	(0 – 127) C–1 – G9
00 60	0000 00aa	Bias Direction	(0 – 3) LOWER, UPPER, LOWER&UPPER, ALL
00 61	0000 0aaa	TVA Level Velocity Curve	(0 – 7) FIXED, 1 – 7
00 62	0aaa aaaa	TVA Level Velocity Sens	(1 – 127) –63 – +63
00 63	0aaa aaaa	TVA Env Time 1 Velocity Sens	(1 – 127) –63 – +63
00 64	0aaa aaaa	TVA Env Time 4 Velocity Sens	(1 – 127) –63 – +63
00 65	000a aaaa	TVA Env Time Keyfollow	(54 – 74) –100 – +100
00 66	0aaa aaaa	TVA Env Time 1	(0 – 127)
00 67	0aaa aaaa	TVA Env Time 2	(0 – 127)
00 68	0aaa aaaa	TVA Env Time 3	(0 – 127)
00 69	0aaa aaaa	TVA Env Time 4	(0 – 127)

	Offset Address		Description	
	00 6A	0aaa aaaa	TVA Env Level 1	(0 – 127)
	00 6B	0aaa aaaa	TVA Env Level 2	(0 – 127)
	00 6C	0aaa aaaa	TVA Env Level 3	(0 – 127)
	00 6D	0000 aaaa	LFO1 Wave Form	(0 – 10) SIN, TRI, SAW–UP, SAW–DW, SQR, RND, BEND–UP, BEND–DW, TRP, S&H, CHS
#	00 6E	0000 aaaa 0000 bbbb	LFO1 Rate	(0 – 149) 0 – 127, MUSICAL–NOTES
	00 70	0000 0aaa	LFO1 Offset	(0 – 4) –100, –50, 0, +50, +100
	00 71	0aaa aaaa	LFO1 Rate Detune	(0 – 127)
	00 72	0aaa aaaa	LFO1 Delay Time	(0 – 127)
	00 73	000a aaaa	LFO1 Delay Time Keyfollow	(54 – 74) –100 – +100
	00 74	0000 00aa	LFO1 Fade Mode	(0 – 3) ON–IN, ON–OUT, OFF–IN, OFF–OUT
	00 75	0aaa aaaa	LFO1 Fade Time	(0 – 127)
	00 76	0000 000a	LFO1 Key Trigger	(0 – 1) OFF, ON
	00 77	0aaa aaaa	LFO1 Pitch Depth	(1 – 127) –63 – +63
	00 78	0aaa aaaa	LFO1 TVF Depth	(1 – 127) –63 – +63
	00 79	0aaa aaaa	LFO1 TVA Depth	(1 – 127) –63 – +63
	00 7A	0aaa aaaa	LFO1 Pan Depth	(1 – 127) –63 – +63
	00 7B	0000 aaaa	LFO2 Wave Form	(0 – 10) SIN, TRI, SAW–UP, SAW–DW, SQR, RND, BEND–UP, BEND–DW, TRP, S&H, CHS
#	00 7C	0000 aaaa 0000 bbbb	LFO2 Rate	(0 – 149) 0 – 127, MUSICAL–NOTES
	00 7E	0000 0aaa	LFO2 Offset	(0 – 4) –100, –50, 0, +50, +100
	00 7F	0aaa aaaa	LFO2 Rate Detune	(0 – 127)
	01 00	0aaa aaaa	LFO2 Delay Time	(0 – 127)
	01 01	000a aaaa	LFO2 Delay Time Keyfollow	(54 – 74) –100 – +100
	01 02	0000 00aa	LFO2 Fade Mode	(0 – 3) ON–IN, ON–OUT, OFF–IN, OFF–OUT
	01 03	0aaa aaaa	LFO2 Fade Time	(0 – 127)
	01 04	0000 000a	LFO2 Key Trigger	(0 – 1) OFF, ON
	01 05	0aaa aaaa	LFO2 Pitch Depth	(1 – 127) –63 – +63
	01 06	0aaa aaaa	LFO2 TVF Depth	(1 – 127) –63 – +63
	01 07	0aaa aaaa	LFO2 TVA Depth	(1 – 127) –63 – +63
	01 08	0aaa aaaa	LFO2 Pan Depth	(1 – 127) –63 – +63
	00 00 01 09		Total Size	

1-4-2-1 Rhythm Common

	Offset Address		Description	
	00 00	0aaa aaaa	Rhythm Name 1	(32 – 127) 32 – 127 [ASCII]
	00 01	0aaa aaaa	Rhythm Name 2	(32 – 127) 32 – 127 [ASCII]
	00 02	0aaa aaaa	Rhythm Name 3	(32 – 127) 32 – 127 [ASCII]
	00 03	0aaa aaaa	Rhythm Name 4	(32 – 127) 32 – 127 [ASCII]
	00 04	0aaa aaaa	Rhythm Name 5	(32 – 127) 32 – 127 [ASCII]
	00 05	0aaa aaaa	Rhythm Name 6	(32 – 127) 32 – 127 [ASCII]
	00 06	0aaa aaaa	Rhythm Name 7	(32 – 127) 32 – 127 [ASCII]
	00 07	0aaa aaaa	Rhythm Name 8	(32 – 127) 32 – 127 [ASCII]
	00 08	0aaa aaaa	Rhythm Name 9	(32 – 127) 32 – 127 [ASCII]
	00 09	0aaa aaaa	Rhythm Name 10	(32 – 127) 32 – 127 [ASCII]
	00 0A	0aaa aaaa	Rhythm Name 11	(32 – 127) 32 – 127 [ASCII]
	00 0B	0aaa aaaa	Rhythm Name 12	(32 – 127) 32 – 127 [ASCII]
	00 0C	0aaa aaaa	Rhythm Level	(0 – 127)
	00 0D	0000 000a	Rhythm Clock Source	(0 – 1) RHYTHM, SYSTEM
#	00 0E	0000 aaaa 0000 bbbb	Rhythm Tempo	(20 – 250)
	00 10	0000 000a	One Shot Mode<*>	(0 – 1) OFF, ON
	00 11	0000 aaaa	Rhythm Output Assign	(0 – 13) MFX, A, B, C<*>, D<*>, 1, 2, 3, 4, 5<*>, 6<*>, 7<*>, 8<*>, TONE
	00 00 00 12		Total Size	

