

# XV-88

128 VOICE EXPANDABLE SYNTHESIZER

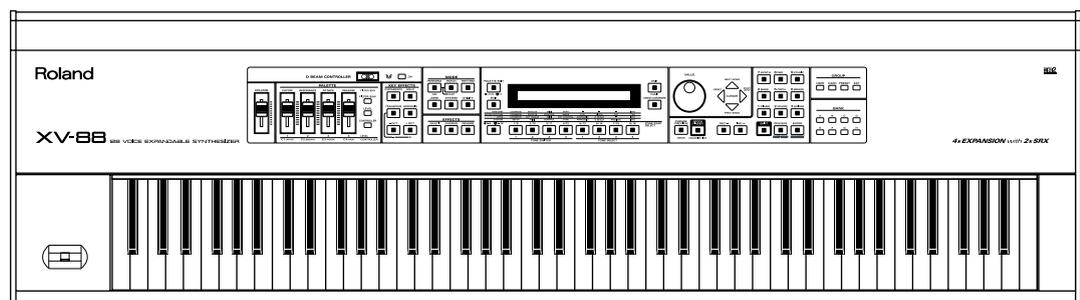
**4x EXPANSION with 2x SRX**

## OWNER'S MANUAL

Thank you, and congratulations on your choice of the Roland XV-88 128-Voice Expandable Synthesizer.

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

- \* Windows is a registered trademark of Microsoft Corporation.
- \* Apple is a registered trademark of Apple Computer, Inc.
- \* Macintosh is a registered trademark of Apple Computer, Inc.
- \* IBM is a registered trademark of International Business Machines Corporation.
- \* IBM PC is a registered trademark of International Business Machines Corporation.
- \* SmartMedia is a trademark of Toshiba Corporation.



Copyright © 2000 ROLAND CORPORATION

All rights reserved. No part of this publication may be reproduced in any form without the written permission of ROLAND CORPORATION.

 <div style="display: inline-block; border: 1px solid black; padding: 2px; text-align: center; font-weight: bold; font-size: small;"> <b>CAUTION</b>  RISK OF ELECTRIC SHOCK  DO NOT OPEN </div> 
<b>ATTENTION:</b> RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR
<b>CAUTION:</b> 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 all the instructions before using the product.
2. Do not use this product near water — for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
3. This product should be used only with a cart or stand that is recommended by the manufacturer.
4. This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be located so that its location or position does not interfere with its proper ventilation.
6. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.
7. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
8. The power-supply cord of the product should be unplugged from the outlet when left unused for a long period of time.
9. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
10. The product should be serviced by qualified service personnel when:
  - A. The power-supply cord or the plug has been damaged; or
  - B. Objects have fallen, or liquid has been spilled into the product; or
  - C. The product has been exposed to rain; or
  - D. The product does not appear to operate normally or exhibits a marked change in performance; or
  - E. The product has been dropped, or the enclosure damaged.
11. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

**For the USA**

This product may be equipped with a polarized line plug (one blade wider than the other) . This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the plug.

**For Canada**

For Polarized Line Plug

**CAUTION:** TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

**ATTENTION:** POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU' AU FOND.

**For the U.K.**

**IMPORTANT:** THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

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 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.  
Under no circumstances must either of the above wires be connected to the earth terminal of a three pin plug.

# USING THE UNIT SAFELY

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

### About ⚠ WARNING and ⚠ CAUTION Notices

<b>⚠ WARNING</b>	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
<b>⚠ CAUTION</b>	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 Quick Start; p. 4, p. 10.)

---

- 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.

---

- 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!

---

- 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!)

#### ⚠ WARNING

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

---

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

---

- Always turn the unit off and unplug the power cord before attempting installation of the circuit board (SR-JV80/SRX Series; Quick Start; p. 19).

## USING THE UNIT SAFELY

### CAUTION

- Always grasp only the plug on the power-supply cord when plugging into, or unplugging from an outlet. 
- 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 plug with wet hands when plugging into, or unplugging from, an outlet. 
- 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 (Quick Start; p. 19). 
- 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) (SR-JV80/SRX Series). Remove only the specified screws (Quick Start; p. 4, p. 10). 

# 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.

## Placement

- This device may interfere with radio and television reception. Do not use this device in the vicinity of such receivers.
- Do not expose the unit to direct sunlight, place it near devices that radiate heat, leave it inside an enclosed vehicle, or otherwise subject it to temperature extremes. Excessive heat can deform or discolor the unit.
- 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 memory card, or written down on paper (when possible). During repairs, due care is taken to avoid the loss of data. However, in certain cases (such as when circuitry related to memory itself is out of order), we regret that it may not be possible to restore the data, and Roland assumes no liability concerning such loss of data.

## Memory Backup

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

“Battery Low”

## Additional Precautions

- Please be aware that the contents of memory can be irretrievably lost as a result of a malfunction, or the improper operation of the unit. To protect yourself against the risk of loosing important data, we recommend that you periodically save a backup copy of important data you have stored in the unit’s memory on a memory card.
- Unfortunately, it may be impossible to restore the contents of data that was stored in the unit’s memory, a memory card, 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.
- Use only the specified expression pedal (EV-5; sold separately). By connecting any other expression pedals, you risk causing malfunction and/or damage to the unit.

## Before Using Memory Cards

### Using Memory Cards

- Carefully insert the DATA card all the way in—until it is firmly in place.



Insert with the surface with the gold connector facing up

- Never touch the terminals of the DATA card. Also, avoid getting the terminals dirty.

# How to Use This Manual

This owner's manual is organized as follows. But before you start reading it, we'd like to suggest going through the **Quick Start** manual. The separate volume **Q & A** contains frequently asked questions about the XV-88, along with answers to those questions. Please refer to this booklet as needed.

## Chapter 1. Overview of the XV-88

This chapter covers XV-88 sound generator section configurations, as well as basic operation. Reading it is essential for understanding XV-88 operational procedures.

## Chapter 2. Playing

This chapter explains how to play in Patch, Performance, and Rhythm Set modes, and how to use the XV-88's many different performance functions. Reading it is essential for understanding XV-88 operational procedures.

## Chapter 3. Creating Performances

This chapter explains how to create Performances, and describes what the Performance parameters do and how they are composed. Read this chapter when you wish to create Performances.

## Chapter 4. Zone Settings

This chapter explains how to make Zone settings for Performance mode, and describes what the Zone parameters do and how they are composed. Read this chapter when you wish to make Zone settings.

## Chapter 5. Creating Patches

This chapter explains how to create Patches, and describes what the Patch parameters do and how they are composed. Read this chapter when you wish to create Patches.

## Chapter 6. Creating Rhythm Sets

This chapter explains how to create Rhythm Sets, and describes what the Rhythm Set parameters do and how they are composed. Read this chapter when you wish to create Rhythm Sets.

## Chapter 7. Adding Effects

This chapter explains how to make settings for the XV-88's onboard effects, and describes the type and operation of each effect. Be sure to read this when adding effects to Patches and Performances.

## Chapter 8. Saving Sounds

This chapter describes how the XV-88's memory is arranged, and explains how tones are saved. Read this chapter when you wish to save created sounds.

## Chapter 9. Getting More Familiar with the XV-88 (System Functions)

This chapter describes how the System parameters that determine the XV-88's operation environment work and how these parameters are organized. Refer to it as necessary.

## Chapter 10. Memory Settings (Utility Mode)

This chapter goes over the various Utility functions such as storing Patch, Performance or Rhythm Set data, clearing the internal memory, etc. Refer to it as necessary.

## Chapter 11. Using the XV-88 as a GM Sound Module (GM Mode)

This chapter explains needed procedures and parameters for using the XV-88 as a General MIDI/General MIDI 2 System-compatible sound generator. Read this chapter when you want to play back commercially available General MIDI scores (music files created for General MIDI sound generators).

## Chapter 12. Realizing the Potential of the XV-88

This chapter includes various techniques that expand the XV-88's operational scope. It includes use with external MIDI devices, live performance applications and others. Refer to it as necessary.

## Appendices

This chapter contains a troubleshooting section for use when the XV-88 is not functioning as expected. There is also a list of error messages that you can refer to if an error message appears on the display. A list of parameters and a MIDI implementation chart are also provided.

### Notation Used in This Owner's Manual

To make operation procedures easy to understand, the following notation system is adopted:

Characters and numbers in square brackets [ ] indicate buttons on the front panel. For example, [PATCH] represents the PATCH button and [ENTER] stands for the ENTER button.

In addition, "[A] + [B]" indicates "press [B] while holding down [A]"; "[A] → [B]" means "press [B] after first pressing (and releasing) [A]."

(p. \*\*) refers to pages within the manual.

In this manual, when any particular parameter is referred to, the name of the parameter is given, and this is then followed (in parenthesis) by information detailing its mode, display group, and display. For example: Output Assign parameter (PERFORM/EFFECTS/OUTPUT).

Below are the meanings of the symbols preceding certain sentences in the text.



These alert you to cautions or similar important information. Be sure to read these.



These are reference memos. Read as needed.



These are hints for operating the XV-88. Read as needed.



These provide information from related reference pages. Read as needed.



The display screens printed in this owner's manual are based on the factory settings. However, please be aware that in some cases they may differ from the actual factory settings.

# Contents

<b>Main Features</b> .....	<b>13</b>
<b>Front and Rear Panel</b> .....	<b>14</b>
Front Panel.....	14
Rear Panel.....	17
<b>Chapter 1. Overview of the XV-88</b> .....	<b>19</b>
How the XV-88 Is Organized.....	19
Basic Structure .....	19
Classification of XV-88 Sound Types .....	20
Number of Voices.....	23
Basic Operations on the XV-88.....	24
Switching Modes.....	24
About the Function Buttons .....	25
About the Cursor Buttons.....	26
Modifying a Value .....	27
Assigning a Name.....	28
<b>Chapter 2. Playing</b> .....	<b>29</b>
Playing in Patch Mode.....	29
Selecting a Patch.....	29
Selecting Favorite Patches from the Favorite List .....	31
Using Phrase Preview to Play Patches.....	32
Making a Patch Sound Thick or Thin (Turning a Tone On/Off).....	32
Playing Single Notes (Solo) .....	33
Creating Smooth Pitch Changes (Portamento).....	33
Using the Sliders to Modify the Sound in Realtime.....	34
Playing in Performance Mode.....	34
Selecting a Performance .....	35
Playing Fatter and Richer Sounds by Combining Patches (Layer).....	36
Splitting the Keyboard to Play Separate Patches in Different Sections (Split).....	36
Playing Along with Song Playback (XV-88 Used as a Multi-timbral Sound Generator) ....	37
Assigning a Different Patch to a Part .....	38
Using the Sliders to Modify the Sound in Realtime.....	38
Playing in Rhythm Set Mode.....	39
Selecting a Rhythm Set.....	39
Selecting Favorite Rhythm Sets from the Favorite List .....	40
Playing Percussion Instruments .....	41
Playing Arpeggios (Arpeggiator).....	41
Playing an Arpeggio Over a Preset Keyboard Area .....	43
Holding an Arpeggio.....	43
Simulating a Rhythm Guitar .....	44
Playing an Arpeggio from an External MIDI Device.....	44
Creating an Arpeggio Pattern .....	44
Moving Your Hand Above the D Beam Controller to Apply Effects (D Beam Controller) .....	45
Convenient Functions for Performance .....	47
Transposing the Keyboard in Octave Units (Octave Shift).....	47
Transposing the Keyboard in Semitone Steps (Transpose) .....	48
If “Stuck” Notes Occur (Panic).....	48

<b>Chapter 3. Creating Performances .....</b>	<b>49</b>
How a Performance Is Organized.....	49
How to Make the Performance Settings.....	49
Making Settings While Comparing Parts (Palette Edit) .....	50
Copying the Settings of Another Part (Part Copy).....	50
Functions of Performance Parameters.....	51
Settings Common to the Entire Performance (COMMON) .....	51
Setting Effects for a Performance (EFFECTS) .....	52
Making Settings for Receiving MIDI (MIDI).....	52
Making Settings for Each Part (PART).....	53
Confirming MIDI Information for Each Part (INFO) .....	56
Changing the Settings of the Patch/Rhythm Set Assigned to a Part.....	56
<b>Chapter 4. Zone Settings.....</b>	<b>57</b>
How to Make the Zone Settings .....	57
Making Settings While Comparing Zones (Palette Edit) .....	58
Functions of Zone Parameters.....	58
Settings Common to the Entire Zone (COMMON) .....	58
Setting the Keyboard Range (KEY RANGE) .....	59
Making Settings for Transmitting MIDI (MIDI).....	59
Controlling External Sound Module (EXT CONTROL).....	60
Arpeggiator Settings (ARPEGGIO).....	61
Setting the D Beam Controller (D BEAM).....	63
Confirming the Settings for Each Zone (INFO) .....	64
<b>Chapter 5. Creating Patches .....</b>	<b>65</b>
How a Patch Is Organized .....	65
How a Tone Is Organized .....	65
How to Make the Patch Settings .....	66
Making Settings While Comparing Tones (Palette Edit) .....	67
Copying the Settings of Another Tone (Tone Copy) .....	68
Cautions When Selecting a Waveform .....	68
Functions of Patch Parameters .....	69
Settings Common to the Entire Patch (COMMON).....	69
Setting Effects for a Patch (EFFECTS) .....	75
Using Controllers to Change How Sounds Are Played (CONTROL).....	76
Modifying Waveforms (WAVE) .....	81
Modulating Sounds (LFO).....	83
Modifying Pitch (PITCH).....	86
Modifying the Brightness of a Sound with a Filter (TVF).....	87
Adjusting the Volume and Pan (TVA).....	90
<b>Chapter 6. Creating Rhythm Sets .....</b>	<b>93</b>
How a Rhythm Set Is Organized.....	93
How to Make the Rhythm Set Settings .....	93
Making Settings While Comparing Waveforms (Palette Edit).....	94
Copying the Settings of Another Rhythm Tone (Rhythm Tone Copy).....	94
Cautions When Selecting a Waveform .....	95
Functions of Rhythm Set Parameters .....	96
Settings Common to the Entire Rhythm Set (COMMON).....	96
Setting Effects for a Rhythm Set (EFFECTS) .....	97
Controlling How a Rhythm Tone will Sound with Controllers (CONTROL) .....	97
Modifying Waveform of a Rhythm Tone (WAVE) .....	98
Modifying Pitch of a Rhythm Tone (PITCH).....	100
Changing the Tone (Filter) of a Rhythm Tone (TVF).....	101
Adjusting the Volume and Pan of a Rhythm Tone (TVA).....	103

<b>Chapter 7. Adding Effects .....</b>	<b>105</b>
About the Onboard Effects .....	105
Effect Types.....	105
Turning Effects On/Off.....	105
Applying Effects in Patch Mode or Rhythm Set Mode.....	106
Selecting the Way the Direct Sound is Output .....	108
The Settings for Each Tone/Rhythm Tone.....	109
Applying Effects in Performance Mode.....	111
Selecting the Way the Direct Sound is Output .....	113
Making Multi-Effects Settings .....	114
Setting Procedure .....	114
Functions of Parameters.....	114
Multi-Effects Types.....	117
Making Chorus Settings .....	156
Setting Procedure .....	156
Functions of Parameters.....	156
Making Reverb Settings.....	158
Setting Procedure .....	158
Functions of Parameters.....	159
Copying Another Effect Setting (Effects Copy) .....	161
<b>Chapter 8. Saving Sounds .....</b>	<b>162</b>
About Memory.....	162
Temporary Memory.....	163
Rewritable Memory .....	163
Non-Rewritable Memory .....	163
Saving to Internal Memory .....	164
Comparing with the Save Destination Patch (Compare Function) .....	164
Registering Favorite Patches/Rhythm Sets in the Favorite List .....	165
Saving to an External MIDI Device.....	166
Saving a Group of Tones to a Memory Card.....	167
<b>Chapter 9. Getting More Familiar with the XV-88 (System Functions) ...</b>	<b>168</b>
How to Make the System Function Settings.....	168
Functions of System Parameters .....	168
Display Screen Contrast and Clock Settings (SETUP).....	168
MIDI Settings (MIDI).....	169
Keyboard and Controllers Settings (CONTROL).....	171
Adjusting Tuning (TUNE) .....	173
Arpeggiator Settings (ARPEGGIO).....	174
Setting the D Beam Controller (D BEAM).....	176
Phrase Preview Settings (PREVIEW) .....	177
Checking the Installation of the Wave Expansion Board and Controlling External MIDI Devices (INFO) .....	178
<b>Chapter 10. Memory Settings (Utility Mode).....</b>	<b>179</b>
About Utility Mode.....	179
Basic Procedure in Utility Mode .....	179
Storing Sound Data in User Memory (WRITE).....	180
Saving a Performance .....	180
Saving a Patch.....	181
Saving a Rhythm Set.....	181
Copying Sound Generator Settings (COPY).....	182
Copying a Performance.....	182
Copying a Patch .....	183
Copying a Rhythm Set.....	184

Initializing Sound Generator Settings (INIT) .....	185
Initializing a Performance .....	185
Initializing a Patch .....	185
Initializing a Rhythm Set.....	185
Transmitting Sound Settings (XFER).....	185
Transmitting Data to an External MIDI Device .....	185
Transmitting Data to the XV-88 .....	186
Protecting the Internal Memory (PROTECT).....	188
Memory Card-Related Settings (CARD).....	188
Formatting the Memory Card for the XV-88 (FORMAT).....	189
Renaming a File (RENAME).....	189
Deleting Unwanted Files (DELETE).....	189
Copying Files Between Memory Cards (FILE COPY).....	189
Checking the Contents of a Memory Card (INFO) .....	190
Loading a File from Memory Card into the XV-88 (LOAD) .....	190
Saving Data to Memory Card (SAVE).....	190
Recalling Factory Default Settings (FACTORY RESET) .....	191

## **Chapter 11. Using the XV-88 as a GM Sound Module (GM Mode).. 192**

Entering GM Mode.....	192
Initializing the Sound Generator for General MIDI System Basic Settings.....	192
Playing Back GM Scores.....	192
Modifying GM Mode Settings.....	193
Making Effects Settings in GM Mode (EFFECTS) .....	194
Making Settings for Receiving MIDI (MIDI).....	195
Making Settings for Each Part (PART).....	196
Confirming MIDI Information for Each Part (INFO) .....	197
Convenient Functions in GM Mode (GM Utility) .....	198
Initializing GM Mode (INIT) .....	198
Transmitting GM Mode Settings (XFER).....	198

## **Chapter 12. Realizing the Potential of the XV-88 ..... 199**

Techniques for Using Patches.....	199
Reinforcing Filter Characteristics .....	199
Using the Slider to Change the Pan in Realtime.....	199
Using a Pedal Switch to Modify the Speed of the Rotary Effect .....	199
Changing the Speed of the Rotary Effect to Synchronize It to the LFO Cycle.....	200
Changing the Tone Produced with the Modulation Lever .....	200
Syncing the LFO Cycle to System Tempo .....	200
Modifying Multi-Effects to Match the System's Tempo.....	201
Playing Phrase Loops in Sync with the System Tempo .....	201
Synchronizing the Timing at Which Tones Play to the System Tempo .....	202
Using the XV-88 to Play Live.....	202
Changing Multiple Sounds of an External MIDI Device Simultaneously.....	202
Changing Sounds with a Pedal Switch.....	203
Controlling an External MIDI Sequencer with the D Beam Controller .....	203
Using External MIDI Devices .....	203
Playing an External MIDI Sound Module from the XV-88 .....	203
Controlling an External MIDI Sequencer from the XV-88 .....	204
Playing the XV-88's Sound Generator from an External MIDI Device .....	205
Changing the Tone Settings from an External MIDI Device in Realtime .....	205
Changing the Multi-Effects Settings From an External MIDI Device in Realtime .....	206
Selecting XV-88 Sounds from an External MIDI Device .....	206
Enjoying Desktop Music .....	208
Connecting to Your Computer.....	208
Disconnecting the Keyboard from the Internal Sound Generator (Local OFF) .....	211
How MIDI Messages Are Exchanged with a Computer.....	212

# Appendices ..... 213

---

Troubleshooting.....	214
Error Messages .....	218
Quick Reference of Procedures .....	220
Parameter List.....	230
Performance List.....	252
Patch List.....	253
Rhythm Set List.....	258
Waveform List .....	263
Arpeggio Style List .....	268
About MIDI .....	269
MIDI Implementation.....	270
Specifications.....	298
Computer Cable Wiring Diagrams.....	299
Index.....	300

# Main Features

## 128-Voice Polyphony

The previous maximum number of 64 simultaneous voices has been expanded to 128, providing ample expression capabilities, even with tones composed of a number of combined tones.

## Compatible with the New “SRX Series” Wave Expansion Boards

The XV-88 features two expansion slots for the new “SRX Series” Wave Expansion boards, each of which provides the waveform capacity of four “SR-JV80” boards. Of course, since the XV-88 is also equipped with an additional two slots for previous-generation “SR-JV80” Wave Expansion boards, you can also install such boards that you now may be using in the XV-88 as well. Thus, with a Wave Expansion board installed in every slot, you can get massive waveforms equaling even those obtainable with samplers, all of which are ready to use as soon as you turn on the instrument, with no loading from any sequencer or other external recording device required (Quick Start; p. 4, p. 10).

## Powerful Array of Effects

While including, of course, all of the algorithms of the JV-2080, the XV-88’s effects comprise a huge collection of Roland’s digital signal processing technology, 3D DELAY that makes full use of RSS (Roland Sound Space technology), Lo-Fi processing from Roland’s MC-505 groovebox, the SRV-330’s popular REVERB, along with a newly designed RING MODULATOR, and more, for a total of 63 different algorithms (p. 117).

## General MIDI- and General MIDI 2- Compatible

The XV-88 is compatible with both General MIDI and General MIDI 2 standards. When working with music data that conforms to General MIDI and/or General MIDI 2 (GM scores), you can combine the XV-88 with a computer or sequencer, and use the XV-88 to play back the data (p. 192).

## 88-Key Piano Keyboard Features Hammer Action with Aftertouch

The XV-88 is equipped with a full 88-key piano keyboard utilizing a hammer action system for rich expressiveness, with aftertouch provided as well. The XV-88 gives you both the pure, unspoiled expression you get with a piano, and the dynamic play of a synthesizer, all in a single instrument.

## Sophisticated User Interface

The XV-88 also features the Roland XP-30’s popular Patch Search function and Phrase Preview function. The Patch Finder function (p. 30) lets you rapidly find the patch you want simply by specifying a patch category. By pressing [PHRASE PREVIEW], you can then hear the selected patch play a phrase suitable for that type of patch (Phrase Preview, p. 32).

## Equipped with COMPUTER Connector

A special computer cable makes it easy for you to connect the XV-88 to your computer, so that you can enjoy ensemble playing (p. 208).

## Arpeggiator Included

You can easily perform arpeggios, and use “rhythm guitar,” simply by pressing a few chords. You can even specify the rhythmical “feel” you want (p. 41).

## Equipped with D Beam Controller

The XV-88 also comes with the D Beam Controller which allows you to change the sound dynamically as you perform, according to the position of your hand as you move it over the controller. By moving your hand above the panel, you can control even subtle changes in tones, effects, and pitches that are difficult to make using bender and aftertouch, all in realtime, bringing your live performances to a whole new level (p. 45).

### MEMO

The D Beam Controller is provided under license from Interactive Light, Inc.

### General MIDI

General MIDI is a set of recommendations which seeks to provide a way to go beyond the limitations of proprietary designs, and standardize the MIDI capabilities of sound generating devices. Sound generating devices and music files that meet the General MIDI standard bear the General MIDI logo (). Music files bearing the General MIDI logo can be played back using any General MIDI sound generating unit to produce essentially the same musical performance.

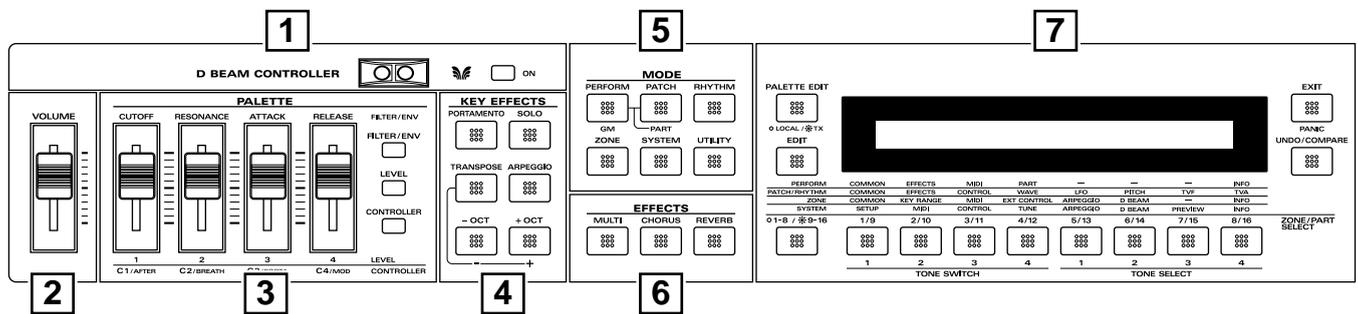
### General MIDI 2

The upwardly compatible General MIDI 2 () recommendations pick up where the original General MIDI left off, offering enhanced expressive capabilities, and even greater compatibility. Issues that were not covered by the original General MIDI recommendations, such as how sounds are to be edited, and how effects should be handled, have now been precisely defined. Moreover, the available sounds have been expanded. General MIDI 2 compliant sound generators 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.

# Front and Rear Panel

## Front Panel



### 1 D BEAM CONTROLLER Section

You can apply a variety of effects to sounds simply by moving your hand. → (p. 45)

#### [ON]

Switches the D Beam controller on/off.

### 2

#### Volume Slider

Adjusts the overall volume that is output from the rear panel OUTPUT jacks and PHONES jack. → (Quick Start; p. 18)

### 3 PALETTE Section

Use the four sliders to modify sounds in realtime.

#### [FILTER/ENV]

Press this button ON when modifying filter and/or envelope settings in realtime using the four sliders (CUTOFF/RESONANCE/ATTACK/RELEASE). → (p. 34, p. 38)

#### [LEVEL]

Press this button ON when adjusting volume balance in realtime using the four sliders (1/2/3/4). → (p. 34, p. 39)

#### [CONTROLLER]

Can be switched on when you wish to assign various parameters to the four sliders, and modify the sound as you play (C1/C2/C3/C4). → (Quick Start; p. 66)

### 4 KEY EFFECTS Section

The buttons in this section allow you to assign various functions to the keys of the XV-88's keyboard.

#### [PORTAMENTO]

Switches Portamento on/off. → (p. 33)

#### [SOLO]

Specifies playing a single note at a time. → (p. 33)

#### [TRANSCOPE]

Specifies transposing the keyboard in semitone steps. → (p. 48)

#### [ARPEGGIO]

Switches Arpeggiator on/off. → (p. 41)

#### [+OCT], [-OCT]

These buttons adjust the pitch of the keyboard in octave steps. → (p. 47)

Pressing either of these buttons while holding down [TRANSCOPE] allows you to set the desired amount of transposition. → (p. 48)

### 5 MODE Section

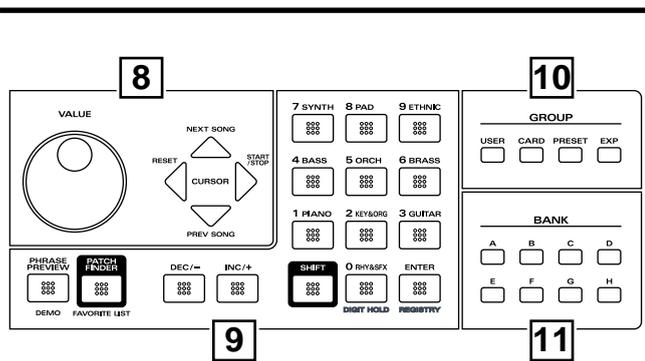
The buttons in this section select modes. The button indicator of the selected mode will light/blink. → (p. 24)

#### [PERFORM]/[GM]

Pressed to get into Performance mode. Hold down [SHIFT] while you press [PERFORM] to select GM mode. → (p. 34, p. 192)

#### [PATCH]/[PART]

Pressed to get into Patch mode. By holding down [PERFORM] and pressing [PATCH], you can modify the settings of the Patch and Rhythm Set that is assigned to each part of the performance. → (p. 29, p. 38, p. 56)



**[RHYTHM]**

Selects Rhythm Set mode. → (p. 39)

**[ZONE]**

When the XV-88 is in Performance mode, this switches it to the Zone mode. → (p. 57)

**[SYSTEM]**

Selects System mode. → (p. 168)

**[UTILITY]**

Selects Utility mode. → (p. 179)

**6 EFFECTS Section**

Used to switch on and off the onboard effects (Multi-effects, Chorus, Reverb). When on, the button indicator for the effect is lighted. → (p. 105)

**[MULTI]**

Turns Multi-effects on/off.

**[CHORUS]**

Turns Chorus on/off.

**[REVERB]**

Turns Reverb on/off.

**7**

**Display**

Shows various information for the currently selected function or operation.

**[PALETTE EDIT]/[LOCAL/TX]**

**PALETTE EDIT:** Press this when you want to make changes to Patch or Performance settings using the Palette page. → (p. 50, p. 58, p. 67, p. 94)

**LOCAL/TX:** When the indicator for this button is extinguished, the Local switch can be switched on/off. When the indicator is lit, the Transmit switch can be switched on/off. Functions buttons are employed for this purpose. → (p. 25)

**[EDIT]**

Press this button when you wish to adjust various settings. Use the function buttons to select the display screen for the parameter you wish to modify.

**Function Buttons**

The function of these buttons will depend on the operational mode and the status of the [EDIT] indicator. → (p. 25)

**[1-8/9-16]**

Use this button to select the group (1–8/9–16) of Parts or Zones to be selected by the function buttons. → (p. 25)

**[EXIT]/[PANIC]**

**EXIT:** Press this button when you wish to return to the Play page of each mode, or to cancel an operation without executing.

**PANIC:** If for some reason notes are stuck and continue sounding, hold down [SHIFT] and press this button to clear the stuck notes. → (p. 48)

**[UNDO/COMPARE]**

**UNDO:** Press this button to restore a modified value to the original value. → (p. 27, p. 49, p. 57, p. 67, p. 94)

**COMPARE:** When saving or copying Tone settings, press this to check the sound at the save destination, or at the copy source. → (p. 164, p. 181, p. 183, p. 184)

**8**

**VALUE Dial**

This dial is used to modify values. If you hold down [SHIFT] as you turn the VALUE dial, the value will change in greater increments. → (p. 27)

**CURSOR Buttons**

Press these to switch pages and to move the cursor (the underline). → (p. 26)

In the Play page of each mode, pressing the CURSOR buttons while holding down [SHIFT] allows the remote control of external sequencers. → (p. 26, p. 204)

**9**

### [PHRASE PREVIEW]/[DEMO]

**PHRASE PREVIEW:** Press this when you wish to use phrases to audition a patch. → (p. 32)

**DEMO:** To hear the demo playback, hold down [SHIFT] and press this button. → (Quick Start; p. 21)

### [PATCH FINDER]/[FAVORITE LIST]

**PATCH FINDER:** Selects a patch by using the Patch Finder function. → (p. 30)

**FAVORITE LIST:** When you press this button while holding down [SHIFT], you can register the favorite Patch to the list and choose the Patch from the list. → (p. 31, p. 40, p. 165)

### [INC/+], [DEC/-]

Use these buttons to modify values. If you keep on holding down one button and pressing the other, the value change accelerates. If you press one of these buttons while holding down [SHIFT], the value will change in bigger increments. → (p. 27)

### [0]-[9] (Numeric Keys)

Use these buttons to modify values. They can be used to enter numeric values as well as alphabetical characters. → (p. 27, p. 28)

When [PATCH FINDER] is on, this becomes the button for choosing a category group using the Patch Finder function. → (p. 30)

Press [0] while holding down [SHIFT] to turn the Digit Hold function on/off. With the Digit Hold on, the 100's place and 10's place will be fixed and only the 1's place will change. This means that you can select Patches simply by pressing the numeric key for the 1's place, without having to press [ENTER]. The same applies when selecting Performances or Rhythm sets. → (p. 30)

### [SHIFT]

This is used in combination with other buttons. Some buttons on the front panel include black-printed characters. They indicate the button's function when [SHIFT] is held down.

### [ENTER]/[REGISTRY]

**ENTER:** Use this button to finalize a value or execute an operation.

**REGISTRY:** When you press this button while holding down [SHIFT], you can directly register the favorite Patch or Rhythm Set to the Favorite List. → (p. 165)

## **10** GROUP Section

Selects sound groups. → (p. 29, p. 35, p. 39)

### [USER]

Selects a sound from the user group.

### [CARD]

Selects a sound from a memory card.

### [PRESET]

Selects a sound from the preset group.

### [EXP]

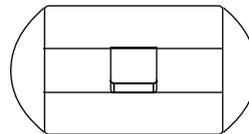
Selects a sound from a Wave Expansion Board (sold separately).

## **11** BANK Section

Selects a bank for sounds. → (p. 29, p. 35, p. 39)

### [A]-[H]

Press these buttons to select tones from Preset Groups A-F and H, Memory Cards A-H, and Wave Expansion Boards A-D.

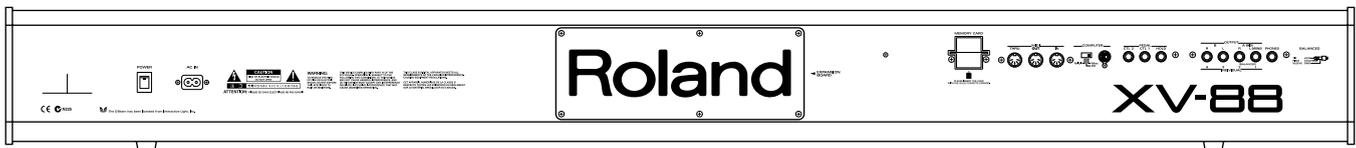


### Pitch Bend/Modulation Lever

This allows you to control pitch bend or apply vibrato. → (Quick Start; p. 65)

Depending on the settings, other specified parameters can also be controlled. → (p. 78, p. 115, p. 173)

## Rear Panel



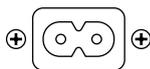
### POWER



#### Power Switch

Press to turn the power on/off. → (Quick Start; p. 18)

### AC IN



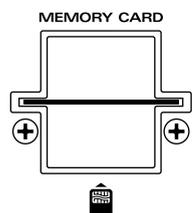
#### AC Inlet

Connect the included power cord to this inlet.

→ (Quick Start; p. 16)

### NOTE

With units rated for 117V operation, the AC cable is already connected to the unit.



PLEASE INSERT THE CARD WITH THE GOLD CONTACTS UPWARD.

#### MEMORY CARD Slot

A memory card (SmartMedia) can be inserted here.

→ (p. 167, p. 179)

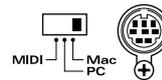


#### MIDI Connectors (IN, OUT, THRU)

These connectors can be connected to other MIDI devices to receive and transmit MIDI messages.

→ (p. 203, p. 269, Quick Start; p. 16)

### COMPUTER

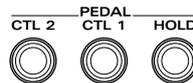


#### COMPUTER Switch

Sets this switch depending on the type of computer connected to COMPUTER connector, or the software you are using. Turn the power off before changing the setting of this switch. If you wish to use the MIDI connectors, set this switch to MIDI. → (p. 208, p. 209)

#### COMPUTER Connector

A special Computer cable can be connected here. The type of cable required will depend on your computer. When the COMPUTER switch is set to MIDI, this connector cannot be used. → (p. 209)



#### CTL 1, CTL 2 PEDAL Jack

You can connect optional expression pedals (EV-5, etc.) to these jacks. By assigning a desired function to a pedal, you can use it to select or modify sound or perform various other control. You can also connect optional pedal switches (DP-2, DP-6, etc.) to sustain sound.

→ (p. 172, Quick Start; p. 16, p. 69)

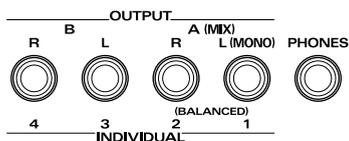
#### HOLD PEDAL Jack

An optional pedal switch (DP-2, DP-6, etc.) can be connected to this jack for use as a hold pedal. → (p. 43, p. 172, Quick Start; p. 16, 69)

This can also be set so it supports the use of half-pedaling techniques. So, after connecting an optional expression pedal (EV-5, etc.), you can employ pedal work to achieve even finer control in performances in which piano tones are used.

→ (p. 172)

## Front and Rear Panel



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

These jacks output the audio signal to the connected mixer/amplifier system in stereo. For mono output, use the L jack.

→ (Quick Start; p. 16)

### OUTPUT B Jacks (L, R)

These jacks output the audio signal to the connected mixer/amplifier system in stereo.

### INDIVIDUAL 1-4 Jacks

These jacks output audio signals in mono to an amp or mixer.

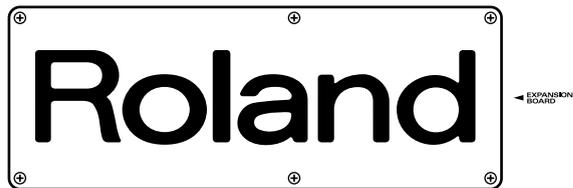
#### **NOTE**

The setting determining whether these jacks are used as stereo OUTPUT jacks or monaural INDIVIDUAL jacks is made with the Output Assign setting (p. 70, p. 96, p. 108, p. 109, p. 113).

### PHONES Jack

This is the jack for connecting headphones (sold separately).

→ (Quick Start; p. 16)



### Wave Expansion Board Installation Slot

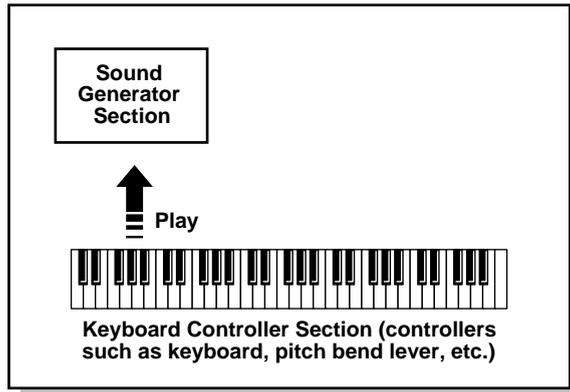
Remove the cover to reveal the slots for installation of optional Wave Expansion Boards (SR-JV80 Series, SRX Series). → (Quick Start; p. 4, 10)

# Chapter 1. Overview of the XV-88

## How the XV-88 Is Organized

### Basic Structure

The XV-88 can be broadly divided into two sections: a **keyboard controller section** and a **sound generator section**. The two sections are connected internally by means of MIDI.



### Keyboard Controller Section

This section consists of the keyboard, pitch bend/modulation lever, panel sliders, and D Beam controller. It also includes any pedals that may be connected to the rear panel. Actions such as pressing and releasing of keys on the keyboard, depressing a pedal, and so forth, are converted to MIDI messages and sent to the sound generator section, or to an external MIDI device.

#### HINT

When playing in Performance mode, the settings for the MIDI connections between the keyboard controller section and the sound generator section or external MIDI device are made in Zone mode (p. 57).

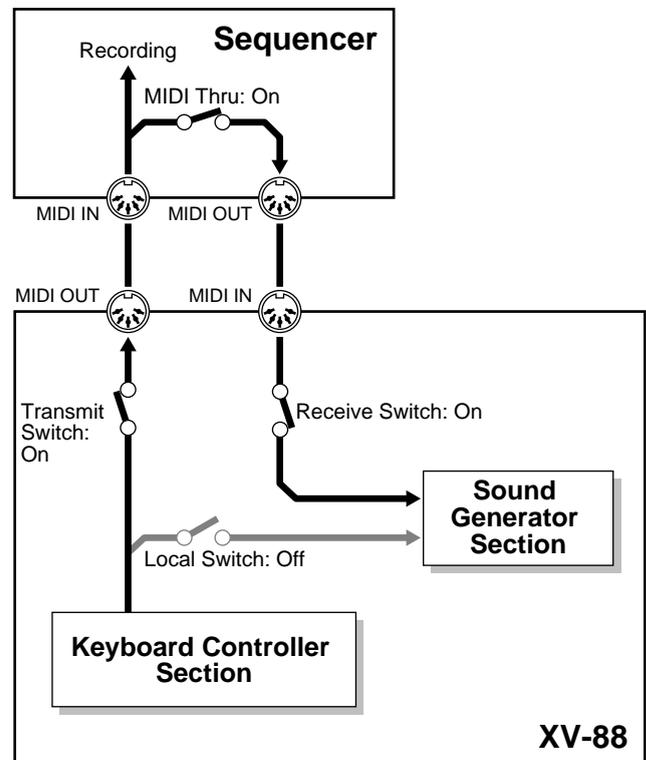
### Sound Generator Section

The sound generator section produces the sound. Here, MIDI messages received from the keyboard controller section or external MIDI device are converted to musical signals, which are then output as analog signals from the OUTPUT and PHONES jacks.

### About the Local Switch

The switch that connects and disconnects the MIDI connection between the keyboard controller section and the sound generator section is called the **Local switch**. Since essential information describing what is being played on the keyboard won't reach the sound generator if the Local switch is set to OFF, the Local switch should normally be left ON.

However, if while performing you want to send that performance data to an external sequencer as MIDI messages to be recorded, you then perform with the externally connected MIDI sequencer set to MIDI Thru (whereby data received from MIDI IN is then output from the MIDI OUT with no changes made to the data), the XV-88's Local switch to OFF, and the MIDI Transmit switch and MIDI Receive switch to ON.



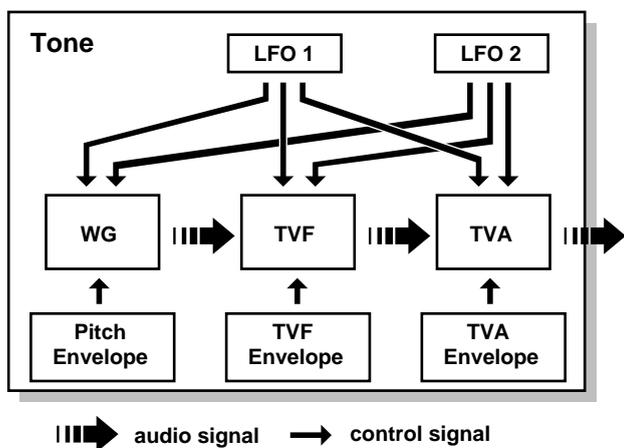
In this case, the data sent over two paths, i.e., the data sent directly from the keyboard controller section and the data sent from the keyboard controller section via the external sequencer, ends up being sent to the sound generator section simultaneously. Thus, for example, even when you play a "C" key only once, the note "C" cannot be sounded correctly, as the sound is played by the sound generator section twice.

## Classification of XV-88 Sound Types

When using the XV-88, you will notice that a variety of different categories come into play when handling sounds. What follows is a simple explanation of each sound category.

### Tones

In the XV-88, the Tone is the smallest class of sound. However, it is not possible to play a Tone by itself. The Patch is the unit of sound which can be played, and the Tones are the basic building blocks which make up the Patch.



Tones consist of the following five components.

#### WG (Wave Generator)

Specifies the PCM waveform (wave) that is the basis of the sound, and determines how the pitch of the sound will change.

The XV-88 has 1,083 different waveforms (p. 263). All Patches built into the XV-88 consist of combinations of Tones which are created based on these waveforms.

#### NOTE

There are four wave generators for each Rhythm Tone (percussion instrument sounds).

#### TVF (Time Variant Filter)

Specifies how the frequency components of the sound will change.

#### TVA (Time Variant Amplifier)

Specifies the volume changes and the sound's position in a stereo soundfield.

### Envelope

You use Envelope to initiate changes to occur to a sound over time. There are separate envelopes for Pitch, TVF (filter), and TVA (volume). For example if you wish to modify the way in which the sound attacks or decays over time, you would adjust the TVA envelope.

### LFO (Low Frequency Oscillator)

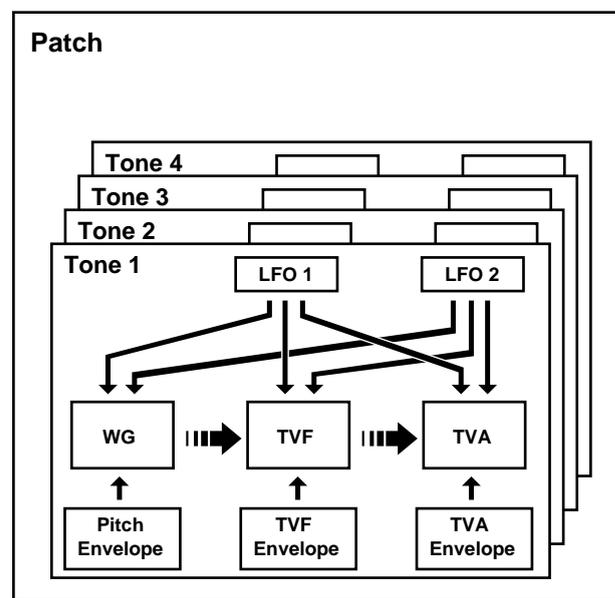
Use the LFO to create cyclic changes (modulation) in a sound. The XV-88 has two LFOs. Either one or both can be applied to effect the WG (pitch), TVF (filter) and/or TVA (volume). When an LFO is applied to the WG pitch, a vibrato effect is produced. When an LFO is applied to the TVF cutoff frequency, a wah effect is produced. When an LFO is applied to the TVA volume, a tremolo effect is produced.

#### NOTE

LFO is not included in the Rhythm Tones (percussion instrument sounds).

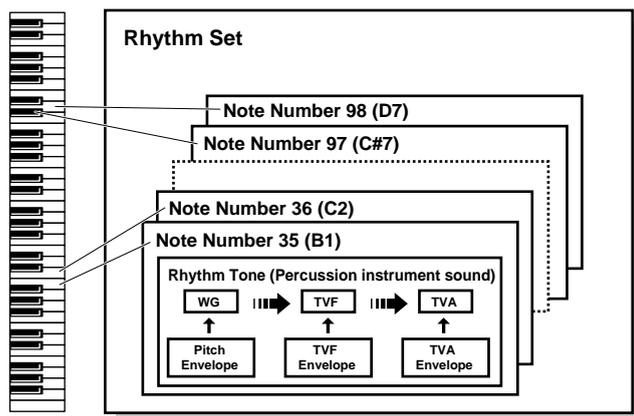
### Patches

Patches are the basic sound configurations that you play during a performance. Each Patch can be configured by combining up to four Tones. How the four Tones are combined is determined on the STRUCT page (PATCH/COMMON) (p. 73).



## Rhythm Sets

A Rhythm Set is a grouping of percussion instruments (Rhythm Tones). Since percussion instruments generally do not play melodies, there is no need for a percussion instrument sound to be able to play a scale on the keyboard. It is, however, more important that as many percussion instruments as possible be available to you at the same time. Therefore, each key (note number) of a Rhythm Set will produce a different percussion instrument.



Percussion instrument (Rhythm Tone) consists of the following four elements. (For details, refer to the explanations for “Tones.”)

**WG (Wave Generator)**

**TVF (Time Variant Filter)**

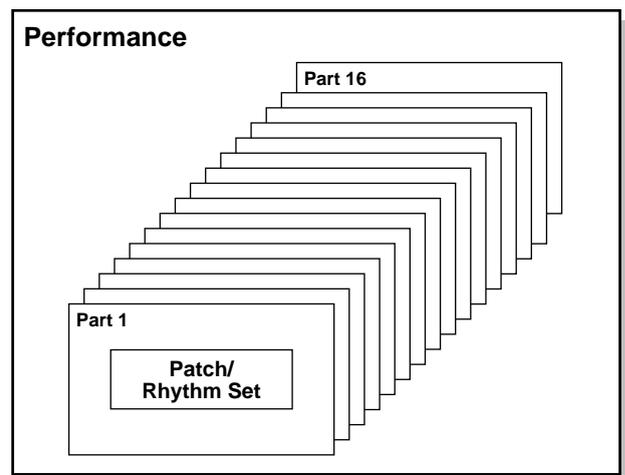
**TVA (Time Variant Amplifier)**

**Envelope**

## Performances

A Performance is a collective set of assignments of the sixteen different Patches and Rhythm Sets. Since a Performance can simultaneously handle 16 different sounds, it allows you to play multiple Patches simultaneously (layer) or to play different Patches in different areas of the keyboard (split), and to create ensembles.

Because the XV-88 sound generator can control multiple sounds (instruments) it is called a **Multi-timbral sound generator**.



## Parts

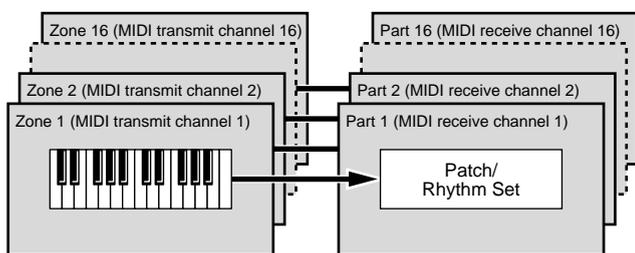
Parts are the “sites” to which the Patches and Rhythm Sets used by the XV-88 as sound material are assigned. A single Performance comprises sixteen Parts, with a Patch or Rhythm Set being assigned to each Part.

In the relationship between Performances and Parts, the Performance is like an orchestra, the Parts the performers, and the Patches and Rhythm Sets the instruments.

## Setting the MIDI Connection (Zone and Part)

Although the XV-88's keyboard controller section and sound generator section are connected internally using a MIDI connection, in Layer Performance mode, you can then make even more detailed settings affecting the way the connection works between the keyboard controller section and the sound generator section, as well as with an external MIDI device.

At the factory settings, shown below, there is a one-to-one correspondence between the **Zone**, the **MIDI Transmit/Receive channel**, and the **Part**.

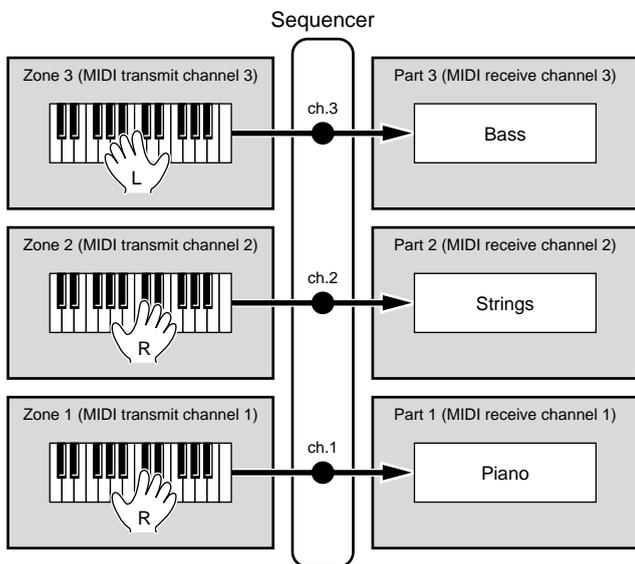


Under these conditions, you could simply consider that “each of the Zones from 1 to 16 is linked in a one-to-one relationship with its numerical counterpart among Parts 1 to 16”. In other words, you can use Zone 1 when controlling Part 1, Zone 2 is when controlling Part 2, and so on.

**We recommend that under normal circumstances you use the default factory settings.**

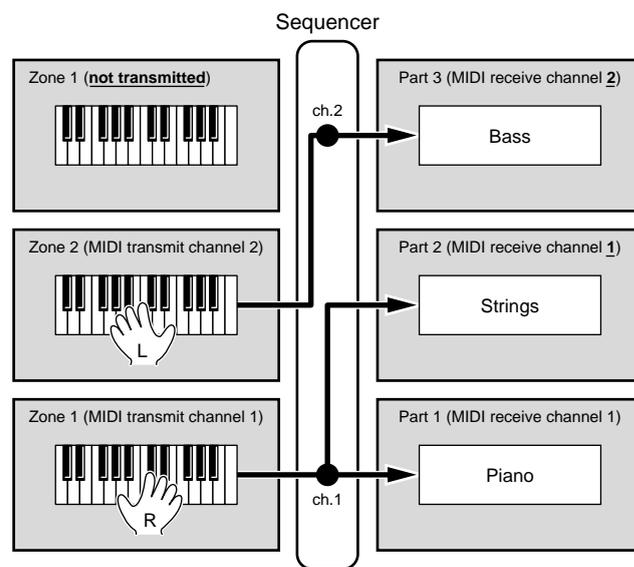
In advanced uses, where the factory settings would not be used, the following examples of settings might be employed.

When recording to an external sequencer while playing the bass part in the left hand and the layered piano and string tones in the right hand, the following is what results when the factory settings are used.



However, in this arrangement, the data for the performance in the right hand ends up being recorded after overlapping on MIDI Channels 1 and 2. Although normally there is no particular problem with recording overlapped data, because of the limit on the number of notes that can be recorded using an external sequencer, along with other certain issues, the external sequencer's memory may overflow, and you may then be unable to record all the way to the end of your performance.

Therefore, change the settings to those shown below (changes indicated in underline).



With the above settings, the data for the performance in the right hand is sent only on MIDI Channel 1, so there is no overlapping of the performance data when recording to the sequencer. Accordingly, even performances that cause overflow when factory settings are used can still be recorded all the way to the end.

In this manner, by trying out changes in the one-to-one connections between the Zones, MIDI Transmit and Receive channels, and Parts, you can obtain even more advanced use of the instrument. However, you must remain aware at all times of the MIDI channel to which each Zone is set and the channel each Part is using to receive MIDI messages, lest you run into problems such as **tones other than the intended tones being played** or **absence of sound even when the keys are played**.

### MEMO

In this manual, the expression “**the Zone and Part are linked**” refers to the condition whereby a Zone's MIDI transmit channel and a Part's MIDI receive channel are matched in this one-to-one relationship.

## Number of Voices

The XV-88 is able to play up to 128 notes simultaneously. The following paragraphs discuss what this means, and what will happen when more than 128 simultaneous voices are requested from the XV-88.

### Calculating the Number of Voices Being Used

The XV-88 is able to play up to 128 notes simultaneously. The polyphony, or the number of voices (sounds) does not refer only to the number of sounds actually being played, but changes according to the number of tones used in the Patches, and the number of Waves used in the tones. The following method is used to calculate the number of sounds used for one Patch being played.

(Number of Sounds Being Played) x (Number of Tones Used by Patches Being Played) x (Number of Waves Used in the Tones)

For example, with a Patch combining four tones, each of which uses two Waves, the actual number of sounds being played comes to 16. If you are using the XV-88 in Performance mode to play an ensemble, count the total number of Tones used by all the Parts using the following formula.

### How a Patch Sounds

When the XV-88 is requested to play more than 128 voices simultaneously, currently sounding notes will be turned off to make room for newly requested notes. The note with the lowest priority will be turned off first. The order of priority is determined by the **Voice Priority** setting.

Voice Priority can be set either to LAST or LOUDEST. When LAST is selected, a newly requested note that exceeds the 128 voice limit will cause the first-played of the currently sounding notes to be turned off. When LOUDEST is selected, the quietest of the currently sounding notes will be turned off. Normally, you will set Voice Priority to LAST.

### Note Priority in Performance Mode

Since Performance mode is usually used to play an ensemble consisting of several Patches, it is important to decide which Parts take priority. Priority is specified by the **Voice Reserve** settings. When a note within a Patch needs to be turned off to make room for a new note, the **Voice Priority** setting of the Patch will apply.

## Voice Reserve

The XV-88 has a **Voice Reserve** function that lets you reserve a minimum number of notes that will always be available for each Part. For example if Voice Reserve is set to 10 for Part 16, Part 16 will always have 10 notes of sound-producing capacity available to it even if a total of more than 128 notes (total for all Parts) are being requested. When you make Voice Reserve settings, you need to take into account the number of notes you want to play on each Part as well as the number of Tones used by the selected Patch. (p. 53)

### MEMO

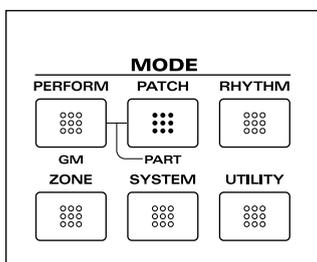
It is not possible to make Voice Reserve settings that would cause the total of all Parts to be greater than 64 voices.

# Basic Operations on the XV-88

## Switching Modes

The XV-88 contains a large number of functions. In order to organize these functions for easy access, they are grouped into the following modes. The mode that is selected will affect the way in which the sound generator operates, how data is shown in the display, and how the function buttons work.

Use the Mode buttons to select the mode. The indicator of the selected button will light/blink, and the display will change according to the selected mode.



## Sound Generator

Selecting Patch mode, Performance mode, Rhythm Set mode, and GM mode will determine sound generator operation. One mode always has to be selected.

### Patch Mode

In this mode, you can play an individual Patch from the keyboard or modify Patch settings. If you're using an external MIDI device to control the XV-88 in this mode, it will function as a single-patch sound generator.

### Performance Mode

In this mode, the XV-88 functions as a multi-timbral sound generator, and Performance settings can be modified. If you're using an external MIDI device to control the XV-88 in this mode, it will function as a multi-timbral sound generator.

To modify the settings of a Patch or Rhythm Set that's assigned to a Part, hold down [PERFORM] and press [PATCH]. At this time, if a Patch is assigned to the Part, the [PERFORM] and [Patch] indicators will light. If a Rhythm Set is assigned to the Part, the [PERFORM] and [RHYTHM] indicators will light.

## Zone Mode

This mode is used for a number of settings, such as those determining the way the sound generator produces sounds in response to the keyboard when played in a Performance and the way MIDI messages are sent, and for the Arpeggiator and D Beam Controller functions.

To switch to Zone mode, press [ZONE] while in Performance mode.

## Rhythm Set Mode

This is how you can play a Rhythm Set from the keyboard and modify the Rhythm Set settings. In this mode, you can play percussion instruments (Rhythm Tones) on the keyboard. The XV-88 can also be used in this mode as a sound module for managing individual Rhythm Sets when controlled from an external MIDI device.

## GM Mode

This special mode makes the XV-88 function as a GM compatible sound generator. You should select this mode when you want to play back a GM score (music files created for General MIDI sound generator).

To set GM mode, hold down [SHIFT] and press [PERFORM]. [PERFORM], [PATCH] and [RHYTHM] indicators will not light.

## System Mode

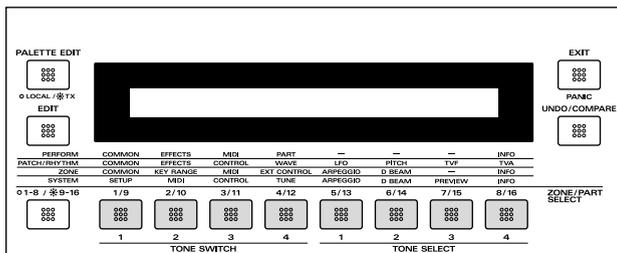
This mode is for determining global XV-88 settings such as tuning, display contrast and how MIDI messages are received.

## Utility Mode

Here you can save and transmit settings for the sound generator, and make settings related to memory cards.

## About the Function Buttons

Function buttons are buttons that perform a variety of functions. The function they perform will depend on the current mode, and on whether [EDIT] is on (lit) or off (extinguished). [EDIT] will turn on or off each time you press it.



[EDIT] switches the function of the function buttons, but pressing [EDIT] will not make the display change. If you wish to modify a setting, press the [EDIT] to make the indicator light, and then press a function button to select the display group and switch the display. When you finish making settings, press [EXIT] or a mode button to switch the display.

## In Performance Mode ([EDIT] Indicator is Extinguished)

The Function buttons work as [ZONE SELECT] buttons that switch each Zone's Local switch and Transmit switch on (lit) and off (extinguished).

When the [LOCAL/TX] indicator is extinguished, the switch has the linked Part for each Zone play (lit) or not play (extinguished).

When the [LOCAL/TX] indicator is lit, the switch allows the data describing all actions using the keyboard controller section for each Zone to be sent (lit) or prevents it from being sent (extinguished).

Since 16 Zones are being controlled using only 8 buttons, use [1-8/9-16] to select the set of Zones you want to control.

When the [1-8/9-16] indicator is out, you can switch Zones 1-8 on/off. When it is lit, you can switch Zones 9-16 on/off.

If the [EDIT] indicator is turned off in the Part setting page, the function buttons will act as PART Select buttons ([PART SELECT]) that select the Part to be edited.

## In Patch Mode ([EDIT] Indicator is Extinguished)

The function buttons will act as Tone Switch buttons ([TONE SWITCH]) and Tone Select buttons ([TONE SELECT]).

[TONE SWITCH] allow you to turn each Tone in the Patch on (lit) or off (extinguished). When a Tone is turned on, it can be heard.

Use [TONE SELECT] to select the Tone you wish to modify. To select a Tone to modify, turn off [EDIT] indicator in the Tone setting page. To select two or more Tones simultaneously, hold down one of [TONE SELECT] and press the other [TONE SELECT]. In this case, the numbers of Tones other than the first-selected Tone will be displayed as \* symbols.

## In Rhythm Set Mode ([EDIT] Indicator is Extinguished)

The function buttons (TONE SELECT section) will select the key shown in the display.

If the [EDIT] indicator is turned off in the Rhythm Set setting page (the setting page for individual keys), the function buttons will select the key to be edited.

TONE SELECT [1]: move to an octave lower key  
TONE SELECT [2]: move to the semitone below  
TONE SELECT [3]: move to the semitone above  
TONE SELECT [4]: move to an octave higher key

## In GM Mode ([EDIT] Indicator is Extinguished)

The Function buttons work as [PART SELECT] buttons that switch the reception of Note messages on (lit) and off (extinguished).

Since 16 Parts are being controlled using only 8 buttons, use [1-8/9-16] to select the set of Parts you want to control. When the [1-8/9-16] indicator is out, you can switch Parts 1-8 on/off. When it is lit, you can switch Parts 9-16 on/off.

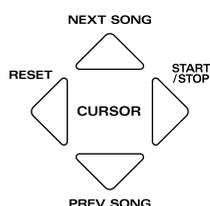
If the [EDIT] indicator is turned off in the Part setting page, the function buttons will act as PART Select buttons ([PART SELECT]) that select the Part to be edited.

## When [EDIT] Indicator is Lit

Each mode contains a large number of settable items, and these items are organized into groups. When [EDIT] indicator is lit, the function buttons are used to select page groups. The displays that appear will depend on the current mode. The groups that can be selected in each mode are printed on the front panel above the buttons.

## About the Cursor Buttons

The Cursor buttons are pressed to switch pages and move the cursor, and are used for remote control of external sequencers.

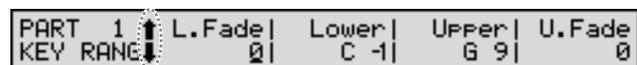


## Moving Between Display Pages

The various pages are grouped by function button, and each group contains several display pages. Use the cursor buttons to move between these display pages and groups.

## Moving Between Pages

An upward-pointing arrow (▲) shown in the display indicates that one or more pages exist before this page. A downward-pointing arrow (▼) shown in the page indicates that one or more pages exist after this page. Press ▲ to move to the previous page, or ▼ to move to the next page. Press ▲ while holding down [SHIFT] to jump to the first page. Press ▼ while holding down [SHIFT] to jump to the last page.



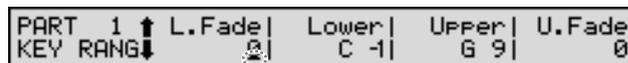
## Moving Between Groups

In group pages that you select using the function buttons, you can hold down [SHIFT] and press ◀ to move to the group of the function button to the left, or hold down [SHIFT] and press ▶ to move to the group of the function button to the right.

Whenever you are in any group page, you can move to another group even if [EDIT] indicator is out. In other words, this procedure allows you to move to a different group without having to turn on [EDIT] indicator, and is a faster and more efficient way to get around.

## Moving the Cursor (underline)

When two or more items are shown in a single display page, move the cursor (underline) to the item whose value you wish to set. Press ◀ to move the cursor to the left, or ▶ to move it to the right.



A ▢ symbol appearing in the upper right of the display indicates that there are other items in this page that the screen has no room to show. Press ▶ to see these items, and press ◀ to return to the previous page.



## Remote Control of External Sequencers

When any PLAY page is displayed, then by pressing the different CURSOR buttons while holding down [SHIFT], you can have remote start, stop, and other control functions of external sequencers connected to the XV-88. This is a useful and extremely convenient function to have in situations such as when playing ensemble using an external sequencer.

- [SHIFT] + ▲ (NEXT SONG): Selects the next song.
- [SHIFT] + ▼ (PREV SONG): Selects the previous song.
- [SHIFT] + ◀ (RESET): Returns to the beginning of the song.
- [SHIFT] + ▶ (START/STOP): Starts and stops performance of the song.

### MEMO

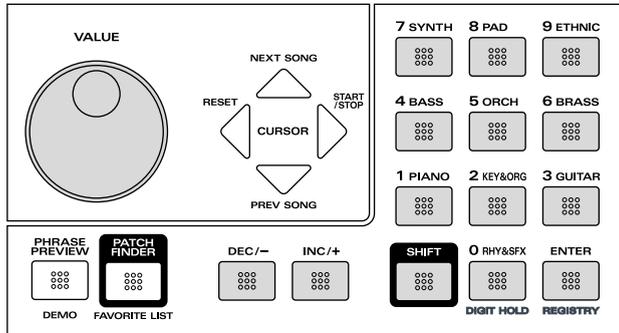
When [SHIFT] is held down while ▲ (or ▼) is pressed, the song either before (or after) the Song Number set with the Song Number parameter (SYSTEM/INFO/TRANSMIT SONG SEL) is selected (p. 178).

### NOTE

Some sequencers cannot be started or stopped without receiving the MIDI Clock (F8h), and settings on certain sequencers also cannot be changed. Please use a sequencer able to perform START/STOP without requiring reception of the MIDI Clock (F8h). For more detailed information, refer to the owner's manual for your sequencer.

## Modifying a Value

To modify a value, use the VALUE dial, [INC/+]/[DEC/-] or [0]–[9] (numeric keys).



### NOTE

Each parameter has a specific range, so you cannot set any value smaller than the minimum value or greater than the maximum value.

## VALUE Dial

Rotating the VALUE dial clockwise increases the value, counterclockwise decreases the value. Holding down [SHIFT] as you move the VALUE dial increases value increments so you can make large value changes faster.

## [INC/+] and [DEC/-]

Pressing [INC/+] increases the value, and [DEC/-] decreases it. Keep the button pressed for continuous adjustment. For faster value increases, keep [INC/+] pressed down and press [DEC/-]. For decreasing value faster, keep [DEC/-] pressed down and press [INC/+].

If you press [INC/+] or [DEC/-] while holding down [SHIFT], the value increments will get bigger.

## [0]–[9] (Numeric Keys)

[0]–[9] (Numeric Keys) lets you directly specify a numerical value. When you enter the number, the value will blink. This indicates that the value has not yet been finalized. To finalize the value press the ENTER button. To reverse the sign of the number (+/-), hold down [SHIFT] and press [0].

### NOTE

Some parameters do not require you to press [ENTER] to finalize the value.

< Example 1: To enter a value of 38 >

Press [3] → press [8] → press [ENTER]

< Example 2: To enter a value of -60 >

While holding down [SHIFT] press [0] → press [6]

→ press [0] → press [ENTER]

### HINT

You can switch from a positive to negative numerical value anytime before you press [ENTER].

## Restoring a Previous Value (Undo)

If, after you change a value you decide that you want to go back to its original value (before you made the change), press [UNDO/COMPARE]. You can also put your change back in again by pressing the button once more. The Undo function can be used when making changes to settings in the sound generator section. This is convenient when you want to undo changes or when you want to compare the sound before and after a change is made.

## Assigning a Name

The XV-88 lets you assign names to Patches, Performances, and Rhythm Sets. The procedure is the same for any type of data.

To assign a name, use ◀ / ▶ to move the cursor to the location where you wish to input a character. Then use the VALUE dial or [INC/+]/[DEC/-] or the Numeric Keys to input a character.

### Available characters/symbols:

space, A-Z, a-z, 0-9, ! " # \$ % & ' ( ) \* + , - . / : ; < = > ? @ [ \ ] ^ \_ ` { | }

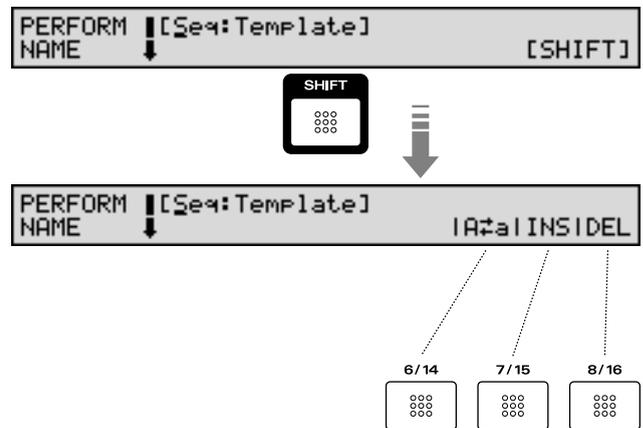
## Using the Numeric Keys

The numeric keys are used to input the numerals printed on each key as well as the characters assigned to each key (see the table below). Each time you press a numeric key, the display will cycle through the numeral and characters printed above the key. To specify a lowercase character, hold down [SHIFT] as you press the numeric key.

<u>Numeric Key</u>	<u>Character</u>
[1]	A B C
[2]	D E F
[3]	G H I
[4]	J K L
[5]	M N O
[6]	P Q R
[7]	S T U
[8]	V W X
[9]	Y Z !
[0]	space

## Convenient Functions

While you are holding down [SHIFT], the screen will show three functions that are convenient when entering a name. To use each function, hold down [SHIFT] and press the appropriate function button.



**A ↕ a:** switch between uppercase/lowercase characters

**INS:** insert a space at the cursor location

**DEL:** delete the character at the cursor location

# Chapter 2. Playing

## Playing in Patch Mode

The sounds used for an ordinary performance are called **Patches**. Select a Patch before playing.

### Selecting a Patch

The XV-88 has eight Patch groups, including the User group and Preset Groups A–F and H, with each group storing 128 Patches (256 in Preset H), for a total of 1,152 Patches. In addition to these, you can also select Patches stored on memory cards (SmartMedia). What's more, you can further expand your options by installing up to four optional Wave Expansion boards (two SR-JV80, two SRX Series), enabling you to select from a huge assortment of available Patches.

#### USER

This is the group inside the XV-88 which can be rewritten. Patches you yourself create can be stored in this group. The XV-88 includes 128 preset Patches (p. 253).

#### CD-A–H (Memory Card A–H)

This is the group to be accessed when using Patches stored on memory cards (SmartMedia) inserted in the MEMORY CARD slot. You can also rewrite Patches you create. Each bank A–H holds 128 Patches, meaning you can select from a maximum of 1,024 Patches.

#### NOTE

Patches in CD-A–H cannot be selected if no memory card (SmartMedia) is inserted in the MEMORY CARD slot.

#### PR-A–F (Preset A–F)

These are groups inside the XV-88 which cannot be rewritten. However, you can modify the settings of the currently selected Patch, and then save the modified settings in User memory or a memory card. Banks A–F already contain 128 prepared Patches each, for a total of 768 Patches (p. 253).

#### PR-H (GM2)

This is an internal group of Patches compatible with General MIDI 2, a system of MIDI function specifications designed to transcend differences between makers and types of devices; these Patches cannot be overwritten. Furthermore, settings of currently selected Patches from this group cannot be changed. The XV-88 includes 256 preset Patches.

#### XP-A, B (Wave Expansion Boards installed in EXP-A, B Slots)

These are the groups of Patches from Wave Expansion Boards (optional SR-JV80 Series) installed in the EXP-A and B slots, and cannot be overwritten. However, you can modify the settings of the currently selected Patch, and then save the modified settings in User memory or a memory card. The number of onboard Patches depends on the specific Wave Expansion Boards installed.

#### NOTE

XP-A, B Patches can be selected only if a Wave Expansion Board (SR-JV80 Series) is installed in the corresponding slot.

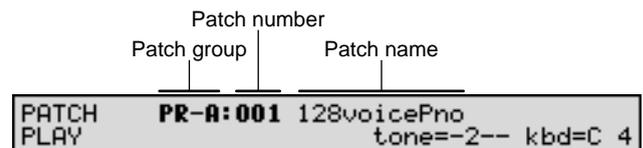
#### XP-C, D (Wave Expansion Boards installed in EXP-C, D Slots)

These are the groups of Patches from Wave Expansion Boards (optional SRX Series) installed in the EXP-C and D slots, and cannot be overwritten. However, you can modify the settings of the currently selected Patch, and then save the modified settings in User memory or a memory card. The number of onboard Patches depends on the specific Wave Expansion Boards installed.

#### NOTE

XP-C, D Patches can be selected only if a Wave Expansion Board (SRX Series) is installed in the corresponding slot.

1. Press [PATCH] to call up the PATCH PLAY page.



2. Select a Patch group or a bank.

#### USER

Press [USER] to make the indicator light.

#### CD-A–H

Press [CARD], and then press [A]–[H] to make the indicator light.

#### PR-A–F

Press [PRESET], and then press [A]–[F] to make the indicator light.

#### PR-H (GM2)

Press [PRESET], and then press [H] to make the indicator light.

#### XP-A–D

Press [EXP], and then press [A]–[D] to make the indicator light.

3. Select the Patch number. Rotate the VALUE dial or press [INC/+]/[DEC/-] to select a Patch.

### HINT

You can also select the Patch number by using the numeric keys. In this case, after specifying the number using the numeric keys, press [ENTER]. Also, Using the Digit Hold function, a Patch number can be selected simply by specifying the 1's place number.

### Express Patch Select (Digit Hold)

With the Digit Hold function turned on, the 100's position and 10's position will be fixed when the numeric keys are used to select a Patch. This means that the numeric keys will only change the 1's position, and you won't have to press [ENTER] for each selection.

The same applies to selecting Performances and Rhythm Sets.

1. Hold down [SHIFT] and press [0] (numeric key).  
The Digit Hold function is now turned on.

```
PATCH PR-A:001 128voicePno
PLAY      tone=-2-- kbd=C 4
```

The numbers in the 100's position and 10's position will be displayed in a smaller size to indicate Digit Hold is on.

2. When you enter a numeric key number, the 1's position will change immediately without having to press [ENTER].
3. To turn off Digit Hold, hold down [SHIFT] and press [0] once again.

## Selecting Patches by Category (Patch Finder)

The XV-88 provides a "Patch Search function" (Patch Finder) which allows you to specify a type (category) of Patch so that you can quickly find the desired Patch. There are a total of 38 categories.

1. Press [PATCH] to call up the PATCH PLAY page.
2. Press [PATCH FINDER] to turn the Patch Finder function on.

The patch number display will change to the category display.

```
PATCH PR-A:PNO 128voicePno
PLAY      (AC.Piano) -2-- CATGRY
```

3. Press ▲ or ▼ to select the desired category.

### HINT

Here, you can change the Category group by pressing the numeric keys.

4. Rotate the VALUE dial or press [INC/+]/[DEC/-] to choose a Patch in the currently selected category.
5. Press [PATCH FINDER] to turn the Patch Search function off.

You will return to the normal PATCH PLAY page.

### HINT

In Step 3, the CATEGORY SELECT page is displayed by holding down [PATCH FINDER] and pressing the numeric keys. In this page, you can select the desired Category from a list of Categories belonging to each Category group.

```
CATEGORY Piano ( AC.Piano)
SELECT 1:PNO 2:EP
```

Rotate the VALUE dial or press [INC/+]/[DEC/-] to select a category, and then press [ENTER] to confirm the selection. You can also select a category directly by pressing the corresponding numeric key.

The following categories can be selected.

Category Group	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 & 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

## Selecting Favorite Patches from the Favorite List

On the XV-88, 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 wherever they are stored, whether in the XV-88 itself, on Wave Expansion Boards, or on memory cards.

### NOTE

If you have saved Patches located on Wave Expansion Boards or memory cards onto the Favorite List, and then attempt to select one of the saved Patches without having the corresponding Wave Expansion Board installed, or the relevant memory card inserted, “No media” appears in the display, and the selected Patch cannot be played.



For instructions on how to register to the Favorite List, refer to “**Registering Favorite Patches/Rhythm Sets in the Favorite List**” (p. 165).

1. Press [PATCH] to call up the PATCH PLAY page.
2. While holding down [SHIFT], press [PATCH FINDER]. The FAVORITE LIST page will appear.

```
FAVORITE Select [SHIFT]
LIST |01<PR-A:001 128voicePno > PNO
```

3. Rotate the VALUE dial or press [INC/+]/[DEC/-] to select a Patch.
4. When you press [ENTER], the Patch is selected and you are returned to the PATCH PLAY page.

### Using Phrase Preview to Play Patches

The XV-88 allows you to preview Patches by hearing a phrase appropriate for each type of Patch.

1. Select a Patch (p. 29).
2. Press and hold [PHRASE PREVIEW].

#### NOTE

- In Performance mode, only the Patches of the currently selected Part (current Part) will sound. In Rhythm Set mode, a drum phrase will sound.
  - Patches of the USER group or from an optional Wave Expansion Board (SR-JV80 Series and SRX Series) may not sound at the appropriate pitch range. If this occurs, press [+OCT] or [-OCT] to select the desired pitch range (Octave Shift p. 47).
  - If the pitch range of a Phrase is wider than the range of the Tones within a Patch (p. 73), or wider than the range of a Part within a Performance (p. 51), any notes in the Phrase that fall outside that range will not be heard.
3. Release your finger from [PHRASE PREVIEW], and the phrase will stop playing.
  4. To change the way in which the phrase is played, press [SYSTEM] to make the indicator light. Then press the [PREVIEW] function button, and press ▲ or ▼ to access the SYSTEM PREVIEW page.



SYSTEM PREVIEW | Preview Mode PHRASE

5. Rotate the VALUE dial, or press [INC/+]/[DEC/-] to make the setting.

#### Preview Mode (Preview Sound Mode)

**SINGLE:** The notes specified by Note 1-4 parameter (SYSTEM/PREVIEW/PREVIEW KEY) will sound successively one by one.

**CHORD:** The notes specified by Note 1-4 parameter (SYSTEM/PREVIEW/PREVIEW KEY) will sound simultaneously.

**PHRASE:** The Phrase associated with the Patch's type/category is played.



For details on the Note 1-4 parameter settings, refer to "Phrase Preview Settings (PREVIEW)" (p. 177).

6. Press [EXIT] to return to the PATCH PLAY page.

7. If you set the Preview Mode parameter to PHRASE in step 5, you can specify the phrase that will sound. After pressing [EDIT] to make the indicator light up, press the [COMMON] function button, and press ▲ or ▼ to display the PATCH CATEGORY page.



PATCH CATEGORY | Category AC.PIANO(PNO)

8. Rotate the VALUE dial or press [INC/+]/[DEC/-] to make the setting. For details on the available categories, refer to (p. 31).

#### MEMO

The Patch Finder function uses this setting.

### Making a Patch Sound Thick or Thin (Turning a Tone On/Off)

Since a Patch is a combination of up to four Tones, you can switch unwanted (Tones out of the four) off and get just the sound of a specific Tone.

1. Make sure that the PATCH PLAY page is displayed.
2. Make sure that [EDIT] indicator is extinguished. If it is lit, press [EDIT].

At this time, the on/off setting of each Tone in the displayed Patch will be shown by the indicators of TONE SWITCH [1]-[4]. Lit is on, and dark is off.

The PATCH PLAY page indicates the Tones that are on as follows. Tones that are off are shown as -.



PATCH PLAY | PR-A:001 128voicPno tone=-2-- kbd=C 4

3. Use TONE SWITCH [1]-[4] to switch Tones on/off.

#### MEMO

This setting is linked with the Switch parameter (PATCH/WAVE/WAVE). If you want just one or two Tones to sound in a Patch, turn the others off and store that setting on a Patch. This cuts nonessential use of the XV-88's simultaneous voices.

## Playing Single Notes (Solo)

Normally, the XV-88 allows you to play chords. Pressing [SOLO] allows performance using single notes. This function is effective when performing a solo using single-note Patches like sax and flute.

1. Make sure that the PATCH PLAY page is displayed.
2. Press [SOLO] so its indicator lights.  
Now you can play a solo.
3. Play the XV-88 keyboard.

### NOTE

During Layer Performance, the [SOLO] indicator goes out each time you change the Performance. Also, the [SOLO] indicator does not reflect Mono/Poly mode-switching information received from an external MIDI device.

## Creating Smooth Pitch Changes (Portamento)

Portamento ensures a smooth pitch changeover from one note to the next note played. When [SOLO] is on (indicator lights), you can simulate techniques like violin glissandos.

1. Make sure that the PATCH PLAY page is displayed.
2. Press [PORTAMENTO]. Its indicator lights.  
You're ready to play portamento.
3. To change the portamento settings, press [EDIT] to make the indicator light. Then press the [CONTROL] function button, and press ▲ or ▼ to access the PATCH PORTAMNT page.

PATCH	↑ Sw	Time	Mode	Type	Start
PORTAMNT	↓ OFE	18	LEGATO	RATE	PITCH

4. Press the cursor buttons to move the cursor over to "Time," "Mode," "Type" or "Start."



See (p. 76) for each parameter's functions.

5. Rotate the VALUE dial or press [INC/+]/[DEC/-] to get the value you want.
6. Press [EXIT] to return to the PATCH PLAY page and play.

### NOTE

During Layer Performance, the [PORTAMENTO] indicator goes out each time you change the Performance. Also, the [PORTAMENTO] indicator does not reflect Portamento on/off-switching information received from an external MIDI device.

### Using the Sliders to Modify the Sound in Realtime

With the four sliders (Palette Slider) in the PALETTE section, you can create sound variations or volume changes in realtime.

#### MEMO

The sound character and volume changes created using the sliders can be transmitted to the external MIDI devices (p. 170).

### Changing Sound Characters

1. Make sure that the PATCH PLAY page is displayed.
2. Press [FILTER/ENV] to light its indicator.
3. Move the sliders while you play the XV-88's keyboard to vary the sound.

To modify the brightness, move the [CUTOFF] slider.

To change resonance, move the [RESONANCE] slider.

To change attack time, move the [ATTACK] slider.

To change release time, move the [RELEASE] slider.

### Changing the Volume of Each Tone

1. Make sure that the PATCH PLAY page is displayed.
2. Press [LEVEL] to light its indicator.
3. Move the LEVEL slider as you play the keyboard to adjust volume as desired.

Sliders 1, 2, 3, and 4 are used to change the volume of Tones 1, 2, 3, and 4, respectively.

## Playing in Performance Mode

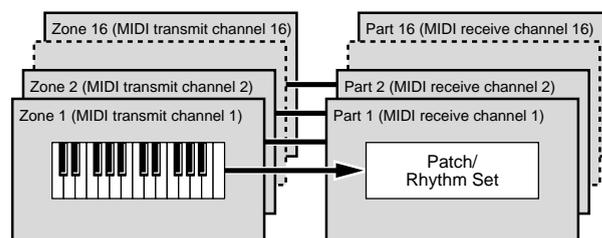
There are two types of performances: **Layer Performances** and **Single Performances**. The upper right of the display will indicate "LAYER p \* " (\* is the Part number) for a Layer Performance, and "part= \* " (\* is the Part number) for a Single Performance.

### About the MIDI Connection Settings (Zone and Part)

Although the XV-88's keyboard controller section and sound generator section are connected internally using a MIDI connection, in Layer Performance mode, you can then make even more detailed settings affecting the way the connection works between the keyboard controller section and the sound generator section, as well as with an external MIDI device.

At the factory settings, shown below, there is a one-to-one correspondence between the **Zone**, the **MIDI Transmit/Receive channel**, and the **Part**.

#### <Layer Performance>



Under these conditions, you could simply consider that **"each of the Zones from 1 to 16 is linked in a one-to-one relationship with its numerical counterpart among Parts 1 to 16"**. In other words, you can use Zone 1 when controlling Part 1, Zone 2 is when controlling Part 2, and so on.

**We recommend that under normal circumstances you use the default factory settings.**

#### MEMO

In this manual, the expression **"the Zone and Part are linked"** refers to the condition whereby a Zone's MIDI transmit channel and a Part's MIDI receive channel are matched in this one-to-one relationship.

#### NOTE

The explanations in this section describe how to play Performances using the factory Zone settings.

### <Layer Performance>

In a Layer Performance, you can select multiple Zones, and play those Zones and their linked Parts simultaneously. Select Layer Performance if you want fat, rich sounds of two or more Patches, or want to play different Patches in a split keyboard's different sections.

### <Single Performance>

With a Single Performance, you can play the currently selected Part (current Part). This means that you can use it to do things like playing just a single part in a song that uses a number of instruments. Zone settings are ignored. Also, if another Part is set to the same MIDI Receive channel as the currently selected Part, that Part is also played.