1-4-2-2 Rhythm Common MFX

	Offset Address		Description	
	00 00	0aaa aaaa	MFX Type	(0 – 127)
	00 01	0aaa aaaa	MFX Dry Send Level	(0 – 127)
	00 02	0aaa aaaa	MFX Chorus Send Level	(0 – 127)
	00 03	0aaa aaaa	MFX Reverb Send Level	(0 – 127)
	00 04	0000 00aa	MFX Output Assign	(0 – 3) A, B, C<*>, D<*>
	00 05	0aaa aaaa	MFX Control 1 Source	(0 – 101) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4
	00 06	0aaa aaaa	MFX Control 1 Sens	(1 – 127) –63 – +63
	00 07	0aaa aaaa	MFX Control 2 Source	(0 – 101) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4
	00 08	0aaa aaaa	MFX Control 2 Sens	(1 – 127) –63 – +63
	00 09	0aaa aaaa	MFX Control 3 Source	(0 – 101) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4
	00 0A	0aaa aaaa	MFX Control 3 Sens	(1 – 127) –63 – +63
	00 0B	0aaa aaaa	MFX Control 4 Source	(0 – 101) OFF, CC01 – CC31, CC33 – CC95, BEND, AFT, SYS1 – SYS4
	00 0C	0aaa aaaa	MFX Control 4 Sens	(1 – 127) –63 – +63
	00 0D	000a aaaa	MFX Control Assign 1	(0 – 16) OFF, 1 – 16
	00 0E	000a aaaa	MFX Control Assign 2	(0 – 16) OFF, 1 – 16
	00 0F	000a aaaa	MFX Control Assign 3	(0 – 16) OFF, 1 – 16
	00 10	000a aaaa	MFX Control Assign 4	(0 – 16) OFF, 1 – 16
#	00 11	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 1	(12768 – 52768) –20000 – +20000
#	00 15	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 2	(12768 – 52768) –20000 – +20000
#	00 19	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 3	(12768 – 52768) –20000 – +20000
#	00 1D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 4	(12768 – 52768) –20000 – +20000
#	00 21	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 5	(12768 – 52768) –20000 – +20000
#	00 25	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 6	(12768 – 52768) –20000 – +20000
#	00 29	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 7	(12768 – 52768) –20000 – +20000
#	00 2D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 8	(12768 – 52768) –20000 – +20000
#	00 31	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 9	(12768 – 52768) –20000 – +20000
#	00 35	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 10	(12768 – 52768) –20000 – +20000
#	00 39	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 11	(12768 – 52768) –20000 – +20000
#	00 3D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 12	(12768 – 52768) –20000 – +20000
#	00 41	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 13	(12768 – 52768) –20000 – +20000
#	00 45	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 14	(12768 – 52768) –20000 – +20000
#	00 49	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 15	(12768 – 52768) –20000 – +20000
#	00 4D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 16	(12768 – 52768) –20000 – +20000
#	00 51	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 17	(12768 – 52768) –20000 – +20000
#	00 55	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 18	(12768 – 52768) –20000 – +20000
#	00 59	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 19	(12768 – 52768) –20000 – +20000
#	00 5D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 20	(12768 – 52768) –20000 – +20000
#	00 61	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 21	(12768 – 52768) –20000 – +20000
#	00 65	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 22	(12768 – 52768) –20000 – +20000
#	00 69	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 23	(12768 – 52768) –20000 – +20000
#	00 6D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 24	(12768 – 52768) –20000 – +20000
#	00 71	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MFX Parameter 25	(12768 – 52768) –20000 – +20000
#	00 75	0000 aaaa		

	0000 bbbb		
	0000 cccc		
	0000 dddd	MFX Parameter 26	(12768 – 52768) –20000 – +20000
# 00 79	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	MFX Parameter 27	(12768 – 52768) –20000 – +20000
# 00 7D	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	MFX Parameter 28	(12768 – 52768) –20000 – +20000
# 01 01	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	MFX Parameter 29	(12768 – 52768) –20000 – +20000
# 01 05	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	MFX Parameter 30	(12768 – 52768) –20000 – +20000
# 01 09	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	MFX Parameter 31	(12768 – 52768) –20000 – +20000
# 01 0D	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	MFX Parameter 32	(12768 – 52768) –20000 – +20000
00 00 01 11	Total Size		

1-4-2-3 Rhythm Common Chorus

Offset Address	Description		
00 00	0000 aaaa	Chorus Type	(0 – 3) OFF, CHORUS, DELAY, GM2 CHORUS
00 01	0aaa aaaa	Chorus Level	(0 – 127)
00 02	0000 00aa	Chorus Output Assign	(0 – 3) A, B, C<*>, D<*>
00 03	0000 00aa	Chorus Output Select	(0 – 2) MAIN, REV, MAIN+REV
# 00 04	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Chorus Parameter 1	(12768 – 52768) –20000 – +20000
# 00 08	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Chorus Parameter 2	(12768 – 52768) –20000 – +20000
# 00 0C	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Chorus Parameter 3	(12768 – 52768) –20000 – +20000
# 00 10	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Chorus Parameter 4	(12768 – 52768) –20000 – +20000
# 00 14	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Chorus Parameter 5	(12768 – 52768) –20000 – +20000
# 00 18	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Chorus Parameter 6	(12768 – 52768) –20000 – +20000
# 00 1C	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Chorus Parameter 7	(12768 – 52768) –20000 – +20000
# 00 20	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Chorus Parameter 8	(12768 – 52768) –20000 – +20000
# 00 24	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Chorus Parameter 9	(12768 – 52768) –20000 – +20000
# 00 28	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Chorus Parameter 10	(12768 – 52768) –20000 – +20000
# 00 2C	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Chorus Parameter 11	(12768 – 52768) –20000 – +20000
# 00 30	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Chorus Parameter 12	(12768 – 52768) –20000 – +20000
00 00 00 34	Total Size		

1-4-2-4 Rhythm Common Reverb

Offset Address	Description		
00 00	0000 aaaa	Reverb Type	(0 – 5) OFF, REVERB, SRV ROOM, SRV HALL, SRV PLATE, GM2 REVERB
00 01	0aaa aaaa	Reverb Level	(0 – 127)
00 02	0000 00aa	Reverb Output Assign	(0 – 3) A, B, C<*>, D<*>
# 00 03	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 1	(12768 – 52768) –20000 – +20000
# 00 07	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 2	(12768 – 52768) –20000 – +20000
# 00 0B	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 3	(12768 – 52768) –20000 – +20000
# 00 0F	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 4	(12768 – 52768) –20000 – +20000
# 00 13	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 5	(12768 – 52768) –20000 – +20000
# 00 17	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 6	(12768 – 52768) –20000 – +20000
# 00 1B	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 7	(12768 – 52768) –20000 – +20000
# 00 1F	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 8	(12768 – 52768) –20000 – +20000
# 00 23	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 9	(12768 – 52768) –20000 – +20000
# 00 27	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 10	(12768 – 52768) –20000 – +20000
# 00 2B	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 11	(12768 – 52768) –20000 – +20000
# 00 2F	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 12	(12768 – 52768) –20000 – +20000
# 00 33	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 13	(12768 – 52768) –20000 – +20000
# 00 37	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 14	(12768 – 52768) –20000 – +20000
# 00 3B	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 15	(12768 – 52768) –20000 – +20000
# 00 3F	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 16	(12768 – 52768) –20000 – +20000
# 00 43	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 17	(12768 – 52768) –20000 – +20000
# 00 47	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 18	(12768 – 52768) –20000 – +20000
# 00 4B	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 19	(12768 – 52768) –20000 – +20000
# 00 4F	0000 aaaa		
	0000 bbbb		
	0000 cccc		
	0000 dddd	Reverb Parameter 20	(12768 – 52768) –20000 – +20000
00 00 00 53	Total Size		

1-4-2-5 Rhythm Tone

Offset Address	Description		
00 00	0aaa aaaa	Tone Name 1	(32 – 127) 32 – 127 [ASCII]
00 01	0aaa aaaa	Tone Name 2	(32 – 127) 32 – 127 [ASCII]
00 02	0aaa aaaa	Tone Name 3	(32 – 127) 32 – 127 [ASCII]
00 03	0aaa aaaa	Tone Name 4	(32 – 127) 32 – 127 [ASCII]
00 04	0aaa aaaa	Tone Name 5	(32 – 127) 32 – 127 [ASCII]
00 05	0aaa aaaa	Tone Name 6	(32 – 127) 32 – 127 [ASCII]
00 06	0aaa aaaa	Tone Name 7	(32 – 127) 32 – 127 [ASCII]
00 07	0aaa aaaa	Tone Name 8	(32 – 127) 32 – 127 [ASCII]
00 08	0aaa aaaa	Tone Name 9	(32 – 127) 32 – 127 [ASCII]
00 09	0aaa aaaa	Tone Name 10	(32 – 127) 32 – 127 [ASCII]
00 0A	0aaa aaaa	Tone Name 11	(32 – 127) 32 – 127 [ASCII]
00 0B	0aaa aaaa	Tone Name 12	(32 – 127) 32 – 127 [ASCII]
00 0C	0000 000a	Assign Type	(0 – 1) MULTI, SINGLE
00 0D	000a aaaa	Mute Group	(0 – 31) OFF, 1 – 31
00 0E	0aaa aaaa	Tone Level	(0 – 127)
00 0F	0aaa aaaa	Tone Coarse Tune	(0 – 127) C–1 – G9
00 10	0aaa aaaa	Tone Fine Tune	(14 – 114) –50 – +50
00 11	000a aaaa	Tone Random Pitch Depth	(0 – 30) 0, 1, 2, 3, 4, 5, 6, 7, 8, 9,

				10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200
	00 12	0aaa aaaa	Tone Pan	(0 – 127) L64 – 63R
	00 13	00aa aaaa	Tone Random Pan Depth	(0 – 63)
	00 14	0aaa aaaa	Tone Alternate Pan Depth	(1 – 127) L63 – 63R
	00 15	0000 000a	Tone Env Mode	(0 – 1) NO–SUS, SUSTAIN
	00 16	0aaa aaaa	Tone Dry Send Level	(0 – 127)
	00 17	0aaa aaaa	Tone Chorus Send Level	(0 – 127)
	00 18	0aaa aaaa	Tone Reverb Send Level	(0 – 127)
	00 19	0aaa aaaa	Tone Chorus Send Level (non MFX)	(0 – 127)
	00 1A	0aaa aaaa	Tone Reverb Send Level (non MFX)	(0 – 127)
	00 1B	0000 aaaa	Tone Output Assign	(0 – 12) MFX, A, B, C<*>, D<*>, 1, 2, 3, 4, 5<*>, 6<*>, 7<*>, 8<*>
	00 1C	00aa aaaa	Tone Pitch Bend Range	(0 – 48)
	00 1D	0000 000a	Tone Receive Expression	(0 – 1) OFF, ON
	00 1E	0000 000a	Tone Receive Hold–1	(0 – 1) OFF, ON
	00 1F	0000 000a	Tone Receive Pan Mode	(0 – 1) CONTINUOUS, KEY–ON
	00 20	0000 00aa	WMT Velocity Control	(0 – 2) OFF, ON, RANDOM
	00 21	0000 000a	WMT1 Wave Switch	(0 – 1) OFF, ON
	00 22	0000 00aa	WMT1 Wave Group Type	(0 – 3) INT, SR–JV80, SRX, SAMPLE<*>
#	00 23	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	WMT1 Wave Group ID	(0 – 16384) OFF, 1 – 16384
#	00 27	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	WMT1 Wave Number L (Mono)	(0 – 16384) OFF, 1 – 16384
#	00 2B	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	WMT1 Wave Number R	(0 – 16384) OFF, 1 – 16384
	00 2F	0000 00aa	WMT1 Wave Gain	(0 – 3) –6, 0, +6, +12 [dB]
	00 30	0000 000a	WMT1 Wave FXM Switch	(0 – 1) OFF, ON
	00 31	0000 00aa	WMT1 Wave FXM Color	(0 – 3) 1 – 4
	00 32	000a aaaa	WMT1 Wave FXM Depth	(0 – 16)
	00 33	0000 000a	WMT1 Wave Tempo Sync	(0 – 1) OFF, ON
	00 34	0aaa aaaa	WMT1 Wave Coarse Tune	(16 – 112) –48 – +48
	00 35	0aaa aaaa	WMT1 Wave Fine Tune	(14 – 114) –50 – +50
	00 36	0aaa aaaa	WMT1 Wave Pan	(0 – 127) L64 – 63R
	00 37	0000 000a	WMT1 Wave Random Pan Switch	(0 – 1) OFF, ON
	00 38	0000 00aa	WMT1 Wave Alternate Pan Switch	(0 – 2) OFF, ON, REVERSE
	00 39	0aaa aaaa	WMT1 Wave Level	(0 – 127)
	00 3A	0aaa aaaa	WMT1 Velocity Range Lower	(1 – 127) 1 – UPPER
	00 3B	0aaa aaaa	WMT1 Velocity Range Upper	(1 – 127) LOWER – 127
	00 3C	0aaa aaaa	WMT1 Velocity Fade Width Lower	(0 – 127)
	00 3D	0aaa aaaa	WMT1 Velocity Fade Width Upper	(0 – 127)
	00 3E	0000 000a	WMT2 Wave Switch	(0 – 1) OFF, ON
	00 3F	0000 00aa	WMT2 Wave Group Type	(0 – 3) INT, SR–JV80, SRX, SAMPLE<*>
#	00 40	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	WMT2 Wave Group ID	(0 – 16384) OFF, 1 – 16384
#	00 44	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	WMT2 Wave Number L (Mono)	(0 – 16384) OFF, 1 – 16384
#	00 48	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	WMT2 Wave Number R	(0 – 16384) OFF, 1 – 16384
	00 4C	0000 00aa	WMT2 Wave Gain	(0 – 3) –6, 0, +6, +12 [dB]
	00 4D	0000 000a	WMT2 Wave FXM Switch	(0 – 1) OFF, ON
	00 4E	0000 00aa	WMT2 Wave FXM Color	(0 – 3) 1 – 4
	00 4F	000a aaaa	WMT2 Wave FXM Depth	(0 – 16)
	00 50	0000 000a	WMT2 Wave Tempo Sync	(0 – 1) OFF, ON
	00 51	0aaa aaaa	WMT2 Wave Coarse Tune	(16 – 112) –48 – +48
	00 52	0aaa aaaa	WMT2 Wave Fine Tune	(14 – 114) –50 – +50
	00 53	0aaa aaaa	WMT2 Wave Pan	(0 – 127) L64 – 63R
	00 54	0000 000a	WMT2 Wave Random Pan Switch	(0 – 1) OFF, ON
	00 55	0000 00aa	WMT2 Wave Alternate Pan Switch	(0 – 2) OFF, ON, REVERSE
	00 56	0aaa aaaa	WMT2 Wave Level	(0 – 127)
	00 57	0aaa aaaa	WMT2 Velocity Range Lower	(1 – 127) 1 – UPPER
	00 58	0aaa aaaa	WMT2 Velocity Range Upper	(1 – 127) LOWER – 127
	00 59	0aaa aaaa	WMT2 Velocity Fade Width Lower	(0 – 127)
	00 5A	0aaa aaaa	WMT2 Velocity Fade Width Upper	(0 – 127)
	00 5B	0000 000a	WMT3 Wave Switch	(0 – 1) OFF, ON
	00 5C	0000 00aa	WMT3 Wave Group Type	(0 – 3) INT, SR–JV80, SRX, SAMPLE<*>
#	00 5D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	WMT3 Wave Group ID	(0 – 16384) OFF, 1 – 16384
#	00 61	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	WMT3 Wave Number L (Mono)	(0 – 16384) OFF, 1 – 16384
#	00 65	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	WMT3 Wave Number R	(0 – 16384) OFF, 1 – 16384
	00 69	0000 00aa	WMT3 Wave Gain	(0 – 3) –6, 0, +6, +12 [dB]
	00 6A	0000 000a	WMT3 Wave FXM Switch	(0 – 1) OFF, ON
	00 6B	0000 00aa	WMT3 Wave FXM Color	(0 – 3) 1 – 4
	00 6C	000a aaaa	WMT3 Wave FXM Depth	(0 – 16)
	00 6D	0000 000a	WMT3 Wave Tempo Sync	(0 – 1) OFF, ON
	00 6E	0aaa aaaa	WMT3 Wave Coarse Tune	(16 – 112) –48 – +48
	00 6F	0aaa aaaa	WMT3 Wave Fine Tune	(14 – 114) –50 – +50
	00 70	0aaa aaaa	WMT3 Wave Pan	(0 – 127) L64 – 63R
	00 71	0000 000a	WMT3 Wave Random Pan Switch	(0 – 1) OFF, ON
	00 72	0000 00aa	WMT3 Wave Alternate Pan Switch	(0 – 2) OFF, ON, REVERSE
	00 73	0aaa aaaa	WMT3 Wave Level	(0 – 127)
	00 74	0aaa aaaa	WMT3 Velocity Range Lower	(1 – 127) 1 – UPPER
	00 75	0aaa aaaa	WMT3 Velocity Range Upper	(1 – 127) LOWER – 127
	00 76	0aaa aaaa	WMT3 Velocity Fade Width Lower	(0 – 127)
	00 77	0aaa aaaa	WMT3 Velocity Fade Width Upper	(0 – 127)
	00 78	0000 000a	WMT4 Wave Switch	(0 – 1) OFF, ON
	00 79	0000 00aa	WMT4 Wave Group Type	(0 – 3) INT, SR–JV80, SRX, SAMPLE<*>
#	00 7A	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	WMT4 Wave Group ID	(0 – 16384) OFF, 1 – 16384
#	00 7E	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	WMT4 Wave Number L (Mono)	(0 – 16384) OFF, 1 – 16384
#	01 02	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	WMT4 Wave Number R	(0 – 16384) OFF, 1 – 16384
	01 06	0000 00aa	WMT4 Wave Gain	(0 – 3) –6, 0, +6, +12 [dB]
	01 07	0000 000a	WMT4 Wave FXM Switch	(0 – 1) OFF, ON
	01 08	0000 00aa	WMT4 Wave FXM Color	(0 – 3) 1 – 4
	01 09	000a aaaa	WMT4 Wave FXM Depth	(0 – 16)
	01 0A	0000 000a	WMT4 Wave Tempo Sync	(0 – 1) OFF, ON
	01 0B	0aaa aaaa	WMT4 Wave Coarse Tune	(16 – 112) –48 – +48
	01 0C	0aaa aaaa	WMT4 Wave Fine Tune	(14 – 114) –50 – +50
	01 0D	0aaa aaaa	WMT4 Wave Pan	(0 – 127) L64 – 63R
	01 0E	0000 000a	WMT4 Wave Random Pan Switch	(0 – 1) OFF, ON
	01 0F	0000 00aa	WMT4 Wave Alternate Pan Switch	(0 – 2) OFF, ON, REVERSE
	01 10	0aaa aaaa	WMT4 Wave Level	(0 – 127)
	01 11	0aaa aaaa	WMT4 Velocity Range Lower	(1 – 127) 1 – UPPER
	01 12	0aaa aaaa	WMT4 Velocity Range Upper	(1 – 127) LOWER – 127
	01 13	0aaa aaaa	WMT4 Velocity Fade Width Lower	(0 – 127)
	01 14	0aaa aaaa	WMT4 Velocity Fade Width Upper	(0 – 127)
	01 15	000a aaaa	Pitch Env Depth	(52 – 76) –12 – +12
	01 16	0aaa aaaa	Pitch Env Velocity Sens	(1 – 127) –63 – +63
	01 17	0aaa aaaa	Pitch Env Time 1 Velocity Sens	(1 – 127) –63 – +63
	01 18	0aaa aaaa	Pitch Env Time 4 Velocity Sens	(1 – 127) –63 – +63
	01 19	0aaa aaaa	Pitch Env Time 1	(0 – 127)
	01 1A	0aaa aaaa	Pitch Env Time 2	(0 – 127)
	01 1B	0aaa aaaa	Pitch Env Time 3	(0 – 127)
	01 1C	0aaa aaaa	Pitch Env Time 4	(0 – 127)
	01 1D	0aaa aaaa	Pitch Env Level 0	(1 – 127) –63 – +63
	01 1E	0aaa aaaa	Pitch Env Level 1	(1 – 127) –63 – +63
	01 1F	0aaa aaaa	Pitch Env Level 2	(1 – 127) –63 – +63
	01 20	0aaa aaaa	Pitch Env Level 3	(1 – 127) –63 – +63
	01 21	0aaa aaaa	Pitch Env Level 4	(1 – 127) –63 – +63
	01 22	0000 0aaa	TVF Filter Type	(0 – 6) OFF, LPF, BPF, HPF, PKG, LPF2, LPF3
	01 23	0aaa aaaa	TVF Cutoff Frequency	(0 – 127)
	01 24	0000 0aaa	TVF Cutoff Velocity Curve	(0 – 7) FIXED, 1 – 7
	01 25	0aaa aaaa	TVF Cutoff Velocity Sens	(1 – 127) –63 – +63
	01 26	0aaa aaaa	TVF Resonance	(0 – 127)
	01 27	0aaa aaaa	TVF Resonance Velocity Sens	(1 – 127) –63 – +63
	01 28	0aaa aaaa	TVF Env Depth	(1 – 127) –63 – +63
	01 29	0000 0aaa	TVF Env Velocity Curve Type	(0 – 7) FIXED, 1 – 7
	01 2A	0aaa aaaa	TVF Env Velocity Sens	(1 – 127) –63 – +63
	01 2B	0aaa aaaa	TVF Env Time 1 Velocity Sens	(1 – 127) –63 – +63
	01 2C	0aaa aaaa	TVF Env Time 4 Velocity Sens	(1 – 127) –63 – +63
	01 2D	0aaa aaaa	TVF Env Time 1	(0 – 127)
	01 2E	0aaa aaaa	TVF Env Time 2	(0 – 127)
	01 2F	0aaa aaaa	TVF Env Time 3	(0 – 127)
	01 30	0aaa aaaa	TVF Env Time 4	(0 – 127)
	01 31	0aaa aaaa	TVF Env Level 0	(0 – 127)
	01 32	0aaa aaaa	TVF Env Level 1	(0 – 127)
	01 33	0aaa aaaa	TVF Env Level 2	(0 – 127)
	01 34	0aaa aaaa	TVF Env Level 3	(0 – 127)
	01 35	0aaa aaaa	TVF Env Level 4	(0 – 127)
	01 36	0000 0aaa	TVA Level Velocity Curve	(0 – 7) FIXED, 1 – 7
	01 37	0aaa aaaa	TVA Level Velocity Sens	(1 – 127) –63 – +63
	01 38	0aaa aaaa	TVA Env Time 1 Velocity Sens	(1 – 127) –63 – +63