#### NOTE

The Single Performance and Layer Performance settings are selected with the Key Mode parameter (ZONE/COMMON/ZONE COMMON). The Key Mode parameter determines how the XV-88 keyboard will play the internal sound generator. It has no effect on how the XV-88 sound generator is played from an external MIDI device.

#### HINT

You can toggle between SINGLE and LAYER directly from the PERFORM PLAY page by pressing [SOLO] while holding down [SHIFT].

## Selecting a Performance

The XV-88 has three Performance groups, including the User group and Preset Groups A, B, with 64 Performances in the User group and 32 each in Presets A and B, for a total of 128 Performances. In addition to these, you can also select Performances stored on memory cards (SmartMedia).

### USER

This is the group inside the XV-88 which can be rewritten. Performances you yourself create can be stored in this group. The XV-88 contains 64 preset Performances (p. 252).

### CD-A-H (Memory Card A-H)

This is the group to accessed when using Performances stored on memory cards (SmartMedia) inserted in the MEMORY CARD slot. You can also rewrite Performances you create. Each bank A-H holds 64 Performances, meaning you can select from a maximum of 512 Performances.

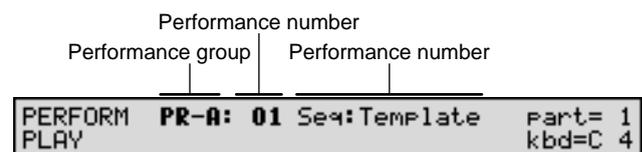
#### NOTE

Performances in CD-A-H cannot be selected if no memory card (SmartMedia) is inserted in the MEMORY CARD slot.

### PR-A, B (Preset A, B)

These are groups inside the XV-88 which cannot be rewritten. However, you can modify the settings of the currently selected Performance, and then save the modified settings in User memory or a memory card. Banks A and B already contain 32 prepared Performances each, for a total of 64 Performances (p. 252).

1. Press [PERFORM] to call up the PERFORM PLAY page.



2. Select a Performance group or Bank.

#### USER

Press [USER] to make the indicator light.

#### CD-A-H

Press [CARD], and then press [A]-[H] to make the indicator light.

#### PR-A, B

Press [PRESET], and then press [A] or [B] to make the indicator light.

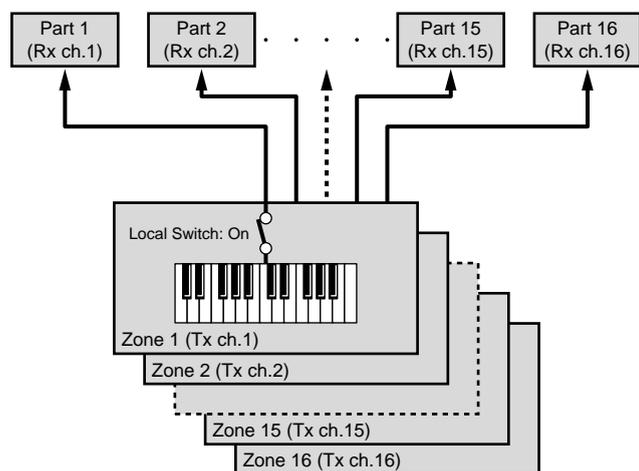
3. Select the Performance number. Select by either rotating the VALUE dial or by pressing [INC/+]/[DEC/-].

#### HINT

You can also select the Performance number by using the numeric keys. In this case, after specifying the number using the numeric keys, press [ENTER]. Also, Using the Digit Hold function, a Performance number can be selected simply by specifying the 1's place number (p. 30).

## Playing Fatter and Richer Sounds by Combining Patches (Layer)

In a Layer Performance, the Zones whose Local switches are set to ON along with all linked Parts can be played. Combining the Parts will produce, thicker, fatter sounds.



1. Make sure the PERFORM PLAY page is displayed.
2. Make sure that the upper right of the display indicates "LAYER p \* " (\* is the Part number). If the display indicates "part= \* " (\* is the Part number), the performance is a "Single Performance," so hold down [SHIFT] and press [SOLO] to change to a Layer Performance.

### MEMO

The setting here is linked to the Key Mode parameter (ZONE/Common/ZONE COMMON) (p. 58).

3. Confirm that the [EDIT] and [LOCAL/TX] indicators are extinguished, and, press a Function button to select the Zone linked to the Part you want played, lighting the button's indicator. When the [1-8/9-16] indicator is out, zones 1-8 can be selected, and when the [1-8/9-16] indicator is lit, zones 9-16 can be selected.

The Local Switch for the selected zone will be turned ON.

### HINT

At the factory settings, there is a one-to-one correspondence between each of the Zones 1-16 and Parts 1-16.

### MEMO

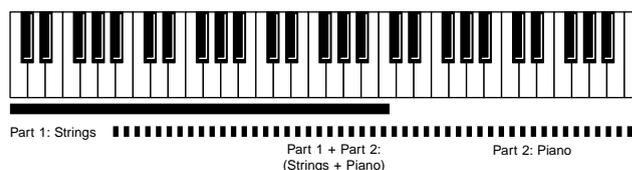
The setting here is linked to the setting at the Local parameter (ZONE/MIDI/MIDI) (p. 60).

4. Repeat Step 3 to set the Local switch to ON for all Zones linked to the Parts you want to have play.

## Splitting the Keyboard to Play Separate Patches in Different Sections (Split)

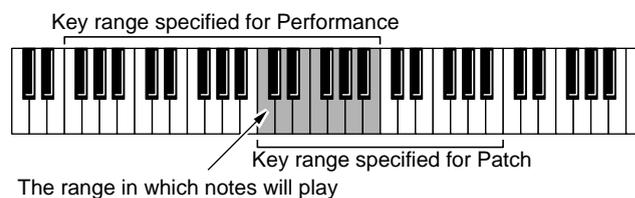
If you've selected a Layer Performance, you can split the keyboard to play separate Patches with different sections of the keyboard. As the note range that plays each Zone can be specified individually, you can split the keyboard into a maximum of 16 sections.

For instance, you can play strings in the lower range, piano in the upper range, and both sounds in the middle range.



### NOTE

- If a Patch key range is set in the KEY RANG page (PATCH/Common), sounds are produced in the overlapping sections between the key ranges specified for the Patch and Performance.



- Although you can set the key range of each Part in the KEY RANG page (PERFORM/Common) (p. 51), when performing with the XV-88's keyboard, we recommend setting the key range of each Zone, as explained here, rather than setting the key range for each Part.

1. Make sure the PERFORM PLAY page is displayed.
2. Make sure that the upper right of the display indicates "LAYER p \* " (\* is the Part number). If the display indicates "part= \* " (\* is the Part number), the performance is a "Single Performance," so hold down [SHIFT] and press [SOLO] to change to a Layer Performance.

### MEMO

The setting here is linked to the Key Mode parameter (ZONE/Common/ZONE COMMON) (p. 58).

- Confirm that the [EDIT] and [LOCAL/TX] indicators are extinguished, and, press a Function button to select the Zone linked to the Part you want played, lighting the button's indicator. When the [1-8/9-16] indicator is out, zones 1-8 can be selected, and when the [1-8/9-16] indicator is lit, zones 9-16 can be selected.

The Local Switch for the selected zone will be turned ON.

**HINT**

At the factory settings, there is a one-to-one correspondence between each of the Zones 1-16 and Parts 1-16.

**MEMO**

The setting here is linked to the setting at the Local parameter (ZONE/MIDI/MIDI) (p. 60).

- Repeat Step 3 to set the Local switch to ON for all Zones linked to the Parts you want to have play.
- Press [ZONE], getting the indicator to light, and then press the [KEY RANGE] function button to access the KEY RANG page.

ZONE 1	Lower	Upper
KEY RANG	C 4	G 9

- Turn off the [EDIT] indicator, and press a Function button to select the Zone whose Local switch is set to ON. When the [1-8/9-16] indicator is out, zones 1-8 can be selected, and when the [1-8/9-16] indicator is lit, zones 9-16 can be selected.
- Specifies the keyboard range for the Zone. Use the cursor buttons to move the cursor to "Lower" and set the lowest note of the range. Move the cursor to "Upper" and set the highest note of the range.
- Rotate the VALUE dial or press [INC/+]/[DEC/-] to specify the range of notes.

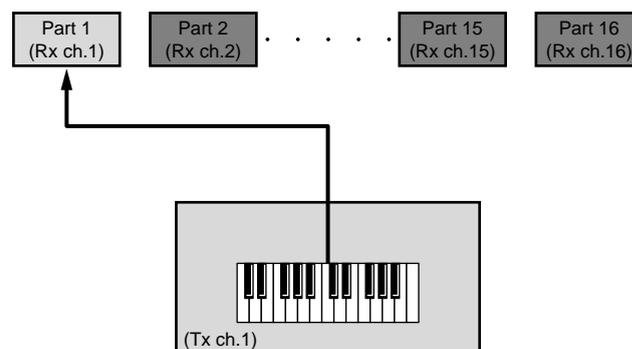
**HINT**

By specifying sections for different Zones so that they overlap each other, you can combine two or more Patches only in a specific section.

- When you are finished making settings, press [EXIT] to return to the PERFORM PLAY page, and begin playing.

## Playing Along with Song Playback (XV-88 Used as a Multi-timbral Sound Generator)

In a Single Performance, you can sound the single specified Part (current Part), making this convenient in such situations as when performing along with songs.



### Selecting a Part You Want to Play on the Keyboard

If a Single Performance is selected, press Function button to select the Part you want to play. The selected Part is called the **Current Part**.

- Make sure the PERFORM PLAY page is displayed.
- Confirm that the [EDIT] indicator is extinguished, and press the Function button to select the Part you want to play using the keyboard. When the [1-8/9-16] indicator is out, Parts 1-8 can be selected, and when the [1-8/9-16] indicator is lit, Parts 9-16 can be selected.

The Part number shown in the upper right of the display will change.

PERFORM	PR-A: 01	Seq: Template	part= 1
PLAY			kbd=C 4

**HINT**

- You can also select the Part by pressing ◀ or ▶.
- The keyboard controller's performance data will be transmitted on the same MIDI channel as the MIDI Receive channel that is set for the current Part.

### Muting a Specific Part (Turning Receive Switch On/Off)

While you play along with the playback of a song, you can turn on/off any specific Part. This allows you to turn off the melody Part for karaoke applications or for practicing the muted Part.

1. Make sure that [EDIT] indicator is extinguished. If it is lit, press [EDIT].

In this case, by holding down [SHIFT], you can check Function button indicators to see the ON/OFF status of each Part's Receive switch. When [1-8/9-16] indicator is out, the function button indicators will indicate the status of Parts 1–8. When [1-8/9-16] indicator is lit, the function button indicators will indicate the status of Parts 9–16. Lit is on, and dark is off.

2. Hold down [SHIFT] and press the function button to switch the Receive switch on/off.

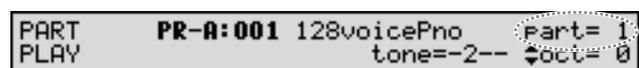
#### MEMO

This setting is linked with the Rx Sw parameter (PERFORM/MIDI/MIDI) (p. 52).

### Assigning a Different Patch to a Part

The Patch assigned to each Part can be stored as a Performance parameter.

1. Make sure the PERFORM PLAY page is displayed.
2. While holding down [PERFORM], press [PATCH] to call up the PLAY page (PART PLAY) of the Patch assigned to a specific Part.



The upper right of the display will indicate the number of the currently selected part.

3. Press ◀ or ▶ to choose the Part to which the selected Patch is assigned.
4. Use the same procedure as in Patch mode to select a Patch (p. 29).

#### MEMO

This setting is linked with the Group and Number parameter (PERFORM/PART/PATCH) (p. 53).

#### HINT

- Using the Patch Finder function, you can rapidly find the desired Patch (p. 30).
  - By using the Phrase Preview function, you can audition patches by listening to a preset phrase suitable for the selected type of patch (p. 32).
5. Press [PERFORM] or [EXIT] to return to the PERFORM PLAY page.

#### HINT

By pressing [RHYTHM] in Step 4, you can substitute a Rhythm Set for the Patch assigned to the Part.

### Using the Sliders to Modify the Sound in Realtime

With the four sliders in the PALETTE section (the Palette sliders), you can change the sound qualities of the Patches assigned to the Parts and adjust the volume level of each Part.

#### MEMO

The sound character and volume changes created using the sliders can be transmitted to the external MIDI devices (p. 59).

### Changing Sound Characters

#### NOTE

When selecting a Single Performance, the effect is applied to the single specified Part (current Part). When a Layer Performance is selected, the effect is applied to all Zones with Local switches set to ON and their linked Parts.

1. Make sure the PERFORM PLAY page is displayed.
2. Press [FILTER/ENV] and its indicator lights.
3. Move the sliders while you play the XV-88's keyboard to vary the sound.
  - To modify the brightness, move the [CUTOFF] slider.
  - To change resonance, move the [RESONANCE] slider.
  - To change attack time, move the [ATTACK] slider.
  - To change release time, move the [RELEASE] slider.

## Adjusting the Volume Balance Between Parts

1. Make sure the PERFORM PLAY page is displayed.
2. Press [LEVEL] and its indicator lights.
3. Press ◀ or ▶ to select the Part whose volume you want to change.

If you've selected any of Parts 1-4, sliders [1], [2], [3], and [4] adjust Parts 1, 2, 3, and 4, respectively.

If you've selected any of Parts 5-8, sliders [1], [2], [3], and [4] adjust Parts 5, 6, 7, and 8, respectively.

If you've selected any of Parts 9-12, sliders [1], [2], [3], and [4] adjust Parts 9, 10, 11, and 12, respectively.

If you've selected any of Parts 13-16, sliders [1], [2], [3], and [4] adjust Parts 13, 14, 15, and 16, respectively.

4. Move the slider as you play to adjust the level (volume) of each Part as desired.

### NOTE

If the MIDI Receive channels for multiple Parts are set to the same value, the volume levels of several Parts could change at the same time.

## Playing in Rhythm Set Mode

In Rhythm Set mode, you can play percussion instruments (Rhythm Tones) on the keyboard. As the Rhythm Tone assigned to each key varies by the Rhythm Set selected, you can play a wide range of percussion instruments.

### Selecting a Rhythm Set

The XV-88 has eight Rhythm Set groups, including the User group and Preset Groups A-F and H, with 4 Rhythm Sets in the User group, 2 each in Presets A-F, and 9 Rhythm Sets in Preset H, for a total of 25 Rhythm Sets. In addition to these, you can also select Rhythm Sets stored on memory cards (SmartMedia). What's more, you can further expand your options by installing up to four optional Wave Expansion boards (two SR-JV80, two SRX Series), enabling you to select from a large selection of Rhythm Sets.

#### USER

This is the group inside the XV-88 which can be rewritten. Rhythm Sets you yourself create can be stored in this group. The XV-88 includes four preset Rhythm Sets (p. 258).

#### CD-A-H (Memory Card A-H)

This is the group to accessed when using Rhythm Sets stored on memory cards (SmartMedia) inserted in the MEMORY CARD slot. You can also rewrite Rhythm Sets you create. Each bank A-H holds 4 Rhythm Sets, meaning you can select from a maximum of 32 Rhythm Sets.

### NOTE

Rhythm Sets in CD-A-H cannot be selected if no memory card (SmartMedia) is inserted in the MEMORY CARD slot.

#### PR-A-F (Presets A-F)

These are groups inside the XV-88 which cannot be rewritten. However, you can modify the settings of the currently selected Rhythm Set, and then save the modified settings in User memory or a memory card. Banks A-F already contain 2 prepared Rhythm Sets each, for a total of 12 Rhythm Sets (p. 258).

#### PR-H (GM2)

This is an internal group of Rhythm Sets compatible with General MIDI 2, a system of MIDI function specifications designed to transcend differences between makers and types of devices; these Rhythm Sets cannot be overwritten. Furthermore, settings of currently selected Rhythm Sets from this group cannot be changed. The XV-88 includes 9 preset Rhythm Sets.

### XP-A, B (Wave Expansion Boards installed in EXP-A, B Slots)

These are the groups of Rhythm Sets from Wave Expansion Boards (optional SR-JV80 Series) installed in the EXP-A and B slots, and cannot be overwritten. However, you can modify the settings of the currently selected Rhythm Set, and then save the modified settings in User memory or a memory card. The number of onboard Rhythm Sets depends on the specific Wave Expansion Boards installed.

#### NOTE

XP-A, B Rhythm Sets can be selected only if a Wave Expansion Board (SR-JV80 Series) is installed in the corresponding slot.

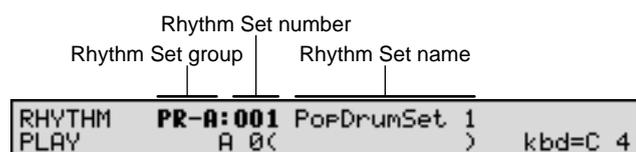
### XP-C, D (Wave Expansion Boards installed in EXP-C, D Slots)

These are the groups of Rhythm Sets from Wave Expansion Boards (optional SRX Series) installed in the EXP-C and D slots, and cannot be overwritten. However, you can modify the settings of the currently selected Rhythm Set, and then save the modified settings in User memory or a memory card. The number of onboard Rhythm Sets depends on the specific Wave Expansion Boards installed.

#### NOTE

XP-C, D Rhythm Sets can be selected only if a Wave Expansion Board (SRX Series) is installed in the corresponding slot.

1. Press [RHYTHM] to call up the RHYTHM PLAY page.



2. Select a Rhythm Set group or Bank.

#### USER

Press [USER] to make the indicator light.

#### CD-A-H

Press [CARD], and then press [A]-[H] to make the indicator light.

#### PR-A-F

Press [PRESET], and then press [A]-[F] to make the indicator light.

#### PR-H (GM2)

Press [PRESET], and then press [H] to make the indicator light.

### XP-A-D

Press [EXP], and then press [A]-[D] to make the indicator light.

3. Select the Rhythm Set number. Rotate the VALUE dial or press [INC/+]/[DEC/-] to select the number.

#### HINT

You can also select the Rhythm Set number by using the numeric keys. In this case, after specifying the number using the numeric keys, press [ENTER]. Also, Using the Digit Hold function, a Rhythm Set number can be selected simply by specifying the 1's place number (p. 30).

## Selecting Favorite Rhythm Sets from the Favorite List

On the XV-88, you can bring together your favorite and most frequently used Rhythm Sets in one place by registering them in the Favorite List. The Favorite List gives you immediate access to your favorite Rhythm Sets wherever they are stored, whether in the XV-88 itself, on Wave Expansion Boards, or on memory cards.

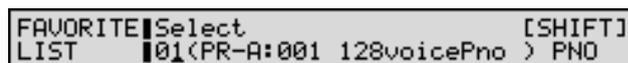
#### NOTE

If you have saved Rhythm Sets located on Wave Expansion Boards or memory cards onto the Favorite List, and then attempt to select one of the saved Rhythm Sets without having the corresponding Wave Expansion Board installed, or the relevant memory card inserted, "No media" appears in the display, and the selected Rhythm Set cannot be played.



For instructions on how to register to the Favorite List, refer to "Registering Favorite Patches/Rhythm Sets in the Favorite List" (p. 165).

1. Press [PATCH] to call up the RHYTHM PLAY page.
2. While holding down [SHIFT], press [PATCH FINDER]. The FAVORITE LIST page will appear.



3. Rotate the VALUE dial or press [INC/+]/[DEC/-] to select a Rhythm Set.
4. When you press [ENTER], the Rhythm Set is selected and you are returned to the RHYTHM PLAY page.

## Playing Percussion Instruments

1. Press [RHYTHM] to call up the RHYTHM PLAY page.
2. Select a desired Rhythm Set.
3. Press a key on the keyboard to play a percussion instrument.

The key (Note name) you press and its percussion instrument name (Rhythm Tone name) will be displayed below the Rhythm Set name.

```
RHYTHM  PR-A:001 PopDrumSet 1
PLAY      B 1(Verb Kick  )
```

Note name  
Rhythm Tone name

You can also select a key to be displayed by using TONE SELECT [1]–[4].

TONE SELECT [1]: move to an octave lower key

TONE SELECT [2]: move to the semitone below

TONE SELECT [3]: move to the semitone above

TONE SELECT [4]: move to an octave higher key

## Playing Arpeggios (Arpeggiator)

The Arpeggiator provides for the play of the various notes in chords. The XV-88's **Arpeggiator** lets you produce an arpeggio (broken chord) simply by playing a chord. In addition to normal arpeggios, you can also accurately simulate rhythm guitar or strumming techniques depending on the Arpeggiator settings. The Arpeggiator can in fact be used as a handy automatic arranger.

By pressing [ARPEGGIO], the indicator lights and allows playing arpeggios from the XV-88 keyboard.

### NOTE

If you press [ARPEGGIO] to turn this function on when a Single Performance is selected, the single specified Part (current Part) will play arpeggios. When a Layer Performance is selected, an arpeggio will sound for the Zone specified by the Zone parameter (ZONE/ARPEGGIO/ARPEGGIO).

### MEMO

The arpeggios played by the arpeggiator can be transmitted from the MIDI OUT connector to external MIDI devices (p. 59).

1. Make sure that the PLAY page of the sound generator mode (PERFORM, PATCH, RHYTHM, or GM) is displayed.
2. Press [ARPEGGIO] to turn the Arpeggiator on.
3. If you wish to change how the arpeggio is played, hold down [ARPEGGIO] to access the ARP SELECT page, move the cursor to "Style," and change the setting.

```
ARP SELECT | Style | Accent | Oct | Tempo
1/16 | 20% | 0 | 120
```

### MEMO

This setting is linked with the Style parameter.

#### In Patch/Rhythm Set/GM Mode

Style parameter (SYSTEM/ARPEGGIO/ARPEGGIO) (p. 174)

#### In Performance Mode

Style parameter (ZONE/ARPEGGIO/ARPEGGIO) (p. 61)

## Chapter 2. Playing

There are 45 arpeggio styles available. For selection, refer to the following guideline.

### Playing an Arpeggio According to the Timing Interval of a Note

1/4-1/32

#### Playing a Glissando

GLISSANDO

#### Playing a Bass Part

SYNTH BASS, HEAVY SLAP, LIGHT SLAP, WALK BASS

#### Playing a Guitar

RHYTHM GTR 1-5, 3 FINGER, STRUM GTR DOWN, STRUM GTR UP, STRUM GTR UP&DN

#### Playing a Keyboard Instrument

PIANO BACKING, CLAVI CHORD

#### Playing a Waltz

WALTZ, SWING WALTZ

#### Playing in Reggae Style

REGGAE

#### Playing Percussion Instruments

PERCUSSION



There are also other styles besides the above, including those used for random play and for creating your own styles. For details regarding each style, refer to “Arpeggiator Settings (ARPEGGIO)” (p. 61, p. 174).

- To change the “groove” feel of the arpeggio, hold down [ARPEGGIO] to access the ARP SELECT page, move the cursor to “Accent,” and change the setting.

ARP SELECT	Style	Accent	Oct	Tempo
	1/16	20%	0	120

A setting of 100% will produce the most pronounced groove feel.



This setting is linked with the Accent Rate parameter.

#### In Patch/Rhythm Set/GM Mode

Accent Rate parameter (SYSTEM/ARPEGGIO/ARPEGGIO) (p. 176)

#### In Performance Mode

Accent Rate parameter (ZONE/ARPEGGIO/ARPEGGIO) (p. 62)

- To change the range in which the arpeggio is played, hold down [ARPEGGIO] to access the ARP SELECT page, move the cursor to “Oct,” and change the setting.

ARP SELECT	Style	Accent	Oct	Tempo
	1/16	20%	0	120

If you want the arpeggio to sound using only the notes that you actually play, set this to 0. With a +1 setting, arpeggio will take place over a range up to 1 octave higher than the notes you play. A -1 setting will result in arpeggio occurring over the range down to 1 octave lower than the notes you play.



This setting is linked with the Octave Range parameter.

#### In Patch/Rhythm Set/GM Mode

Octave Range parameter (SYSTEM/ARPEGGIO/ARPEGGIO) (p. 175)

#### In Performance Mode

Octave Range parameter (ZONE/ARPEGGIO/ARPEGGIO) (p. 61)

- To change the tempo in which the arpeggio is played, hold down [ARPEGGIO] to access the ARP SELECT display, move the cursor to “Tempo,” and change the setting.

ARP SELECT	Style	Accent	Oct	Tempo
	1/16	20%	0	120



This setting is linked with the Tempo parameter.

#### In Patch/Rhythm Set/GM Mode

Tempo parameter (SYSTEM/ARPEGGIO/ARPEGGIO) (p. 176)

#### In Performance Mode

Tempo parameter (ZONE/ARPEGGIO/ARPEGGIO) (p. 63)

- Play a chord to produce an arpeggio.
- To stop the arpeggio, press [ARPEGGIO], extinguishing the indicator.



If you hold down [SHIFT] when you press [ARPEGGIO], the ARP SELECT page will continue being displayed, without you having to hold down [ARPEGGIO]. To go back to the previous display, press [EXIT].

## Playing an Arpeggio Over a Preset Keyboard Area

As soon as you press [ARPEGGIO] to turn the Arpeggiator on, the keyboard will be set to play arpeggios so conventional keyboard playing is no longer possible.

If you split the keyboard into two different areas, you can use one area for normal playing and the other for playing arpeggios. This setting, for instance, allows you to play arpeggios with the left hand and a melody with the right hand.

1. Press [PERFORM] to call up the PERFORM PLAY page.
2. If you have selected a Single Performance, set the Key Mode parameter (ZONE/COMMON/ZONE COMMON) to LAYER (p. 58).
3. Set the Local switch of the Zone linked to the Part you want played to ON (p. 36).
4. After pressing [ZONE] to make the indicator light up, press the [ARPEGGIO] function button followed by ▼ to display the ARPEGGIO page like the one shown below.

```
ARPEGGIO↑Key Velocity|Zone| Tempo(=SYS)
| REAL| 1| 120
```

5. Use the cursor buttons to move the cursor to “Zone.”
6. Rotate the VALUE dial or press [INC/+]/[DEC/-] to select the Zone linked to the Part for which arpeggios are to be played.
7. Press [KEY RANGE] in the Function buttons to display the KEY RANG page.

```
ZONE 1 | Lower | Upper
KEY RANG | C -J | G 9
```

8. Set the key range (expression range) for the Zone. Use the cursor buttons to move the cursor to “Lower” and set the lowest note of the range. Move the cursor to “Upper” and set the highest note of the range.
9. Rotate the VALUE dial or press [INC/+]/[DEC/-] to specify the range of notes.
10. Turn off the [EDIT] indicator, and press a Function button to select a Zone linked to a Part other than the one for which arpeggios are played. When the [1-8/9-16] indicator is out, you can select zones 1-8. When the [1-8/9-16] indicator is lit, you can select zones 9-16.

11. Set the key range of the Zones linked to the Parts other than the Part for which arpeggios are played so that this range does not overlap with the key range over which the arpeggios are played.
12. When you are finished making settings, press [EXIT] to return to the PERFORM PLAY page, and begin playing.

### NOTE

If you play arpeggios using a Layer Performance without setting the key range, then with Parts other than the Part linked to the Zone specified by the Zone parameter (ZONE/ARPEGGIO/ARPEGGIO), only the sound for the key being pressed is played.

## Holding an Arpeggio

If you hold down [ARPEGGIO] and press [TRANSPOSE], and get the indicator to start blinking, the arpeggio will continue to be played even if you release the chord.

1. Hold down [ARPEGGIO] and press [TRANSPOSE] to make the indicator blink.
2. Play a chord.
3. If you play a different chord or notes while the arpeggio is being held, the arpeggio will change accordingly.
4. To cancel Arpeggio Hold, hold down [ARPEGGIO] and press [TRANSPOSE] simultaneously once again.

## When Using a Hold Pedal

If you play an arpeggio while pressing the hold pedal, the arpeggio will continue to be played even if you release the chord.

1. Connect an optional pedal switch (DP-2, DP-6, etc.) to the HOLD PEDAL jack.
2. Press [ARPEGGIO] to turn the Arpeggiator on.
3. Play a chord while pressing the hold pedal.
4. To play another chord, release the pedal, press it again as you play the next chord.

### Simulating a Rhythm Guitar

You can simulate a rhythm guitar by following the procedure below. By using the Palette Slider, it is also possible to apply a wah effect as you play.

1. Select a guitar Patch.
2. Press [ARPEGGIO] to turn the Arpeggiator on.
3. Set the Style parameter (SYSTEM/ARPEGGIO/ARPEGGIO) to one of RHYTHM GTR 2-5.
4. Press [FILTER/ENV] to make the indicator light.
5. Move the [CUTOFF] slider or [RESONANCE] slider while you play a chord.

### Playing an Arpeggio from an External MIDI Device

The XV-88 can also produce arpeggios with incoming Note messages from an external MIDI device.

1. Use a MIDI cable to connect the MIDI IN connector of the XV-88 to the MIDI OUT connector of the external MIDI device.
2. Press [PATCH] to access the PATCH PLAY page.
3. Press [ARPEGGIO] to turn the Arpeggiator on.
4. Press [SYSTEM] to make the indicator lit, press the [MIDI] function button, and then press ▲ to access the PATCH MIDI page.

PATCH	↓	Rx Ch	Tx Ch	Local	Remote
MIDI	↓	1	Rx Ch	ON	OFF

5. Use the cursor buttons to move the cursor to “Remote.”
6. Rotate the VALUE dial or press [INC/+]/[DEC/-] to turn the setting ON.
7. Play the external MIDI device.

### Creating an Arpeggio Pattern

There are a total of 9 parameters that can be set for the Arpeggiator, but the most important is the Style parameter setting. The arpeggio pattern is largely determined by this setting.

When you set the Style parameter, the Motif, Beat Pattern, Accent Rate and Shuffle Rate parameters will automatically be set to optimum settings. After selecting the style, you can also set parameters such as Octave Range and Key Velocity. If this selection does not provide the pattern you want, modify the settings of the Motif, Beat Pattern, Accent Rate and Shuffle Rate parameters to add variations to the style as desired.

#### NOTE

- When you make the settings in Patch/Rhythm Set/GM mode, Motif, Beat Pattern, Accent Rate and Shuffle Rate parameter settings will be lost if you select another style and then turn the power off. However, in Performance mode, you can save them to each Performance as the Performance parameters.
- The values you can set with the Motif or Beat Pattern parameters are normally limited by the selected style. Only when the Style parameter is set to LIMITLESS will all values be acceptable.

1. Access the ARPEGGIO page.

#### In Patch/Rhythm Set/GM Mode

Press [SYSTEM], getting the indicator to light, and then press the [ARPEGGIO] function button.

#### In Performance Mode

Press [ZONE], getting the indicator to light, and then press the [ARPEGGIO].

ARPEGGIO	↓	Style	Octave Range
	↓	LATIN PERCUSSION	0

\* Here is what appears in the first page of the ARPEGGIO page.



For details regarding each parameter, refer to “Arpeggiator Settings (ARPEGGIO)” (p. 61, p. 174).

2. Move the cursor to “Style” and specify the style you want.
3. Move the cursor to “Octave Range” and specify the key range over which you want arpeggio.

4. Press , move the cursor to “Motif,” and specify the order in which the notes of the chord will be sounded.

**NOTE**

The available choices depend on the Style parameter setting. For details, refer to “Arpeggio Style List” (p. 268).

5. Move the cursor to “Beat Pattern,” then change the rhythm.

**NOTE**

The available choices depend on the Style parameter setting. For details, refer to “Arpeggio Style List” (p. 268).

6. Press , move the cursor to “Accent Rate,” and specify the groove ratio.  
A setting of 100% will produce the most pronounced groove feel.
7. Move the cursor to “Shuffle Rate” and specify the swing rate.  
With a setting of 50%, the notes will be spaced evenly. As the value increases, the note timing will have more of a “swing” feel.
8. Press , move the cursor to “Key Velocity,” and specify the strength with which the notes of the chord will be sounded.  
When REAL is selected, the velocity at which the notes are actually played will be used. With a setting of 1–127, the specified velocity value will be used regardless of the force with which you play the chord.
9. When playing in Layer Performance, move the cursor to “Zone” and specify the Zone linked to the part playing arpeggios.

**NOTE**

Arpeggios will be played only in the Zone and linked Part specified here. Chords will sound exactly as played in other Zones.

10. Move the cursor to “Tempo” and specify the speed of an arpeggio.
11. After you finish making settings, press [EXIT].

## Moving Your Hand Above the D Beam Controller to Apply Effects (D Beam Controller)

The **D Beam Controller** is an easy-to-use controller you can operate just by moving your hand over it. By changing the function assigned to the controller, you can add a variety of different effects to the sound. The controller lets you add effects such as instantaneous changes in tone that are impossible to do with knobs and sliders.

**MEMO**

The D Beam Controller is provided under license from Interactive Light, Inc.

**NOTE**

When selecting a Single Performance, the effect is applied to the single specified Part (current Part). When a Layer Performance is selected, the effect is applied to all Zones with Local switches set to ON and their linked Parts.

**MEMO**

Tone changes made with the D Beam controller can also be sent to an external MIDI device (p. 59).

1. Make sure that the PLAY page of the sound generator mode (PERFORM, PATCH, RHYTHM, or GM) is displayed.
2. Press D BEAM CONTROLLER [ON] to turn on the D Beam Controller.
3. When changing the function to be controlled with the D Beam Controller, hold down [ON] to display the D BEAM CONTROL page, move the cursor to “Assign,” then make the setting.

D BEAM	Assign	Output	Polarity
CONTROL	↓CC02:BREATH	BOTH	STANDARD

**MEMO**

This setting is linked with the Assign parameter.

**In Patch/Rhythm Set/GM Mode**

Assign parameter (SYSTEM/D BEAM/D BEAM CONTROL) (p. 176)

**In Performance Mode**

Assign parameter (ZONE/D BEAM/D BEAM CONTROL) (p. 63)



For more detailed information on the functions that can be controlled, refer to (p. 63, p. 176).

## Chapter 2. Playing

- When changing the sound generator to be controlled with the D Beam Controller, hold down [ON] to display the D BEAM CONTROL page, move the cursor to “Output,” then make the setting.

D BEAM CONTROL	Assign ↓CC02:BREATH	Output   BOTH	Polarity   STANDARD
----------------	------------------------	------------------	------------------------

Set the output to INT when controlling only the internal sound generator, to MIDI when controlling an external sound generator, or BOTH when you want to control both internal and external sound generators. When controlling neither the internal nor any external sound generator, set this to OFF.

### MEMO

This setting is linked with the Output parameter.

#### In Patch/Rhythm Set/GM Mode

Output parameter (SYSTEM/D BEAM/D BEAM CONTROL) (p. 176)

#### In Performance Mode

Output parameter (ZONE/D BEAM/D BEAM CONTROL) (p. 63)

- When changing the D Beam Controller’s polarity, hold down [ON] to display the D BEAM CONTROL page, move the cursor to “Polarity,” then make the setting.

D BEAM CONTROL	Assign ↓CC02:BREATH	Output   BOTH	Polarity   STANDARD
----------------	------------------------	------------------	------------------------

With a setting of REVERSE, the direction of control for the D Beam controller will be inverted.

### MEMO

This setting is linked with the Polarity parameter.

#### In Patch/Rhythm Set/GM Mode

Polarity parameter (SYSTEM/D BEAM/D BEAM CONTROL) (p. 177)

#### In Performance Mode

Polarity parameter (ZONE/D BEAM/D BEAM CONTROL) (p. 63)

- When changing the range to be controlled by the D Beam Controller, hold down [ON] and press ▼ to display the D BEAM RANGE page, move the cursor to “Lower” or “Upper,” then make the setting.

D BEAM RANGE	↑	Lower   0	Upper   127
--------------	---	--------------	----------------

Set the lower limit for the range with the Lower parameter, and the upper limit for the range with the Upper parameter.

### NOTE

It is not possible to set the lower limit value above the upper limit, nor can you set the upper limit value below the lower limit.

### MEMO

This setting is linked with the Lower, Upper parameter.

#### In Patch/Rhythm Set/GM Mode

Lower, Upper parameter (SYSTEM/D BEAM/D BEAM RANGE) (p. 177)

#### In Performance Mode

Lower, Upper parameter (ZONE/D BEAM/D BEAM RANGE) (p. 64)

- When changing the sensitivity of the D Beam Controller, hold down [ON] and press ▼ to display the D BEAM SENS page, then make the setting.

D BEAM SENS	↑	D Beam Sensitivity   5
-------------	---	---------------------------

The higher the value set, the more readily the D Beam Controller goes into effect. Ordinarily, this is set to 5.

### MEMO

This setting is linked with the D Beam Sensitivity parameter.

#### In Patch/Rhythm Set/GM Mode

D Beam Sensitivity parameter (SYSTEM/D BEAM/D BEAM SENS) (p. 177)

#### In Performance Mode

D Beam Sensitivity parameter (ZONE/D BEAM/D BEAM SENS) (p. 64)

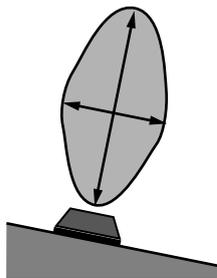
- You operate the D Beam Controller by moving your hand over it, as you produce sounds by playing the keyboard.
- To turn off the D Beam Controller, press D BEAM CONTROLLER [ON] once again, extinguishing the indicator.

### HINT

By holding down [SHIFT] and pressing D BEAM CONTROLLER [ON], you can display each of the settings pages without having to hold down [ON]. To return to the original window, press [EXIT].

### The effective range of the D Beam Controller

The effective range of the D Beam Controller is as shown in the following diagram. Hand movement outside of this area will have no effect.



#### NOTE

The effective range of the D Beam controller will decrease in locations of strong direct sunlight. Be aware of this when using the D Beam controller outdoors.

## Convenient Functions for Performance

### Transposing the Keyboard in Octave Units (Octave Shift)

The **Octave Shift** function transposes the pitch of the keyboard in 1 octave units (-3- +3 octaves).

For playing a bass part more easily using your right hand, transpose the keyboard down by 1 or 2 octaves.

1. Press [+OCT] or [-OCT] and its indicator will light. Pressing [+OCT] once will raise the keyboard 1 octave. Pressing [-OCT] once will lower the keyboard 1 octave. The specified Octave Shift setting will be shown in the “kbd=C 4” indication of each PLAY page. For example if you press [+OCT] once to raise the keyboard one octave, the display will indicate “kbd=C 5.” This means that when you press the C4 key, the C5 note will sound.

```
PATCH PR-A:001 128voicePno
PLAY tone=-2-- kbd=C 4
```

#### NOTE

There is only one Octave Shift setting in the XV-88, so it remain valid even if you select a different Patch, Performance or Rhythm Set or turn power off.

2. To turn off the Octave Shift function, press the other button [+OCT] or [-OCT] of that pressed in step 1. The indicator will go off.

### Transposing the Keyboard in Semitone Steps (Transpose)

**Transpose** changes keyboard pitch in units of semitones (-5-+6 semitones).

This function is useful when you play transposed instruments such as trumpet or clarinet following a printed score.

1. Press [TRANSPOSE] to light indicator.  
This turns Transpose on.
2. While holding down [TRANSPOSE], press [+OCT] or [-OCT] to transpose the keyboard.  
Pressing [+OCT] once while holding down [TRANSPOSE] will raise the keyboard one semitone.  
Pressing [-OCT] once while holding down [TRANSPOSE] will lower the keyboard one semitone.  
The specified Transpose setting will be added to the Octave Shift value. For example, if you hold down [TRANSPOSE] and press [+OCT] once to raise the keyboard a semitone, the display will indicate "kbd=C#4." So when C4 is pressed, the C#4 note will sound.
3. To turn off Transpose, press [TRANSPOSE] once again so that its indicator goes off.  
The Transpose setting you make will be maintained.

#### **MEMO**

The Transpose setting you make here will also change the Transpose parameter (SYSTEM/CONTROL/KEYBOARD).

#### **NOTE**

The setting you make will be maintained even if you select a different Patch, Performance or Rhythm Set, or turn the power off.

### If "Stuck" Notes Occur (Panic)

If some operation causes sounds from the XV-88, or sounds from an external sound generator connected with a MIDI cable to fail to stop playing, use the **Panic** function.

### When Sounds from the XV-88 Do Not Stop Playing

1. Hold down [SHIFT] and press [EXIT].  
Sounds from the XV-88 stop playing.
2. The display will indicate "Panic! Now Muting." while the Panic function is being executed. When this message goes off, you can start playing.

### What to Do When an External Sound Generator Fails to Stop Sounding

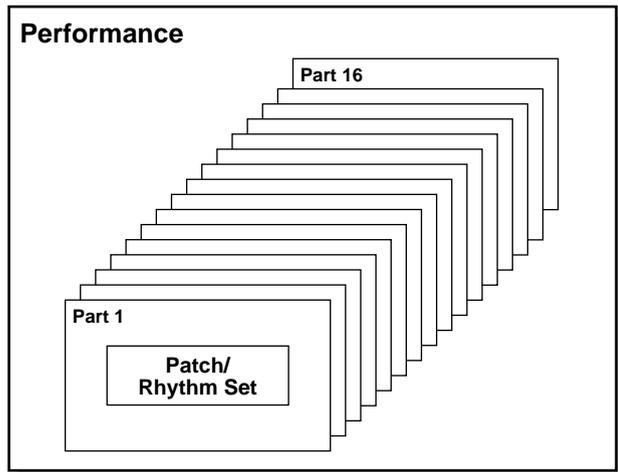
1. Hold down [SHIFT] and press [EXIT] for more than a second.  
MIDI messages for All Sounds Off, Reset All Controllers, Hold 1 (0), Hold 2 (0), and Sostenuto (0) will be transmitted to all MIDI channels (Parts).
2. The display will indicate "Panic! Now Transmitting." while the Panic function is being executed. When this message goes away, you can start playing.

# Chapter 3. Creating Performances

With the XV-88, you have total control over a wide variety of settings. Each item that can be set is known as a **parameter**. When you change the values of parameters, you are doing what is referred to as **Editing**. This chapter explains the procedures used in creating Performances, and the functions of the Performance parameters.

## How a Performance Is Organized

A Performance is a collective set of assignments of the sixteen different Patches and Rhythm Sets. Since a Performance can simultaneously handle 16 different sounds, it allows you to play multiple Patches simultaneously (layer) or to play different Patches in different areas of the keyboard (split), and to create ensembles.



## How to Make the Performance Settings

Start with an existing Performance and edit it to create a new Performance. But before you do, try to envision what the entire Performance will sound like and decide which Patch or Rhythm Set to assign to each of 16 Parts.

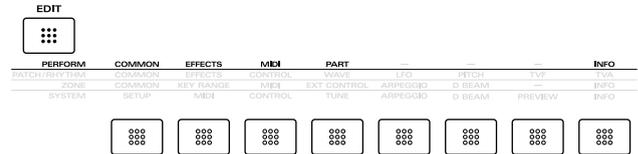
1. Press [PERFORM] to access the PERFORM PLAY page, and select the Performance whose settings you wish to modify (p. 35).

### HINT

If you want to create all your Performances from the ground up, rather than the Performances that have already been prepared, carry out the **Initialize** operation (p. 185).

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

3. Use the function buttons to select a display group. The indicator for the button of the selected display group begins blinking.



4. Use ▲ or ▼ to select a display page.
5. If you have selected a parameter display that can be set independently for each Part, the number of the Part selected for editing will be shown in the upper left of the display. To edit a different Part, press [EDIT] to temporarily turn off the indicator, and use ZONE/PART SELECT [1/9]–[8/16] to select a Part. When the [1-8/9-16] indicator is extinguished, Parts 1–8 are selected, and when the [1-8/9-16] indicator is lit, Parts 9–16 are selected.



6. Use ◀ or ▶ to move the cursor to the parameter you wish to modify.
7. Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to modify the parameter value.

### HINT

If you've made a mistake in setting a parameter value, or you have second thoughts about the changes, press [UNDO/COMPARE] to restore the value to what it was.

8. If you wish to move to another display group, press [EDIT] to make the indicator light, and use the function buttons.

### HINT

You can also move to another display group by holding down [SHIFT] and using ◀ or ▶. Since this can be done even when the [EDIT] indicator is dark, it is a faster way to get around because you don't have to turn on the [EDIT] indicator each time.

9. Repeat steps 3–8 to complete a Performance.

## Chapter 3. Creating Performances

10. When you finish making settings, press [EXIT] or [PERFORM] to return to the PERFORM PLAY page. An asterisk \* appears at the left of the Performance group on the display. This shows Performance settings have been modified.

```
PERFORM *PR-A: 01 Seq: Template Part= 1
PLAY kbd=C 4
```

### NOTE

If you select another Performance in the group with an asterisk \*, the modified Performance settings will be lost. To keep these modified settings, perform the save operation (p. 164).

## Making Settings While Comparing Parts (Palette Edit)

When modifying Part settings for a Performance, the values for eight Parts (Part 1–8 or Part 9–16) will be displayed together on a single display. This is called the **Palette page**. This is useful when you wish to change parameter values while comparing each Part settings.

- When modifying a Part, use ◀ or ▶ to move the cursor to the parameter you wish to modify.
- Press [PALETTE EDIT] to call up the Palette page.

```
PART 1 | Channel | Rx Sw | Mute Sw
MIDI ↓ | 1 | ON | OFF
```

PALETTE EDIT



```
MIDI | Part= 1 PR-A:001(128voicePno) ▶
CHANNEL ↓ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8
```

- Press ◀ or ▶ to choose the Part to modify. The Part number and the Patch or Rhythm Set name assigned to the Part will appear.

### HINT

To switch between the palette page for Parts 1–8 and the palette page for Parts 9–16, press [1-8/9-16].

- Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to change the parameter value.

### HINT

If you've made a mistake in setting a parameter value, or you have second thoughts about the changes, press [UNDO/COMPARE] to restore the value to what it was.

- If you wish to edit other parameters, press ▲ or ▼ to select the parameter that you wish to edit.
- Repeat steps 3–5 to complete a Performance.
- To exit the Palette page, press [PALETTE EDIT], thus extinguishing the button's indicator.

## Copying the Settings of Another Part (Part Copy)

Part settings from any desired Performance can be copied to any desired Part of the currently selected Performance. This function can help you save time.

- Make sure a Performance is selected.
- Press [UTILITY], getting its indicator to start blinking.
- Press the numeric key [2], then ▲ or ▼ to call up the PERFORM PART CPY page.

```
PERFORM | Source | Part | [ENTER]
PART CPY ↓ USER: 01 | P 1 (User Perform) → P 1
```

Copy source Performance  
(group, number)

Copy source  
Performance name

Copy source Part

Copy destination Part

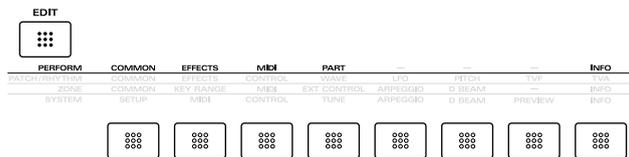
- Press the cursor buttons to move the cursor to the parameter you wish to set.
- Either rotate the VALUE dial or press [INC/+]/[DEC/-] to set the value.

### HINT

- To specify the currently selected Performance as the copy source, set Source to TEMP.
  - When the cursor is located at Source, you can also use [USER], [PRESET], [A], and [B] to select a Performance group, and then use numeric keys to specify the Performance number.
  - When the cursor is located at Part, you can also use [1-8/9-16] and ZONE/PART SELECT [1/9]–[8/16] to select the Part.
- Press [ENTER] to execute the Copy operation. When the Copy operation is executed, an \* symbol will be displayed in front of the copy-destination Part.
  - Press [UTILITY] to return to the previous page.

## Functions of Performance Parameters

This section explains the functions the different Performance parameters have, as well as the composition of these parameters.



### Settings Common to the Entire Performance (COMMON)

Common settings include those used for naming Performances, Key Range, and so on.

#### PERFORM NAME (Performance Name)

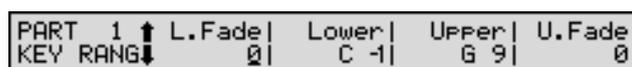


You can assign a name to the Performance of up to 12 characters.



For details on assigning names, refer to “Assigning a Name” (p. 28).

#### KEY RANG (Key Range)



Set the keyboard range in which each Part will sound. Use this when you wish to play different Patches in different areas of the keyboard.

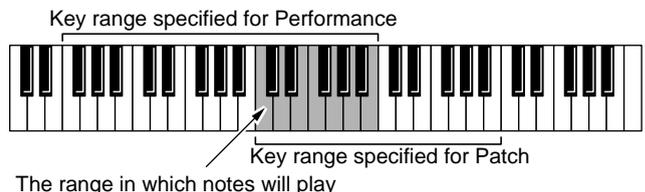
##### Lower (Key Range Lower)

##### Upper (Key Range Upper)

Specify the lower (Lower) and upper (Upper) limits in which each Part will sound.

#### NOTE

When the Key Range (p. 73) is set for each individual Tone in a Patch, sounds are produced in the range where the Key Range of each Tone and the Key Range for the Part overlap.



The range in which notes will play

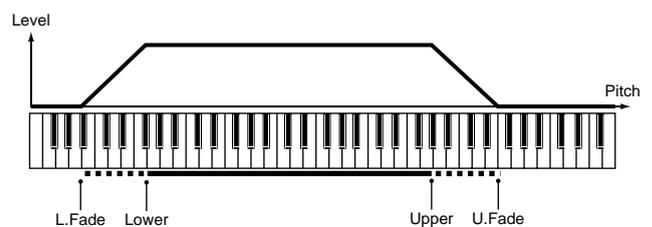
#### NOTE

If you attempt to raise the lower key higher than the upper key, or to lower the upper key below the lower key, the other value will be automatically modified to the same setting.

#### L.Fade (Key Fade Width Lower)

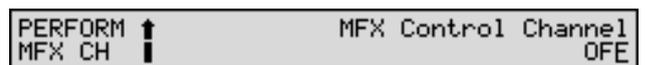
#### U.Fade (Key Fade Width Upper)

L.Fade and U.Fade set the range within which the volume gradually fades as the velocity approaches the limits of the Key Range set in the Lower and Upper parameters. Use this setting when, for example, you want to have adjacent Parts in Split mode switched smoothly. The higher the values set, the smoother the switch is between the Tones. When you want the Tones to be switched instantly, set these to 0.



#### PERFORM MFX CH

#### (Performance MFX Channel)



#### MFX Control Channel

#### (Multi-effects Control Channel)

This determines the channel that will be used for reception when using the Multi-effects Controller to modify multi-effects parameters in real time, when the multi-effects Source parameter (PERFORM/EFFECTS/MFX TYPE) (p. 114) is set to PERFORM.



For details on the Multi-effects Controller, refer to (p. 115).

### Setting Effects for a Performance (EFFECTS)



For details regarding effect settings, refer to the pages shown below.

- “Applying Effects in Performance Mode” (p. 111)
- “Making Multi-Effects Settings” (p. 114)
- “Making Chorus Settings” (p. 156)
- “Making Reverb Settings” (p. 158)

### Making Settings for Receiving MIDI (MIDI)

These parameters determine how each Part will transmit and receive MIDI messages.

#### MIDI

PART	1	Channel	Rx Sw	Mute Sw
MIDI	↓	1	ON	OFF

#### Channel (MIDI Receive Channel)

Sets the MIDI receive channel for each Part.



If this is set to the same channel as the Control Channel parameter (SYSTEM/MIDI/PERFORM MIDI), attempting to use MIDI messages (Program Change and Bank Select) from an external device to select Patches will select Performances instead. If you want to select Patches, change the Control Channel parameter to a different setting (p. 169).

#### Rx Sw (Receive Switch)

Specifies whether each Part will receive MIDI messages (ON), or not (OFF) from external MIDI devices.

When set to OFF, the Part will respond to the keyboard, but not to the external MIDI devices. Normally, you should leave this ON, but you can turn it OFF when you do not want a specific Part to be playing during song playback.



You can also set the Rx Sw parameter on the PERFORM PLAY page. Hold down [SHIFT] and press ZONE/PART SELECT [1/9]–[8/16]; Rx Sw is on when the indicator is lit, and off when the indicator is extinguished. When the [1-8/9-16] indicator is extinguished, Parts 1–8 are switched on and off, and when the [1-8/9-16] indicator is lit, Parts 9–16 are switched on and off (p. 38).

#### Mute Sw (Mute Switch)

Mute Sw temporarily mutes (MUTE) or releases the mute (OFF) for the performance of each Part.

Use this setting when, for example, you want to use the instrument for karaoke by muting the Part playing the melody, or when you want to play something using a separate sound module.



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.

#### RxSWITCH (Receive Switch)

CH 1	↑	Bank Select	Program Change
RxSWITCH	↓	ON	ON

CH 1	↑	Vol	Pan	Exp	Hld	Bnd	Mod	Caf	Paf
RxSWITCH	↓	ON							

RxSWITCH determines whether MIDI messages for the following parameters in each MIDI channel are received (ON), or not received (OFF).

#### Bank Select (Receive Bank Select Switch)

#### Program Change (Receive Program Change Switch)

#### Vol (Receive Volume Switch)

#### Pan (Receive Pan Switch)

#### Exp (Receive Expression Switch)

#### Hld (Receive Hold 1 Switch)

#### Bnd (Receive Pitch Bend Switch)

#### Mod (Receive Modulation Switch)

#### Caf (Receive Channel Aftertouch Switch)

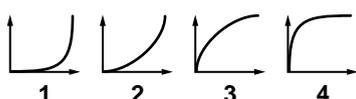
#### Paf (Receive Polyphonic Aftertouch Switch)

## VELO CRV (Velocity Curve)

CH 1	↑	Velocity Curve	Phase Lock
VELO CRV	↓	OFF	OFF

### Velocity Curve

Velocity Curve selects for each MIDI channel one of the four following Velocity Curve types that best matches the touch of the connected MIDI keyboard. Set this to OFF if you are using the MIDI keyboard's own velocity curve.



### Phase Lock (Phase Lock Switch)

Set Phase Lock to ON when you want to suppress discrepancies in timing of Parts played on the same MIDI channel, or to OFF when you want to leave the expression timing unchanged.

#### NOTE

When the Phase Lock parameter is set to ON, Parts on the same MIDI channel are put in a condition in which their timing is matched, enabling them to be played at the same time. Accordingly, a certain amount of time may elapse between reception of the Note messages and playing of the sounds. Turn this setting to ON only as needed.

## Making Settings for Each Part (PART)

Here you can select the Patch/Rhythm Set assigned to each Part, and set the volume, pan, pitch, and polyphony of each Part.

### PATCH

PART 1	↑	Type	Group	Number
PATCH	↓	PAI	PR-A	001(128voicePno )

#### Type (Part Type)

Sets the assignment of a Patch (PAT) or Rhythm Set (RHY) to each of the Parts.

#### Group (Patch/Rhythm Set Group)

Selects the group to which the desired Patch or Rhythm Set belongs.

**USER:** User

**CD-A-H:** Memory card A-H

**PR-A-F, GM:** Preset A-F, GM

### XP-A-D: Wave Expansion Board A-D

#### NOTE

- Patches/Rhythm Sets of CD-A-H cannot be accessed unless a memory card (SmartMedia) is inserted into the MEMORY CARD slot.
- XP-A, B Patches/Rhythm Sets can be selected only if a Wave Expansion Board (SR-JV80 Series) is installed in the corresponding slot.
- XP-C, D Patches/Rhythm Sets can be selected only if a Wave Expansion Board (SRX Series) is installed in the corresponding slot.

### Number (Patch/Rhythm Set Number)

Selects the desired Patch or Rhythm Set by its number. The name of the selected Patch/Rhythm Set appears in parentheses.

### SETTING

PART 1	↑	Level	Pan	Voice Reserve
SETTING	↓	100	0 (Rest= 64)	0

#### Level (Part Level)

Adjusts the volume of an individual Part. This setting's main purpose is to adjust the volume balance between Parts.

#### Pan (Part Pan)

Adjusts the pan of each Part. L64 is far left, 0 is center, and 63R is far right.

#### NOTE

When the Pan is set for each Patch or Rhythm Set, this Pan setting moves the position only in reference to those settings values made in the respective Patch or Rhythm Set.

#### Voice Reserve

This setting specifies the number of voices that will be reserved for each Part when more than 128 voices are played simultaneously.

#### NOTE

It is not possible for the settings of all Parts to total an amount greater than 64. The remaining number of available voices will be displayed at (rest= ). Pay attention to this readout as you make set the Voice Reserve parameter.

### Calculating the Number of Voices Being Used

The XV-88 is able to play up to 128 notes simultaneously. The polyphony, or the number of voices (sounds) does not refer only to the number of sounds actually being played, but changes according to the number of tones used in the Patches, and the number of Waves used in the tones. The following method is used to calculate the number of sounds used for one Patch being played.

(Number of Sounds Being Played) x (Number of Tones Used by Patches Being Played) x (Number of Waves Used in the Tones)

## MODIFY

PART	1	↑	Cut	Res	Atk	Rel	Velocity Sens
MODIFY		↓	0	0	0	0	0

### Cut (Part Cutoff Frequency Offset)

Adjusts the cutoff frequency for the Patch or Rhythm Set assigned to a Part.

#### NOTE

Patches also have a Cutoff Frequency Offset setting (p. 71). The final Cutoff frequency value is the sum of the Tone Cutoff Frequency value and the Patch and Part Cutoff Frequency Offset values. If the Tone's cutoff frequency is already set to 127 (maximum), there will be no change produced by setting the Cutoff Frequency Offset to a positive value.

### Res (Part Resonance Offset)

Adjusts the Resonance for the Patch or Rhythm Set assigned to a Part.

#### NOTE

Patches also have a Resonance Offset setting (p. 71). The final Resonance value is the sum of the Tone Resonance value and the Patch and Part Resonance Offset values. If the Tone's resonance is already set to 127 (maximum), there will be no change produced by setting the resonance offset to a positive value.

### Atk (Part Attack Time Offset)

Adjusts the TVA Envelope Attack Time for the Patch or Rhythm Set assigned to a Part.

#### NOTE

Patches also contain the Attack Time Offset setting (p. 71). The final TVA Envelope attack time value is therefore the sum of the Tone's TVA Envelope T1 setting, the Patch's Attack Time Offset, and the Part's Attack Time Offset. If the Tone's T1 parameter is already set to 127 (maximum), there will be no change produced by setting the Attack Time Offset to a positive value.

### Rel (Part Release Time Offset)

Adjusts the TVA Envelope Release Time for the Patch or Rhythm Set assigned to a Part.

#### NOTE

Patches also contain a Release Time Offset setting (p. 72). The final TVA Envelope release time value is therefore the sum of the Tone's TVA Envelope T4 setting, the Patch's Release Time Offset, and the Part's Release Time Offset. If the tone's T4 parameter is set to 127 (maximum), there will be no change in the Release Time Offset, even when this is set to a positive value.

### Velocity Sens (Part velocity Sensitivity Offset)

This changes the volume and cutoff frequency for each part according to the velocity with which the keys are pressed. If you want strongly played notes to raise the volume/cutoff frequency, set this parameter to positive (+) settings. If you want strongly played notes to lower the volume/cutoff frequency, use negative (-) settings. Set Velocity Sensitivity to 0 when you want sounds played at a fixed volume and cutoff frequency, regardless of the force with which the keys are played.

#### NOTE

Patches also contain a Velocity Sensitivity Offset setting (p. 72). The ultimate Velocity Sensitivity Offset value is the sum of the part's and the Patch's Velocity Sensitivity Offsets. Accordingly, if the Patch's Velocity Sensitivity Offset T1 parameter is set to 127 (maximum), there will be no change in the part's Velocity Sensitivity Offset, even when this is set to a positive value.

## PITCH

PART	1	↑	Octave	Coarse	Fine	BendRng
PITCH		↓	0	0	0	PATCH

### Octave (Part Octave Shift)

Adjusts the pitch of the Part's sound up or down in units of an octave (+/-3 octaves).

**Coarse (Part Coarse Tune)**

Adjusts the pitch of the Part's sound up or down in semitone steps (+/-4 octaves).

**Fine (Part Fine Tune)**

Adjusts the pitch of the Part's sound up or down in 1-cent steps (+/-50 cents).

**MEMO**

One cent is 1/100th of a semitone.

**Coarse Tune and Octave Shift**

The Coarse and Fine parameters, along with the Octave parameter, can all be seen as doing the same thing to the sound, i.e., changing the pitch of the sound. For example, if C4 (Middle C) is played with the Coarse parameter set to +12, the note produced is C5 (one octave above C4). However, if C4 (Middle C) is played with the Octave parameter set to +1, again, the note produced is C5 (one octave above C4).

However, internally these function very differently. When the Coarse parameter is set to +12, the pitch itself is raised one octave. On the other hand, when the Octave parameter is set to +1, it is the same as pressing the keys one octave up. In other words, use the Coarse parameter when changing the pitch, and the Octave parameter when you want to shift the entire keyboard, for example, when the number of keys is insufficient.

**NOTE**

Note that when a Rhythm Set is assigned to a Part, if the Octave parameter is set, the Rhythm Tone that is played also changes.

**BendRng (Bend Range)**

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. When using the setting of the Patch assigned to each Part (p. 78), set this to PATCH.

**MONO/POL (Mono/Poly)**

PART	1	↑Mno/Pol	Legato	Portament Sw:Tm
MONO/POL	↓	PATCH	PATCH	PATCH:PATCH

**Mno/Pol (Part Mono/Poly)**

Set Mno/Pol to MONO when the Patch assigned to the Part is to be played monophonically, or to POLY when the Patch is to be played polyphonically. When using the setting of the Patch assigned to each Part (p. 76), set this to PATCH.

**NOTE**

For the Part to which the Rhythm Set is assigned, this setting is ignored.

**Legato (Part Legato Switch)**

You can add legato when performing monophonically. Legato is a playing style in which the spaces between notes are smoothed, creating a flowing feel with no borders between the notes. This allows you to simulate the hammering-on and pulling-off playing techniques of a guitarist.

Turn this parameter ON when you want to use the Legato feature and OFF when you don't. When using the setting of the Patch assigned to each Part (p. 76), set this to PATCH.

**NOTE**

For the Part to which the Rhythm Set is assigned, this setting is ignored.

**Portament Sw:Tm (Part Portamento Switch:Time)**

Portamento makes a smooth pitch transition from one note to the next note played. Also, when playing monophonically, you can apply portamento to simulate the slide performance technique sometimes used on instruments such as violin.

You can determine whether the Portamento effect will be applied or not using Portamento switch (Sw). Turn this parameter ON when you want to apply Portamento and OFF when you don't. When using the setting of the Patch assigned to each Part (p. 76), set this to PATCH.

The Portamento Time (Tm) setting adjusts the time over which the pitch will change. Higher settings will cause the pitch change to the next note to take more time. When using the setting of the Patch assigned to each Part (p. 76), set this to PATCH.

**NOTE**

For the Part to which the Rhythm Set is assigned, this setting is ignored.

## Confirming MIDI Information for Each Part (INFO)

### INFO (Part Information)

PART	1	Mod	Breath	Foot	Vol	Pan	Exp
INFO	↓	0	0	0	100	0	127

PART	1	Hld	Bnd	Aft	Sy1	Sy2	Sy3	Sy4	Vo
INFO	↑	0	0	0	0	0	0	0	0

The displays allow you to check various settings such as MIDI message reception status for each Part. This is convenient when you need to check that the sound generator is responding correctly to messages from the keyboard or external MIDI controller.

### Mod (Modulation Information)

### Breath (Breath Information)

### Foot (Foot Information)

### Vol (Volume Information)

### Pan (Pan Information)

### Exp (Expression Information)

### Hld (Hold 1 Information)

### Bnd (Pitch Bend Information)

### Aft (Aftertouch Information)

### Sy1-4 (System Control 1-4 Information)

The MIDI message specified as the Control 1-4 parameter (SYSTEM/CONTROL/SYS CTRL ASSIGN 1, 2)

### Vo (Voice Information)

The number of voices used

#### MEMO

When a value (except Vo) is changed in the INFO page, a MIDI message for the changed value is sent to the internal sound generator and the external MIDI device over the MIDI channel set for that Part.

## Changing the Settings of the Patch/Rhythm Set Assigned to a Part

When using Patches in Performance mode, some settings such as effects settings will be affected by Performance settings. If you wish to edit a Patch/Rhythm Set while hearing how it will sound in the Performance, use this procedure:

\* Here we explain how to change the setting of a Patch assigned to a Part. The procedure for changing the settings of Rhythm Sets is the same. Substitute "Rhythm Set" wherever "Patch" appears in a sentence.

1. Make sure the PERFORM PLAY page is displayed.
2. While holding down [PERFORM], press [PATCH]. Both button indicators will light. This will call up the PLAY page of the Patch assigned to the currently selected Part.

PART	PR-A:001	128voicePno	part= 1
PLAY		tone=-2--	kbd=C 4

3. Press ◀ or ▶ to select the Part to which the selected Patch is assigned.
4. The following steps are the same as when you modify a Patch in Patch mode.
5. When you finish making settings, press [EXIT] to call up the Play page of the Patch assigned to the Part. An asterisk \* will be displayed at the left of the Patch group. This indicates the Patch settings have been modified.

#### NOTE

If you select another Patch or Performance in the group with an asterisk \*, the modified Patch settings will be lost. To keep these modified settings, perform the save operation (p. 164).

6. To return to the PERFORM PLAY page, press [PERFORM] or [EXIT].

# Chapter 4. Zone Settings

Pressing [ZONE] while in Performance mode switches you to **Zone mode**. In Zone mode, you can make settings affecting the way the sound module plays sounds in response to Performances played on the keyboard, the way MIDI messages are sent, the Arpeggiator and D Beam functions, and more.

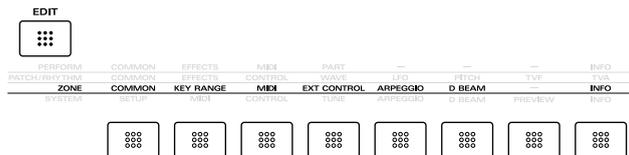
## NOTE

You cannot switch to Zone mode from any mode other than Performance mode.

This section explains the procedures for making Zone settings and describes the functions of the different Zone parameters.

## How to Make the Zone Settings

1. Press [PERFORM] to display the PERFORM PLAY page, and select the Performance with Zone settings you want to change (p. 35).
2. Press [ZONE] to make the indicator light.  
The [EDIT] indicator lights simultaneously, and the XV-88 is put into Zone mode. If the [EDIT] indicator is not lit, press [EDIT] to get the indicator to light.
3. Use the function buttons to select a display group.  
The indicator for the button of the selected display group begins blinking.



4. Use ▲ or ▼ to select a display page.
5. If you have selected a parameter display that can be set independently for each Zone, the number of the Zone selected for editing will be shown in the upper left of the display. To edit a different Zone, press [EDIT] to temporarily turn off the indicator, and use ZONE/PART SELECT [1/9]–[8/16] to select a Zone. When the [1-8/9-16] indicator is extinguished, Zones 1–8 are selected, and when the [1-8/9-16] indicator is lit, Zones 9–16 are selected.



6. Use ◀ or ▶ to move the cursor to the parameter you wish to modify.

7. Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to modify the parameter value.

## HINT

If you've made a mistake in setting a parameter value, press [UNDO/COMPARE] to restore the value to what it was.

8. If you wish to move to another display group, press [EDIT] to make the indicator light, and use the function buttons.

## HINT

You can also move to another display group by holding down [SHIFT] and using ▲ or ▼. Since this can be done even when the [EDIT] indicator is dark, it is a faster way to get around because you don't have to turn on the [EDIT] indicator each time.

9. Repeat steps 3–8 to make settings for the Zone.
10. When you finish making settings, press [EXIT] or [PERFORM] to return to the PERFORM PLAY page.  
An asterisk \* appears at the left of the Performance group on the display. This shows Performance settings have been modified.



## MEMO

Zone settings can be saved individually for each Performance, as part of the Performance settings.

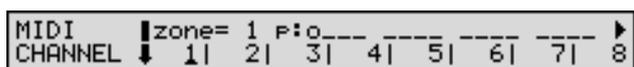
## NOTE

If you select another Performance in the group with an asterisk \*, the modified Zone settings will be lost. To keep these modified settings, perform the save operation (p. 164).

## Making Settings While Comparing Zones (Palette Edit)

When modifying Zone settings for a Performance, the values for eight Zones (Zone 1–8 or Zone 9–16) will be displayed together on a single display. This is called the **Palette page**. This is useful when you wish to change parameter values while comparing each Zone settings.

1. When editing parameters that can be set individually in each Zone, press ▲ or ▼ to move the cursor to the parameter to be edited.
2. Press [PALETTE EDIT] to call up the Palette page.



3. Press ▲ or ▼ to choose the Zone to modify.  
When the Zone number is displayed, and that Zone's Local Switch is set to ON, you can check which Parts are linked. Parts 1–16 are shown in order from left to right, and Parts for which the Zone's MIDI transmit channel and the Part's MIDI receive channel are matched are indicated by a ○ for the Part.

### HINT

To switch between the palette page for Zones 1–8 and the palette page for Zones 9–16, press [1-8/9-16].

4. Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to change the parameter value.

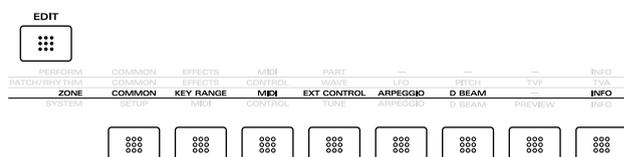
### HINT

If you've made a mistake in setting the parameter value, press [UNDO/COMPARE] to restore the value to what it was.

5. If you wish to edit other parameters, press ▲ or ▼ to select the parameter that you wish to edit.
6. Repeat steps 3–5 to make the settings for the Zone.
7. To exit the Palette page, press [PALETTE EDIT], thus extinguishing the button's indicator.

## Functions of Zone Parameters

This section explains the functions the different Zone parameters have, as well as the composition of these parameters.



## Settings Common to the Entire Zone (COMMON)

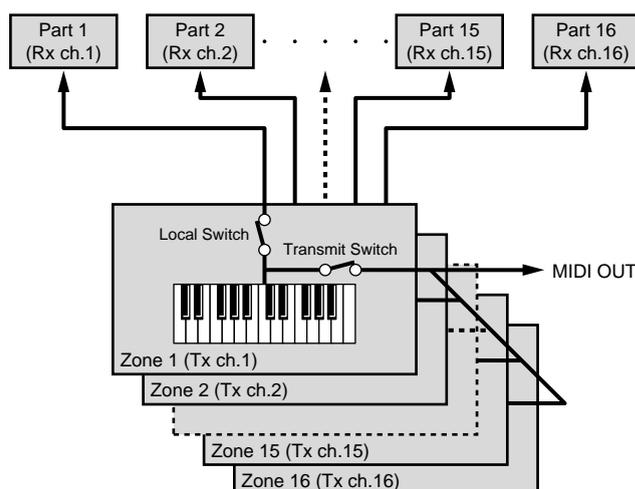
### ZONE COMMON



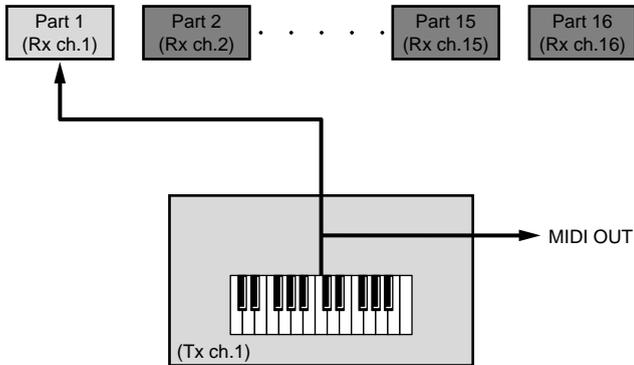
### Key Mode

The Key Mode determines how the XV-88 will sound when its keyboard is played.

**LAYER:** When the keys are pressed, all Zones whose Local switches (Local parameter) are set to ON and the sounds for the linked (where the MIDI channels coincide) Parts are played. Transmission of MIDI messages from the keyboard controller section to external MIDI devices will be determined by the Transmit switch (Tx parameter) setting of each Zone.



**SINGLE:** When the keys are pressed, the single specified Part (current Part) are played. Zone settings are ignored. Transmission of MIDI messages from the keyboard controller section to external MIDI devices will be determined by the Receive switch (Rx Sw parameter) setting for the current Part



**MEMO**

If you have selected a LAYER-type Performance, the upper right of the PERFORM PLAY page will indicate "LAYER p\*" (\* is the Part number). If you have selected a SINGLE-type Performance, "part=\*" (\* is the Part number) will be displayed.

**HINT**

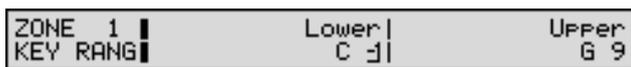
You can also set the Key Mode parameter on the PERFORM PLAY page. By holding down [SHIFT] and pressing [SOLO], you can switch between SINGLE and LAYER.

### Setting the Keyboard Range (KEY RANGE)

**NOTE**

When a Single Performance is selected, this setting is disabled.

#### KEY RANG (Key Range)



These parameters set the key range that will be transmitted from the keyboard for each Zone. Use this when you wish to play different Patches in different areas of the keyboard.

#### Lower (Key Range Lower)

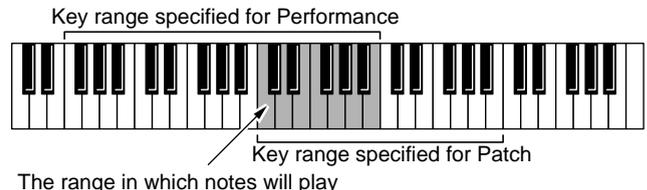
Specify the lower limit of the range.

#### Upper (Key Range Upper)

Specify the upper limit of the range.

**NOTE**

When the Key Range (p. 73) is set for each individual Tone in a Patch, sounds are produced in the range where the Key Range of each Tone and the Key Range for the Zone overlap.



**NOTE**

If you attempt to raise the lower key higher than the upper key, or to lower the upper key below the lower key, the other value will be automatically modified to the same setting.

### Making Settings for Transmitting MIDI (MIDI)

These parameters determine how each Zone will transmit MIDI messages.

**NOTE**

When a Single Performance is selected, this setting is disabled.

#### MIDI



#### Channel (MIDI Transmit Channel)

Specifies the MIDI transmit channel for each Zone.

#### Tx (Transmit Switch)

Determines, for each Zone, whether or not data generated by the keyboard controller section is sent as MIDI messages from the MIDI OUT connector.

Normally you will leave this ON, but you can turn it OFF when you do not want the XV-88 to control external sound generators.

## HINT

You can also set the transmit switch settings on the PERFORM PLAY page. When the [EDIT] indicator is extinguished and the [LOCAL/TX] indicator is lit, press ZONE/PART SELECT [1/9]–[8/16] to make settings. A Layer Performance is on when the indicator is lit, and off when the indicator is extinguished. When the [1-8/9-16] indicator is extinguished, Zones 1–8 are switched on and off, and when the [1-8/9-16] indicator is lit, Zones 9–16 are switched on and off.

### Local (Local Switch)

Specifies, for each Zone, whether or not the keyboard controller section will be connected to the internal sound generator.

Normally you will leave this ON, but you can turn it OFF when you want to use the XV-88 only to control an external sound generator.

## HINT

You can also set the Local switch setting on the PERFORM PLAY page. When the [EDIT] indicator and the [LOCAL/TX] indicator is extinguished, press ZONE/PART SELECT [1/9]–[8/16] to make settings. A Layer Performance is on when the indicator is lit, and off when the indicator is extinguished. When the [1-8/9-16] indicator is extinguished, Zones 1–8 are switched on and off, and when the [1-8/9-16] indicator is lit, Zones 9–16 are switched on and off.

## Controlling External Sound Module (EXT CONTROL)

### NOTE

When a Single Performance is selected, this setting is disabled.

### EXT P.C (External Program Change)

ZONE 1	P.C#	Bank Select MSB/LSB
EXT P.C	NO-SEND	(-----) ---/---

When switching Performances, send MIDI messages (Program Change/Bank Select) to each Zone to switch the Tones corresponding to the external sound module.

After setting each value, you can transmit it by pressing [ENTER].

### NOTE

The data of the Zone for which the Transmit switch is turned off will not be transmitted.

### P.C# (External Program Change Number)

Selects the Program Change number you wish to transmit. If you do not want this message to be transmitted, set this to NO-SEND.

### Bank Select MSB/LSB (External Bank Select MSB/LSB)

Selects the Bank Select number MSB (Controller number 0) and LSB (Controller number 32) you want to transmit.

### MEMO

Information on the XV-88 Tone Group/Bank corresponding to the Bank Select message sent is displayed in parentheses.

### EXT CTRL (External Control)

ZONE 1	Volume	Pan
EXT CTRL	NO-SEND	NO-SEND

### Volume (External Volume)

If you want Volume messages to also be transmitted when you select a Performance, specify the desired value (0–127) for the Zone. Turn this parameter NO-SEND if you do not want this data to be transmitted.

### NOTE

The data of the Zone for which the Transmit switch is turned off will not be transmitted.

### Pan (External Pan)

If you want Pan messages to also be transmitted when you select a Performance, specify the desired value (0–127) for the Zone. Turn this parameter NO-SEND if you do not want this data to be transmitted.

### NOTE

The data of the Zone for which the Transmit switch is turned off will not be transmitted.

## Arpeggiator Settings (ARPEGGIO)

This is where the settings used in performing arpeggios in Performance mode are made.

### MEMO

When arpeggios are performed in Patch/Rhythm Set/GM mode, the arpeggio settings are made in System mode (p. 174).

### ARPEGGIO

ARPEGGIO ↓	Style	Octave Range
↓	LATIN PERCUSSION	0

ARPEGGIO ↑	Motif	Beat Pattern
↓	SINGLE UP&DOWN	AGOGO

ARPEGGIO ↑	Accent Rate	Shuffle Rate
↓	100%	50%

ARPEGGIO ↑	Key Velocity	Zone	Tempo(=SYS)
↓	REAL	1	120

### Style (Arpeggio Style)

Specifies the basic way in which the arpeggio will be played. Select one of the following 45 types.

- 1/4:** The rhythm will be divided in quarter notes.
- 1/6:** The rhythm will be divided in quarter note triplets.
- 1/8:** The rhythm will be divided in eighth notes.
- 1/12:** The rhythm will be divided in eighth note triplets.
- 1/16:** The rhythm will be divided in 16th notes.
- 1/32:** The rhythm will be divided in 32nd notes.
- PORTAMENTO A, B:** A style using the portamento effect.
- GLISSANDO:** A glissando style.
- SEQUENCE A–D:** Styles for sequenced patterns.
- ECHO:** An echo-like style.
- SYNTH BASS, HEAVY SLAP, LIGHT SLAP, WALK BASS:** Styles appropriate for bass playing.
- RHYTHM GTR 1–5:** Styles for rhythm guitar. Styles 2–5 are effective when 3–4 notes are held.
- 3 FINGER:** Three-finger guitar style.
- STRUM GTR UP, STRUM GTR DOWN, STRUM GTR UP&DW:** Guitar chords strummed both up and down. Effective when five or six notes are held.
- PIANO BACKING, CLAVI CHORD:** Styles for keyboard instrument backing.
- WALTZ, SWING WALTZ:** Styles in triple meter.
- REGGAE:** A reggae-type style. Effective when three notes are held.
- PERCUSSION:** A style suitable for percussive instrument.

**HARP:** A style simulating harp playing.

**SHAMISEN:** The playing style of a Shamisen.

**BOUND BALL:** A style suggestive of a bouncing ball.

**RANDOM:** A style in which the notes sound in random order.

**BOSSA NOVA:** A style with bossanova rhythm guitar. Hold 3–4 notes for best results. You can increase the tempo and use this as a Samba.

**SALSA:** Typical salsa style. Hold 3–4 notes for best results.

**MAMBO:** Typical mambo style. Hold 3–4 notes for best results.

**LATIN PERCUSSION:** A rhythm style with Latin percussion instruments such as Clave, Cowbell, Clap, Bongo, Conga, Agogo etc.

**SAMBA:** Typical samba style. Use for rhythm patterns or bass lines.

**TANGO:** Typical tango rhythm style. Hold the root, 3rd and 5th of a triad etc. for best results.

**HOUSE:** A style for house piano backing. Hold 3–4 notes for best results.

**LIMITLESS:** The settings of all parameters can be freely combined without restriction.



Choices can be set for the Motif, Beat Pattern, Shuffle Rate and Accent Rate parameters for each style. Refer to the “Arpeggio Style List” (p. 268).

### Octave Range

Sets the key range in octaves over which arpeggio will take place. If you want the arpeggio to sound using only the notes that you actually play, set this parameter to 0. To have the arpeggio sound using the notes you play and notes 1 octave higher, set this parameter to +1. A setting of -1 will make the arpeggio sound using the notes you play and notes 1 octave lower.

## Chapter 4. Zone Settings

### Motif

Sets the order in which notes of the chord will sound.

#### NOTE

Some settings will not be available depending on the Style parameter setting. For details on the possible values, refer to “Arpeggio Style List” (p. 268).

**SINGLE UP:** Notes you press will be sounded individually, beginning from low to high.

**SINGLE DOWN:** Notes you press will be sounded individually, from high to low.

**SINGLE UP&DOWN:** Notes you press will be sounded individually, from low to high, and then back down from high to low.

**SINGLE RANDOM:** Notes you press will be sounded individually, in random order.

**DUAL UP:** Notes you press will be sounded two at a time, beginning from low to high.

**DUAL DOWN:** Notes you press will be sounded two at a time, beginning from high to low.

**DUAL UP&DOWN:** Notes you press will be sounded two at a time, from low to high, and then back down from high to low.

**DUAL RANDOM:** Notes you press will be sounded two at a time, in random order.

**TRIPLE UP:** Notes you press will sound three at a time, from low to high.

**TRIPLE DOWN:** Notes you press will sound three at a time, from high to low.

**TRIPLE UP&DOWN:** Notes you press will sound three at a time, from low to high and then back down from high to low.

**TRIPLE RANDOM:** Notes you press will sound three at a time, in random order.

**NOTE ORDER:** Notes you press will be sounded in the order in which you pressed them. By pressing the notes in the appropriate order you can produce melody lines. Up to 128 notes will be remembered.

**GLISSANDO:** Each chromatic step between the highest and lowest notes you press will sound in succession, repeating upward and downward. Press only the lowest and the highest notes.

**CHORD:** All notes you press will sound simultaneously.

**BASS+CHORD 1–5:** The lowest of the notes you play will sound, and the remaining notes will sound as a chord.

**BASS+UP 1–8:** The lowest of the notes you play will sound, and the remaining notes will be arpeggiated.

**BASS+RND 1–3:** The lowest of the notes you play will sound, and the remaining notes will sound in random order.

**TOP+UP 1–6:** The highest of the notes you play will sound, and the remaining notes will be arpeggiated.

**BASS+UP+TOP:** The highest and the lowest of the notes you play will sound, and the remaining notes will be arpeggiated.

### Beat Pattern

Select the beat pattern from the choices below. This setting will affect the location of the accent and length of the notes to determine the beat (rhythm).

#### NOTE

Some settings will not be available depending on the Style parameter setting. For details on the possible values, refer to “Arpeggio Style List” (p. 268).

1/4, 1/6, 1/8, 1/12, 1/16 1–3, 1/32 1–3, PORTA-A 01–11, PORTA-B 01–15, SEQ-A 1–7, SEQ-B 1–5, SEQ-C 1, 2, SEQ-D 1–8, ECHO 1–3, MUTE 01–16, STRUM 1–8, REGGAE 1, 2, REFRAIN 1, 2, PERC 1–4, WALKBS, HARP, BOUND, RANDOM, BOSSA NOVA, SALSA 1–4, MAMBO 1–2, CLAVE, REV CLA, GUILO, AGOGO, SAMBA, TANGO 1–4, HOUSE 1, 2

#### HINT

If “PORTA-A 01–11, PORTA-B 01–15” is selected as the Beat Pattern, the Time parameter (PATCH/CONTROL/PATCH PORTAMNT) will control the speed of portamento (p. 76). Adjust the portamento time as appropriate for the playback tempo. (It is not necessary to turn portamento switch on.)

### Accent Rate

Modifies the strength of accents and the length of the notes to adjust the “groove” feel of the arpeggio. A 100% setting will result in the most pronounced “groove” feel.

### Shuffle Rate

This setting lets you modify the note timing to create shuffle rhythms.

With a setting of 50%, the notes will sound at equal spacing. As this value is increased, the notes will become more “bouncy,” as if they were dotted notes.



#### NOTE

If the Beat Pattern setting is 1/4, shuffle will not be applied even if you increase the Shuffle Rate setting.

## Key Velocity

Specifies the loudness of the notes that you play.

If you want the velocity value to change according to how strongly you played each note, set this to **REAL**. If you want each note to have a fixed velocity regardless of how strongly you play the keyboard, set this parameter to the desired value (1–127).

## Zone (Arpeggio Zone)

Arpeggio Zone sets the Zone for playing an Arpeggio performance when a Layer Performance is being selected. The Arpeggio performance corresponding to the Part connected to the Zone set here is played.