01 39	0aaa aaaa	TVA Env Time 4 Velocity Sens	(1 – 127) –63 – +63
01 3A	0aaa aaaa	TVA Env Time 1	(0 – 127)
01 3B	0aaa aaaa	TVA Env Time 2	(0 – 127)
01 3C	0aaa aaaa	TVA Env Time 3	(0 – 127)
01 3D	0aaa aaaa	TVA Env Time 4	(0 – 127)
01 3E	0aaa aaaa	TVA Env Level 1	(0 – 127)
01 3F	0aaa aaaa	TVA Env Level 2	(0 – 127)
01 40	0aaa aaaa	TVA Env Level 3	(0 – 127)
00 00 01 41	Total Size		

■GS (Model ID = 42H)

System Parameter

Start Address	Description		
# 40 00 00	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd		
		Master Tune	(24 – 2024) –100.0 – 100.0 [cent]
40 00 04	0aaa aaaa	Master Volume	(0 – 127)
40 00 05	0aaa aaaa	Master Key Shift	(40 – 88) –24 – +24 [semitone]
40 00 06	0aaa aaaa	Master Pan	(1 – 127) L63 – 63R
40 00 7F	0aaa aaaa	Mode Set	(0, 127) GS–RESET, GS–EXIT

Common Parameter

Start Address	Description		
40 01 10	0aaa aaaa	Voice Reserve 1	(0 – 24)
40 01 11	0aaa aaaa	Voice Reserve 2	(0 – 24)
40 01 12	0aaa aaaa	Voice Reserve 3	(0 – 24)
40 01 13	0aaa aaaa	Voice Reserve 4	(0 – 24)
40 01 14	0aaa aaaa	Voice Reserve 5	(0 – 24)
40 01 15	0aaa aaaa	Voice Reserve 6	(0 – 24)
40 01 16	0aaa aaaa	Voice Reserve 7	(0 – 24)
40 01 17	0aaa aaaa	Voice Reserve 8	(0 – 24)
40 01 18	0aaa aaaa	Voice Reserve 9	(0 – 24)
40 01 19	0aaa aaaa	Voice Reserve 10	(0 – 24)
40 01 1A	0aaa aaaa	Voice Reserve 11	(0 – 24)
40 01 1B	0aaa aaaa	Voice Reserve 12	(0 – 24)
40 01 1C	0aaa aaaa	Voice Reserve 13	(0 – 24)
40 01 1D	0aaa aaaa	Voice Reserve 14	(0 – 24)
40 01 1E	0aaa aaaa	Voice Reserve 15	(0 – 24)
40 01 1F	0aaa aaaa	Voice Reserve 16	(0 – 24)
40 01 30	0aaa aaaa	Reverb Macro	(0 – 7)
40 01 31	0aaa aaaa	Reverb Character	(0 – 7)
40 01 32	0aaa aaaa	Reverb Pre–LPF	(0 – 7)
40 01 33	0aaa aaaa	Reverb Level	(0 – 127)
40 01 34	0aaa aaaa	Reverb Time	(0 – 127)
40 01 35	0aaa aaaa	Reverb Delay Feedback	(0 – 127)
40 01 36	0aaa aaaa	Reverb Send Level to Chorus<*>	(0 – 127)
40 01 38	0aaa aaaa	Chorus Macro	(0 – 7)
40 01 39	0aaa aaaa	Chorus Pre–LPF	(0 – 7)
40 01 3A	0aaa aaaa	Chorus Level	(0 – 127)
40 01 3B	0aaa aaaa	Chorus Feedback	(0 – 127)
40 01 3C	0aaa aaaa	Chorus Delay	(0 – 127)
40 01 3D	0aaa aaaa	Chorus Rate	(0 – 127)
40 01 3E	0aaa aaaa	Chorus Depth	(0 – 127)
40 01 3F	0aaa aaaa	Chorus Send Level to Reverb	(0 – 127)