### NOTE

When a Single Performance is selected, this setting is disabled, and the single specified Part (current Part) will play arpeggios.

## Tempo (Arpeggio Tempo)

Sets the speed of the arpeggio.

When the Clock Source parameter (**SYSTEM/SETUP/**SYSTEM SETUP) is set to **INT**, the display will indicate Tempo(=SYS), and this will be the same value as the system tempo. With a setting of **MIDI**, the display will indicate Tempo(=EXT), and you will be synchronized to the clock of the external MIDI device.

## Setting the D Beam Controller (D BEAM)

This is where the settings are made for applying effects to the sound by moving your hand over the D Beam controller in Performance mode.

### MEMO

When using the D Beam controller in Patch/Rhythm Set/GM mode, the settings are made in System mode (p. 176).

## D BEAM CONTROL

D BEAM	Assign	Output	Polarity
CONTROL	↓CC02: BREATH	BOTH	STANDARD

### Assign (D Beam Assign)

Specifies the function controlled by the D Beam controller.

**CC01–31, 33–95**: Controller numbers 1–31, 33–95



For more information about Control Change messages, please refer to “**MIDI Implementation**” (p. 270).

**PITCH BEND**: Pitch Bend

**AFTERTOUC**: Aftertouch

**OCT UP**: Raises the key range in octave steps (up to 3 octaves higher).

**OCT DOWN**: Lowers the key range in octave steps (up to 3 octaves lower).

**START/STOP**: Starts/Stops the external sequencer.

**TAP TEMPO**: Tap tempo (a tempo specified by the interval at which you move your hand over the D Beam controller).

### Output (D Beam Output)

Selects the sound generator(s) (the internal sound generator and/or external sound generators connected to MIDI OUT connector) to be controlled by the D Beam controller.

**OFF**: Neither will be controlled.

**INT**: Only the internal sound generator will be controlled.

**MIDI**: Only external sound generators will be controlled.

**BOTH**: Both the internal sound generator and external sound generators will be controlled.

### Polarity (D Beam Polarity)

Switches the polarity of the D Beam controller.

With a setting of **REVERSE**, the direction of control for the D Beam controller will be inverted.

### D BEAM RANGE



#### Lower (D Beam Range Lower)

Specifies the lower limit of the range of the D Beam controller. Values below this setting will not be output.

#### Upper (D Beam Range Upper)

Specifies the upper limit of the range of the D Beam controller. Values above this setting will not be output.

#### NOTE

It is not possible to set the lower limit value above the upper limit, nor can you set the upper limit value below the lower limit.

### D BEAM SENS



#### D Beam Sensitivity

This sets the D Beam Controller's sensitivity. The higher the value set, the more readily the D Beam Controller goes into effect. Ordinarily, this is set to 5.

#### NOTE

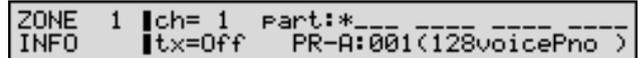
The D Beam Controller sensitivity is a System setting, and as such cannot be saved as a Performance setting.

### Confirming the Settings for Each Zone (INFO)

#### NOTE

When a Single Performance is selected, this information is disabled.

### INFO (Zone Information)



In this screen, you can check the following information for each Zone.

- **MIDI transmit channel (ch):** 1–16
- **Transmit switch status (tx):** On/Off
- **Part connection status (part):**

When the Local switch for the currently selected Zone is set to ON, you can check that Zone and the linked Part. Parts 1–16 are shown in order from left to right, and Parts for which the Zone's MIDI transmit channel and the Part's MIDI receive channel coincide are indicated by a **o** or a **\***. For Parts indicated by a **\***, you can check the group, number, and name of the Patch or Rhythm Set assigned to that Part in the lower part of the display.

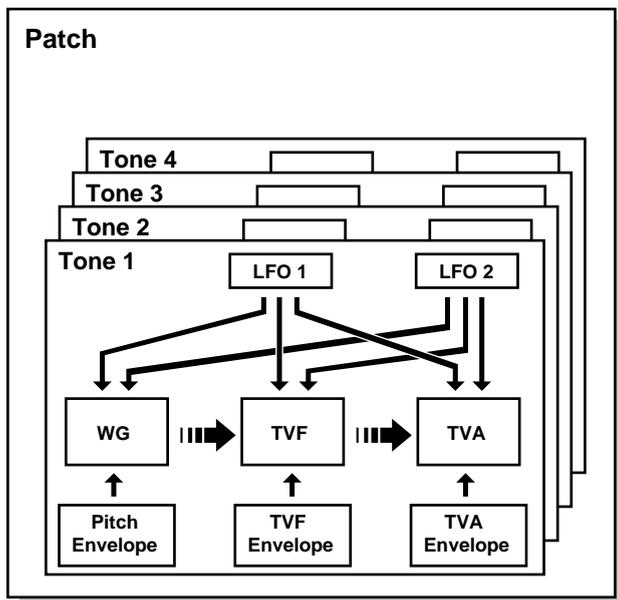
When linked to multiple Parts, by pressing **▲** or **▼**, you can move the **\*** and change the Part being checked.

# Chapter 5. Creating Patches

With the XV-88, you have total control over a wide variety of settings. Each item that can be set is known as a **parameter**. When you change the values of parameters, you are doing what is referred to as **Editing**. This chapter explains the procedures used in creating Patches, and the functions of the Patch parameters.

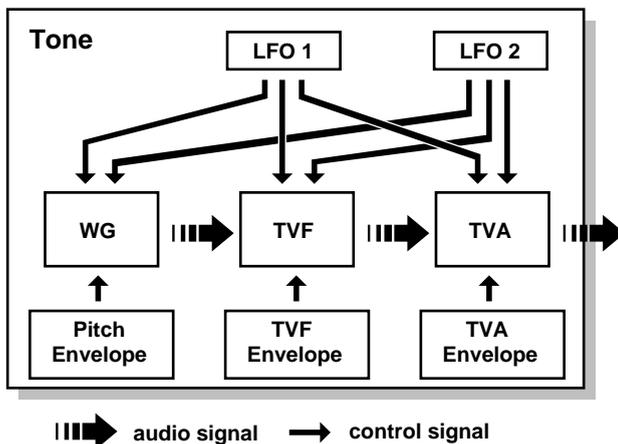
## How a Patch Is Organized

The type of sound most commonly played on the XV-88 is called a **Patch**. Each Patch can be configured by combining up to four **Tones**.



## How a Tone Is Organized

In the XV-88, the Tone is the smallest class of sound. However, it is not possible to play a Tone by itself. The Patch is the unit of sound which can be played, and the Tones are the basic building blocks which make up the Patch.



Tones consist of the following five components.

### WG (Wave Generator)

Specifies the PCM waveform (wave) that is the basis of the sound, and determines how the pitch of the sound will change.

The XV-88 has 1,083 different waveforms (p. 263). All Patches built into the XV-88 consist of combinations of Tones which are created based on these waveforms.

### TVF (Time Variant Filter)

Specifies how the frequency components of the sound will change.

### TVA (Time Variant Amplifier)

Specifies the volume changes and the sound's position in a stereo soundfield.

### Envelope

You use Envelope to initiate changes to occur to a sound over time. There are separate envelopes for Pitch, TVF (filter), and TVA (volume). For example if you wish to modify the way in which the sound attacks or decays over time, you would adjust the TVA envelope.

### LFO (Low Frequency Oscillator)

Use the LFO to create cyclic changes (modulation) in a sound. The XV-88 has two LFOs. Either one or both can be applied to effect the WG (pitch), TVF (filter) and/or TVA (volume). When an LFO is applied to the WG pitch, a vibrato effect is produced. When an LFO is applied to the TVF cutoff frequency, a wah effect is produced. When an LFO is applied to the TVA volume, a tremolo effect is produced.

## How to Make the Patch Settings

Start with an existing Patch and edit it to create a new Patch. Each Patch can contain up to four Tones. you should listen to how the individual Tones sound before you edit.

### Four Tips for Editing Patches

**Select a Patch that is similar to the sound you wish to create (p. 29).**

It's hard to create a new sound that's exactly what you want if you just select a Patch and modify its parameters at random. It makes sense to start with a Patch whose sound is related to what you have in mind.

**Decide which Tones will sound (p. 32, p. 81).**

When creating a Patch, it is important to decide which Tones you are going to use. For each Tone, use the TONE SWITCH [1]-[4] to decide whether to turn it on (have it sound) or off. It is also important to turn off unused Tones to avoid wasting voices, unnecessarily reducing the number of simultaneous notes you can play. A Tone switches on/off each time its respective button is pressed. When a Tone's indicator lights, it'll sound.

**Check the Structure setting (p. 73).**

The important Type parameter (PATCH/COMMON/STRUCT) determines how the four Tones combine. Before you select new Tones, make sure you understand how the currently selected Tones are affecting each other.

**Turn Effects off (p. 105).**

Since the XV-88 effects have such a profound impact on its sounds. Turn them off to listen to the sound itself so you can better evaluate the changes you're making. Since you will hear the original sound of the Patch itself when the effects are turned off, the results of your modifications will be easier to hear. Actually, sometimes just changing effects settings can give you the sound you want.

1. Press [PATCH] to access the PATCH PLAY page, and select the Patch whose settings you wish to modify (p. 29).

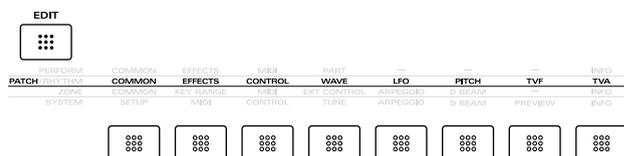


You cannot edit the Patches in the PR-H (GM2) group.



If you want to create all your Patches from the ground up, rather than the Patches that have already been prepared, carry out the **Initialize** operation (p. 185).

2. Press [EDIT] to make the indicator light.
3. Use the function buttons to select a display group. The indicator for the button of the selected display group begins blinking.



4. Use ▲ or ▼ to select a display page.
5. If you have selected a parameter display that can be set independently for each Tone, the number of the Tone selected for editing will be shown in the upper left of the display. To edit a different Tone, press [EDIT] to temporarily turn off the indicator, and use TONE SELECT [1]-[4] to select a Tone.



- For simultaneously modifying the same parameter for two or more Tones, hold down one of the TONE SELECT [1]-[4] buttons and press another TONE SELECT [1]-[4] button, then another if so desired. Tone numbers other than the first-specified one will be indicated by an \* symbol.
  - To switch Tones on/off, turn off the [EDIT] indicator and then press TONE SWITCH [1]-[4].
6. Use ◀ or ▶ to move the cursor to the parameter you wish to modify.
  7. Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to modify the parameter value. If you've selected two or more Tones, your editing will modify the parameter values for all selected Tones by the same amount.

**HINT**

If you've made a mistake in setting a parameter value, or you have second thoughts about the changes, press [UNDO/COMPARE] to restore the value to what it was.

- If you wish to move to another display group, press [EDIT] to make the indicator light, and use the function buttons.

**HINT**

You can also move to another display group by holding down [SHIFT] and using ◀ or ▶. Since this can be done even when the [EDIT] indicator is dark, it is a faster way to get around because you don't have to turn on the [EDIT] indicator each time.

- Repeat steps 3–8 to complete a Patch.
- When you finish making settings, press [EXIT] or [PATCH] to return to the PATCH PLAY page. An asterisk \* will be displayed at the left of the Patch group. This shows patch settings have been modified.

**NOTE**

If you select another Patch in the group with an asterisk \*, the modified Patch settings will be lost. To keep these modified settings, perform the save operation (p. 164).

```
PATCH PLAY *PR-A:001 128voicePno
tone=-2-- kbd=C 4
```

## Making Settings While Comparing Tones (Palette Edit)

When modifying Tone settings for a Patch, the values for four Tones will be displayed together on a single display. This is called the **Palette page**. Use it when you want to modify parameter values as you compare the settings of the four Tones.

- When modifying a Tone, use ◀ or ▶ to move the cursor to the parameter you wish to modify.
- Press [PALETTE EDIT] to call up the Palette page.

```
1--- TMT↑ L.Fade| Lower| Uppr| U.Fade
VEL RANG↓ 0| 1| 127| 0
```

PALETTE EDIT



```
VELOCITY↑tone=1 INT:0027(MKS-20 P3 C )
FADE L:U↓ 0: 0| 0: 0| 0: 0| 0: 0
```

- Press TONE SELECT [1]–[4], ◀ or ▶ to choose the Tone to modify. The button indicator for the selected Tone will light, and the Tone number and Wave name appear in the display.

**HINT**

For modifying the same parameter of two or more Tones simultaneously, hold down one of the TONE SELECT [1]–[4] buttons and press another.

- Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to change the parameter value. If you've selected two or more Tones, your editing will modify the parameter values for all selected Tones by the same amount. If you want to set all selected Tones to the same value, select the Tone having that value by pressing ◀ or ▶, and while holding down [SHIFT], press [ENTER].

**HINT**

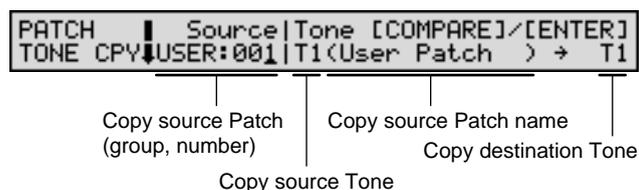
If you've made a mistake in setting a parameter value, or you have second thoughts about the changes, press [UNDO/COMPARE] to restore the value to what it was.

- If you wish to edit other parameters, press ▲ or ▼ to select the parameter that you wish to edit.
- Repeat steps 3–5 to complete a Patch.
- To exit the Palette page, press [PALETTE EDIT], thus extinguishing the button's indicator.

## Copying the Settings of Another Tone (Tone Copy)

Tone settings from any desired Patch can be copied to any desired Tone of the currently selected Patch. This function can help you save time.

1. Make sure that a Patch is selected.
2. Press [UTILITY], getting its indicator to start blinking.
3. Press the numeric key [2], then ▲ or ▼ to call up the PATCH TONE CPY page.



4. Press the cursor buttons to move the cursor to the parameter you wish to set.
5. Either rotate the VALUE dial or press [INC/+]/[DEC/-] to set the value.

### HINT

- To specify the currently selected Patch as the copy source, set Source to TEMP.
  - When the cursor is located at Source, you can also use [USER], [PRESET], and [A]–[F] to select a Patch group, and then use numeric keys to specify the Patch number.
  - By using TONE SWITCH [1]–[4], you can also select the copy source Tone. By using TONE SELECT [1]–[4], you can select the copy destination Tone.
6. Press [ENTER] to execute the Copy operation. When the Copy operation is executed, an \* symbol will be displayed in front of the copy-destination Tone.
  7. Press [UTILITY] to return to the previous page.

## Cautions When Selecting a Waveform

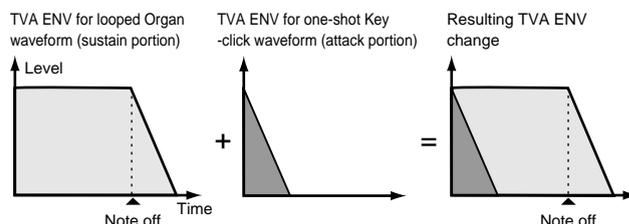
The sounds of the XV-88 are based on complex PCM waveforms, and if you attempt to make settings that are contrary to the type of the original waveform, the results will not be as you expect.

The XV-88'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 the sound. Some of the XV-88's one-shot waveforms are sounds that are complete in themselves, such as percussive instrument sounds. The XV-88 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. Loop waveforms repeatedly play back (loop) the portion of the waveform after the sound has reached a relatively steady state. The XV-88's looped waveforms also include components of other sounds, such as piano-string resonant vibrations and the hollow sounds of brass instruments.

The following diagram shows an example of sound (electric organ) that combines one-shot and looped waveforms.

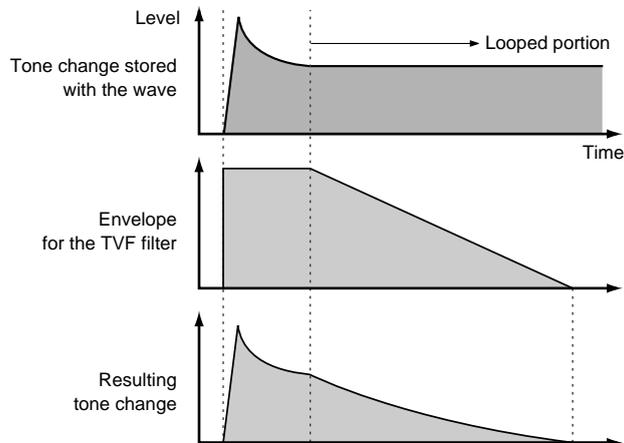


### Cautions When Using a One-shot Waveform

It is not possible to use the envelope to modify a one-shot waveform to create a decay that is longer than the original waveform, or to turn it into a sustaining sound. 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.

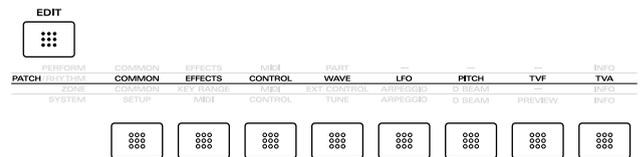
### Cautions When Using a Loop Waveform

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. For such waveforms, it is best to use the complex tonal changes of the attack portion of the waveform just as they are, and to use the envelope only to modify the decay portion. If you attempt to use the envelope to modify the attack portion as well, the characteristics of the original waveform may prevent you from getting the sound that you intend.



## Functions of Patch Parameters

This section explains the functions the different Patch parameters have, as well as the composition of these parameters.



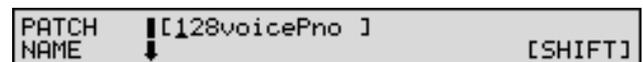
#### MEMO

Parameters marked with a ★ can be controlled using specified MIDI messages (Matrix Controller). Settings in the Matrix Control page will determine how these parameters are controlled (p. 78, p. 79).

### Settings Common to the Entire Patch (COMMON)

On this display you can assign a name to a Patch and set the volume and pan of the entire Patch.

#### PATCH NAME



You can assign a name of up to 12 characters to the Patch.



For details on assigning names, refer to "Assigning a Name" (p. 28).

#### PATCH CATEGORY



#### Category (Patch Category)

Specifies the type (category) of the Patch.

The Patch Finder function uses this setting. It also determines the phrase that will be sounded when using the Phrase Preview function.



For details on the possible category names, refer to (p. 31).

## PATCH LVL&PAN (Patch level & Pan)

PATCH	↑	Level	Pan	Analog Feel
LVL&PAN	↓	127	0	0

### Level (Patch Level)

Specifies the volume of the Patch.



You can specify the level of each Tone in a Patch using the Level parameter (PATCH/TVA/TVA) (p. 90).

### Pan (Patch Pan)

Specifies the pan of the Patch. A setting of L64 is far left, 0 is center, and 63R is far right.



You can specify the pan setting for each Tone using the Pan parameter (PATCH/TVA/TVA) (p. 90).

### Analog Feel (Analog Feel Depth)

Specifies the depth of 1/f modulation that is to be applied to the Patch. (1/f modulation is a pleasant and naturally-occurring ratio of modulation that occurs in a babbling brook or rustling wind.)

By adding this “1/f modulation,” you can simulate the natural instability characteristic of an analog synthesizer.

## PATCH OCT&TUNE (Patch Octave & Tune)

PATCH	↑	Octave	Coarse	Fine	Stretch
OCT&TUNE	↓	0	0	0	OFF

### Octave (Octave Shift)

Adjusts the pitch of the Patch’s sound up or down in units of an octave (+/-3 octaves).

### Coarse (Coarse Tune)

Adjusts the pitch of the Patch’s sound up or down in semitone steps (+/-4 octaves).



You can specify the coarse tune of each Tone using the Coarse parameter (PATCH/PITCH/PITCH) (p. 86).

### Fine (Fine Tune)

Adjusts the pitch of the Patch’s sound up or down in 1-cent steps (+/-50 cents).



One cent is 1/100th of a semitone.

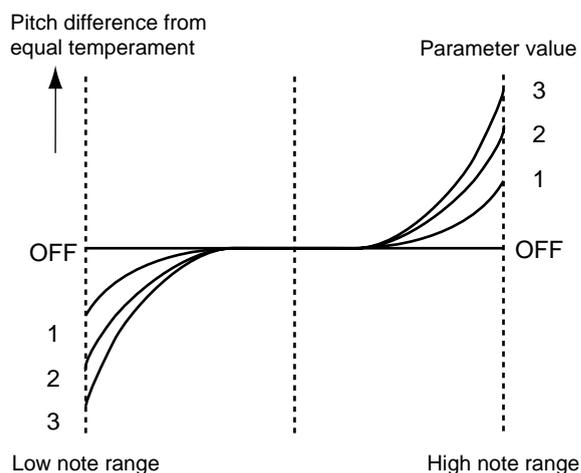


You can specify the fine tune of each Tone using the Fine parameter (PATCH/PITCH/PITCH) (p. 86).

## Stretch (Stretch Tuning Depth)

This setting allows you to apply “stretched tuning” to the Patch. (Stretched tuning is a system by which acoustic pianos are normally tuned, causing the lower range to be lower and the higher range to be higher than the mathematical tuning ratios would otherwise dictate.) With a setting of OFF, the Patch’s tuning will be equal temperament. A setting of 3 will produce the greatest difference in the pitch of the low and high ranges.

The diagram shows the pitch change relative to equal temperament that will occur in the low and high ranges. This setting will have a subtle effect on the way in which chords resonate.



## PATCH COMMON

PATCH	↑	Priority	Output Assign
COMMON	↓	LOUDEST	TONE

### Priority (Voice Priority)

This determines how notes will be managed when the XV-88’s maximum polyphony limit is exceeded (128 voices).

**LAST:** The last-played voices will be given priority, and currently sounding notes will be turned off in order, beginning with the first-played note.

**LOUDEST:** The voices with the loudest volume will be given priority, and currently sounding notes will be turned off, beginning with the lowest-volume voice.

### Output Assign

Specifies for each Patch how the direct sound will be output.

**MFx:** Output in stereo through Multi-Effects. You can also apply Chorus or Reverb to the sound that passes through Multi-effects.

**OUTPUT A:** Output to the OUTPUT A (MIX) jacks in stereo without passing through Multi-effects.

**OUTPUT B:** Output to the OUTPUT B (MIX) jacks in stereo without passing through Multi-effects.

**INDIV 1:** Output to the INDIVIDUAL 1 jack in mono without passing through Multi-effects.

**INDIV 2:** Output to the INDIVIDUAL 2 jack in mono without passing through Multi-effects.

**INDIV 3:** Output to the INDIVIDUAL 3 jack in mono without passing through Multi-effects.

**INDIV 4:** Output to the INDIVIDUAL 4 jack in mono without passing through Multi-effects.

**TONE:** Outputs according to the settings for each Tone.

#### NOTE

- When outputting in mono, the Pan setting is disabled.
- 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/SETUP/SYSTEM SETUP) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 169).

## PATCH TEMPO

PATCH	↑	Clock Source	Tempo
TEMPO	↓	PATCH	100

### Clock Source (Patch Clock Source)

The LFO cycle, Multi-effects changes, Phrase Loop, and Tone Delay time can be synchronized to a clock (tempo). When this is used by the Patch, this Clock Source setting determines the clock which will be used.

**PATCH:** Synchronize to the Patch Tempo setting.

**SYSTEM:** The global System Tempo or clock messages received from an external sequencer will be used.



For details on using clock (tempo), refer to (p. 200).

### Tempo (Patch Tempo)

When Clock Source (Patch Clock Source) is set to PATCH, this setting value is effective.

#### MEMO

The Patch Tempo Clock does not transmit clock messages from the MIDI OUT connector.

## PATCH MODIFY

PATCH	↑	Cut	Res	Atk	Rel	Velocity Sens
MODIFY	↓	0	0	0	0	0

### Cut (Cutoff Frequency Offset)

Cutoff Frequency Offset alters the cutoff frequency of the overall Patch, while preserving the relative differences between the cutoff frequency values set for each Tone in the Cutoff parameters (PATCH/TVF/TVF FILTER) (p. 88).

- \* **Cutoff Frequency:** the frequency at which the filter begins to have an effect on the waveform's frequency components.

#### NOTE

Since the values for the Cutoff parameters for each Tone are added to the values made in this setting, if the Cutoff parameters are set to 127 (maximum), then no further changes are made, even when a positive value is used for this setting.

### Res (Resonance Offset)

Resonance Offset alters the resonance of the overall Patch, while preserving the relative differences between the resonance values set for each Tone in the Resonance parameter (PATCH/TVF/TVF FILTER) (p. 88).

- \* **Resonance:** emphasizes the overtones in the region of the cutoff frequency, adding character to the sound.

#### NOTE

Since the values for the Resonance parameters for each Tone are added to the values made in this setting, if the Resonance parameters are set to 127 (maximum), then no further changes are made, even when a positive value is used for this setting.

### Atk (Attack Time Offset)

Attack Time Offset alters the attack time of the overall Patch, while preserving the relative differences between the attack time values set for each Tone in the T1 parameters (PATCH/TVA/TVA ENVELOPE) (p. 92).

- \* **Attack Time:** The time it takes for a sound to reach maximum volume after the key is pressed and sound begun

#### NOTE

Since the values for the T1 parameters for each Tone are added to the values made in this setting, if the T1 parameters are set to 127 (maximum), then no further changes are made, even when a positive value is used for this setting.

## Rel (Release Time Offset)

Release Time Offset alters the release time of the overall Patch, while preserving the relative differences between the release time values set for each Tone in the T4 parameters (PATCH/TVA/TVA ENVELOPE) (p. 92).

- \* **Release Time:** *The time from when you take your finger off the key until the sound disappears*

### NOTE

Since the values for the T4 parameters for each Tone are added to the values made in this setting, if the T4 parameters are set to 127 (maximum), then no further changes are made, even when a positive value is used for this setting.

## Velocity Sens (Velocity Sensitivity Offset)

Velocity Sensitivity Offset alters the Velocity Sensitivity of the overall Patch while preserving the relative differences between the Velocity Sensitivity values set for each Tone in the parameters below.

- V-Cutoff parameter (PATCH/TVF/TVF VELOCITY) (p. 89)
- V-Sens parameter (PATCH/TVA/TVA) (p. 90)
- \* **Velocity:** *Pressure with which the key is pressed*

### NOTE

Since this settings value is added to the V-Cutoff and V-Sens parameter values for each Tone, if the V-Cutoff and V-Sens parameter values are set to +63 (maximum), then no further changes are made, even when a positive value is used for this setting.

## TMT VELO CONTROL (TMT Velocity Control)



### MEMO

You can have the XV-88's keyboard produce different tones according to the register, the force with which the keys are played, or a variety of different MIDI messages. The group of settings affecting this is called the **TMT** (Tone Mix Table).

## TMT Velocity Control (TMT Velocity Control Switch)

TMT Velocity Control determines whether a different Tone is played (ON) or not (OFF) depending on the force with which the key is played (velocity).

When set to RANDOM, the Patch's constituent Tones will sound randomly, regardless of any Velocity messages.

### NOTE

Instead of using Velocity, you can also have Tones substituted using the Matrix Controller (p. 80). However, the keyboard velocity and the Matrix Controller cannot be used simultaneously to switch Tones. When using the Matrix Controller to switch Tones, set the TMT Velocity Control to OFF.

## TMT VEL RANG (TMT Velocity Range)



Specifies the range of playing dynamics (key velocity) which will sound the Tone. Make these settings when you want different Tones to sound in response to notes played at different strengths.

### NOTE

When the TMT Velocity Control parameter (PATCH/COMMON/TMT VELO CONTROL) is set to OFF, you cannot change the tone that is played according to the force with which the keys are played (velocity).

### MEMO

When using the Matrix Controller to have different Tones played, set the range within which the Tone is to be sounded according to the value of the MIDI message used.

## Lower (Velocity Range Lower)

## Upper (Velocity Range Upper)

For each Tone, specify the lower (Lower) and upper (Upper) limit of the key velocities that will sound the Tone. When a key is played more softly than the lower limit, or more strongly than the upper limit, the sound will either not be heard at all or will be extremely weak.

### NOTE

If you attempt to set the Lower velocity limit above the Upper, or the Upper below the Lower, the other value will automatically be adjusted to the same setting.

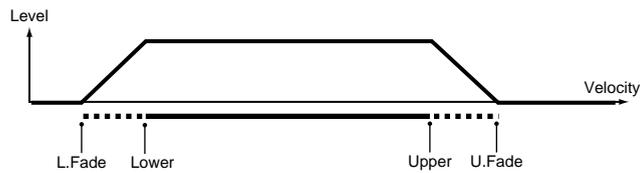
### MEMO

When using the Matrix Controller to have different Tones played, set the lowest value (Lower) and highest value (Upper) of the value of the MIDI message used.

**L.Fade (Velocity Fade Width Lower)**

**U.Fade (Velocity Fade Width Upper)**

L.Fade and U.Fade set the range within which the volume gradually fades as the velocity approaches the limits of the Velocity Range as set by the Lower and Upper parameters. Use this setting when, for example, you want to have adjacent Tones in Split mode switched smoothly (Velocity Crossfade). The higher the values set, the smoother the switch is between the Tones. When you want the Tones to be switched instantly, set these to 0.



**TMT KEY RANG (TMT Key Range)**

```
1--- TMT↑ L.Fade| Lower| Upper| U.Fade
KEY RANG↓ 0| C -1| G 9| 0
```

These parameters specify the range of notes that will play the Tone. This can be used to make notes in different areas of the keyboard play different Tones.

**Lower (Key Range Lower)**

**Upper (Key Range Upper)**

Specify the lower (Lower) and upper (Upper) limits in which each Tone will sound.

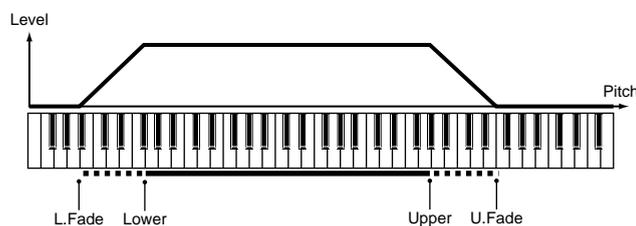
**NOTE**

If you attempt to raise the lower key higher than the upper key, or to lower the upper key below the lower key, the other value will be automatically modified to the same setting.

**L.Fade (Key Fade Width Lower)**

**U.Fade (Key Fade Width Upper)**

L.Fade and U.Fade set the range within which the volume gradually fades as the velocity approaches the limits of the Key Range set in the Lower and Upper parameters. Use this setting when, for example, you want to have adjacent Tones in Split mode switched smoothly. The higher the values set, the smoother the switch is between the Tones. When you want the Tones to be switched instantly, set these to 0.



**STRUCT (Structure)**

```
12-- ↑Type W1-----F1-A1|Booster
STRUCT | 1 W2-----F2-A2| 0
```

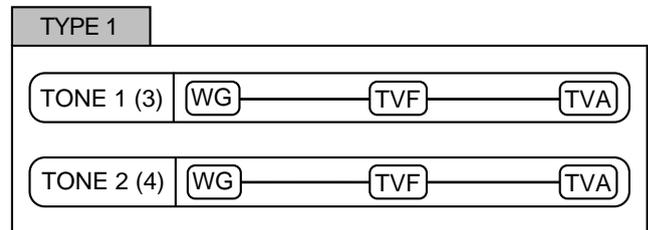
**Type (Structure Type)**

Determines how Tone 1 and 2, or Tone 3 and 4 are connected. The following 10 different Types of combination are available.

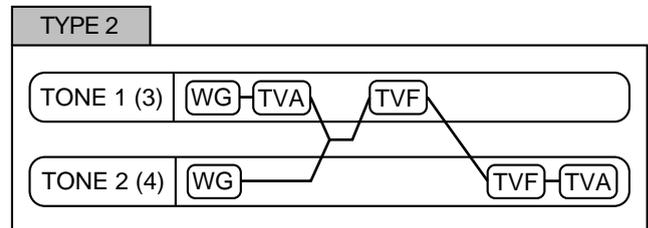
**MEMO**

The display will show how the Tones are combined. The displayed symbols have the following meanings.

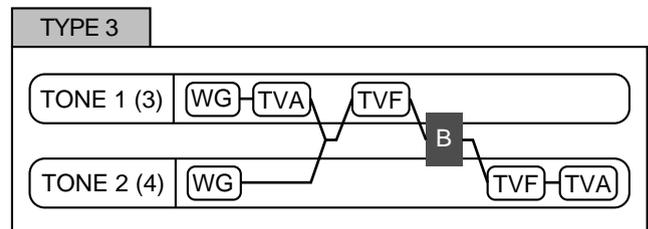
W1 (WG1), W2 (WG2), F1 (TVF1), F2 (TVF2), A1 (TVA1), A2 (TVA2), B (booster), R (ring modulator)



With this type, Tones 1 and 2 (or 3 and 4) are independent. Use this type when you want to preserve PCM sounds or create and combine sounds for each Tone.



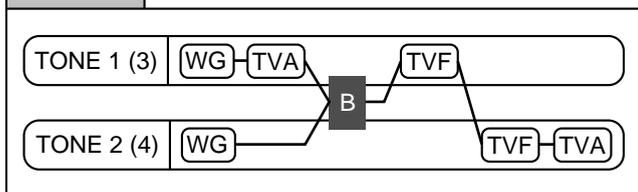
This type stacks the two filters together to intensify the characteristics of the filters. The TVA for Tone 1 (or 3) controls the volume balance between the two Tones.



This type mixes the sound of tone 1 (3) and tone 2 (4), applies a filter, and then applies a booster to distort the waveform.

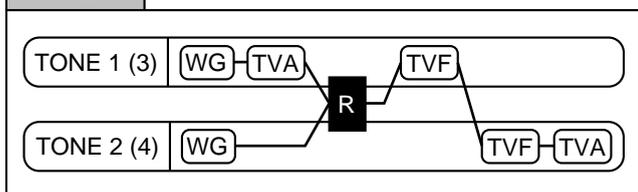
## Chapter 5. Creating Patches

TYPE 4



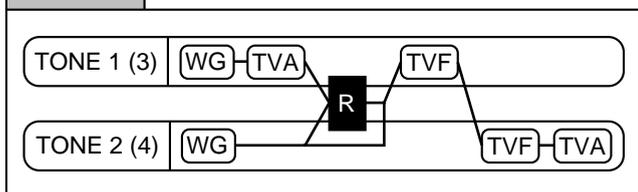
This type applies a booster to distort the waveform, and then combines the two filters. The TVA for Tone 1 (or 3) controls the volume balance between the two Tones and adjusts booster level.

TYPE 5



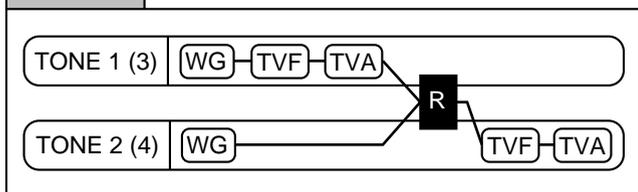
This type uses a ring modulator to create new overtones, and combines the two filters. The Tone 1 (3) TVA will control the volume balance of the two Tones, adjusting the depth of ring modulator.

TYPE 6



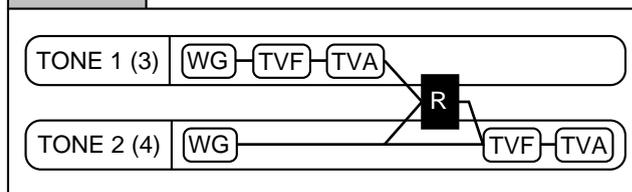
This type uses a ring modulator to create new overtones, and in addition mixes in the sound of tone 2 (4) and stacks the two filters. Since the ring-modulated sound can be mixed with Tone 2 (4), Tone 1 (3) TVA can adjust the amount of the ring-modulated sound.

TYPE 7



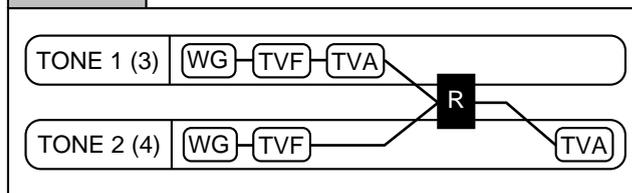
This type applies a filter to tone 1 (3) and ring-modulates it with tone 2 (4) to create new overtones.

TYPE 8



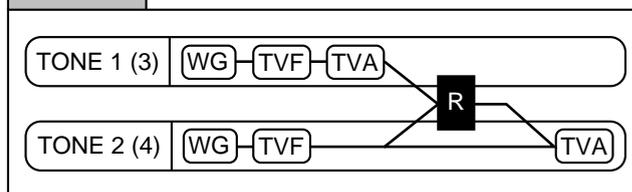
This type sends the filtered Tone 1 (3) and Tone 2 (4) through a ring modulator, and then mixes in the sound of Tone 2 (4) and applies a filter to the result.

TYPE 9



This type passes the filtered sound of each tone through a ring modulator to create new overtones. The TVA for Tone 1 (or 3) controls the volume balance between the two Tones and adjusts ring modulation depth.

TYPE 10



This type passes the filtered sound of each tone through a ring modulator to create new overtones, and also mixes in the sound of tone 2 (4). Since the ring-modulated sound can be mixed with Tone 2 (4), Tone 1 (3) TVA can adjust the amount of the ring-modulated sound.

### NOTE

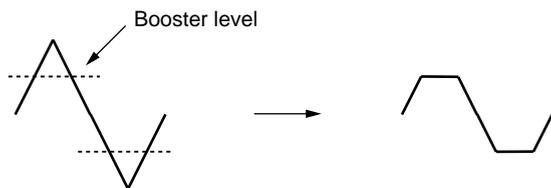
- If you select a Tone while on the STRUCT page, the Tone paired with the selected Tone will also be selected.
- When TYPE 2–10 is selected and one Tone of a pair is turned off, the other Tone will be sounded as TYPE 1 regardless of the displayed setting.
- If you limit the keyboard area in which a Tone will sound (Key Range p. 73) or limit the range of velocities for which it will sound (Velocity Range p. 72), the result in areas or ranges where the Tone does not sound is just as if the Tone had been turned off. This means that if TYPE 2–10 is selected and you create a keyboard area or velocity range in which one Tone of a pair does not sound, notes played in that area or range will be sounded by the other Tone as TYPE 1 regardless of the displayed setting.

### Booster (Booster Gain)

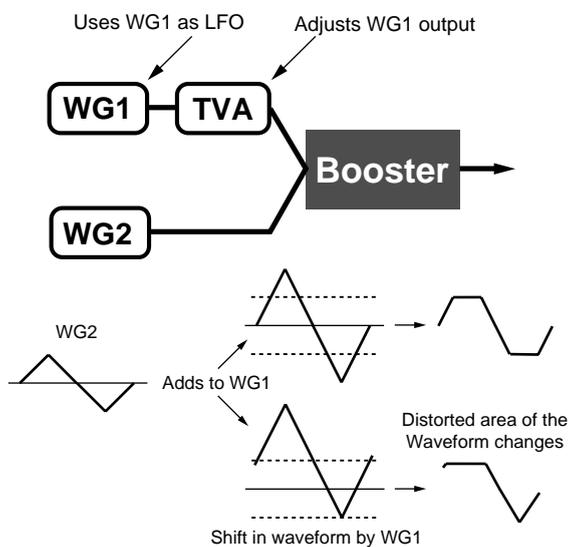
When a Structure Type of TYPE 3 or TYPE 4 is selected, you can adjust the depth of the booster. The booster increases the input signal in order to distort the sound. This creates the distortion effect frequently used with electric guitars. Higher settings will produce more distortion.

#### What is a Booster?

The Booster is used to distort the incoming signal.



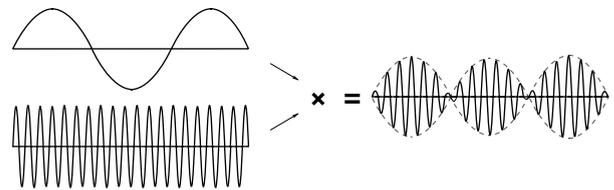
In addition to using this to create distortion, you can use the waveform (WG1) of one of the Tones as an LFO which shifts the other waveform (WG2) upward or downward to create modulation similar to PWM (pulse width modulation). This parameter works best when you use it in conjunction with the Gain parameter (PATCH/WAVE/WAVE) (p. 81).



#### What is a Ring Modulator?

A ring modulator multiplies the waveforms of two Tones with each other, generating many new overtones (inharmonic partials) which were not present in either waveform. (Unless one of the waveforms is a sine wave, evenly-spaced frequency components will not usually be generated.)

As the pitch difference between the two waveforms changes the harmonic structure, the result will be an unpitched metallic sound. This function is suitable for creating metallic sounds such as bells.



### Setting Effects for a Patch (EFFECTS)



For details regarding effect settings, refer to the pages shown below.

- “Applying Effects in Patch Mode or Rhythm Set Mode” (p. 106)
- “Making Multi-Effects Settings” (p. 114)
- “Making Chorus Settings” (p. 156)
- “Making Reverb Settings” (p. 158)

### Using Controllers to Change How Sounds Are Played (CONTROL)

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

#### PATCH KEY MODE (Patch Key Assign Mode)

PATCH	Assign	Legato	Legato Retrigger
KEY MODE	POLY	OFF	OFF

##### Assign (Key Assign)

Specifies whether the Patch will play polyphonically (POLY) or monophonically (MONO). The MONO setting is effective when playing a solo instrument Patch such as sax or flute.

**POLY:** Two or more notes can be played simultaneously.

**MONO:** Only the last-played note will sound.

##### Legato (Solo Legato Switch)

Solo Legato is valid when the Assign parameter is set to MONO. This setting specifies whether the Solo Legato function will be used (ON) or not (OFF).

When the Legato parameter 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.

##### Legato Retrigger (Legato Retrigger Switch)

Legato Retrigger is enabled when the Assign parameter is set to MONO, and the Legato parameter to ON. The setting determines whether sounds are replayed (ON) or not (OFF) when performing legato. This is normally set to ON. When OFF, when one key is held down and another key is then pressed, only the pitch changes, without the attack of the latter key being played. Set this to OFF when performing wind and string phrases or when using modulation with the mono synth keyboard sound.

### PATCH PORTAMNT (Patch Portamento)

PATCH	Sw	Time	Mode	Type	Start
PORTAMNT	OFF	18	LEGATO	RATE	PITCH

#### What is Portamento?

Portamento is a function that causes the Patch's pitch to change smoothly from one note to the next note played. With the Assign parameter set to MONO, portamento is especially effective when simulating playing techniques such as a violin glissandos. Portamento can also be applied when Key Assign is polyphonic (POLY).

#### Sw (Portamento Switch)

Specifies whether the portamento effect will be applied (ON) or not (OFF).



When the Sw parameter is set to OFF, all of the following Portamento settings are disabled.

#### Time (Portamento Time)

When portamento is used, this specifies the time over which the pitch will change. Higher settings will cause the pitch change to the next note to take more time.

#### Mode (Portamento Mode)

Specifies the performance conditions for which portamento will be applied.

**NORMAL:** Portamento will always be applied.

**LEGATO:** Portamento will be applied only for notes played legato (i.e., when you press a second key before releasing the first).

#### Type (Portamento Type)

Specifies the type of portamento effect.

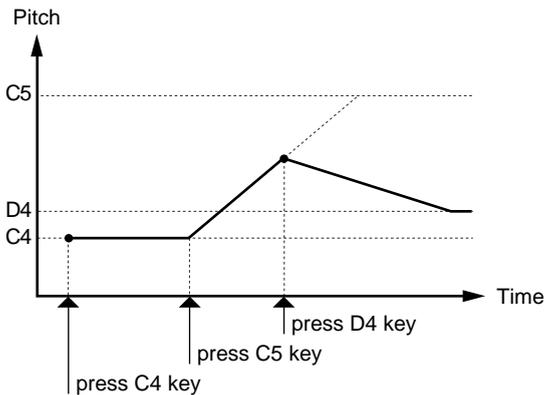
**RATE:** The time it takes will depend on the distance between the two pitches.

**TIME:** The time it takes will be constant, regardless of how far apart in pitch the notes are.

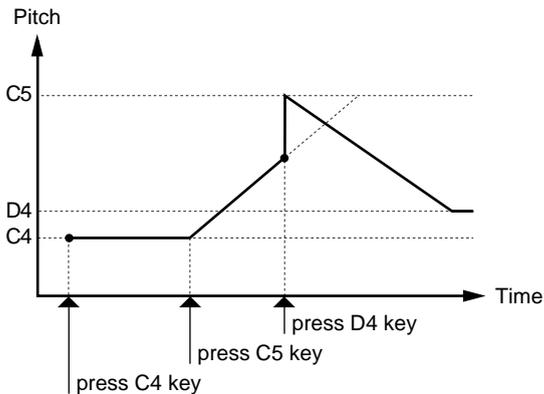
### Start (Portamento Start Pitch)

Portamento will begin anew if you press another key during a pitch movement. This setting specifies the pitch at which the change will begin.

**PITCH:** When another key is pressed while the pitch is moving, portamento will begin anew from the pitch that had been reached at that moment.



**NOTE:** Portamento will begin anew from the pitch where the current change would end.



### CTRL Rx MIDI (Control Receive MIDI)

1---	CTRL ↑	Bender	Expression	Pan Mode
Rx MIDI ↓		ON	ON	CONTINUOUS

1---	CTRL ↑	Hold-1	Redamper	Envelope Mode
Rx MIDI ↓		ON	OFF	SUSTAIN

Here you can specify for each Tone how MIDI messages such as pitch bend, expression and pan will be received.

### NOTE

- Generally, pitch bend messages control the pitch of the currently sounding note, expression messages control the volume. In addition to this, the XV-88 allows these MIDI messages to be used to control Tone settings or Multi-effects settings as well (p. 78, p. 115). If you are using this capability, turn reception of these MIDI messages OFF. If the receive switch is ON for these messages, they will control their usual function (in addition to their special function).
- When assigning (and playing) a Patch to a Part in a Performance, check the MIDI message settings for each MIDI channel (p. 52). If the MIDI channels for that part are set not to receive MIDI messages, then the MIDI messages will not be received.

### Bender (Receive Pitch Bend Switch)

Specifies whether Pitch Bend messages will be received (ON) or not (OFF).

### Expression (Receive Expression Switch)

Specifies whether Expression messages will be received (ON) or not (OFF).

### Pan Mode (Receive Pan Mode)

Specifies how Pan messages will be received.

**CONTINUOUS:** Whenever Pan messages are received, the stereo position of the Tone will be changed.

**KEY-ON:** The pan of the Tone will be changed only when the next note is played. If a pan message is received while a note is sounding, the panning will not change until the next key is pressed.

### NOTE

The channels cannot be set so as not to receive Pan messages.

### Hold-1 (Receive Hold 1 Switch)

Specifies whether Hold 1 messages will be received (ON) or not (OFF).

### NOTE

If NO SUSTAIN is selected for Envelope Mode parameter (PATCH/CONTROL/CTRL Rx MIDI), this setting will have no effect.

### Redamper (Redamper Switch)

When a Hold 1 message is received after a key was released but before the sound has completely decayed, this setting specifies whether or not the sound will be sustained at that level. If you want to sustain the sound, set this ON. When using this function, also set the Hold-1 parameter ON. This function is effective for piano sounds.

### Envelope Mode

When a loop-type waveform (p. 68) 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 (p. 68) is selected, it will not sustain even if this parameter is set to SUSTAIN.

### TMT CTRL&BENDER (TMT Control & Bender)

TMT CTRL↑	TMT Ctrl Sw	←Bend Range→
&BENDER↓	OFF	-2: +2

#### TMT Ctrl Sw (TMT Control Switch)

Use the Matrix Controller to enable (ON), or disable (OFF) sounding of different tones.



You can also cause different tones to sound in response to notes played at different strengths (velocity) on the keyboard. However, the Matrix Controller and the keyboard velocity cannot be used simultaneously to make different Tones to sound. When you want to make the different Tones to sound, set the TMT Velocity Control parameter (PATCH/COMMON/TMT VELO CONTROL) to OFF.

### Bend Range

Specifies the amount of pitch change (in semitones) that will occur when the Pitch Bend Lever is moved (-4- +4 octaves). The left value specifies the pitch change that will occur when the lever is moved fully left. The right value specifies the pitch change that will occur when the lever is moved fully right. For example, if the right value is set to 12, the pitch will rise one octave when the bender lever is moved to the right-most position.

### MATRIX CTRL SRC (Matrix Control Source)

MATRIX↑	Control 1	Control 2
CTRL SRC↓	100:SYS-CTRL3	00:OFF

#### What is the Matrix Controller?

Ordinarily, if you wanted to change Tone parameters using an external MIDI device, you would need to send **System Exclusive messages**—MIDI messages designed exclusively for the XV-88. However, System Exclusive messages tend to be complicated, and the amount of data that needs to be transmitted can get quite large.

For that reason, a number of the more typical of the XV-88's Tone parameters have been designed so they accept the use of Control Change (or other) MIDI messages for the purpose of making changes in their values. This provides you with a variety of means of changing the way Patches are played. For example, you can use the Pitch Bend lever to change the LFO cycle rate, or use the keyboard's touch to open and close a filter.

The function which allows you use MIDI messages to make these changes in realtime to the Tone parameters is called the **Matrix Controller**. Up to four Matrix Controllers can be used in a single Patch.

When the Matrix Controller is used, you can select the amount of control (Sns parameter) applied, the parameter selected (Dest parameter), the MIDI message used to transmit the effect (Control 1-4 parameter), and the Tone to which the effect is applied (Tone parameter).

#### Control 1-4 (Matrix Control Source 1-4)

Sets the MIDI message used to change the Tone parameter with the Matrix Controller. Set this to OFF when the Matrix Controller is not being used.

The following are MIDI messages that can be used as Matrix Controllers.

- Controller Numbers 01-31, 33-95 (CC01-CC31, CC33-CC95)



For more information about Control Change messages, please refer to "**MIDI Implementation**" (p. 270).

- Pitch Bend (PITCH BEND)
- Aftertouch (AFTERTOUCH)
- System Controller 1-4 (SYS-CTRL1-SYS-CTRL4): MIDI messages used as global Matrix Controllers

- Velocity (VELOCITY): Pressure you press a key with
- Keyfollow (KEYFOLLOW): Keyboard position with C4 as 0
- Tempo (TEMPO): The specified tempo (Patch Tempo/System Tempo) or MIDI sequencer's tempo (external tempo)
- LFO 1 (LFO1): LFO 1 cycle rate
- LFO 2 (LFO2): LFO 2 cycle rate
- Pitch Envelope (PITCH ENV)
- TVF Envelope (TVF ENV)
- TVA Envelope (TVA ENV)

**MEMO**

Velocity and Keyfollow correspond to Note messages.

**HINT**

- You can use the tempo as a Matrix Controller. This lets you change the Tone settings in realtime according to changes in the Tempo.

When synchronizing to the Patch tempo, set the Clock Source parameter (PATCH/COMMON/PATCH TEMPO) to PATCH, and specify the Patch tempo with the TEMPO parameter (PATCH/COMMON/PATCH TEMPO).

When synchronizing to the System tempo, set the Clock Source parameter (PATCH/COMMON/PATCH TEMPO) to SYSTEM, set the Clock Source parameter (SYSTEM/COMMON/SYSTEM SETUP) to INT, and specify the System tempo with the System Tempo parameter (SYSTEM/COMMON/SYSTEM SETUP).

When synchronizing to the tempo of the connected MIDI sequencer, set the Clock Source parameter (PATCH/COMMON/PATCH TEMPO) to SYSTEM, and set the Clock Source parameter (SYSTEM/COMMON/SYSTEM SETUP) to MIDI.

- Although there are no MIDI messages for LFO 1 through TVA Envelope, they can be used as Matrix Controllers. In this case, you can change the Tone settings in realtime by playing Patches.
- Select SYS-CTRL1-4 if you want to use the controllers globally for the entire XV-88. MIDI messages used as System Controllers 1-4 are set with the Control 1-4 parameters (SYSTEM/CONTROL/SYS CTRL ASSIGN 1, 2) (p. 173).

**NOTE**

- There are parameters that determine whether or not Pitch Bend, Controller Number 11 (Expression) and Controller Number 64 (Hold 1) are received (p. 77). When these settings are ON, and the MIDI messages are received, then when any change is made in the settings of the desired parameter, the Pitch Bend, Expression, and Hold 1 settings also change simultaneously. If you want to change the targeted parameters only, then set these to OFF.
- There are parameters that determine whether or not specific MIDI messages are received for each MIDI channel (p. 52). When a Patch with Matrix Control settings is assigned to a part, confirm that any MIDI messages used for the Matrix Controller will be received. If the XV-88 is set up such that reception of MIDI messages is disabled, then the Matrix Controller will not function.

**MATRIX CONTROL 1-4**

```
MATRIX ↑ 100:SYS-CTRL3 (Dest:Sns→Tone)
CONTROL1 ↓ [DEST1] CUTOFE: +5→_o_o
```

**Dest (Matrix Control Destination)**

Matrix Control Destination selects the Tone parameter that is to be controlled when using the Matrix Controller. The following parameters can be controlled. When not controlling parameters with the Matrix Controller, set this to OFF. Up to four parameters (DEST1-4) can be specified for each Matrix Controller, and controlled simultaneously.

**MEMO**

In this manual, Parameters that can be controlled using the Matrix Controller are marked with a ★.

**● Opening and Closing the Filter**

**CUTOFF:** Changes the cutoff frequency.

**RESONANCE:** Emphasizes the overtones in the region of the cutoff frequency, adding character to the sound.

**● Changing the Volume, Pan, and Pitch**

**LEVEL:** Changes the volume level.

**PAN:** Changes the pan.

**PITCH:** Changes the pitch.

### ● Changing How the Effects Are Applied

**DRY LEVEL:** Changes the volume of dry sounds.

**CHORUS SEND:** Changes the amount of Chorus.

**REVERB SEND:** Changes the amount of Reverb.

### ● Applying LFO to Modulate Sounds

**LFO1/LFO2 PCH DEPTH:** Changes the vibrato depth.

**LFO1/LFO2 TVF DEPTH:** Changes the wah depth.

**LFO1/LFO2 TVA DEPTH:** Changes the tremolo depth.

**LFO1/LFO2 PAN DEPTH:** Changes the effect that the LFO will have on pan.

**LFO1/LFO2 RATE:** Changes the speed of the LFO cycles.

### ● Changing the Pitch Envelope

**PIT ENV A-TIME:** Changes the T1 parameter of the pitch envelope.

**PIT ENV D-TIME:** Changes the T2 and T3 parameters of the pitch envelope.

**PIT ENV R-TIME:** Changes the T4 parameter of the pitch envelope.

### ● Changing the TVF Envelope

**TVF ENV A-TIME:** Changes the T1 parameter of the TVF envelope.

**TVF ENV D-TIME:** Changes the T2 and T3 parameters of the TVF envelope.

**TVF ENV R-TIME:** Changes the T4 parameter of the TVF envelope.

### ● Changing the TVA Envelope

**TVA ENV A-TIME:** Changes the T1 parameter of the TVA envelope.

**TVA ENV D-TIME:** Changes the T2 and T3 parameters of the TVA envelope.

**TVA ENV R-TIME:** Changes the T4 parameter of the TVA envelope.

### ● Splitting Tones That Are Played

#### TMT



- If the Matrix Controller is used to split Tones, set the TMT Velocity Control parameter (PATCH/COMMON/TMT VELO CONTROL) to OFF, and the TMT Ctrl Sw parameter (PATCH/CONTROL/CONTROL&BENDER) to ON (p. 72, p. 78).
- If the Matrix Controller is used to split Tones, we recommend setting the Sns to +63. Selecting a lower value may prevent switching of the Tones. Furthermore, if you want to reverse the effect, set the value to -63.

- When you want to use the Matrix Controller to make the switch between Tones more smoothly, set the L.Fade and U.Fade parameters (PATCH/COMMON/TMT VELO RANG) (p. 73). The higher the values set, the smoother the switch is between the Tones.

### ● Changing the Depth of Frequency Modulation for FXM

#### FXM DEPTH

### ● Changing Specific Multi-Effects Parameters

**MFX CTRL1:** The specified parameter is changed by the MFX CTRL1 Destination parameter.

**MFX CTRL2:** The specified parameter is changed by the MFX CTRL2 Destination parameter.

**MFX CTRL3:** The specified parameter is changed by the MFX CTRL3 Destination parameter.

**MFX CTRL4:** The specified parameter is changed by the MFX CTRL4 Destination parameter.

#### NOTE

No effects are available, even with the Matrix Controller, when the settings are such that no Multi-effects are applied.

### Sns (Matrix Control Sensitivity)

Sets the amount of the Matrix Controller's effect that is applied. To make an increase in the currently selected value (to get higher values, move to the right, increase rates, and so on), select a positive value; to make a decrease in the currently selected value (to get lower values, move to the left, decrease rates, and so on), select a negative value. When both positive and negative are selected, the changes are greater as the value increases. To have no effect applied, select 0.

### Tone (Matrix Control Tone)

Matrix Control Tone selects the Tone to which the effect is applied when using the Matrix Controller.

Indicated from left to right are Tones 1, 2, 3, and 4. Tones to which effects are applied are indicated by a circle (o) for the setting; Tones to which no effects are applied are indicated by an underline (\_). With a setting of R, the effect will be inverted.

## Modifying Waveforms (WAVE)

Select the PCM waveform that is to be the basis of the Tone, and apply effects to the waveform.

### WAVE

1---	↓	Group	Number	MKS-20 P3 C
WAVE	↓	INI	0027:----	-----

1---	↑	Gain	Switch	Wave Tempo Sync
WAVE	↓	0	OFF	OFF

### Group (Wave Group)

Selects the group for the waveform that is to be the basis of the Tone.

**INT:** Waveforms stored in internal memory

**XP-A-D:** Waveform stored in a Wave Expansion Board installed in EXP A-D slots.

### NOTE

You cannot select a waveform group of a Wave Expansion Board that is not installed.

### Number (Wave Number)

Selects the basic waveform for a Tone. Along with the Wave number, the Wave name appears at the right of the display. When in monaural mode, only the left side (L) is specified. When in stereo, the right side (R) is also specified.

### HINT

The Wave numbers can be divided and set in the first two and last two digits.

### Gain (Wave Gain)

Specifies the gain (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 (p. 75).

### Switch (Tone Switch)

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.

### HINT

You can also set the Switch parameter on the PATCH PLAY page. Press TONE SWITCH [1]–[4] to switch the setting to ON (indicator lighted), or OFF (indicator extinguished) (p. 32).

## Wave Tempo Sync

When you wish to synchronize a Phrase Loop to the clock (tempo), set this to ON. This is valid only when an optional Wave Expansion Board, such as “SR-JV80-10: BASS&DRUMS,” is installed, and you have selected a Tone which uses a waveform that displays tempo (BPM). For details, refer to “Playing Phrase Loops in Sync with the System Tempo” (p. 201).

### NOTE

- When the Wave Tempo Sync parameter is set to ON, settings related to Pitch (p. 86) and FXM (p. 81) are disabled.
- When the Wave Tempo Sync parameter is set to ON, set the Time parameter (PATCH/WAVE/TONE DELAY) to 0. With other settings, a delay effect will be applied, and you will not be able to play as you expect.

### What is a Phrase Loop?

A Phrase Loop is a portion of a song that is excerpted with a sampler or by other means, and then played back repeatedly. One technique involving the use of Phrase Loops is the excerpting of a Phrase from a pre-existing song in a certain genre, for example dance music, and then creating a new song with that Phrase used as the basic motif. This is referred to as “Break Beats.”

## FXM (Frequency Cross Modulation)

1---	↑	Switch	Color	Depth
FXM	↓	OFF	1	2

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.

### Switch (FXM Switch)

This sets whether FXM will be used (ON) or not (OFF).

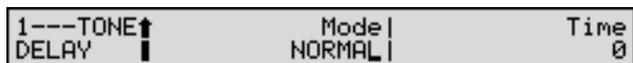
### Color (FXM Color)

Specifies how FXM will perform frequency modulation. Higher settings result in a grainier sound, while lower settings result in a more metallic sound.

### Depth (FXM Depth) ★

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. You can also make settings that shift the timing at which each Tone is sounded. This differs from the Delay in the internal effects, in that by changing the sound qualities of the delayed Tones and changing the pitch for each Tone, you can also perform arpeggio-like passages just by pressing one key.

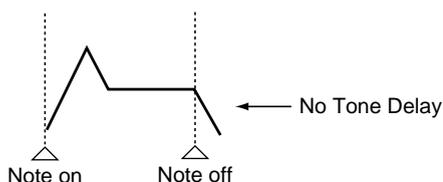
In addition, you can synchronize the tempo that specifies the Tone Delay time and the tempo set in a connected sequencer (external tempo).

### NOTE

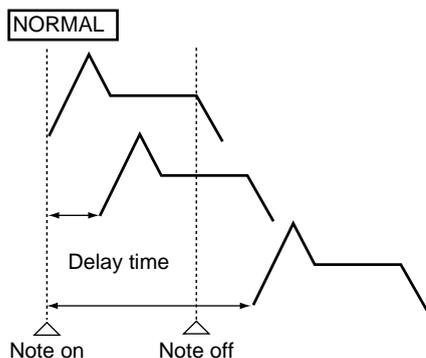
- If you are not going to use Tone Delay, set the Mode parameter (discussed below) to NORMAL and Time parameter to 0.
- When the Type parameter (PATCH/COMMON/STRUCT) has a setting of Type 2-10, the outputs of Tones 1 and 2 will be combined with Tone 2, and the outputs of Tones 3 and 4 will be combined with Tone 4. For this reason, Tone 1 will follow the settings of Tone 2, and Tone 3 will follow the settings of Tone 4 (p. 73).

### Mode (Tone Delay Mode)

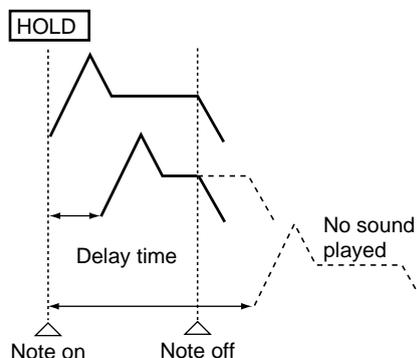
Selects the type of tone delay.



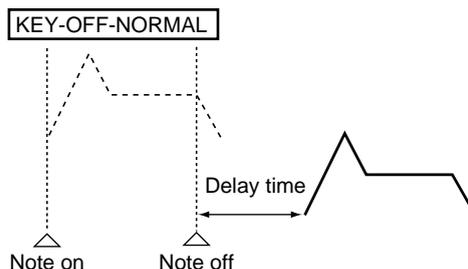
**NORMAL:** The Tone begins to play after the time specified in the Time parameter has elapsed.



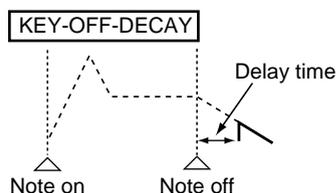
**HOLD:** Although the Tone begins to play after the time specified in the Time parameter has elapsed, if the key is released before the time specified in the Time parameter has elapsed, the Tone is not played.



**KEY-OFF-NORMAL:** Rather than being played while the key is pressed, the Tone begins to play once the period of time specified in the Time parameter has elapsed after release of the key. This is effective in situations such as when simulating noises from guitars and other instruments.



**KEY-OFF-DECAY:** Rather than being played while the key is pressed, the Tone begins to play as soon as the period of time specified for the Time parameter has elapsed after release of the key. Here, however, changes in the TVA Envelope begin while the key is pressed, which in many cases means that only the sound from the release portion of the envelope is heard.



### NOTE

If you have selected a waveform that is a decay-type sound (i.e., a sound that fades away naturally even if the key is not released), selecting KEY-OFF-NORMAL or KEY-OFF-DECAY may result in no sound being heard.

### Time (Tone Delay Time)

Specifies the time from when the key is pressed (or if the Mode parameter is set to KEY-OFF-NORMAL or KEY-OFF-DECAY, the time from when the key is released) until when the Tone will sound.

Tone Delay Time specifies the beat length for the synchronized tempo when the tempo that specifies the elapsed time until the Tone is sounded (Patch Tempo) is synchronized with the tempo set in a connected sequencer (external tempo).

#### <Example>

For a tempo of 120 (120 quarter notes occur in 1 minute (60 seconds))

Setting	Delay time
♩ (half note)	1 second (60 / 60 = 1 (second))
♩♩ (quarter note)	0.5 seconds (60 / 120 = 0.5 (seconds))
♩♩♩ (eighth note)	0.25 seconds (60 / 240 = 0.25 (seconds))

## Modulating Sounds (LFO)

An LFO (Low Frequency Oscillator) causes change over a cycle in a sound. Each Tone has two LFOs (LFO1/LFO2), and these can be used to cyclically change the pitch, cutoff frequency and volume to create modulation-type effects such as vibrato, wah and tremolo. Since both LFOs have the same parameters, the following explanation will cover both of them.

### LFO1/LFO2 WAVE

1---	LFO1	Form	Ofset	Rate	Detune	KeySync
WAVE	↓TRI^	0	95	0	OFF	

#### Form (LFO Waveform)

Specifies the LFO waveform.

SIN^ : Sine wave

TRI^ : Triangle wave

SAW^ : Sawtooth wave

SAW^ : Sawtooth wave (negative polarity)

SQR^ : Square wave

RND^ : Random wave

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.

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 and Hold wave (LFO value is changed one time per cycle)

CHS^ : Chaos wave

#### NOTE

When setting UP^ or DW^, set the KeySync parameter to ON. If this is OFF, it will have no effect.

#### Ofset (LFO Level Offset)

Adjusts the LFO waveform up or down from the center value (pitch or cutoff frequency). Positive (+) settings will move the waveform up from the center value. Negative (-) settings will move it down from the center value.

#### Rate (LFO Rate) ★

Adjusts the modulation rate, or speed, of the LFO.

LFO Rate sets the beat length for the synchronized tempo when the tempo that specifies the LFO cycle (Patch Tempo) is synchronized with the tempo set in a connected sequencer (external tempo).

#### <Example>

For a tempo of 120 (120 quarter notes occur in 1 minute (60 seconds))

Setting	Delay time
♩ (half note)	1 second (60 / 60 = 1 (second))
♩♩ (quarter note)	0.5 seconds (60 / 120 = 0.5 (seconds))
♩♩♩ (eighth note)	0.25 seconds (60 / 240 = 0.25 (seconds))

#### NOTE

When CHS^ is selected for the Form parameter, this setting will be ignored.

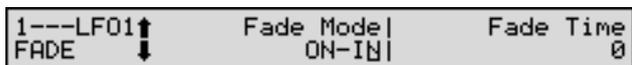
#### Detune (LFO Rate Detune)

LFO Part Detune makes subtle changes in the LFO cycle rate (Rate parameter) each time a key is pressed. Higher settings will cause greater change.

#### KeySync (LFO Key Sync)

Sets whether you want the LFO cycle to start in sync with the timing of a key press (ON) or not (OFF).

## LFO1/LFO2 FADE



### Fade Mode (LFO Fade Mode)

Specifies how the LFO will be applied.



After referring to “**How to Apply the LFO**” (p. 84), change the setting until the desired effect is achieved.

### Fade Time (LFO Fade Time)

Specifies the time over which the LFO amplitude will reach the maximum (minimum).



After referring to “**How to Apply the LFO**” (p. 84), change the setting until the desired effect is achieved.

## LFO1/LFO2 DELAY



### Delay Time (LFO Delay Time)

Delay Time (LFO Delay Time) specifies the time elapsed before the LFO effect is applied (the effect continues) after the key is pressed (or released).



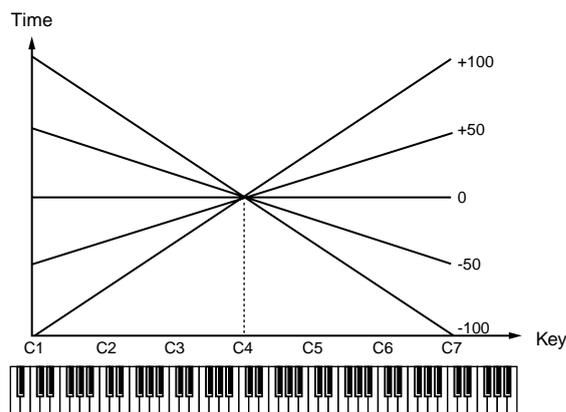
After referring to “**How to Apply the LFO**” (p. 84), change the setting until the desired effect is achieved.



When using violin, wind, or certain other instrument sounds in a performance, rather than having vibrato added immediately after the sounds are played, it can be effective to add the vibrato after the note is drawn out somewhat. When the Delay Time parameter is set together with other parameters such as the Pitch parameter (PATCH/LFO/LFO DEPTH1:2) and the Rate parameter (PATCH/LFO/LFO1, 2 WAVE), vibrato is added automatically once a fixed time has elapsed after the key is pressed. This effect is called **Delay Vibrato**.

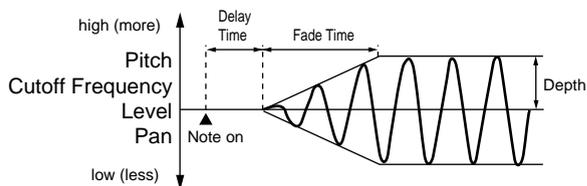
## Delay Keyfollow (LFO Delay Time Keyfollow)

Adjusts the value for the 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 settings produce more change. If you do not want the elapsed time before the LFO effect is applied (the effect is continuous) to change according to the key pressed, set this to 0.



## How to Apply the LFO

- **LFO is gradually added after the key is pressed.**

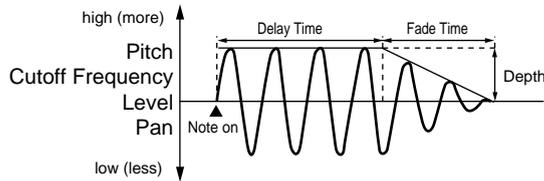


**Fade Mode:** ON-IN

**Fade Time:** The time over which the LFO amplitude will reach the maximum after the Delay Time has elapsed.

**Delay Time:** The time from when the keyboard is played until the LFO begins to be applied.

- LFO is immediately added after the key is pressed, after which the effect gradually fades.

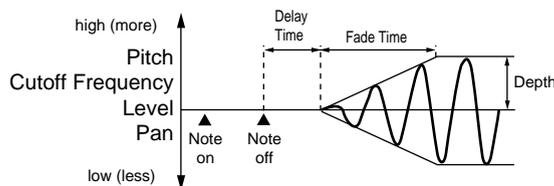


**Fade Mode:** ON-OUT

**Fade Time:** The time over which the LFO amplitude will reach the minimum after the Delay Time has elapsed.

**Delay Time** The time that the LFO will continue after the keyboard is played.

- LFO is gradually added after the key is released.

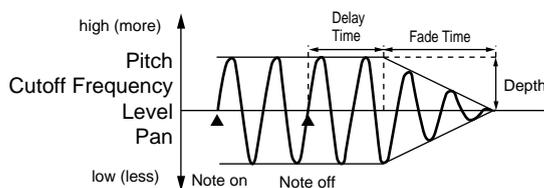


**Fade Mode:** OFF-IN

**Fade Time:** The time over which the LFO amplitude will reach the maximum after the Delay Time has elapsed.

**Delay Time:** The time from when the keyboard is released until the LFO begins to be applied.

- LFO is added from the time the key is pressed to the time it is released, after which the effect gradually fades.



**Fade Mode:** OFF-OUT

**Fade Time:** The time over which the LFO amplitude will reach the minimum after the Delay Time has elapsed.

**Delay Time:** The time that the LFO will continue after the keyboard is released.

## LFO DEPTH 1:2

1---	LFO↑	Pitch	TVF	TVA	Pan
DEPTH1:2	0: 0	0: 0	0: 0	0: 0	0: 0

For each item, specify the amount of the LFO effect.

- The effect produced by modulating the pitch is known as **vibrato**.
- The effect produced by modulating the cutoff frequency is known as **wah**.
- The effect produced by modulating the volume is known as **tremolo**.

### NOTE

Two values are displayed for each parameter listed below. The left one is for LFO1, and the right one is for LFO2.

### Pitch (Pitch LFO Depth 1, 2) ★

Specifies how deeply the LFO will affect pitch.

### TVF (TVF LFO Depth 1, 2) ★

Specifies how deeply the LFO will affect the cutoff frequency.

### TVA (TVA LFO Depth 1, 2) ★

Specifies how deeply the LFO will affect the volume.

### Pan (Pan LFO Depth 1, 2) ★

Specifies how deeply the LFO will affect the pan.

### HINT

Positive (+) and negative (-) settings for the Depth parameter result in differing kinds of change in pitch and volume. For example, if you set the Depth parameter to a positive (+) value for one Tone, and set another Tone to the same numerical value, but make it negative (-), the modulation phase for the two Tones will be the reverse of each other. This allows you to shift back and forth between two different Tones, or combine it with the Pan setting to cyclically change the location of the sound image.

### NOTE

When any value from Type 2–10 is selected for the Type parameter (PATCH/COMMON/STRUCT) in the Pan parameter settings, the output of Tones 1 and 2 are joined in Tone 2, and the output of Tones 3 and 4 are joined in 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. 73).

## Modifying Pitch (PITCH)

You can set the WG pitch of each Tone.

### PITCH

1---	Coarse	Fine	Random	Keyfollow
PITCH	0	0	0	+100

#### Coarse (Coarse Tune) ★

Adjusts the pitch of the Tone's sound up or down in semitone steps (+/-4 octaves).



The overall coarse tune of the Patch is set by the Coarse parameter (PATCH/COMMON/PATCH OCT&TUNE) (p. 70).

#### Fine (Fine Tune) ★

Adjusts the pitch of the Tone's sound up or down in 1-cent steps (+/-50 cents).



One cent is 1/100th of a semitone.



The overall fine tune of the Patch is set by the Fine parameter (PATCH/COMMON/PATCH OCT&TUNE) (p. 70).

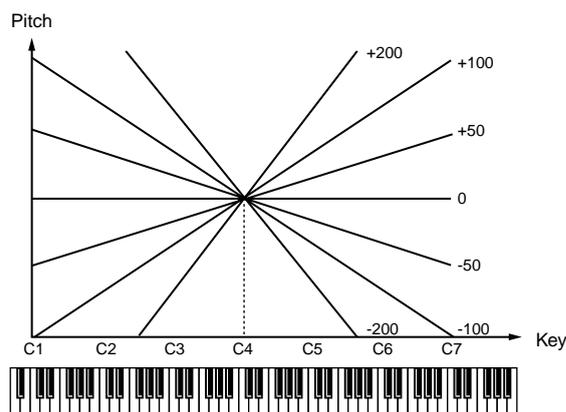
#### Random (Random Pitch Depth)

Specifies the width of random pitch deviation that will occur each time a key is pressed. If you do not want the pitch to change randomly, set this to 0. The setting is adjustable in units of 1 cent (1/100th of a semitone).

### Keyfollow (Pitch Keyfollow)

Sets the amount of pitch change that will occur per octave on the keyboard.

For a conventional keyboard pitch change of 1 octave when keyboard position goes up 1 octave, set this parameter to +100. For a 2 octave pitch changes when keyboard position goes up 1 octave, set this parameter to +200. Negative (-) values will lower pitch even 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.



### PCH ENVELOPE (Pitch Envelope)

1---	PCH↑	Depth	U-Sens	Time	Keyfollow
ENVELOPE↓		0	0		0

1---	PCH↑	U-T1	U-T4	L0
ENVELOPE↓		0	0	0

1---	PCH↑	T1	T2	T3	T4	L1	L2	L3	L4
ENVELOPE↓		0	0	0	0	0	0	0	0

Here you can make pitch envelope settings (changes in pitch over time).

#### Depth (Pitch Envelope Depth)

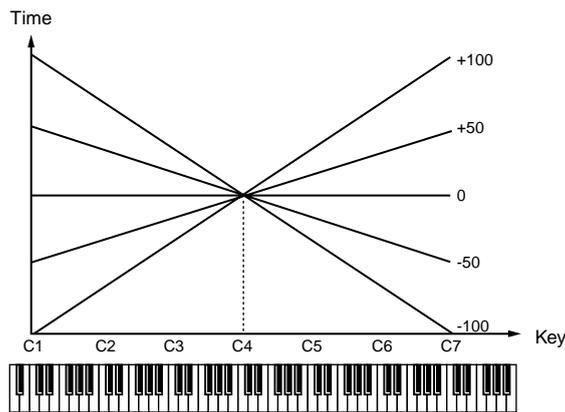
Adjusts the effect of the Pitch Envelope. Higher settings will cause the pitch envelope to produce greater change. Negative (-) settings will invert the shape of the envelope.

#### V-Sens (Pitch Envelope Velocity Sensitivity)

Keyboard playing dynamics can be used to control the depth of the pitch envelope. If you want the pitch envelope to have more effect for strongly played notes, set this parameter to a positive (+) value. If you want the pitch envelope to have less effect for strongly played notes, set this to a negative (-) value.

**Time Keyfollow  
(Pitch Envelope Time Keyfollow)**

Use this parameter when you want the keyboard location of notes to affect times T2–T4 of the pitch envelope. Based on the pitch envelope times for the C4 key, positive (+) settings will cause notes higher than C4 to have increasingly shorter times, and negative (-) settings will cause them to have increasingly longer times. Higher settings result in more change.



**V-T1  
(Pitch Envelope Time 1 Velocity Sensitivity)**

Use this parameter when you want keyboard playing dynamics (velocity) to affect T1 (Time 1) of the pitch envelope. Positive (+) settings will cause T1 to speed up for strongly played notes, and negative (-) settings will cause it to slow down.

**V-T4  
(Pitch Envelope Time 4 Velocity Sensitivity)**

Use this parameter when you want key release speed to impact on T4 (Time 4) value of the pitch envelope. If you want T4 time to be speeded 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.

**L0 (Pitch Envelope Level 0)**

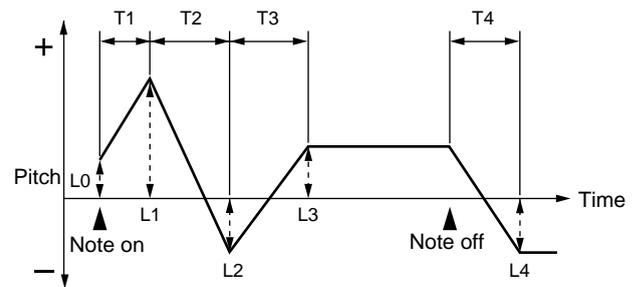
Specifies the pitch envelope level (L0). Pitch Envelope Level 0 determines the degree to which the pitch of the sound at the instant the key is pressed is altered relative to the reference pitch (the Coarse Tune or Fine Tune value set in the PITCH page). Positive (+) settings will cause the pitch to be higher than the standard pitch, and negative (-) settings will cause it to be lower.

**T1–T4 (Pitch Envelope Time 1–4) ★**

Specify the pitch envelope times (T1–T4). Larger values result in longer times until the next pitch is reached (for instance, T2 controls the time from L1 until L2 is reached).

**L1–L4 (Pitch Envelope Level 1–4)**

Set the level (L1–L4) for the Pitch Envelope. It determines how much the pitch changes from the reference pitch (the value set with Coarse Tune or Fine Tune on the PITCH page) at each point. Positive (+) settings will cause the pitch to be higher than the standard pitch, and negative (-) settings will cause it to be lower.



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

Here you can make settings for the TVF (Time Variant Filter). This allows you to modify the brightness or thickness of the sound, changing the timbre of the Tone.

**TVF FILTER**

1---	TVF	Type	Cutoff	Resonance	Keyfollow
FILTER	↓	LPE	15	0	0

**Type (Filter Type)**

Selects the filter type. A filter is a function that cuts off a specific frequency band to change a sounds brightness, thickness, and other qualities.

**OFF:** No filter is used.

**LPF:** A Low Pass Filter reduces the volume of frequencies above the Cutoff frequency (Cutoff parameter) in order to round off, or 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 can be useful when creating distinctive sounds.

**HPF:** A High Pass Filter reduces the volume of the frequencies below the cutoff frequency. This is suitable for creating percussive sounds 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. Although frequency components above the Cutoff frequency (Cutoff parameter) are cut, the sensitivity of this filter is half that of the LPF. This makes it a comparatively warmer low pass filter. This filter is good for use with simulated instrument sounds such as the acoustic piano.

**LPF3:** Low Pass Filter 3. Although frequency components above the Cutoff frequency (Cutoff parameter) are cut, the sensitivity of this filter changes according to the Cutoff frequency. While this filter is also good for use with simulated acoustic instrument sounds, the nuance it exhibits differs from that of the LPF2, even with the same TVF Envelope settings.

**NOTE**

If you set LPF2 or LPF3, the setting for the Resonance parameter will be ignored.

**Cutoff (Cutoff Frequency) ★**

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 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 the Type parameter is BPF, the cutoff frequency setting determines the range of frequencies within the Tone that will be heard. This can be useful when creating distinctive sounds.

When the Type parameter is HPF, higher settings of the cutoff frequency decrease the level of the Tone's low frequencies, preserving its brighter qualities.

With PKG selected, the harmonics to be emphasized will vary depending on Cutoff Frequency setting.

**HINT**

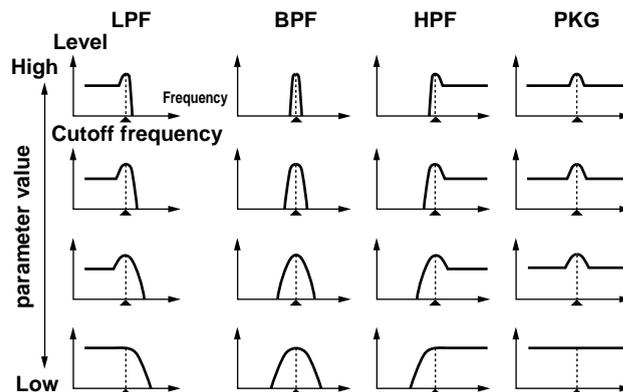
To edit the overall Patch while preserving the relative differences in the Cutoff Frequency values set for each Tone, set the Cut parameter (PATCH/COMMON/PATCH MODIFY) (p. 71).

**Resonance ★**

Emphasizes the portion of the sound in the region of the cutoff frequency, adding character to the sound. Excessively high settings can produce oscillation, causing the sound to distort.

**HINT**

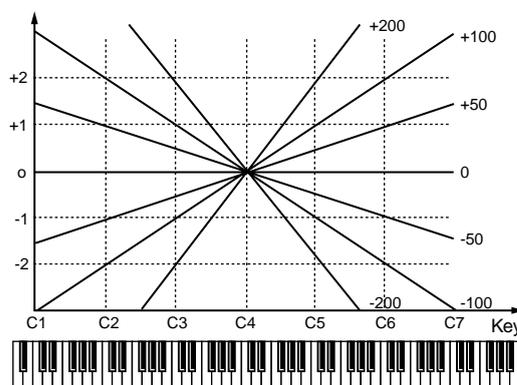
To edit the overall Patch while preserving the relative differences in the Resonance values set for each Tone, set the Res parameter (PATCH/COMMON/PATCH MODIFY) (p. 71).



**Keyfollow (Cutoff Frequency Keyfollow)**

Use this parameter if you want the cutoff frequency to change according to the key that is pressed. Relative to the cutoff frequency at the C4 key (center C), positive (+) settings will cause the cutoff frequency to rise for notes higher than C4, and negative (-) settings will cause the cutoff frequency to fall for notes higher than C4. Higher settings produce more change.

Cutoff frequency (Octave)



## TVF VELOCITY

```
1--- TVF↑V-Cutoff|U-Curve| V-Resonance
VELOCITY↓      0| FIXED|      0
```

### V-Cutoff (Cutoff Frequency Velocity Sensitivity)

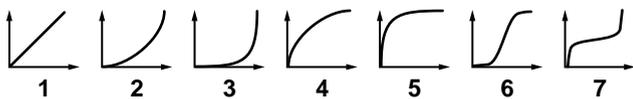
Use this parameter when changing the cutoff frequency to be applied as a result of changes in playing velocity. If you want strongly played notes to raise the cutoff frequency, set this parameter to positive (+) settings. If you want strongly played notes to lower the cutoff frequency, use negative (-) settings.



To edit the overall Patch while preserving the relative differences in the Cutoff Frequency Velocity Sensitivity values set for each Tone, set the Velocity Sens parameter (PATCH/COMMON/PATCH MODIFY) (p. 72). However, this setting is shared by the V-Sens parameter (PATCH/TVA/TVA) (p. 90).

### V-Curve (Cutoff Frequency Velocity Curve)

Selects one of the following seven curves that determine how keyboard playing dynamics (velocity) influence the cutoff frequency. Set this to FIXED when the Cutoff frequency is not to be changed according to the force with which the keys are pressed.



### V-Resonance (Resonance Velocity Sensitivity)

This allows keyboard velocity to modify the amount of Resonance. If you want strongly played notes to have a greater Resonance effect, set this parameter to positive (+) settings. If you want strongly played notes to have less Resonance, use negative (-) settings.