Part Parameter

Start Address	Description		
# 40 1x 00	0aaa aaaa 0aaa aaaa	Tone Number CC#00 Value Tone Number PC Value	(0 – 127) (0 – 127)
40 1x 02	0aaa aaaa	Rx. Channel	(0 – 16) 1 – 16, OFF
40 1x 03	0000 000a	Rx. Pitch Bend	(0 – 1) OFF, ON
40 1x 04	0000 000a	Rx. Channel Pressure	(0 – 1) OFF, ON
40 1x 05	0000 000a	Rx. Program Change	(0 – 1) OFF, ON
40 1x 06	0000 000a	Rx. Control Change	(0 – 1) OFF, ON
40 1x 07	0000 000a	Rx. Poly Pressure	(0 – 1) OFF, ON
40 1x 08	0000 000a	Rx. Note Message	(0 – 1) OFF, ON
40 1x 09	0000 000a	Rx. RPN	(0 – 1) OFF, ON
40 1x 0A	0000 000a	Rx. NRPN	(0 – 1) OFF, ON
40 1x 0B	0000 000a	Rx. Modulation	(0 – 1) OFF, ON
40 1x 0C	0000 000a	Rx. Volume	(0 – 1) OFF, ON
40 1x 0D	0000 000a	Rx. Panpot	(0 – 1) OFF, ON
40 1x 0E	0000 000a	Rx. Expression	(0 – 1) OFF, ON
40 1x 0F	0000 000a	Rx. Hold–1	(0 – 1) OFF, ON
40 1x 10	0000 000a	Rx. Portamento	(0 – 1) OFF, ON
40 1x 11	0000 000a	Rx. Sostenuto	(0 – 1) OFF, ON
40 1x 12	0000 000a	Rx. Soft	(0 – 1) OFF, ON
40 1x 13	0aaa aaaa	Mono / Poly Mode	(0 – 1) MODE, POLY
40 1x 14	0aaa aaaa	Assign Mode<*>	(0 – 2) SINGLE, LIMITED–MULTI, FULL–MULTI
40 1x 15	0aaa aaaa	Use for Rhythm Part	(0 – 2) OFF, MAP1, MAP2
40 1x 16	0aaa aaaa	Pitch Key Shift	(40 – 88) –24 – +24 [semitone]
# 40 1x 17	0000 aaaa 0000 bbbb	Pitch Offset Fine	(8 – 248) –12.0 – +12.0 [Hz]
40 1x 19	0aaa aaaa	Part Level (CC# 7)	(0 – 127)
40 1x 1A	0aaa aaaa	Velocity Sens Depth	(0 – 127) –64 – +63
40 1x 1B	0aaa aaaa	Velocity Sens Offset	(0 – 127) –64 – +63
40 1x 1C	0aaa aaaa	Part Panpot (CC# 10)	(0 – 127) RANDOM, L63 – 63R
40 1x 1D	0aaa aaaa	Keyboard Range Low	(0 – 127)
40 1x 1E	0aaa aaaa	Keyboard Range High	(0 – 127)
40 1x 1F	0aaa aaaa	CC1 Controller Number	(0 – 95)
40 1x 20	0aaa aaaa	CC2 Controller Number	(0 – 95)
40 1x 21	0aaa aaaa	Chorus Send Level (CC# 93)	(0 – 127)
40 1x 22	0aaa aaaa	Reverb Send Level (CC# 93)	(0 – 127)
40 1x 23	0000 000a	Rx. Bank Select<*>	(0 – 1) OFF, ON
40 1x 24	0000 000a	Rx. Bank Select LSB<*>	(0 – 1) OFF, ON
40 1x 30	0aaa aaaa	Tone Modify 1 (Vibrato Rate)	(0 – 127) –64 – +63
40 1x 31	0aaa aaaa	Tone Modify 2 (Vibrato Depth)	(0 – 127) –64 – +63
40 1x 32	0aaa aaaa	Tone Modify 3 (TVF Cutoff Freq.)	(0 – 127) –64 – +63
40 1x 33	0aaa aaaa	Tone Modify 4 (TVF Resonance)	(0 – 127) –64 – +63
40 1x 34	0aaa aaaa	Tone Modify 5 (TVF&TVA Env. Attack)	(0 – 127) –64 – +63
40 1x 35	0aaa aaaa	Tone Modify 6 (TVF&TVA Env. Decay)	(0 – 127) –64 – +63
40 1x 36	0aaa aaaa	Tone Modify 7 (TVF&TVA Env. Release)	(0 – 127) –64 – +63
40 1x 37	0aaa aaaa	Tone Modify 8 (Vibrato Delay)	(0 – 127) –64 – +63
40 1x 40	0aaa aaaa	Scale Tuning C	(0 – 127) –64 – +63 [cent]
40 1x 41	0aaa aaaa	Scale Tuning C#	(0 – 127) –64 – +63 [cent]
40 1x 42	0aaa aaaa	Scale Tuning D	(0 – 127) –64 – +63 [cent]
40 1x 43	0aaa aaaa	Scale Tuning D#	(0 – 127) –64 – +63 [cent]
40 1x 44	0aaa aaaa	Scale Tuning E	(0 – 127) –64 – +63 [cent]
40 1x 45	0aaa aaaa	Scale Tuning F	(0 – 127) –64 – +63 [cent]
40 1x 46	0aaa aaaa	Scale Tuning F#	(0 – 127) –64 – +63 [cent]
40 1x 47	0aaa aaaa	Scale Tuning G	(0 – 127) –64 – +63 [cent]
40 1x 48	0aaa aaaa	Scale Tuning G#	(0 – 127) –64 – +63 [cent]
40 1x 49	0aaa aaaa	Scale Tuning A	(0 – 127) –64 – +63 [cent]
40 1x 4A	0aaa aaaa	Scale Tuning A#	(0 – 127) –64 – +63 [cent]
40 1x 4B	0aaa aaaa	Scale Tuning B	(0 – 127) –64 – +63 [cent]
40 2x 00	0aaa aaaa	Mod Pitch Control	(40 – 88) –24 – +24 [semitone]
40 2x 01	0aaa aaaa	Mod TVF Cutoff Control	(0 – 127) –9600 – +9600 [cent]
40 2x 02	0aaa aaaa	Mod Amplitude Control	(0 – 127) –100.0 – +100.0 [%]
40 2x 03	0aaa aaaa	Mod LFO1 Rate Control	(0 – 127) –10.0 – +10.0 [Hz]
40 2x 04	0aaa aaaa	Mod LFO1 Pitch Control	(0 – 127) 0 – 600 [cent]
40 2x 05	0aaa aaaa	Mod LFO1 TVF Depth	(0 – 127) 0 – 2400 [cent]
40 2x 06	0aaa aaaa	Mod LFO1 TVA Depth	(0 – 127) 0 – 100.0 [%]
40 2x 07	0aaa aaaa	Mod LFO2 Rate Control	(0 – 127) –10.0 – +10.0 [Hz]
40 2x 08	0aaa aaaa	Mod LFO2 Pitch Control	(0 – 127) 0 – 600 [cent]
40 2x 09	0aaa aaaa	Mod LFO2 TVF Depth	(0 – 127) 0 – 2400 [cent]
40 2x 0A	0aaa aaaa	Mod LFO2 TVA Depth	(0 – 127) 0 – 100.0 [%]
40 2x 10	0aaa aaaa	Bend Pitch Control	(64 – 88) 0 – 24 [semitone]
40 2x 11	0aaa aaaa	Bend TVF Cutoff Control	(0 – 127) –9600 – +9600 [cent]
40 2x 12	0aaa aaaa	Bend Amplitude Control	(0 – 127) –100.0 – +100.0 [%]
40 2x 13	0aaa aaaa	Bend LFO1 Rate Control	(0 – 127) –10.0 – +10.0 [Hz]
40 2x 14	0aaa aaaa	Bend LFO1 Pitch Control	(0 – 127) 0 – 600 [cent]
40 2x 15	0aaa aaaa	Bend LFO1 TVF Depth	(0 – 127) 0 – 2400 [cent]
40 2x 16	0aaa aaaa	Bend LFO1 TVA Depth	(0 – 127) 0 – 100.0 [%]
40 2x 17	0aaa aaaa	Bend LFO2 Rate Control	(0 – 127) –10.0 – +10.0 [Hz]
40 2x 18	0aaa aaaa	Bend LFO2 Pitch Control	(0 – 127) 0 – 600 [cent]
40 2x 19	0aaa aaaa	Bend LFO2 TVF Depth	(0 – 127) 0 – 2400 [cent]
40 2x 1A	0aaa aaaa	Bend LFO2 TVA Depth	(0 – 127) 0 – 100.0 [%]
40 2x 20	0aaa aaaa	CAf Pitch Control	(40 – 88) –24 – +24 [semitone]
40 2x 21	0aaa aaaa	CAf TVF Cutoff Control	(0 – 127) –9600 – +9600 [cent]
40 2x 22	0aaa aaaa	CAf Amplitude Control	(0 – 127) –100.0 – +100.0 [%]
40 2x 23	0aaa aaaa	CAf LFO1 Rate Control	(0 – 127) –10.0 – +10.0 [Hz]
40 2x 24	0aaa aaaa	CAf LFO1 Pitch Control	(0 – 127) 0 – 600 [cent]
40 2x 25	0aaa aaaa	CAf LFO1 TVF Depth	(0 – 127) 0 – 2400 [cent]
40 2x 26	0aaa aaaa	CAf LFO1 TVA Depth	(0 – 127) 0 – 100.0 [%]
40 2x 27	0aaa aaaa	CAf LFO2 Rate Control	(0 – 127) –10.0 – +10.0 [Hz]
40 2x 28	0aaa aaaa	CAf LFO2 Pitch Control	(0 – 127) 0 – 600 [cent]
40 2x 29	0aaa aaaa	CAf LFO2 TVF Depth	(0 – 127) 0 – 2400 [cent]
40 2x 2A	0aaa aaaa	CAf LFO2 TVA Depth	(0 – 127) 0 – 100.0 [%]
40 2x 30	0aaa aaaa	PAf Pitch Control	(40 – 88) –24 – +24 [semitone]
40 2x 31	0aaa aaaa	PAf TVF Cutoff Control	(0 – 127) –9600 – +9600 [cent]
40 2x 32	0aaa aaaa	PAf Amplitude Control	(0 – 127) –100.0 – +100.0 [%]
40 2x 33	0aaa aaaa	PAf LFO1 Rate Control	(0 – 127) –10.0 – +10.0 [Hz]
40 2x 34	0aaa aaaa	PAf LFO1 Pitch Control	(0 – 127) 0 – 600 [cent]