## TVF ENVELOPE

```
1--- TVF↑ Depth| U-Sens|U-Curve|Time KF
ENVELOPE↓ +48| +37| 3_/| +40
```

```
1--- TVF↑ U-T1| U-T4| L0
ENVELOPE↓ 0| 0| 0
```

```
1--- TVF↑ T1| T2| T3| T4| L1| L2| L3| L4
ENVELOPE↓ 0| 64| 92|127|127| 88| 2|127
```

This is used for setting TVF envelope (how cutoff frequency changes over time).

## Depth (TVF Envelope Depth)

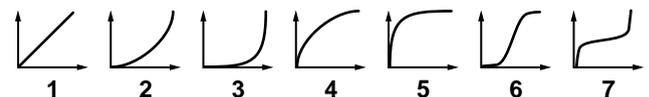
Specifies the depth of the TVF envelope. Higher settings will cause the TVF envelope to produce greater change. Negative (-) settings will invert the shape of the envelope.

## V-Sens (TVF Envelope Velocity Sensitivity)

Specifies how keyboard playing dynamics will affect the depth of the TVF envelope. Positive (+) settings will cause the TVF envelope to have a greater effect for strongly played notes, and negative (-) settings will cause the effect to be less.

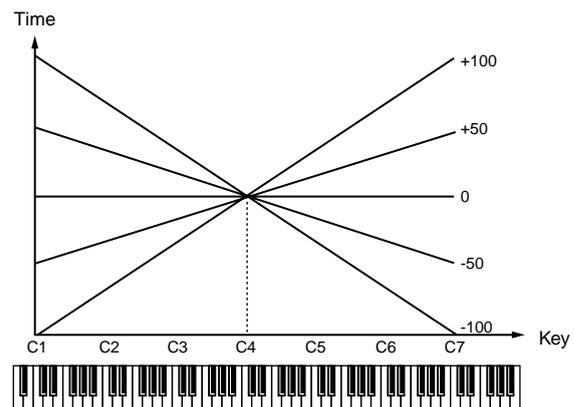
## V-Curve (TVF Envelope Velocity Curve)

Selects one of the following 7 curves that will determine how keyboard playing dynamics will affect the TVF envelope. Set this to FIXED when the amount of TVF Envelope applied is not to be changed according to the force with which the keys are pressed.



## Time KF (TVF Envelope Time Keyfollow)

Use this parameter when you want the keyboard location of notes to affect times T2-T4 of the TVF envelope. Based on the TVF envelope times for the C4 key (center C), positive (+) settings will cause notes higher than C4 to have increasingly shorter times, and negative (-) settings will cause them to have increasingly longer times. Higher settings produce more change.



## V-T1 (TVF Envelope Time 1 Velocity Sensitivity)

Use this parameter when you want velocity to affect T1 (Time 1) of the TVF envelope. If you want T1 time to be speeded 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.

## V-T4 (TVF Envelope Time 4 Velocity Sensitivity)

The parameter to use when you want key release speed to control the T4 (Time 4) value of the TVF envelope. If you want T4 time to be speeded 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.

## L0 (TVF Envelope Level 0)

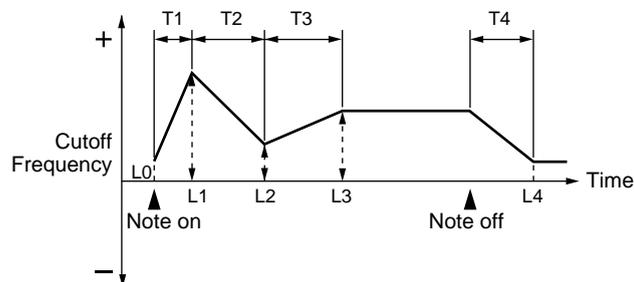
Sets the TVF envelope level (L0). TVF Envelope Level 0 determines the degree to which the Cutoff frequency for the sound at the instant the key is pressed is altered relative to the reference Cutoff frequency (the Cutoff frequency value set in the TVF FILTER page).

## T1-T4 (TVF Envelope Time 1-4) ★

Specify the TVF envelope times (T1-T4). Larger values result in longer times until the next cutoff frequency is reached (for instance, T2 controls the time from L1 until L2 is reached).

## L1-L4 (TVF Envelope Level 1-4)

Specify the TVF envelope levels (L1-L4). These settings specify how the cutoff frequency will change at each point, relative to the standard cutoff frequency (the cutoff frequency value specified in the TVF FILTER page).



## Adjusting the Volume and Pan (TVA)

Here you can make settings for the TVA (Time Variant Amplifier). This specifies the volume change and pan of the Tone.

## TVA

1---	█	Level	Pan	V-Sens	V-Curve
TVA	↓	127	0	+24	2

## Level (Tone Level) ★

Sets the volume of the Tone. This setting is useful primarily for adjusting the volume balance between Tones.



The overall volume of the Patch is set by the Level parameter (PATCH/COMMON/PATCH LVL&PAN), and the Tone level setting is multiplied to this setting (p. 70).

## Pan (Tone Pan) ★

Sets the pan of the Tone. A setting of L64 is far left, 0 is center, and 63R is far right.



The overall panning of the entire Patch is set by the Pan parameter (PATCH/COMMON/PATCH LVL&PAN), and the Tone Pan setting is added to this setting (p. 70).



When any value from Type 2-10 is selected for the Type parameter (PATCH/COMMON/STRUCT) in the Pan parameter settings, the output of Tones 1 and 2 are joined in Tone 2, and the output of Tones 3 and 4 are joined in Tone 4. This means that 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. 73).

## V-Sens (TVA Envelope Velocity Sensitivity)

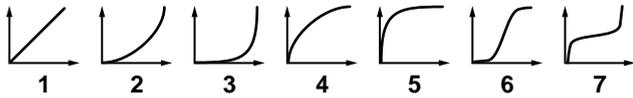
Specifies how keyboard playing dynamics will affect the depth of the TVA envelope. Positive (+) settings will cause the TVA envelope to have a greater effect for strongly played notes, and negative (-) settings will cause the effect to be less.



To edit the overall Patch while preserving the relative differences in the TVA Envelope Velocity Sensitivity values set for each Tone, set the Velocity Sens parameter (PATCH/COMMON/PATCH MODIFY) (p. 72). However, this setting is shared by the V-Cutoff parameter (PATCH/TVF/TVF VELOCITY) (p. 89).

### V-Curve (TVA Envelope Velocity Curve)

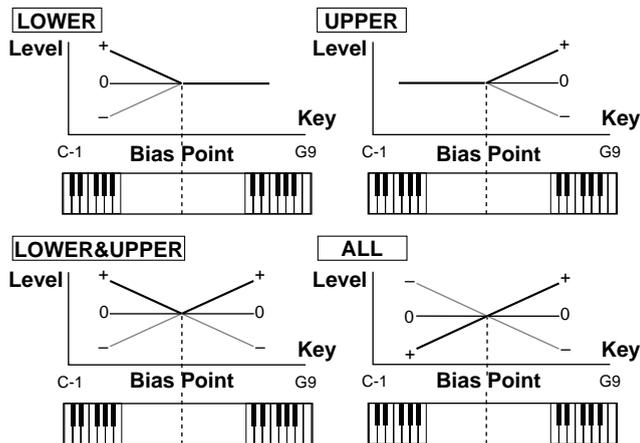
Selects one of the following seven curves to specify how keyboard dynamics will affect the TVA envelope. Set this to **FIXED** when the amount of TVA Envelope applied is not to be changed according to the force with which the keys are pressed.



### BIAS

```
1--- BIAS | ↑ Bias | Point | Direction
          | ↓   |   | C 4 | LOWER
```

Bias causes the volume to be affected by the keyboard position. This is useful for changing volume through keyboard position (pitch) when playing acoustic instruments.



#### Bias (Bias Level)

Adjusts the angle of the volume change that will occur in the selected Bias Direction. Higher values will result in more change. Negative (-) values will invert the change direction.

#### Point (Bias Point)

Specifies the key relative to which the volume will be modified.

#### Direction (Bias Direction)

Selects the direction in which change will occur starting from the Bias Point.

**LOWER:** The volume will be modified for the keyboard area below the Bias Point.

**UPPER:** The volume will be modified for the keyboard area above the Bias Point.

**LOWER&UPPER:** The volume will be modified symmetrically toward the left and right of the Bias Point.

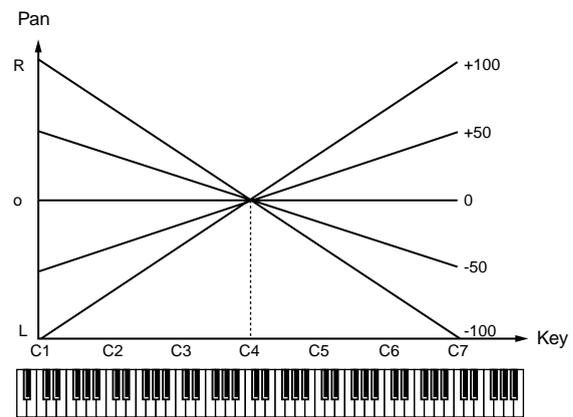
**ALL:** The volume changes linearly with the bias point at the center.

### PAN MODULATE

```
1--- PAN↑Keyfollow | Random | Alternate
MODULATE↓         | 0 | 0 | 0
```

#### Keyfollow (Pan Keyfollow)

Use this parameter if you want key position to affect panning. Positive (+) settings will cause notes higher than C4 key (center C) to be panned increasingly further toward the right, and negative (-) settings will cause notes higher than C4 key (center C) to be panned toward the left. Higher settings result in more change.



#### Random (Random Pan Depth)

Use this parameter when you want the stereo location to change randomly each time you press a key. Higher values will result in a greater width of change.

#### Alternate (Alternate Pan Depth)

This setting causes panning to be alternated between left and right each time a key is pressed. Higher values will result in a greater width of change. This can be set either to L or R, which will invert the order in which the panning is moved between left and right. For example if two Tones are set to L and R respectively, the panning of the two Tones will alternate each time they are played.

#### NOTE

When any value from Type 2–10 is selected for the Type parameter (PATCH/COMMON/STRUCT) in the Keyfollow, Random, Alternate parameter settings, the output of Tones 1 and 2 are joined in Tone 2, and the output of Tones 3 and 4 are joined in Tone 4. For this reason, Tone 1 will follow the settings of Tone 2, and Tone 3 will follow the settings of Tone 4 (p. 73).

## TVA TIME ENV (TVA Time Envelope)

```
1--- TVA↑   V-T1|   V-T4| Time Keyfollow
TIME ENV↓   0|    0|    +70
```

Here you can make settings for the TVA envelope (time-variant changes in volume).

### V-T1 (TVA Envelope Time 1 Velocity Sensitivity)

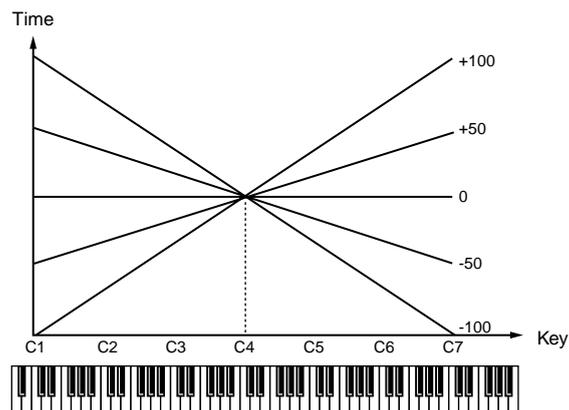
Use this parameter when you want keyboard playing (velocity) to affect T1 (Time 1) of the TVA envelope. If you want T1 time to be speeded up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

### V-T4 (TVA Envelope Time 4 Velocity Sensitivity)

Use this parameter when you want key-release speed to influence the T4 (Time 4) value of the TVA envelope. If you want T4 time to be speeded 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.

### Time Keyfollow (TVA Envelope Time Keyfollow)

Use this parameter when you want keyboard position to affect TVA envelope times (T2–T4). Based on the TVA envelope times for the C4 key (center C), positive (+) settings will cause notes higher than C4 to have increasingly shorter times, and negative (-) settings will cause them to have increasingly longer times. Higher values will cause more change.



## TVA ENVELOPE

```
1--- TVA↑ T1| T2| T3| T4| L1| L2| L3|
ENVELOPE↓ 0| 59| 78| 20|127| 97| 0|
```

### T1–T4 (TVA Envelope Time 1–4) ★

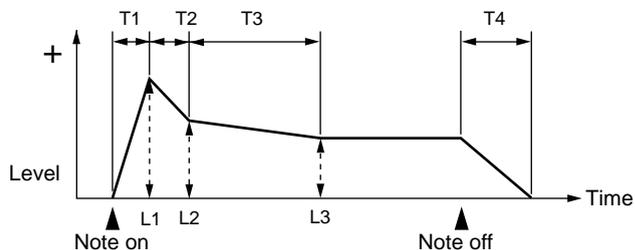
Specify the TVA envelope times (T1–T4). Larger values result in longer times until the next volume is reached (for instance, T2 controls the time from L1 until L2 is reached).

#### HINT

To edit the overall Patch while preserving the relative differences in the T1 parameter (Attack Time) values set for each Tone, set the Atk parameter (PATCH/COMMON/PATCH MODIFY) (p. 71). Similarly, to edit the overall Patch while preserving the relative differences in the T4 parameter (Release Time) values set for each Tone, set the Rel parameter (PATCH/COMMON/PATCH MODIFY) (p. 72).

### L1–L3 (TVA Envelope Level 1–3)

Specify the TVA envelope levels (L1–L3). These settings specify how the volume will change at each point, relative to the standard volume (the Tone Level value specified in the TVA page).

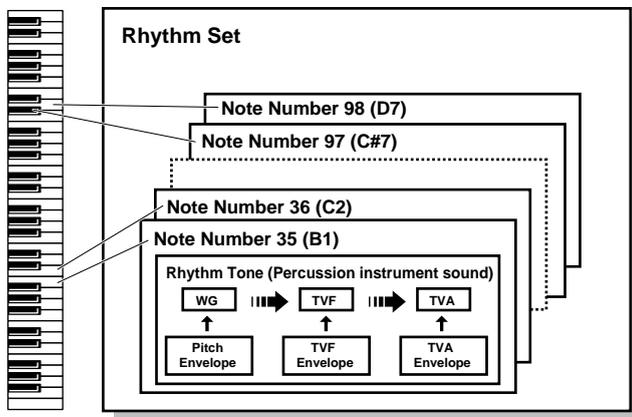


# Chapter 6. Creating Rhythm Sets

With the XV-88, you have total control over a wide variety of settings. Each item that can be set is known as a **parameter**. When you change the values of parameters, you are doing what is referred to as **Editing**. This chapter explains the procedures used in creating Rhythm Sets, and the functions of the Rhythm Set parameters.

## How a Rhythm Set Is Organized

A Rhythm Set is a grouping of percussion instruments (Rhythm Tones).



A percussion instrument (Rhythm Tones) consists of the following four elements.

### WG (Wave Generator)

Specifies the PCM waveform (wave) that is the basis of the sound, and determines how the pitch of the sound will change.

The XV-88 has 1,083 different waveforms (p. 263). All Rhythm Sets built into the XV-88 consist of combinations of Rhythm Tones based on these waveforms.

### NOTE

A Rhythm Tone (percussion instrument) has four wave generators.

### TVF (Time Variant Filter)

Specifies how the frequency components of the sound will change.

### TVA (Time Variant Amplifier)

Specifies the volume changes and the sound's position in a stereo soundfield.

### Envelope

You use Envelope to initiate changes to occur to a sound over time. There are separate envelopes for Pitch, TVF (filter), and TVA (volume). For example if you wish to modify the way in which the sound attacks or decays over time, you would adjust the TVA envelope.

## How to Make the Rhythm Set Settings

Start with an existing Rhythm Set and edit it to create a new Rhythm Set. Rhythm Sets are created from a collection of multiple Rhythm Tones (percussion instruments). You can change the assignments of the Rhythm Tones for each key with Rhythm Set Edit.

1. Press [RHYTHM] to access the RHYTHM PLAY page, and select the Rhythm Set whose settings you wish to modify (p. 39).

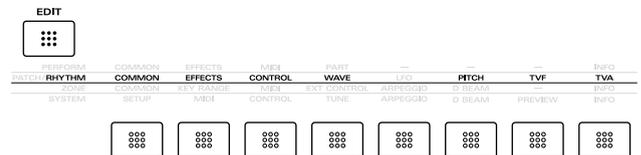
### NOTE

You cannot edit the Rhythm Sets in the PR-H (GM2) group.

### HINT

If you want to create all your Rhythm Sets from the ground up, rather than the Rhythm Sets that have already been prepared, carry out the **Initialize** operation (p. 185).

2. Press [EDIT] to make its indicator light.
3. Use the function buttons to select a display group. The indicator for the button of the selected display group begins blinking.



### NOTE

Since Rhythm Sets do not have an LFO, it will not be possible to select the LFO group.

4. Use ▲ or ▼ to select a display page.
5. If you have selected a parameter display that can be set independently for each key (Rhythm Tone), the key selected for editing will be shown in the upper left of the display. To select a different key (Rhythm Tone), play the desired key on the keyboard.



### HINT

If the [EDIT] indicator is turned off, you can also use TONE SELECT [1]–[4] to select the displayed key.  
 TONE SELECT [1]: move to an octave lower key  
 TONE SELECT [2]: move to the semitone below  
 TONE SELECT [3]: move to the semitone above  
 TONE SELECT [4]: move to an octave higher key

- Use ◀ or ▶ to move the cursor to the parameter you wish to modify.
- Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to modify the parameter value.

### HINT

If you've made a mistake in setting a parameter value, or you have second thoughts about the changes, press [UNDO/COMPARE] to restore the value to what it was.

- If you wish to move to another display group, press [EDIT] to make its indicator light, and use the function buttons.

### HINT

You can also move to another display group by holding down [SHIFT] and using ◀ or ▶. Since this can be done even when the [EDIT] indicator is dark, it is a faster way to get around because you don't have to turn on the [EDIT] indicator each time.

- Repeat steps 3–8 to complete a Rhythm Set.
- When you finish making settings, press [EXIT] or [RHYTHM] to return to the RHYTHM PLAY page.  
An asterisk \* will be displayed at the left of the Rhythm Set group. This indicates that the Rhythm Set settings have been modified.

```
RHYTHM *PR-A:001 PopDrumSet 1
PLAY      A 0<      >
```

### NOTE

If you select another Rhythm Set in the group with an asterisk \*, the modified Rhythm Set settings will be lost. To keep these modified settings, perform the save operation (p. 164).

## Making Settings While Comparing Waveforms (Palette Edit)

When modifying Wave settings for a Rhythm Set, the values for four Waves will be displayed together on a single display. This is called the **Palette page**. Use it when you want to modify parameter values as you compare the settings of the four Waves.

- When modifying a Wave, use ◀ or ▶ to move the cursor to the parameter you wish to modify.
- Press [PALETTE EDIT] to call up the Palette page.

```
A 0 WMT1↑ Group | Number | Hybrid Kick
WAVE ↓ INI|0734:----| -----
```

PALETTE EDIT



```
A 0 WAVE↑WMT=1 INT:0734(Hybrid Kick )
GROUP ↓ INI| INT| INT| INT| INT|
```

- Press TONE SELECT [1]–[4], ◀ or ▶ to choose the Wave to modify.  
The Wave number and Wave name appear in the display.
- Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to change the parameter value.

### HINT

If you've made a mistake in setting a parameter value, or you have second thoughts about the changes, press [UNDO/COMPARE] to restore the value to what it was.

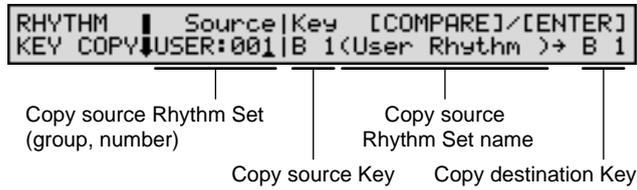
- If you wish to edit other parameters, press ▲ or ▼ to select the parameter that you wish to edit.
- Repeat steps 3–5 to complete a Rhythm Tone.
- To exit the Palette page, press [PALETTE EDIT], thus extinguishing the button's indicator.

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

Rhythm Tone (percussion instrument) settings from any desired Rhythm Set can be copied to any desired key of the currently selected Rhythm Set. This function can help you save time.

- Make sure a Rhythm Set is selected.

- Press [UTILITY], getting its indicator to start blinking.
- Press the numeric key [2], then ▲ or ▼ to call up the RHYTHM KEY COPY page.



- Press the cursor buttons to move the cursor to the parameter you want to set.
- Either rotate the VALUE dial or press [INC/+]/[DEC/-] to set the value.

**HINT**

- To specify the currently selected Rhythm Set as the copy source, set Source to TEMP.
- When the cursor is located at Source, you can also use [USER], [PRESET], and [A]–[F] to select a Rhythm Set group, and then use numeric keys to specify the Rhythm Set number.
- When the cursor is located at Key, you can also press the keyboard to select the key.
- By using TONE SELECT [1]–[4], you can also select the copy source key. By using TONE SWITCH [1]–[4], you can select the copy destination key.

TONE SELECT/SWITCH [1]: move to an octave lower key  
 TONE SELECT/SWITCH [2]: move to the semitone below  
 TONE SELECT/SWITCH [3]: move to the semitone above  
 TONE SELECT/SWITCH [4]: move to an octave higher key

- Press [ENTER] to execute the copy operation. When the Copy operation is executed, an \* symbol will be displayed in front of the copy-destination Part.
- Press [UTILITY] to return to the previous page.

### Cautions When Selecting a Waveform

The sounds of the XV-88 are based on complex PCM waveforms, and if you attempt to make settings that are contrary to the type of the original waveform, the results will not be as you expect.

The XV-88'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 the sound. Some of the XV-88's one-shot waveforms are sounds that are complete in themselves, such as percussive instrument sounds. The XV-88 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.

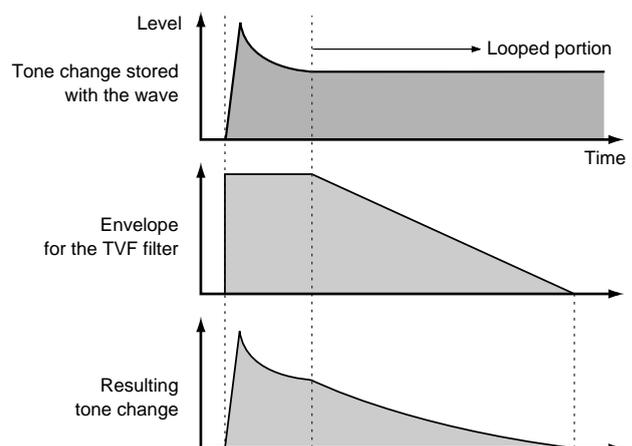
**Looped:** These waveforms include sounds with long decays as well as sustained sounds. Loop waveforms repeatedly play back (loop) the portion of the waveform after the sound has reached a relatively steady state. The XV-88's looped waveforms also include components of other sounds, such as piano-string resonant vibrations and the hollow sounds of brass instruments.

### Cautions When Using a One-shot Waveform

It is not possible to use the envelope to modify a one-shot waveform to create a decay that is longer than the original waveform, or to turn it into a sustaining sound. 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.

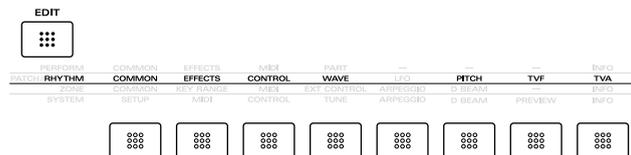
### Cautions When Using a Loop Waveform

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. For such waveforms, it is best to use the complex tonal changes of the attack portion of the waveform just as they are, and to use the envelope only to modify the decay portion. If you attempt to use the envelope to modify the attack portion as well, the characteristics of the original waveform may prevent you from getting the sound that you intend.



## Functions of Rhythm Set Parameters

This section explains the functions the different Rhythm Set parameters have, as well as the composition of these parameters.



### Settings Common to the Entire Rhythm Set (COMMON)

You can assign a name to a Rhythm Set and set the volume of the entire Rhythm Set.

#### RHYTHM NAME (Rhythm Set Name)



You can assign a name of up to 12 characters to a Rhythm Set.



For details on assigning names, refer to “Assigning a Name” (p. 28).

#### RHYTHM COMMON (Rhythm Set Common)



##### Level (Rhythm Set Level)

Sets the volume of the Rhythm Set.



The volume level of the overall Rhythm Tone is set with the Level parameter (RHYTHM/TVA/TVA) (p. 103); the volume levels of the Waves from which the Rhythm Tone is composed is set with the Level parameter (RHYTHM/WAVE/WMT WAVE) (p. 98).

##### Output Assign

Specifies for each Rhythm Set how the direct sound will be output.

**MFx:** Output in stereo through Multi-effects. You can also apply Chorus or Reverb to the sound that passes through Multi-effects.

**OUTPUT A:** Output to the OUTPUT A (MIX) jacks in stereo without passing through Multi-effects.

**OUTPUT B:** Output to the OUTPUT B jacks in stereo without passing through Multi-effects.

**INDIV 1:** Output to the INDIVIDUAL 1 jack in mono without passing through Multi-effects.

**INDIV 2:** Output to the INDIVIDUAL 2 jack in mono without passing through Multi-effects.

**INDIV 3:** Output to the INDIVIDUAL 3 jack in mono without passing through Multi-effects.

**INDIV 4:** Output to the INDIVIDUAL 4 jack in mono without passing through Multi-effects.

**STONE:** Outputs according to the settings for each Rhythm Tone.



- When outputting in mono, the Pan setting is disabled.
- 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.



If the Mix/Parallel parameter (SYSTEM/SETUP/SYSTEM SETUP) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 169).

#### RHYTHM TEMPO (Rhythm Set Tempo)



##### Clock Source (Rhythm Set Clock Source)

The Multi-effects changes and Phrase Loop can be synchronized to a clock (tempo). The Clock Source setting selects the timing reference to be used by the Rhythm Set.

**RHYTHM:** Synchronize to the Rhythm Set Tempo setting.

**SYSTEM:** The global System Tempo or clock messages received from an external sequencer will be used.



For details on using clock (tempo), refer to (p. 200).

##### Tempo (Rhythm Set Tempo)

When Clock Source (Patch Clock Source) is set to RHYTHM, this setting value is effective.



The Rhythm Set Tempo Clock does not transmit clock messages from the MIDI OUT connector.

## Setting Effects for a Rhythm Set (EFFECTS)



For details regarding effect settings, refer to the pages shown below.

- “Applying Effects in Patch Mode or Rhythm Set Mode” (p. 106)
- “Making Multi-Effects Settings” (p. 114)
- “Making Chorus Settings” (p. 156)
- “Making Reverb Settings” (p. 158)

## Controlling How a Rhythm Tone will Sound with Controllers (CONTROL)

The parameters in this group determine how the controllers function and how instruments in a Rhythm Set will sound.

### CONTROL

These parameters determine how each Rhythm Tone is controlled.

A 0	Bend Range	Envelope Mode
CONTROL ↓	2	SUSTAIN

A 0	Mute Group	Assign Type
CONTROL ↓	OFF	MULTI

#### Bend Range

Specifies the amount of pitch change in semitones (4 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.

#### Envelope Mode

Usually when a looped Wave (p. 95) is selected, sound will continue as long as a key remains pressed. Select NO SUSTAIN if you want sound to decay naturally even if the key is not released.



If a one-shot waveform (p. 95) is selected, it will not sustain even if this parameter is set to SUSTAIN.

### Mute Group

On an actual acoustic drum set, an open hi-hat and a closed hi-hat sound can never occur simultaneously. To reproduce the reality of this situation, you can set up a Mute Group.

The Mute Group function allows you to designate two or more Rhythm Tones that are not allowed to sound simultaneously. Up to 31 Mute Groups can be used. Rhythm Tones that are not belong to any such group should be set to OFF.

### Assign Type

Assign Type sets the way sounds are played when the same key is pressed a number of times.

**MULTI:** The sounds produced by pressing the same key are layered. Even with continuous sounds where the sound plays for an extended time, such as with crash cymbals, the sounds are layered, without previously played sounds being eliminated.

**SINGLE:** Only one sound can be played at a time when the same key is pressed. With continuous sounds where the sound plays for an extended time, the previous sound is stopped when the following sound is played.

### Rx MIDI (Receive MIDI)

These parameters determine how each Rhythm Tone will respond to received Expression/Pan/Hold 1 MIDI messages.

A 0	↑Expression	Pan	Hold-1
Rx MIDI ↓	ON	CONTINUOUS	ON

#### Expression (Receive Expression Switch)

Specifies whether Expression messages will be received (ON) or not (OFF).

#### Pan (Receive Pan Mode)

Specifies how Pan messages will be received.

**CONTINUOUS:** Pan messages will be responded to immediately, instantly changing the stereo position of the 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.



The channels cannot be set so as not to receive Pan messages.

#### Hold-1 (Receive Hold 1 Switch)

Specifies whether Hold 1 messages will be received (ON) or not (OFF).

## NOTE

If NO SUSTAIN is selected for Envelope Mode parameter (RHYTHM/CONTROL/CONTROL), this setting will have no effect.

## Modifying Waveform of a Rhythm Tone (WAVE)

This set of parameters allows you to select the waveform that serves as the basis for the currently selected Rhythm Tone (percussion instrument), apply effects to the waveform, and set its pitch.

With Rhythm Tones, sounds are created by combining up to four Waves (eight for stereo).

### Tips on Creating a Rhythm Tone

The Waves for the bass drum, snare, hi-hat, toms, and other percussion instruments are each assigned to one Rhythm Tone. When adding 3D effects to the sound, make the Pan settings for each Rhythm Tone individually.

## TONE NAME (Rhythm Tone Name)

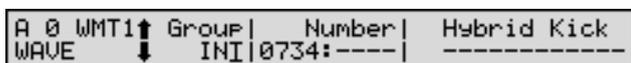


You can assign a name to the Rhythm Tone of up to 12 characters.



For details on assigning names, refer to “Assigning a Name” (p. 28).

## WMT WAVE



### Group (Wave Group)

Select the groups containing the Waves comprising the Rhythm Tone.

**INT:** Waveforms stored in internal memory

**XP-A-D:** Waveform stored in a Wave Expansion Board installed in EXP A-D slots.

## NOTE

You cannot select a waveform group of a Wave Expansion Board that is not installed.

### Number (Wave Number)

This selects the Waves comprising the Rhythm Tone. Along with the Wave number, the Wave name appears at the right of the display.

When in monaural mode, only the left side (L) is specified. When in stereo, the right side (R) is also specified.

## HINT

The Wave numbers can be divided and set in the first two and last two digits.

### Gain (Wave Gain)

Specifies the gain (amplitude) of the waveform. The value changes in 6 dB (decibel) steps—an increase of 6 dB doubles the waveform’s gain.

### Level (Wave Level)

You can set the volume of the waveform.

## HINT

The volume level of the overall Rhythm Tone is set with the Level parameter (RHYTHM/TVA/TVA) (p. 103); the volume levels of the entire Rhythm Set is set with the Level parameter (RHYTHM/COMMON/RHYTHM COMMON) (p. 96).

### Sw (Wave Switch)

This setting determines whether the Rhythm Tone’s constituent Waves are played (ON) or not (OFF). In order to make best use of the available number of simultaneous voices, unused waveforms should be turned off.

### Tempo Sync (Wave Tempo Sync)

When you wish to synchronize a Phrase Loop to the clock (tempo), set this to ON. This is valid only when an optional Wave Expansion Board, such as “SR-JV80-10: BASS&DRUMS,” is installed, and you have selected a Tone which uses a waveform that displays tempo (BPM). For details, refer to “Playing Phrase Loops in Sync with the System Tempo” (p. 201).

## NOTE

When the Tempo Sync parameter is set to ON, settings related to Pitch (p. 100) and FXM (p. 100) are disabled.

**What is a Phrase Loop?**

A Phrase Loop is a portion of a song that is excerpted with a sampler or by other means, and then played back repeatedly. One technique involving the use of Phrase Loops is the excerpting of a Phrase from a pre-existing song in a certain genre, for example dance music, and then creating a new song with that Phrase used as the basic motif. This is referred to as “Break Beats.”

**WMT VEL RANG (WMT Velocity Range)**



Specifies the range of playing dynamics (key velocity) which will sound the waveform. Make these settings when you want different waveforms to sound in response to notes played at different strengths.

**Lower (Velocity Range Lower)**

**Upper (Velocity Range Upper)**

Velocity Range sets the lower limit (Lower) and upper limit (Upper) for the velocity in each of the Waves comprising the Rhythm Tone. When a key is played more softly than the lower limit, or more strongly than the upper limit, the sound will either not be heard at all or will be extremely weak.

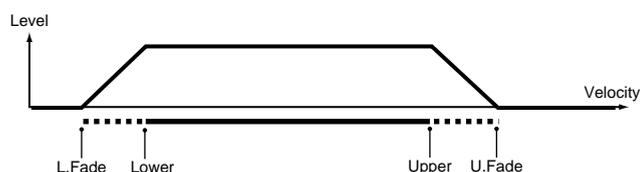
**NOTE**

If you attempt to set the Lower velocity limit above the Upper, or the Upper below the Lower, the other value will automatically be adjusted to the same setting.

**L.Fade (Velocity Fade Width Lower)**

**U.Fade (Velocity Fade Width Upper)**

L.Fade and U.Fade set the range within which the volume gradually fades as the velocity approaches the limits of the Velocity Range as set by the Lower and Upper parameters. Use this setting when, for example, you want to have adjacent waveforms in Split mode switched smoothly (Velocity Crossfade). The higher the values set, the smoother the switch is between the Tones. When you want the Tones to be switched instantly, set these to 0.



**VELO CONTROL (Velocity Control)**

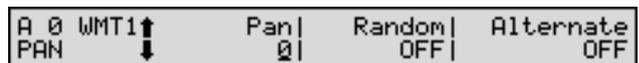


**WMT Velocity Control (WMT Velocity Control Switch)**

WMT Velocity Control determines whether a different Rhythm Tone is played (ON) or not (OFF) depending on the force with which the key is played (velocity).

When set to RANDOM, the Rhythm Set’s constituent Rhythm Tones will sound randomly, regardless of any Velocity messages.

**WMT PAN**



**Pan (Wave Pan)**

This specifies the pan of the waveform. A setting of L64 is far left, 0 is center, and 63R is far right.

**HINT**

The pan of the entire Rhythm Tone is set by the Pan parameter (RHYTHM/TVA/TVA) (p. 103).

**Random (Random Pan Switch)**

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 Random parameter (RHYTHM/TVA/TVA) (p. 103).

**Alternate (Alternate Pan Switch)**

This setting causes panning of the waveform to be alternated between left and right each time a key is pressed. Set Alternate Pan Switch to ON to pan the Wave according to the Alternate parameter (RHYTHM/TVA/TVA) (p. 103) 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.

## WMT TUNE (WMT Tune)

A 0	WMT1↑	Coarse	Fine
TUNE	↓	0	0

### Coarse (Coarse Tune)

Adjusts the pitch of the waveform's sound up or down in semitone steps (+/-4 octaves).



The Coarse Tune of the entire Rhythm Tone is set by the Coarse parameter (RHYTHM/PITCH/PITCH) (p. 100).

### Fine (Fine Tune)

Adjusts the pitch of the waveform's sound up or down in 1-cent steps (+/-50 cents).



One cent is 1/100th of a semitone.



The Fine Tune of the entire Rhythm Tone is set by the Fine parameter (RHYTHM/PITCH/PITCH) (p. 100).

## WMT FXM (WMT Frequency Cross Modulation)

A 0	WMT1↑	Switch	Color	Depth
FXM	↓	OFF	1	2

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.

### Switch (FXM Switch)

This sets whether FXM will be used (ON) or not (OFF).

### Color (FXM Color)

Specifies how FXM will perform frequency modulation. Higher settings result in a grainier sound, while lower settings result in a more metallic sound.

### Depth (FXM Depth)

Specifies the depth of the modulation produced by FXM.

## Modifying Pitch of a Rhythm Tone (PITCH)

You can set the Rhythm Tone pitch of each key.

### PITCH

A 0	Coarse	Fine	Random
PITCH	↓ C 4	0	0

### Coarse (Coarse Tune)

Selects the pitch at which a Rhythm Tone sounds.



Set the coarse tuning for Waves comprising the Rhythm Tones with the Coarse parameter (RHYTHM/WAVE/WMT TUNE) (p. 100).

### Fine (Fine Tune)

Adjusts the pitch of the Rhythm Tone's sound up or down in 1-cent steps (+/-50 cents).



One cent is 1/100th of a semitone.



Set the fine tuning for Waves comprising the Rhythm Tones with the Fine parameter (RHYTHM/WAVE/WMT TUNE) (p. 100).

### Random (Random Pitch Depth)

Specifies the width of random pitch deviation that will occur each time a key is pressed. If you do not want the pitch to change randomly, set this to 0. The setting is adjustable in units of 1 cent (1/100th of a semitone).

## PCH ENVELOPE (Pitch Envelope)

A 0	PCH↑	Depth	V-Sens	V-T1	V-T4	L0
ENVELOPE	↓	0	0	0	0	0

A 0	PCH↑	T1	T2	T3	T4	L1	L2	L3	L4
ENVELOPE	↓	0	40	80	40	-30	+30	0	0

Here you can make pitch envelope settings (changes in pitch over time).

### Depth (Pitch Envelope Depth)

Adjusts the effect of the pitch envelope. Higher settings will cause the pitch envelope to produce greater change. Negative (-) settings will invert the shape of the envelope.

**V-Sens (Pitch Envelope Velocity Sensitivity)**

Keyboard playing dynamics can be used to control the depth of the pitch envelope. If you want the pitch envelope to have more effect for strongly played notes, set this parameter to a positive (+) value. If you want the pitch envelope to have less effect for strongly played notes, set this to a negative (-) value.

**V-T1 (Pitch Envelope Time 1 Velocity Sensitivity)**

Use this parameter when you want keyboard playing dynamics (velocity) to affect T1 (Time 1) of the pitch envelope. Positive (+) settings will cause T1 time to speed up for strongly played notes, and negative (-) settings will cause it to slow down.

**V-T4 (Pitch Envelope Time 4 Velocity Sensitivity)**

Use this parameter when you want key release speed to impact on T4 (Time 4) value of the pitch envelope. If you want T4 time to be speeded 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.

**L0 (Pitch Envelope Level 0)**

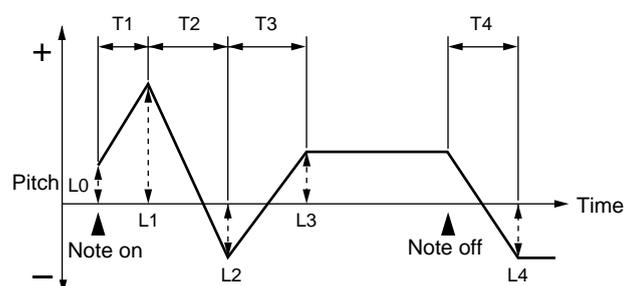
Specifies the pitch envelope level (L0). Pitch Envelope Level 0 determines the degree to which the pitch of the sound at the instant the key is pressed is altered relative to the reference pitch (the Coarse Tune or Fine Tune value set in the PITCH page). Positive (+) settings will cause the pitch to be higher than the standard pitch, and negative (-) settings will cause it to be lower.

**T1-T4 (Pitch Envelope Time 1-4)**

Specify the pitch envelope times (T1-T4). Larger values result in longer times until the next pitch is reached (for instance, T2 controls the time from L1 until L2 is reached).

**L1-L4 (Pitch Envelope Level 1-4)**

Set the level (L1-L4) for the pitch envelope. It determines how much the pitch changes from the reference pitch (the value set with Coarse Tune or Fine Tune on the PITCH page) at each point. Positive (+) settings will cause the pitch to be higher than the standard pitch, and negative (-) settings will cause it to be lower.

**Changing the Tone (Filter) of a Rhythm Tone (TVF)**

Here you can make settings for the TVF (Time Variant Filter). This allows you to change a Rhythm Tone's timbral content by altering its brightness or thickness.

**TVF FILTER**

A 0	TVF	Type	Cutoff	Resonance
FILTER	↓	OFF	127	0

**Type (Filter Type)**

Selects the filter type. A filter is a function that cuts off a specific frequency band to change a sound's brightness, thickness, and other qualities.

**OFF:** No filter is used.

**LPF:** A Low Pass Filter reduces the volume of frequencies above the Cutoff frequency (Cutoff parameter) in order to round off, or 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 can be useful when creating distinctive sounds.

**HPF:** A High Pass Filter reduces the volume of the frequencies below the cutoff frequency. This is suitable for creating percussive sounds 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. Although frequency components above the Cutoff frequency (Cutoff parameter) are cut, the sensitivity of this filter is half that of the LPF. This makes it a comparatively warmer low pass filter. This filter is good for use with simulated instrument sounds such as the acoustic piano.

**LPF3:** Low Pass Filter 3. Although frequency components above the Cutoff frequency (Cutoff parameter) are cut, the sensitivity of this filter changes according to the Cutoff frequency. While this filter is also good for use with simulated acoustic instrument sounds, the nuance it exhibits differs from that of the LPF2, even with the same TVF Envelope settings.

**NOTE**

If you set LPF2 or LPF3, the setting for the Resonance parameter will be ignored.

## Cutoff (Cutoff Frequency)

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 Type parameter, lower cutoff frequency settings reduce a Tone's upper harmonics for a more rounded, warmer sound. Higher settings make it sound brighter.

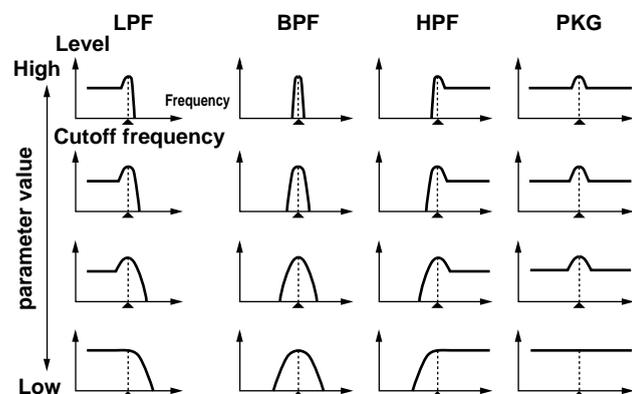
When the Type parameter is BPF, the cutoff frequency setting determines the range of frequencies within the Tone that will be heard. This can be useful when creating distinctive sounds.

When the Type parameter is HPF, higher settings of the cutoff frequency decrease the level of the Tone's low frequencies, preserving its brighter qualities.

With PKG selected, the harmonics to be emphasized will vary depending on Cutoff Frequency setting.

## Resonance

Emphasizes the portion of the sound in the region of the cutoff frequency, adding character to the sound. Excessively high settings can produce oscillation, causing the sound to distort.



## TVF VELOCITY

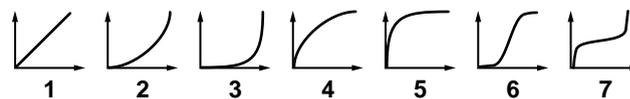
```
A 0 TVF↑ V-Cutoff | U-Curve | U-Resonance
VELOCITY↓      0 | 1 ✓ | 0
```

## V-Cutoff (Cutoff Frequency Velocity Sensitivity)

Use this parameter when changing the cutoff frequency to be applied as a result of changes in playing velocity. If you want strongly played notes to raise the cutoff frequency, set this parameter to positive (+) settings. If you want strongly played notes to lower the cutoff frequency, use negative (-) settings.

## V-Curve (Cutoff Frequency Velocity Curve)

Selects one of the following seven curves that determine how keyboard playing dynamics (velocity) influence the cutoff frequency. Set this to FIXED when the Cutoff frequency is not to be changed according to the force with which the keys are pressed.



## V-Resonance (Resonance Velocity Sensitivity)

This allows keyboard velocity to modify the amount of Resonance. If you want strongly played notes to have a greater Resonance effect, set this parameter to positive (+) settings. If you want strongly played notes to have less Resonance, use negative (-) settings.

## TVF ENVELOPE

```
A 0 TVF↑ Depth | U-Sens | U-Curve
ENVELOPE↓    0 | 0 | 1 ✓
```

```
A 0 TVF↑ U-T1 | U-T4 | L0
ENVELOPE↓ 0 | 0 | 0
```

```
A 0 TVF↑ T1 | T2 | T3 | T4 | L1 | L2 | L3 | L4
ENVELOPE↓ 0 | 10 | 10 | 64 | 127 | 127 | 127 | 0
```

This is used for setting TVF envelope (how cutoff frequency changes over time).

## Depth (TVF Envelope Depth)

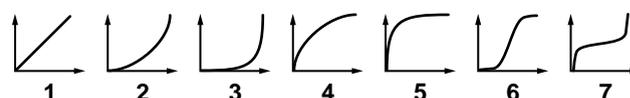
Specifies the depth of the TVF envelope. Higher settings will cause the TVF envelope to produce greater change. Negative (-) settings will invert the shape of the envelope.

## V-Sens (TVF Envelope Velocity Sensitivity)

Specifies how keyboard playing dynamics will affect the depth of the TVF envelope. Positive (+) settings will cause the TVF envelope to have a greater effect for strongly played notes, and negative (-) settings will cause the effect to be less.

## V-Curve (TVF Envelope Velocity Curve)

Selects one of the following 7 curves that will determine how keyboard playing dynamics will affect the TVF envelope. Set this to FIXED when the amount of TVF Envelope applied is not to be changed according to the force with which the keys are pressed.



**V-T1 (TVF Envelope Time 1 Velocity Sensitivity)**

Use this parameter when you want velocity to affect T1 (Time 1) of the TVF envelope. If you want T1 time to be speeded 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.

**V-T4 (TVF Envelope Time 4 Velocity Sensitivity)**

The parameter to use when you want key release speed to control the T4 (Time 4) value of the TVF envelope. If you want T4 time to be speeded 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.

**L0 (TVF Envelope Level 0)**

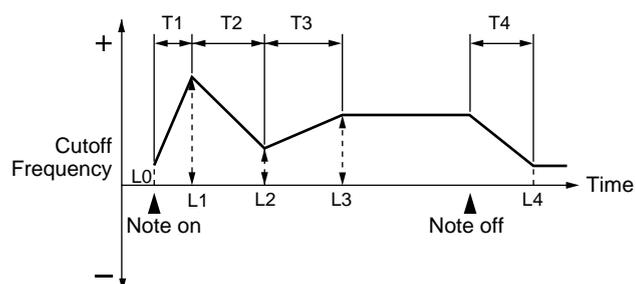
Sets the TVF envelope level (L0). TVF Envelope Level 0 determines the degree to which the Cutoff frequency for the sound at the instant the key is pressed is altered relative to the reference Cutoff frequency (the Cutoff frequency value set in the TVF FILTER page).

**T1-T4 (TVF Envelope Time 1-4)**

Specify the TVF envelope times (T1-T4). Larger values result in longer times until the next cutoff frequency is reached (for instance, T2 controls the time from L1 until L2 is reached).

**L1-L4 (TVF Envelope Level 1-4)**

Specify the TVF envelope levels (L1-L4). These settings specify how the cutoff frequency will change at each point, relative to the standard cutoff frequency (the cutoff frequency value specified in the TVF FILTER page).

**Adjusting the Volume and Pan of a Rhythm Tone (TVA)**

Here you can make settings for the TVA (Time Variant Amplifier). This sets the volume change and pan of the Rhythm Tone.

**TVA**

A 0	Level	Pan	Random	Alternate
TVA	122	0	0	0

**Level (Rhythm Tone Level)**

Sets the volume of the Rhythm Tone. Use this parameter to adjust the volume balance between Rhythm Tones.

**HINT**

The volume level of the overall Rhythm Set is set with the Level parameter (RHYTHM/COMMON/RHYTHM COMMON) (p. 96); the volume levels of the Waves from which the Rhythm Tone is composed is set with the Level parameter (RHYTHM/WAVE/WMT WAVE) (p. 98).

**Pan (Rhythm Tone Pan)**

Sets the pan for the Rhythm Tone. A setting of L64 is far left, 0 is center, and 63R is far right.

**HINT**

Set the Pan for Waves comprising the Rhythm Tones with the Pan parameter (RHYTHM/WAVE/WMT PAN) (p. 99).

**Random (Random Pan Depth)**

Use this parameter when you want the stereo location to change randomly each time you press a key. Higher values will result in a greater width of change.

**Alternate (Alternate Pan Depth)**

This setting causes panning to be alternated between left and right each time a key is pressed. Higher values will result in a greater width of change. This can be set either to L or R, which will invert the order in which the panning is moved between left and right. For example if two Rhythm Tones are set to L and R respectively, the panning of the two Rhythm Tones will alternate each time they are played.

## Chapter 6. Creating Rhythm Sets

### TVA VELOCITY

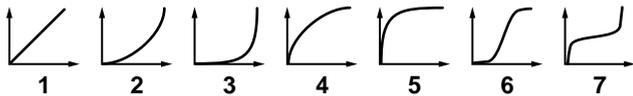
```
A 0 TVA↑ Velocity Sens| Velocity Curve
VELOCITY↓ +32| 1✓
```

#### Velocity Sens (TVA Envelope Velocity Sensitivity)

Specifies how keyboard playing dynamics will affect the depth of the TVA envelope. Positive (+) settings will cause the TVA envelope to have a greater effect for strongly played notes, and negative (-) settings will cause the effect to be less.

#### Velocity Curve (TVA Envelope Velocity Curve)

Selects one of the following seven curves to specify how keyboard dynamics will affect the TVA envelope. Set this to FIXED when the amount of TVA Envelope applied is not to be changed according to the force with which the keys are pressed.



### TVA TIME ENV (TVA Time Envelope)

```
A 0 TVA↑ U-T1| U-T4
TIME ENV↓ 0| 0
```

Here you can make settings for the TVA envelope (time-variant changes in volume).

#### V-T1 (TVA Envelope Time 1 Velocity Sensitivity)

Use this parameter when you want keyboard playing (velocity) to affect T1 (Time 1) of the TVA envelope. If you want T1 time to be speeded 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.

#### V-T4 (TVA Envelope Time 4 Velocity Sensitivity)

Use this parameter when you want key-release speed to influence the T4 (Time 4) value of the TVA envelope. If you want T4 time to be speeded 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.

### TVA ENVELOPE

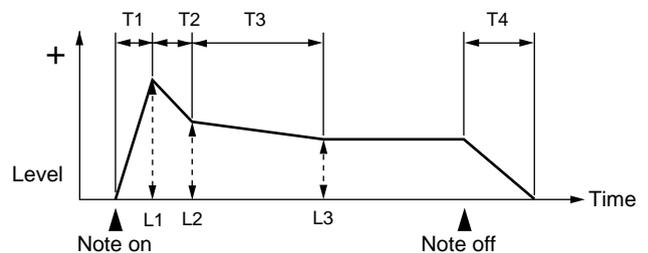
```
A 0 TVA↑ T1| T2| T3| T4| L1| L2| L3|
ENVELOPE↓ 0| 10| 10| 10|127|127|127|
```

#### T1-T4 (TVA Envelope Time 1-4)

Specify the TVA envelope times (T1-T4). Larger values result in longer times until the next volume is reached (for instance, T2 controls the time from L1 until L2 is reached).

#### L1-L3 (TVA Envelope Level 1-3)

Specify the TVA envelope levels (L1-L3). These settings specify how the volume will change at each point, relative to the standard volume (the Rhythm Tone Level value specified in the TVA page).



# Chapter 7. Adding 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. 194).

## About the Onboard Effects

### Effect Types

The XV-88 has the following three onboard effect processors, and settings can be made independently for each.

### Multi-Effects

The Multi-effects are multi-purpose effects that completely change the sound type by changing the sound itself. Contained are 63 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.



In GM mode, you cannot use Multi-effects.

### Chorus

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



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

### Reverb

Reverb adds the reverberation characteristics of halls or auditoriums. Four different types are offered, so you can select and use the type that suits your purpose.



A GM-exclusive Reverb is used in GM mode.

## Turning Effects On/Off

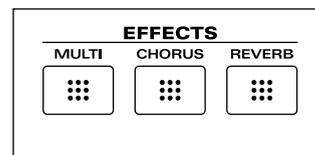
The XV-88's onboard effects can be turned on/off as a whole. Turn these settings OFF when you wish to listen to the unprocessed sound as you create a sound, or when you wish to use external effects processors instead of the built-in effects.



- When the XV-88 is put in a status wherein the internal effects are not in use, then no effects are applied, even when effects settings are made. In this case, an **x** mark appears to the right of the settings screen for the effect set to OFF.



- Effect ON/OFF settings are global XV-88 settings. These settings cannot be made for each Patch or Performance individually.
- Press [MULTI] [CHORUS] [REVERB] to turn the effects processor on (indicator lighted) or off (indicator extinguished).



[MULTI]: Switches the Multi-effects on/off.

[CHORUS]: Switches Chorus on/off.

[REVERB]: Switches Reverb on/off.



Since the Multi-effects cannot be used in GM mode, nothing happens when [MULTI] is pressed in this mode.

# Applying Effects in Patch Mode or Rhythm Set Mode

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. 108, p. 109)

### 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. 110)

### 3. Making Multi-Effects Settings

Select the type of Multi-effects to be used, and set the parameters for the selected Multi-effect. → (p. 114, p. 115)

### 4. Setting the Multi-Effects Controller

When using MIDI messages to change the Multi-effects parameters in realtime, select the Multi-effects controller. → (p. 115)

### 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. 116)

### 6. Making Chorus Settings

Select the Chorus type to be used, and set each of the parameters for the selected Chorus. → (p. 156, p. 157)

### 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. 158)

### 8. Making Reverb Settings

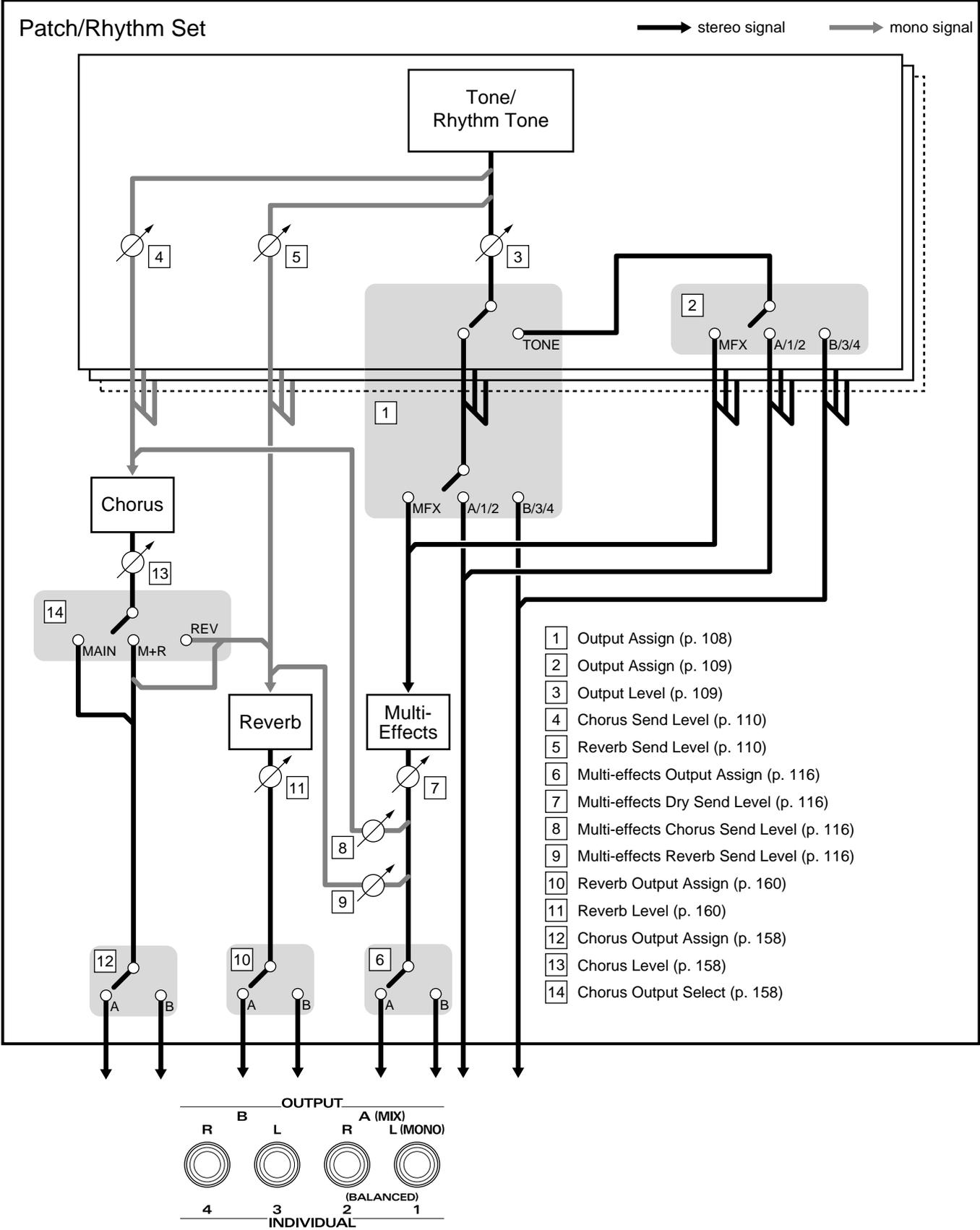
Select the Reverb type to be used, and set each of the parameters for the selected Reverb. → (p. 159)

### 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. 160)

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.



## Selecting the Way the Direct Sound is Output

Here, set the way the direct sound is output for each Patch or Rhythm Set. 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).

### HINT

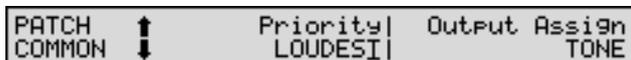
You can select the way the direct sound is output for each Tone or Rhythm Tone individually (p. 109).

### About the Output Jacks

The XV-88 is equipped with four OUTPUT jacks. Patch and Rhythm Set sounds are output from any of these jacks. Each jack can of course output sounds monaurally, and by using two jacks as a pair, you can output sounds in stereo (left/right).

Additionally, you can change the jacks used to output the sounds for each of the Tones and Rhythm Tones individually. For example, when playing a Rhythm Set, you can output the snare drum in stereo from the OUTPUT A (MIX) jacks, the bass drum in mono from the INDIVIDUAL 3 jack, and the hi-hat in mono from the INDIVIDUAL 4 jack. With this arrangement, you can process each of the Rhythm Tones with a different effect.

1. After confirming that you are in Patch/Rhythm Set mode, select the desired Patch/Rhythm Set (p. 29, p. 39).
2. After pressing [EDIT] to make the indicator light up, press the [COMMON] function button, and press ▲ or ▼ to display the PATCH COMMON page.



### MEMO

When a Rhythm Set is selected, display the RHYTHM COMMON page.

3. Press ◀ or ▶ to move the cursor to “Output Assign.”
4. Rotate the VALUE dial, or press [INC/+]/[DEC/-] to specify how the direct sound will be output.

## Output Assign

Specifies for each Patch/Rhythm Set how the direct sound will be output.

**MFX:** Output in stereo through Multi-effects. You can also apply Chorus or Reverb to the sound that passes through Multi-effects.

**OUTPUT A:** Output to the OUTPUT A (MIX) jacks in stereo without passing through Multi-effects.

**OUTPUT B:** Output to the OUTPUT B jacks in stereo without passing through Multi-effects.

**INDIV 1:** Output to the INDIVIDUAL 1 jack in mono without passing through Multi-effects.

**INDIV 2:** Output to the INDIVIDUAL 2 jack in mono without passing through Multi-effects.

**INDIV 3:** Output to the INDIVIDUAL 3 jack in mono without passing through Multi-effects.

**INDIV 4:** Output to the INDIVIDUAL 4 jack in mono without passing through Multi-effects.

**TONE:** Output according to the settings for each Tone/Rhythm Tone.

### NOTE

- When outputting in mono, the Pan setting is disabled.
- 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/SETUP/SYSTEM SETUP) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 169).

### HINT

- When setting the MFX, set the output destination with the Output parameter (PATCH/EFFECTS/PATCH MFX OUT)/(RHYTHM/EFFECTS/RHYTHM MFX OUT) for the sound after it has passed through the Multi-effects (p. 116).
- When set to TONE, the Output Assign parameter (PATCH/EFFECTS/OUTPUT)/(RHYTHM/EFFECTS/OUTPUT) is set for each Tone or Rhythm Tone (p. 109).
- Chorus and Reverb are output in mono at all times.

- The output destination of the signal after passing through the chorus is set with Output Assign parameter or Select parameter (PATCH/EFFECTS/PATCH CHO OUT)/(RHYTHM/EFFECTS/RHYTHM CHO OUT) (p. 158).
- The output destination of the signal after passing through the Reverb is set with the Output Assign parameter (PATCH/EFFECTS/PATCH REV OUT)/(RHYTHM/EFFECTS/RHYTHM REV OUT) (p. 160).



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

- Multi-effects → (p. 114)
  - Chorus → (p. 156)
  - Reverb → (p. 158)
5. Press [EXIT] to return to the PATCH PLAY/RHYTHM PLAY page.
- An asterisk \* will be displayed at the left of the Patch/Rhythm Set group. This indicates that the Patch/Rhythm Set settings have been modified.



If you select another Patch/Rhythm Set in the group with an asterisk \*, the modified Patch/Rhythm Set settings will be lost. To keep these modified settings, perform the save operation (p. 164).

## The Settings for Each Tone/ Rhythm Tone

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

1. After confirming you are in Patch/Rhythm Set mode, select the desired Patch or Rhythm Set (p. 29, p. 39).
2. Press [EDIT] to make the indicator light up, press the [EFFECTS] function button, and press ▲ or ▼ to display the OUTPUT page.

1---	↓	Output Assign	Chorus	Reverb
OUTPUT	↓	MF8: 127	0	0

3. Choose the Tone/Rhythm Tone for which you want to make settings.

### When Selecting a Tone

After turning off the [EDIT] indicator, use TONE SELECT [1]–[4] to select the tone.

### When Selecting a Rhythm Tone

Press the key that accesses the Rhythm Tone you wish to set. After turning off the [EDIT] indicator, you can also use TONE SELECT [1]–[4] to select the following setting.

- TONE SELECT [1]: move to an octave lower key
- TONE SELECT [2]: move to the semitone below
- TONE SELECT [3]: move to the semitone above
- TONE SELECT [4]: move to an octave higher key

4. Press ◀ or ▶ to move the cursor to the parameter you're going to modify.

### Output Assign (Output Assign/Output Level★)

Sets the direct sound's output method and volume for each Tone or Rhythm Tone.

**MF8:** Output in stereo through Multi-effects. You can also apply Chorus or Reverb to the sound that passes through Multi-effects.

**OUTPUT A:** Output to the OUTPUT A (MIX) jacks in stereo without passing through Multi-effects.

**OUTPUT B:** Output to the OUTPUT B jacks in stereo without passing through Multi-effects.

**INDIV 1:** Output to the INDIVIDUAL 1 jack in mono without passing through Multi-effects.

**INDIV 2:** Output to the INDIVIDUAL 2 jack in mono without passing through Multi-effects.

**INDIV 3:** Output to the INDIVIDUAL 3 jack in mono without passing through Multi-effects.

**INDIV 4:** Output to the INDIVIDUAL 4 jack in mono without passing through Multi-effects.

The value on the right sets the volume of the 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.

### NOTE

- When the Output Assign parameter (PATCH/COMMON/PATCH COMMON)/(RHYTHM/COMMON/RHYTHM COMMON) is set to anything but TONE, the setting made here has no effect (p. 108).
- When the Type parameter (PATCH/COMMON/STRUCT) 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. 73).
- When outputting in mono, the Pan setting is disabled.
- 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/SETUP/SYSTEM SETUP) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 169).

### HINT

- When setting the MFX, set the output destination with the Output parameter (PATCH/EFFECTS/PATCH MFX OUT)/(RHYTHM/EFFECTS/RHYTHM MFX OUT) for the sound after it has passed through the Multi-effects (p. 116).
- Chorus and Reverb are output in mono at all times.
- The output destination of the signal after passing through the chorus is set with Output Assign parameter or Select parameter (PATCH/EFFECTS/PATCH CHO OUT)/(RHYTHM/EFFECTS/RHYTHM CHO OUT) (p. 158).
- The output destination of the signal after passing through the reverb is set with Output Assign parameter (PATCH/EFFECTS/PATCH REV OUT)/(RHYTHM/EFFECTS/RHYTHM REV OUT) (p. 160).



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

- Multi-effects → (p. 114)
- Chorus → (p. 156)
- Reverb → (p. 158)

### Chorus (Chorus Send Level) ★

Sets the chorus depth for individual Tone/Rhythm Tone. If you don't want to add the Chorus effect, set it to 0.

### Reverb (Reverb Send Level) ★

Sets the reverb depth for individual Tone/Rhythm Tone. If you don't want to add the Reverb effect, set it to 0.

5. Either rotate the VALUE dial or press [INC/+]/[DEC/-] to set the value.
6. Press [EXIT] to return to the PATCH PLAY/RHYTHM PLAY page.

An asterisk \* will be displayed at the left of the Patch/Rhythm Set group. This indicates that the Patch/Rhythm Set settings have been modified.

### NOTE

If you select another Patch/Rhythm Set in the group with an asterisk \*, the modified Patch/Rhythm Set settings will be lost. To keep these modified settings, perform the save operation (p. 164).

## Applying Effects in Performance Mode

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

When adding effects in Performance mode, the settings for the Patches or Rhythm Sets assigned to the Parts are disabled, and the effect settings for the Performance go into effect. Thus, the effects for the same Patch or Rhythm Set may differ when played in Patch/Rhythm Set mode and in Performance mode. However, depending on the settings, you can have effect settings for a Patch or Rhythm Set assigned to a Part applied to the entire Performance (p. 114).

### 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. 113)

#### 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. 113)

#### 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. → (p. 114, p. 115)

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

When using MIDI messages to change the Multi-effects parameters in realtime, select the Multi-effects controller. → (p. 115)

#### 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. 116)

#### 6. Making Chorus Settings

Select the Chorus type to be used, and set each of the parameters for the selected Chorus. → (p. 156, p. 157)

#### 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. 158)

#### 8. Making Reverb Settings

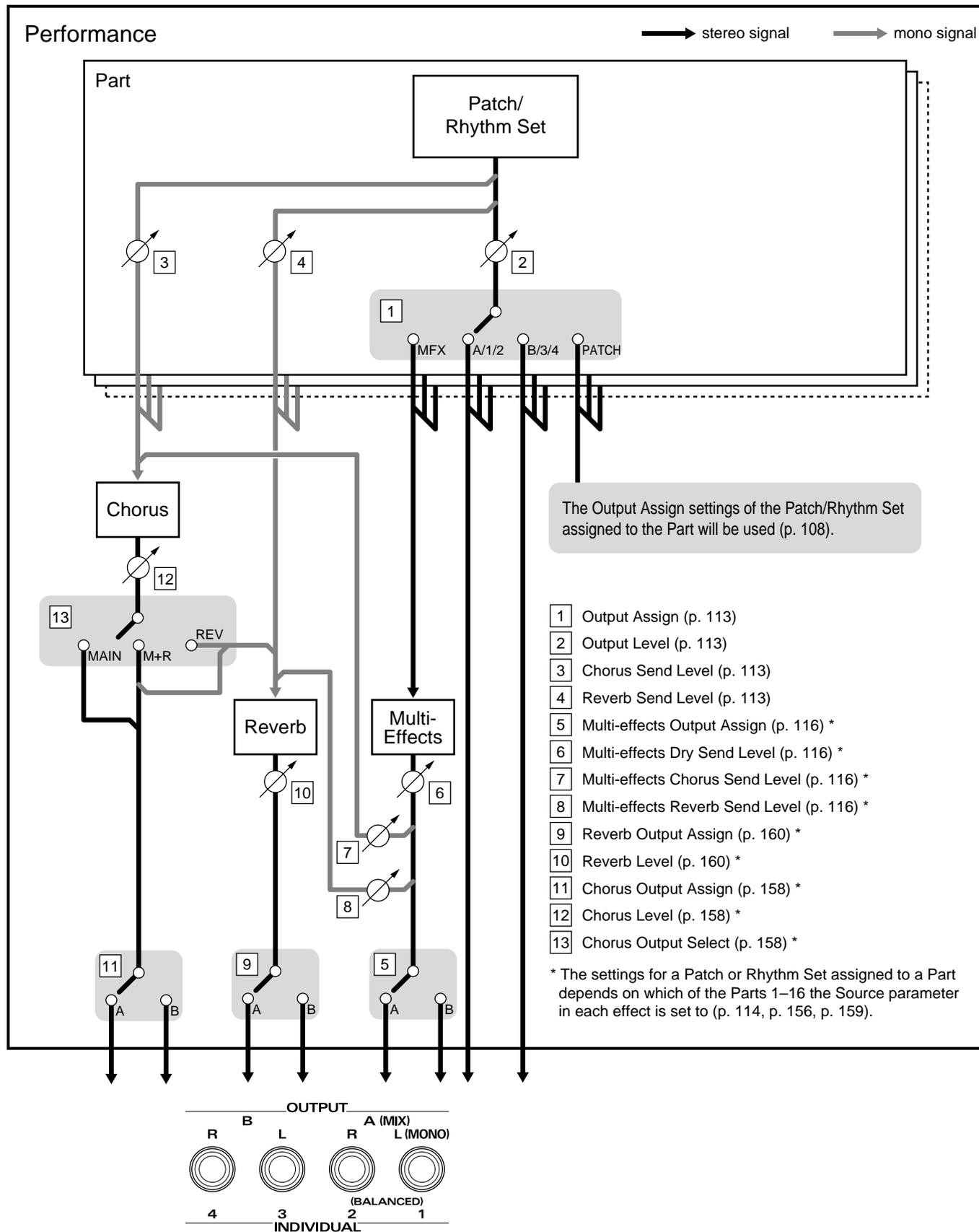
Select the Reverb type to be used, and set each of the parameters for the selected Reverb. → (p. 159)

#### 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. 160)

## 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.



## Selecting the Way the Direct Sound is Output

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).

### HINT

The way the direct sound is output can also use the settings of a Patch/Rhythm Set assigned to a Part.

1. After confirming that you are in Performance mode, select the desired Performance (p. 35).
2. Press [EDIT] to make the indicator light up, press the [EFFECTS] function button, and press ▲ or ▼ to display the OUTPUT page.

PART 1	Output Assign	Chorus	Reverb
OUTPUT ↓	PATCH: 127	0	0

3. Choose the Part for which you want to make settings. Turn off the [EDIT] indicator, and then use [1-8/9-16] and ZONE/PART SELECT [1/9]-[8/16] to select a Part.
4. Press ◀ or ▶ to move the cursor to the parameter you're going to modify.

### Output Assign (Output Assign/Output Level)

Sets the direct sound's output method and volume 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:** Output to the OUTPUT A (MIX) jacks in stereo without passing through Multi-effects.

**OUTPUT B:** Output to the OUTPUT B jacks in stereo without passing through Multi-effects.

**INDIV 1:** Output to the INDIVIDUAL 1 jack in mono without passing through Multi-effects.

**INDIV 2:** Output to the INDIVIDUAL 2 jack in mono without passing through Multi-effects.

**INDIV 3:** Output to the INDIVIDUAL 3 jack in mono without passing through Multi-effects.

**INDIV 4:** Output to the INDIVIDUAL 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.

The value on the right sets the Part volume. 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.

### NOTE

- When outputting in mono, the Pan setting is disabled.
- 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/SETUP/SYSTEM SETUP) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 169).

### HINT

- When setting the MFX, set the output destination with the Output parameter (PERFORM/EFFECTS/MFX OUT) for the sound after it has passed through the Multi-effects (p. 116).
- Chorus and Reverb are output in mono at all times.
- The output destination of the signal after passing through the Chorus is set with the Output Assign parameter and the Select parameter (PERFORM/EFFECTS/CHO OUT) (p. 158).
- The output destination of the signal after passing through the Reverb is set with the Output Assign parameter (PERFORM/EFFECTS/REV OUT) (p. 160).



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

- Multi-effects → (p. 114)
- Chorus → (p. 156)
- Reverb → (p. 158)

### Chorus (Chorus Send Level)

Adjusts the amount of Chorus for each Part. If you don't want to add the Chorus effect, set it to 0.

### Reverb (Reverb Send Level)

Adjusts the amount of Reverb for each Part. If you don't want to add the Reverb effect, set it to 0.

### 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).

5. Either rotate the VALUE dial or press [INC/+]/[DEC/-] to set the value.
6. Press [EXIT] to return to the PERFORM PLAY page.  
An asterisk \* appears at the left of the Performance group on the display. This shows Performance settings have been modified.

### NOTE

If you select another Performance in the group with an asterisk \*, the modified Performance settings will be lost. To keep these modified settings, perform the save operation (p. 164).

## Making Multi-Effects Settings

You can make the settings for Multi-Effects used by Patches/Rhythm Sets/Performances.

### Setting Procedure

1. After confirming that you are in Patch/Rhythm Set/Performance mode, select the desired Patch/Rhythm Set/Performance (p. 29, p. 35, p. 39).
2. Press [EDIT], getting the indicator to light, and then press the [EFFECTS] function button.
3. Press ▲ or ▼ to display the desired Edit page.
4. Press ◀ or ▶ to move the cursor to the parameter you're going to modify.
5. Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to change the parameter value.
6. When you finish making settings, press [EXIT] to return to the previous PLAY page.  
An asterisk \* will be displayed at the left of the Patch/Rhythm Set/Performance group. This indicates that the Patch/Rhythm Set/Performance settings have been modified.

### NOTE

If you select another Patch/Rhythm Set/Performance in the group with an asterisk \*, the modified Patch/Rhythm Set/Performance settings will be lost. To keep these modified settings, perform the save operation (p. 164).

## Functions of Parameters

The functions of Multi-effects parameters are explained according to the display arrangement.

### MFX TYPE

PERFORM ↑Type	Source
MFX TYPE↓01:STEREO EQ	PERFORM

#### Type (Multi-Effects Type)

Use this parameter to select from among the 63 available Multi-effects. For details on Multi-effects parameters, refer to “Multi-Effects Types” (p. 117).

#### Source (Multi-Effects Source)

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.

### MEMO

If you have selected the Part number here, the Part number will be displayed in the upper left of the MFX parameter setting display of Performances.

Part 1 ↑Type	Source
MFX TYPE↓01:STEREO EQ	PART 1

### NOTE

This parameter is not available when a Patch or Rhythm Set is being selected.

### When Patch or Rhythm Set Settings Are Selected

When the Patch or Rhythm Set's Multi-effects settings are selected, those settings are shown in each of the Performance's MFX settings pages, and the settings can be then be changed as well. Changes to Patch or Rhythm Set Multi-effects parameter settings are lost when another Patch or Rhythm Set is selected. To keep the modified settings, save the Patch/Rhythm Set settings (p. 164).

## MFX PRM (MFX Parameter)

PERFORM	↑	LowFreq		LowGain		Hi Freq		Hi Gain
MFX PRM	↓	200		+7		4000		+4

MFX Parameter sets the parameters for the Multi-effects selected by the Multi-effects type. For more detailed information on the parameters that can be set in each Multi-effect, please refer to “Multi-Effects Types” (p. 117).

### NOTE

When the Type parameter in the MFX TYPE page is set to 00:THROUGH, the MFX PRM page will not be displayed.

## MFX CTRL (MFX Control)

PERFORM	↑	1:	Source		Destination		Sens
MFX CTRL	↓		OFF		OFF		0

Use this when you want to change the Multi-effects parameters in realtime using the specified MIDI messages.

### NOTE

- When the Type parameter in the MFX TYPE page is set to 00:THROUGH, the MFX CTRL page will not be displayed.
- In Performance mode, when the Source parameter in the MFX TYPE page is set to PERFORM, you cannot use the Multi-effects controller if the MFX Control Channel parameter (PERFORM/COMMON/PERFORM MFX CH) is set to OFF (p. 51).

### What is the Multi-Effects Controller?

If you wanted to change the volume of Multi-effects sounds, the delay time of Delay, and the like, using an external MIDI device, you would need to send **System Exclusive messages**—MIDI messages designed exclusively for the XV-88. However, System Exclusive messages tend to be complicated, and the amount of data that needs to be transmitted can get quite large.

For that reason, a number of the more typical of the XV-88's Multi-effects parameters have been designed so they accept the use of Control Change (or other) MIDI messages for the purpose of making changes in their values. For example, you can use the Pitch Bend lever to change the amount of distortion, or use the keyboard's touch to change the delay time of Delay. The parameters that can be changed are predetermined for each type of multi-effect; among the parameters described in “Multi-Effects Types” (p. 117), these are indicated by a #.

The function that allows you use MIDI messages to make these changes in realtime to the Multi-effects parameters is called the **Multi-effects Controller**. Up to four Multi-effects Controllers can be used in a single Patch/Rhythm Set/Performance.

When the Multi-effects Controller is used, you can select the amount of control (Sens parameter) applied, the parameter selected (Destination parameter), and the MIDI message used (Source parameter).

### HINT

By using the Matrix Controller instead of the Multi-Effects controller, you can also change the parameters of some popular Multi-effects in realtime (p. 80).

### Source (Multi-Effects Control Source)

Sets the MIDI message used to change the Multi-effects parameter with the Multi-effects Controller. Set this to OFF when the Multi-effects Controller is not being used.

The following are MIDI messages that can be used as Multi-effects Controllers.

- Controller numbers 01–31, 33–95 (CC01–CC31, CC33–CC95)



For more detailed information about Control Change messages, please refer to “MIDI Implementation” (p. 270).

- Pitch Bend (PITCH BEND)
- Aftertouch (AFTERTOUCH)
- System Controller 1–4 (SYS-CTRL1–SYS-CTRL4): MIDI messages used as global Multi-effects Controllers



Select SYS-CTRL1–4 if you want to use the controllers globally for the entire XV-88. MIDI messages used as System Controllers 1–4 are set with the Control 1–4 parameters (SYSTEM/CONTROL/SYS CTRL ASSIGN 1, 2) (p. 173).



- In Patch/Rhythm Set mode, there are parameters that determine, for each Tone/Rhythm Tone, whether or not Pitch Bend, Controller Number 11 (Expression) and Controller Number 64 (Hold 1) are received (p. 77, p. 97). When these settings are ON, and the MIDI messages are received, then when any change is made in the settings of the desired parameter, the Pitch Bend, Expression, and Hold1 settings also change simultaneously. If you want to change the targeted parameters only, then set these to OFF.
- There are parameters that determine whether or not specific MIDI messages are received for each MIDI channel (p. 52). When using the Multi-effects Controller, confirm that any MIDI messages used for the Multi-effects Controller will be received. If the XV-88 is set up such that reception of MIDI messages is disabled, then the Multi-effects Controller will not function.

### Destination (Multi-Effects Control Destination)

Sets the Multi-effects parameters to be controlled with the Multi-effects Controller. The Multi-effects parameters available for control will depend on the Multi-effects type. For details, refer to “Multi-Effects Types” (p. 117).

### Sens (Multi-Effects Control Sensitivity)

Sets the amount of the Multi-effects Controller’s effect that is applied. To make an increase in the currently selected value (to get higher values, move to the right, increase rates, and so on), select a positive value; to make a decrease in the currently selected value (to get lower values, move to the left, decrease rates, and so on), select a negative value. When both positive and negative are selected, the changes are greater as the value increases. To have no effect applied, select 0.

### MFX OUT (MFX Output)

PERFORM	↑	Output		Dry		Chorus		Reverb
MFX OUT	↓	0		127		0		0

### Output (Multi-Effects Output Assign)

Adjusts the output destination of the sound that has passed through the Multi-effects.

- A: Output to the OUTPUT A (MIX) jacks in stereo.
- B: Output to the OUTPUT B jacks in stereo.



If the Mix/Parallel parameter (SYSTEM/SETUP/SYSTEM SETUP) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 169).

### Dry (Multi-Effects Dry Send Level)

Adjusts the volume of the sound that has passed through the Multi-effects.

### Chorus (Multi-Effects Chorus Send Level)

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.

### Reverb (Multi-Effects Reverb Send Level)

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.

## Multi-Effects Types

Multi-Effects provides 63 types of effect. This section explains the features of each Multi-effects, and the functions of the parameters.

### NOTE

Parameters marked with a # can be controlled using specified MIDI messages (Multi-effects Controller). (\* Two setting items will change simultaneously for #1 and #2.) Settings in the MFX CTRL page will determine how these parameters are controlled (p. 115).

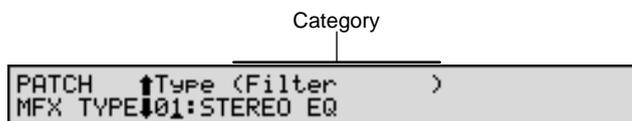


Explanations for each Multi-effects Type are given on the following pages.

01: STEREO EQ	(p. 119)	33: ENHANCER→FLANGER	(p. 136)
02: OVERDRIVE	(p. 119)	34: ENHANCER→DELAY	(p. 137)
03: DISTORTION	(p. 120)	35: CHORUS→DELAY	(p. 137)
04: PHASER	(p. 120)	36: FLANGER→DELAY	(p. 138)
05: SPECTRUM	(p. 121)	37: CHORUS→FLANGER	(p. 138)
06: ENHANCER	(p. 121)	38: CHORUS/DELAY	(p. 139)
07: AUTO WAH	(p. 122)	39: FLANGER/DELAY	(p. 139)
08: ROTARY	(p. 122)	40: CHORUS/FLANGER	(p. 139)
09: COMPRESSOR	(p. 123)	41: STEREO PHASER	(p. 139)
10: LIMITER	(p. 123)	42: KEYSYNC FLANGER	(p. 140)
11: HEXA-CHORUS	(p. 124)	43: FORMANT FILTER	(p. 141)
12: TREMOLO CHORUS	(p. 124)	44: RING MODULATOR	(p. 142)
13: SPACE-D	(p. 125)	45: MULTI TAP DELAY	(p. 143)
14: STEREO CHORUS	(p. 125)	46: REVERSE DELAY	(p. 144)
15: STEREO FLANGER	(p. 126)	47: SHUFFLE DELAY	(p. 145)
16: STEP FLANGER	(p. 126)	48: 3D DELAY	(p. 146)
17: STEREO DELAY	(p. 127)	49: PITCH SHIFTER	(p. 147)
18: MODULATION DELAY	(p. 128)	50: LOFI COMPRESS	(p. 147)
19: TRIPLE TAP DELAY	(p. 129)	51: LOFI NOISE	(p. 148)
20: QUADRUPLE TAP DELAY	(p. 130)	52: SPEAKER SIMULATOR	(p. 148)
21: TIME CONTROL DELAY	(p. 131)	53: OVERDRIVE 2	(p. 149)
22: 2VOICE PITCH SHIFTER	(p. 131)	54: DISTORTION 2	(p. 149)
23: FBK PITCH SHIFTER	(p. 132)	55: STEREO COMPRESSOR	(p. 150)
24: REVERB	(p. 133)	56: STEREO LIMITER	(p. 150)
25: GATED REVERB	(p. 133)	57: GATE	(p. 151)
26: OVERDRIVE→CHORUS	(p. 134)	58: SLICER	(p. 151)
27: OVERDRIVE→FLANGER	(p. 134)	59: ISOLATOR	(p. 152)
28: OVERDRIVE→DELAY	(p. 135)	60: 3D CHORUS	(p. 152)
29: DISTORTION→CHORUS	(p. 135)	61: 3D FLANGER	(p. 153)
30: DISTORTION→FLANGER	(p. 135)	62: TREMOLO	(p. 154)
31: DISTORTION→DELAY	(p. 135)	63: AUTO PAN	(p. 155)
32: ENHANCER→CHORUS	(p. 136)		

### Selecting Multi-Effects by Category

Pressing [PATCH FINDER] in the MFX TYPE page switches the display to the following page, where each Multi-effect type is displayed in order, by category (effect sound). This allows you to quickly select the Multi-effects you wish to use.