40 2x 35	0aaa aaaa	PAf LFO1 TVF Depth	(0 – 127) 0 – 2400 [cent]
40 2x 36	0aaa aaaa	PAf LFO1 TVA Depth	(0 – 127) 0 – 100.0 [%]
40 2x 37	0aaa aaaa	PAf LFO2 Rate Control	(0 – 127) –10.0 – +10.0 [Hz]
40 2x 38	0aaa aaaa	PAf LFO2 Pitch Control	(0 – 127) 0 – 600 [cent]
40 2x 39	0aaa aaaa	PAf LFO2 TVF Depth	(0 – 127) 0 – 2400 [cent]
40 2x 3A	0aaa aaaa	PAf LFO2 TVA Depth	(0 – 127) 0 – 100.0 [%]
40 2x 40	0aaa aaaa	CC1 Pitch Control	(40 – 88) –24 – +24 [semitone]
40 2x 41	0aaa aaaa	CC1 TVF Cutoff Control	(0 – 127) –9600 – +9600 [cent]
40 2x 42	0aaa aaaa	CC1 Amplitude Control	(0 – 127) –100.0 – +100.0 [%]
40 2x 43	0aaa aaaa	CC1 LFO1 Rate Control	(0 – 127) –10.0 – +10.0 [Hz]
40 2x 44	0aaa aaaa	CC1 LFO1 Pitch Control	(0 – 127) 0 – 600 [cent]
40 2x 45	0aaa aaaa	CC1 LFO1 TVF Depth	(0 – 127) 0 – 2400 [cent]
40 2x 46	0aaa aaaa	CC1 LFO1 TVA Depth	(0 – 127) 0 – 100.0 [%]
40 2x 47	0aaa aaaa	CC1 LFO2 Rate Control	(0 – 127) –10.0 – +10.0 [Hz]
40 2x 48	0aaa aaaa	CC1 LFO2 Pitch Control	(0 – 127) 0 – 600 [cent]
40 2x 49	0aaa aaaa	CC1 LFO2 TVF Depth	(0 – 127) 0 – 2400 [cent]
40 2x 4A	0aaa aaaa	CC1 LFO2 TVA Depth	(0 – 127) 0 – 100.0 [%]
40 2x 50	0aaa aaaa	CC2 Pitch Control	(40 – 88) –24 – +24 [semitone]
40 2x 51	0aaa aaaa	CC2 TVF Cutoff Control	(0 – 127) –9600 – +9600 [cent]
40 2x 52	0aaa aaaa	CC2 Amplitude Control	(0 – 127) –100.0 – +100.0 [%]
40 2x 53	0aaa aaaa	CC2 LFO1 Rate Control	(0 – 127) –10.0 – +10.0 [Hz]
40 2x 54	0aaa aaaa	CC2 LFO1 Pitch Control	(0 – 127) 0 – 600 [cent]
40 2x 55	0aaa aaaa	CC2 LFO1 TVF Depth	(0 – 127) 0 – 2400 [cent]
40 2x 56	0aaa aaaa	CC2 LFO1 TVA Depth	(0 – 127) 0 – 100.0 [%]
40 2x 57	0aaa aaaa	CC2 LFO2 Rate Control	(0 – 127) –10.0 – +10.0 [Hz]
40 2x 58	0aaa aaaa	CC2 LFO2 Pitch Control	(0 – 127) 0 – 600 [cent]
40 2x 59	0aaa aaaa	CC2 LFO2 TVF Depth	(0 – 127) 0 – 2400 [cent]
40 2x 5A	0aaa aaaa	CC2 LFO2 TVA Depth	(0 – 127) 0 – 100.0 [%]

x: BLOCK NUMBER (0-F)

Part 1 (MIDI ch = 1) x = 1
Part 2 (MIDI ch = 2) x = 2
: : :
Part 9 (MIDI ch = 9) x = 9
Part10 (MIDI ch = 10) x = 0
Part11 (MIDI ch = 11) x = A
Part12 (MIDI ch = 12) x = B
: : :
Part16 (MIDI ch = 16) x = F