#### ■ Modulation (Effects that modulate the sound)

- 04: PHASER
- 07: AUTO WAH
- 41: STEREO PHASER
- 42: KEYSYNC FLANGER
- 43: FORMANT FILTER
- 44: RING MODULATOR

#### ■ Delay (Effects that delay the sound)

- 17: STEREO DELAY
- 18: MODULATION DELAY
- 19: TRIPLE TAP DELAY
- 20: QUADRUPLE TAP DELAY
- 21: TIME CONTROL DELAY
- 22: 2VOICE PITCH SHIFTER
- 23: FBK PITCH SHIFTER
- 34: ENHANCER→DELAY
- 45: MULTI TAP DELAY
- 46: REVERSE DELAY
- 47: SHUFFLE DELAY
- 48: 3D DELAY
- 49: PITCH SHIFTER

#### ■ Keyboard (Effects useful for the keyboard)

- 08: ROTARY

#### ■ LoFi (Effects that intentionally degrades the sound quality)

- 50: LOFI COMPRESS
- 51: LOFI NOISE

#### ■ Guitar&Bass (Effects useful for the Guitar and Bass)

- 02: OVERDRIVE
- 03: DISTORTION
- 26: OVERDRIVE→CHORUS
- 27: OVERDRIVE→FLANGER
- 28: OVERDRIVE→DELAY

- 29: DISTORTION→CHORUS
- 30: DISTORTION→FLANGER
- 31: DISTORTION→DELAY
- 52: SPEAKER SIMULATOR
- 53: OVERDRIVE 2
- 54: DISTORTION 2

#### ■ Compressor (Effects in which the loudness becomes difficult to change)

- 09: COMPRESSOR
- 10: LIMITER
- 55: STEREO COMPRESSOR
- 56: STEREO LIMITER
- 57: GATE
- 58: SLICER

#### ■ Chorus (Effects that broaden the sound)

- 11: HEXA-CHORUS
- 12: TREMOLO CHORUS
- 13: SPACE-D
- 14: STEREO CHORUS
- 15: STEREO FLANGER
- 16: STEP FLANGER
- 32: ENHANCER→CHORUS
- 33: ENHANCER→FLANGER
- 35: CHORUS→DELAY
- 36: FLANGER→DELAY
- 37: CHORUS→FLANGER
- 38: CHORUS/DELAY
- 39: FLANGER/DELAY
- 40: CHORUS/FLANGER
- 60: 3D CHORUS
- 61: 3D FLANGER

#### ■ Dimension (Effects that control the location of the sound)

- 62: TREMOLO
- 63: AUTO PAN

#### ■ Filter (Effects that modify the sound character)

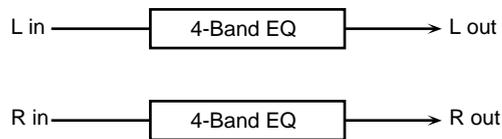
- 01: STEREO EQ
- 05: SPECTRUM
- 06: ENHANCER
- 59: ISOLATOR

#### ■ Reverb (Effects that reverberate the sound)

- 24: REVERB
- 25: GATE REVERB

**01: STEREO EQ (Stereo Equalizer)**

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

**LowFreq (Low Frequency)**

Select the frequency of the low range (200 Hz/400 Hz).

**LowGain (Low Gain)**

Adjust the gain of the low frequency.

**Hi Freq (High Frequency)**

Select the frequency of the high range (4000 Hz/8000 Hz).

**Hi Gain (High Gain)**

Adjust the gain of the high frequency.

**Mid1 Freq (Middle 1 Frequency)**

Adjust the frequency of Middle 1 (mid range).

**Mid1 Q (Middle 1 Q)**

This parameter adjusts the width of the area around the Middle 1 Frequency that will be affected by the Gain setting. Higher values of Q will result in a narrower area being affected.

**Mid1 Gain (Middle1 Gain)**

Adjust the gain for the area specified by the Middle 1 Frequency and Q settings.

**Mid2 Freq (Middle 2 Frequency)**

Adjust the frequency of Middle 2 (mid range).

**Mid2 Q (Middle 2 Q)**

This parameter adjusts the width of the area around the Middle 2 Frequency that will be affected by the Gain setting. Higher values of Q will result in a narrower area being affected.

**Mid2 Gain (Middle 2 Gain)**

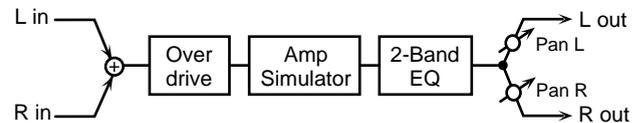
Adjust the gain for the area specified by the Middle 2 Frequency and Q settings.

**Lev (Output Level) #**

Adjust the output level.

**02: OVERDRIVE**

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

**Drive #**

Adjust the degree of distortion. The volume will change together with the degree of distortion.

**Level (Output Level)**

Adjust the output level.

**LowGain (Low Gain)**

Adjust the gain of the low frequency range.

**Hi Gain (High Gain)**

Adjust the gain of the high frequency range.

**Amp Type (Amp Simulator Type)**

Select the type of guitar amp.

**SMALL:** small amp

**BUILT-IN:** single-unit type amp

**2-STACK:** large double stack amp

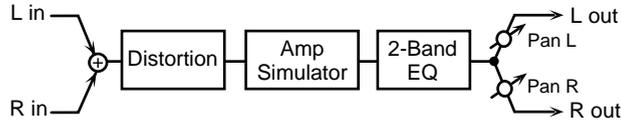
**3-STACK:** large triple stack amp

**Pan (Output Pan) #**

Adjust the stereo location of the output sound. L64 is far left, 0 is center, and 63R is far right.

### 03: DISTORTION

This effect produces a more intense distortion than Overdrive.



#### Drive #

Adjust the degree of distortion. The volume will change together with the degree of distortion.

#### Level (Output Level)

Adjust the output level.

#### LowGain (Low Gain)

Adjust the gain of the low frequency range.

#### Hi Gain (High Gain)

Adjust the gain of the high frequency range.

#### Amp Type (Amp Simulator Type)

Select the type of guitar amp.

**SMALL:** small amp

**BUILT-IN:** single-unit type amp

**2-STACK:** large double stack amp

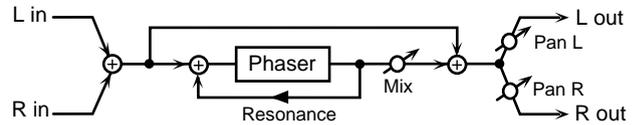
**3-STACK:** large triple stack amp

#### Pan (Output Pan) #

Adjust the stereo location of the output sound. L64 is far left, 0 is center, and 63R is far right.

### 04: PHASER

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



#### Manual #

Adjust the basic frequency from which the sound will be modulated.

#### Rate #

Adjust the frequency (period) of modulation.

#### Depth

Adjust the depth of modulation.

#### Res (Resonance)

Adjust the amount of feedback for the phaser.

#### Mix (Mix Level)

Adjust the ratio with which the phase-shifted sound is combined with the direct sound.

#### Pan (Output Pan)

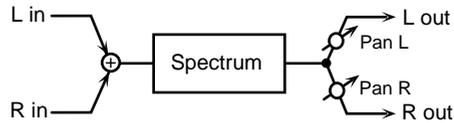
Adjust the stereo location of the output sound. L64 is far left, 0 is center, and 63R is far right.

#### Level (Output Level)

Adjust the output level.

### 05: SPECTRUM

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



#### Band 1 (Band 1 Gain)

Adjust the 250 Hz level.

#### Band 2 (Band 2 Gain)

Adjust the 500 Hz level.

#### Band 3 (Band 3 Gain)

Adjust the 1000 Hz level.

#### Band 4 (Band 4 Gain)

Adjust the 1250 Hz level.

#### Band 5 (Band 5 Gain)

Adjust the 2000 Hz level.

#### Band 6 (Band 6 Gain)

Adjust the 3150 Hz level.

#### Band 7 (Band 7 Gain)

Adjust the 4000 Hz level.

#### Band 8 (Band 8 Gain)

Adjust the 8000 Hz level.

#### Q

Simultaneously adjust the width of the adjusted areas for all the frequency bands.

#### Pan (Output Pan) #

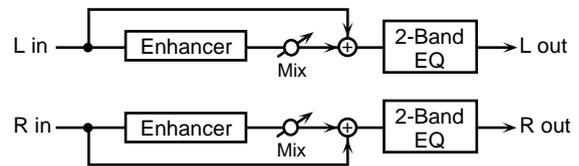
Adjust the stereo location of the output sound. L64 is far left, 0 is center, and 63R is far right.

#### Level (Output Level) #

Adjust the output level.

### 06: ENHANCER

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



#### Sens (Sensitivity) #

Adjust the sensitivity of the enhancer.

#### Mix (Mix Level) #

Adjust the ratio with which the overtones generated by the enhancer are combined with the direct sound.

#### LowGain (Low Gain)

Adjust the gain of the low frequency range.

#### Hi Gain (High Gain)

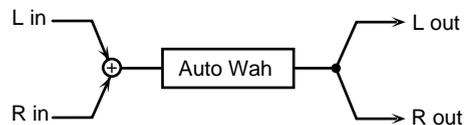
Adjust the gain of the high frequency range.

#### Level (Output Level) #

Adjust the output level.

### 07: AUTO WAH

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



#### Filter (Filter Type)

Select the type of filter.

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

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

#### Sens (Sensitivity)

Adjust the sensitivity with which the filter is controlled.

#### Manual #

Adjust the center frequency from which the effect is applied.

#### Peak

Adjust the amount of the wah effect that will occur in the area of the center frequency. Lower settings will cause the effect to be applied in a broad area around the center frequency. Higher settings will cause the effect to be applied in a more narrow range.

#### Rate #

Adjust the frequency of the modulation.

#### Depth

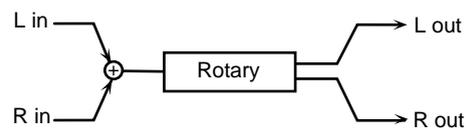
Adjust the depth of the modulation.

#### Level (Output Level)

Adjust the output level.

### 08: ROTARY

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



#### LowSlow (Low Frequency Slow Rate)

Adjust the slow speed (SLOW) of the low frequency rotor.

#### LowFast (Low Frequency Fast Rate)

Adjust the fast speed (FAST) of the low frequency rotor.

#### LowAccl (Low Frequency Acceleration)

Adjust the time it takes the low frequency rotor to reach the newly selected speed when switching from fast to slow (or slow to fast) speed. Lower values will require longer times.

#### Low Lvl (Low Frequency Level)

Adjust the volume of the low frequency rotor.

#### Hi Slow (High Frequency Slow Rate)

Adjust the slow speed (SLOW) of the high frequency rotor.

#### Hi Fast (High Frequency Fast Rate)

Adjust the fast speed (FAST) of the high frequency rotor.

#### Hi Accl (High Frequency Acceleration)

Adjust the time it takes the high frequency rotor to reach the newly selected speed when switching from fast to slow (or slow to fast) speed. Lower values will require longer times.

#### Hi Lvl (High Frequency Level)

Adjust the volume of the high frequency rotor.

#### Separation

Adjust the spatial dispersion of the sound.

#### Speed #

Simultaneously switch the rotational speed of the low frequency rotor and high frequency rotor.

**SLOW:** Slow down the rotation to the specified speed (the Low Slow/Hi Slow values).

**FAST:** Speed up the rotation to the specified speed (the Low Fast/Hi Fast values).

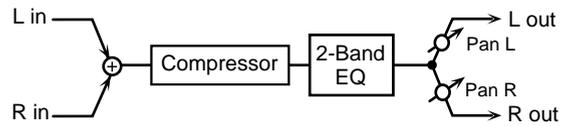
For details refer to "Using a Pedal Switch to Modify the Speed of the Rotary Effect" (p. 199).

**Level (Output Level) #**

Adjust the output level.

**09: COMPRESSOR**

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



**Attack**

Adjust the attack time of an input sound.

**Sustain**

Adjust the time over which low level sounds are boosted until they reach the specified volume.

**Post Gain**

Adjust the output gain.

**LowGain (Low Gain)**

Adjust the low frequency gain.

**Hi Gain (High Gain)**

Adjust the high frequency gain.

**Pan (Output Pan) #**

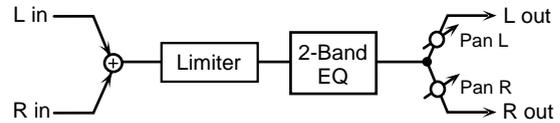
Adjust the stereo location of the output sound. L64 is far left, 0 is center, and 63R is far right.

**Level (Output Level) #**

Adjust the output level.

**10: LIMITER**

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



**Thresh (Threshold Level)**

Adjust the volume at which compression will begin.

**Ratio (Compression Ratio)**

Adjust the compression ratio.

**Release (Release Time)**

Adjust the time from when the volume falls below the Threshold Level until compression is no longer applied.

**Gain (Post Gain)**

Adjust the output gain.

**LowGain (Low Gain)**

Adjust the low frequency gain.

**Hi Gain (High Gain)**

Adjust the high frequency gain.

**Pan (Output Pan) #**

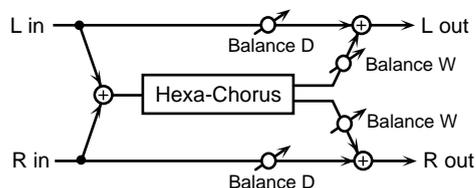
Adjust the stereo location of the output sound. L64 is far left, 0 is center, and 63R is far right.

**Level (Output Level) #**

Adjust the output level.

## 11: HEXA-CHORUS

Hexa-chorus uses a six-phase chorus (six layers of chorused sound) to give richness and spatial spread to the sound.



### Pre Dly (Pre Delay Time)

Adjust the time delay from when the direct sound begins until the chorus sound is heard.

### Rate #

Adjust the rate of modulation.

### Depth

Adjust the depth of modulation.

### Dly Dev (Pre Delay Deviation)

Pre Delay determines the time from when the direct sound begins until the processed sound is heard. Pre Delay Deviation adjusts the differences in Pre Delay between each chorus sound.

### Dpt Dev (Depth Deviation)

Adjust the difference in modulation depth between each chorus sound.

### Pan Dev (Pan Deviation)

Adjust the difference in stereo location between each chorus sound. With a setting of 0, all chorus sounds will be in the center. With a setting of 20, each chorus sound will be spaced at 60 degree intervals relative to the center.

### Balance (Effect Balance) #

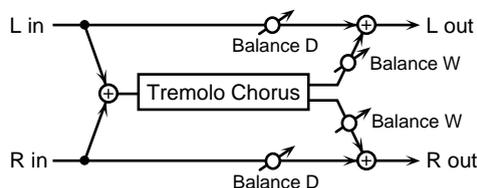
Adjust the volume balance between the direct sound and the chorus sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the chorus sound will be output.

### Level (Output Level)

Adjust the output level.

## 12: TREMOLO CHORUS

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



### Pre Dly (Pre Delay Time)

Adjust the time delay from when the direct sound begins until the chorus sound is heard.

### ChoRate (Chorus Rate)

Adjust the modulation speed of the chorus effect.

### Cho Dpt (Chorus Depth)

Adjust the modulation depth of the chorus effect.

### Phase (Tremolo Phase)

Adjust the spread of the tremolo effect.

### TrmRate (Tremolo Rate) #

Adjust the modulation speed of the tremolo effect.

### Trm Sep (Tremolo Separation)

Adjust the spread of the tremolo effect.

### Balance (Effect Balance) #

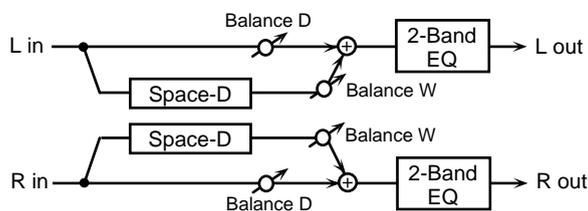
Adjust the volume balance between the direct sound and the tremolo chorus sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the tremolo chorus sound will be output.

### Level (Output Level)

Adjust the output level.

### 13: SPACE-D

Space-D is a multiple chorus that applies two-phase modulation in stereo. It gives no impression of modulation, but produces a transparent chorus effect.



#### Pre Dly (Pre Delay Time)

Adjust the time delay from when the direct sound begins until the processed sound is heard.

#### Rate #

Adjust the rate of modulation.

#### Depth

Adjust the depth of modulation.

#### Phase

Adjust the spatial spread of the sound.

#### LowGain (Low Gain)

Adjust the gain of the low frequency range.

#### Hi Gain (High Gain)

Adjust the gain of the high frequency range.

#### Balance (Effect Balance) #

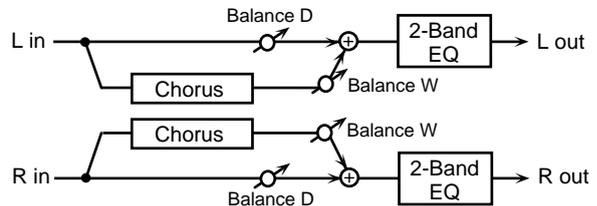
Adjust the volume balance between the direct sound and the chorus sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the chorus sound will be output.

#### Level (Output Level)

Adjust the output level.

### 14: STEREO CHORUS

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



#### Pre Dly (Pre Delay Time)

Adjust the time delay from when the direct sound begins until the processed sound is heard.

#### Rate #

Adjust the rate of modulation.

#### Depth

Adjust the depth of modulation.

#### Phase

Adjust the spatial spread of the sound.

#### Filter Type

Select the type of filter.

**OFF:** a filter will not be used

**LPF:** cut the frequency range above the cutoff frequency

**HPF:** cut the frequency range below the cutoff frequency

#### Cutoff (Cutoff Frequency)

Adjust the basic frequency of the filter.

#### LowGain (Low Gain)

Adjust the gain of the low frequency range.

#### Hi Gain (High Gain)

Adjust the gain of the high frequency range.

#### Balance (Effect Balance) #

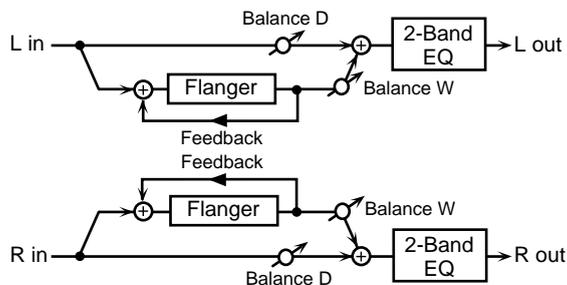
Adjust the volume balance between the direct sound and the chorus sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the chorus sound will be output.

#### Level (Output Level)

Adjust the output level.

## 15: 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 like a jet airplane taking off or landing. A filter is provided so that you can adjust the timbre of the flanged sound.



### Pre Dly (Pre Delay Time)

Adjust the time delay from when the direct sound begins until the flanger sound is heard.

### Rate #

Adjust the rate of modulation.

### Depth

Adjust the depth of modulation.

### Fbk (Feedback Level) #

Adjust the amount (%) of the processed sound that is returned (fed back) into the input. Positive (+) settings will return the sound in phase, and negative (-) settings will return the sound in reverse phase.

### Phase

Adjust the spatial spread of the sound.

### Filter Type

Select the type of filter.

**OFF:** a filter will not be used

**LPF:** cut the frequency range above the cutoff frequency

**HPF:** cut the frequency range below the cutoff frequency

### Cutoff (Cutoff Frequency)

Adjust the basic frequency of the filter.

### LowGain (Low Gain)

Adjust the gain of the low frequency range.

### Hi Gain (High Gain)

Adjust the gain of the high frequency range.

### Balance (Effect Balance)

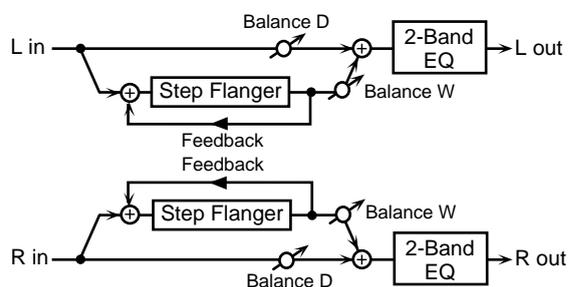
Adjust the volume balance between the direct sound and the flanger sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the flanger sound will be output.

### Level (Output Level)

Adjust the output level.

## 16: STEP FLANGER

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



### Pre Dly (Pre Delay Time)

Adjust the time delay from when the direct sound begins until the flanger sound is heard.

### Rate

Adjust the rate of modulation.

### Depth

Adjust the depth of modulation.

### Fbk (Feedback Level) #

Adjust the amount (%) of the flanger sound that is returned (fed back) into the input. Negative (-) settings will invert the phase.

### Phase

Adjust the spatial spread of the sound.

### Step Rate #

Adjust the rate (period) of pitch change.

### MEMO

Step Rate parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

**When Step Rate is Set as a Note Value**

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

**LowGain (Low Gain)**

Adjust the gain of the low frequency range.

**Hi Gain (High Gain)**

Adjust the gain of the high frequency range.

**Balance (Effect Balance)**

Adjust the volume balance between the direct sound and the flanger sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the chorus sound will be output.

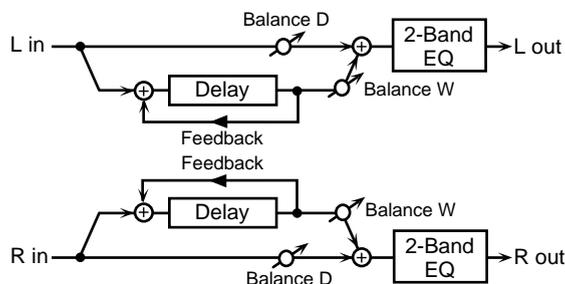
**Level (Output Level)**

Adjust the output level.

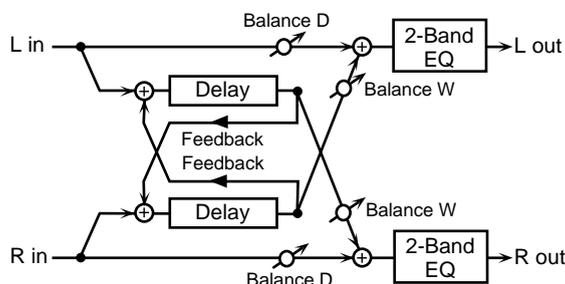
**17: STEREO DELAY**

This is a stereo delay.

**When Feedback Mode is NORMAL:**



**When Feedback Mode is CROSS:**



**Delay L (Delay Time Left)**

Adjust the time from the direct sound until when the left delay sound is heard.

**Delay R (Delay Time Right)**

Adjust the time from the direct sound until when the right delay sound is heard.

**Fbk (Feedback Level) #**

Adjust the proportion (%) of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.

**Mode (Feedback Mode)**

Select the way in which delay sound is fed back into the effect.

**NORMAL:** The left delay sound will be fed back into the left delay, and the right delay sound into the right delay.

**CROSS:** The left delay sound will be fed back into the right delay, and the right delay sound into the left delay.

**Phase L (Feedback Phase Left)**

Select the phase of the left delay sound.

**NORMAL:** Phase is not changed.

**INVERT:** Phase is inverted.

**Phase R (Feedback Phase Right)**

Select the phase of the right delay sound.

**NORMAL:** Phase is not changed.

**INVERT:** Phase is inverted.

**HF Damp**

Adjust the frequency above which sound fed back to the effect will be cut. If you do not want to cut the high frequencies of the feedback, set this parameter to BYPASS.

**LowGain (Low Gain)**

Adjust the gain of the low frequency range.

**Hi Gain (High Gain)**

Adjust the gain of the high frequency range.

**Balance (Effect Balance) #**

Adjust the volume balance between the direct sound and the delay sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the delay sound will be output.

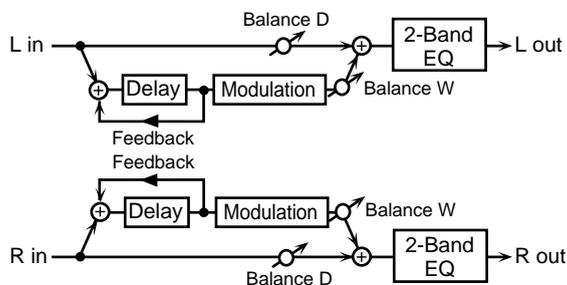
**Level (Output Level)**

Adjust the output level.

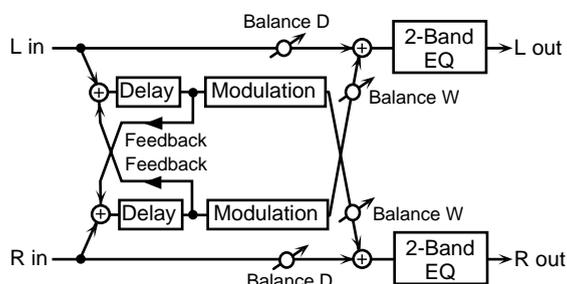
## 18: MODULATION DELAY

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

**When Feedback Mode is NORMAL:**



**When Feedback Mode is CROSS:**



### Delay L (Delay Time Left)

Adjust the time from the direct sound until when the left delay sound is heard.

### Delay R (Delay Time Right)

Adjust the time from the direct sound until when the right delay sound is heard.

### Fbk (Feedback Level)

Adjust the proportion (%) of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.

### Mode (Feedback Mode)

Select the way in which delay sound is fed back into the effect.

**NORMAL:** The left delay sound will be fed back into the left delay, and the right delay sound into the right delay.

**CROSS:** The left delay sound will be fed back into the right delay, and the right delay sound into the left delay.

### Rate #

Adjust the speed of the modulation.

### Depth

Adjust the depth of the modulation.

### Phase

Adjust the spatial spread of the sound.

### HF Damp

Adjust the frequency above which sound fed back to the effect will be cut. If you do not want to cut the high frequencies of the feedback, set this parameter to BYPASS.

### LowGain (Low Gain)

Adjust the gain of the low frequency range.

### Hi Gain (High Gain)

Adjust the gain of the high frequency range.

### Balance (Effect Balance) #

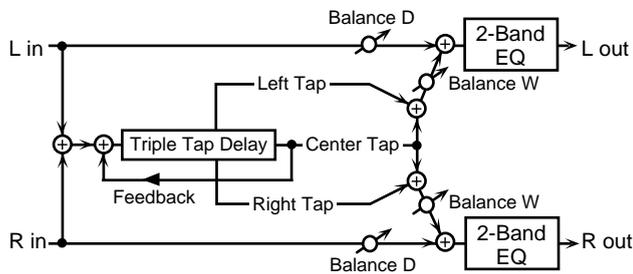
Adjust the volume balance between the direct sound and the modulation delay sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the modulation delay sound will be output.

### Level (Output Level)

Adjust the output level.

## 19: TRIPLE TAP DELAY

The Triple Tap Delay produces three delay sounds; center, left and right.



### Delay C (Delay Time Center)

Adjust the time delay from the direct sound until when the center delay sound is heard.

### Delay L (Delay Time Left)

Adjust the time delay from the direct sound until when the left delay sound is heard.

### Delay R (Delay Time Right)

Adjust the time delay from the direct sound until when the right delay sound is heard.

#### MEMO

Delay C, Delay L and Delay R parameters can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

#### When Delay C, Delay L and Delay R are Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

### Fbk (Feedback Level) #

Adjust the proportion (%) of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.

### Level C (Center Level)

Adjust the volume of the center delay sound.

### Level L (Left Level)

Adjust the volume of the left delay sound.

### Level R (Right Level)

Adjust the volume of the right delay sound.

### HF Damp

Adjust the frequency above which sound fed back to the effect will be cut. If you do not want to cut the high frequencies of the feedback, set this parameter to BYPASS.

### LowGain (Low Gain)

Adjust the gain of the low frequency range.

### Hi Gain (High Gain)

Adjust the gain of the high frequency range.

### Balance (Effect Balance) #

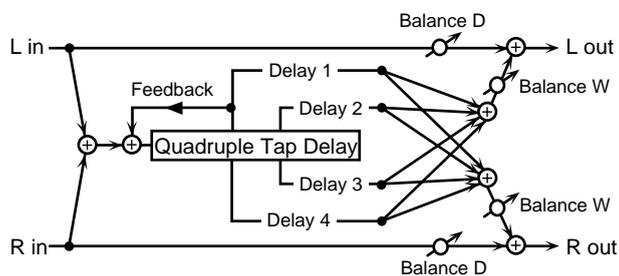
Adjust the volume balance between the direct sound and the delay sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the delay sound will be output.

### Level (Output Level)

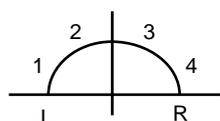
Adjust the output level.

## 20: QUADRUPLE TAP DELAY

The Quadruple Tap Delay has four delays.



The stereo location of each delay sound is as follows.



### Delay 1 (Delay Time 1)

Adjust the time delay from the direct sound until when delay 1 sound is heard.

### Delay 2 (Delay Time 2)

Adjust the time delay from the direct sound until when delay 2 sound is heard.

### Delay 3 (Delay Time 3)

Adjust the time delay from the direct sound until when delay 3 sound is heard.

### Delay 4 (Delay Time 4)

Adjust the time delay from the direct sound until when delay 4 sound is heard.

### MEMO

Delay 1-4 parameters can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

### When Delay 1-4 are Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

### Level 1

Adjust the volume of delay 1 sound.

### Level 2

Adjust the volume of delay 2 sound.

### Level 3

Adjust the volume of delay 3 sound.

### Level 4

Adjust the volume of delay 4 sound.

### Fbk (Feedback Level) #

Adjust the proportion (%) of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.

### HF Damp

Adjust the frequency above which sound fed back to the effect will be cut. If you do not want to cut the high frequencies of the feedback, set this parameter to BYPASS.

### Balance (Effect Balance) #

Adjust the volume balance between the direct sound and the delay sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the delay sound will be output.

### Level (Output Level)

Adjust the output level.



### Lvl Bal (Level Balance)

Adjust the volume balance between the Pitch Shift A and Pitch Shift B sounds.

### Balance (Effect Balance)

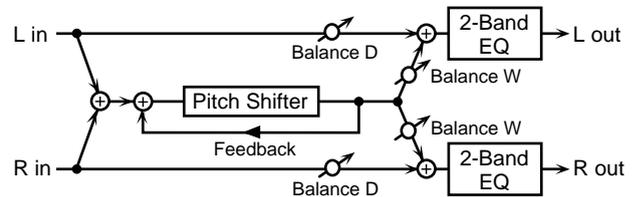
Adjust the volume balance between the direct sound and the pitch shift sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the pitch shift sound will be output.

### Level (Output Level)

Adjust the output level.

## 23: FBK PITCH SHIFTER (Feedback Pitch Shifter)

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



### Coarse (Coarse Pitch) #1

Adjust the pitch of the pitch shifted sound in semitone steps (-2 to +1 octaves).

### Fine (Fine Pitch) #1

Make fine adjustments to the pitch of the pitch shifted sound in 2-cent steps (-2 to +1 octaves).

### Fbk (Feedback Level) #

Adjust the proportion (%) of the processed sound that is fed back into the effect. Negative (-) settings will invert the phase.

### Pre Dly (Pre Delay Time)

Adjust the time delay from when the direct sound begins until the pitch shifted sound is heard.

### Mode (Pitch Shifter Mode)

Higher settings of this parameter will result in slower response, but steadier pitch.

### Pan (Output Pan)

Adjust the stereo location of the pitch shifted sound. L64 is far left, 0 is center, and 63R is far right.

### LowGain (Low Gain)

Adjust the gain of the low frequency range.

### Hi Gain (High Gain)

Adjust the gain of the high frequency range.

### Balance (Effect Balance)

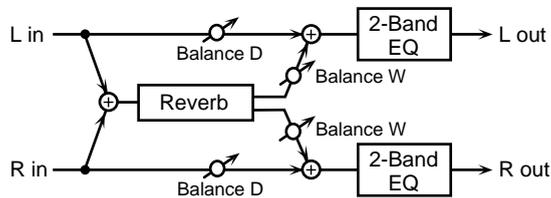
Adjust the volume balance between the direct sound and the pitch shift sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the pitch shift sound will be output.

### Level (Output Level)

Adjust the output level.

## 24: REVERB

The Reverb effect adds reverberation to the sound, simulating an acoustic space.



### Type (Reverb Type)

Select the type of Reverb effect.

**ROOM1:** dense reverb with short decay

**ROOM2:** sparse reverb with short decay

**STAGE1:** reverb with greater late reverberation

**STAGE2:** reverb with strong early reflections

**HALL1:** reverb with clear reverberance

**HALL2:** reverb with rich reverberance

### Pre Dly (Pre Delay Time)

Adjust the time delay from when the direct sound begins until the reverb sound is heard.

### Time (Reverb Time) #

Adjust the time length of reverberation.

### HF Damp

Adjust the frequency above which the reverberant sound will be cut. As the frequency is set lower, more of the high frequencies will be cut, resulting in a softer and more muted reverberance. If you do not want the high frequencies to be cut, set this parameter to BYPASS.

### LowGain (Low Gain)

Adjust the gain of the low frequency range.

### Hi Gain (High Gain)

Adjust the gain of the high frequency range.

### Balance (Effect Balance) #

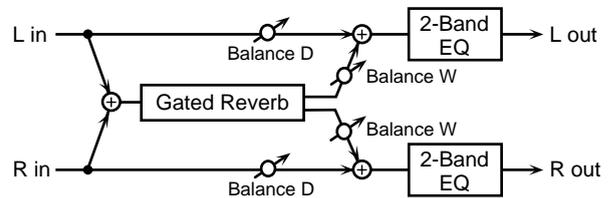
Adjust the volume balance between the direct sound and the reverb sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the reverb sound will be output.

### Level (Output Level)

Adjust the output level.

## 25: GATED REVERB

Gate Reverb is a special type of reverb in which the reverberant sound is cut off before its natural length.



### Type (Gated Reverb Type)

Select the type of reverb.

**NORMAL:** conventional gate reverb

**REVERSE:** backwards reverb

**SWEEP1:** the reverberant sound moves from right to left

**SWEEP2:** the reverberant sound moves from left to right

### Pre Dly (Pre Delay Time)

Adjust the time delay from when the direct sound begins until the reverb sound is heard.

### Gate Time

Adjust the time from when the reverb is heard until when it disappears.

### LowGain (Low Gain)

Adjust the gain of the low frequency range.

### Hi Gain (High Gain)

Adjust the gain of the high frequency range.

### Balance (Effect Balance) #

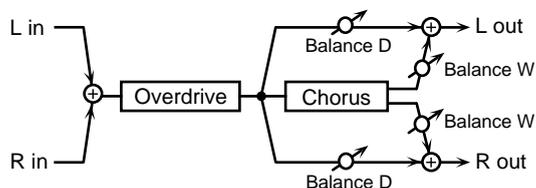
Adjust the volume balance between the direct sound and the reverb sound. With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the reverb sound will be output.

### Level (Output Level) #

Adjust the output level.

## 26: OVERDRIVE→CHORUS

This effect connects an overdrive and a chorus in series.



### OD Drive

Adjust the degree of overdrive distortion. The volume will change together with the degree of distortion.

### OD Pan (Overdrive Pan) #

Adjust the stereo location of the overdrive sound. L64 is far left, 0 is center, and 63R is far right.

### Cho Dly (Chorus Pre Delay Time)

Adjust the time delay from when the direct sound begins until the chorus sound is heard.

### ChoRate (Chorus Rate)

Adjust the modulation speed of the chorus effect.

### Chorus Depth

Adjust the modulation depth of the chorus effect.

### Chorus Balance #

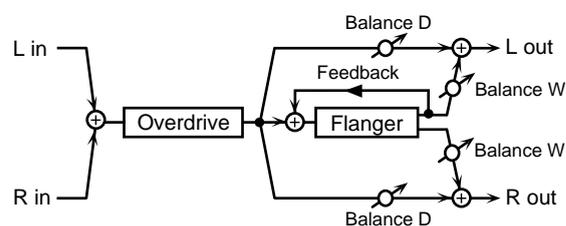
Adjust the volume balance between the overdrive sound that is sent through the chorus and the overdrive sound that is not sent through the chorus. With a setting of "D100:0W," only the overdrive sound will be output. With a setting of "D0:100W," only the overdrive sound that is sent through the chorus will be output.

### Level (Output Level)

Adjust the output level.

## 27: OVERDRIVE→FLANGER

This effect connects an overdrive and a flanger in series.



### OD Drive

Adjust the degree of overdrive distortion. The volume will change together with the degree of distortion.

### OD Pan (Overdrive Pan) #

Adjust the stereo location of the overdrive sound. L64 is far left, 0 is center, and 63R is far right.

### Flg Dly (Flanger Pre Delay Time)

Adjust the time delay from when the direct sound begins until the flanger sound is heard.

### FlgRate (Flanger Rate)

Adjust the modulation speed of the flanger effect.

### Flg Dpt (Flanger Depth)

Adjust the modulation depth of the flanger effect.

### Flg Fbk (Flanger Feedback Level)

Adjust the proportion (%) of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.

### Flanger Balance #

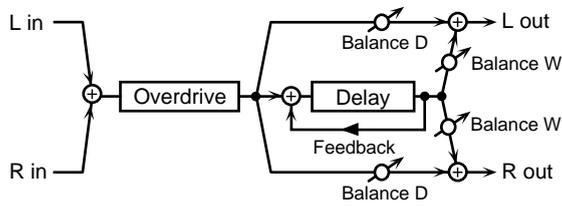
Adjust the volume balance between the overdrive sound that is sent through the flanger and the overdrive sound that is not sent through the flanger. With a setting of "D100:0W," only the overdrive sound will be output. With a setting of "D0:100W," only the overdrive sound that is sent through the flanger will be output.

### Level (Output Level)

Adjust the output level.

### 28: OVERDRIVE→DELAY

This effect connects an overdrive and a delay in series.



#### OD Drive

Adjust the degree of overdrive distortion. The volume will change together with the degree of distortion.

#### OD Pan (Overdrive Pan) #

Adjust the stereo location of the overdrive sound. L64 is far left, 0 is center, and 63R is far right.

#### DlyTime (Delay Time)

Adjust the time delay from when the direct sound begins until the delay sound is heard.

#### Dly Fbk (Delay Feedback Level)

Adjust the proportion (%) of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.

#### Delay HF Damp

Adjust the frequency above which delayed sound fed back to the effect will be cut. If you do not want to cut the high frequencies of the feedback, set this parameter to BYPASS.

#### Delay Balance (Delay Balance) #

Adjust the volume balance between the overdrive sound that is sent through the delay and the overdrive sound that is not sent through the delay. With a setting of "D100:0W," only the overdrive sound will be output. With a setting of "D0:100W," only the overdrive sound that is sent through the delay will be output.

#### Level (Output Level)

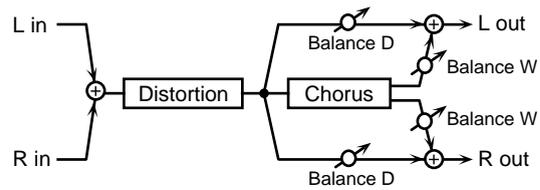
Adjust the output level.

### 29: DISTORTION→CHORUS

This effect connects distortion and chorus in series. The parameters are essentially the same as "26: OVERDRIVE→CHORUS," with the exception of the following two.

OD Drive → Dist Drive (Specify the amount of distortion.)

OD Pan → Dist Pan (Specify the stereo location of the distortion sound.)

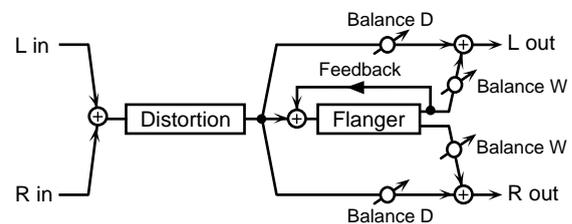


### 30: DISTORTION→FLANGER

This effect connects distortion and flanger in series. The parameters are essentially the same as in "27: OVERDRIVE→FLANGER," with the exception of the following two.

OD Drive → Dist Drive (Specify the amount of distortion.)

OD Pan → Dist Pan (Specify the stereo location of the distortion sound.)

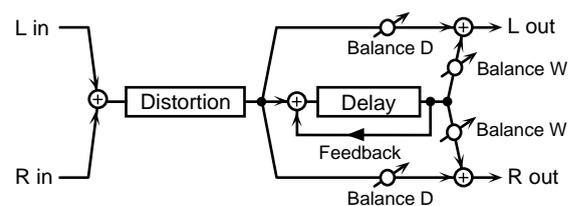


### 31: DISTORTION→DELAY

This effect connects distortion and delay in series. The parameters are essentially the same as in "28: OVERDRIVE→DELAY," with the exception of the following two.

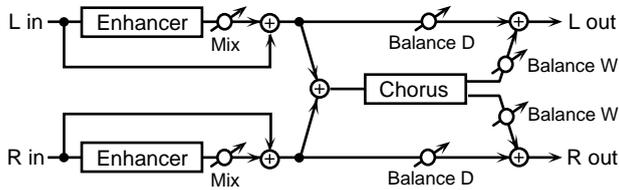
OD Drive → Dist Drive (Specify the amount of distortion.)

OD Pan → Dist Pan (Specify the stereo location of the distortion sound.)



## 32: ENHANCER→CHORUS

This effect connects an enhancer and a chorus in series.



### Enhancer Sens (Enhancer Sensitivity) #

Adjust the sensitivity of the enhancer.

### Enhancer Mix (Enhancer Mix Level)

Adjust the ratio with which the overtones generated by the enhancer are combined with the direct sound.

### Cho Dly (Chorus Pre Delay Time)

Adjust the time delay from when the direct sound begins until the chorus sound is heard.

### ChoRate (Chorus Rate)

Adjust the modulation speed of the chorus effect.

### Chorus Depth

Adjust the modulation depth of the chorus effect.

### Chorus Balance #

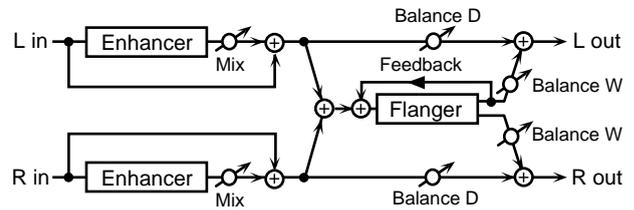
Adjust the volume balance between the enhancer sound that is sent through the chorus and the enhancer sound that is not sent through the chorus. With a setting of "D100:0W," only the enhancer sound will be output. With a setting of "D0:100W," only the enhancer sound that is sent through the chorus will be output.

### Level (Output Level)

Adjust the output level.

## 33: ENHANCER→FLANGER

This effect connects an enhancer and a flanger in series.



### Enhancer Sens (Enhancer Sensitivity) #

Adjust the sensitivity of the enhancer.

### Enhancer Mix (Enhancer Mix Level)

Adjust the ratio with which the overtones generated by the enhancer are combined with the direct sound.

### Flg Dly (Flanger Pre Delay Time)

Adjust the time delay from when the direct sound begins until the flanger sound is heard.

### FlgRate (Flanger Rate)

Adjust the modulation speed of the flanger effect.

### Flg Dpt (Flanger Depth)

Adjust the modulation depth of the flanger effect.

### Flg Fbk (Flanger Feedback Level)

Adjust the proportion (%) of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.

### Flanger Balance #

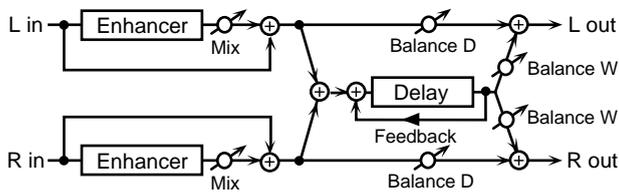
Adjust the volume balance between the enhancer sound that is sent through the flanger and the enhancer sound that is not sent through the flanger. With a setting of "D100:0W," only the enhancer sound will be output. With a setting of "D0:100W," only the enhancer sound that is sent through the flanger will be output.

### Level (Output Level)

Adjust the output level.

### 34: ENHANCER→DELAY

This effect connects an enhancer and a delay in series.



#### Enhancer Sens (Enhancer Sensitivity) #

Adjust the sensitivity of the enhancer.

#### Enhancer Mix (Enhancer Mix Level)

Adjust the ratio with which the overtones generated by the enhancer are combined with the direct sound.

#### DlyTime (Delay Time)

Adjust the time delay from when the direct sound begins until the delay sound is heard.

#### Dly Fbk (Delay Feedback Level)

Adjust the proportion (%) of the delay sound that is fed back into the delay input. Negative (-) settings will invert the phase.

#### Delay HF Damp

Adjust the frequency above which delayed sound fed back to the delay input will be cut. If you do not want to cut the high frequencies of the delay feedback, set this parameter to BYPASS.

#### Delay Balance #

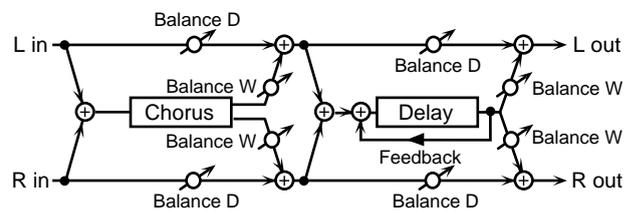
Adjust the volume balance between the enhancer sound that is sent through the delay and the enhancer sound that is not sent through the delay. With a setting of "D100:0W," only the enhancer sound will be output. With a setting of "D0:100W," only the enhancer sound that is sent through the delay will be output.

#### Level (Output Level)

Adjust the output level.

### 35: CHORUS→DELAY

This effect connects a chorus and a delay unit in series.



#### Cho Dly (Chorus Pre Delay Time)

Adjust the time delay from when the direct sound begins until the chorus sound is heard.

#### ChoRate (Chorus Rate)

Adjust the modulation speed of the chorus effect.

#### Cho Dpt (Chorus Depth)

Adjust the modulation depth of the chorus effect.

#### Cho Bal (Chorus Balance) #

Adjust the volume balance between the direct sound and the chorus sound. With a setting of "D100:0W," only the direct sound will be output. With a setting of "D0:100W," only the chorus sound will be output.

#### DlyTime (Delay Time)

Adjust the time delay from when the direct sound begins until the delay sound is heard.

#### Dly Fbk (Delay Feedback Level)

Adjust the proportion (%) of the delay sound that is fed back into the delay input. Negative (-) settings will invert the phase.

#### Delay HF Damp

Adjust the frequency above which delayed sound fed back to the delay input will be cut. If you do not want to cut the high frequencies of the feedback, set this parameter to BYPASS.

#### Delay Balance #

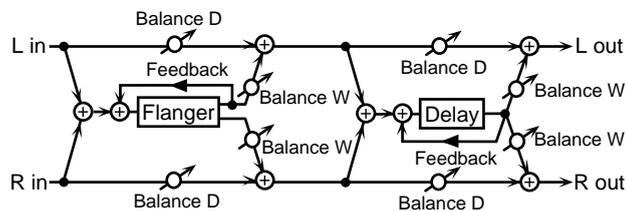
Adjust the volume balance between the chorus sound that is sent through the delay and the chorus sound that is not sent through the delay. With a setting of "D100:0W," only the chorus sound will be output. With a setting of "D0:100W," only the chorus sound that is sent through the delay will be output.

#### Level (Output Level)

Adjust the output level.

## 36: FLANGER→DELAY

This effect connects a flanger and a delay in series.



### Fig Dly (Flanger Pre Delay Time)

Adjust the time delay from when the direct sound begins until the flanger sound is heard.

### FlgRate (Flanger Rate)

Adjust the modulation speed of the flanger effect.

### Flg Dpt (Flanger Depth)

Adjust the modulation depth of the flanger effect.

### Flg Fbk (Flanger Feedback Level)

Adjust the proportion (%) of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.

### Flg Bal (Flanger Balance) #

Adjust the volume balance between the direct sound and the flanger sound. With a setting of "D100:0W," only the direct sound will be output. With a setting of "D0:100W," only the flanger sound will be output.

### DlyTime (Delay Time)

Adjust the time delay from when the direct sound begins until the delay sound is heard.

### Dly Fbk (Delay Feedback Level)

Adjust the proportion (%) of the delay sound that is fed back into the delay input. Negative (-) settings will invert the phase.

### HF Damp

Adjust the frequency above which delayed sound fed back to the delay input will be cut. If you do not want to cut the high frequencies of the delay feedback, set this parameter to BYPASS.

### Delay Balance #

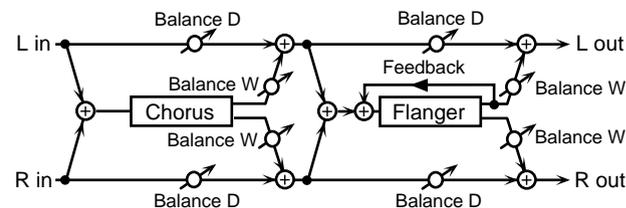
Adjust the volume balance between the flanger sound that is sent through the delay and the flanger sound that is not sent through the delay. With a setting of "D100:0W," only the flanger sound will be output. With a setting of "D0:100W," only the flanger sound that is sent through the delay will be output.

## Level (Output Level)

Adjust the output level.

## 37: CHORUS→FLANGER

This effect connects a chorus and a flanger in series.



### Cho Dly (Chorus Pre Delay Time)

Adjust the time delay from when the direct sound begins until the chorus sound is heard.

### ChoRate (Chorus Rate)

Adjust the modulation speed of the chorus effect.

### Cho Dpt (Chorus Depth)

Adjust the modulation depth of the chorus effect.

### Cho Bal (Chorus Balance) #

Adjust the volume balance between the direct sound and the chorus sound. With a setting of "D100:0W," only the direct sound will be output. With a setting of "D0:100W," only the chorus sound will be output.

### Flg Dly (Flanger Pre Delay Time)

Adjust the time delay from when the direct sound begins until the flanger sound is heard.

### FlgRate (Flanger Rate)

Adjust the modulation speed of the flanger effect.

### Flg Dpt (Flanger Depth)

Adjust the modulation depth of the flanger effect.

### Flg Fbk (Flanger Feedback Level)

Adjust the proportion (%) of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.

### Flanger Balance #

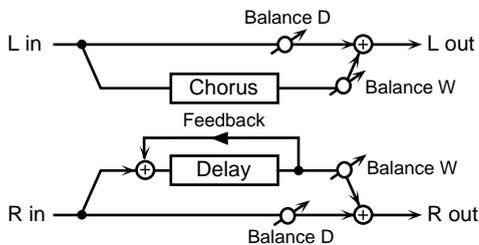
Adjust the volume balance between the chorus sound and the chorus sound that is passed through the flanger. With a setting of "D100:0W," only the chorus sound will be output. With a setting of "D0:100W," only the chorus sound that passes through the flanger will be output.

## Level (Output Level)

Adjust the output level.

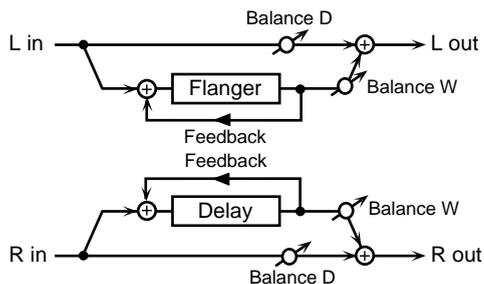
### 38: CHORUS/DELAY

This effect connects a chorus and a delay in parallel. 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.



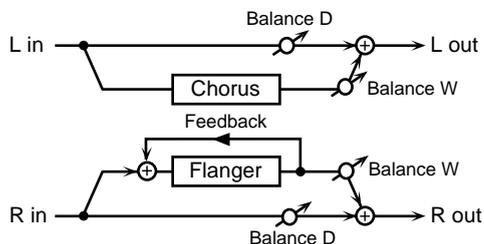
### 39: FLANGER/DELAY

This effect connects a flanger and a delay in parallel. The parameters are the same as for “36: FLANGER→DELAY.” However, the Delay Balance parameter adjusts the volume balance between the direct sound and the delay sound.



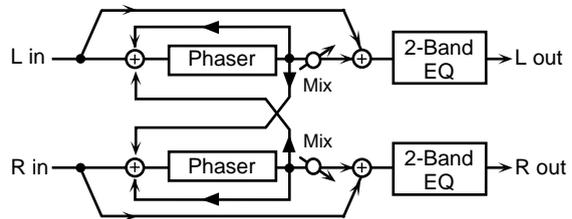
### 40: CHORUS/FLANGER

This effect connects a chorus and a flanger in parallel. The parameters are the same as for “37: CHORUS→FLANGER.” However, the Flanger Balance parameter adjusts the volume balance between the direct sound and the flanger sound.



### 41: 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.



#### Type (Phaser Type)

Selects the type of Phaser.

Type 2 adds more of the Phaser effect to the high frequencies than Type 1.

#### Mode

Selects the number of stages in the phaser (4/8).

#### Pol (Polarity)

Selects whether the left and right phase of the modulation will be the same or the opposite.

**INVERSE:** The left and right phase will be opposite. When using a mono source, this spreads the sound.

**SYNCHRO:** The left and right phase will be the same. Select this when inputting a stereo source.

#### Man (Manual) #

Adjusts the center frequency to which the phase effect is applied.

#### Rate (Phaser Rate) #

Adjust the frequency of modulation.

#### MEMO

Rate parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

#### When Rate is Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

#### Depth (Phaser Depth)

Adjust the depth of modulation.

#### Res (Phaser Resonance)

Adjust the amount of feedback for the phaser. Higher settings will give the sound a stronger character.

### X-Fbk (Cross Feedback Level)

Adjust the proportion (%) of the phaser sound that is to be returned to the input. Positive (+) settings will return the signal to the input with the original phase, while negative (-) settings produce an inverted phase.

### Step Rate (Step Rate Switch/Step Rate #)

Adjust the frequency of pitch change.

This setting determines whether the pitch is changed in a stepped fashion (ON) or not (OFF).

#### MEMO

Step Rate parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

#### When Step Rate is Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

### Mix (Mix Level)

Adjust the volume of the phase-shifted sound, relative to the direct sound.

### LowGain (Low Gain)

Adjust the low frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the low frequency range.

### Hi Gain (High Gain)

Adjust the high frequency gain (amount of boost or cut).

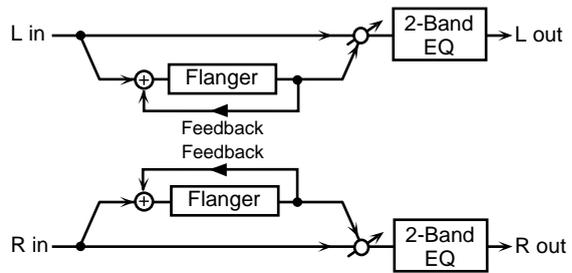
Positive (+) settings will emphasize (boost) the high frequency range.

### Level (Output Level)

Adjust the output level.

## 42: KEYSYNC FLANGER

Keysync FLanger controls the Flanger by resetting the effect at the volume of the sound input to the effects device, restarting from the same pitch each time the Flanger is reset. This parameter lets your playing dynamics on the keyboard control the flanger effect.



### Pre Dly (Pre Delay Time)

Adjust the time delay from the direct sound until the flanger sound is heard.

### Rate (LFO Rate) #

Adjust the modulation frequency of the flanger sound.

#### MEMO

Rate parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

#### When Rate is Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

### Depth (LFO Depth)

Adjust the modulation depth of the flanger sound.

### Fbk (Feedback) #

Adjust the proportion (%) of the flanger sound that is to be returned to the input. Positive (+) settings will return the signal to the input with the original phase, while negative (-) settings produce an inverted phase. Higher settings will produce a more distinctive sound.

### Phase

Adjust the spaciousness of the flanger sound.

### Filter (Filter Type)

**OFF:** A filter will not be used.

**LPF:** The frequency region above the Cutoff Freq setting will be cut.

**HPF:** The frequency region below the Cutoff Freq setting will be cut.

**Cutoff (Cutoff Frequency)**

Sets the cutoff frequency when a specific frequency band is cut off by a filter.

**Step Rate (Step Rate Switch/Step Rate #)**

Adjust the frequency of pitch change.

This setting determines whether the pitch is changed in a stepped fashion (ON) or not (OFF).

**MEMO**

Step Rate parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

**When Step Rate is Set as a Note Value**

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

**Keysync (Keysync Switch)**

Determines whether the Flanger LFO is reset according to the input sound (ON) or not (OFF).

**Thre (Keysync Threshold)**

Adjust the volume level for which reset will be applied.

**Keysync Phase**

Sets the LFO phase when the LFO is reset.

**LowGain (Low Gain)**

Adjust the low frequency range gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the low frequency range.

**Hi Gain (High Gain)**

Adjust the high frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the high frequency range.

**Balance #**

Adjusts the volume balance between the direct sound and the flanger sound.

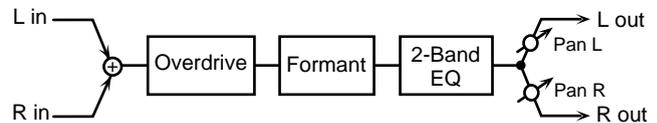
With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W the flanger sound will be output.

**Level (Output Level)**

Adjust the output level.

**43: FORMANT FILTER**

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

**Drive #**

Turns Drive on/off.

Specifies the depth of distortion. The volume will change together with the degree of distortion.

**Vowel**

Selects the vowel. The left setting is the vowel 1. The right setting is the vowel 2.

**Rate #**

Sets the frequency at which the two vowels will be switched.

**MEMO**

Rate parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

**When Rate is Set as a Note Value**

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

**Depth #**

Sets the effect depth.

**Keysync (KeySync Switch)**

Determines whether the LFO for switching the vowels is reset according to the input sound (ON) or not (OFF).

**Threshold (Keysync Threshold)**

Specifies the volume level for which reset will be applied.

**Manual #**

Sets the point at which the two vowels will be switched.

When set to 50, Vowels 1 and 2 switched in the same amount of time. Setting this higher than 50 increases the time for Vowel 1; setting this lower than 50 decreases the time for Vowel 1.

### LowGain (Low Gain)

Specifies the low frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the low frequency range.

### Hi Gain (High Gain)

Specifies the high frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the high frequency range.

### Pan (Output Pan)

Specifies the stereo location of the output sound. L64 is far left, 0 is center, and 63R is far right.

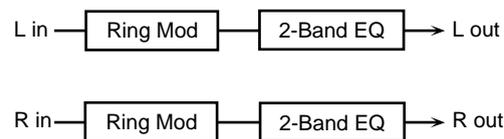
### Level (Output Level)

Specifies the output volume.

## 44: RING MODULATOR

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

You can also change the modulation frequency according to the volume of the sound input to the effects device.



### Freq (Frequency) #

Sets the frequency at which modulation will be applied.

### Mod (Modulator)

Selects the input of the direct sound for the envelope controlling the modulation.

When set to SRC, the frequency is modulated according to the envelope of the sound input to the multi-effects.

### Mon (Modulator Monitor)

Determines whether the input sound used as the modulator is output (ON) or not (OFF).

### Sens (Sensitivity) #

Sets the amount of frequency modulation applied.

### Pol (Polarity)

Determines whether the frequency modulation moves towards higher frequencies (UP) or lower frequencies (DOWN).

### LowGain (Low Gain)

Adjust the low frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the low frequency range.

### Hi Gain (High Gain)

Adjust the high frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the high frequency range.

### Balance (Effect Balance) #

Sets the volume balance between the direct sound and the effect sound.

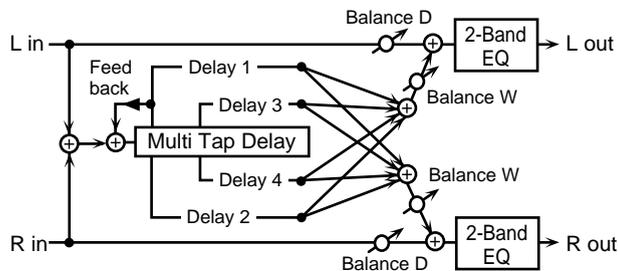
With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W the effect sound will be output.

### Level (Output Level)

Adjust the output level.

## 45: MULTI TAP DELAY

The Multi Tap Delay has four delays. Each of the Delay Time parameters can be specified as a note length of the selected tempo. You can also set the panning and level of each delay sound.



### Delay 1 (Delay Time 1)

Adjust the delay time from the direct sound until the delay 1 sound is heard.

### Delay 2 (Delay Time 2)

Adjust the delay time from the direct sound until the delay 2 sound is heard.

### Delay 3 (Delay Time 3)

Adjust the delay time from the direct sound until the delay 3 sound is heard.

### Delay 4 (Delay Time 4)

Adjust the delay time from the direct sound until the delay 4 sound is heard.

### MEMO

Delay 1–4 parameters can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

#### When Delay 1–4 are Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

### Pan 1 (Output Pan 1)

Sets the stereo position of the delay sound (Delay 1). A setting of L64 is far left, 0 is center, and 63R is far right.

### Pan 2 (Output Pan 2)

Sets the stereo position of the delay sound (Delay 2). A setting of L64 is far left, 0 is center, and 63R is far right.

### Pan 3 (Output Pan 3)

Sets the stereo position of the delay sound (Delay 3). A

setting of L64 is far left, 0 is center, and 63R is far right.

### Pan 4 (Output Pan 4)

Sets the stereo position of the delay sound (Delay 4). A setting of L64 is far left, 0 is center, and 63R is far right.

### Level 1

Adjust the output level of delay 1.

### Level 2

Adjust the output level of delay 2.

### Level 3

Adjust the output level of delay 3.

### Level 4

Adjust the output level of delay 4.

### Fbk (Feedback) #

Adjust the proportion (%) of the delay sound that is to be returned to the input. Positive (+) settings will return the signal to the input with the original phase, while negative (-) settings produce an inverted phase.

### HF Damp

Adjust the frequency at which the high frequency range of the delayed sound returned to the input will be cut.

If you do not want to cut the high frequencies of the feedback, set this parameter to BYPASS.

### LoG (Low Gain)

Adjust the low frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the low frequency range.

### HiG (High Gain)

Adjust the high frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the high frequency range.

### Balance (Effect Balance) #

Sets the volume balance between the direct sound and the effect sound.

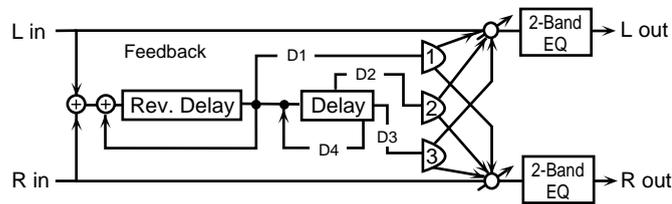
With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the effect sound will be output.

### Lev (Output Level)

Adjust the output level.

## 46: REVERSE DELAY

Reverse Delay is a delay effect that adds the reverse of the input sound as the delay sound.



### Delay 1 (Delay Time 1)

Adjust the delay time from the direct sound until the delay 1 sound is heard.

### Delay 2 (Delay Time 2)

Adjust the delay time from the direct sound until the delay 2 sound is heard.

### Delay 3 (Delay Time 3)

Adjust the delay time from the direct sound until the delay 3 sound is heard.

### Delay 4 (Delay Time 4)

Adjust the delay time from the direct sound until the delay 4 sound is heard.

### MEMO

Delay 1–4 parameters can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

### When Delay 1–4 are Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

### Feedback 1:4 #

Adjust the proportion (%) of the delay 1 and 4 sound that is fed back into the effect. Positive (+) settings will return the signal to the input with the original phase, while negative (-) settings produce an inverted phase.

### HF Damp 1:4

Adjust the frequency above which delayed sound (Delay 1, 4) fed back to the delay input will be cut.

If you do not want to cut the high frequencies of the feedback, set this parameter to BYPASS.

### Thr (Threshold Level)

Specify the volume level at which the reverse delay will begin to apply.

### Pan 1:2:3 (Output Pan 1:2:3)

Adjust the pan of delay sound (Delay 1–3). A setting of L64 is far left, 0 is center, and 63R is far right.

### Level 1:2:3

Adjust the output level of delay 1, 2 and 3.

### LowGain (Low Gain)

Adjust the low frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the low frequency range.

### Hi Gain (High Gain)

Adjust the high frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the high frequency range.

### Balance (Effect Balance) #

Sets the volume balance between the direct sound and the effect sound.

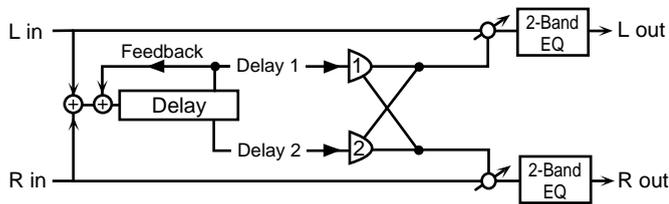
With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the effect sound will be output.

### Level (Output Level)

Adjust the output level.

## 47: SHUFFLE DELAY

Shuffle Delay adds a shuffle to the delay sound, giving the sound a bouncy delay effect with a swing feel.



### Delay (Delay Time) #

Adjust the delay time from the direct sound until the delay sound is heard.

#### MEMO

Delay parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

#### When Delay is Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

### Shuffle (Shuffle Rate) #

Sets the ratio (as a percentage) of the time that elapses before the sound plays in Delay B relative to the time that elapses before the sound plays in Delay A. When set to 100%, the delay times are the same.

### Accel (Acceleration)

Adjust the time over which the Delay Time will change from the current setting to a newly specified setting. The rate of change for the Delay Time directly affects the rate of pitch change.

### Fbk (Feedback) #

Adjust the proportion (%) of the delay sound that is to be returned to the input. Positive (+) settings will return the signal to the input with the original phase, while negative (-) settings produce an inverted phase.

### HF Damp

Adjust the frequency above which delayed sound fed back to the delay input will be cut.

If you do not want to cut the high frequencies of the feedback, set this parameter to BYPASS.

### Pan A

Adjust the pan of the delay A sound.

### Pan B

Adjust the pan of the delay B sound.

### Level Balance

Sets the balance for the levels of the delay A and the delay B.

### LowGain (Low Gain)

Adjust the low frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the low frequency range.

### Hi Gain (High Gain)

Adjust the high frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the high frequency range.

### Balance (Effect Balance) #

Sets the volume balance between the direct sound and the effect sound.

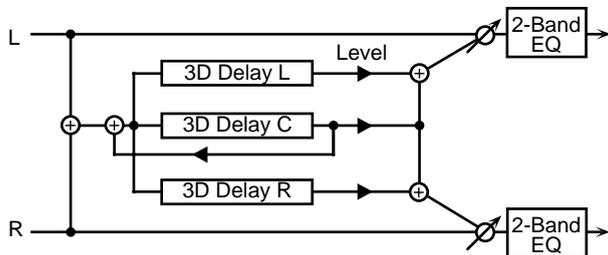
With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the effect sound will be output.

### Level (Output Level)

Adjust the output level.

### 48: 3D DELAY

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



#### Delay C (Delay Time Center)

Adjust the delay time from the direct sound until the center delay sound is heard.

#### Delay L (Delay Time Left)

Adjust the delay time from the direct sound until the left delay sound is heard.

#### Delay R (Delay Time Right)

Adjust the delay time from the direct sound until the right delay sound is heard.

#### MEMO

Delay C, Delay L and Delay R parameters can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

#### When Delay C, Delay L and Delay R are Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

#### Fbk (Feedback) #

Adjust the proportion (%) of the delay sound that is to be returned to the input. Positive (+) settings will return the signal to the input with the original phase, while negative (-) settings produce an inverted phase.

#### Level C (Level Center)

Adjust the volume of the center delay sound.

#### Level L (Level Left)

Adjust the volume of the left delay sound.

#### Level R (Level Right)

Adjust the volume of the right delay sound.

#### HF Damp

Adjust the frequency above which delayed sound fed back to the delay input will be cut.

If you do not want to cut the high frequencies of the feedback, set this parameter to BYPASS.

#### Out (Output Mode)

Adjust the method that will be used to hear the sound that is output to the OUTPUT jacks. The optimal 3D effect will be achieved if you select SPEAKER when using speakers, or PHONES when using headphones.

#### Lo G (Low Gain)

Adjust the low frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the low frequency range.

#### Hi G (High Gain)

Adjust the high frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the high frequency range.

#### Balance (Effect Balance) #

Sets the volume balance between the direct sound and the effect sound.

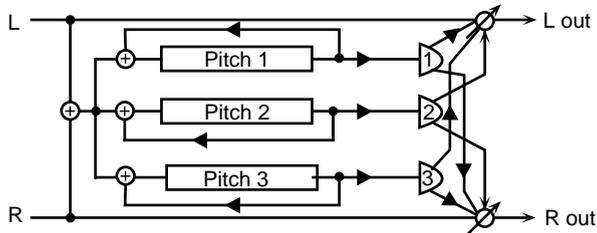
With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the effect sound will be output.

#### Level (Output Level)

Adjust the output level.

## 49: PITCH SHIFTER

A Pitch Shifter shifts the pitch of the direct sound. This 3-voice pitch shifter has three pitch shifters, and can add three pitch shifted sounds to the direct sound.



### Coarse 1:2:3 (Coarse Pitch 1:2:3)

Specify the pitch in semitones for pitch shift 1-3.

### Fine 1:2:3 (Fine Pitch 1:2:3)

Make fine adjustments to the pitch of the pitch shift 1-3 in 2-cent steps.

### Pre Delay 1:2:3 (Pre Delay Time 1:2:3)

Specify the time delay from the direct sound until the pitch shift 1-3 sound is heard.

### Fbk 1:2:3 (Feedback Level 1:2:3)

Adjust the proportion (%) of the pitch shift 1-3 sound that is fed back into the effect.

### Pan 1:2:3 (Output Pan 1:2:3)

Specify the stereo location of the pitch shift 1-3 sound. L64 is far left, 0 is center, and 63R is far right.

### Level 1:2:3 (Level 1:2:3)

Specify the volume of the pitch shift 1-3.

### Mode (Pitch Shifter Mode)

Higher settings of this parameter will result in slower response, but steadier pitch.

### Balance (Effect Balance)

Sets the volume balance between the direct sound and the effect sound.

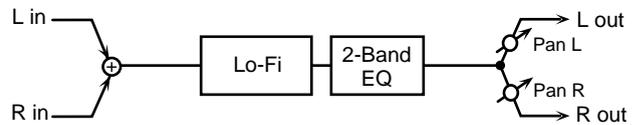
With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W the effect sound will be output.

### Level (Output Level)

Specifies the output volume.

## 50: LOFI COMPRESS

This is an effect that intentionally degrades the sound quality.



### Type (LoFi Type)

Lowers the audio quality. The audio quality will worsen as this setting is increased.

### Pre Filter (Pre Filter Type)

Adjust the type of filter that will be applied before the sound passes through the Lo-Fi effect.

### Post Filter 1 (Post Filter 1 Type)

Adjust the type of filter that will be applied after the sound passes through the Lo-Fi effect.

### Post Filter 2 (Post Filter 2 Type/Cutoff Frequency)

**OFF:** A post filter 2 will not be used.

**LPF:** The frequency region above the Cutoff Freq setting will be cut.

**HPF:** The frequency region below the Cutoff Freq setting will be cut.

Sets the cutoff frequency when a specific frequency band is cut off by a filter.

### LowGain (Low Gain)

Adjust the low frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the low frequency range.

### Hi Gain (High Gain)

Adjust the high frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the high frequency range.

### Balance (Effect Balance) #

Sets the volume balance between the direct sound and the effect sound.

With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the effect sound will be output.

### Pan (Output Pan)

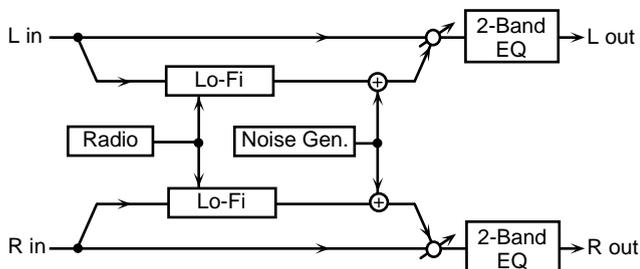
Adjust the stereo location of the output sound. A setting of L64 is far left, 0 is center, and 63R is far right.

### Level (Output Level)

Adjust the output level.

## 51: LOFI NOISE

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



### Type (LoFi Type)

Lowers the audio quality. The audio quality will worsen as this setting is increased.

Post Fltr (Post Filter Type/Cutoff Frequency)

**OFF:** A filter will not be used.

**LPF:** The frequency region above the Cutoff Freq setting will be cut.

**HPF:** The frequency region below the Cutoff Freq setting will be cut.

And adjust the frequency at which the filter will begin cutting.

### Radio Detune

(Radio Detune#/Radio Noise Level)

Simulates the tuning noise of a radio. As this value is raised, the tuning will drift further.

And adjust the volume of the radio noise.

**Disc:LPF:Lev (Disc Noise Type:Disc Noise LPF:Disc Noise Level)**

**Disc:** Selects the type of record noise. The frequency at which the noise is heard will depend on the selected type.

**LPF:** Adjust the cutoff frequency of the low pass filter that is applied to the record noise.

**Level:** Adjust the volume of the record noise.

### LowGain (Low Gain)

Adjust the low frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the low frequency range.

### Hi Gain (High Gain)

Adjust the high frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the high frequency range.

### Balance (Effect Balance) #

Sets the volume balance between the direct sound and the effect sound.

With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the effect sound will be output.

### Pan (Output Pan)

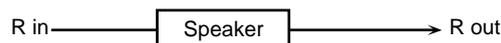
Adjust the stereo position of the delay sound. A setting of L64 is far left, 0 is center, and 63R is far right.

### Level (Output Level)

Adjust the output level.

## 52: SPEAKER SIMULATOR

Speaker Simulator is an effect that simulates the speaker type and mic settings used to record the speaker sound.



### Speaker Type

Select the type of speaker. The specifications of each type are as follows. 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 mic
SMALL 2	small open-back enclosure	10	dynamic mic
MIDDLE	open back enclosure	12 x 1	dynamic mic
JC-120	open back enclosure	12 x 2	dynamic mic
BUILT IN 1	open back enclosure	12 x 2	dynamic mic
BUILT IN 2	open back enclosure	12 x 2	condenser mic
BUILT IN 3	open back enclosure	12 x 2	condenser mic
BUILT IN 4	open back enclosure	12 x 2	condenser mic
BUILT IN 5	open back enclosure	12 x 2	condenser mic
BG STACK 1	sealed enclosure	12 x 4	condenser mic
BG STACK 2	large sealed enclosure	12 x 4	condenser mic
MS STACK 1	large sealed enclosure	12 x 4	condenser mic
MS STACK 2	large sealed enclosure	12 x 4	condenser mic
METAL STACK	large double stack	12 x 4	condenser mic
2-STACK	large sealed enclosure	12 x 4	condenser mic
3-STACK	large sealed enclosure	12 x 4	condenser mic

### Mic Set (Mic Setting)

Adjust the location of the mic that is recording the sound of the speaker. This can be adjusted in three steps, with the mic becoming more distant in the order of 1, 2, and 3.

### Mic:Dir (Mic Level:Direct Level) #

**Mic:** Adjust the volume of the microphone.

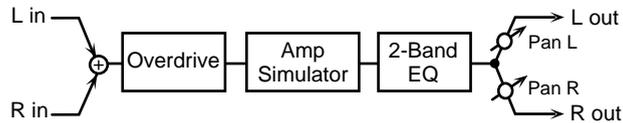
**Dir:** Adjust the volume of the direct sound.

**Level (Output Level) #**

Adjust the output level.

**53: OVERDRIVE 2**

This is an overdrive that provides heavy distortion.



**Drive #**

Adjust the amount of distortion. The volume will change together with the degree of distortion.

**Level (Output Level)**

Adjust the output level.

**LowGain (Low Gain)**

Adjust the low frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the low frequency range.

**Hi Gain (High Gain)**

Adjust the high frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the high frequency range.

**Amp Type (Amp Simulator Switch/Type)**

Turns the Amp Simulator on/off. And adjust the 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

**Tone**

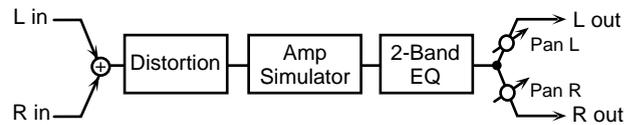
Adjust the sound quality of the Overdrive effect.

**Pan (Output Pan) #**

Adjust the stereo location of the output sound. A setting of L64 is far left, 0 is center, and 63R is far right.

**54: DISTORTION 2**

This is a distortion effect that provides heavy distortion.



**Drive #**

Adjust the amount of distortion. The volume will change together with the degree of distortion.

**Level (Output Level)**

Adjust the output level.

**LowGain (Low Gain)**

Adjust the low frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the low frequency range.

**Hi Gain (High Gain)**

Adjust the high frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the high frequency range.

**Amp Type (Amp Simulator Switch/Type)**

Turns the Amp Simulator on/off. And adjust the 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

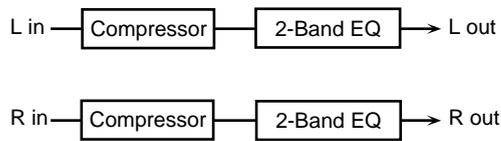
**Tone**

Adjust the sound quality of the Overdrive effect.

**Pan (Output Pan) #**

Adjust the stereo location of the output sound. A setting of L64 is far left, 0 is center, and 63R is far right.

### 55: STEREO COMPRESSOR



#### Sustain

Adjust the time over which low level sounds are boosted until they reach the specified volume.

#### Attack (Attack Time)

Adjust the attack time of an input sound.

#### Post Gain

Adjust the output gain.

#### LowGain (Low Gain)

Adjust the low frequency gain.

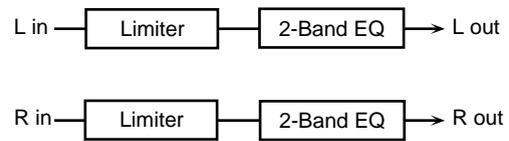
#### Hi Gain (High Gain)

Adjust the high frequency gain.

#### Level (Output Level) #

Adjust the output level.

### 56: STEREO LIMITER



#### Thre (Threshold Level)

Adjust the volume at which compression will begin.

#### Release (Release Time)

Adjust the time from when the volume falls below the Threshold Level until compression is no longer applied.

#### Ratio (Compression Ratio)

Adjust the compression ratio.

#### Gain (Post Gain)

Adjust the output gain.

#### LowGain (Low Gain)

Adjust the low frequency gain.

#### Hi Gain (High Gain)

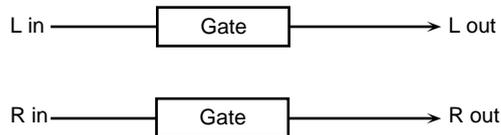
Adjust the high frequency gain.

#### Level (Output Level) #

Adjust the output level.

## 57: GATE

The Gate effect cuts the reverb's delay according to the volume of the sound input to the effects device. Use this in situations such as when you want to force a decrease in the decay sound.



### Key

Selects the input of the sound that acts as the trigger closing the gate.

When set to SOURCE, the gate is closed by the sound input to the Multi-effects.

### Thre (Key Threshold)

Sets the volume level at which the gate begins to close.

### Monitor (Key Monitor)

Determines whether the sound used as the gate trigger is output (ON) or not (OFF).

### Mode

**GATE:** Gate Reverb. When the source volume falls below a certain level, the gate closes, giving the effect of the reverb sound being cut with a gate reverb.

**DUCK:** Ducking Reverb. When the source volume gets high enough, the gate closes, which gives a ducking reverb-type effect. Stop the reverb sound only when input loud sound so that prevent the play sound become unclear.

### Atk (Attack Time)

Sets the time it takes the gate fully opens after being triggered.

### Hold (Hold Time)

Sets the time it takes the gate starts closing after the instant the direct sound goes under the threshold level.

### Rel (Release Time)

Sets the time it takes the gate fully closes after passes by the hold time.

### Balance (Effect Balance) #

Sets the volume balance between the direct sound and the effect sound.

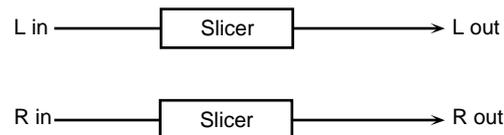
With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the effect sound will be output.

## Level (Output Level)

Adjust the 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.



### Beat 1-1-4-4

For a single measure containing four quarter notes, this sets the level of each sixteenth-note when the measure is divided into sixteenth notes. When set to 0, no sound is output.

### Rate #

Determines the cycle for one measure.

### MEMO

Rate parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

### When Rate is Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

### Attack

Sets the speed at which the volume changes between beats. The higher the value, the faster the volume changes.

### Reset #

Selects the input of the sound that acts as the trigger resetting the one-measure pattern.

When set to OFF, the pattern is not reset, even if the input is present.

When set to SRC, the pattern is reset by the sound input to the multi-effects.

### Thre (Reset Threshold)

Sets the volume level at which the reset begins.

### Mon (Reset Monitor Switch)

Determines whether the sound used as the reset trigger is output (ON) or not (OFF). This parameter is disabled when Reset parameter is set to OFF or SRC.

### Mode

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, then there is no change in volume.

**SLASH:** The level is momentarily set to 0 before progressing to the level for the next beat. This change in volume occurs even if the level of a following beat is the same as the one preceding it.

### Shuffle #

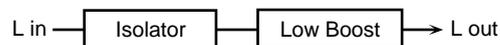
Sets the timing of volume changes in levels for even-numbered Beats (Beat 1-2/Beat 1-4/Beat 2-2/...). The higher the value selected, the later the timing with which the beat progresses.

### Level (Output Level)

Adjust the output level.

## 59: ISOLATOR

An equalizer which cuts the volume greatly, allowing you to add a special effect to the sound by cutting the volume in varying ranges.



### High (Level High) #

### Middle (Level Middle) #

### Low (Level Low) #

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.

### Anti Phase Mid (Anti Phase Middle Switch/Level)

This turns the Anti-Phase function on and off and sets the level settings for the Middle frequency ranges. When turned on, the counter-channel of stereo sound is inverted and added to the signal. Adjusting these levels for certain frequencies allows you to lend emphasis to specific parts. (This is effective only for stereo source.)

### Anti Phase Low (Anti Phase Low Switch/Level)

This turns the Anti-Phase function on and off and sets the level settings for the Low frequency ranges. When turned on, the counter-channel of stereo sound is inverted and added to the signal. Adjusting these levels for certain frequencies allows you to lend emphasis to specific parts. (This is effective only for stereo source.)

### Low Boost (Low Booster Switch/Level)

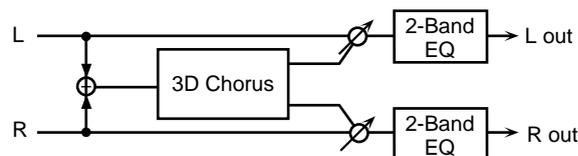
Adjust whether Low Booster will be used (ON) or not (OFF). This emphasizes the bottom to create a heavy bass sound. And adjust the level. Increasing this value gives you a heavier low end. (Depending on the Isolator and filter settings this effect may be hard to distinguish.)

### Level (Output Level)

Adjust the output level.

## 60: 3D CHORUS

This applies a 3D effect to the chorus sound. The chorus sound will be positioned 90 degrees left and 90 degrees right.



### Pre Dly (Pre Delay Time)

Adjust the delay time from the direct sound until when the chorus sound is heard.

### Rate (LFO Rate) #

Adjust the modulation frequency of the chorus sound.

### MEMO

Rate parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

### When Rate is Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

### Depth (LFO Depth)

Adjust the modulation depth of the chorus sound.

### Phase

Adjust the spaciousness of the chorus sound.

**Filter Type**

**OFF:** A filter will not be used.

**LPF:** The frequency region above the Cutoff Freq setting will be cut.

**HPF:** The frequency region below the Cutoff Freq setting will be cut.

**Cutoff (Cutoff Frequency)**

Sets the cutoff frequency when a specific frequency band is cut off by a filter.

**Out (Output Mode)**

Adjust the method that will be used to hear the sound that is output to the OUTPUT jacks. The optimal 3D effect will be achieved if you select SPEAKER when using speakers, or PHONES when using headphones.

**Lo G (Low Gain)**

Adjust the low frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the low frequency range.

**Hi G (High Gain)**

Adjust the high frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the high frequency range.

**Balance #**

Adjust the volume balance between the direct sound and the flanger sound.

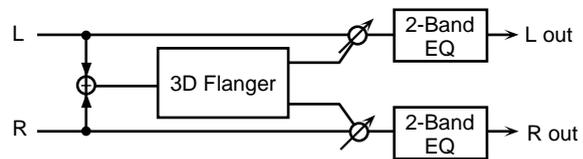
With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the flanger sound will be output.

**Lev (Output Level)**

Adjust the output level.

**61: 3D FLANGER**

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



**Pre Dly (Pre Delay Time)**

Adjust the time delay from the direct sound until the flanger sound is heard.

**Rate (LFO Rate) #**

Adjust the modulation speed of the flanger sound.

**MEMO**

Rate parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

**When Rate is Set as a Note Value**

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

**Depth (LFO Depth)**

Adjust the modulation depth of the flanger sound.

**Fbk (Feedback) #**

Adjust the proportion (%) of the flanger sound that is to be returned to the input. Positive (+) settings will return the signal to the input with the original phase, while negative (-) settings produce an inverted phase. Higher settings will produce a more distinctive sound.

**Phase**

Adjust the spaciousness of the flanger sound.

**Filter (Filter Type)**

**OFF:** No filter is used.

**LPF:** The frequency region above the Cutoff Freq setting will be cut.

**HPF:** The frequency region below the Cutoff Freq setting will be cut.

**Cutoff (Cutoff Frequency)**

Sets the cutoff frequency when a specific frequency band is cut off by a filter.

### Step Rate (Step Rate Switch/Step Rate #)

Determines whether the pitch is changed in a stepped fashion (ON) or not (OFF).

And adjust the rate at which the pitch will change.

#### MEMO

Step Rate parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

#### When Step Rate is Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

### Out (Output Mode)

Adjust the method that will be used to hear the sound that is output to the OUTPUT jacks. The optimal 3D effect will be achieved if you select SPEAKER when using speakers, or PHONES when using headphones.

### Lo G (Low Gain)

Adjust the low frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the low frequency range.

### Hi G (High Gain)

Adjust the high frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the high frequency range.

### Balance #

Adjust the volume balance between the direct sound and the flanger sound.

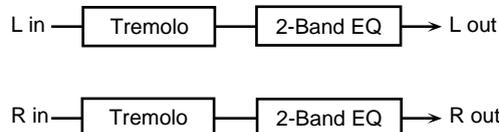
With a setting of D100:0W only the direct sound will be output, and with a setting of D0:100W only the flanger sound will be output.

### Lev (Output Level)

Adjust the output level.

## 62: TREMOLO

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



### Mod Wave (Modulation Wave)

**TRI:** The sound will be modulated like a triangle wave.

**SQR:** The sound will be modulated like a square wave.

**SIN:** The sound will be modulated like a sine wave.

**SAW1/2:** The sound will be modulated like a sawtooth wave. The teeth in SAW1 and SAW2 point at opposite directions.



### Rate #

Adjust the frequency (speed) of the change.

#### MEMO

Rate parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

#### When Rate is Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

### Depth #

Sets the depth to which the effect is applied.

### LowGain (Low Gain)

Adjust the low frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the low frequency range.

### Hi Gain (High Gain)

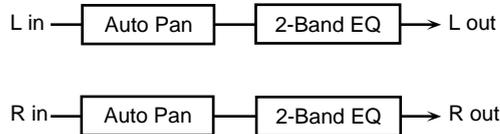
Adjust the high frequency gain (amount of boost or cut). Positive (+) settings will emphasize (boost) the high frequency range.

### Level (Output Level)

Adjust the output level.

### 63: AUTO PAN

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



### Mod Wave (Modulation Wave)

**TRI:** The sound will be modulated like a triangle wave.

**SQR:** The sound will be modulated like a square wave.

**SIN:** The sound will be modulated like a sine wave.

**SAW1/2:** The sound will be modulated like a sawtooth wave. The teeth in SAW1 and SAW2 point at opposite directions.



### Rate #

Adjust the frequency (speed) of the change.

### MEMO

Rate parameter can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

### When Rate is Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

### Depth #

Sets the depth to which the effect is applied.

### LowGain (Low Gain)

Adjust the low frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the low frequency range.

### Hi Gain (High Gain)

Adjust the high frequency gain (amount of boost or cut).

Positive (+) settings will emphasize (boost) the high frequency range.

### Level (Output Level)

Adjust the output level.

### When Using 3D Effects

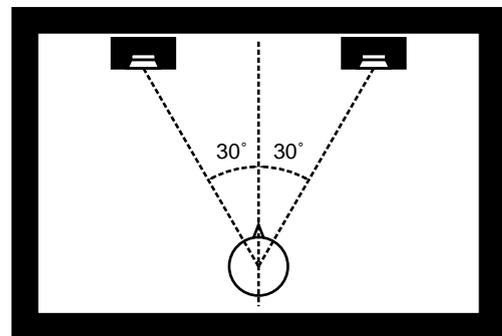
The following three 3D effects utilize RSS (Roland Sound Space) technology to create a spaciousness that cannot be produced by delay, reverb, chorus, etc.

48: 3D DELAY

60: 3D CHORUS

61: 3D FLANGER

When using these effects, we recommend that you place your speakers as follows. Also, make sure that the speakers are at a sufficient distance from the walls on either side.



If the left and right speakers are too far apart, or if there is too much reverberation, the full 3D effect may not appear.

Each of these effects has an Out (Output Mode) parameter. If the sound from the OUTPUT jacks 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 will ensure that the optimal 3D effect will be heard. If this parameter is not set correctly, the full 3D effect may not appear.

## Making Chorus Settings

You can make the settings for Chorus used by Patches/Rhythm Sets/Performances.

### Setting Procedure

1. After confirming that you are in Patch/Rhythm Set/Performance mode, select the desired Patch/Rhythm Set/Performance (p. 29, p. 35, p. 39).
2. Press [EDIT], getting the indicator to light, and then press the [EFFECTS] function button.
3. Press ▲ or ▼ to display the desired Edit page.
4. Press ◀ or ▶ to move the cursor to the parameter you're going to modify.
5. Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to change the parameter value.
6. When you finish making settings, press [EXIT] to return to the previous PLAY page.

An asterisk \* will be displayed at the left of the Patch/Rhythm Set/Performance group. This indicates that the Patch/Rhythm Set/Performance settings have been modified.

#### NOTE

If you select another Patch/Rhythm Set/Performance in the group with an asterisk \*, the modified Patch/Rhythm Set/Performance settings will be lost. To keep these modified settings, perform the save operation (p. 164).

## Functions of Parameters

The functions of Chorus parameters are explained according to the display arrangement.

### CHO TYPE

PERFORM ↑Type	Source
CHO TYPE↓01:CHORUS	PERFORM

#### Type (Chorus Type)

Selects either Chorus or Delay.

**OFF:** Neither Chorus or Delay is used.

**CHORUS:** Chorus is used.

**DELAY:** Delay is used.

#### Source (Chorus Source)

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.

#### MEMO

If you have selected the Part number here, the Part number will be displayed in the upper left of the CHO parameter setting display of Performances.

Part 1 ↑Type	Source
CHO TYPE↓01:CHORUS	PART 1

#### NOTE

This parameter is not available when a Patch or Rhythm Set is being selected.

### When Patch or Rhythm Set Settings Are Selected

When the Patch or Rhythm Set's Chorus settings are selected, those settings are shown in each of the Performance's CHO settings pages, and the settings can be then be changed as well. Changes to Patch or Rhythm Set Chorus parameter settings are lost when another Patch or Rhythm Set is selected. To keep the modified settings, save the Patch/Rhythm Set settings (p. 164).

## CHO PRM (CHO Parameter)

PATCH	↑Pre Dly	Rate	Depth	Fbk
CHO PRM ↓	1.0	0.50	20	0

Sets the parameter for the Chorus selected by the Chorus type. The parameters that can be set differ according to whether chorus or delay is used.

### NOTE

When the Type parameter in the CHO TYPE page is set to 00:OFF, the CHO PRM page will not be displayed.

### ● For Type: CHORUS

#### Pre Dly (Chorus Pre Delay)

This specifies the delay between when the direct sound is heard and when chorusing begins.

#### Rate (Chorus Rate)

This specifies the modulation frequency of the chorus effect.

#### Depth (Chorus Depth)

This specifies the modulation depth of the chorus effect.

#### Fbk (Chorus Feedback)

This specifies the amount of the chorus effect's output to be returned - fed back - to its input. Higher settings create more complex chorusing.

#### Phase

This specifies the spaciousness of the chorus effect.

#### Filter Type

This specifies the type of filter to be used by the chorus effect.

**OFF:** No filter is used.

**LPF:** Frequencies higher than the selected cutoff frequency value are eliminated.

**HPF:** Frequencies lower than the selected cutoff frequency value are eliminated.

#### Cutoff (Cutoff Frequency)

This sets the cutoff frequency at which the LPF or HPF begin to work.

### ● For Type: DELAY

#### Delay C (Delay Center)

This sets the delay time for the delay located at the center of the stereo field.

#### Delay L (Delay Left)

This sets the delay time for the delay located at the left side of the stereo field.

#### Delay R (Delay Right)

This sets the delay time for the delay located at the right side of the stereo field.

### MEMO

Delay C, Delay L and Delay R parameters can be set as a note-value of a specified tempo. In this case, specify the value of the desired note.

#### When Delay C, Delay L and Delay R are Set as a Note Value

As the specified tempo, you may use either the Patch Tempo (p. 71) or the tempo clock of the XV-88's system (p. 169).

#### Fbk (Feedback)

This adjusts the amount of delay feedback, controlling the number of times the delay repeats. Higher values result in more repeats. With negative (-) values, the phase of the repeated delays is inverted.

#### Level C (Delay Center Level)

This sets the volume level of the delay located at the center of the stereo field.

#### Level L (Delay Left Level)

This sets the volume level of the delay located at the left side of the stereo field.

#### Level R (Delay Right Level)

This sets the volume level of the delay located at the right side of the stereo field.

#### HF Damp

This allows you to reduce, or "damp," the high-frequency content of the repeated feedback delays—frequencies above the selected value will be damped. If you do not wish to damp the high-frequency content of the feedback delays, set this parameter to BYPASS.

### CHO OUT (Chorus Output)

PERFORM ↑	Output Assign	Level	Select
CHO OUT ↓	B	127	MAIN

#### Output Assign (Chorus Output Assign)

Selects the pair of OUTPUT jacks to which the Chorus sound is routed when Chorus Output Select is set to MAIN or MAIN+REV.

**A:** Output to the OUTPUT A (MIX) jacks in stereo.

**B:** Output to the OUTPUT B jacks in stereo.

#### NOTE

When Chorus Output Select is set to REV, this setting will have no effect.

#### MEMO

If the Mix/Parallel parameter (SYSTEM/SETUP/SYSTEM SETUP) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 169).

#### Level (Chorus Level)

Adjusts the volume of the sound that has passed through chorus.

#### Select (Chorus Output Select)

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.

#### HINT

When set to MAIN or MAIN+REV, the OUTPUT jack from which the sound is output is set in Chorus Output Assign.

## Making Reverb Settings

You can make the settings for Reverb used by Patches/Rhythm Sets/Performances.

### Setting Procedure

1. After confirming that you are in Patch/Rhythm Set/Performance mode, select the desired Patch/Rhythm Set/Performance (p. 29, p. 35, p. 39).
2. Press [EDIT], getting the indicator to light, and then press the [EFFECTS] function button.
3. Press ▲ or ▼ to display the desired Edit page.
4. Press ◀ or ▶ to move the cursor to the parameter you're going to modify.
5. Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to change the parameter value.
6. When you finish making settings, press [EXIT] to return to the previous PLAY page.  
An asterisk \* will be displayed at the left of the Patch/Rhythm Set/Performance group. This indicates that the Patch/Rhythm Set/Performance settings have been modified.

#### NOTE

If you select another Patch/Rhythm Set/Performance in the group with an asterisk \*, the modified Patch/Rhythm Set/Performance settings will be lost. To keep these modified settings, perform the save operation (p. 164).

## Functions of Parameters

The functions of Reverb parameters are explained according to the display arrangement.

### REV TYPE

PERFORM ↑ Type	Source
REV TYPE ↓ 01: REVERB	PERFORM

#### Type (Reverb Type)

Selects the type of Reverb.

**OFF:** Reverb is not used.

**REVERB:** Normal Reverb

**SRV ROOM:** This reverb simulates typical room acoustic reflections.

**SRV HALL:** This reverb simulates typical concert hall acoustic reflections.

**SRV PLATE:** This reverb simulates a reverb plate, a popular type of artificial reverb unit that derives its sound from the vibration of a metallic plate. You can also achieve unusual metallic-sounding reverbs using SRV PLATE.

#### Source (Reverb Source)

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.

#### MEMO

If you have selected the Part number here, the Part number will be displayed in the upper left of the REV parameter setting display of Performances.

Part 1 ↑ Type	Source
REV TYPE ↓ 01: REVERB	PART 1

#### NOTE

This parameter is not available when a Patch or Rhythm Set is being selected.

#### When Patch or Rhythm Set Settings Are Selected

When the Patch or Rhythm Set's Reverb settings are selected, those settings are shown in each of the Performance's REV settings pages, and the settings can be then be changed as well. Changes to Patch or Rhythm Set Reverb parameter settings are lost when another Patch or Rhythm Set is selected. To keep the modified settings, save the Patch/Rhythm Set settings (p. 164).

### REV PRM (REV Parameter)

Part 1 ↑ Type	Time   HF Damp   Fbk
REV PRM ↓ STAGE1	84   8000   0

Sets the parameter for the Reverb selected by the Reverb type. The parameters that can be set depend on Reverb you've selected.

#### NOTE

When the Type parameter in the REV TYPE page is set to 00:OFF, the REV PRM page will not be displayed.

#### ● For Type: REVERB

#### Type (Reverb/Delay Type)

This selects a type of reverb or delay.

**ROOM1:** This is a short reverb with high density

**ROOM2:** This is a short reverb with low density.

**STAGE1:** This is a long reverb.

**STAGE2:** This is a reverb with strong early reflections.

**HALL1:** This is a very clear-sounding reverb.

**HALL2:** This is a rich reverb.

**DELAY:** This is a conventional delay effect.

**PAN-DLY:** This is a delay effect with echoes that pan left and right.

#### Time (Reverb/Delay Time)

When the Type parameter setting is ROOM1–HALL2, this adjusts the length of reverberation. When the Type parameter setting is DELAY or PAN-DLY, this adjusts the delay time.

Higher settings produce a more spacious ambience.

#### HF Damp (Reverb/Delay HF Damp)

This specifies the frequency above which the high-frequency content of the reverb sound will be cut, or "damped."

Lower values cause a greater range of high frequencies to be cut, producing a softer reverb sound.

If you do not want to damp the high frequencies, set this parameter to BYPASS.

#### Fbk (Delay Feedback)

When the Type parameter setting is DELAY or PAN-DLY, this adjust the amount of delay feedback, controlling the number of delay repeats.

Higher values result in more repeats.

### ● For Type: SRV ROOM/SRV HALL/SRV PLATE

#### Pre Delay (Pre Delay Time)

This specifies the time between when the direct sound is heard and the moment at which the reverb is first heard.

#### Time (Reverb Time)

This sets the reverb length.

#### Size

This adjusts the size of the simulated room or hall. The size becomes bigger as the value increases.

#### High Cut (High Cut Frequency)

This sets the frequency above which the high-frequency content of the reverb will be reduced. If you do not want to reduce the brightness of the reverb, set this parameter to BYPASS.

#### Diffusion (Reverb Diffusion)

This 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.

#### Density (Reverb Density)

This adjusts the density of reverb. Higher values result in greater density.

#### LF Damp (LF Damp Frequency)

This specifies the frequency below which the low-frequency content of the reverb sound will be reduced, or “damped.”

#### LF Gain (LF Damp Gain)

This adjusts the amount of damping applied to the frequency range selected with LF Damp. With a setting of 0, there will be no reduction of the reverb’s low-frequency content.

#### HF Damp (HF Damp Frequency)

This specifies the frequency above which the high-frequency content of the reverb sound will be reduced, or “damped.”

#### HF Gain (HF Damp Gain)

This adjusts the amount of damping applied to the frequency range selected with HF Damp. With a setting of 0, there will be no reduction of the reverb’s high-frequency content.

### REV OUT (REV Output)

Part	1	↑	Output Assign		Level
REV OUT		↓	B1		50

#### Output Assign (Reverb Output Assign)

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.

#### MEMO

If the Mix/Parallel parameter (SYSTEM/SETUP/ SYSTEM SETUP) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 169).

#### Level (Reverb Level)

Adjusts the volume of the sound that has passed through Reverb.

## Copying Another Effect Setting (Effects Copy)

This function lets you copy data of any Performance, Patch, or Rhythm Set into the currently selected Performance, Patch, or Rhythm Set. This function can help you save time.

1. Make sure that a Patch, Rhythm Set, or Performance is selected.
2. Press [UTILITY], getting its indicator to start blinking.
3. Press the numeric key [2], then ▲ or ▼ to call up the PATCH/RHYTHM/PERFORM FX COPY page.

```
PATCH  ↑ Source | Number
FX COPY ↓ PATCH | USER:001 (User Patch )
```

Copy source      Copy source Performance/  
Patch/Rhythm Set  
(group, number, name)

4. Press the cursor buttons to move the cursor to the parameter you wish to set.
5. Either rotate the VALUE dial or press [INC/+]/[DEC/-] to set the value.

When the cursor is located at Number, you can also use [USER], [PRESET], and [A]–[F] to select a group, and then use the numeric keys to choose the number.

6. Press ▶ to move to the next display, and then select the contents of the effect that you wish to copy.

```
PATCH  ←Type            [COMPARE]/[ENTER]
FX COPY ↓ALL
```

Copy type

7. Either by rotating the VALUE dial or by pressing [INC/+]/[DEC/-], set the value.

**ALL:** Multi-effects, Chorus, and Reverb settings

**MFX:** Multi-effects settings

**CHORUS:** Chorus settings

**REVERB:** Reverb settings

**CHO&REV:** Chorus and Reverb settings

8. Press [ENTER] to execute the Copy operation.
9. Press [UTILITY] to return to the previous page.

# Chapter 8. Saving Sounds

Modifications you make to a sound are temporary, and will be lost when the power is turned off, or when another Performance, Patch or Rhythm Set is selected. If you wish to keep the modified Tones, perform the **Save** operation. If the settings of a Performance, Patch, or Rhythm Set have been modified, a \* symbol will appear at the left of the group in the corresponding PLAY page, indicating that the data has been modified. After you save the data to the XV-88 (user memory), the \* symbol will disappear.

```
PERFORM *PR-A: 01 Seq:Template Part= 1
PLAY                               kbd=C 4
```

There are three methods for saving Tones.

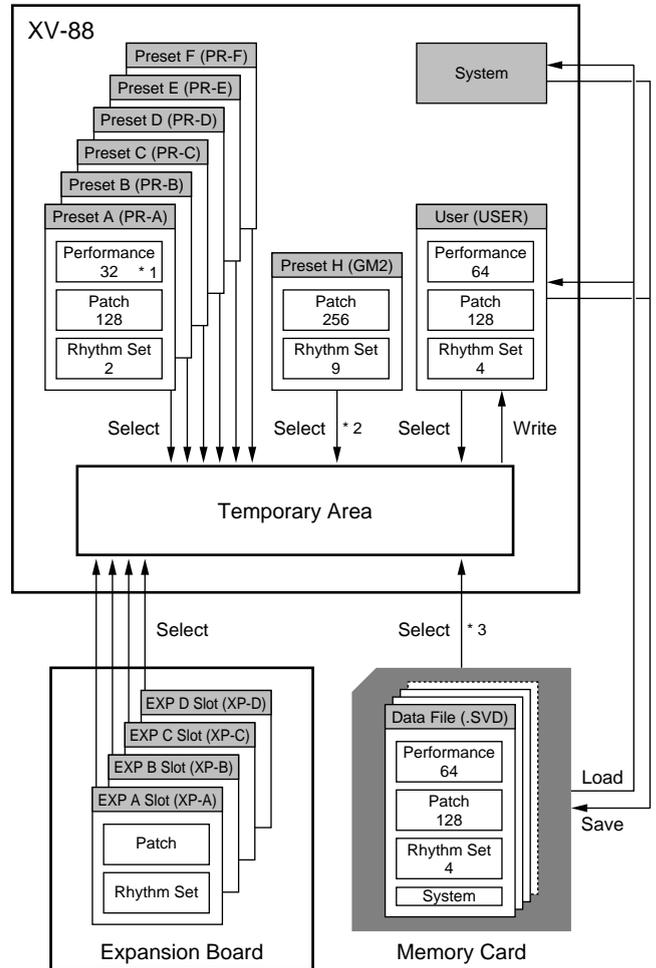
**Saving to Internal Memory → (p. 164)**

**Saving to an External MIDI Device → (p. 166)**

**Saving a Group of Tones to a Memory Card → (p. 167)**

## About Memory

Patch and Performance settings are stored in what is referred to as **memory**. There are three kind of memory: temporary, rewritable, and non-rewritable.



\* 1 Only in PR-A and B

\* 2 The selected Patches/Rhythm Sets cannot be changed.

\* 3 Only the Performances/Patches/Rhythm Sets in the CD-A--H group can be selected.

## Temporary Memory

### Temporary Area

This area holds data for the Performance, Patch, and Rhythm Set you select using the front panel buttons.

When you play the keyboard or play back an external sequence, sound is produced based on data in the temporary area. When you modify a Performance, Patch, or Rhythm Set, you are modifying the data that has been called into the temporary area instead of the data in memory.

Settings in the temporary area are temporary, and will be lost when the power is turned off or when you select another Performance/Patch/Rhythm Set. To keep the settings you have modified, you must write them into rewritable memory.

## Rewritable Memory

### System Memory

System memory stores system parameter settings that determine how the XV-88 functions. Any time you make changes in the system parameters, such changes are automatically stored in system memory (you don't need to perform a save). These settings are non-volatile, so they are retained even while the power is turned off.

### User Memory

User memory is where you normally store the data you need. User memory is capable of storing the data for 64 Performances, 128 Patches, and four Rhythm Sets.

### Memory Card (SmartMedia)

Memory cards are read/write cards that allow you to save the Patch, Performance, Rhythm Set, System and Favorite List settings stored in the internal memory as one file (Save), and return them as needed to the XV-88 (Load). You can use memory cards to store data for which there is no room in internal user memory, or data which you wish to use on another XV-88.



Memory cards are not included. They are available from your retailer.

## Non-Rewritable Memory

### Preset Memory

Data in Preset memory (Patch: PR-A-F, H, Performance: PR-A, B, Rhythm Set: PR-A-F, H) cannot be rewritten. However, you can call up settings from preset memory into the temporary area, modify them and then store the modified data in rewritable memory (except PR-H).

### Wave Expansion Boards (optional: SR-JV80/SRX Series)

The XV-88 can be equipped with up to four Wave Expansion Boards (two SR-JV80 Series, two SRX Series). Wave Expansion Boards contain Wave data, as well as Patches and Rhythm Sets that use this Wave data, which can be called directly into the temporary area and played.

## Saving to Internal Memory

This function writes sound settings you've modified into internal **USER** group (user memory).

### NOTE

When you perform the save procedure, the data that previously occupied the save destination will be lost. However, the factory setting data can be recovered by performing the Initialization procedure (p. 185).

1. Make sure the Performance, Patch or Rhythm Set that you wish to save is selected.
2. Press [UTILITY], getting its indicator to start blinking. The UTIL 1 page will appear.

```
UTIL 1.  | 2.  | 3.  | 4.  | 5.
 1WRITE | COPY | INIT | XFER | PROTECT
```

### HINT

If the UTIL 2 page appears, press ▲ to display the UTIL 1 page.

3. Use ◀ or ▶ to get "1. WRITE" to start blinking, then press [ENTER].  
The WRITE page for each mode appears.

```
PERFORM | Number | [ENTER]
WRITE   | User: 01 | (User Perform)
```

Writing destination

### HINT

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

4. Use the VALUE dial, [INC/+]/[DEC/-] or numeric keys to specify the Performance Patch, or Rhythm Set number of the destination of writing.

### HINT

When saving the Patch or Rhythm Set, you can check the save destination Patch or Rhythm Set (the Compare function p. 164).

5. Press [ENTER].  
If Internal Write Protect is turned off, the save operation will be executed.

6. If Internal Write Protect (p. 188) is turned on, the following display will appear. Change the ON setting to OFF, and press [ENTER]. Internal Write Protect will be turned off, and you will return to the display of step 3. Press [ENTER] once again to execute the save operation.

```
WRITE | Internal Write Protect= ON
PROTECT |
```

### MEMO

Internal Write Protect is automatically turned ON when the XV-88's power is turned on.

### When Changing the Settings for the Patch or Rhythm Set Assigned to a Part in a Performance

After changing the settings for the Patch or Rhythm Set assigned to a Part in a Performance, if you then try to save the Performance without first saving the changes in the settings, the following display appears.

```
PERFORM | Write Edited Patch/Rhythm ?
WRITE   | YES=[ENTER]/NO=[EXIT]
```

If you want to keep the Patch or Rhythm Set settings, press [ENTER] (the PATCH WRITE or RHYTHM WRITE page is displayed), then after saving the Patch or Rhythm Set (the PERFORM WRITE page is displayed), save the Performance.

## Comparing with the Save Destination Patch (Compare Function)

Before you save a Patch, you can audition the Patch which currently occupies the save destination to make sure that it is one you don't mind overwriting. This can help prevent important Patches from being accidentally overwritten and lost.

### MEMO

When saving the Rhythm Set, you can use the Compare function in the same way.

1. Follow the procedure "Saving to Internal Memory" up to step 4 to select the save destination.

2. Press [UNDO/COMPARE].

The PATCH COMPARE page appears, making it possible to sound the save destination Patch.

```
PATCH  Number      [COMPARE]
COMPARE User:001<User Patch >
```

Writing destination

3. Play the keyboard to sound the save destination Patch, then check whether you really want to overwrite it.

**NOTE**

The Patch auditioned using the Compare function may sound slightly different than when it is played normally.

4. If you want to change the save destination, use the VALUE dial, [INC/+]/[DEC/-] or numeric keys to specify the save destination Patch number.
5. Press [UNDO/COMPARE] once again to return to the PATCH WRITE page.
6. Press [ENTER] to execute the save operation.

## Registering Favorite Patches/ Rhythm Sets in the Favorite List

You can keep the Patches and Rhythm Sets that you like to use all in one place by registering them on the Favorite List. This list allows you immediate access to your favorite Patches and Rhythm Sets, whether they are stored internally, on Wave Expansion Boards, or on memory cards. Up to a total of 64 Patches and Rhythm Sets can be registered on the Favorite List.

1. Make sure that the Patch or Rhythm Set you wish to register is selected.
2. Hold down [SHIFT] and press [PATCH FINDER].  
The FAVORITE LIST page will appear.

```
FAVORITE Select      [SHIFT]
LIST 01<----:--- ---->---
```

3. Use the VALUE dial, [INC/+]/[DEC/-] or numeric keys and specify the save-destination number.

**MEMO**

No data is registered at the factory settings.

**HINT**

- By holding down [SHIFT] and pressing [UNDO/COMPARE], you can cancel the registration of the Patch and Rhythm Set that is registered to the currently specified number.

- You can press ▲ or ▼ to search for a registered number.
- By holding down [SHIFT] and pressing ▲ or ▼, you can find the empty number to which no data is registered. If no empty number can be found, “Favorite List Full” appears in the display.

4. Continue holding down [SHIFT], and the following display will appear.

```
FAVORITE Register to [ENTER]/[UNDO]
LIST 01<----:--- ---->---
```

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

### Registering Data Without Displaying the Favorite List

You can register data to the Favorite List directly from the PATCH PLAY and RHYTHM PLAY pages. This makes it simple to register data, without having to bring up the FAVORITE LIST page or specify a destination number for the registration.

1. Make sure that the Patch or Rhythm Set you wish to save is selected.
2. Continue holding down [SHIFT], and the following display will appear.

```
PATCH PR-A:001 128voicePno [ENTER]
Register to Favorite List
```

3. Hold down [SHIFT] and press [ENTER] to execute the registration and the display will briefly indicate “COMPLETED.”

Here, the data is registered to the lowest of the empty numbers to which no data is registered.

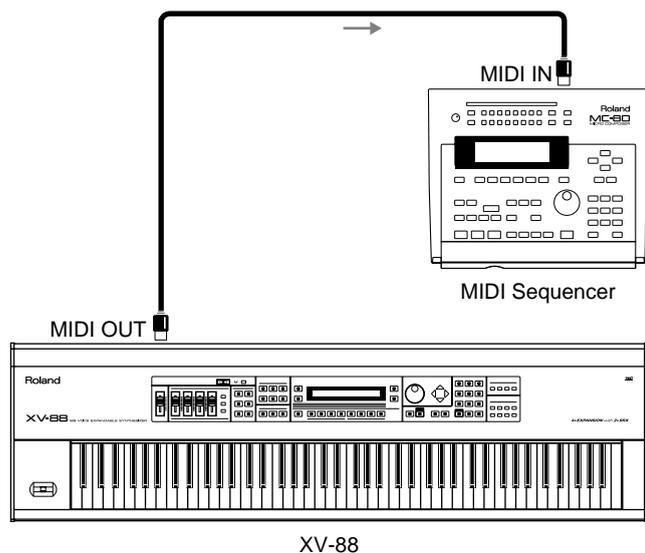
**NOTE**

If there is no empty number to which data can be registered, “Favorite List Full” appears in the display, and the data cannot be registered.

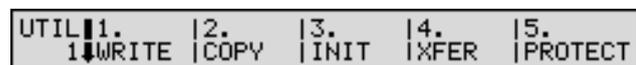
## Saving to an External MIDI Device

You can save data by transmitting it to an external MIDI device (MIDI sequencer, etc.).

Connect the XV-88 and external MIDI device as shown in the diagram.



1. Press [UTILITY], getting its indicator to start blinking. The UTIL 1 page will appear.

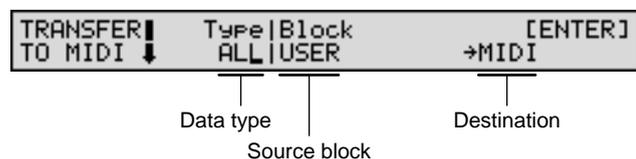


### HINT

If the UTIL 2 page appears, press ▲ to display the UTIL 1 page.

2. Use ◀ or ▶ to get "4. XFER" to start blinking, then press [ENTER].

The TRANSFER TO MIDI page will appear.



### HINT

If the TRANSFER TO USER page appears, press ▲ to display the TRANSFER TO MIDI page.

3. Press ◀ or ▶ to move the cursor to the item for which you wish to make settings, and either rotate the VALUE dial or use [INC/+]/[DEC/-] to set the value as follows.

## When Saving a Performance



### HINT

If you have modified the settings of a Patch or Rhythm Set assigned to a Part, select "+PATCH."

## When Saving a Patch



## When Saving a Rhythm Set



### MEMO

"TEMP" indicates the temporary area, meaning that the currently selected data will be transmitted.

4. Get the external MIDI device ready for the reception of data, then press [ENTER] to initiate the data transmission.

While the data is being transmitted, the display will indicate "Executing..." When "COMPLETED" is displayed, the transmission has been completed.

### HINT

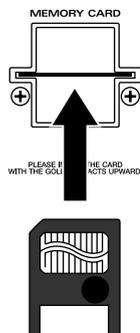
- To halt during transmission, press [EXIT].
- Before data that was saved on an external MIDI device can be transmitted back to the XV-88, the Device ID parameter (SYSTEM/MIDI/SYSTEM MIDI) must be set to the value that it had when the data was saved, and the Rx Sys.Excl parameter (SYSTEM/MIDI/SYSTEM MIDI) must be turned ON (p. 171). At the factory settings, the Device ID parameter is set to 17 and the Rx Sys.Excl parameter is set to ON.

## Saving a Group of Tones to a Memory Card

The Performances, Patches, Rhythm Sets, System and Favorite List settings in internal memory can be saved as a single file onto a memory card.

### NOTE

- Data files contain an entire set of parameter settings for the sound generator. It is not possible to save individual Patches or Performances to a memory card.
- In order to use a memory card, **you must first turn off the power**, and then insert a memory card into the MEMORY CARD slot as follows.



Insert with the surface with the gold connector facing up. Before a memory card can be used, it must be formatted (p. 189).

1. Make sure that the write protect seal has been removed from the memory card being inserted into the MEMORY CARD slot.

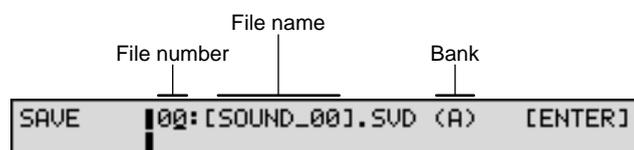
### NOTE

You cannot save data to a memory card to which the write protect seal is still affixed.

2. Press [UTILITY], getting its indicator to start blinking. The UTIL 1 page will appear.
3. Press  $\blacktriangledown$  to call up the UTIL 2 page.



4. Press  $\blacktriangleleft$  or  $\blacktriangleright$  to get "3. SAVE" to start blinking, then press [ENTER]. The SAVE page will appear.



5. When saving to a new memory card, the data is saved to File Number: 01, Bank: A. Afterwards, up to File Number: 08, the next saved file is assigned automatically to the subsequent Bank B–H.

To overwrite a previously existing file, select the file number of that file.

### MEMO

The Banks A–H assigned here correspond to the Card Group Banks A–H, but in this case you can select Performances, Patches, and Rhythm Sets directly, rather than having to use the Load operation to read files on memory cards into the XV-88 (p. 190).

### HINT

To change and delete assignments to the Banks A–H, use the CARD INFO page (p. 190).

6. When necessary, change the file name. You can assign the file a name of up to eight characters.



For details on assigning names, refer to "Assigning a Name" (p. 28).

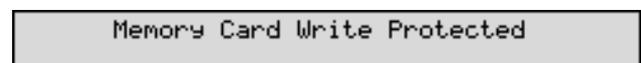
7. Press [ENTER] to execute the save operation.

### MEMO

The number of files that can be saved on a card will depend on the memory capacity of the card itself.

### NOTE

If you attempt to save to a memory card that still has the write protect seal affixed to it, the message "Memory Card Write Protected" appears in the display. First turn off the XV-88's power, then after peeling off the write protect seal, try saving the data once more.



### HINT

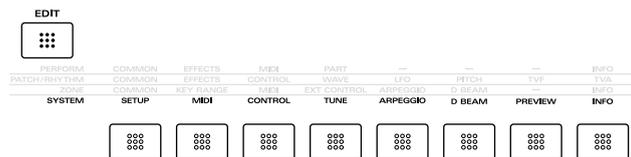
Load data saved to memory cards back to the XV-88 in the LOAD page (p. 190) or the TRANSFER TO USER page (p. 186).

# Chapter 9. Getting More Familiar with the XV-88 (System Functions)

Functions related to the XV-88's overall operating environment, including the display contrast, tuning, the way MIDI messages are received, and so on, are called **System functions**. This section explains how to make settings for the System functions and describes the functions of the different System parameters.

## How to Make the System Function Settings

1. Press [SYSTEM] to make the indicator light.  
The [EDIT] indicator lights simultaneously, and the XV-88 is put into System mode.
2. Use the function buttons to select a display group.  
The indicator for the button of the selected display group begins blinking.



3. Use ▲ or ▼ to select a display page.
4. Use ◀ or ▶ to move the cursor to the parameter you wish to modify.
5. Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to modify the parameter value.

### HINT

If you've made a mistake in setting the parameter value, press [UNDO/COMPARE] to restore the value to what it was.

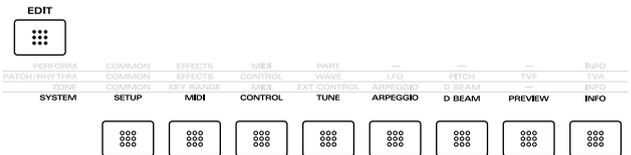
6. Repeat steps 2–5 to make the settings for the System function.
7. When you finish making settings, press [EXIT] or [SYSTEM] to return to the previous page.

### NOTE

System function settings are saved the instant a change is made in any of the parameter values. Therefore, no changes to the settings are lost, even when the power is turned off, and no other save procedures are necessary.

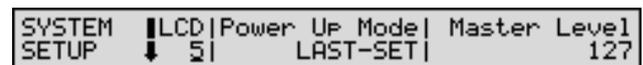
## Functions of System Parameters

This section explains what the different System parameters do, and also how these parameters are organized.



## Display Screen Contrast and Clock Settings (SETUP)

### SYSTEM SETUP



### LCD (LCD Contrast)

Adjusts the contrast (brightness) of the display. Increasing this value will increase the contrast of the display.

### Power Up Mode

Specifies the condition that the XV-88 will be in when the power is turned on.

**LAST-SET:** Reinstates the Patch and Performance selected at the time the XV-88 was last turned off.

**DEFAULT:** The XV-88 will be ready to play Patch "USER:001."

### Master Level

Adjusts the volume of the entire XV-88.

### Clock Source (System Clock Source)

The LFO cycle, Multi-effects changes, Phrase Loop, and Tone Delay time can be synchronized to a clock (tempo). When synchronizing these to the System's Tempo Clock, either synchronize to the internal clock (INT) or to an external clock (MIDI).



For details on using clock (tempo), refer to (p. 200).

## System Tempo

System Tempo sets the tempo value when the System Tempo Clock is set to the internal clock (INT).

### NOTE

When Clock Source (System Clock Source) is set to MIDI, the tempo will synchronize to the clock messages received from an external MIDI device, so this setting is disabled.

## Mix/Parallel

Specifies how the sound of the entire XV-88 will be output.

**MIX:** Set this to have the collective output of all sounds output from the OUTPUT A (MIX) jacks. When you want to check the final overall sound being output, set to MIX.

### MEMO

Sounds which are set in the respective Output Assign to be output from the INDIVIDUAL 3 jack are output from the left OUTPUT A (MIX) jack; sounds which are set to be output from the INDIVIDUAL 4 jack are output from the right OUTPUT A (MIX) jack.

### HINT

Sounds output from the PHONES jack are the same as those output from the OUTPUT A (MIX) jacks. Therefore, any sounds set with Output Assign to be output from the OUTPUT B jacks is not output from the PHONES jack. Be sure to have any sound you want to hear through the headphones set to MIX.

**PARALLEL:** Output according to each Output Assign settings.

## Patch Remain (Patch Remain Switch)

Specifies whether currently sounding notes will continue sounding when another Patch or Rhythm Set is selected (ON), or not (OFF).

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), and the sound character and volume changes created using the Palette Sliders are passed on.

### NOTE

Effects settings change as soon as you switch to a new Patch or Rhythm Set, without being influenced by the Patch Remain setting. Because of this, certain effects settings can cause notes that were until then sounding to no longer be heard, even though Patch Remain has been set to on.

## MIDI Settings (MIDI)

These parameters determine the MIDI channel settings, and how exclusive messages are handled.

### NOTE

The first display of the MIDI group will be different depending on the mode you were in when you pressed [SYSTEM] (Performance mode, Patch/Rhythm Set mode, or GM mode).

## PERFORM MIDI (Performance MIDI)

PERFORM	Control Channel	Local	Remote
MIDI	16	ON	OFF

Make MIDI settings for Performance mode. To make these settings, press [SYSTEM] when you are in Performance mode, and then press [MIDI] located in the row of function buttons.

### Control Channel (Performance Control Channel)

Performance Control Channel selects the MIDI receive channel used during switching of Performances when MIDI messages (Program Change/Bank Select) are sent from an external MIDI device. Set this to OFF if Performances are not to be switched from an external MIDI device.

For more details, refer to “**Selecting XV-88 Sounds from an External MIDI Device**” (p. 206).

### NOTE

If the Control Channel parameter settings overlap with a Part’s MIDI receive channel, switching of the Performance is given priority.

### Local (Local Switch)

The Local Switch determines whether the internal sound generator is disconnected (OFF) from the keyboard controller section (keyboard, pitch bend/modulation lever, sliders, D Beam controller, pedal, and so on); or not disconnected (ON). Normally this is left ON, but if you wish to use the XV-88’s keyboard and controllers to control only external sound generators, set it to OFF.

### MEMO

When a Layer Performance is selected, if you want the keyboard controller section to be disconnected only from a specific Part or Parts, use the Local parameter (ZONE/MIDI/MIDI) (p. 60).

### Remote (Remote Keyboard Switch)

Set this parameter ON when you want to use an external MIDI keyboard instead of the XV-88's keyboard. In this case, the MIDI transmit channel of the external MIDI keyboard can be set to any channel. Normally you will leave this parameter OFF.

#### HINT

Set this parameter ON if you want performance using the Arpeggiator to be controlled by an external MIDI device (p. 44).

### PATCH MIDI

PATCH	↓	Rx Ch	Tx Ch	Local	Remote
MIDI	↓	1	Rx Ch	ON	OFF

Make MIDI settings for Patch/Rhythm Set mode. To make these settings, press [SYSTEM] when you are in Patch/Rhythm Set mode, and then press [MIDI] located in the row of function buttons.

#### Rx Ch (Patch/Rhythm Set Receive Channel)

Specifies the receive channel of MIDI messages in Patch/Rhythm Set mode.

#### Tx Ch (Patch/Rhythm Set Transmit Channel)

Specifies the transmit channel of MIDI messages in Patch/Rhythm Set mode. If you do not want to transmit MIDI messages to external MIDI devices, turn this parameter OFF. If you want the transmit channel to always match the Patch Receive Channel, set this parameter to Rx Ch.

#### Local (Local Switch)

The Local Switch determines whether the internal sound generator is disconnected (OFF) from the keyboard controller section (keyboard, pitch bend/modulation lever, sliders, D Beam controller, pedal, and so on); or not disconnected (ON). Normally this is left ON, but if you wish to use the XV-88's keyboard and controllers to control only external sound generators, set it to OFF.

#### Remote (Remote Keyboard Switch)

Set this parameter ON when you want to use an external MIDI keyboard instead of the XV-88's keyboard. In this case, the MIDI transmit channel of the external MIDI keyboard can be set to any channel. Normally you will leave this parameter OFF.

#### HINT

Set this parameter ON if you want performance using the Arpeggiator to be controlled by an external MIDI device (p. 44).

### GM MIDI

GM	↓	Local Switch	Remote
MIDI	↓	ON	OFF

Make MIDI settings for GM mode. To make these settings, press [SYSTEM] when you are in GM mode, and then press [MIDI] located in the row of function buttons.

#### Local Switch

The Local Switch determines whether the internal sound generator is disconnected (OFF) from the keyboard controller section (keyboard, pitch bend/modulation lever, sliders, D Beam controller, pedal, and so on); or not disconnected (ON). Normally this is left ON, but if you wish to use the XV-88's keyboard and controllers to control only external sound generators, set it to OFF.

#### Remote (Remote Keyboard Switch)

Set this parameter ON when you want to use an external MIDI keyboard instead of the XV-88's keyboard. In this case, the MIDI transmit channel of the external MIDI keyboard can be set to any channel. Normally you will leave this parameter OFF.

#### HINT

Set this parameter ON if you want performance using the Arpeggiator to be controlled by an external MIDI device (p. 44).

### RECEIVE MIDI

RECEIVE	↑	Program Change	Bank Select
MIDI	↓	ON	ON

Select whether or not to receive MIDI messages to select Performances, Patches, or Rhythm Sets.

#### Program Change (Receive Program Change Switch)

Specifies whether Program Change messages will be received (ON) or not (OFF).

#### Bank Select (Receive Bank Select Switch)

Specifies whether Bank Select messages will be received (ON) or not (OFF).

## TRANSMIT MIDI

```
TRANSMIT↑Program|Bank Sel|Active Sensing
MIDI ↓ ON| ON| ON
```

Specify how MIDI messages will be transmitted.

### Program (Transmit Program Change Switch)

Specifies whether Program Change messages will be transmitted (ON) or not (OFF).

### Bank Sel (Transmit Bank Select Switch)

Specifies whether Bank Select messages will be transmitted (ON) or not (OFF).

### Active Sensing (Transmit Active Sensing Switch)

Specifies whether Active Sensing messages will be transmitted (ON) or not (OFF).

## SYSTEM MIDI

```
SYSTEM ↑ Rx GM On|Rx GM2 On|Rx GS Reset
MIDI ↓ ON| ON| ON
```

```
SYSTEM ↑ Device ID|Rx Sys.Excl|Tx Edit
MIDI ↓ 12| ON| OFF
```

Specify how Exclusive messages will be transmitted and received.

### Rx GM On (Receive General MIDI System On Switch)

Specifies whether General MIDI System On messages will be received (ON) or not (OFF).

### Rx GM2 On (Receive General MIDI 2 System On Switch)

Specifies whether General MIDI 2 System On messages will be received (ON) or not (OFF).

### Rx GS Reset (Receive GS Reset Switch)

Specifies whether GS Reset messages will be received (ON) or not (OFF).

### Device ID (Device ID Number)

When you want to transmit or receive System Exclusive messages, set this parameter to match the Device ID number of the other MIDI device.

### Rx Sys.Excl (Receive System Exclusive Switch)

Specifies whether System Exclusive messages will be received (ON) or not (OFF).

### Tx Edit (Transmit Edit Data Switch)

When Performance, Patch or Rhythm Set settings are modified, specify whether the modified settings will be transmitted as system exclusive messages (ON) or not (OFF).

## Keyboard and Controllers Settings (CONTROL)

### KEYBOARD

```
KEYBOARD Transpose| Sens| Vel| Aft
↓ OFE: 0(C )| MEDIUM| REAL| 100
```

### Transpose (Transpose Switch/Value)

If you wish to transpose the range of the keyboard, turn this switch ON and set the desired amount of transposition (in semitone steps). Tonic is indicated in parentheses ( ).

#### MEMO

The transposed note name will be shown in the lower right of the Performance/Patch/Rhythm Set PLAY display.

#### HINT

- When transposing the keyboard range on a PLAY display, press [TRANSPOSE] and indicator lights.
- To change transpose amount on a PLAY display, hold down [TRANSPOSE] and press [-OCT] or [+OCT].

### Sens (Keyboard Sensitivity)

Adjusts the keyboard's touch.

**LIGHT:** Light weight synthesizer keyboard like

**MEDIUM:** Standard

**HEAVY:** Acoustic piano simulation

**FULL:** Full concert grand piano simulation

### Vel (Keyboard Velocity)

Specifies the velocity value that will be transmitted when you play the keyboard. If you want actual keyboard velocity to be transmitted, set this to REAL. If you want a fixed velocity value to be transmitted regardless of how you play, specify the desired value (1–127).

### Aft (Aftertouch Sensitivity)

Specifies the Aftertouch sensitivity. Higher values will allow Aftertouch to be applied more easily. Normally you should leave this set to 100.

## HOLD PEDAL

HOLD	↑	Continuous	Output	Polarity
PEDAL	↓	ON	BOTH	STANDARD

Sets the function of the pedal connected to the HOLD PEDAL jack.

### Continuous (Continuous Switch)

This setting determines whether the HOLD PEDAL jack will provide support for half-pedaling (ON), or not (OFF). When this is set to support use of half-pedaling techniques, you can then connect an optional expression pedal (EV-5, etc.), and employ pedal work to achieve even finer control in performances in which piano tones are used.

### Output (Pedal Output)

Selects the sound generator(s) (the internal sound generator and/or external sound generators connected to MIDI OUT connector) to be controlled by the pedal.

**OFF:** Neither will be controlled.

**INT:** Only the internal sound generator will be controlled.

**MIDI:** Only external sound generators will be controlled.

**BOTH:** Both the internal sound generator and external sound generators will be controlled.

### Polarity (Pedal Polarity)

Select the polarity of the pedal. On some pedals, the electrical signal output by the pedal when it is pressed or released is the opposite of other pedals. If your pedal has an effect opposite of what you expect, set this parameter to REVERSE. If you are using a Roland pedal (that has no polarity switch), set this parameter to STANDARD.

## CONTROL PEDAL 1, 2

CONTROL	↑Assign	Output	Polarity
PEDAL 1	↓CC07:VOLUME	BOTH	STANDARD

This specifies the function of each pedal connected to the CTL 1, CTL 2 PEDAL jacks.

### Assign (Pedal 1, 2 Assign)

Specifies the function controlled by the pedal.

**CC01–31, 33–95:** Controller numbers 1–31, 33–95



For more detailed information about Control Change messages, please refer to “MIDI Implementation” (p. 270).

**PITCH BEND:** Pitch Bend

**AFTERTOUCH:** Aftertouch

**OCT UP:** Each pedal press raises the key range in octave steps (up to 3 octaves higher).

**OCT DOWN:** Each pedal press lowers the key range in octave steps (up to 3 octaves lower).

**START/STOP:** Starts/Stops the external sequencer.

**TAP TEMPO:** Tap tempo (a tempo specified by the interval at which you press the pedal).

**PROG UP:** Every press of the pedal selects the next Performance number, Patch number, or Rhythm Set number.

**PROG DOWN:** Every press of the pedal selects the previous Performance number, Patch number, or Rhythm Set number.

### Output (Pedal 1, 2 Output)

Selects the sound generator(s) (the internal sound generator and/or external sound generators connected to MIDI OUT connector) which will be controlled by the pedals.

**OFF:** Neither will be controlled.

**INT:** Only the internal sound generator will be controlled.

**MIDI:** Only external sound generators will be controlled.

**BOTH:** Both the internal sound generator and external sound generators will be controlled.

### Polarity (Pedal 1, 2 Polarity)

Selects the polarity of the pedal. On some pedals, the electrical signal output by the pedal when it is pressed or released is the opposite of other pedals. If your pedal has an effect opposite of what you expect, set this parameter to REVERSE. If you are using a Roland pedal (that has no polarity switch), set this parameter to STANDARD.

## C1–C4 ASSIGN (C1–C4 Slider Assign)

C1	↑Assign	Output
ASSIGN	↓92:AFTERTOUCH	BOTH

These parameters set the functions controlled by the C1–C4 sliders.

### Assign (C1–C4 Slider Assign)

Specifies the function controlled by each slider.

**CC01–31, 33–95:** Controller numbers 1–31, 33–95



For more detailed information about Control Change messages, please refer to “MIDI Implementation” (p. 270).

**PITCH BEND:** Pitch Bend

**AFTERTOUCH:** Aftertouch

### C1-C4 Output (C1-C4 Slider Output)

Selects the sound generator(s) (the internal sound generator and/or external sound generators connected to MIDI OUT connector) to be controlled by each slider.

**OFF:** Neither will be controlled.

**INT:** Only the internal sound generator will be controlled.

**MIDI:** Only external sound generators will be controlled.

**BOTH:** Both the internal sound generator and external sound generators will be controlled.

### SYS CTRL ASSIGN 1, 2 (System Control Assign 1, 2)

SYS CTRL	Control 1	Control 2
ASSIGN 1	CC01:MODULATION	97:AFTERTOUCH

This function, which departs from previously used methods, and instead allows you to use MIDI messages to change Tone settings in realtime, is called the **Matrix Controller** (p. 78). Similarly, the function allowing you to use MIDI messages to change Multi-effects settings in realtime is called the **Multi-effects Controller** (p. 115).

Normally, the Matrix Controller is used for making Patch settings, and the Multi-effects Controller for making settings to Performances, Patches, and Rhythm Sets. However, if the MIDI messages used as Matrix Controllers or Multi-effects Controllers need not be changed for each individual Performance, Patch, or Rhythm Set, or if you want to use specific MIDI messages for Matrix Controllers or Multi-effects Controllers, make the settings for the **System Controller**. In other words, you could call the System Controllers global Matrix Controllers/Multi-effects Controllers for the entire XV-88.

You can use up to four System Controllers.

### Control 1-4 (System Control Assign 1-4)

System Control Assign selects the MIDI message used as the System Controller.

**CC01-31, 33-95:** Controller numbers 1-31, 33-95



For more detailed information about Control Change messages, please refer to “MIDI Implementation” (p. 270).

**PITCH BEND:** Pitch Bend

**AFTERTOUCH:** Aftertouch

## Adjusting Tuning (TUNE)

Parameters in this group adjust the tuning of the internal sound generator, or change the temperament of the keyboard.

### SYSTEM TUNE

SYSTEM	Master	Key Shift	Scale Tune
TUNE	440.0	0	OFF

#### Master (Master Tune)

Adjusts the overall tuning of the XV-88. The display shows the frequency of the A4 note (center A).

#### Key Shift (Master Key Shift)

Shifts the overall pitch of the XV-88 in semitone steps.

#### Scale Tune (Scale Tune Switch)

Turn this ON when you wish to use a tuning scale other than equal temperament.

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

The XV-88 allows you to play the keyboard using temperaments other than equal temperament. The pitch is specified in one-cent units relative to the equal tempered pitch.

#### MEMO

- One-cent is 1/100th of a semitone.
- The selected scale applies to MIDI messages received from an external MIDI device.

#### NOTE

The SCALE page, in which the tuning settings are made, varies depending on the mode selected before [SYSTEM] is pressed.

### PATCH SCALE

PATCH	C	D	E	F	G	A	B
SCALE	0	0	0	0	0	0	0

PATCH	C#	E♭	F#	G#	B♭
SCALE	0	0	0	0	0

If you wish to define a scale for use in Patch mode, press [SYSTEM] while in Patch mode, and then press [TUNE] located in the row of function buttons to access the PATCH SCALE page.

In Patch mode there are separate screens for the white keys and black keys, and the settings for one octave (C-B) will determine the tuning for all octaves.

## KEY SCALE



If you wish to define a scale for use in Performance mode/GM mode, press [SYSTEM] while in Performance mode, and then press [TUNE] located in the row of function buttons to access the KEY SCALE page.

In Performance mode/GM mode, make the scale settings for each key in each Part. To make settings for another Part, use the cursor buttons to select the desired Part.

### Equal Temperament

This scale divides an octave into 12 equal parts using the tuning system that is most widely used in Western music. The XV-88 employs equal temperament when the Scale Tune Switch is set to OFF.

### Just Temperament (Tonic of C)

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-88, you can use Arabian temperament in the three keys of G, C and F.

#### <Examples>

Note name	Equal temperament	Just Temperament (tonic 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

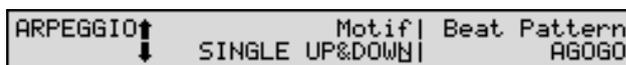
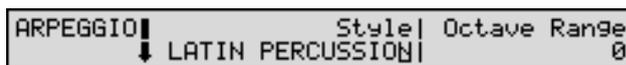
## Arpeggiator Settings (ARPEGGIO)

This is where the settings used in performing arpeggios in Patch/Rhythm Set/GM mode are made.

### MEMO

When arpeggios are performed in Performance mode, the arpeggio settings are made in Zone mode (p. 61).

## ARPEGGIO



### Style (Arpeggio Style)

Specifies the basic way in which the arpeggio will be played. Select one of the following 45 types.

- 1/4:** The rhythm will be divided in quarter notes.
- 1/6:** The rhythm will be divided in quarter note triplets.
- 1/8:** The rhythm will be divided in eighth notes.
- 1/12:** The rhythm will be divided in eighth note triplets.
- 1/16:** The rhythm will be divided in 16th notes.
- 1/32:** The rhythm will be divided in 32nd notes.
- PORTAMENTO A, B:** A style using the portamento effect.
- GLISSANDO:** A glissando style.
- SEQUENCE A–D:** Styles for sequenced patterns.
- ECHO:** An echo-like style.
- SYNTH BASS, HEAVY SLAP, LIGHT SLAP, WALK BASS:** Styles appropriate for bass playing.
- RHYTHM GTR 1–5:** Styles for rhythm guitar. Styles 2–5 are effective when 3–4 notes are held.
- 3 FINGER:** Three-finger guitar style.
- STRUM GTR UP, STRUM GTR DOWN, STRUM GTR UP&DW:** Guitar chords strummed both up and down. Effective when five or six notes are held.
- PIANO BACKING, CLAVI CHORD:** Styles for keyboard instrument backing.
- WALTZ, SWING WALTZ:** Styles in triple meter.
- REGGAE:** A reggae-type style. Effective when three notes are held.
- PERCUSSION:** A style suitable for percussive instrument.
- HARP:** A style simulating harp playing.

**SHAMISEN:** The playing style of a Shamisen.

**BOUND BALL:** A style suggestive of a bouncing ball.

**RANDOM:** A style in which the notes sound in random order.

**BOSSA NOVA:** A style with bossanova rhythm guitar. Hold 3–4 notes for best results. You can increase the tempo and use this as a Samba.

**SALSA:** Typical salsa style. Hold 3–4 notes for best results.

**MAMBO:** Typical mambo style. Hold 3–4 notes for best results.

**LATIN PERCUSSION:** A rhythm style with Latin percussion instruments such as Clave, Cowbell, Clap, Bongo, Conga, Agogo etc.

**SAMBA:** Typical samba style. Use for rhythm patterns or bass lines.

**TANGO:** Typical tango rhythm style. Hold the root, 3rd and 5th of a triad etc. for best results.

**HOUSE:** A style for house piano backing. Hold 3–4 notes for best results.

**LIMITLESS:** The settings of all parameters can be freely combined without restriction.



Choices can be set for the Motif, Beat Pattern, Shuffle Rate and Accent Rate parameters for each style. Refer to the “**Arpeggio Style List**” (p. 268).

### Octave Range

Sets the key range in octaves over which arpeggio will take place. If you want the arpeggio to sound using only the notes that you actually play, set this parameter to 0. To have the arpeggio sound using the notes you play and notes 1 octave higher, set this parameter to +1. A setting of -1 will make the arpeggio sound using the notes you play and notes 1 octave lower.

### Motif

Sets the order in which notes of the chord will sound.



Some settings will not be available depending on the Style parameter setting. For details on the possible values, refer to “**Arpeggio Style List**” (p. 268).

**SINGLE UP:** Notes you press will be sounded individually, beginning from low to high.

**SINGLE DOWN:** Notes you press will be sounded individually, from high to low.

**SINGLE UP&DOWN:** Notes you press will be sounded individually, from low to high, and then back down from high to low.

**SINGLE RANDOM:** Notes you press will be sounded individually, in random order.

**DUAL UP:** Notes you press will be sounded two at a time, beginning from low to high.

**DUAL DOWN:** Notes you press will be sounded two at a time, beginning from high to low.

**DUAL UP&DOWN:** Notes you press will be sounded two at a time, from low to high, and then back down from high to low.

**DUAL RANDOM:** Notes you press will be sounded two at a time, in random order.

**TRIPLE UP:** Notes you press will sound three at a time, from low to high.

**TRIPLE DOWN:** Notes you press will sound three at a time, from high to low.

**TRIPLE UP&DOWN:** Notes you press will sound three at a time, from low to high and then back down from high to low.

**TRIPLE RANDOM:** Notes you press will sound three at a time, in random order.

**NOTE ORDER:** Notes you press will be sounded in the order in which you pressed them. By pressing the notes in the appropriate order you can produce melody lines. Up to 128 notes will be remembered.

**GLISSANDO:** Each chromatic step between the highest and lowest notes you press will sound in succession, repeating upward and downward. Press only the lowest and the highest notes.

**CHORD:** All notes you press will sound simultaneously.

**BASS+CHORD 1–5:** The lowest of the notes you play will sound, and the remaining notes will sound as a chord.

**BASS+UP 1–8:** The lowest of the notes you play will sound, and the remaining notes will be arpeggiated.

**BASS+RND 1–3:** The lowest of the notes you play will sound, and the remaining notes will sound in random order.

**TOP+UP 1–6:** The highest of the notes you play will sound, and the remaining notes will be arpeggiated.

**BASS+UP+TOP:** The highest and the lowest of the notes you play will sound, and the remaining notes will be arpeggiated.

### Beat Pattern

Select the beat pattern from the choices below. This setting will affect the location of the accent and length of the notes to determine the beat (rhythm).

#### NOTE

Some settings will not be available depending on the Style parameter setting. For details on the possible values, refer to “Arpeggio Style List” (p. 268).

1/4, 1/6, 1/8, 1/12, 1/16 1–3, 1/32 1–3, PORTA-A 01–11, PORTA-B 01–15, SEQ-A 1–7, SEQ-B 1–5, SEQ-C 1, 2, SEQ-D 1–8, ECHO 1–3, MUTE 01–16, STRUM 1–8, REGGAE 1, 2, REFRAIN 1, 2, PERC 1–4, WALKBS, HARP, BOUND, RANDOM, BOSSA NOVA, SALSA 1–4, MAMBO 1–2, CLAVE, REV CLA, GUILO, AGOGO, SAMBA, TANGO 1–4, HOUSE 1, 2

#### HINT

If “PORTA-A 01–11, PORTA-B 01–15” is selected as the Beat Pattern, the Time parameter (PATCH/CONTROL/PATCH PORTAMNT) will control the speed of portamento (p. 76). Adjust the portamento time as appropriate for the playback tempo. (It is not necessary to turn portamento switch on.)

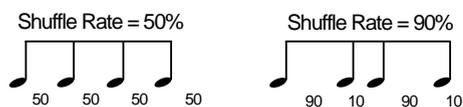
### Accent Rate

Modifies the strength of accents and the length of the notes to adjust the “groove” feel of the arpeggio. A 100% setting will result in the most pronounced “groove” feel.

### Shuffle Rate

This setting lets you modify the note timing to create shuffle rhythms.

With a setting of 50%, the notes will sound at equal spacing. As this value is increased, the notes will become more “bouncy,” as if they were dotted notes.



#### NOTE

If the Beat Pattern setting is 1/4, shuffle will not be applied even if you increase the Shuffle Rate setting.

### Key Velocity

Specifies the loudness of the notes that you play.

If you want the velocity value to change according to how strongly you played each note, set this to REAL. If you want each note to have a fixed velocity regardless of how strongly you play the keyboard, set this parameter to the desired value (1–127).

### Tempo (Arpeggio Tempo)

Sets the speed of the arpeggio.

When the Clock Source parameter (SYSTEM/SETUP/SYSTEM SETUP) is set to INT, the display will indicate Tempo(=SYS), and this will be the same value as the system tempo. With a setting of MIDI, the display will indicate Tempo(=EXT), and you will be synchronized to the clock of the external MIDI device.

### Setting the D Beam Controller (D BEAM)

This is where the settings are made for applying effects to the sound by moving your hand over the D Beam controller in Patch/Rhythm Set/GM mode.

#### MEMO

When using the D Beam controller in Performance mode, the settings are made in Zone mode (p. 63).

### D BEAM CONTROL

D BEAM	Assign	Output	Polarity
CONTROL	CC02: BREATH	BOTH	STANDARD

#### Assign (D Beam Assign)

Specifies the function controlled by the D Beam controller.

CC01–31, 33–95: Controller numbers 1–31, 33–95



For more information about Control Change messages, please refer to “MIDI Implementation” (p. 270).

PITCH BEND: Pitch Bend

AFTERTOUCH: Aftertouch

OCT UP: Raises the key range in octave steps (up to 3 octaves higher).

OCT DOWN: Lowers the key range in octave steps (up to 3 octaves lower).

START/STOP: Starts/Stops the external sequencer.

TAP TEMPO: Tap tempo (a tempo specified by the interval at which you move your hand over the D Beam controller).

#### Output (D Beam Output)

Selects the sound generator(s) (the internal sound generator and/or external sound generators connected to MIDI OUT connector) to be controlled by the D Beam controller.

OFF: Neither will be controlled.

INT: Only the internal sound generator will be controlled.

MIDI: Only external sound generators will be controlled.

BOTH: Both the internal sound generator and external sound generators will be controlled.

### Polarity (D Beam Polarity)

Switches the polarity of the D Beam controller.

With a setting of REVERSE, the direction of control for the D Beam controller will be inverted.

### D BEAM RANGE

D BEAM RANGE	↑	Lower		Upper
	↓	0		127

#### Lower (D Beam Range Lower)

Specifies the lower limit of the range of the D Beam controller. Values below this setting will not be output.

#### Upper (D Beam Range Upper)

Specifies the upper limit of the range of the D Beam controller. Values above this setting will not be output.

#### NOTE

It is not possible to set the lower limit value above the upper limit, nor can you set the upper limit value below the lower limit.

### D BEAM SENS

D BEAM SENS	↑	D Beam Sensitivity
	↓	5

#### D Beam Sensitivity

This sets the D Beam Controller's sensitivity. The higher the value set, the more readily the D Beam Controller goes into effect. Ordinarily, this is set to 5.

### Phrase Preview Settings (PREVIEW)

Specifies how the phrase will play when you press [PHRASE PREVIEW].

### SYSTEM PREVIEW

SYSTEM PREVIEW	↓	Preview Mode
	↓	PHRASE

#### Preview Mode (Preview Sound Mode)

**SINGLE:** The notes specified by Note 1–4 will sound successively one by one.

**CHORD:** The notes specified by Note 1–4 will sound simultaneously.

**PHRASE:** The Phrase associated with the Patch's type/category is played.

### PREVIEW KEY

PREVIEW KEY	↑	Note 1		Note 2		Note 3		Note 4
	↓	C 3		C 4		C 5		C 6

#### Note 1–4 (Preview Note Set 1–4)

Specify the pitch (C-1–G9) of the four notes that will sound when the Preview Mode parameter is set to either SINGLE or CHORD.

#### NOTE

If PHRASE is selected for the Preview Mode parameter, these settings will have no effect.

### PREVIEW VELOCITY

PREVIEW VELOCITY	↑	Note 1		Note 2		Note 3		Note 4
	↓	127		127		127		127

#### Note 1–4 (Preview Velocity)

Specify the velocity (0–127) of the four notes that will sound when the Preview Mode parameter is set to either SINGLE or CHORD.

#### NOTE

If PHRASE is selected for the Preview Mode parameter, these settings will have no effect.

## Checking the Installation of the Wave Expansion Board and Controlling External MIDI Devices (INFO)

### INFO EXP (Information Expansion Board)

```
INFO  Expansion A: SR-JV80-09 Sessn
EXP   Expansion B: -----
```

The display shows the names of Wave Expansion Boards installed in slots EXP A-D.

Slots without any boards installed are shown as “-----.”

### BATTERY CHECK

```
BATTERY Internal Battery
CHECK   OK
```

The XV-88 contains a battery that retains the data in its internal memory when the unit's power is turned off. This display allows you to check the battery voltage. If the display says “OK,” there is sufficient voltage. If the display says “LOW,” the battery's voltage is getting low. Contact the nearest Roland Service Center as soon as possible, and have the battery replaced.

### TRANSMIT P.C (Transmit Program Change)

```
TRANSMIT Ch|P.C#| Bank Select MSB/LSB
P.C      ↓  1|  1|(Patch  GM)  0/  0
```

When you want to transmit MIDI messages (Program Change and Bank Select) to select sounds on an external MIDI device, make settings in this display and then press [ENTER].

#### Ch (Transmit MIDI Channel)

Selects the channel on which the MIDI message will be transmitted.

#### P.C# (Transmit Program Change Number)

Selects the Program Change number you wish to transmit.

#### Bank Select MSB/LSB (Transmit Bank Select MSB/LSB)

Selects the Bank Select number MSB (Controller number 0) and LSB (Controller number 32) you want to transmit.

#### MEMO

Information on the XV-88 Tone Group/Bank corresponding to the Bank Select message sent is displayed in parentheses.

### TRANSMIT SONG SEL (Transmit Song Select)

```
TRANSMIT Song Number
SONG SEL  0
```

This transmits a MIDI message (Song Select) to the external MIDI device in order to change the song.

#### Song Number (Transmit Song Select Number)

Selects the Song Select number you wish to transmit.

#### MEMO

Holding down [SHIFT] while pressing ▲ (or ▼) in a PLAY page selects the song before (or after) the Song Number set with the Song Number parameter.

# Chapter 10. Memory Settings (Utility Mode)

The Utility mode allows you to store Performance/Patch/Rhythm Set settings (Write), and transmit data (Data Transfer), as well as other global XV-88 memory settings.

## About Utility Mode

The XV-88 goes into Utility mode if you press [UTILITY]. The indicator will blink.

Utility mode offers nine functions categorized into two groups—UTIL 1 and UTIL 2.

### UTIL 1 (Utility 1)

UTIL 1.	2.	3.	4.	5.
1WRITE	COPY	INIT	XFER	PROTECT

#### WRITE

This function writes Performance, Patch or Rhythm Set settings you've modified into internal memory (user memory). → (p. 180)

#### COPY

This function copies data from a Performance, Patch or Rhythm Set into the current Performance, Patch or Rhythm Set. → (p. 182)

#### INIT (Initialize)

This resets parameters of the current Performance, Patch or Rhythm Set to default factory settings. → (p. 185)

#### XFER (Data Transfer)

This function transmits Performance, Patch, Rhythm Set or System settings to an external MIDI device. → (p. 185)

#### PROTECT (User Memory Protect)

This function prevents internal memory (user memory) from being accidentally rewritten. → (p. 188)

### UTIL 2 (Utility 2)

UTIL 1.	2.	3.	4.
2CARD	LOAD	SAVE	FACTORY RESET

#### CARD

Here you can make settings related to memory cards. → (p. 188)

#### LOAD

This function loads data from memory card into the XV-88's memory. → (p. 190)

#### SAVE

This function saves data to memory card. → (p. 190)

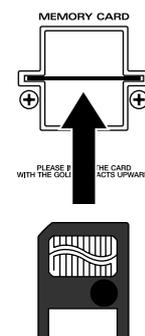
#### FACTORY RESET

This function resets all the XV-88's settings to their factory default values. → (p. 191)

## Basic Procedure in Utility Mode

### NOTE

In order to use a memory card, **you must first turn off the power**, and then insert a memory card into the MEMORY CARD slot as follows.



Insert with the surface with the gold connector facing up

1. Press [UTILITY], getting its indicator to start blinking. The XV-88 will switch to Utility mode.

### NOTE

The data handled in the Save, Copy, and Initialize procedures differs depending on the sound generator mode. Press [UTILITY] from within the desired sound generator mode.

2. Press ▲ or ▼ to select the group (UTIL 1, UTIL 2) containing the function you want.

## Chapter 10. Memory Settings (Utility Mode)

- Use ◀ or ▶ to select the desired function (the function name will blink), and press [ENTER].

The display for the desired function will appear.

### HINT

- You can also access the desired function page by using the numeric keys or function buttons to specify the number of the function.
  - If you selected the UTIL 2 group function “1. CARD,” the CARD page will appear. Here you can once again select the desired function.
- When parameters in the different function page are to be set, you can use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to make the settings.

### HINT

To cancel the operation, press [EXIT].

- Press [ENTER] to execute the function.

When the operation is completed, the display will briefly indicate “COMPLETED.”

### MEMO

When certain functions are executed, you are then returned to the original mode page.

- To return to the UTIL 1 or UTIL 2 page, press [EXIT]. To return to the display of the previous mode, press [UTILITY] to make the indicator go dark.

## Storing Sound Data in User Memory (WRITE)

If you turn the power off or select another Performance, Patch, or Rhythm Set after you have modified a Performance, Patch, or Rhythm Set, the changes you have made will be lost. If you wish to keep the data, store it into internal memory (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 save data when it is on, the following display will appear.

```
WRITE  | Internal Write Protect= ON  
PROTECT |
```

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-88's power is turned off. When the power is turned on once again, it will be reset to ON.

## Saving a Performance

The settings of the current Performance will be written into user memory. Press [UTILITY] in Performance mode, and perform Write operation.

```
PERFORM |Number      [ENTER]  
WRITE   |User: 01<User Perform>
```

Writing destination Performance (group, number, name)

### HINT

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



For more detailed information and instructions for this procedure, refer to “Saving to Internal Memory” (p. 164).

### Saving a Patch

The settings of the current Patch will be written into user memory. Press [UTILITY] in Patch mode, then perform Write operation.

```
PATCH  █Number  [COMPARE]/[ENTER]
WRITE  █User:001(User Patch )
```

Writing destination Patch (group, number, name)



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



For more detailed information and instructions for this procedure, refer to “Saving to Internal Memory” (p. 164).

#### The Compare Function

The Compare function allows you to play the Patch currently stored in the selected memory location so that you can make sure you really want to overwrite it. To play the Patch of the writing destination, press [UNDO/COMPARE] to access the PATCH COMPARE page. You can select the writing destination Patch in this display as well. After selecting the desired Patch, return to the previous page by pressing [UNDO/COMPARE] or [EXIT].

```
PATCH  █Number  [COMPARE]
COMPARE █User:001(User Patch )
```

Writing destination Patch (group, number, name)



The Patch auditioned using the Compare function may sound slightly different than when it is played normally.

### Saving a Rhythm Set

The settings of the current Rhythm Set will be written into user memory. Press [UTILITY] in Rhythm Set mode, then perform Write operation.

```
RHYTHM █Number  [COMPARE]/[ENTER]
WRITE  █User:001(User Rhythm )
```

Writing destination Rhythm Set (group, number, name)



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



For more detailed information and instructions for this procedure, refer to “Saving to Internal Memory” (p. 164).

#### The Compare Function

The Compare function allows you to play the Rhythm Set currently stored in the selected memory location so that you can make sure you really want to overwrite it. To play the Rhythm Set of the writing destination, press [UNDO/COMPARE] to access the RHYTHM COMPARE page. You can select the writing destination Rhythm Set in this display as well. After selecting the Rhythm Set, return to the previous page by pressing [UNDO/COMPARE] or [EXIT].

```
RHYTHM █Number  [COMPARE]
COMPARE █User:001(User Rhythm )
```

Writing destination Rhythm Set (group, number, name)



The Rhythm Set auditioned using the Compare function may sound slightly different than when it is played normally.

## Copying Sound Generator Settings (COPY)

This function lets you copy data of any Performance, Patch, or Rhythm Set into the current Performance, Patch, or Rhythm Set. You can use this feature to make the editing process faster and easier.

### Copying a Performance

To copy the settings of a Performance, press [UTILITY] in Performance mode, then perform Copy operation.

### Performance Part Copy

The Part settings of a Performance will be copied to the Part you specify of the current Performance.

```
PERFORM | Source | Part | [ENTER]
PART COPY | USER: 01 | P 1 (User Perform) → P 1
```

Copy source Performance  
(group, number)

Copy source  
Performance name

Copy source Part

Copy destination Part



To specify the currently selected Performance as the copy source, set Source to TEMP.

When the Copy operation is executed, an \* symbol will be displayed in front of the copy-destination Part.



For more detailed information and instructions for this procedure, refer to “Copying the Settings of Another Part (Part Copy)” (p. 50).

## Performance Effects Copy

You can copy the effect settings from any Performance, Patch or Rhythm Set into the currently selected Performance.

```
PERFORM | Source | Number |
FX COPY | PERFORM | USER: 01 (User Perform)
```

Copy source

Copy source Performance/  
Patch/Rhythm Set  
(group, number, name)

Press ► to move to the next display, and then select the contents of the effect that you wish to copy.

```
PERFORM | Type | [ENTER]
FX COPY | ALL
```

Copy type

**ALL:** Multi-effects, Chorus, and Reverb settings

**MFx:** Multi-effects settings

**CHORUS:** Chorus settings

**REVERB:** Reverb settings

**CHO&REV:** Chorus and Reverb settings



For more detailed information and instructions for this procedure, refer to “Copying Another Effect Setting (Effects Copy)” (p. 161).

## Performance Name Copy

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

```
PERFORM | Number | [ENTER]
NAME COPY | USER: 01 (User Perform)
```

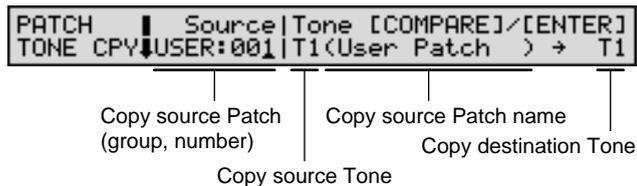
Copy source Performance (group, number, name)

## Copying a Patch

To copy the settings of a Patch, press [UTILITY] in Patch mode, then perform Copy operation.

### Patch Tone Copy

Tone settings of a Patch will be copied to the Tone you specify of the current Patch.



To specify the currently selected Patch as the copy source, set Source to TEMP.

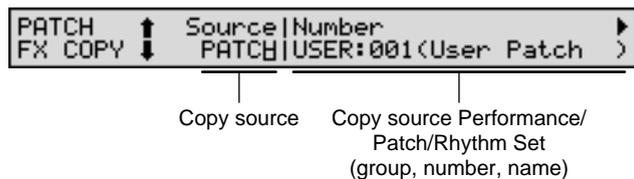
When the Copy operation is executed, an \* symbol will be displayed in front of the copy-destination Tone.



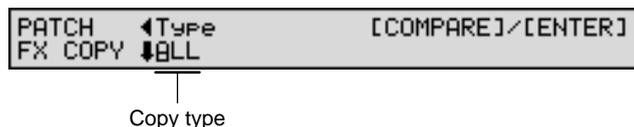
For more detailed information and instructions for this procedure, refer to “Copying the Settings of Another Tone (Tone Copy)” (p. 68).

### Patch Effects Copy

You can copy the effect settings from any Performance, Patch or Rhythm Set into the currently selected Patch.



Press ▶ to move to the next display, and then select the contents of the effect that you wish to copy.



**ALL:** Multi-effects, Chorus, and Reverb settings

**MFx:** Multi-effects settings

**CHORUS:** Chorus settings

**REVERB:** Reverb settings

**CHO&REV:** Chorus and Reverb settings

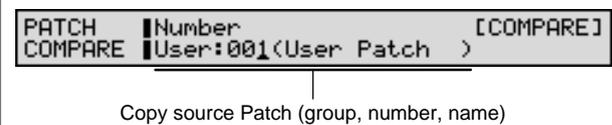


For more detailed information and instructions for this procedure, refer to “Copying Another Effect Setting (Effects Copy)” (p. 161).

### The Compare Function

For the Patch Tone Copy and Patch Effect Copy operations, you can use the Compare function.

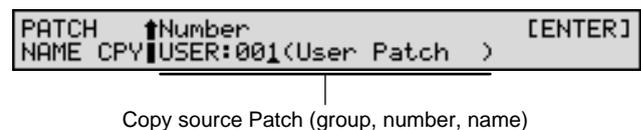
The Compare function allows you to play the copy-source Patch. To play the Patch of the copy source, press [UNDO/COMPARE] to access the PATCH COMPARE page. The new Patch can also be selected from this page—however, it is not possible to select Patches from CD-A-H or XP-A-D. After selecting the desired Patch, return to the previous page by pressing [UNDO/COMPARE] or [EXIT].



- The Compare function cannot be used with Patch Tone Copy if either TEMP, a CD-A-H or XP-A-D patch is selected as the copy-source Patch.
- The Compare function cannot be used with Patch Effect Copy if PERFORM is selected as the copy source.
- The Patch auditioned using the Compare function may sound slightly different than when it is played normally.

### Patch Name Copy

You can copy the name of a Patch to the current Patch.



## Copying a Rhythm Set

To copy the Rhythm Set settings, press [UTILITY] in Rhythm Set mode and perform Copy operation.

### Rhythm Tone Copy

Individual Rhythm Tone (percussion sound) settings assigned to each key will be copied to each key in the current Rhythm Set.

```
RHYTHM  Source|Key [COMPARE]/[ENTER]
KEY COPY↓USER:001|B 1(User Rhythm )→ B 1
```

Copy source Rhythm Set (group, number)      Copy source Rhythm Set name

Copy source Key      Copy destination Key



The copy source and copy destination Key parameters can also be set by pressing a key on the keyboard.

When the Copy operation is executed, an \* symbol will be displayed in front of the copy-destination key.



For more detailed information and instructions for this procedure, refer to “Copying the Settings of Another Rhythm Tone (Rhythm Tone Copy)” (p. 94).

### Rhythm Set Effects Copy

You can copy the effect settings from any Performance, Patch or Rhythm Set into the currently selected Rhythm Set.

```
RHYTHM  Source|Number
FX COPY ↓ RHYTHM|USER:001(User Rhythm )
```

Copy source      Copy source Performance/ Patch/Rhythm Set (group, number, name)

Press ▶ to move to the next display, and then select the contents of the effect that you wish to copy.

```
RHYTHM  Type
FX COPY ↓ALL [COMPARE]/[ENTER]
```

Copy type

**ALL:** Multi-effects, Chorus, and Reverb settings

**MFx:** Multi-effects settings

**CHORUS:** Chorus settings

**REVERB:** Reverb settings

**CHO&REV:** Chorus and Reverb settings



For more detailed information and instructions for this procedure, refer to “Copying Another Effect Setting (Effects Copy)” (p. 161).

### The Compare Function

For the Rhythm Tone Copy and Rhythm Set Effect Copy operations, you can use the Compare function.

The Compare function allows you to play the copy-source Rhythm Set. To play the Rhythm Set of the copy source, press [UNDO/COMPARE] to access the RHYTHM COMPARE page. The new Rhythm Set can also be selected from this page—however, it is not possible to select patches from CD-A-H or XP-A-D. After selecting the Rhythm Set, return to the previous page by pressing [UNDO/COMPARE] or [EXIT].

```
RHYTHM  Number [COMPARE]
COMPARE ↓User:001(User Rhythm )
```

Copy source Rhythm Set (group, number, name)



- The Compare function cannot be used with Rhythm Tone Copy if either TEMP, a CD-A-H/XP-A-D Rhythm Set is selected as the copy-source Rhythm Set.
- The Compare function cannot be used with Rhythm Set Effect Copy if PERFORM is selected as the copy source.
- The Rhythm Set auditioned using the Compare function may sound slightly different than when it is played normally.

### Rhythm Set Name Copy

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

```
RHYTHM  Number [ENTER]
NAME CPY ↓USER:001(User Rhythm )
```

Copy source Rhythm Set (group, number, name)

## Initializing Sound Generator Settings (INIT)

This function resets settings of the current Performance, Patch, or Rhythm Set to a standard value or to factory default settings.

**NOTE**

The Initialize operation affects only the currently selected data; no data stored in the user memory is initialized. If you wish to restore all of the XV-88's settings to their factory values, perform a Factory Reset (p. 191).

### Mode (Initialize Mode)

There are two initialize methods. Select either of them depending on the application.

**DEFAULT:** Resets the current data to the standard values called "Initial data" (INIT PATCH, INIT PERFORM or INIT RHYTHM). Use this setting when you wish to create a sound from scratch.

**PRESET:** Resets the current data in user memory to the factory settings.

**NOTE**

If the current data is a Performance, Patch or Rhythm Set in preset memory (PR-A-F), and initialization is performed with PRESET specified, the data will be reset to the value of the correspondingly numbered user memory.

## Initializing a Performance

To initialize Performance settings, press [UTILITY] in Performance mode and execute initialization.

```
PERFORM | Mode [ENTER]
INIT | DEFAULTI
```

## Initializing a Patch

To initialize Patch settings, press [UTILITY] in Patch mode and execute initialization.

```
PATCH | Mode [ENTER]
INIT | DEFAULTI
```

## Initializing a Rhythm Set

To initialize Rhythm Set settings, press [UTILITY] in Rhythm Set mode and execute initialization.

The Rhythm Set Initialize operation can also be used to initialize the settings of only an individual Rhythm Tone (percussion instrument sound) that you specify. In this case, move the cursor to "Key," and select the Rhythm Tone that you wish to initialize. You can specify the key (Rhythm Tone) to be initialized via the keyboard or by pressing TONE SELECT [1]-[4].

### When Initializing a Rhythm Tone

```
RHYTHM | Mode | Key [ENTER]
KEY INIT | DEFAULTI | B 1
```

### When Initializing a Rhythm Set

```
RHYTHM | Mode [ENTER]
INIT | DEFAULTI
```

## Transmitting Sound Settings (XFER)

You can transmit sound generator or System settings that are in the XV-88's memory, or are stored on a memory card to an external MIDI device or to the XV-88's user memory.

## Transmitting Data to an External MIDI Device

The process of transmitting Performance, Patch, Rhythm Set or System data to an external MIDI device is called a **bulk dump**. You can perform a bulk dump when two XV-88s 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-88 data.

```
TRANSFER | Type | Block [ENTER]
TO MIDI | ALL | USER +MIDI
```

Data type                      Source block                      Destination

While data is being transmitted, the following display will appear.

```
TRANSFER | Executing... [ENTER]
TO MIDI | PERFORMIUSER: 01 +MIDI
```

**HINT**

To interrupt the transmission of data, press [EXIT].

## Chapter 10. Memory Settings (Utility Mode)

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

For example, if you wish to transmit the USER group Patches 001-020, you would specify "PATCH USER:001-020."

Type	Block		
ALL	USER		
	TEMP		
PERFORM	USER	01-64	
	TEMP	-PATCH	*1
		+PATCH	*2
	CTRL		
PATCH	USER	001-128	
	TEMP		
RHYTHM	USER	001-004	
	TEMP		
SYSTEM	USER		

\*1 Only the current Performance settings will be transmitted.

\*2 The current Performance settings and the setting of a Patch or Rhythm Set assigned to the Part will be transmitted.

### Type (Data Type)

Specifies the type of data to be transmitted.

**ALL:** Performance, Patch, and Rhythm Set

**PERFORM:** Performance

**PATCH:** Patch

**RHYTHM:** Rhythm Set

**SYSTEM:** System

### Block (Source Block)

Specifies the source of the data to be transmitted.

**USER:** Data from user memory will be transmitted.

**TEMP:** Data in Temporary area 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.



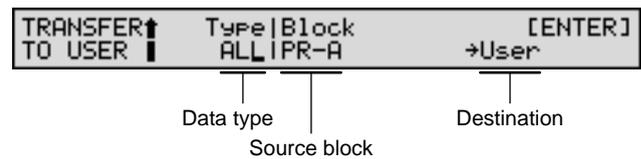
For more on the messages that are transmitted, refer to "MIDI Implementation" (p. 270).

### Destination

This is the Transmission destination. It is set with MIDI.

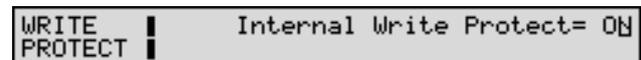
## Transmitting Data to the XV-88

You can transmit Performance, Patch or Rhythm Set settings to the user memory and System settings to the System memory. By loading sound data from a memory card or Wave Expansion Boards to user memory, you can bring new sounds into a Performance.



### NOTE

- If the XV-88 internal memory already contains important data that you have created, this operation will cause all of this data to be lost. If you wish to keep the data, you must save it on a memory card (p. 190) or on an external MIDI device (p. 185).
- If Internal Write Protect is turned ON, the following display will appear, and the Data Transfer operation will not be executed.