Drum Setup Parameter

Start Address		Description	
41 m0 00	0aaa aaaa	Drum Map Name 1	(32 – 127) 32 – 127 [ASCII]
41 m0 01	0aaa aaaa	Drum Map Name 2	(32 – 127) 32 – 127 [ASCII]
41 m0 02	0aaa aaaa	Drum Map Name 3	(32 – 127) 32 – 127 [ASCII]
41 m0 03	0aaa aaaa	Drum Map Name 4	(32 – 127) 32 – 127 [ASCII]
41 m0 04	0aaa aaaa	Drum Map Name 5	(32 – 127) 32 – 127 [ASCII]
41 m0 05	0aaa aaaa	Drum Map Name 6	(32 – 127) 32 – 127 [ASCII]
41 m0 06	0aaa aaaa	Drum Map Name 7	(32 – 127) 32 – 127 [ASCII]
41 m0 07	0aaa aaaa	Drum Map Name 8	(32 – 127) 32 – 127 [ASCII]
41 m0 08	0aaa aaaa	Drum Map Name 9	(32 – 127) 32 – 127 [ASCII]
41 m0 09	0aaa aaaa	Drum Map Name 10	(32 – 127) 32 – 127 [ASCII]
41 m0 0A	0aaa aaaa	Drum Map Name 11	(32 – 127) 32 – 127 [ASCII]
41 m0 0B	0aaa aaaa	Drum Map Name 12	(32 – 127) 32 – 127 [ASCII]
41 m1 rr	0aaa aaaa	Play Note Number	(0 – 127)
41 m2 rr	0aaa aaaa	Level	(0 – 127)
41 m3 rr	0aaa aaaa	Assign Group Number	(0 – 127) NON, 1 – 127
41 m4 rr	0aaa aaaa	Panpot	(0 – 127) RANDOM, L63 – 63R
41 m5 rr	0aaa aaaa	Reverb Send Level	(0 – 127) 0.0 – 1.0
41 m6 rr	0aaa aaaa	Chorus Send Level	(0 – 127) 0.0 – 1.0
41 m7 rr	0000 000a	Rx. Note Off	(0 – 1) OFF, ON
41 m8 rr	0000 000a	Rx. Note On	(0 – 1) OFF, ON

m: Map number (0 = MAP1, 1 = MAP2)
rr: drum part note number (00H-7FH)

■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.

D	H	D	H	D	H	D	H
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

D: decimal
H: hexadecimal

* 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.

<Example1> What is the decimal expression of 5AH?
From the preceding table, 5AH = 90

<Example2> 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

<Example3> 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

<Example4> 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 result is: 00 04 0E 0AH.

■Examples of Actual MIDI Messages

<Example1> 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.

<Example2> 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.

<Example3> 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.

<Example4> 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 control 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 generators 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 generator 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.
Heresanexampleofhowthechecksumiscalculated.WewillassumethatintheExclusivemessage wearetransmitting,theaddressisaabbccddHandthedataorsizeiseeffH.'
aa + bb + cc + dd + ee + ff = sum
sum ÷ 128 = quotient ... remainder
128 - remainder = checksum

<Example1> Setting CHORUS TYPE of PERFORMANCE COMMON to DELAY (DT1)
According to the "Parameter Address Map" (p. 162), the start address of Temporary Performance is 10 00 00 00H, the offset address of CHORUS at PERFORMANCE COMMON is 04 00H, and the address of CHORUS TYPE is 00 00H. Therefore the address of CHORUS TYPE of PERFORMANCE COMMON is;

```
   10 00 00 00H
       04 00H
+)     00 00H
   10 00 04 00H
```

DELAY has the value of 02H.
So the system exclusive message should be sent is;

F0	41	10	00 10	12	10 00 04 00	02	??	F7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)

(1) Exclusive Status (2) ID (Roland) (3) Device ID (17)
(4) Model ID (XV-5050) (5) Command ID (DT1) (6) End of Exclusive

Then calculate the checksum.

10H + 00H + 04H + 00H + 02H = 16 + 0 + 4 + 0 + 2 = 22 (sum)
22 (sum) ÷ 128 = 0 (quotient) ... 22 (remainder)
checksum = 128 - 22 (remainder) = 106 = 6AH

This means that F0 41 10 00 10 12 10 00 04 00 02 6A F7 is the message should be sent.

<Example2> Getting the data (RQ1) of Performance Part 3 in USER:03
According to the "Parameter Address Map" (p. 162), the start address of USER:03 is 20 02 00 00H, and the offset address of Performance Part 3 is 00 22 00H.
Therefore the start address of Performance Part 3 in USER:03 is;

```
   20 02 00 00H
+)    00 22 00H
   20 02 22 00H
```

As the size of Performance Part is 00 00 00 31H, the system exclusive message should be sent is;

F0	41	10	00 10	11	20 02 22 00	00 00 00 31	??	F7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)

(1) Exclusive Status (2) ID (Roland) (3) Device ID (17)
(4) Model ID (XV-5050) (5) Command ID (RQ1) (6) End of Exclusive

Then calculate the checksum.

20H + 02H + 22H + 00H + 00H + 00H + 00H + 31H = 32 + 2 + 34 + 0 + 0 + 0 + 0 + 49 = 117 (sum)
117 (sum) ÷ 128 = 0 (quotient) ... 117 (remainder)
checksum = 128 - 117 (remainder) = 11 = 0BH

This means that F0 41 10 00 10 11 20 02 22 00 00 00 00 31 0B F7 is the message should be sent.

<Example3> Getting Temporary Performance data (RQ1)
cf.) This operation is the same as Data Transfer function in Utility mode with "PERFORM" (Type parameter) and "TEMP: -PATCH" (Source parameter) options.

According to the "Parameter Address Map" (p. 162), the start address of Temporary Performance is assigned as following:

10 00 00 00H Temporary Performance Common
:
10 00 20 00H Temporary Performance Part 1
:
10 00 2F 00H Temporary Performance Part 16

As the data size of Performance Controller is 00 00 00 31H, summation of the size and the start address of Temporary Performance Part 16 will be;

```
   10 00 2F 00H
+) 00 00 00 31H
   10 00 2F 31H
```

And the size that have to be got should be;

```
   10 00 2F 31H
-) 10 00 00 00H
   00 00 2F 31H
```

Therefore the system exclusive message should be sent is;

F0	41	10	00 10	11	10 00 00 00	00 00 2F 31	??	F7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)

(1) Exclusive Status (2) ID (Roland) (3) Device ID (17)
(4) Model ID (XV-5050) (5) Command ID (RQ1) (6) End of Exclusive

Calculating the checksum as shown in <Example 2>, we get a message of F0 41 10 6A 11 10 00 00 00 00 00 2F 31 10 F7 to be transmitted.

<Example4> Getting data (RQ1) at once;
Temporary Performance data,
Temporary Patch data of whole part in Performance mode,
Temporary Rhythm data of whole part in Performance mode.

cf.) This operation is the same as Data Transfer function in Utility mode with "PERFORM" (Type parameter) and "TEMP: +PATCH" (Source parameter) options.

According to the "Parameter Address Map" (p. 162), the start address of the above all parameters is assigned as following:

10 00 00 00H Temporary Performance
11 00 00 00H Temporary Patch (Performance Mode Part 1)
11 10 00 00H Temporary Rhythm (Performance Mode Part 1)
:
14 60 00 00H Temporary Patch (Performance Mode Part 16)
14 70 00 00H Temporary Rhythm (Performance Mode Part 16)

The offset address of Rhythm is also assigned as follows:

00 00 00H Rhythm Common
:
00 10 00H Rhythm Tone (Key # 21)
:
01 3E 00H Rhythm Tone (Key # 108)

As the data size of Rhythm Tone is 00 00 01 41H, summation of the size and the start address of Temporary Rhythm Tone #108 in Performance mode will be;

```
   14 70 00 00H
      01 3E 00H
+) 00 00 01 41H
   14 71 3F 41H
```

And the size that have to be got should be;

```
   14 71 3F 41H
-) 10 00 00 00H
   04 71 3F 41H
```

Therefore the system exclusive message should be sent is;

F0	41	10	00 10	11	10 00 00 00	04 71 3F 41	??	F7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)

(1) Exclusive Status (2) ID (Roland) (3) Device ID (17)
(4) Model ID (XV-5050) (5) Command ID (RQ1) (6) End of Exclusive

Calculating the checksum as shown in <Example 2>, we get a message of F0 41 10 00 10 11 10 00 00 00 04 71 3F 41 7B F7 to be transmitted.