Change the displayed ON to OFF and press [ENTER] to turn Internal Write Protect off. Press [ENTER] once again.

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 "PATCH PR-A:001-001."

**NOTE**

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:001-005  
 Destination    User:127

If the above settings are made and transmission is executed, only the two PR-A group Patches 01 and 02 will be transmitted to USER group Patches 127 and 128.

Type	Block		
ALL	PR-A, B	*1	
PERFORM	USER	01-64	*2
	PR-A, B	01-32	*1
	CARD	**	*3
PATCH	USER	001-128	*2
	PR-A-F	001-128	*4
	XP-A-D	001-***	*5
	CARD	**	*3
RHYTHM	USER	001-004	*2
	PR-A-F	001-002	*4
	XP-A-D	001-***	*5
	CARD	**	*3
SYSTEM	Card	**	*6
F-LIST	Card	**	*6

- \*1 There are no Performances except in PR-A and B; no selection is available.
- \*2 Data is moved within the User Memory as a block, and Performances, Patches, and Rhythm Sets are overwritten.
- \*3 After specifying a file number, set the range of the block to be transmitted.
- \*4 Data in PR-H is GM data, and so cannot be transmitted.
- \*5 Depends on the Wave Expansion Board installed.
- \*6 Specify a file number.

**Type (Data Type)**

Specifies the type of data to be transmitted.

**ALL:** Performance, Patch, and Rhythm Set

**PERFORM:** Performance

**PATCH:** Patch

**RHYTHM:** Rhythm Set

**SYSTEM:** System

**F-LIST:** Favorite List

**Block (Source Block)**

Specifies the source of the data to be transmitted.

**USER:** Data from user memory will be transmitted.

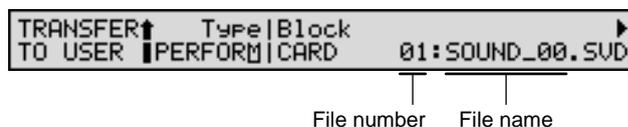
**PR-A-F:** Preset A-F data will be transmitted.

**XP-A-D:** Data from an Wave Expansion Board will be transmitted.

**NOTE**

XP-A-D can be selected only if the corresponding Wave Expansion Board is installed.

**CARD:** Performance/Patch/Rhythm Set/Favorite List data stored on memory card will be transmitted.



**Destination**

This is the Transmission destination. It is set with User.

**NOTE**

If the Type parameter has been set to PERFORM, PATCH, or RHYTHM, you must specify the first memory location number of the transmission destination.

## Protecting the Internal Memory (PROTECT)

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

```
WRITE PROTECT | Internal | Exclusive
                | ON      | OFF
```

### Internal (Internal Write Protect)

The Internal Write Protect setting prevents the Write operation from accidentally overwriting user memory locations. When this is set to ON, the data cannot be rewritten. Data can be rewritten when it is at OFF. When the XV-88'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.

#### NOTE

Be aware that if Exclusive Protect is set to OFF, User memory can be overwritten by System Exclusive messages received from an external MIDI device, even if Internal Write Protect is set to ON. To prevent inadvertent overwriting of User memory, it is recommended that both Internal Write Protect and Exclusive Protect be set to ON.

### Exclusive (Exclusive Protect)

The Exclusive Protect setting prevents System Exclusive messages received from an external MIDI device from rewriting user memory settings. When this setting is ON, the data cannot be rewritten.

## Memory Card-Related Settings (CARD)

The XV-88 can use memory cards (SmartMedia).

Use memory cards when you wish to save data for which there is no more room in the internal USER group, or so that the data can be loaded into another XV-88.

When you select "1. CARD" in the UTIL 2 group, the following CARD page will appear. Select the function you wish to execute.

```
CARD | 1. | 2. | 3. | 4. | 5.
      |FORMAT|RENAME|DELETE|FILE COPY|INFO
```

### Before Using a Memory Card

- The XV-88 can use either the 3.3 or 5 V memory cards (SmartMedia).
- SmartMedia can be purchased at computer stores and vendors handling digital cameras.
- Except while performing the File Copy operation (p. 189), be sure to turn off the power before inserting or removing a card. If a memory card is inserted when the power is turned on, the data in the memory card may be destroyed, or the memory card may become unusable.
- Insert memory cards completely and securely, with the side showing the gold contacts facing upward.
- Do not touch the contacts of the memory card, or allow them to become soiled.
- Never remove the memory card or turn off the power while any operation involving the memory card (such as loading or saving data, or formatting) is in process. Doing so can destroy the data on the memory card and/or render the memory card itself unusable.
- If you affix the write protect seal to the write protect area of the memory card, you will not be able to format the card or save data to it. If you wish to format the card or save data to it, do so without the seal affixed. For details on the write protect seal, refer to the instructions included with your memory card.
- If you attempt to format a card, or save data to it when the write protect seal is affixed, the "Memory Card Write Protected" message will appear.

```
Memory Card Write Protected
```

## Formatting the Memory Card for the XV-88 (FORMAT)

This function initializes (formats) a memory card so that XV-88 data can be saved to it. Before a new memory card or a memory card used on another device can be used on the XV-88, it must be formatted on the XV-88.

```
CARD FORMAT | [ENTER]
```

**NOTE**

Please be aware that formatting will erase all the data currently stored on the memory card.

## Renaming a File (RENAME)

This operation allows you to change the name of a file already stored on the memory card.

```
Original file name
|
RENAME | 01: SOUND_00.SVD (A) | [ENTER]
|
New file name
|
[ SOUND_00].SVD
```



You can assign the file a name of up to eight characters. For details on assigning names, refer to “Assigning a Name” (p. 28).

**NOTE**

The file name extension (.SVD) cannot be changed.

## Deleting Unwanted Files (DELETE)

Use this operation to delete unwanted files from a memory card.

```
DELETE | 01: SOUND_00.SVD (A) | [ENTER]
```

## Copying Files Between Memory Cards (FILE COPY)

Use FILE COPY to copy files stored on one memory card to another memory card.

**NOTE**

- The copy destination memory card must already be formatted (p. 189).
- Insert and remove memory cards used in the FILE COPY procedure only as directed by the on-display instructions. Using other procedures can damage the memory cards, rendering them unusable.

1. Select “4. FILE COPY” in the CARD page to display a screen like the following.

```
FILE COPY | Please Insert Source Card. | [ENTER]
```

2. Insert the memory card containing the file you want to copy in the MEMORY CARD slot and press [ENTER].
3. Use the VALUE dial, [INC/+]/[DEC/-] or numeric keys to select the file you want to copy, then press [ENTER]. The following display will appear.

```
FILE COPY | Src 01: SOUND_00.SVD | [ENTER]
| Please Insert Destination Card.
```

4. Insert the copy destination card and press [ENTER]. The following display will appear.

```
Copy source (file number : file name)
|
FILE COPY | Src 01: SOUND_00.SVD | [ENTER]
| Dst 00: [SOUND_00].SVD
```

```
Copy destination (file number : file name)
```

5. Specify the number of copy destination file. When necessary, change the name of copy destination file. You can assign the file a name of up to eight characters.



For details on assigning names, refer to “Assigning a Name” (p. 28).

6. Press [ENTER] to execute the File Copy, and the following display will appear.

```
FILE COPY | Continue? | YES=[ENTER]/NO=[EXIT]
```

To continue on, and copy more files, press [ENTER]. To exit the operation, press [EXIT].

### Checking the Contents of a Memory Card (INFO)

You can view the number of files on a memory card, its remaining free memory, and the size of each file. In addition, you can also change and delete assignments to the CARD Group Banks A–H.

	File number	File name	Bank	File size
CARD	01	SOUND_00.SVD (A)		65KB
INFO	1files		3844KB free	[SHIFT]

Free area

Number of files on memory card

Pressing [A]–[H] in this page displays the files to which the applicable bank A–H is assigned. The display does not change if there is no data assigned to the bank corresponding to the button pressed.

Press [SHIFT] to display the following page.

CARD	01	SOUND_00.SVD (A)	65KB
INFO	***DEFGH	Xchg=[A]–[H]/[UNDO]	

- When changing the Bank assignment, select that file, then hold down [SHIFT] and press one of the buttons [A]–[H].
- To delete the Bank assignment, select that file, hold down [SHIFT] and press [UNDO/COMPARE].

#### MEMO

The assigned bank will be indicated by an \* symbol.

### Loading a File from Memory Card into the XV-88 (LOAD)

This function loads data files from memory card into the XV-88's memory. A data file contains a set of data for Performances, Patches, Rhythm Sets, System, and Favorite List settings.

```
LOAD 01: SOUND_00.SVD [ENTER]
```

#### NOTE

If the XV-88 internal memory already contains important data that you have created, this operation will cause all of this data to be lost. If you wish to keep the data, you must save it on a memory card (p. 190) or on an external MIDI device (p. 185).



If you wish to load only a specific portion of the data file, refer to “Transmitting Data to the XV-88” (p. 186).

### Saving Data to Memory Card (SAVE)

The Performances, Patches, Rhythm Sets, System, and Favorite List settings in internal memory can be saved as a single file onto a memory card.

To overwrite a previously saved file on the memory card, select its file number.

```
SAVE 00: [SOUND_00].SVD (A) [ENTER]
```

#### NOTE

Data files contain an entire set of parameter settings for the sound generator. It is not possible to save individual Patches or Performances to a memory card.

#### MEMO

The number of files that can be saved on a card will depend on the memory capacity of the card itself.



For more detailed information and instructions for this procedure, refer to “Saving a Group of Tones to a Memory Card” (p. 167).

## Recalling Factory Default Settings (FACTORY RESET)

You can restore all settings stored in the XV-88 to their factory values (**Factory Reset**).

```
FACTORY | [ENTER]  
RESET |
```

### NOTE

- If the XV-88 internal memory already contains important data that you have created, this operation will cause all of this data to be lost. If you wish to keep the data, you must save it on a memory card (p. 190) or on an external MIDI device (p. 185).
- If Internal Write Protect is turned ON, the following display will appear, and the Factory Reset operation will not be executed.

```
WRITE | Internal Write Protect= ON  
PROTECT |
```

Change the displayed ON to OFF and press [ENTER] to turn Internal Write Protect off. "Are You Sure?" will be displayed, press [ENTER].

# Chapter 11. Using the XV-88 as a GM Sound Module (GM Mode)

The XV-88 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

GM mode can be likened to a Performance for which the sound generator has been set to comply with General MIDI system, and to which GM-compliant Patches and Rhythm Sets have been assigned.

	GM Patch/Rhythm Set (number, group)	Part number
GM PLAY	GM:001 Piano 1	Part= 1 kbd=C 4

The GM PLAY page shows the Patch or Rhythm Set assigned to each Part.

Each time you enter GM mode, the GM2 STANDARD 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. Hold down [SHIFT] and press [PERFORM] to call up the GM PLAY page.  
When you switch the XV-88 into GM mode, the sound generator initializes itself for basic General MIDI settings.
2. To change the current Part, press ◀ or ▶ .
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 General MIDI system settings. The XV-88's sound generator is initialized in the General MIDI settings.

- When Switching to GM Mode
- When it receives a General MIDI/General MIDI 2 System On message from an external MIDI device
- When the music data being played back on an external MIDI device contains a General MIDI/General MIDI 2 System On message
- When the XV-88's power is turned on
- When you execute the GM/GM2 Initialize function (p. 198)

### General MIDI/General MIDI 2 System On Message

The General MIDI/General MIDI 2 System On messages put the unit in a state that conforms to the General MIDI System and initializes a General MIDI-compatible sound generator.

#### NOTE

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 GM Scores

When the XV-88 is in GM mode, it plays back GM scores correctly. But beyond this, the XV-88 provides extended features not defined in General MIDI specifications, and if you create music files using these extended features, your song may not play back correctly on other General MIDI-compatible sound modules.

#### NOTE

General MIDI/General MIDI 2 System On messages are normally placed at the beginning of a GM score. This means that if a GM score is played back from the middle of the song, the XV-88 will not switch to GM mode, and playback may not be correct. So to be safe, it's recommended to manually set the XV-88 to GM mode before playing back a GM score.

#### MEMO

When the XV-88 receives a GS Reset message, the XV-88 is enabled for the GS format (a shared set of specifications proposed by Roland for standardization of multi-timbral sound modules). This permits playback of music data bearing the GS logo (GS music data). However, Roland's Sound Canvas Series (including the SC-8850 and SC-8820 models) feature a different sound module format and expanded tone map, so data created exclusively for the Sound Canvas Series may not play back properly on the XV-88.

## 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.

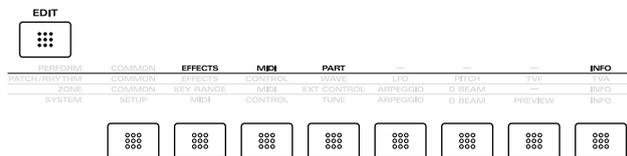
1. Make sure the [EDIT] indicator is extinguished. If it is lit, press [EDIT].  
At this time, the function button indicators will indicate the on/off status of each Part. When the [1-8/9-16] indicator is out, the function button indicators will indicate the status of Parts 1-8. When the [1-8/9-16] indicator is lit, the function button indicators will indicate the status of Parts 9-16. Lit is on, and dark is off.
2. Press the function button to switch Parts on/off.

## 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 the playback of GM scores to your liking.

### NOTE

- When GM mode is initialized (p. 198), all these settings will be lost.
  - You cannot store GM mode settings in internal memory (user memory). If you want to preserve the GM mode settings, save the settings to an external MIDI device by transmitting them as MIDI messages (p. 198).
1. Hold down [SHIFT] and press [PERFORM] to call up the GM PLAY page.
  2. Press [EDIT] to make the indicator light.
  3. Use the function buttons to select a display group.  
The indicator for the button of the selected display group begins blinking.

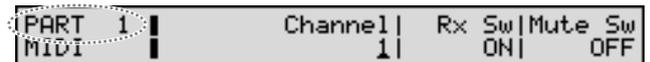


### HINT

In GM mode, you can press the function buttons [2/10 (EFFECTS)], [3/11 (MIDI)], [4/12 (PART)], and [8/16 (INFO)].

4. Use ▲ or ▼ to select a display page.

5. If you have selected a parameter display that can be set independently for each Part, the number of the Part selected for editing will be shown in the upper left of the display. To edit a different Part, press [EDIT] to temporarily turn off the indicator, and use ZONE/PART SELECT [1/9]-[8/16] to select a Part. When the [1-8/9-16] indicator is extinguished, Parts 1-8 are selected, and when the [1-8/9-16] indicator is lit, Parts 9-16 are selected.



6. Use ◀ or ▶ to move the cursor to the parameter you wish to modify.
7. Use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to modify the parameter value.

### HINT

If you've made a mistake in setting a parameter value, or you have second thoughts about the changes, press [UNDO/COMPARE] to restore the value to what it was.

8. If you wish to move to another display group, press [EDIT] to make the indicator light, and use the function buttons.

### HINT

You can also move to another display group by holding down [SHIFT] and using ◀ or ▶. Since this can be done even when the [EDIT] indicator is dark, it is a faster way to get around because you don't have to turn on the [EDIT] indicator each time.

9. Repeat steps 3-8 to make settings for GM mode.
10. When you finish making settings, press [EXIT] to return to the GM PLAY page.

### HINT

You can also use the Palette display in the same manner when you edit in Performance mode (p. 50).

## 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.



In GM mode, you cannot use Multi-effects.



The XV-88's onboard effects can be turned on/off as a whole. For details, refer to "Turning Effects On/Off" (p. 105).

### 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). → (p. 194)

#### 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. 194)

#### 3. Making Chorus Settings

Select the Chorus type to be used, and set each of the parameters for the selected Chorus. → (p. 195)

#### 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. → (p. 195)

#### 5. Making Reverb Settings

Select the Reverb type to be used, and set each of the parameters for the selected Reverb. → (p. 195)

#### 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. → (p. 195)

## OUTPUT

PART	1	Output Assign	Chorus	Reverb
OUTPUT	↓	OUTPUT B:127	0	0

### Output Assign (Output Assign/Output Level)

Sets the direct sound's output method and volume for each Part.

**OUTPUT A:** Output to the OUTPUT A (MIX) jacks in stereo.

**OUTPUT B:** Output to the OUTPUT B jacks in stereo.

The value on the right sets the Part volume.



If the Mix/Parallel parameter (SYSTEM/SETUP/SYSTEM SETUP) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 169).



- Chorus and Reverb are output in mono at all times.
- The output destination of the signal after passing through the Chorus is set with the Out parameter (GM/EFFECTS/GM CHORUS) (p. 195).
- The output destination of the signal after passing through the Reverb is set with the Out parameter (GM/EFFECTS/GM REVERB) (p. 195).

### Chorus (Chorus Send Level)

Adjusts the amount of Chorus for each Part. If you don't want to add the Chorus effect, set it to 0.

### Reverb (Reverb Send Level)

Adjusts the amount of Reverb for each Part. If you don't want to add the Reverb effect, set it to 0.

## GM CHORUS

GM	↑	Type	Rate	Dpth	Fbk	Rev	Out
CHORUS	↓	CHORUS 3	3	19	8	0	A

### Type (Chorus Type)

Selects the type of Chorus.

**CHORUS 1–4:** Chorus 1–4

**FB CHORUS:** Feedback Chorus

**FLANGER:** Flanger

### Rate (Chorus Rate)

Specifies the modulation frequency of the Chorus sound.

### Dpth (Chorus Depth)

Sets the depth of the undulations of the Chorus sound.

### Fbk (Chorus Feedback Level)

Adjusts the amount of Chorus sound that is returned (fed back) to the Chorus. Higher settings will create a more complex Chorus effect.

### Rev (Chorus Reverb Send Level)

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.

### Out (Chorus Output Assign)

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 (SYSTEM/SETUP/SYSTEM SETUP) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 169).

## GM REVERB

GM	↑	Type	Time	Out
REVERB	↓	LARGE HALL	64	A

### Type (Reverb Type)

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.

### Time (Reverb Time)

Adjusts the length of the Reverb time.

### Out (Reverb Output Assign)

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.

#### MEMO

If the Mix/Parallel parameter (SYSTEM/SETUP/SYSTEM SETUP) is set to MIX, all sounds are output from the OUTPUT A (MIX) jacks in stereo (p. 169).

## Making Settings for Receiving MIDI (MIDI)

These parameters determine how each Part will transmit and receive MIDI messages.

### MIDI

PART	1	Channel	Rx Sw	Mute Sw
MIDI	1	1	ON	OFF

### Channel (MIDI Receive Channel)

Sets the MIDI receive channel for each Part. If you do not want to receive MIDI messages, turn this parameter OFF.

### Rx Sw (Receive Switch)

Specifies whether each Part will receive Note messages (ON), or not (OFF).

#### HINT

You can also set the Rx Sw parameter on the GM PLAY page. Press ZONE/PART SELECT [1/9]–[8/16] to switch the setting to ON (indicator lighted), or OFF (indicator extinguished). When the [1-8/9-16] indicator is extinguished, Parts 1–8 are switched on and off, and when the [1-8/9-16] indicator is lit, Parts 9–16 are switched on and off (p. 25).

### Mute Sw (Mute Switch)

Mute Sw temporarily mutes (ON) or releases the mute (OFF) for the performance of each Part.

Use this setting when, for example, you want to use the instrument for karaoke by muting the Part playing the melody, or when you want to play something using a separate sound module.

#### MEMO

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.

### PATCH

PART	1	Type	Number
PATCH	↓	PAI	001(Piano 1 )

#### Type (Part Type)

Sets the assignment of a GM Patch (PAT) or GM Rhythm Set (RHY) to each of the Parts.

#### Number (GM Patch/Rhythm Set Number)

Selects the desired GM Patch or Rhythm Set by its number. The name of the selected GM Patch/Rhythm Set appears in parentheses.

#### NOTE

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.

### SETTING

PART	1	↑	Volume	Pan	Coarse	Fine
SETTING	↓		100	0	0	0

#### Volume (Part Volume)

Adjusts the volume of an individual Part. This setting's main purpose is to adjust the volume balance between Parts.

#### Pan (Part Pan)

Adjusts the pan of each Part. L64 is far left, 0 is center, and 63R is far right.

#### MEMO

If you modify the settings of the Volume parameter or Pan parameter, they will be reflected in the INFO page (p. 197).

#### Coarse (Part Coarse Tune)

Adjusts the pitch of the Part's sound up or down in semitone steps (+/-4 octaves).

#### Fine (Part Fine Tune)

Adjusts the pitch of the Part's sound up or down in 1-cent steps (+/-50 cents).

#### MEMO

One cent is 1/100th of a semitone.

### MODIFY

PART	1	↑	Cutoff	Resonance	Attack	Release
MODIFY	↓		122	0	0	0

#### Cutoff (Part Cutoff Frequency Offset)

Adjusts the cutoff frequency for the GM Patch or Rhythm Set assigned to a Part.

#### Resonance (Part Resonance Offset)

Adjusts the Resonance for the GM Patch or Rhythm Set assigned to a Part.

#### Attack (Part Attack Time Offset)

Adjusts the TVA Envelope Attack Time for the GM Patch or Rhythm Set assigned to a Part.

#### Release (Part Release Time Offset)

Adjusts the TVA Envelope Release Time for the GM Patch or Rhythm Set assigned to a Part.

## CONTROL

PART	1	↑	BendRng		Mono/Poly		Porta Sw:Time
CONTROL	1	↓	21		POLY		OFF: 0

### BendRng (Bend Range)

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.

### Mno/Poly (Part Mono/Poly)

Set Mno/Pol to MONO when the GM Patch assigned to the Part is to be played monophonically, or to POLY when the GM Patch is to be played polyphonically.

#### NOTE

For the Part to which the GM Rhythm Set is assigned, this setting will be ignored.

### Porta Sw:Time (Part Portamento Switch:Time)

Portamento makes a smooth pitch transition from one note to the next note played. Also, when playing monophonically, you can apply portamento to simulate the slide performance technique sometimes used on instruments such as violin.

You can determine whether the Portamento effect will be applied or not using Portamento switch (Sw). Turn this parameter ON when you want to apply Portamento and OFF when you don't.

The Portamento Time (Time) setting adjusts the time over which the pitch will change. Higher settings will cause the pitch change to the next note to take more time.

#### NOTE

For the Part to which the GM Rhythm Set is assigned, this setting is ignored.

## Confirming MIDI Information for Each Part (INFO)

### INFO (Part Information)

PART	1	↓	Mod		Breath		Foot		Vol		Pan		Exp
INFO	1	↓	0		0		0		100		0		127

PART	1	↑	Hold		Bend		Aftertouch		Voices
INFO	1	↑	0		0		0		0

The displays allow you to check various settings such as MIDI message reception status for each Part. This is convenient when you need to check that the sound generator is responding correctly to messages from the keyboard or external MIDI controller.

For items other than Voices, you can modify the values. When you do so, MIDI messages will be transmitted, and they can be recorded by a sequencer or other device.

### Mod (Modulation Information)

### Breath (Breath Information)

### Foot (Foot Information)

### Vol (Volume Information)

### Pan (Pan Information)

### Exp (Expression Information)

### Hold (Hold 1 Information)

### Bend (Pitch Bend Information)

### Aftertouch (Aftertouch Information)

### Voices (Voice Information)

The number of voices used

## Convenient Functions in GM Mode (GM Utility)

In the GM mode, you can initialize GM mode, and transmit GM mode settings, using the Utility functions.

### Basic Procedure

1. In the GM mode, press [UTILITY] so its indicator blinks. The XV-88 will switch to Utility mode.
2. Press ▲ or ▼ to select the UTIL 1 group.

UTIL 1.   2.   3.   4.   5.
1↓----- -----  INIT   XFER   -----

#### HINT

The functions of the UTIL 2 group can also be executed from GM mode. The operation is the same as in other modes (p. 179).

3. Use ◀ or ▶ to select the desired function (the function name will blink), and press [ENTER]. The display for the desired function will appear.

#### HINT

You can also access the desired function page by using the numeric keys or function buttons to specify the number of the function.

4. When parameters in the different function page are to be set, you can use the VALUE dial, [INC/+]/[DEC/-], or the numeric keys to make the settings.

#### HINT

To cancel the operation, press [EXIT].

5. Press [ENTER] to execute the function.

When the operation is completed, the display will briefly indicate "COMPLETED."

#### MEMO

When certain functions are executed, you are then returned to the original mode page.

6. To return to the UTIL 1 page, press [EXIT]. To return to the GM PLAY page, press [UTILITY] to make the indicator go dark.

## Initializing GM Mode (INIT)

GM INIT     Mode GM2   [ENTER]
--------------------------------

#### NOTE

The GM Initialize operation affects only GM mode data; no data stored in the user memory is initialized. If you wish to restore all of the XV-88's settings to their factory values, perform a Factory Reset (p. 191).

### Mode (Initialize Mode)

There are two initialize methods. Select either of them depending on the application.

**GM:** Makes the basic General MIDI system settings using a General MIDI System On message.

**GM2:** Makes the basic General MIDI 2 system settings using a General MIDI 2 System On message.

## Transmitting GM Mode Settings (XFER)

TRANSFER   Type   Block   [ENTER]
TO MIDI     GMICtrl   →MIDI

You cannot store GM mode settings in internal memory (user memory). If you wish to keep your GM mode settings, you can transmit them as a MIDI message to an external MIDI device.

Prepare the external MIDI device to record data, and press [ENTER].



For more on GM mode settings to be transmitted, refer to "MIDI Implementation" (p. 270).

#### HINT

If you do not want the settings of a specific Part to be transmitted, turn off the Receive Switch for that Part (p. 196).

# Chapter 12. Realizing the Potential of the XV-88

This section discusses various techniques for effectively using the XV-88 for specific applications. The more you use the XV-88, the faster you'll appreciate the real power of this unit.

## Techniques for Using Patches

### Reinforcing Filter Characteristics

If you want to reinforce filter characteristics, set Structure Type to 2, and series-connect the TVFs of Tones 1 and 2. This example shows how to boost the effectiveness of the filter for the Patch **PR-C: 014 MKS-80 Brass**.

1. Select the Patch **PR-C: 014 MKS-80 Brass** on the PATCH PLAY page.
2. Press [FILTER/ENV], getting its indicator to light.
3. Move the CUTOFF and RESONANCE sliders while you play notes and hear how sound changes.
4. Set the Type parameter (PATCH/COMMON/STRUCT) to 2 (p. 73).
5. Again, move the CUTOFF and RESONANCE sliders and hear how the sound changes.

Notice the effectiveness of the filter has changed.

#### HINT

If the result is difficult to hear, turn off each effect unit (Multi-effects, Chorus, Reverb) (p. 105).

### Using the Slider to Change the Pan in Realtime

You can assign the C1–C4 sliders to a variety of the functions to change sounds in realtime. In this example, the pan (stereo location) will change by moving the C1 slider up or down.

#### MEMO

At the factory default settings, the C1 through C4 sliders are assigned to the functions described below.

C1 slider: AFTERTOUC

C2 slider: BREATH

C3 slider: PORTA TIME (Portamento time)

C4 slider: MODULATION

1. Select a Patch on the PATCH PLAY page.
2. Press [CONTROLLER], getting the indicator to light.
3. Set the Assign parameter (SYSTEM/CONTROL/C1 ASSIGN) to CC10: PANPOT (p. 172).

#### HINT

If you hold down [CONTROLLER] and move the C1 slider in the PATCH PLAY page, you can go to the C1 ASSIGN page directly. There you can make settings for the Assign parameter.

4. Move the C1 slider while you play the keyboard. You'll notice that sound will pan right and left.

#### HINT

If the result is difficult to hear, turn off each effect unit (Multi-effects, Chorus, Reverb) (p. 105).

### Using a Pedal Switch to Modify the Speed of the Rotary Effect

The function that allows you use MIDI messages to make these changes in realtime to the Multi-effects parameters is called the Multi-effects Controller (p. 115). Here, using an effects controller, try using a pedal switch to switch the speed of the rotary effect.

1. Connect an optional pedal switch (DP-2, DP-6, etc.) to the CTL 1 PEDAL jack.
2. Select the Patch **PR-A: 054 Rocker Spin** on the PATCH PLAY page. This Patch uses ROTARY as the Multi-effects type.
3. Set the Assign parameter (SYSTEM/CONTROL/CONTROL PEDAL 1) to CC04: FOOT TYPE (p. 172).
4. Call up the PATCH MFX CTRL page (PATCH/EFFECTS), then set the parameters as follows (p. 115).
  - Source: FOOT TYPE
  - Destination: SPEED
  - Sens: +63
5. Press the pedal switch while you play the keyboard. This will speed up the rotary effect. Releasing the pedal switch will slow down the rotary effect.

## Changing the Speed of the Rotary Effect to Synchronize It to the LFO Cycle

Instead of using an effects controller, you can use the Matrix Controller (p. 78) to change Multi-effect parameters. Here, try changing the speed of the rotary effect to synchronize it to the LFO cycle.

1. Select the Patch **PR-A: 054 Rocker Spin** on the PATCH PLAY page.  
This Patch uses ROTARY as the Multi-effects type.
2. Call up the PATCH MFX CTRL page (PATCH/EFFECTS), then set the parameters as follows (p. 115).
  - Source: OFF
  - Destination: SPEED
  - Sens: 0
3. Set the Control 1 parameter (PATCH/CONTROL/MATRIX CTRL SRC) to 105:LFO1 (p. 78).
4. Call up the MATRIX CONTROL1 page (PATCH/CONTROL), then set the parameters as follows (p. 79).
  - Dest: MFX CTRL1
  - Sns: +63
  - Tone: 000\_ (applied to Tone 1–3)
5. Play the keyboard.  
The speed of the rotary effect is synchronized to the LFO cycle.

## Changing the Tone Produced with the Modulation Lever

While using the Matrix Controller check out how you can get sounds of two different Tones by moving the Modulation lever to the left and right.

1. Select a Patch on the PATCH PLAY page.
2. On the WAVE page (PATCH/WAVE), select the waveforms for the two Tones (Tone 1 and Tone 2) you want to have played (p. 81).
3. Set the TMT Velocity Control parameter (PATCH/COMMON/TMT VELO CONTROL) to OFF (p. 72).
4. Call up the TMT VEL RANG page (PATCH/COMMON), then set the parameters for Tone 1 and Tone 2 as follows (p. 72).

	Tone 1	Tone 2
• Lower:	1	64
• Upper:	63	127

### HINT

When you want to switch between Tones more smoothly, set the L.Fade or U.Fade parameters. The higher the values set, the smoother the switch is between the Tones.

5. Set the TMT Ctrl Sw parameter (PATCH/CONTROL/CONTROL&BENDER) to ON (p. 78).
6. Set the Control 1 parameter (PATCH/CONTROL/MATRIX CTRL SRC) to CC01:MODULATION (p. 78).
7. Call up the MATRIX CONTROL1 page (PATCH/CONTROL), then set the parameters as follows (p. 79).
  - Dest: TMT
  - Sns: +63
  - Tone: 00\_ \_ (applied to Tone 1 and 2)
8. While playing the keyboard, move the Modulation lever.  
By moving the Modulation lever to the other side, you can switch from Tone 1 to Tone 2.

## Syncing the LFO Cycle to System Tempo

You can synchronize the LFO cycle to a specified tempo or an external MIDI device. In the following example, we will synchronize the LFO cycle to the system tempo.

1. Select the Patch **PR-B: 052 Blade Racer** on the PATCH PLAY page.
2. Set the Clock Source parameter (PATCH/COMMON/PATCH TEMPO) to SYSTEM (p. 71).
3. Set the Rate parameter (PATCH/LFO/LFO 1, 2 WAVE) of each Tone to the beat length for the tempo you are synchronizing (p. 83).
4. At the LFO DEPTH1:2 page (PATCH/LFO), set the modulation depth for each Tone (p. 85).
5. Set the Clock Source parameter (SYSTEM/SETUP/SYSTEM SETUP) to INT (p. 168).

### HINT

When the Clock Source parameter is set to MIDI, you can achieve synchronization with the tempo of an external MIDI device.

6. Try playing the keyboard while you change the System Tempo parameter (SYSTEM/SETUP/SYSTEM SETUP) to various values (p. 169).

You'll notice that the tempo of the Patch's modulation changes in accordance to the tempo clock of the XV-88's system.

## Modifying Multi-Effects to Match the System's Tempo

In the following example, we will synchronize the Step Rate parameter of STEP FLANGER to the system tempo.

1. Select the Patch **PR-C: 094 Albion** on the PATCH PLAY page.  
This Patch uses STEP FLANGER as the Multi-effects type.
2. Set the Clock Source parameter (PATCH/COMMON/PATCH TEMPO) to SYSTEM (p. 71).
3. Set the Step Rate parameter (PATCH/EFFECTS/PATCH MFX PRM) of each Tone to the beat length for the tempo you are synchronizing (p. 126).
4. Set the Clock Source parameter (SYSTEM/SETUP/SYSTEM SETUP) to INT (p. 168).

### HINT

When the Clock Source parameter is set to MIDI, you can achieve synchronization with the tempo of an external MIDI device.

5. Try playing the keyboard while you change the System Tempo parameter (SYSTEM/SETUP/SYSTEM SETUP) to various values (p. 169).

You'll notice that the tempo of the Patch's modulation changes in accordance to the tempo clock of the XV-88's system.

### MEMO

You can modify Multi-effects parameter values in time with a specified tempo or the tempo of an external MIDI device when you have selected the following values for the Type parameter of Multi-effects (PATCH/EFFECTS/PATCH MFX TYPE).

Multi-effects Type	Parameter synchronized to tempo
16: STEP FLANGER	Step Rate parameter
19: TRIPLE TAP DELAY	Delay C, L, R parameter
20: QUADRUPLE TAP DELAY	Delay1-4 parameter
41: STEREO PHASER	Rate, Step Rate parameter
42: KEYSYNC FLANGER	Rate, Step Rate parameter
43: FORMANT FILTER	Rate parameter
45: MULTI TAP DELAY	Delay1-4 parameter
46: REVERSE DELAY	Delay1-4 parameter
47: SHUFFLE DELAY	Delay parameter
48: 3D DELAY	Delay C, L, R parameter
58: SLICER	Rate parameter
60: 3D CHORUS	Rate parameter
61: 3D FLANGER	Rate, Step Rate parameter
62: TREMOLO	Rate parameter
63: AUTO PAN	Rate parameter

## Playing Phrase Loops in Sync with the System Tempo

Samples of drum, percussion, or other such phrases are called Phrase Loops. Normally, to play a Phrase Loop at an altered tempo, the pitch has to be adjusted. This is because of the nature of Phrase Loops, that is, when the tempo of a Phrase Loop is increased, the pitch rises, and the pitch falls when the tempo is decreased. To give an example, if a record is spun faster than normal, the pitch is higher than when normally played, and if spun more slowly than normal, the pitch is lower than when played normally. Such adjustments in pitch when playing a Phrase Loop at a changed tempo consumes a lot of time and effort.

Certain Patches on "SR-JV80-10: BASS&DRUMS" and other commercially available Wave Expansion Boards use Waves (Phrase Loops) for which the tempo (BPM) is indicated. With the XV-88, you can synchronize performances to a designated tempo in a Phrase Loop or the tempo set by an external MIDI device merely with a simple setting. Here, let's synchronize a Phrase Loop to the System tempo.

1. On the PATCH PLAY page, select a Patch that uses a Phrase Loop.
2. Set the Clock Source parameter (PATCH/COMMON/PATCH TEMPO) to SYSTEM (p. 71).
3. Call up the WAVE page (PATCH/WAVE) (p. 81).
4. Press a TONE SELECT [1]–[4] button, and choose the Tone that uses Phrase Loops.  
The Phrase Loop is the Wave indicated by the Wave name along with the tempo (BPM) to the right of the Wave number.
5. Set the Wave Tempo Sync parameter (PATCH/WAVE/WAVE) to ON (p. 81).
6. Set the Time parameter (PATCH/WAVE/TONE DELAY) to 0 (p. 83).

### NOTE

If you select a value other than 0, a delay will be applied, and you will not be able to play the Patch normally.

7. Set the Clock Source parameter (SYSTEM/SETUP/SYSTEM SETUP) to INT (p. 168).

### HINT

When the Clock Source parameter is set to MIDI, you can achieve synchronization with the tempo of an external MIDI device.

8. Try playing the keyboard while you change the System Tempo parameter (SYSTEM/SETUP/SYSTEM SETUP) to various values (p. 169).

The Phrase Loop speed will change in accordance to the system's tempo clock.

### NOTE

The Phrase Loop will sound with the system's tempo regardless of which key you press. In this case, the pitch setting (p. 86) and the FXM setting (p. 81) will be ignored.

## Synchronizing the Timing at Which Tones Play to the System Tempo

Setting back the time at which a Tone is played is referred to as Tone Delay. The length of time for this Tone Delay can be synchronized to a specified tempo or to the System tempo. Here, let's synchronize the Tone Delay time to a specified System tempo.

1. Select the Patch **PR-D: 073 Cyber Swing** on the PATCH PLAY page.

2. Set the Clock Source parameter (PATCH/COMMON/PATCH TEMPO) to SYSTEM (p. 71).
3. Set the Time parameter (PATCH/WAVE/TONE DELAY) of Tone 1 to the beat length for the tempo you are synchronizing (p. 83).
4. Set the Clock Source parameter (SYSTEM/SETUP/SYSTEM SETUP) to INT (p. 168).

### HINT

When the Clock Source parameter is set to MIDI, you can achieve synchronization with the tempo of an external MIDI device.

5. Try playing the keyboard while you change the System Tempo parameter (SYSTEM/SETUP/SYSTEM SETUP) to various values (p. 169).

The Tone Delay time will change in accordance to the system's tempo clock.

## Using the XV-88 to Play Live

### Changing Multiple Sounds of an External MIDI Device Simultaneously

When a different Performance is selected, the sound corresponding to the Bank Select number and Program Change number of the selected Performance will usually be chosen on the external MIDI device.

With the XV-88, you can set the Bank Select and Program Change number for each individual Zone so as to match the Tones of the desired external MIDI device. This way, you can switch Tones on multiple external MIDI devices all at once just by switching the Performance.

1. Select the Zone to be used to control the external MIDI device.
2. Set the receive channel on the external MIDI device to match the transmit channel for the Zone to be used. Set the transmit channel of the Zone with the Channel parameter (ZONE/MIDI/MIDI) (p. 59).
3. Set the Tx parameter (ZONE/MIDI/MIDI) of the Zone to be used to ON (p. 59).
4. Call up the EXT P.C page (ZONE/EXT CONTROL) (p. 60).
5. Set the Bank Select MSB/LSB parameter to match the Bank Select of the external MIDI device.

- Set the P.C# parameter to match the Program Change number for the Tone you want the external MIDI device to select.
- Save the Performance (p. 164).
- Try changing from another Performance to the Performance just saved, and see if the sound of the external MIDI device changes to what you want. If not, check your settings and the external MIDI device.

## Changing Sounds with a Pedal Switch

You can change the sounds such as a Patch in succession using a pedal switch.

- Connect an optional pedal switch (DP-2, DP-6, etc.) to the CTL 1 PEDAL jack.
- Set the Assign parameter (SYSTEM/CONTROL/CONTROL PEDAL 1) to 102:PROG UP (p. 172).
- Call up the PLAY page of the sound generator mode (PERFORM, PATCH, RHYTHM, GM).
- Each time you press the pedal, you call up the next number of Performance, Patch, or Rhythm Set.

## Controlling an External MIDI Sequencer with the D Beam Controller

You can start and stop an external MIDI sequencer by placing your hand above the D Beam controller.

- Use a MIDI cable to connect the XV-88's MIDI OUT connector to the MIDI IN connector of the external MIDI sequencer.

- Set the D Beam Controller's Assign parameter setting to 100:START/STOP.

### In Patch/Rhythm Set Mode

Assign parameter (SYSTEM/D BEAM/D BEAM CONTROL) (p. 176)

### In Performance Mode

Assign parameter (ZONE/D BEAM/D BEAM CONTROL) (p. 63)

- Press D BEAM CONTROLLER [ON] to turn on the D Beam Controller.
- When you place your hand over the D Beam Controller, the external MIDI sequencer begins playing. Moving your hand over the controller again stops the external MIDI sequencer.

## Using External MIDI Devices

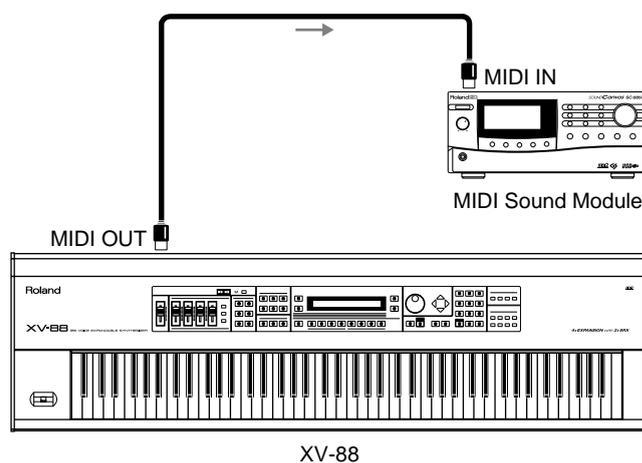
### Playing an External MIDI Sound Module from the XV-88

- Set the COMPUTER switch on the XV-88's rear panel to **MIDI**.

#### NOTE

The new setting of the COMPUTER switch will take effect when the power is turned on. Before changing the setting of the COMPUTER switch, you must first turn off the power on the XV-88.

- Use a MIDI cable to connect the MIDI OUT connector of the XV-88 to the MIDI IN connector of the external MIDI device.



- Set the XV-88's transmit channel to match the external MIDI sound module's receive channel.

The XV-88's transmit channel is determined by the following parameters.

### In Patch/Rhythm Set Mode

Tx Ch parameter (SYSTEM/MIDI/PATCH MIDI) (p. 170)

### In Performance Mode

Channel parameter (ZONE/MIDI/MIDI) (p. 59)

Set the Tx parameter (ZONE/MIDI/MIDI) to ON (p. 59).



For instructions on how to set the receive channel of the external MIDI sound module, refer to the owner's manual for your external MIDI sound module.

- If you wish to play only the external MIDI sound module, set the Local Switch to off.

The Local Switch is determined by the following parameters.

### In Patch/Rhythm Set Mode

Local parameter (SYSTEM/MIDI/PATCH MIDI) (p. 170)

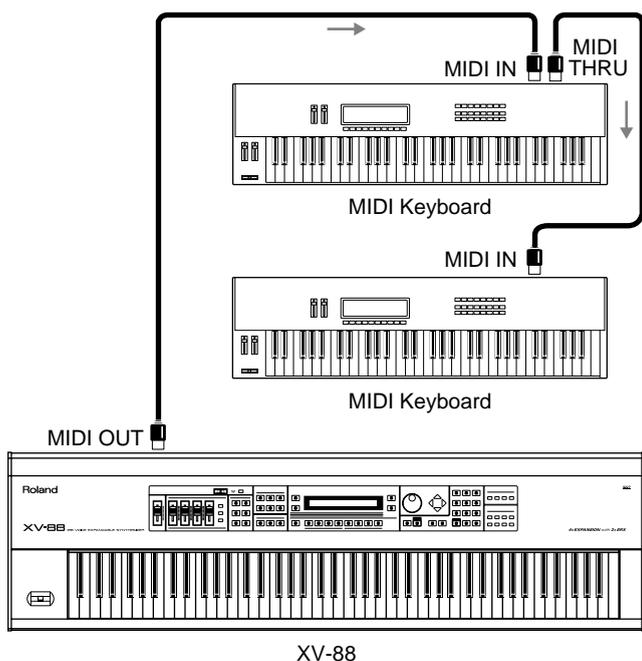
### In Performance Mode

Local parameter (SYSTEM/MIDI/PERFORM MIDI) (p. 169)

- When playing the XV-88's keyboard, the external MIDI sound module will sound.



When you want to connect two or more external MIDI devices, use the MIDI THRU connector of the external MIDI devices.



If you “daisy-chain” three or more MIDI devices using IN→THRU→IN→THRU ..., the MIDI signal may become garbled, and data errors may occur. In such cases, use a MIDI Thru Box. MIDI Thru Boxes are devices that allow a single stream of MIDI data to be sent to a large number of MIDI devices without causing data errors.

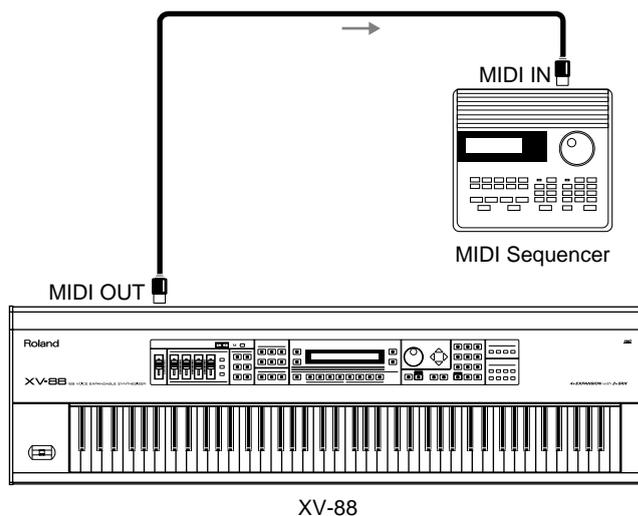
## Controlling an External MIDI Sequencer from the XV-88

- Set the COMPUTER switch on the XV-88's rear panel to MIDI.



The new setting of the COMPUTER switch will take effect when the power is turned on. Before changing the setting of the COMPUTER switch, you must first turn off the power on the XV-88.

- Use a MIDI cable to connect the XV-88's MIDI OUT connector to the MIDI IN connector of the external MIDI sequencer.



- Call up the PLAY page of the sound generator mode (PERFORM, PATCH, RHYTHM, GM).
- Pressing the following buttons allows the remote control of external sequencers.
  - [SHIFT] + ▲ (NEXT SONG): Selects the next song.
  - [SHIFT] + ▼ (PREV SONG): Selects the previous song.
  - [SHIFT] + ◀ (RESET): Returns to the beginning of the song.
  - [SHIFT] + ▶ (START/STOP): Starts and stops performance of the song.



Holding down [SHIFT] while pressing ▲ (or ▼) in a PLAY page selects the song before (or after) the Song Number set with the Song Number parameter (p. 178).



Some sequencers cannot be started or stopped without receiving the MIDI Clock (F8h), and settings on certain sequencers also cannot be changed. Please use a sequencer able to perform START/STOP without requiring reception of the MIDI Clock (F8h). For more detailed information, refer to the owner's manual for your sequencer.

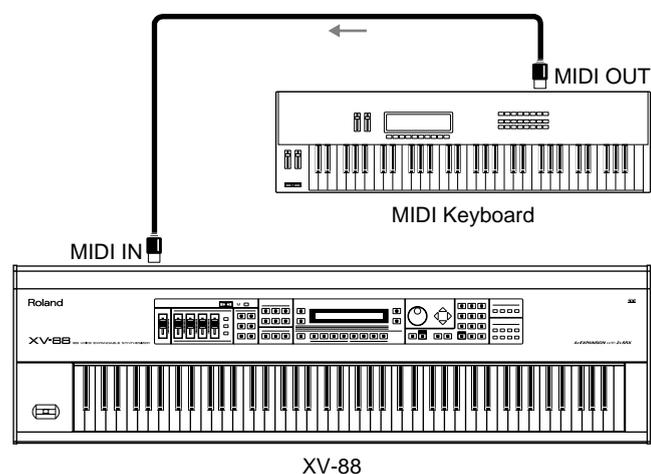
## Playing the XV-88's Sound Generator from an External MIDI Device

1. Set the COMPUTER switch on the XV-88's rear panel to **MIDI**.

### NOTE

The new setting of the COMPUTER switch will take effect when the power is turned on. Before changing the setting of the COMPUTER switch, you must first turn off the power on the XV-88.

2. Use a MIDI cable to connect the MIDI IN connector of the XV-88 to the MIDI OUT connector of the external MIDI device.



3. Set the XV-88's receive channel to match the external MIDI device's transmit channel.

The XV-88's receive channel is determined by the following parameters.

#### In Patch/Rhythm Set Mode

Rx Ch parameter (SYSTEM/MIDI/PATCH MIDI) (p. 170)

#### In Performance Mode

Channel parameter (PERFORM/MIDI/MIDI) (p. 52)  
Set the Rx Sw parameter (PERFORM/MIDI/MIDI) to ON (p. 52).

#### In GM Mode

Channel parameter (GM/MIDI/MIDI) (p. 195)

### HINT

When the Remote parameter (SYSTEM/MIDI/PATCH MIDI, PERFORM MIDI, GM MIDI) is ON, it makes no difference what transmit channel is selected for the MIDI keyboard (p. 170).



For instructions on how to set the transmit channel of the external MIDI device, refer to the owner's manual for your external MIDI device.

4. When playing the external MIDI device, the XV-88's sound generator will sound.

## Changing the Tone Settings from an External MIDI Device in Realtime

The Tone settings can be controlled using specified MIDI messages from an external MIDI device (Matrix Controller; p. 78).

### MEMO

In this manual, Parameters that can be controlled using the Matrix Controller are marked with a ★.



For instructions on how to connect up, and set the MIDI receive channel, refer to "Playing the XV-88's Sound Generator from an External MIDI Device" (p. 205).

1. Select the Patch you wish to use.
2. Use the Control 1-4 parameters (PATCH/CONTROL/MATRIX CTRL SRC) to specify which MIDI message will be used for control (p. 78).
3. Call up the MATRIX CONTROL 1-4 pages (PATCH/CONTROL), then set the following parameters (p. 79).
  - Dest: Sets which parameter is controlled.
  - Sns: Specifies how deeply the parameter is to be controlled.
  - Tone: Sets the Tone you wish to apply the effect.
4. When the MIDI message set with the Control 1-4 parameter is sent from an external MIDI device to the XV-88, the Tone parameter set with the Dest parameter changes according to the Tone set in the Tone parameter when at the same level as that set in the Sns parameter.

## Changing the Multi-Effects Settings From an External MIDI Device in Realtime

The Multi-effects settings can be controlled using specified MIDI messages from an external MIDI device in realtime (Multi-effects Controller; p. 115).

### MEMO

The parameters that can be changed are predetermined for each type of Multi-effects; among the parameters described in “Multi-Effects Types” (p. 117), these are indicated by a #.



For instructions on how to connect up, and set the MIDI receive channel in Patch/Rhythm Set mode, refer to “Playing the XV-88’s Sound Generator from an External MIDI Device” (p. 205).

1. Select the Patch, Rhythm Set or Performance you wish to use.
2. When a Performance is selected, and the Source parameter (PERFORM/EFFECTS/MFX TYPE) (p. 114) is set to PERFORM, the MIDI receive channel is set with the MFX Control Channel parameter (PERFORM/COMMON/PERFORM MFX CH) (p. 51).
3. Call up the MFX CTRL page (PATCH, RHYTHM, PERFORM/EFFECTS), then set the following parameters (p. 115).
  - Source: Specifies the MIDI message which is used for control.
  - Destination: Sets which parameter is controlled.
  - Sens: Specifies how deeply the parameter is to be controlled.
4. When the MIDI message set by the Source parameter is sent from the external MIDI device to the XV-88, the Multi-Effects parameter set with the Destination parameter changes at the level set in the Sns parameter.

## Selecting XV-88 Sounds from an External MIDI Device

By transmitting Bank Select messages (controller number 0 and 32) and Program Change messages from the external MIDI device to the XV-88, you can select Performances, Patches, or Rhythm Sets. In other words, when you select sounds on an external MIDI device, the corresponding MIDI message will be transmitted to the XV-88, causing the XV-88 to select the appropriate Patch, etc.



For instructions on how to connect up, and set the MIDI receive channel in Patch/Rhythm Set mode, refer to “Playing the XV-88’s Sound Generator from an External MIDI Device” (p. 205).

### NOTE

- If the Program Change numbers on your external MIDI device are referenced as values from 0 to 127, find the appropriate number by subtracting 1 from the number in the following correspondence chart.
- On the XV-88, when just a Program Change message is received without receiving a Bank Select message, only sounds within a group (such as USER or PR-A) are changed.

## Selecting Performances

The MIDI messages transmitted by the external MIDI device will be received by the XV-88 to select Performances as shown in the following table.

Group	Number	Bank Select		Program Change Number
		MSB	LSB	
USER	001-064	85	00	001-064
CD-A	001-064	85	32	001-064
:	:	:	:	:
CD-H	001-064	85	39	001-064
PR-A	001-032	85	64	001-032
PR-B	001-032	85	65	001-032

In order to select a Performance, the MIDI channel of the transmitting device must match the XV-88’s Control Channel parameter (SYSTEM/MIDI/PERFORM MIDI) (p. 169). In order to select the Patch or Rhythm Set of a Part, the transmit channel must match the receive channel of the Part. However if the Control Channel parameter and the receive channel of a Part have the same setting, the Control Channel parameter setting will take priority so that messages received on this channel will select Performances.

## Selecting Patches

The MIDI messages transmitted by the external MIDI device will be received by the XV-88 to select Patches as shown in the following table.

Group	Number	Bank Select		Program Change Number
		MSB	LSB	
USER	001-128	87	00	001-128
CD-A	001-128	87	32	001-128
:	:	:	:	:
CD-H	001-128	87	39	001-128
PR-A	001-128	87	64	001-128
PR-B	001-128	87	65	001-128
PR-C	001-128	87	66	001-128
PR-D	001-128	87	67	001-128
PR-E	001-128	87	68	001-128
PR-F	001-128	87	69	001-128
XP-A	*1	*2		*1
:	:	:		:
XP-D	*1	*2		*1

\*1 Depends on the Wave Expansion Board installed.

\*2 Fixed Bank Select numbers are assigned to the Wave Expansion Board itself.

SR-JV80 Series	Number	Bank Select		Program Change Number
		MSB	LSB	
SR-JV80-01	001-128	89	00	001-128
SR-JV80-01	129-256	89	01	001-128
SR-JV80-02	001-128	89	02	001-128
SR-JV80-02	129-256	89	03	001-128
:	:	:	:	:
SR-JV80-65	001-128	91	00	001-128
SR-JV80-65	129-256	91	01	001-128
:	:	:	:	:
SR-JV80-99	001-128	91	68	001-128
SR-JV80-99	129-256	91	69	001-128



For details on the SRX Series, refer to the owner's manual for the SRX Series Wave Expansion Board.

### <Example>

#### Selecting PR-B Patch number 10 from an external MIDI device

Transmit data to the XV-88 in the following order.  
(Numbers are given in decimal.)

Controller number 0 (Bank Select MSB) value: 87

Controller number 32 (Bank Select LSB) value: 65

Program Change number: 10

## Selecting Rhythm Sets

The MIDI messages transmitted by the external MIDI device will be received by the XV-88 to select Rhythm Sets as shown in the following table.

Group	Number	Bank Select		Program Change Number
		MSB	LSB	
USER	001-004	86	00	001-004
CD-A	001-004	86	32	001-004
:	:	:	:	:
CD-H	001-004	86	39	001-004
PR-A	001, 002	86	64	001, 002
PR-B	001, 002	86	65	001, 002
PR-C	001, 002	86	66	001, 002
PR-D	001, 002	86	67	001, 002
PR-E	001, 002	86	68	001, 002
PR-F	001, 002	86	69	001, 002
XP-A	*1	*2		*1
:	:	:		:
XP-D	*1	*2		*1

\*1 Depends on the Wave Expansion Board installed.

\*2 Fixed Bank Select numbers are assigned to the Wave Expansion Board itself.

SR-JV80 Series	Number	Bank Select		Program Change Number
		MSB	LSB	
SR-JV80-01	001-128	88	00	001-128
SR-JV80-01	129-256	88	01	001-128
SR-JV80-02	001-128	88	02	001-128
SR-JV80-02	129-256	88	03	001-128
:	:	:	:	:
SR-JV80-65	001-128	90	00	001-128
SR-JV80-65	129-256	90	01	001-128
:	:	:	:	:
SR-JV80-99	001-128	90	68	001-128
SR-JV80-99	129-256	90	69	001-128



For details on the SRX Series, refer to the owner's manual for the SRX Series Wave Expansion Board.

## Enjoying Desktop Music

The XV-88 can be controlled by music software running on a computer. This will allow you to create your own songs, and also to select sounds or edit sounds from the computer display. This type of system is known as **DTM** (desktop music). The features available to you when using a computer will vary greatly, depending on the software you use, so it is important that you choose software suited to your needs.

## Connecting to Your Computer

### Two Connection Methods

There are two methods that can be used to connect the XV-88 to a computer, **connecting to the COMPUTER connector** and **connecting with MIDI connectors**.

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

To make connections via MIDI, you will need a MIDI interface (such as the Roland Super MPU64, etc.). In this case, the MIDI interface is connected to the computer, and a MIDI cable is used to connect the MIDI connectors of the MIDI interface to the XV-88's MIDI connectors.

Connect the XV-88 to your computer using the method that is appropriate for your setup.



If connecting using the MIDI connectors, please read the related information starting on (p. 209).

## Connecting with COMPUTER Connector

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

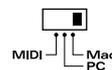
### NOTE

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

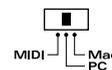
2. Set the COMPUTER switch on the XV-88's rear panel to match the type of computer to be connected as described below.

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

Apple Macintosh series



PC



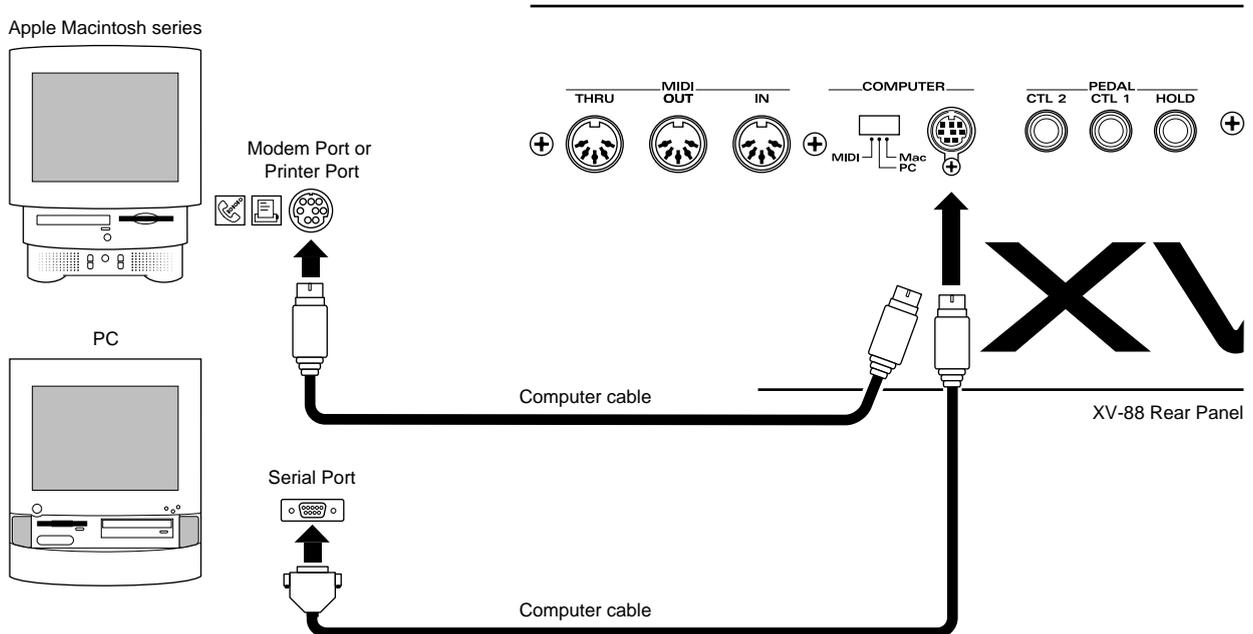
### NOTE

- The new setting of the COMPUTER switch will take effect when the power is turned on. Before changing the setting of the COMPUTER switch, you must first turn off the power on the XV-88.
  - This setting determines the transmission speed (baud rate) between your computer and the MIDI sound generator (the XV-88), and the setting used by the computer must match the setting on the XV-88. This setting determines the baud rate for the XV-88. When setting your computer, it may be necessary to make settings in the software as well. If you are using Windows, settings may be different than the above, depending on your driver settings. In such cases, carefully read the manual included with the driver, and then make the necessary settings.
  - The PC baud rate is 38.4 (kbit/sec). You cannot use the computer which the baud rate can be set to only 31.25 (kbit/sec).
3. If you're using an Apple Macintosh computer, connect the computer cable to the modem port or printer port on the rear of the computer. If you're using a PC, connect the computer cable to the serial port (RS-232C) connector on the rear of the computer.



For the Computer cable, refer to "**Computer Cable Wiring Diagrams**" (p. 299) and obtain an appropriate cable for your computer.

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



When you record the performance data of the keyboard controller section to sequence software, you need to set the Local Switch to off, and set the Thru function of your software to on (p. 211).

## Connecting with MIDI Connectors

If a MIDI interface (Roland Super MPU64, etc.) or a MIDI interface adaptor is connected to your computer, you can use the MIDI connectors to make connections.



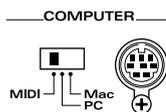
For details on how to install the MIDI interface, refer to the owner's manual for your MIDI interface.

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



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

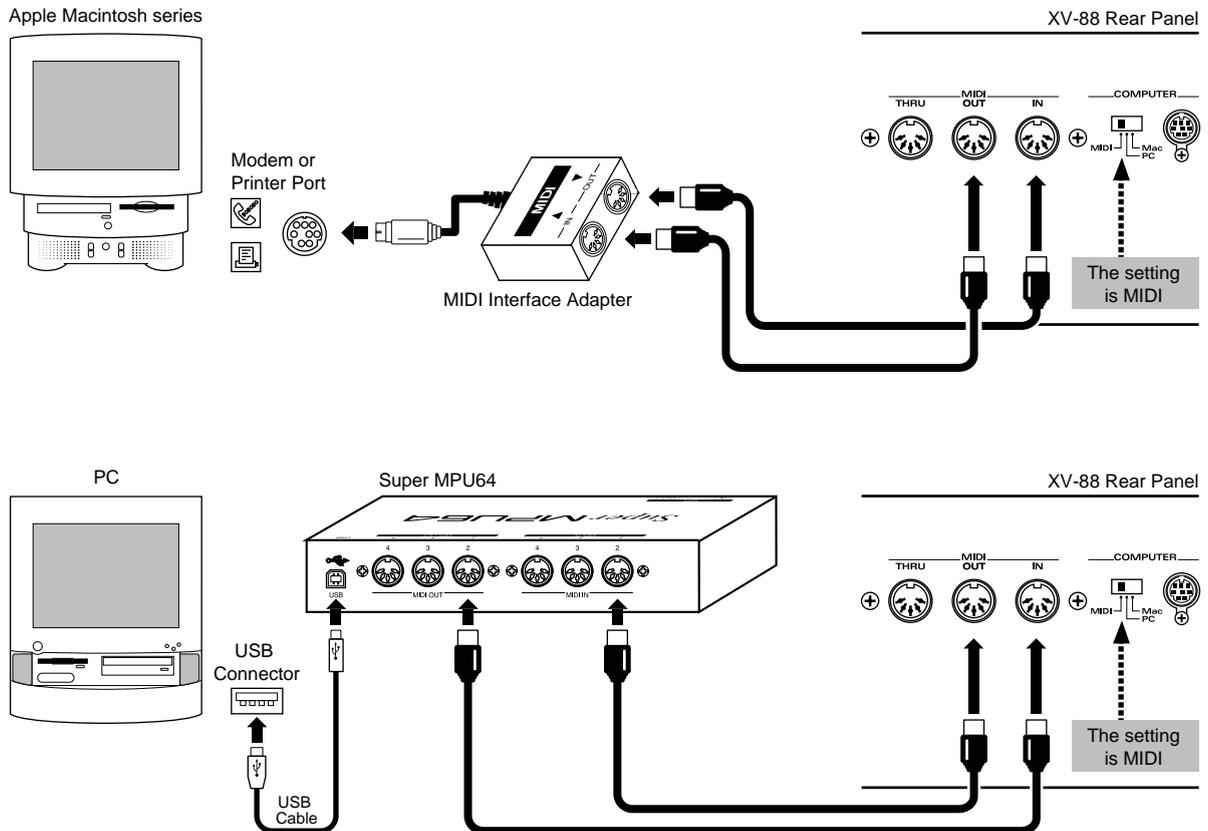
2. Set the COMPUTER switch on the XV-88's rear panel to **MIDI**.



The new setting of the COMPUTER switch will take effect when the power is turned on. Before changing the setting of the COMPUTER switch, you must first turn off the power on the XV-88.

## Chapter 12. Realizing the Potential of the XV-88

- Use a MIDI cable to connect the MIDI OUT connector of the MIDI interface to the MIDI IN connector of the XV-88.
- Use a MIDI cable to connect the MIDI IN connector of the MIDI interface with the XV-88's MIDI OUT connector.



### HINT

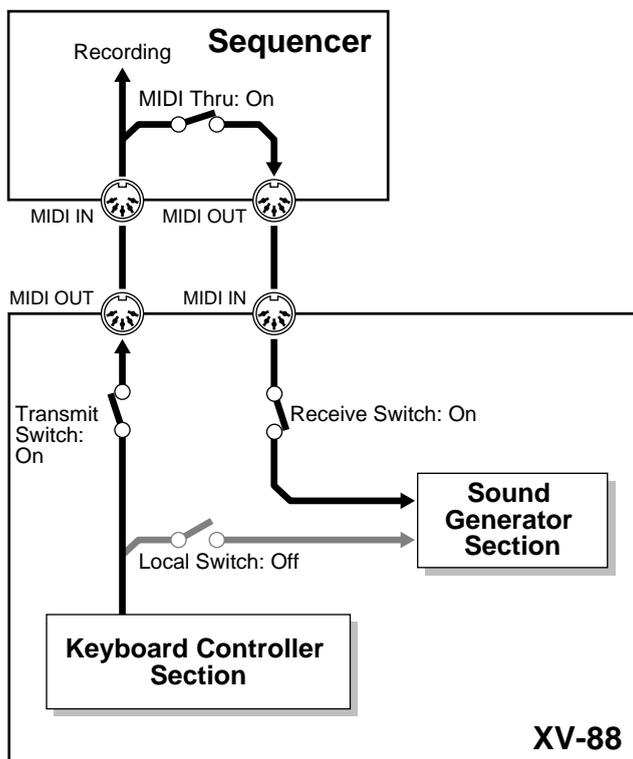
The connection in Step 4 is not required when producing sounds only with the sound generator section of the XV-88, such as when playing back song data. This connection does become necessary when performance data from the XV-88's keyboard controller section is to be recorded with sequencer software. However, in this case you must also turn the XV-88's Local switch to OFF, and the Thru function of your software to ON (p. 211).

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

The XV-88 contains a keyboard controller section and sound generating section, packaged as a single unit. This means that you can make a setting (Local Switch on/off) that specifies whether or not the performance data from the XV-88's keyboard will be transmitted directly to the sound generator.

When you use the XV-88 by itself, you will normally set the Local Switch to ON. However, when you use it with a computer, you should set the Local Switch to OFF so that the performance data of the keyboard controller section will be disconnected from the internal sound generator section.

In this case, the data sent over two paths, i.e., the data sent directly from the keyboard controller section and the data sent from the keyboard controller section via the computer, ends up being sent to the sound generator section simultaneously. Thus, for example, even when you play a "C" key only once, the note "C" cannot be sounded correctly, as the sound is played by the sound generator section twice.



Turn the Local Switch on/off by the following parameters.

### In Patch/Rhythm Set Mode

Local parameter (SYSTEM/MIDI/PATCH MIDI) (p. 170)

### In Performance Mode

Local parameter (SYSTEM/MIDI/PERFORM MIDI) (p. 169)

## Turn on the MIDI Thru Function of Your Sequencer Software

In order for the musical data received by the computer from the XV-88 to be transmitted back to the XV-88, the **MIDI Thru function** of the sequencing program must be turned on. When the MIDI Thru function of the sequencing program is turned on, MIDI messages received at MIDI IN will be re-transmitted without change from MIDI OUT.



For details on whether or not your sequencing program has a MIDI Thru function, and how to set the MIDI Thru function, refer to the owner's manual for your sequencing program.

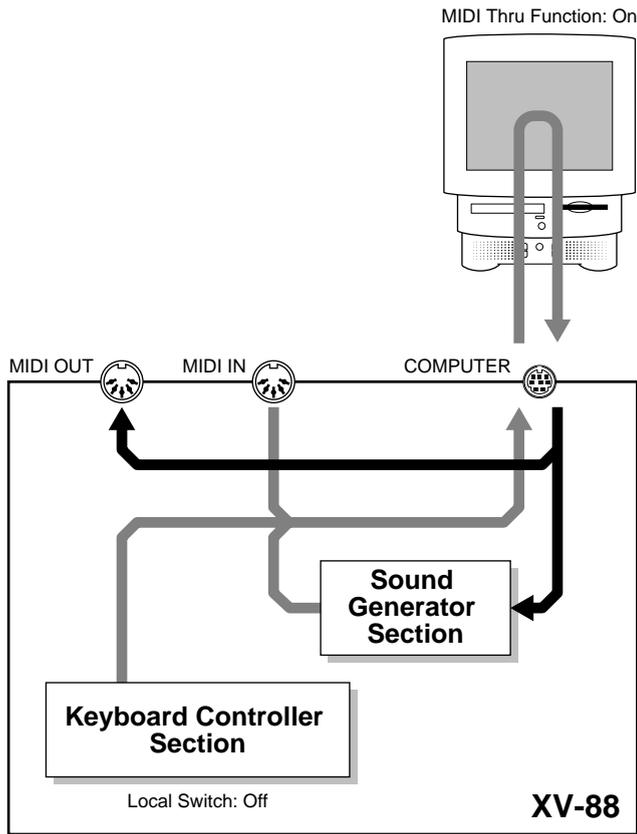
### NOTE

- If your sequencing program does not have a MIDI Thru function, set the XV-88's Local Switch to ON.
- For some sequencing programs, System Exclusive messages are not transmitted by the Thru function. If you are using such software and wish to record System Exclusive messages, turn the XV-88's Local Control setting ON.

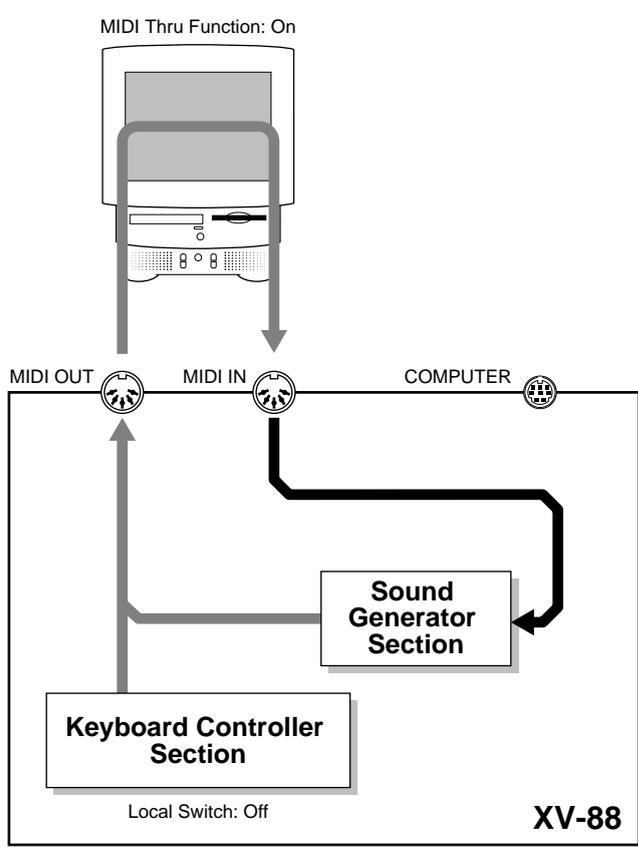
**How MIDI Messages Are Exchanged with a Computer**

Depending on the setting of the COMPUTER switch, MIDI data flow will be different as follows.

**When the COMPUTER Switch Is Set to Mac or PC**



**When the COMPUTER Switch Is Set to MIDI**



# XV-88

128 VOICE EXPANDABLE SYNTHESIZER

***4x EXPANSION with 2x SRX***

## Appendices

# Troubleshooting

If the this unit does not function in the way you expect, first check the following points. If this does not resolve the problem, consult your dealer or a nearby Roland Service Station.

\* *If a message appears during operation, consult the following section “Error Messages” (p. 218).*

## Cannot Turn the Power On

**Is the XV-88’s AC cord properly connected to the AC outlet and the XV-88? (Quick Start; p. 16)**

## No Sound

**Is the power turned on for the other devices connected to the this unit? Is the volume level turned down?**

**Is the VOLUME slider turned all the way down?**

**Have connections been made correctly?**

- When using the XV-88 by itself, connect audio cables or headphones (Quick Start; p. 16).
- If using the XV-88 connected to a computer, use a computer cable or MIDI cable to make the connection to the computer (p. 208). Then, connect audio cables or headphones (Quick Start; p. 16).

**Can you hear sound through headphones?**

- 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.

**If you do not hear sound when you play the keyboard, check whether the Local Switch is turned OFF.**

- Turn the Local Switch on by the following parameter.

### **In Patch/Rhythm Set Mode**

Local parameter (SYSTEM/MIDI/PATCH MIDI) (p. 170)

### **In Performance Mode**

Local parameter (SYSTEM/MIDI/PERFORM MIDI) (p. 169)

Local parameter (ZONE/MIDI/MIDI) (p. 60)

**In Layer Performance mode, does the MIDI transmit channel match the MIDI receive channel?**

- Check that the MIDI transmit channel (Channel parameter (ZONE/MIDI/MIDI)) of the Zone matches the MIDI receive channel (Channel parameter (PERFORM/MIDI/MIDI)) of the Part (p. 52, p. 59).

**Have all tones in the patch been turned off?**

- Press TONE SWITCH [1]–[4], getting the indicators to light (p. 32).

**Are the Tone, Patch and Part level settings excessively low?**

- Check the level settings of each Tone, Patch and Part with the following parameters.

### **Tone level**

Level parameter (PATCH/TVA/TVA) (p. 90)

### **Patch level**

Level parameter (PATCH/COMMON/PATCH LVL&PAN) (p. 70)

### **Part level**

Level parameter (PERFORM/PART/SETTING) (p. 53)

**Are the effect settings correct?**

- Check the Effect settings ON or OFF (p. 105), in the Effect Balance or Level.

**Are the output destination settings correct?**

- Check the Output Assign settings (p. 108, p. 109, p. 113, p. 116, p. 158, p. 160, p. 194, p. 195).

**Is the Wave Expansion Board properly installed?**

- When selecting the settings that stipulate the use of XP-A-D waves, Patches, or Rhythm Sets, check that the specified Wave Expansion Board is installed properly in the specified slot (Quick Start; p. 4, p. 10).

**Has the volume been lowered by pedal operations or by MIDI messages (volume messages or expression messages) received from an external MIDI device?**

- Use the Panic function to raise the volume (p. 48).
- If you are in Performance mode, access the INFO display (PERFORM/INFO) to check the settings of the Volume message (Vol) and Expression message (Exp) parameters, and make the appropriate settings (p. 56).

### Is the rear panel COMPUTER switch set to the correct position?

- If you are using the XV-88 while connected to a computer, make settings as appropriate for the connection method, the type of computer, and the settings of the driver (p. 208).
- \* Before changing the setting of the Computer switch, you must first turn off the power on the XV-88.

## Song Data Does Not Play Back Correctly

### When playing back a GM score, is the sound generator set to GM mode?

- Switch to GM mode (p. 192).

### Has the Receive General MIDI/General MIDI 2 System On Switch been turned ON?

- Set the Rx GM On/Rx GM2 On parameter (SYSTEM/MIDI/SYSTEM MIDI) to ON (p. 171).

### Are you playing back from the middle of the song?

- The beginning of a GM score song contains a General MIDI/General MIDI 2 System On message. In some cases, a GM Score cannot be played back correctly unless this message is received.

### Are you playing back GS format song data?

When the XV-88 receives a GS Reset message, the XV-88 is enabled for the GS format. This permits playback of music data bearing the GS logo (GS music data). However, data created exclusively for the Sound Canvas Series may not play back properly on the XV-88.

## A Specific Part Does Not Sound

### Has the volume level of the part been lowered?

Adjust the Level parameter (PERFORM/PART/SETTING) to raise the volume of the part that is not heard (p. 53).

### Is the instrument set to receive MIDI messages?

- Set the Rx Sw parameter (PERFORM/MIDI/MIDI) to ON (p. 52).

### Does the MIDI Receive channel of the Part match the MIDI Transmit channel of the connected MIDI device?

- Set the Channel parameter (PERFORM/MIDI/MIDI) to specify the MIDI receive channel of the Part (p. 52).

## No Sound from Connected MIDI Device

### Is the instrument set to transmit MIDI messages?

- In the Patch/Rhythm Set mode, set the Tx Ch parameter (SYSTEM/MIDI/PATCH MIDI) (p. 170).
- In the Performance mode, set the Tx parameter (ZONE/MIDI/MIDI) to ON (p. 59).

### Does the MIDI transmit channel for the XV-88's keyboard controller section match the MIDI receive channel for the connected MIDI device?

- In the Patch/Rhythm Set mode, set the Tx Ch parameter (SYSTEM/MIDI/PATCH MIDI) (p. 170).
- In the Performance mode, set the MIDI transmit channel with the Channel parameter (Zone/MIDI/MIDI) (p. 59).

## A Specific Keyboard Area Does Not Sound

### Has a restricted range of notes been set?

- If a specific range of notes does not sound, check the Key Range settings for the Patch Tone, the Performance Part, and the Zone in the following KEY RANG pages.

#### Tone Key Range

TMT KEY RANG page (PATCH/COMMON) (p. 73)

#### Part Key Range

KEY RANG page (PERFORM/COMMON) (p. 51)

#### Zone Key Range

KEY RANG page (ZONE/KEY RANGE) (p. 59)

### Sound Is Distorted

- Is an effect which distorts the sound being applied? (p. 117)
- If the sound is distorted for specific Patches or parts, lower the volume level of those Patches or Parts (p. 70, p. 53).
- If all sounds are distorted, use the VOLUME slider to lower the volume level.

### Pitch Is Incorrect

#### Is the tuning of the XV-88 incorrect?

- Check the Master parameter (SYSTEM/TUNE/SYSTEM TUNE) setting (p. 173).

#### Has the pitch been changed by pedal operations or by Pitch Bend messages received from an external MIDI device?

- Use the Panic function to reset the original values (p. 48).
- If you are in Performance mode, access the INFO display (PERFORM/INFO) to check the settings of the Pitch Bend Message parameter (Bnd), and make the appropriate settings (p. 56).

#### Have the Coarse Tune or Fine Tune parameters been set for specific Parts?

- Check the Coarse parameter and Fine parameter (PERFORM/PART/PITCH) settings (p. 55).

### Effects Do Not Apply

#### Are [MULTI], [CHORUS], and [REVERB] turned off?

- Press each button, getting the indicator to light (p. 105).

#### Are the various effect settings correct?

- If the send levels to each effect are at 0, effects are not applied. Check each setting (p. 110, p. 113, p. 116, p. 194).
- Even with send levels to each effect set at 0, effects are not applied if the Multi-effects Dry Send Level (p. 116), the Chorus Level (p. 158), or the Reverb Level (p. 160) is set to 0. Check each setting.
- If Output Assign is set to other than MFX, the Multi-effects sound will not be output (p. 108, p. 109, p. 113).
- 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 (p. 113). This means that if Output Assign for the Patch (each Tone) is set to other than MFX, the Multi-effects sound will not be output (p. 109).

### Sounds Are Interrupted

#### If you attempt to play more than 128 voices at once, sounds will be interrupted (p. 23).

- Reduce the number of Tones that you are using (p. 32, p. 81).
- Increase the Voice Reserve setting for Parts that must not drop out (p. 53).

### When You Play the Keyboard, Notes Do Not Stop

#### Is the pedal polarity of the Hold Pedal reversed?

- Check the Polarity parameter (SYSTEM/CONTROL/HOLD PEDAL) setting (p. 172).

### Exclusive Messages Are Not Received

#### Is the instrument set to receive Exclusive messages?

- Set the Rx Sys.Excl parameter (SYSTEM/MIDI/SYSTEM MIDI) to ON (p. 171).

#### Does the Device ID number of the transmitting device match the Device ID number of the XV-88?

- Check the Device ID parameter (SYSTEM/MIDI/SYSTEM MIDI) (p. 171).

\* If you wish to rewrite the User memory settings by System Exclusive messages, turn Exclusive Protect off (p. 188).

### The XV-88 Does Not Transmit MIDI Data

#### Is the rear panel COMPUTER switch set to the correct position?

- If you wish to transmit this unit data via the COMPUTER connector, set the COMPUTER switch to Mac or PC, depending on the computer or software you are using (p. 208).
- When the COMPUTER switch is set to MIDI, the XV-88 will not transmit data from the COMPUTER connector. In this case, data will be transmitted from the MIDI OUT connector.

## When Using Sequencing Software, Operating the Sliders or Other Controls Does Not Affect the Sound

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

### **In Patch/Rhythm Set Mode**

Local parameter (SYSTEM/MIDI/PATCH MIDI) (p. 170)

### **In Performance Mode**

Local parameter (SYSTEM/MIDI/PERFORM MIDI) (p. 169)

Local parameter (ZONE/MIDI/MIDI) (p. 60)

## Cannot Use Memory Cards

### **Is the memory card (SmartMedia) formatted?**

- You cannot use an unformatted memory card. Perform the Format procedure (p. 189).

# Error Messages

If there has been a mistake in operation, or if the XV-88 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.

## Battery Low

**Situation:** The internal backup battery of the XV-88 (a battery that maintains data in the user memory) has run down.

**Action:** Consult your dealer or a nearby Roland service station to have the battery replaced.

## File Format Error

**Situation:** The XV-88 cannot handle this file.

## File I/O Error

**Situation:** It was not possible to save/load a file.

**Action:** Try the operation once again. If the same message appears, that file has been damaged. Delete the damaged file.

## File Name Duplicate

**Situation:** A file of the same name exists on the memory card.

**Action:** Use a different file name.

## File Name Format Error

**Situation:** A file name has not been assigned.

**Action:** Assign a file name.

## File not Found

**Situation:** The specified file was not found.

**Action:** Insert the memory card that contains the specified file, and try the operation once again.

## Memory Card Full! Push any Key.

**Situation:** There is insufficient space available on the memory card to save the data.

**Action:** Either insert a different memory card, or delete unnecessary data and try the operation once again.

## Memory Card I/O Error

**Situation:** It is possible that the memory card has been scratched or otherwise damaged.

**Action:** If the memory card has been damaged, do not use that memory card. If the same error message appears repeatedly, consult your dealer or a nearby Roland service station.

## Memory Card not Ready

**Situation:** A memory card is not inserted in the MEMORY CARD slot.

**Action:** Turn off the power, and insert a memory card.

## Memory Card Write Protected

**Situation:** Since a write protect seal is affixed to the memory card, data cannot be saved to the card bank.

**Action:** Remove the write protect seal from the memory card.

## MIDI Buffer Full

**Situation:** Due to an inordinate volume of MIDI messages received, the XV-88 has failed to process them properly.

**Action:** Reduce the amount of MIDI messages to be transmitted.

### MIDI Communication Error

- Situation:** A problem has occurred with the MIDI cable connections.
- Action:** Check that MIDI cables are not broken or pulled out.

### BULK DUMP : Receive Data Error

- Situation:** A MIDI message was received incorrectly.
- Action:** If the same error message is displayed repeatedly, there is a problem with the MIDI messages that are being transmitted to the XV-88.

### Unformatted Memory Card

- Situation:** This memory card cannot be used by the XV-88.
- Action:** Format the memory card on the XV-88.

### User Memory Damaged

- Situation:** The data in user memory has been lost.
- Action:** Use the Factor Reset function (UTILITY/UTIL 2/FACTORY RESET) to initialize the memory to the factory settings.

### User Memory Write Protected

- Situation 1:** The Internal parameter (UTILITY/UTIL 1/PROTECT/WRITE PROTECT) is turned ON.
- Action 1:** Turn the Internal parameter OFF.
- Situation 2:** The Exclusive parameter (UTILITY/UTIL 1/PROTECT/WRITE PROTECT) is turned ON, and Exclusive messages cannot be received.
- Action 2:** Turn the Exclusive parameter OFF.

### GM Patch/Rhythm Cannot Edit

- Situation:** The PR-H (GM2) group Patch/Rhythm Set cannot be edited.
- Action:** Select a Patch/Rhythm Set from another group (USER, CD-A-H, PR-A-F, XP-A-D) and edit.

# Quick Reference of Procedures

The XV-88 has a large number of functions. This section gives the procedures for using some of the frequently-used functions. For functions that are used simply by setting the applicable parameter, only the "Parameter name (mode/display group/display)" is listed.

\* "[A] + [B]" indicates "press [B] while holding down [A]"; "[A] → [B]" means "press [B] after first pressing (and releasing) [A]."