■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 the XV-5050, the default settings for the Scale Tune feature produce equal temperament.

❍Just Temperament (Tonic of C)

The principal triads 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 (Key-tone C)	Arabian Scale
C	0	0	-6
C#	0	-8	+45
D	0	+4	-2
Eb	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
Bb	0	+14	-10
B	0	-12	-49

The values in the table are given in cents. Convert these values to hexadecimal, and transmit them as Exclusive data.
For example, to set the tune (C-B) of the Part 1 Arabian Scale, send the following data:
F0 41 10 42 12 40 11 40 3A 6D 3E 34 0D 38 6B 3C 6F 40 36 0F 76 F7

■ASCII Code Table

Patch Name and Performance Name, etc., of MIDI data are described the ASCII code in the table below.

D	H	Char	D	H	Char	D	H	Char
32	20H	SP	64	40H	@	96	60H	`
33	21H	!	65	41H	A	97	61H	a
34	22H	"	66	42H	B	98	62H	b
35	23H	#	67	43H	C	99	63H	c
36	24H	$	68	44H	D	100	64H	d
37	25H	%	69	45H	E	101	65H	e
38	26H	&	70	46H	F	102	66H	f
39	27H	`	71	47H	G	103	67H	g
40	28H	(	72	48H	H	104	68H	h
41	29H	)	73	49H	I	105	69H	i
42	2AH	*	74	4AH	J	106	6AH	j
43	2BH	+	75	4BH	K	107	6BH	k
44	2CH	,	76	4CH	L	108	6CH	l
45	2DH	−	77	4DH	M	109	6DH	m
46	2EH	.	78	4EH	N	110	6EH	n
47	2FH	/	79	4FH	O	111	6FH	o
48	30H	0	80	50H	P	112	70H	p
49	31H	1	81	51H	Q	113	71H	q
50	32H	2	82	52H	R	114	72H	r
51	33H	3	83	53H	S	115	73H	s
52	34H	4	84	54H	T	116	74H	t
53	35H	5	85	55H	U	117	75H	u
54	36H	6	86	56H	V	118	76H	v
55	37H	7	87	57H	W	119	77H	w
56	38H	8	88	58H	X	120	78H	x
57	39H	9	89	59H	Y	121	79H	y
58	3AH	:	90	5AH	Z	122	7AH	z
59	3BH	;	91	5BH	[	123	7BH	{
60	3CH	<	92	5CH	\	124	7CH	|
61	3DH	=	93	5DH	]	125	7DH	}
62	3EH	>	94	5EH	^			
63	3FH	?	95	5FH	_			

D: decimal
H: hexadecimal

* "SP" is space.

SYNTHESIZER MODULE

Model XV-5050

MIDI Implementation Chart

Date : Oct. 4, 2001

Version : 1.00

Function...		Transmitted	Recognized	Remarks
Basic	Default	X	1–16	
Channel	Changed	X	1–16	
Mode	Default	X	Mode 3	
	Messages	X	Mode 3, 4 (M = 1)	* 2
	Altered	**********		
Note Number :	True Voice	X **********	0–127 0–127	
Velocity	Note On	X	O	
	Note Off	X	O	
After Touch	Key's	X	O *1	
	Channel's	O	O *1	
Pitch Bend		O	O *1	
Control Change	0, 32	O *4	O *1	Bank select
	1	O	O *1	Modulation
	2	O	O	Breath type
	4	O	O	Foot type
	5	O *4	O	Portamento time
	6, 38	O *4	O	Data entry
	7	O *4	O *1	Volume
	8	X	O	Balance
	10	O *4	O *1	Panpot
	11	X	O *1	Expression
	64	X	O *1	Hold 1
	65	O *4	O	Portamento
	66	X	O	Sostenuto
	67	X	O	Soft
	68	X	O	Legato Foot Switch
	69	X	O	Hold 2
	71	O *4	O	Resonance
	72	O *4	O	Release Time
	73	O *4	O	Attack Time
	74	O *4	O	Cutoff
	75	O *4	O	Decay Time
	76	O *4	O	Vibrato Rate
	77	O *4	O	Vibrato Depth
	78	O *4	O	Vibrato Delay
	80	X	O (Tone 1 Level)	General Purpose Controller 5
	81	X	O (Tone 2 Level)	General Purpose Controller 6
	82	X	O (Tone 3 Level)	General Purpose Controller 7
	83	X	O (Tone 4 Level)	General Purpose Controller 8
	84	X	O	Portamento control
	91	O *4	O (Reverb)	General purpose effects 1
	93	O *4	O (Chorus)	General purpose effects 3
	1–5, 7–31, 64–95 *3	X	O	CC1, 2 (General purpose controller 1, 2)
	1–5, 7–31, 64–95 *3	X	O	CC3, 4 (General purpose controller 3, 4)
	98, 99	X	X	NRPN LSB, MSB
	100, 101	O *4	O	RPN LSB, MSB
Program Change	: True Number	O *4 **********	O *1 0–127	Program No. 1–128
System Exclusive		O *5	O *1	
System Common	: Song Position	X	X	
	: Song Select	X	X	
	: Tune Request	X	X	
System Real Time	: Clock	X	O	
	: Commands	X	X	
Aux Messages	: All Sound Off	X	O (120, 126, 127)	
	: Reset All Controllers	X	O	
	: Local On/Off	X	X	
	: All Notes Off	X	O (123–127)	
	: Active Sensing	O *1	O	
	: System Reset	X	X	
Notes		* 1 O X is selectable. * 2 Recognized as M=1 even if M≠1. * 3 Can be changed settings. * 4 Transmits when Data Transfer is excuted . * 5 Transmits when Data Transfer is excuted or RQ1 received.		

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

XV-5050: 64-Voice Sound Module (conforms to General MIDI 2 System)

Parts

16

Maximum Polyphony

64 voices

Wave Memory

64 M Bytes (16-bit linear equivalent)
Wave forms: 1083

Expansion Slot

Wave Expansion Board SRX Series: 2 slots

Preset Memory

Patches: 1024 (128 x 8 banks) + 256 (General MIDI 2 Patches)
Rhythm Sets: 16 (2 x 8 banks) + 9 (General MIDI 2 Rhythm Sets)
Performances: 64 (32 x 2 banks)

User Memory

Patches: 128
Rhythm Sets: 4
Performances: 64

Effects

Multi-effects: 90 types

* *Three different multi-effects (only 50 types) can be used simultaneously in Performance mode.*

Chorus: 3 types
Reverb: 5 types
System Equalizer: 2 bands per each 4 outputs

Display

20 characters, 2 lines (backlit LCD)

Connectors

Headphones Jack
USB Connector
A (MIX) Output Jack (L/MONO, R)
B Output Jack (L, R) (or Individual Jacks 1–4)
MIDI Connectors (IN, OUT, THRU)
Digital Audio Outputs:
S/P DIF Connectors (COAXIAL, OPTICAL) (24-bit, 44.1 kHz)
AC Inlet

Power Supply

AC 117 V, AC 230 V, AC 240 V

Power Consumption

9 W (AC 117 V)
11 W (AC 230 V, AC 240 V)

Dimensions

482 (W) x 220 (D) x 44 (H) mm
19 (W) x 8-11/16 (D) x 1-3/4 (H) inches
(EIA-1U Rack Mount Type)

Weight

2.6 kg
5 lbs 12 oz

Accessories

Owner's Manual
CD-ROM (USB Driver)
Power Cord
Rack Mount Washer x 4

Options

Wave Expansion Board: SRX Series

* *In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without notice.*

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MEMO

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For EU Countries

CE

This product complies with the requirements of European Directives EMC 89/336/EEC and LVD 73/23/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.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

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.

Roland Corporation

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