## Performance Mode

<b>Selecting the Performance Mode PLAY Page</b>	Press [PERFORM].
<b>Selecting a Performance</b>	Use the VALUE dial, [INC/+], [DEC/-], or numeric keys to select.
<b>Selecting a Performance Group</b>	USER: Press [USER]. CD-A-H: Press [CARD] → [A]-[H]. PR-A, B: Press [PRESET] → [A], [B].
<b>Selecting Performances Using the Digit Hold Function</b>	<ol style="list-style-type: none"> <li>1. Press [SHIFT] + numeric key [0] (turn on the Digit Hold function).</li> <li>2. Use the numeric keys to specify the number of the one's place.</li> </ol> <p>* To turn off the Digit Hold function, press [SHIFT] + [0] once again.</p>
<b>Changing the Patch/Rhythm Set Assigned to a Part</b>	<ol style="list-style-type: none"> <li>1. Press [PERFORM] + [PATCH].</li> <li>2. Use ◀ / ▶ to select a Part.</li> <li>3. Use the VALUE dial, [INC/+], [DEC/-], or the numeric keys to select a Patch or Rhythm Set.</li> </ol>
<b>Modifying Performance Settings (basic procedure)</b>	<ol style="list-style-type: none"> <li>1. Turn on the [EDIT] indicator.</li> <li>2. Use the function buttons to select the display group.</li> <li>3. Use ▲ / ▼ to select the desired setting page.</li> <li>4. Turn off the [EDIT] indicator.</li> <li>5. Use [ZONE/PART SELECT] (function button) to select the Part.</li> <li>6. Use ◀ / ▶ to select a Parameter.</li> <li>7. Use the VALUE dial, [INC/+], [DEC/-], or the numeric keys to modify the value.</li> </ol> <p>* If you wish to move to a different display group, turn on the [EDIT] indicator.</p>
<b>Adjusting the Volume of Each Part</b>	Level parameter (PERFORM/PART/SETTING)
<b>Adjusting the Pan of Each Part</b>	Pan parameter (PERFORM/PART/SETTING)

<b>Modifying Zone Settings (basic procedure)</b>	<ol style="list-style-type: none"> <li>1. Turn on the [ZONE] indicator.</li> <li>2. Use the function buttons to select the display group.</li> <li>3. Use ▲ / ▼ to select the desired setting page.</li> <li>4. Turn off the [EDIT] indicator.</li> <li>5. Use [ZONE/PART SELECT] (function button) to select the Zone.</li> <li>6. Use ◀ / ▶ to select a Parameter.</li> <li>7. Use the VALUE dial, [INC/+], [DEC/-], or the numeric keys to modify the value.</li> </ol> <p style="margin-left: 20px;">* If you wish to move to a different display group, turn on the [EDIT] indicator.</p>
--------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## Patch Mode

<b>Selecting the Patch Mode PLAY Page</b>	Press [PATCH].
<b>Selecting a Patch</b>	Use the VALUE dial, [INC/+], [DEC/-], or numeric keys to select.
<b>Selecting a Patch Group</b>	USER: Press [USER]. CD-A-H: Press [CARD] → [A]-[H]. PR-A-F, H: Press [PRESET] → [A]-[F], [H]. XP-A-D: Press [EXP] → [A]-[D].
<b>Selecting Patches Using the Digit Hold Function</b>	<ol style="list-style-type: none"> <li>1. Press [SHIFT] + numeric key [0] (turn on the Digit Hold function).</li> <li>2. Use the numeric keys to specify the number of the one's place.</li> </ol> <p style="margin-left: 20px;">* To turn off the Digit Hold function, press [SHIFT] + [0] once again.</p>
<b>Transposing the Keyboard by Octave</b>	Press [-OCT] or [+OCT].
<b>Transposing the Keyboard in Semitone Steps</b>	Transpose on/off: Press [TRANSPOSE]. Lower the keyboard: Press [TRANSPOSE] + [-OCT]. Raise the keyboard: Press [TRANSPOSE] + [+OCT]

<p><b>Modifying Patch Settings (basic procedure)</b></p>	<ol style="list-style-type: none"> <li>1. Turn on the [EDIT] indicator.</li> <li>2. Use the function buttons to select the display group.</li> <li>3. Use ▲ / ▼ to select the desired setting page.</li> <li>4. Turn off the [EDIT] indicator.</li> <li>5. Use TONE SELECT [1]-[4] (function buttons) to select the Tone.</li> <li>6. Use ◀ / ▶ to select a Parameter.</li> <li>7. Use the VALUE dial, [INC/+], [DEC/-], or the numeric keys to modify the value.</li> </ol> <p>* If you wish to move to a different display group, turn on the [EDIT] indicator.</p>
<p><b>Changing the Patch Assigned to a Performance Part</b></p>	<ol style="list-style-type: none"> <li>1. Press [PERFORM] + [PATCH].</li> <li>2. Use ◀ / ▶ to select a Part.</li> <li>3. Use the VALUE dial, [INC/+], [DEC/-], or the numeric keys to choose the Patch.</li> </ol> <p>The rest procedure is the same as for the basic procedure listed above.</p>
<p><b>Simultaneously Modifying the Values of Two or More Tones</b></p>	<p>In a Tone setting display, hold down the TONE SELECT [1]-[4] (function button) for one Tone, and press the button(s) for the other Tone(s) you want to edit.</p>
<p><b>Adjusting the Volume of a Patch</b></p>	<p>Level parameter (PATCH/COMMON/PATCH LVL&amp;PAN)</p>
<p><b>Adjusting the Pan of a Patch</b></p>	<p>Pan parameter (PATCH/COMMON/PATCH LVL&amp;PAN)</p>

## Rhythm Set Mode

<p><b>Selecting the Rhythm Set Mode PLAY Page</b></p>	<p>Press [RHYTHM].</p>
<p><b>Selecting a Rhythm Set</b></p>	<p>Use the VALUE dial, [INC/+], [DEC/-], or the numeric keys to choose a Rhythm Set.</p>
<p><b>Selecting a Rhythm Set Group</b></p>	<p>USER: Press [USER].          CD-A-H: Press [CARD] → [A]-[H].          PR-A-F, H: Press [PRESET] → [A]-[F], [H].          XP-A-D: Press [EXP] → [A]-[D].</p>
<p><b>Selecting Rhythm Sets Using the Digit Hold Function</b></p>	<ol style="list-style-type: none"> <li>1. Press [SHIFT] + numeric key [0] (turn on the Digit Hold function).</li> <li>2. Use the numeric keys to specify the number of the one's place.</li> </ol> <p>* To turn off the Digit Hold function, press [SHIFT] + [0] once again.</p>

<b>Modifying Rhythm Set Settings (basic procedure)</b>	<ol style="list-style-type: none"> <li>1. Turn on the [EDIT] indicator.</li> <li>2. Use the function buttons to select the display group.</li> <li>3. Use ▲ / ▼ to select the desired setting page.</li> <li>4. Use the keyboard to choose a Rhythm Tone (percussion sound).</li> <li>5. Use ◀ / ▶ to select a Parameter.</li> <li>6. Use the VALUE dial, [INC/+], [DEC/-], or the numeric keys to modify the value.</li> </ol>
<b>Changing the Rhythm Set Assigned to a Performance Part</b>	<ol style="list-style-type: none"> <li>1. Press [PERFORM] + [PATCH].</li> <li>2. Use ◀ / ▶ to select a Part.</li> <li>3. Use the VALUE dial, [INC/+], [DEC/-], or the numeric keys to choose the Rhythm Set.</li> </ol> <p>The rest procedure is the same as for the basic procedure listed above.</p>
<b>Adjusting the Volume of Rhythm Sets</b>	Level parameter (RHYTHM/COMMON/RHYTHM COMMON)

## Controller Settings

<b>Changing the Range of the Pitch Bend Lever (for each Patch)</b>	Bend Range parameter (PATCH/CONTROL/TMT CTRL&BENDER)
<b>Selecting the MIDI Messages Controlled by the C1–C4 Sliders</b>	Assign parameters (SYSTEM/CONTROL/C1–C4 ASSIGN)
<b>Selecting the MIDI Messages Controlled by the Control Pedal</b>	Assign parameter (SYSTEM/CONTROL/CONTROL PEDAL 1, 2)
<b>Reversing the Polarity of Control Pedal (when using a pedal of another manufacturer whose polarity is reversed)</b>	Polarity parameter (SYSTEM/CONTROL/CONTROL PEDAL 1, 2)
<b>Selecting the MIDI Messages Controlled by the D Beam Controller</b>	<p><b>In Performance Mode</b> Assign parameter (ZONE/D BEAM/D BEAM CONTROL)</p> <p><b>In Patch/Rhythm Set Mode</b> Assign parameter (SYSTEM/D BEAM/D BEAM CONTROL)</p>

**Controlling Tone Parameters of the Patch by the Slider or Pedal (Matrix Controller)**

For each Patch, you can specify up to four control sources (MIDI messages for controlling). For each control source, you can specify up to four control destinations (parameters to be controlled).

1. Specify the MIDI messages to be controlled by each controller (the C1–C4 slider, control pedal etc.) (see previous).
2. Choose a control source (MIDI messages used for control).  
Control 1–4 parameters (PATCH/CONTROL/MATRIX CTRL SRC)  
  
\* *If you do not need to set different control sources for each Patch, select SYS-CTRL 1–4, and use the Control 1–4 parameters (SYSTEM/CONTROL/SYS CTRL ASSIGN 1–4) to choose the MIDI messages that you wish to use for control.*
3. Specify the control destination (the parameter to be controlled).  
Dest parameter (PATCH/CONTROL/MATRIX CONTROL 1–4)
4. Set the Control Sensitivity (the amount of the effect that is applied).  
Sns parameter (PATCH/CONTROL/MATRIX CONTROL 1–4)
5. Select the Control Tone (the Tone to which the effect is applied).  
Tone parameter (PATCH/CONTROL/MATRIX CONTROL 1–4)

<b>Controlling Multi-effects Parameters by the Slider or Pedal (Multi-effects Controller)</b>	<p>Up to four Multi-effects Controllers can be used in a single Performance/Patch/Rhythm Set.</p> <ol style="list-style-type: none"> <li>1. Specify the MIDI messages to be controlled by each controller (the C1–C4 slider, control pedal etc.) (see previous).</li> <li>2. The multi-effects Source parameter (PERFORM/EFFECTS/MFX TYPE) is set to PERFORM, set the Control channel (the receive channel of control destination) (only Performance). MFX Control Channel parameter (PERFORM/COMMON/PERFORM MFX CH)</li> <li>3. Choose a control source (MIDI messages used for control). Source parameter (PERFORM, PATCH, RHYTHM/EFFECTS/MFX CTRL 1–4)  * <i>If you do not need to set different control sources for each Performance/Patch/Rhythm Set, select SYS-CTRL 1–4, and use the Control 1–4 parameters (SYSTEM/CONTROL/SYS CTRL ASSIGN 1–4) to choose the MIDI messages that you wish to use for control.</i></li> <li>4. Specify the control destination (the parameter to be controlled). Destination parameter (PERFORM, PATCH, RHYTHM/EFFECTS/MFX CTRL 1–4)</li> <li>5. Set the Control Sensitivity (the amount of the effect that is applied). Sens parameter (PERFORM, PATCH, RHYTHM/EFFECTS/MFX CTRL 1–4)</li> </ol>
<b>Adjusting the Keyboard Response</b>	Sens parameter (SYSTEM/CONTROL/KEYBOARD)
<b>Set the Keyboard to Produce a Fixed Velocity</b>	Vel parameter (SYSTEM/CONTROL/KEYBOARD)

## Saving and Loading Data

<b>Saving Performance Settings</b>	<ol style="list-style-type: none"> <li>1. In Performance mode, press [UTILITY].</li> <li>2. Select “1. WRITE” on the UTIL 1 page.</li> <li>3. Specify the writing destination.</li> <li>4. Press [ENTER].  If a message of “Internal Write Protect= ON” appears, change it to OFF and press [ENTER] twice.</li> </ol>
------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p><b>Saving Patch Settings</b></p>	<ol style="list-style-type: none"> <li>1. In Patch mode, press [UTILITY].</li> <li>2. Select "1. WRITE" on the UTIL 1 page.</li> <li>3. Specify the writing destination.</li> <li>4. Press [ENTER]. If a message of "Internal Write Protect= ON" appears, change it to OFF and press [ENTER] twice.</li> </ol> <p><i>* If you wish to hear the sound of the Patch in the selected writing destination, press [UNDO/COMPARE]. Press it once again to return to the previous page.</i></p>
<p><b>Saving Rhythm Set Settings</b></p>	<ol style="list-style-type: none"> <li>1. In Rhythm Set mode, press [UTILITY].</li> <li>2. Select "1. WRITE" on the UTIL 1 page.</li> <li>3. Specify the writing destination.</li> <li>4. Press [ENTER]. If a message of "Internal Write Protect= ON" appears, change it to OFF and press [ENTER] twice.</li> </ol> <p><i>* If you wish to hear the sound of the Rhythm Set in the selected writing destination, press [UNDO/COMPARE]. Press it once again to return to the previous page.</i></p>
<p><b>Saving Patches and Rhythm Sets You Like on the Favorite List</b></p>	<ol style="list-style-type: none"> <li>1. Select the Patch or Rhythm Set you wish to save.</li> <li>2. Hold down [SHIFT] and press [PATCH FINDER].</li> <li>3. Specify the number of saving destination.</li> <li>4. Press [SHIFT] + [ENTER].</li> </ol>
<p><b>Formatting a Memory Card</b></p>	<ol style="list-style-type: none"> <li>1. Press [UTILITY].</li> <li>2. Select "1. CARD" on the UTIL 2 page.</li> <li>3. Select "1. FORMAT."</li> <li>4. Press [ENTER].</li> </ol>
<p><b>Saving User Memory Settings and System Settings to Memory Card as a Unit</b></p>	<ol style="list-style-type: none"> <li>1. Press [UTILITY].</li> <li>2. Select "3. SAVE" on the UTIL 2 page.</li> <li>3. Assign a file name.</li> <li>4. Press [ENTER].</li> </ol>
<p><b>Loading a File from Memory Card into the XV-88</b></p>	<ol style="list-style-type: none"> <li>1. Press [UTILITY].</li> <li>2. Select "2. LOAD" on the UTIL 2 page.</li> <li>3. Select the file you want to load.</li> <li>4. Press [ENTER].</li> </ol>

<b>Deleting a File from Memory Card</b>	<ol style="list-style-type: none"> <li>1. Press [UTILITY].</li> <li>2. Select "1. CARD" on the UTIL 2 page.</li> <li>3. Select "3. DELETE."</li> <li>4. Select the file that you wish to delete.</li> <li>5. Press [ENTER].</li> </ol>
<b>Checking the Free Area of a Memory Card, etc.</b>	<ol style="list-style-type: none"> <li>1. Press [UTILITY].</li> <li>2. Select "1. CARD" on the UTIL 2 page.</li> <li>3. Select "5. INFO."</li> </ol>

## Controlling External MIDI Devices

<b>Setting the MIDI Transmit Channel for Performance Mode (for each Zone)</b>	Channel parameter (ZONE/MIDI/MIDI)
<b>Turning the MIDI Transmit Switch On/Off for Performance Mode (for each Zone)</b>	Tx parameter (ZONE/MIDI/MIDI)
<b>Setting the MIDI Transmit Channel for Patch/Rhythm Set Mode</b>	Tx Ch parameter (SYSTEM/MIDI/PATCH MIDI)
<b>Turning On/Off the Transmit Switch of Program Change Message</b>	Program parameter (SYSTEM/MIDI/TRANSMIT MIDI)
<b>Turning On/Off the Transmit Switch of Bank Select Messages</b>	Bank Sel parameter (SYSTEM/MIDI/TRANSMIT MIDI)
<b>Switching Multiple Tones on External MIDI Devices at Once When Switching the Performance</b>	<ol style="list-style-type: none"> <li>1. Set the Tx parameter (ZONE/MIDI/MIDI) of the Zone to be used to ON.</li> <li>2. Set the Bank Select MSB/LSB parameter (ZONE/EXT CONTROL/EXT PC) to match the Bank Select of the external MIDI device.</li> <li>3. Set the P.C# parameter (ZONE/EXT CONTROL/EXT P.C) to match the Program Change number for the Tone you want the external MIDI device to select.</li> <li>4. Save the Performance.</li> <li>5. Switch to the saved Performance from other Performances.</li> </ol>

## Controlling the XV-88 from an External MIDI Device

<b>Setting the MIDI Receive Channel for Performance Mode (for each Part)</b>	Channel parameter (PERFORM/MIDI/MIDI)
<b>Turning On/Off the MIDI Receive Switch in Performance Mode (for each Part)</b>	Rx Sw parameter (PERFORM/MIDI/MIDI)
<b>Setting the Receive Channel on which Performances will be Selected</b>	Control Channel parameter (SYSTEM/MIDI/PERFORM MIDI)
<b>Turning On/Off the Receive Switch of the MIDI Messages in Performance Mode (for each Part)</b>	RxSWITCH page (PERFORM/MIDI)
<b>Confirming the Receive Status of MIDI Messages in Performance Mode (for each Part)</b>	INFO page (PERFORM/INFO)
<b>Setting the MIDI Receive Channel for Patch/Rhythm Set Mode</b>	Rx Ch parameter (SYSTEM/MIDI/PATCH MIDI)
<b>Turning On/Off the Receive Switch of Program Change Message</b>	Program Change parameter (SYSTEM/MIDI/RECEIVE MIDI)
<b>Turning On/Off the Receive Switch of Bank Select Messages</b>	Bank Select parameter (SYSTEM/MIDI/RECEIVE MIDI)
<b>Turning On/Off the Receive Switch of the MIDI Messages in Patch/Rhythm Set Mode (for each Tone)</b>	CTRL Rx MIDI page (PATCH/CONTROL)

## Others

<b>Using the Panic Function</b>	Press [SHIFT] + [EXIT].
<b>Adjusting the Tuning</b>	Master parameter (SYSTEM/TUNE/SYSTEM TUNE)
<b>Adjusting the Display Contrast</b>	LCD parameter (SYSTEM/SETUP/SYSTEM SETUP)
<b>Restoring the Temporary Performance/Patch/Rhythm Set to the Factory Setting</b>	<ol style="list-style-type: none"> <li>1. Select a Performance, Patch, or Rhythm Set.</li> <li>2. Press [UTILITY].</li> <li>3. Select "3. INIT" on the UTIL 1 page.</li> <li>4. Select "PRESET."</li> <li>5. Press [ENTER].</li> </ol>
<b>Restoring the XV-88 to the Factory Settings</b>	<ol style="list-style-type: none"> <li>1. Press [UTILITY].</li> <li>2. Select "4. FACTORY RESET" on the "UTIL 2" page.</li> <li>3. Press [ENTER].</li> </ol> <p>If a message of "Internal Write Protect= ON" appears, change it to OFF and press [ENTER] three times.</p>

# Parameter List

## Performance Parameters

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

### COMMON Group (p. 51)

Display	Parameter	Value	
PERFORM NAME	----	Performance name	ASCII Characters (max. 12)
PART KEY RANG	L.Fade	Key fade width lower	0-127 P
	Lower	Key range lower	C-1-G9 P
	Upper	Key range upper	C-1-G9 P
	U.Fade	Key fade width upper	0-127 P
PERFORM MFX CH	MFX Control Channel	Multi-effects control channel	1-16, OFF P

### EFFECTS Group (p. 52)

Display	Parameter	Value	
OUTPUT	Output Assign	Output assign	MFX, OUTPUT A/B, INDIV 1-4, PATCH P
		Output level	0-127 P
	Chorus	Chorus send level	0-127 P
	Reverb	Reverb send level	0-127 P
PERFORM MFX TYPE	Type	Multi-effects type	(*1)
	Source	Multi-effects source	PERFORM, PART 1-16
PERFORM MFX PRM	(*1)	Multi-effects parameters	
PERFORM MFX CTRL	Source	Multi-effects control source 1, 2, 3, 4	(*2)
	Destination	Multi-effects control destination 1, 2, 3, 4	(*3)
	Sens	Multi-effects control sensitivity 1, 2, 3, 4	-63- +63
PERFORM MFX OUT	Output	Multi-effects output assign	A, B
	Dry	Multi-effects dry send level	0-127
	Chorus	Multi-effects chorus send level	0-127
	Reverb	Multi-effects reverb send level	0-127
PERFORM CHO TYPE	Type	Chorus type	OFF, CHORUS, DELAY
	Source	Chorus source	PERFORM, PART 1-16
PERFORM CHO PRM	(*4)	Chorus parameters	
PERFORM CHO OUT	Output Assign	Chorus output assign	A, B
	Level	Chorus level	0-127
	Select	Chorus output select	MAIN, REV, MAIN+REV
PERFORM REV TYPE	Type	Reverb type	OFF, REVERB, SRV ROOM, SRV HALL, SRV PLATE
	Source	Reverb source	PERFORM, PART 1-16
PERFORM REV PRM	(*5)	Reverb parameters	
PERFORM REV OUT	Output Assign	Reverb output assign	A, B
	Level	Reverb level	0-127

\*1: Refer to "Multi-Effects Parameters" (p. 241).

\*2: OFF, CC01-95 (except 32), PITCH BEND, AFTERTOUCH, SYS-CTRL1, SYS-CTRL2, SYS-CTRL3, SYS-CTRL4

\*3: Refer to "Multi-Effects Types" (p. 117).

\*4: Refer to "Chorus Parameters" (p. 248).

\*5: Refer to "Reverb Parameters" (p. 249).

## MIDI Group (p. 52)

Display	Parameter	Value		
MIDI	Channel	MIDI receive channel	1–16	P
	Rx Sw	Receive switch	OFF, ON	P
RxSWITCH	Mute Sw	Mute switch	OFF, MUTE	P
	Bank Select	Receive bank select switch	OFF, ON	P
	Program Change	Receive program change switch	OFF, ON	P
	Vol	Receive volume switch	OFF, ON	P
	Pan	Receive pan switch	OFF, ON	P
	Exp	Receive expression switch	OFF, ON	P
	Hld	Receive hold 1 switch	OFF, ON	P
	Bnd	Receive pitch bend switch	OFF, ON	P
	Mod	Receive modulation switch	OFF, ON	P
	Caf	Receive channel aftertouch switch	OFF, ON	P
	Paf	Receive polyphonic aftertouch switch	OFF, ON	P
VELO CRV	Velocity Curve	Velocity curve	OFF, 1, 2, 3, 4	P
	Phase Lock	Phase lock switch	OFF, ON	P

## PART Group (p. 53)

Display	Parameter	Value		
PATCH	Type	type	PAT, RHY	P
	Group	Patch/Rhythm Set group	USER, CD-A, CD-B, CD-C, CD-D, CD-E, CD-F, CD-G, CD-H, PR-A, PR-B, PR-C, PR-D, PR-E, PR-F, GM, XP-A, XP-B, XP-C, XP-D	P
SETTING	Number	Patch/Rhythm Set number	001–***	P
	Level	Part level	0–127	P
	Pan	Part pan	L64–0–63R	P
	Voice Reserve	Voice reserve	0–63, FULL	P
MODIFY	Cut	Part cutoff frequency offset	-64– +63	P
	Res	Part resonance offset	-64– +63	P
	Atk	Part attack time offset	-64– +63	P
	Rel	Part release time offset	-64– +63	P
PITCH	Velocity Sens	Part velocity sensitivity offset	-63– +63	P
	Octave	Part octave shift	-3– +3	P
	Coarse	Part coarse tune	-48– +48 semitone	P
	Fine	Part fine tune	-50– +50 cent	P
MONO/POL	BendRng	Bend range	0–24, PATCH	P
	Mno/Pol	Part mono/poly	MONO, POLY, PATCH	P
	Legato	Legato switch	OFF, ON, PATCH	P
	Portament Sw:Tm	Portamento switch:time	OFF, ON:0–127, PATCH	P

## INFORMATION Group (p. 56)

Display	Parameter	Value		
INFO	Mod	Modulation information	0–127	P
	Breath	Breath information	0–127	P
	Foot	Foot information	0–127	P
	Vol	Volume information	0–127	P
	Pan	Pan information	L64–0–63R	P
	Exp	Expression information	0–127	P
	Hld	Hold 1 information	0–127	P
	Bnd	Pitch bend information	-128– +127	P
	Aft	Aftertouch information	0–127	P
	Sy1	System control 1 information	0–127/-128– +127	P
	Sy2	System control 2 information	0–127/-128– +127	P
	Sy3	System control 3 information	0–127/-128– +127	P
	Sy4	System control 4 information	0–127/-128– +127	P
	Vo	Voice information	0–128	P

# Parameter List

## Zone Parameters

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

### COMMON Group (p. 58)

Display	Parameter		Value
ZONE COMMON	Key Mode	Key mode	LAYER, SINGLE

### KEY RANGE Group (p. 59)

Display	Parameter		Value
KEY RANG	Lower	Key range lower	C-1-G9 Z
	Upper	Key range upper	C-1-G9 Z

### MIDI Group (p. 59)

Display	Parameter		Value
MIDI	Channel	MIDI transmit channel	1-16 Z
	Tx	Transmit switch	OFF, ON Z
	Local	Local switch	OFF, ON Z

### EXT CONTROL Group (p. 60)

Display	Parameter		Value
EXT P.C	P.C#	External program change number	1-128, NO-SEND Z
	Bank Select MSB	External bank select MSB	0-127 Z
	Bank Select LSB	External bank select LSB	0-127 Z
EXT CTRL	Volume	External volume	0-127, NO-SEND Z
	Pan	External pan	0-127, NO-SEND Z

### ARPEGGIO Group (p. 61)

Display	Parameter		Value
ARPEGGIO	Style	Arpeggio style	(*1)
	Octave Range	Octave range	-3- +3
	Motif	Motif	(*2)
	Beat Pattern	Beat pattern	(*3)
	Accent Rate	Accent rate	0-100%
	Shuffle Rate	Shuffle rate	50-90%
	Key Velocity	Key velocity	REAL, 1-127
	Zone	Arpeggio zone	1-16
	Tempo	Arpeggio tempo	20-250

\*1: 1/4, 1/6, 1/8, 1/12, 1/16, 1/32, PORTAMENTO A, PORTAMENTO B, GLISSANDO, SEQUENCE A, SEQUENCE B, SEQUENCE C, SEQUENCE D, ECHO, SYNTH BASS, HEAVY SLAP, LIGHT SLAP, WALK BASS, RHYTHM GTR 1, RHYTHM GTR 2, RHYTHM GTR 3, RHYTHM GTR 4, RHYTHM GTR 5, 3 FINGER, STRUM GTR UP, STRUM GTR DOWN, STRUM GTR UP&DW, PIANO BACKING, CLAVI CHORD, WALTZ, SWING WALTZ, REGGAE, PERCUSSION, HARP, SHAMISEN, BOUND BALL, RANDOM, BOSSA NOVA, SALSA, MAMBO, LATIN PERCUSSION, SAMBA, TANGO, HOUSE, LIMITLESS

\*2: SINGLE UP, SINGLE DOWN, SINGLE UP&DOWN, SINGLE RANDOM, DUAL UP, DUAL DOWN, DUAL UP&DOWN, DUAL RANDOM, TRIPLE UP, TRIPLE DOWN, TRIPLE UP&DOWN, TRIPLE RANDOM, NOTE ORDER, GLISSANDO, CHORD, BASS+CHORD1-5, BASS+UP1-8, BASS+RND1-3, TOP+UP1-6, BASS+UP+TOP

\*3: 1/4, 1/6, 1/8, 1/12, 1/16 1-3, 1/32 1-3, PORTA-A 01-11, PORTA-B 01-15, SEQ-A 1-7, SEQ-B 1-5, SEQ-C 1, 2, SEQ-D 1-8, ECHO 1-3, MUTE 01-16, STRUM 1-8, REGGAE 1-2, REFRAIN 1-2, PERC 1-4, WALKBS, HARP, BOUND, RANDOM, BOSSA NOVA, SALSA 1-4, MAMBO 1-2, CLAVE, REV CLA, GUILO, AGOGO, SAMBA, TANGO 1-4, HOUSE 1-2

## D BEAM Group (p. 63)

Display	Parameter	Value	
D BEAM CONTROL	Assign	D Beam assign	(*1)
	Output	D Beam output	OFF, INT, MIDI, BOTH
	Polarity	D Beam polarity	STANDARD, REVERSE
D BEAM RANGE	Lower	D Beam range lower	0-127
	Upper	D Beam range upper	0-127
D BEAM SENS	D Beam Sensitivity	D Beam sensitivity	1-10

\*1: OFF, CC01-95 (except 32), PITCH BEND, AFTERTOUCH, OCT UP, OCT DOWN, START/STOP, TAP TEMPO

## INFO Group (p. 64)

Display	Parameter	Value	
INFO	ch	MIDI transmit channel	----
	tx	Transmit switch status	----
	part	Part connection status	----

## Patch Parameters

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

## COMMON Group (p. 69)

Display	Parameter	Value		
PATCH NAME	----	Patch name	ASCII Characters (max. 12)	
PATCH CATEGORY	Category	Patch category	(*1)	
PATCH LVL&PAN	Level	Patch level	0-127	
	Pan	Patch pan	L64-0-63R	
	Analog Feel	Analog feel depth	0-127	
PATCH OCT&TUNE	Octave	Octave shift	-3- +3	
	Coarse	Coarse tune	-48- +48	
	Fine	Fine tune	-50- +50	
	Stretch	Stretch tuning depth	OFF, 1, 2, 3	
PATCH COMMON	Priority	Voice priority	LAST, LOUDEST	
	Output Assign	Output assign	MFX, OUTPUT A/B, INDIV 1-4, TONE	
PATCH TEMPO	Clock Source	Patch clock source	PATCH, SYSTEM	
	Tempo	Patch tempo	20-250	
PATCH MODIFY	Cut	Cutoff frequency offset	-63- +63	
	Res	Resonance offset	-63- +63	
	Atk	Attack time offset	-63- +63	
	Rel	Release time offset	-63- +63	
	Velocity Sens	Velocity sensitivity offset	-63- +63	
TMT VELO CONTROL	TMT Velocity Control	TMT Velocity control switch	OFF, ON, RANDOM	
TMT VEL RANG	L.Fade	Velocity fade width lower	0-127	T
	Lower	Velocity range lower	1-127	T
	Upper	Velocity range upper	1-127	T
	U.Fade	Velocity fade width upper	0-127	T
TMT KEY RANG	L.Fade	Key fade width lower	0-127	T
	Lower	Key range lower	C-1-G9	T
	Upper	Key range upper	C-1-G9	T
	U.Fade	Key fade width upper	0-127	T
STRUCT	Type	Structure type	1-10	T
	Booster	Booster gain	0, +6, +12, +18 dB	T

\*1: NO ASSIGN, AC.PIANO, EL.PIANO, KEYBOARDS, BELL, Mallet, ORGAN, ACCORDION, HARMONICA, AC.GUITAR, EL.GUITAR, DIST.GUITAR, BASS, SYNTH BASS, STRINGS, ORCHESTRA, HIT&STAB, WIND, FLUTE, AC.BRASS, SYNTH BRASS, SAX, HARD LEAD, SOFT LEAD, TECHNO SYNTH, PULSATING, SYNTH FX, OTHER SYNTH, BRIGHT PAD, SOFT PAD, VOX, PLUCKED, ETHNIC, FRETTED, PERCUSSION, SOUND FX, BEAT&GROOVE, DRUMS, COMBINATION

## Parameter List

### EFFECTS Group (p. 75)

Display	Parameter		Value	
OUTPUT	Output Assign	Output assign	MFX, OUTPUT A/B, INDIV 1–4	T
		Output level	0–127	T
	Chorus	Chorus send level	0–127	T
		Reverb	Reverb send level	0–127
PATCH MFX TYPE	Type	Multi-effects type	(*1)	
PATCH MFX PRM	(*1)	Multi-effects parameters		
PATCH MFX CTRL	Source	Multi-effects control source 1, 2, 3, 4	(*2)	
	Destination	Multi-effects control destination 1, 2, 3, 4	(*3)	
	Sens	Multi-effects control sensitivity 1, 2, 3, 4	-63– +63	
PATCH MFX OUT	Output	Multi-effects output assign	A, B	
	Dry	Multi-effects dry send level	0–127	
	Chorus	Multi-effects chorus send level	0–127	
	Reverb	Multi-effects reverb send level	0–127	
PATCH CHO TYPE	Type	Chorus type	OFF, CHORUS, DELAY	
PATCH CHO PRM	(*4)	Chorus parameters		
PATCH CHO OUT	Output Assign	Chorus output assign	A, B	
	Level	Chorus level	0–127	
	Select	Chorus output select	MAIN, REV, MAIN+REV	
PATCH REV TYPE	Type	Reverb type	OFF, REVERB, SRV ROOM, SRV HALL, SRV PLATE	
PATCH REV PRM	(*5)	Reverb parameters		
PATCH REV OUT	Output Assign	Reverb output assign	A, B	
	Level	Reverb level	0–127	

\*1: Refer to “Multi-Effects Parameters” (p. 241).

\*2: OFF, CC01–95 (except 32), PITCH BEND, AFTERTOUCH, SYS-CTRL1, SYS-CTRL2, SYS-CTRL3, SYS-CTRL4

\*3: Refer to “Multi-Effects Types” (p. 117).

\*4: Refer to “Chorus Parameters” (p. 248).

\*5: Refer to “Reverb Parameters” (p. 249).

## CONTROL Group (p. 76)

Display	Parameter	Value	
PATCH KEY MODE	Assign	Key assign	POLY, MONO
	Legato	Solo legato switch	OFF, ON
	Legato Retrigger	Legato retrigger switch	OFF, ON
PATCH PORTAMNT	Sw	Portamento switch	OFF, ON
	Time	Portamento time	0-127
	Mode	Portamento mode	NORMAL, LEGATO
	Type	Portamento type	RATE, TIME
	Start	Portamento start pitch	PITCH, NOTE
CTRL Rx MIDI	Bender	Receive pitch bend switch	OFF, ON T
	Expression	Receive expression switch	OFF, ON T
	Pan Mode	Receive pan mode	CONTINUOUS, KEY-ON T
	Hold-1	Receive hold 1 switch	OFF, ON T
	Redamper	Redamper switch	OFF, ON T
TMT CTRL&BENDER	Envelope Mode	Envelope mode	NO SUSTAIN, SUSTAIN T
	TMT Ctrl Sw	TMT control switch	OFF, ON
MATRIX CTRL SRC	Bend Range	Bend range down	-48-0 semitone
		Bend range up	0- +48 semitone
	Control 1	Matrix control source 1	(*1)
	Control 2	Matrix control source 2	(*1)
	Control 3	Matrix control source 3	(*1)
	Control 4	Matrix control source 4	(*1)
MATRIX CONTROL1	Dest	Matrix control 1 destination 1, 2, 3, 4	(*2)
	Sns	Matrix control 1 sensitivity 1, 2, 3, 4	-63- +63
	Tone	Matrix Control 1 tone 1, 2, 3, 4	OFF, ON, R T
MATRIX CONTROL2	Dest	Matrix control 2 destination 1, 2, 3, 4	(*2)
	Sns	Matrix control 2 sensitivity 1, 2, 3, 4	-63- +63
	Tone	Matrix Control 2 tone 1, 2, 3, 4	OFF, ON, R T
MATRIX CONTROL3	Dest	Matrix control 3 destination 1, 2, 3, 4	(*2)
	Sns	Matrix control 3 sensitivity 1, 2, 3, 4	-63- +63
	Tone	Matrix Control 3 tone 1, 2, 3, 4	OFF, ON, R T
MATRIX CONTROL4	Dest	Matrix control 4 destination 1, 2, 3, 4	(*2)
	Sns	Matrix control 4 sensitivity 1, 2, 3, 4	-63- +63
	Tone	Matrix Control 4 tone 1, 2, 3, 4	OFF, ON, R T

\*1: OFF, CC01-95 (except 32), PITCH BEND, AFTERTOUCH, SYS-CTRL1, SYS-CTRL2, SYS-CTRL3, SYS-CTRL4, VELOCITY, KEYFOLLOW, TEMPO, LFO1, LFO2, PITCH ENV, TVF ENV, TVA ENV

\*2: OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1, MFX CTRL2, MFX CTRL3, MFX CTRL4

## WAVE Group (p. 81)

Display	Parameter	Value	
WAVE	Group	Wave group	INT, XP-A, XP-B, XP-C, XP-D T
	Number	Wave number (L, R)	0001-1083 T
	Gain	Wave gain	-6, 0, +6, +12 dB T
	Switch	Tone switch	OFF, ON T
	Wave Tempo Sync	Wave tempo sync	OFF, ON T
FXM	Switch	FXM switch	OFF, ON T
	Color	FXM color	1-4 T
	Depth	FXM depth	1-17 T
TONE DELAY	Mode	Tone delay mode	NORMAL, HOLD, KEY-OFF-NORMAL, KEY-OFF-DECAY T
	Time	Tone delay time	0-127(*1) T

\*1: It can also be set in terms of notes.

(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)

# Parameter List

## LFO Group (p. 83)

Display	Parameter	Value	
LFO1 WAVE	Form	LFO waveform	SIN, TRI, SAW-UP, SAW-DW, SQR, RND, UP, DW, TRP, S&H, CHS
	Offset	LFO Level offset	-100, -50, 0, +50, +100
	Rate	LFO rate	0-127(*1)
	Detune	LFO rate detune	0-127
	KeySync	LFO key sync	OFF, ON
LFO1 FADE	Fade Mode	LFO fade mode	ON-IN, ON-OUT, OFF-IN, OFF-OUT
	Fade Time	LFO fade time	0-127
LFO1 DELAY	Delay Time	LFO delay time	0-127
	Delay Keyfollow	LFO delay time keyfollow	-100- +100(*2)
LFO2	(*3)		
LFO DEPTH1:2	Pitch	Pitch LFO depth1, 2	-63- +63
	TVF	TVF LFO depth 1, 2	-63- +63
	TVA	TVA LFO depth 1, 2	-63- +63
	Pan	Pan LFO depth 1, 2	-63- +63

\*1: It can also be set in terms of notes.

\*2: -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100

\*3: Same as LFO1.

## PITCH Group (p. 86)

Display	Parameter	Value	
PITCH	Coarse	Coarse tune	-48- +48 semitone
	Fine	Fine tune	-50- +50 cent
	Random	Random pitch depth	0-1200 cent (*1)
	Keyfollow	Pitch keyfollow	-200- +200 (*2)
PCH ENVELOPE	Depth	Pitch envelope depth	-12- +12
	V-Sens	Pitch envelope velocity sensitivity	-63- +63
	Time Keyfollow	Pitch envelope time keyfollow	-100- +100 (*3)
	V-T1	Pitch envelope time 1 velocity sensitivity	-63- +63
	V-T4	Pitch envelope time 4 velocity sensitivity	-63- +63
	L0	Pitch envelope level 0	-63- +63
	T1, T2, T3, T4	Pitch envelope time 1, 2, 3, 4	0-127
	L1, L2, L3, L4	Pitch envelope level 1, 2, 3, 4	-63- +63

\*1: 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

\*2: -200, -190, -180, -170, -160, -150, -140, -130, -120, -110, -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100, +110, +120, +130, +140, +150, +160, +170, +180, +190, +200

\*3: -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100

## TVF Group (p. 87)

Display	Parameter	Value	
TVF FILTER	Type	Filter type	OFF, LPF, BPF, HPF, PKG, LPF2, LPF3
	Cutoff	Cutoff frequency	0–127
	Resonance	Resonance	0–127
	Keyfollow	Cutoff frequency keyfollow	-200– +200 (*1)
TVF VELOCITY	V-Cutoff	Cutoff frequency velocity sensitivity	-63– +63
	V-Curve	Cutoff frequency velocity curve	FIXED, 1–7
	V-Resonance	Resonance velocity sensitivity	-63– +63
TVF ENVELOPE	Depth	TVF envelope depth	-63– +63
	V-Sens	TVF envelope velocity sensitivity	-63– +63
	V-Curve	TVF envelope velocity curve	FIXED, 1–7
	Time KF	TVF envelope time keyfollow	-100– +100 (*2)
	V-T1	TVF envelope time 1 velocity sensitivity	-63– +63
	V-T4	TVF envelope time 4 velocity sensitivity	-63– +63
	L0	TVF envelope level 0	0–127
	T1, T2, T3, T4 L1, L2, L3, L4	TVF envelope time 1, 2, 3, 4 TVF envelope level 1, 2, 3, 4	0–127 0–127

\*1: -200, -190, -180, -170, -160, -150, -140, -130, -120, -110, -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100, +110, +120, +130, +140, +150, +160, +170, +180, +190, +200

\*2: -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100

## TVA Group (p. 90)

Display	Parameter	Value	
TVA	Level	Tone level	0–127
	Pan	Tone pan	L64–0–63R
	V-Sens	TVA envelope velocity sensitivity	-63– +63
	V-Curve	TVA envelope velocity curve	FIXED, 1–7
BIAS	Bias	Bias level	-100– +100 (*1)
	Point	Bias point	C-1–G9
	Direction	Bias direction	LOWER, UPPER, LOWER&UPPER, ALL
PAN MODULATE	Keyfollow	Pan keyfollow	-100– +100 (*1)
	Random	Random pan depth	0–63
	Alternate	Alternate pan depth	L63–0–63R
TVA TIME ENV	V-T1	TVA envelope time 1 velocity sensitivity	-63– +63
	V-T4	TVA envelope time 4 velocity sensitivity	-63– +63
	Time Keyfollow	TVA envelope time keyfollow	-100– +100 (*1)
TVA ENVELOPE	T1, T2, T3, T4 L1, L2, L3	TVA envelope time 1, 2, 3, 4 TVA envelope level 1, 2, 3	0–127 0–127

\*1: -100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100

## Rhythm Set Parameters

\* Parameters that can be set independently for each Rhythm Tone are indicated by “T.”

\* Parameters that can be set independently for each Wave comprising the Rhythm Tone are indicated by “W.”

## COMMON Group (p. 96)

Display	Parameter	Value	
RHYTHM NAME	----	Rhythm set name	ASCII Characters (max. 12)
RHYTHM COMMON	Level	Rhythm set level	0–127
	Output Assign	Output assign	MFX, OUTPUT A/B, INDIV 1–4, TONE
RHYTHM TEMPO	Clock Source	Rhythm set clock source	RHYTHM, SYSTEM
	Tempo	Rhythm set tempo	20–250

## Parameter List

### EFFECTS Group (p. 97)

Display	Parameter		Value	
OUTPUT	Output Assign	Output assign	MFX, OUTPUT A/B, INDIV 1–4	T
		Output level	0–127	T
	Chorus	Chorus send level	0–127	T
		Reverb	Reverb send level	0–127
RHYTHM MFX TYPE	Type	Multi-effects type	(*1)	
RHYTHM MFX PRM	(*1)	Multi-effects parameters		
RHYTHM MFX CTRL	Source	Multi-effects control source 1, 2, 3, 4	(*2)	
	Destination	Multi-effects control destination 1, 2, 3, 4	(*3)	
RHYTHM MFX OUT	Sens	Multi-effects control sensitivity 1, 2, 3, 4	-63– +63	
	Output	Multi-effects output assign	A, B	
	Dry	Multi-effects dry send level	0–127	
	Chorus	Multi-effects chorus send level	0–127	
RHYTHM CHO TYPE	Type	Reverb	0–127	
		Chorus type	OFF, CHORUS, DELAY	
RHYTHM CHO PRM	(*4)	Chorus parameters		
RHYTHM CHO OUT	Output Assign	Chorus output assign	A, B	
	Level	Chorus level	0–127	
	Select	Chorus output select	MAIN, REV, MAIN+REV	
RHYTHM REV TYPE	Type	Reverb type	OFF, REVERB, SRV ROOM, SRV HALL, SRV PLATE	
RHYTHM REV PRM	(*5)	Reverb parameters		
RHYTHM REV OUT	Output Assign	Reverb output assign	A, B	
	Level	Reverb level	0–127	

\*1: Refer to “Multi-Effects Parameters” (p. 241).

\*2: OFF, CC01–95 (except 32), PITCH BEND, AFTERTOUCHE, SYS-CTRL1, SYS-CTRL2, SYS-CTRL3, SYS-CTRL4

\*3: Refer to “Multi-Effects Types” (p. 117).

\*4: Refer to “Chorus Parameters” (p. 248).

\*5: Refer to “Reverb Parameters” (p. 249).

### CONTROL Group (p. 97)

Display	Parameter		Value	
CONTROL	Bend Range	Bend range	0–48	T
	Envelope Mode	Envelope mode	NO-SUS, SUSTAIN	T
	Mute Group	Mute group	OFF, 1–31	T
	Assign Type	Assign type	MULTI, SINGLE	T
Rx MIDI	Expression	Receive expression switch	OFF, ON	T
	Pan	Receive pan mode	CONTINUOUS, KEY-ON	T
	Hold-1	Receive hold 1 switch	OFF, ON	T

### WAVE Group (p. 98)

Display	Parameter		Value	
TONE NAME	----	Tone name	ASCII Characters (max. 12)	T
WMT WAVE	Group	Wave group	INT, XP-A, XP-B, XP-C, XP-D	T
	Number	Wave number (L, R)	0001–1083	W
	Gain	Wave gain	-6, 0, 6, 12 dB	W
	Level	Wave level	0–127	W
	Sw	Wave switch	OFF, ON	W
	Tempo Sync	Wave tempo sync	OFF, ON	W
WMT VEL RANG	L.Fade	Velocity fade width lower	0–127	W
	Lower	Velocity range lower	1–127	W
	Upper	Velocity range upper	1–127	W
	U.Fade	Velocity fade width upper	0–127	W
VELO CONTROL	WMT Velocity Control	WMT velocity control switch	OFF, ON, RANDOM	T
WMT PAN	Pan	Wave pan	L64–0–63R	W
	Random	Random pan switch	OFF, ON	W
	Alternate	Alternate pan switch	OFF, ON	W
WMT TUNE	Coarse	Coarse tune	-48– +48 semitone	W
	Fine	Fine tune	-50– +50 cent	W
WMT FXM	Switch	FXM switch	OFF, ON	W
	Color	FXM color	1–4	W
	Depth	FXM depth	1–17	W

## PITCH Group (p. 100)

Display	Parameter	Value	
PITCH	Coarse	Coarse tune	-48– +48 semitone
	Fine	Fine tune	-50– +50 cent
	Random	Random pitch depth	0–1200 cent (*1)
PCH ENVELOPE	Depth	Pitch envelope depth	-12– +12
	V-Sens	Pitch envelope velocity sensitivity	-63– +63
	V-T1	Pitch envelope time 1 velocity sensitivity	-63– +63
	V-T4	Pitch envelope time 4 velocity sensitivity	-63– +63
	L0	Pitch envelope level 0	-63– +63
	T1, T2, T3, T4	Pitch envelope time 1, 2, 3, 4	0–127
	L1, L2, L3, L4	Pitch envelope level 1, 2, 3, 4	-63– +63

\*1: 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

## TVF Group (p. 101)

Display	Parameter	Value	
TVF FILTER	Type	Filter type	OFF, LPF, BPF, HPF, PKG, LPF2, LPF3
	Cutoff	Cutoff frequency	0–127
	Resonance	Resonance	0–127
TVF VELOCITY	V-Cutoff	Cutoff frequency velocity sensitivity	-63– +63
	V-Curve	Cutoff frequency velocity curve	FIXED, 1–7
	V-Resonance	Resonance velocity sensitivity	-63– +63
TVF ENVELOPE	Depth	TVF Envelope depth	-63– +63
	V-Sens	TVF envelope velocity sensitivity	-63– +63
	V-Curve	TVF envelope velocity curve	FIXED, 1–7
	V-T1	TVF envelope time 1 velocity sensitivity	-63– +63
	V-T4	TVF envelope time 4 velocity sensitivity	-63– +63
	L0	TVF envelope level 0	0–127
	T1, T2, T3, T4	TVF envelope time 1, 2, 3, 4	0–127
	L1, L2, L3, L4	TVF envelope level 1, 2, 3, 4	0–127

## TVA Group (p. 103)

Display	Parameter	Value	
TVA	Level	Rhythm tone level	0–127
	Pan	Rhythm tone pan	L64–0–63R
	Random	Random pan depth	0–63
	Alternate	Alternate pan depth	L63–0–63R
TVA VELOCITY	Velocity Sens	TVA envelope velocity sensitivity	-63– +63
	Velocity Curve	TVA envelope velocity curve	FIXED, 1–7
TVA TIME ENV	V-T1	TVA envelope time 1 velocity sensitivity	-63– +63
	V-T4	TVA envelope time 4 velocity sensitivity	-63– +63
TVA ENVELOPE	T1, T2, T3, T4	TVA envelope time 1, 2, 3, 4	0–127
	L1, L2, L3	TVA envelope level 1, 2, 3	0–127

# Parameter List

## GM Mode Parameters

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

### EFFECTS Group (p. 194)

Display	Parameter	Value		
PART OUTPUT	Output Assign	Output assign	OUTPUT A/B	P
		Output level	0–127	P
	Chorus	Chorus send level	0–127	P
GM CHORUS	Reverb	Reverb send level	0–127	P
	Type	Chorus type	CHORUS 1–4, FB CHORUS, FLANGER	
	Rate	Chorus rate	0–127	
	Dpth	Chorus depth	0–127	
	Fbk	Chorus feedback level	0–127	
	Rev	Chorus reverb send level	0–127	
	Out	Chorus output assign	A, B	
GM REVERB	Type	Reverb type	SMALL ROOM, MEDIUM ROOM, LARGE ROOM, MEDIUM HALL, LARGE HALL, PLATE	
	Time	Reverb time	0–127	
	Out	Reverb output assign	A, B	

### MIDI Group (p. 195)

Display	Parameter	Value		
PART MIDI	Channel	MIDI receive channel	1–16, OFF	P
	Rx Sw	Receive switch	OFF, ON	P
	Mute Sw	Mute switch	OFF, MUTE	P

### PART Group (p. 196)

Display	Parameter	Value		
PATCH	Type	Part type	PAT, RHY	
	Number	GM patch/rhythm set number	001–256/001–009	P
SETTING	Volume	Part volume	0–127	P
	Pan	Part pan	L64–0–63R	P
	Coarse	Part coarse tune	-48– +48 semitone	P
MODIFY	Fine	Part fine tune	-50– +50 cent	P
	Cutoff	Part cutoff frequency offset	-64– +63	P
	Resonance	Part resonance offset	-64– +63	P
	Attack	Part attack time offset	-64– +63	P
	Release	Part release time offset	-64– +63	P
CONTROL	BendRng	Bend range	0–24	P
	Mono/Poly	Part mono/poly	MONO, POLY	P
	Porta Sw:Time	Part portamento switch:time	OFF, ON : 0–127	P

### INFO Group (p. 197)

Display	Parameter	Value		
INFO	Mod	Modulation information	0–127	P
	Breath	Breath information	0–127	P
	Foot	Foot information	0–127	P
	Vol	Volume information	0–127	P
	Pan	Pan information	L64–0–63R	P
	Exp	Expression information	0–127	P
	Hold	Hold 1 information	0–127	P
	Bend	Pitch bend information	-128– +127	P
	Aftertouch	Aftertouch information	0–127	P
	Voices	Voice information	0–128	P

## Multi-Effects Parameters

### 01: STEREO EQ (p. 119)

Parameter		Value
LowFreq	Low frequency	200, 400 Hz
LowGain	Low gain	-15– +15 dB
Hi Freq	High frequency	4000, 8000 Hz
Hi Gain	High gain	-15– +15 dB
Mid1 Freq	Middle 1 frequency	200–8000Hz (*1)
Mid1 Q	Middle 1 Q	0.5, 1.0, 2.0, 4.0, 8.0
Mid1 Gain	Middle 1 gain	-15– +15 dB
Mid2 Freq	Middle 2 frequency	200–8000 Hz (*1)
Mid2 Q	Middle 2 Q	0.5, 1.0, 2.0, 4.0, 8.0
Mid2 Gain	Middle 2 gain	-15– +15 dB
Lev	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz

### 02: OVERDRIVE (p. 119)

Parameter		Value
Drive	Drive	0–127
Level	Output level	0–127
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Amp Type	Amp simulator type	SMALL, BUILT-IN, 2-STACK, 3-STACK
Pan	Output pan	L64–0–63R

### 03: DISTORTION (p. 120)

Parameter		Value
Drive	Drive	0–127
Level	Output level	0–127
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Amp Type	Amp simulator type	SMALL, BUILT-IN, 2-STACK, 3-STACK
Pan	Output pan	L64–0–63R

### 04: PHASER (p. 120)

Parameter		Value
Manual	Manual	100–8000 Hz
Rate	Rate	0.05–10.00 Hz
Depth	Depth	0–127
Res	Resonance	0–127
Mix	Mix level	0–127
Pan	Output pan	L64–0–63R
Level	Output level	0–127

### 05: SPECTRUM (p. 121)

Parameter		Value
Band 1	Band 1 gain	-15– +15 dB
Band 2	Band 2 gain	-15– +15 dB
Band 3	Band 3 gain	-15– +15 dB
Band 4	Band 4 gain	-15– +15 dB
Band 5	Band 5 gain	-15– +15 dB
Band 6	Band 6 gain	-15– +15 dB
Band 7	Band 7 gain	-15– +15 dB
Band 8	Band 8 gain	-15– +15 dB
Q	Q	0.5, 1.0, 2.0, 4.0, 8.0
Pan	Output pan	L64–0–63R
Level	Output level	0–127

### 06: ENHANCER (p. 121)

Parameter		Value
Sens	Sensitivity	0–127
Mix	Mix level	0–127
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Level	Output level	0–127

### 07: AUTO WAH (p. 122)

Parameter		Value
Filter	Filter type	LPF, BPF
Sens	Sensitivity	0–127
Manual	Manual	0–127
Peak	Peak	0–127
Rate	Rate	0.05–10.00 Hz
Depth	Depth	0–127
Level	Output level	0–127

### 08: ROTARY (p. 122)

Parameter		Value
LowSlow	Low frequency slow rate	0.05–10.00 Hz
LowFast	Low frequency fast rate	0.05–10.00 Hz
LowAccl	Low frequency acceleration	0–15
Low Lvl	Low frequency level	0–127
Hi Slow	High frequency slow rate	0.05–10.00 Hz
Hi Fast	High frequency fast rate	0.05–10.00 Hz
Hi Accl	High frequency acceleration	0–15
Hi Lvl	High frequency level	0–127
Separation	Separation	0–127
Speed	Speed	SLOW, FAST
Level	Output level	0–127

### 09: COMPRESSOR (p. 123)

Parameter		Value
Attack	Attack time	0–127
Sustain	Sustain	0–127
Post Gain	Post gain	0, +6, +12, +18 dB
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Pan	Output pan	L64–0–63R
Level	Output level	0–127

## Parameter List

### 10: LIMITER (p. 123)

Parameter		Value
Thresh	Threshold level	0–127
Ratio	Compression ratio	1.5:1, 2:1, 4:1, 100:1
Release	Release time	0–127
Gain	Post gain	0, +6, +12, +18 dB
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Pan	Output pan	L64–0–63R
Level	Output level	0–127

### 11: HEXA-CHORUS (p. 124)

Parameter		Value
Pre Dly	Pre delay time	0.0–100.0 ms
Rate	Rate	0.05–10.00 Hz
Depth	Depth	0–127
Dly Dev	Pre delay deviation	0–20
Dpt Dev	Depth deviation	-20– +20
Pan Dev	Pan deviation	0–20
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

### 12: TREMOLO CHORUS (p. 124)

Parameter		Value
Pre Dly	Pre delay time	0.0–100.0 ms
ChoRate	Chorus rate	0.05–10.00 Hz
Cho Dpt	Chorus depth	0–127
Phase	Tremolo phase	0–180 degree
TrmRate	Tremolo rate	0.05–10.00 Hz
Trm Sep	Tremolo separation	0–127
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

### 13: SPACE-D (p. 125)

Parameter		Value
Pre Dly	Pre delay time	0.0–100.0 ms
Rate	Rate	0.05–10.00 Hz
Depth	Depth	0–127
Phase	Phase	0–180 degree
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

### 14: STEREO CHORUS (p. 125)

Parameter		Value
Pre Dly	Pre delay time	0.0–100.0 ms
Rate	Rate	0.05–10.00 Hz
Depth	Depth	0–127
Phase	Phase	0–180 degree
Filter Type	Filter type	OFF, LPF, HPF
Cutoff	Cutoff frequency	200–8000 Hz (*1)
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz

### 15: STEREO FLANGER (p. 126)

Parameter		Value
Pre Dly	Pre delay time	0.0–100.0 ms
Rate	Rate	0.05–10.00 Hz
Depth	Depth	0–127
Fbk	Feedback level	-98– +98%
Phase	Phase	0–180 degree
Filter Type	Filter type	OFF, LPF, HPF
Cutoff	Cutoff frequency	200–8000 Hz (*1)
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz

### 16: STEP FLANGER (p. 126)

Parameter		Value
Pre Dly	Pre delay time	0.0–100.0 ms
Rate	Rate	0.05–10.00 Hz
Depth	Depth	0–127
Fbk	Feedback level	-98– +98%
Phase	Phase	0–180 degree
Step Rate	Step rate	0.10–20.00 Hz, note
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

### 17: STEREO DELAY (p. 127)

Parameter		Value
Delay L	Delay time left	0.0–500.0 ms
Delay R	Delay time right	0.0–500.0 ms
Fbk	Feedback level	-98– +98%
Mode	Feedback mode	NORMAL, CROSS
Phase L	Feedback phase left	NORMAL, INVERT
Phase R	Feedback phase right	NORMAL, INVERT
HF Damp	HF damp	200–8000 Hz, BYPASS (*1)
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

## 18: MODULATION DELAY (p. 128)

Parameter		Value
Delay L	Delay time left	0.0–500.0 ms
Delay R	Delay time right	0.0–500.0 ms
Fbk	Feedback level	-98– +98%
Mode	Feedback mode	NORMAL, CROSS
Rate	Rate	0.05–10.00 Hz
Depth	Depth	0–127
Phase	Phase	0–180 degree
HF Damp	HF damp	200–8000 Hz, BYPASS (*1)
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

## 19: TRIPLE TAP DELAY (p. 129)

Parameter		Value
Delay C	Delay time center	200–1000 ms, note
Delay L	Delay time left	200–1000 ms, note
Delay R	Delay time right	200–1000 ms, note
Fbk	Feedback level	-98– +98%
Level C	Center level	0–127
Level L	Left level	0–127
Level R	Right level	0–127
HF Damp	HF damp	200–8000 Hz, BYPASS (*1)
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

## 20: QUADRUPLE TAP DELAY (p. 130)

Parameter		Value
Delay 1	Delay time 1	200–1000 ms, note
Delay 2	Delay time 2	200–1000 ms, note
Delay 3	Delay time 3	200–1000 ms, note
Delay 4	Delay time 4	200–1000 ms, note
Level 1	Level 1	0–127
Level 2	Level 2	0–127
Level 3	Level 3	0–127
Level 4	Level 4	0–127
Fbk	Feedback level	-98– +98%
HF Damp	HF damp	200–8000 Hz, BYPASS (*1)
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

## 21: TIME CONTROL DELAY (p. 131)

Parameter		Value
Delay	Delay time	200–1000 ms
Accel	Acceleration	0–15
Fbk	Feedback level	-98– +98%
HF Damp	HF damp	200–8000 Hz, BYPASS (*1)
Pan	Output pan	L64–0–63R
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

## 22: 2VOICE PITCH SHIFTER (p. 131)

Parameter		Value
CoarseA	Coarse pitch A	-24– +12 semitone
Fine A	Fine pitch A	-100– +100 cent
Pan A	Output pan A	L64–0–63R
PreDlyA	Pre delay time A	0.0–500.0 ms
CoarseB	Coarse pitch B	-24– +12 semitone
Fine B	Fine pitch B	-100– +100 cent
Pan B	Output pan B	L64–0–63R
PreDlyB	Pre delay time B	0.0–500.0 ms
Mode	Pitch shifter mode	1, 2, 3, 4, 5
Lvl Bal	Level balance	A100:0B–A0:100B
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

## 23: FBK PITCH SHIFTER (p. 132)

Parameter		Value
Coarse	Coarse pitch	-24– +12 semitone
Fine	Fine pitch	-100– +100 cent
Fbk	Feedback level	-98– +98%
Pre Dly	Pre delay time	0.0–500.0 ms
Mode	Pitch shifter mode	1, 2, 3, 4, 5
Pan	Output pan	L64–0–63R
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

## 24: REVERB (p. 133)

Parameter		Value
Type	Reverb type	ROOM1, ROOM2, STAGE1, STAGE2, HALL1, HALL2
Pre Dly	Pre delay time	0.0–100.0 ms
Time	Reverb time	0–127
HF Damp	HF damp	200–8000 Hz, BYPASS (*1)
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

## Parameter List

### 25: GATED REVERB (p. 133)

Parameter		Value
Type	Gated Reverb type	NORMAL, REVERSE, SWEEP1, SWEEP2
Pre Dly	Pre delay time	0.0–100.0 ms
Gate Time	Gate time	5–500 ms
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

### 26: OVERDRIVE→CHORUS (p. 134)

Parameter		Value
OD Drive	Drive	0–127
OD Pan	Overdrive pan	L64–0–63R
Cho Dly	Chorus pre delay time	0.0–100.0 ms
ChoRate	Chorus Rate	0.05–10.00 Hz
Chorus Depth	Chorus depth	0–127
Chorus Balance	Chorus balance	D100:0W–D0:100W
Level	Output level	0–127

### 27: OVERDRIVE→FLANGER (p. 134)

Parameter		Value
OD Drive	Drive	0–127
OD Pan	Overdrive pan	L64–0–63R
Flg Dly	Flanger pre delay time	0.0–100.0 ms
FlgRate	Flanger rate	0.05–10.00 Hz
Flg Dpt	Flanger depth	0–127
Flg Fbk	Flanger feedback level	-98– +98%
Flanger Balance	Flanger balance	D100:0W–D0:100W
Level	Output level	0–127

### 28: OVERDRIVE→DELAY (p. 135)

Parameter		Value
OD Drive	Drive	0–127
OD Pan	Overdrive pan	L64–0–63R
DlyTime	Delay time	0.0–500.0 ms
Dly Fbk	Delay feedback level	-98– +98%
Delay HF Damp	Delay HF damp	200–8000 Hz, BYPASS (*1)
Delay Balance	Delay balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

### 29: DISTORTION→CHORUS (p. 135)

The parameters are essentially the same as “26: OVERDRIVE→CHORUS,” with the exception of the following two.

OD Drive→Dist Drive, OD Pan→Dist Pan  
OD Drive→Dist Drive, OD Pan→Dist Pan

### 30: DISTORTION→FLANGER (p. 135)

The parameters are essentially the same as “27: OVERDRIVE→FLANGER,” with the exception of the following two.

OD Drive→Dist Drive, OD Pan→Dist Pan  
OD Drive→Dist Drive, OD Pan→Dist Pan

### 31: DISTORTION→DELAY (p. 135)

The parameters are essentially the same as “28: OVERDRIVE→DELAY,” with the exception of the following two.

OD Drive→Dist Drive, OD Pan→Dist Pan  
OD Drive→Dist Drive, OD Pan→Dist Pan

### 32: ENHANSER→CHORUS (p. 136)

Parameter		Value
Enhancer Sens	Enhancer sensitivity	0–127
Enhancer Mix	Enhancer mix level	0–127
Cho Dly	Chorus pre delay time	0.0–100.0 ms
ChoRate	Chorus rate	0.05–10.00 Hz
Chorus Depth	Chorus depth	0–127
Chorus Balance	Chorus balance	D100:0W–D0:100W
Level	Output level	0–127

### 33: ENHANSER→FLANGER (p. 136)

Parameter		Value
Enhancer Sens	Enhancer sensitivity	0–127
Enhancer Mix	Enhancer mix level	0–127
Flg Dly	Flanger pre delay time	0.0–100.0 ms
FlgRate	Flanger rate	0.05–10.00 Hz
Flg Dpt	Flanger depth	0–127
Flg Fbk	Flanger feedback level	-98– +98%
Flanger Balance	Flanger balance	D100:0W–D0:100W
Level	Output level	0–127

### 34: ENHANSER→DELAY (p. 137)

Parameter		Value
Enhancer Sens	Enhancer sensitivity	0–127
Enhancer Mix	Enhancer mix level	0–127
Delay	Delay time	0.0–500.0 ms
Dly Fbk	Delay feedback level	-98– +98%
Delay HF Damp	Delay HF damp	200–8000 Hz, BYPASS (*1)
Delay Balance	Delay balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

### 35: CHORUS→DELAY (p. 137)

Parameter		Value
Cho Dly	Chorus pre delay time	0.0–100.0 ms
ChoRate	Chorus rate	0.05–10.00 Hz
Cho Dpt	Chorus depth	0–127
Cho Bal	Chorus balance	D100:0W–D0:100W
DlyTime	Delay time	0.0–500.0 ms
Dly Fbk	Delay Feedback level	-98– +98%
Delay HF Damp	Delay HF damp	200–8000 Hz, BYPASS (*1)
Delay Balance	Delay balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

### 36: FLANGER→DELAY (p. 138)

Parameter		Value
Flg Dly	Flanger pre delay time	0.0–100.0 ms
FlgRate	Flanger rate	0.05–10.00 Hz
Flg Dpt	Flanger depth	0–127
Flg Fbk	Flanger feedback level	-98– +98%
Flg Bal	Flanger balance	D100:0W–D0:100W
DlyTime	Delay time	0.0–500.0 ms
Dly Fbk	Delay feedback level	-98– +98%
HF Damp	HF damp	200–8000 Hz, BYPASS (*1)
Delay Balance	Delay balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

### 37: CHORUS→FLANGER (p. 138)

Parameter		Value
Cho Dly	Chorus pre delay time	0.0–100.0 ms
ChoRate	Chorus rate	0.05–10.00 Hz
Cho Dpt	Chorus depth	0–127
Cho Bal	Chorus balance	D100:0W–D0:100W
Flg Dly	Flanger pre delay time	0.0–100.0 ms
FlgRate	Flanger rate	0.05–10.00 Hz
Flg Dpt	Flanger depth	0–127
Flg Fbk	Flanger feedback level	-98– +98%
Flanger Balance	Flanger balance	D100:0W–D0:100W
Level	Output level	0–127

### 38: CHORUS/DELAY (p. 139)

Refer to “35: CHORUS→DELAY.”

### 39: FLANGER/DELAY (p. 139)

Refer to “36: FLANGER→DELAY.”

### 40: CHORUS/FLANGER (p. 139)

Refer to “37: CHORUS→FLANGER.”

### 41: STEREO PHASER (p. 139)

Parameter		Value
Type	Phaser type	1, 2
Mode	Mode	4-STAGE, 8-STAGE
Pol	Polarity	INVERSE, SYNCHRO
Man	Manual	0–127
Rate	Phaser rate	0.05–10.00 Hz, note
Depth	Phaser depth	0–127
Res	Phaser resonance	0–127
X-Fbk	Cross feedback level	-98– +98%
Step Rate	Step rate switch:Step rate	OFF, ON:0.1–20.0 Hz, note
Mix	Mix level	0–127
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Level	Output level	0–127

### 42: KEYSYNC FLANGER (p. 140)

Parameter		Value
Pre Dly	Pre delay time	0.0–100 ms
Rate	LFO rate	0.05–10.00 Hz, note
Depth	LFO depth	0–127
Fbk	Feedback	-98– +98%
Phase	Phase	0–180 degree
Filter	Filter type	OFF, LPF, HPF
Cutoff	Cutoff frequency	200–8000 Hz (*1)
Step Rate	Step rate switch:Step rate	OFF, ON:0.1–20.0 Hz, note
Keysync	Keysync switch	OFF, ON
Thre	Keysync threshold	0–127
Keysync Phase	Keysync phase	0–360 degree
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz

### 43: FORMANT FILTER (p. 141)

Parameter		Value
Drive	Drive	OFF, ON:0–127
Vowel	Vowel 1:2	a, e, i, o, u
Rate	Rate	0.05–10.00 Hz, note
Depth	Depth	0–127
Keysync	Keysync switch	OFF, ON
Threshold	Keysync threshold	0–127
Manual	Manual	0–100
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Pan	Output pan	L64–63R
Level	Output level	0–127

### 44: RING MODULATOR (p. 142)

Parameter		Value
Freq	Frequency	0–127
Mod	Modulator	OFF, SRC, A, B
Mon	Modulator monitor	OFF, ON
Sens	Sensitivity	0–127
Pol	Polarity	UP, DOWN
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

## Parameter List

### 45: MULTI TAP DELAY (p. 143)

Parameter		Value
Delay 1	Delay time 1	0–1800 ms, note
Delay 2	Delay time 2	0–1800 ms, note
Delay 3	Delay time 3	0–1800 ms, note
Delay 4	Delay time 4	0–1800 ms, note
Pan 1	Output pan 1	L64–63R
Pan 2	Output pan 2	L64–63R
Pan 3	Output pan 3	L64–63R
Pan 4	Output pan 4	L64–63R
Level 1	Level 1	0–127
Level 2	Level 2	0–127
Level 3	Level 3	0–127
Level 4	Level 4	0–127
Fbk	Feedback	-98– +98%
HF Damp	HF Damp	200–8000 Hz, BYPASS (*1)
LoG	Low gain	-15– +15 dB
HiG	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Lev	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

### 46: REVERSE DELAY (p. 144)

Parameter		Value
Delay 1	Delay time 1	0–900 ms, note
Delay 2	Delay time 2	0–900 ms, note
Delay 3	Delay time 3	0–900 ms, note
Delay 4	Delay time 4	0–900 ms, note
Feedback 1:4	Feedback 1:4	-98– +98%
HF Damp 1:4	HF Damp 1:4	200–8000 Hz, BYPASS (*1)
Thr	Threshold level	0–127
Pan 1:2:3	Output pan 1:2:3	L64–63R
Level 1:2:3	Level 1:2:3	0–127
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

### 47: SHUFFLE DELAY (p. 145)

Parameter		Value
Delay	Delay time	0–1800 ms, note
Shuffle	Shuffle rate	0–100%
Accel	Acceleration	0–15
Fbk	Feedback	-98– +98%
HF Damp	HF Damp	200–8000 Hz, BYPASS (*1)
Pan A	Pan A	L64–63R
Pan B	Pan B	L64–63R
Level Balance	Level balance	A100:0B–A0:100B
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

### 48: 3D DELAY (p. 146)

Parameter		Value
Delay C	Delay time center	0–1800 ms, note
Delay L	Delay time left	0–1800 ms, note
Delay R	Delay time right	0–1800 ms, note
Fbk	Feedback	-98– +98%
Level C	Level center	0–127
Level L	Level left	0–127
Level R	Level right	0–127
HF Damp	HF Damp	200–8000 Hz, BYPASS (*1)
Out	Output mode	SPEAKER, PHONES
Lo G	Low gain	-15– +15 dB
Hi G	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Lev	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

### 49: PITCH SHIFTER (p. 147)

Parameter		Value
Coarse 1:2:3	Coarse pitch 1:2:3	-24– +12
Fine 1:2:3	Fine pitch 1:2:3	-100– +100 cent
Pre Delay 1:2:3	Pre Delay time 1:2:3	0.0–500 ms
Fbk 1:2:3	Feedback level1:2:3	-98– +98%
Pan 1:2:3	Output pan 1:2:3	L64–63R
Level 1:2:3	Level 1:2:3	0–127
Mode	Pitch shifter mode	1, 2, 3, 4, 5
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

### 50: LOFI COMPRESS (p. 147)

Parameter		Value
Type	LoFi type	1–9
Pre Filter	Pre filter type	TYPE1–6
Post Filter 1	Post filter 1 type	TYPE1–6
Post Filter 2	Post filter 2 type	OFF, LPF, HPF:(*1)
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Pan	Output pan	L64–63R
Level	Output level	0–127

\*1: Post filter cutoff frequency:200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz

**51: LOFI NOISE (p. 148)**

Parameter		Value
Type	LoFi type	1–9
Post Fltr	Post Filter type	OFF, LPF, HPF:(*1)
Radio Detune	Radio detune	0–127:0–127 (*2)
Disc:LPF:Lev	Disc:LPF:Level	*3:*4:*5
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Balance	Effect balance	D100:0W–D0:100W
Pan	Output pan	L64–63R
Level	Output level	0–127

\*1: Post Filter cutoff frequency:200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz

\*2: Radio detune:Radio noise level

\*3: Disc noise type:LP, EP, SP, RND

\*4: Disc noise LPF:200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPS

\*5: Disc noise level:0–127

**52: SPEAKER SIMULATOR (p. 148)**

Parameter		Value
Speaker Type	Speaker type	(*1)
Mic Set	Mic setting	1, 2, 3
Mic:Dir	Mic level:Direct level	0–127:0–127
Level	Output level	0–127

\*1: SMALL 1, SMALL 2, MIDDLE, JC-120, BUILT IN 1, BUILT IN 2, BUILT IN 3, BUILT IN 4, BUILT IN 5, BG STACK 1, BG STACK 2, MS STACK 1, MS STACK 2, METAL STACK, 2-STACK, 3-STACK

**53: OVERDRIVE 2 (p. 149)**

Parameter		Value
Drive	Drive	0–127
Level	Output level	0–127
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Amp Type	Amp simulator switch: Amp simulator type	OFF, ON: SMALL, BUILT-IN, 2-STACK, 3-STACK
Tone	Tone	0–127
Pan	Output pan	L64–63R

**54: DISTORTION 2 (p. 149)**

Parameter		Value
Drive	Drive	0–127
Level	Output level	0–127
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Amp Type	Amp simulator switch: Amp simulator type	OFF, ON: SMALL, BUILT-IN, 2-STACK, 3-STACK
Tone	Tone	0–127
Pan	Output pan	L64–63R

**55: STEREO COMPRESSOR (p. 150)**

Parameter		Value
Sustain	Sustain	0–127
Attack	Attack time	0–127
Post Gain	Post gain	0, +6, +12, +18
LowGain	Low gain	-15– +15
Hi Gain	High gain	-15– +15
Level	Output level	0–127

**56: STEREO LIMITER (p. 150)**

Parameter		Value
Thre	Threshold level	0–127
Release	Release time	0–127
Ratio	Compression ratio	1.5:1, 2:1, 4:1, 100:1
Gain	Post gain	0, +6, +12, +18
LowGain	Low gain	-15– +15
Hi Gain	High gain	-15– +15
Level	Output level	0–127

**57: GATE (p. 151)**

Parameter		Value
Key	Key	SOURCE, A, B
Thre	Key threshold	0–127
Monitor	Key monitor	OFF, ON
Mode	Mode	GATE, DUCK
Atk	Attack time	0–127
Hold	Hold time	0–127
Rel	Release time	0–127
Balance	Effect balance	D100:0W–D0:100W
Level	Output level	0–127

**58: SLICER (p. 151)**

Parameter		Value
Beat 1-1–4-4	Beat 1-1–4-4	0–127
Rate	Rate	0.05–10.0 Hz, note
Attack	Attack	0–127
Reset	Reset	OFF, SRC, A, B
Thre	Reset threshold	0–127
Mon	Reset monitor switch	OFF, ON
Mode	Mode	LEGATO, SLASH
Shuffle	Shuffle	0–127
Level	Output level	0–127

**59: ISOLATOR (p. 152)**

Parameter		Value
High	Level high	-60– +4 dB
Middle	Level middle	-60– +4 dB
Low	Level low	-60– +4 dB
Anti Phase Mid	Anti phase middle switch:level	OFF, ON:0–127
Anti Phase Low	Anti phase low switch:level	OFF, ON:0–127
Low Boost	Low Booster switch:level	OFF, ON:0–127
Level	Output level	0–127

## Parameter List

### 60: 3D CHORUS (p. 152)

Parameter		Value
Pre Dly	Pre delay time	0.0–100 ms
Rate	LFO rate	0.05–10.00 Hz, note
Depth	LFO depth	0–127
Phase	Phase	0–180 degree
Filter Type	Filter Type	OFF, LPF, HPF
Cutoff	Cutoff frequency	200–8000 Hz (*1)
Out	Output mode	SPEAKER, PHONES
Lo G	Low gain	-15– +15 dB
Hi G	High gain	-15– +15 dB
Balance	Balance	D100:0W–D0:100W
Lev	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz

### 61: 3D FLANGER (p. 153)

Parameter		Value
Pre Dly	Pre delay time	0.0–100 ms
Rate	LFO rate	0.05–10.00 Hz, note
Depth	LFO depth	0–127
Fbk	Feedback	-98– +98%
Phase	Phase	0–180 degree
Filter	Filter Type	OFF, LPF, HPF
Cutoff	Cutoff frequency	200–8000 Hz (*1)
Step Rate	Step rate switch:Step rate	OFF, ON:0.1–20.0 Hz, note
Out	Output mode	SPEAKER, PHONES
Lo G	Low gain	-15– +15 dB
Hi G	High gain	-15– +15 dB
Balance	Balance	D100:0W–D0:100W
Lev	Output level	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz

### 62: TREMOLO (p. 154)

Parameter		Value
Mod Wave	Modulation wave	TRI, SQR, SIN, SAW1, SAW2
Rate	Rate	0.05–10.0 Hz, note
Depth	Depth	0–127
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Level	Output level	0–127

### 63: AUTO PAN (p. 155)

Parameter		Value
Mod Wave	Modulation wave	TRI, SQR, SIN, SAW1, SAW2
Rate	Rate	0.05–10.0 Hz, note
Depth	Depth	0–127
LowGain	Low gain	-15– +15 dB
Hi Gain	High gain	-15– +15 dB
Level	Output level	0–127

## Chorus Parameters

### CHORUS (p. 157)

Parameter		Value
Pre Dly	Chorus pre delay	0.0–100 ms
Rate	Chorus rate	0.05–10.00 Hz
Depth	Chorus depth	0–127
Fbk	Chorus Feedback	0–127
Phase	Phase	0–180 degree
Filter Type	Filter type	OFF, LPF, HPF
Cutoff	Cutoff frequency	200–8000 Hz (*1)

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz

### DELAY (p. 157)

Parameter		Value
Delay C	Delay center	200–1000 ms, note
Delay L	Delay left	200–1000 ms, note
Delay R	Delay right	200–1000 ms, note
Fbk	Feedback	-98– +98%
Level C	Delay center level	0–127
Level L	Delay left level	0–127
Level R	(Delay right level)	0–127
HF Damp	HF damp	200–8000 Hz, BYPASS (*1)

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

## Reverb Parameters

### REVERB (p. 159)

Parameter		Value
Type	Reverb/Delay type	ROOM1, ROOM2, STAGE1, STAGE2, HALL1, HALL2 DELAY, PAN-DLY
Time	Reverb/Delay time	0–127
HF Damp	Reverb/Delay HF damp	200–8000 Hz, BYPASS (*1)
Fbk	Delay feedback	0–127

\*1: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 Hz, BYPASS

### SRV ROOM/SRV HALL/SRV PLATE (p. 160)

Parameter		Value
Pre Delay	Pre delay time	0.0–100.0 ms
Time	Reverb time	0–127
Size	Size	1–8
High Cut	High cut frequency	160–12500 Hz, BYPASS (*1)
Diffusion	Reverb diffusion	0–127
Density	Reverb density	0–127
LF Damp	LF damp frequency	50–4000 Hz (*2)
LF Gain	LF damp gain	-36–0 dB
HF Damp	HF damp frequency	4000, 5000, 6400, 8000, 10000, 12500 Hz
HF Gain	HF damp gain	-36–0 dB

\*1: 160, 200, 250, 320, 400, 500, 640, 800, 1000, 1250, 1600, 2000, 2500, 3200, 4000, 5000, 6400, 8000, 10000, 12500 Hz, BYPASS

\*2: 50, 64, 80, 100, 125, 160, 200, 250, 320, 1600, 2000, 2500, 3200, 4000 Hz

# Parameter List

## System Parameters

### SETUP Group (p. 168)

Display	Parameter		Value
SYSTEM SETUP	LCD	LCD contrast	1–10
	Power Up Mode	Power up mode	LAST-SET, DEFAULT
	Master Level	Master level	0–127
	Clock Source	System clock source	INT, MIDI
	System Tempo	System tempo	20–250
	Mix/Parallel	Mix/Parallel	MIX, PARALLEL
	Patch Remain	Patch remain switch	OFF, ON

### MIDI Group (p. 169)

Display	Parameter		Value
PERFORM MIDI	Control Channel	Performance control channel	1–16, OFF
	Local	Local switch	OFF, ON
	Remote	Remote keyboard switch	OFF, ON
PATCH MIDI	Rx Ch	Patch/Rhythm set receive channel	1–16
	Tx Ch	Patch/Rhythm set transmit channel	1–16, Rx Ch, OFF
	Local	Local switch	OFF, ON
GM MIDI	Remote	Remote keyboard switch	OFF, ON
	Local Switch	Local switch	OFF, ON
RECEIVE MIDI	Remote	Remote keyboard switch	OFF, ON
	Program Change	Receive program change switch	OFF, ON
TRANSMIT MIDI	Bank Select	Receive bank select switch	OFF, ON
	Program	Transmit program change switch	OFF, ON
SYSTEM MIDI	Bank Sel	Transmit bank select switch	OFF, ON
	Active Sensing	Transmit active sensing switch	OFF, ON
	Rx GM On	Receive general MIDI system on switch	OFF, ON
	Rx GM2 On	Receive general MIDI 2 system on switch	OFF, ON
	Rx GS Reset	Receive GS reset switch	OFF, ON
SYSTEM MIDI	Device ID	Device ID number	17–32
	Rx Sys.Excl	Receive system exclusive switch	OFF, ON
	Tx Edit	Transmit edit data switch	OFF, ON

### CONTROL Group (p. 171)

Display	Parameter		Value
KEYBOARD	Transpose	Transpose switch	OFF, ON
		Transpose value	-5 (G)– +6 (F#)
	Sens	Keyboard sensitivity	LIGHT, MEDIUM, HEAVY, FULL
	Vel	Keyboard velocity	REAL, 1–127
HOLD PEDAL	Aft	Aftertouch sensitivity	0–100
	Continuous	Continuous switch	OFF, ON
	Output	Pedal output	OFF, INT, MIDI, BOTH
CONTROL PEDAL 1	Polarity	Pedal polarity	STANDARD, REVERSE
	Assign	Pedal 1 assign	(*1)
CONTROL PEDAL 2	Output	Pedal 1 output	OFF, INT, MIDI, BOTH
	Polarity	Pedal 1 polarity	STANDARD, REVERSE
	Assign	Pedal 2 assign	(*1)
C1 ASSIGN	Output	Pedal 2 output	OFF, INT, MIDI, BOTH
	Polarity	Pedal 2 polarity	STANDARD, REVERSE
	Assign	C1 slider assign	(*2)
C2 ASSIGN	Output	C1 slider output	OFF, INT, MIDI, BOTH
	Assign	C2 slider assign	(*2)
C3 ASSIGN	Output	C2 slider output	OFF, INT, MIDI, BOTH
	Assign	C3 slider assign	(*2)
C4 ASSIGN	Output	C3 slider output	OFF, INT, MIDI, BOTH
	Assign	C4 slider assign	(*2)
SYS CTRL ASSIGN 1	Output	C4 slider output	OFF, INT, MIDI, BOTH
	Control 1, 2	System control assign 1, 2	(*2)
SYS CTRL ASSIGN 2	Control 3, 4	System control assign 3, 4	(*2)

\*1: OFF, CC01–95 (except 32), PITCH BEND, AFTERTOUCH, OCT UP, OCT DOWN, START/STOP, TAP TEMPO, PROG UP, PROG DOWN

\*2: OFF, CC01–95 (except 32), PITCH BEND, AFTERTOUCH

## TUNE Group (p. 173)

Display	Parameter	Value	
SYSTEM TUNE	Master	Master tune	415.3–466.2 Hz
	Key Shift	Master key shift	-24– +24 semitone
	Scale Tune	Scale tune switch	OFF, ON
PATCH SCALE	C–B	Scale tune C–B	-64– +63 cent
KEY SCALE	C–B	Scale tune C–B	-64– +63 cent

## ARPEGGIO Group (p. 174)

Display	Parameter	Value	
ARPEGGIO	Style	Arpeggio style	(*1)
	Octave Range	Octave range	-3– +3
	Motif	Motif	(*2)
	Beat Pattern	Beat pattern	(*3)
	Accent Rate	Accent rate	0–100%
	Shuffle Rate	Shuffle rate	50–90%
	Key Velocity	Key velocity	REAL, 1–127
	Tempo	Arpeggio tempo	20–250

\*1: 1/4, 1/6, 1/8, 1/12, 1/16, 1/32, PORTAMENTO A, PORTAMENTO B, GLISSANDO, SEQUENCE A, SEQUENCE B, SEQUENCE C, SEQUENCE D, ECHO, SYNTH BASS, HEAVY SLAP, LIGHT SLAP, WALK BASS, RHYTHM GTR 1, RHYTHM GTR 2, RHYTHM GTR 3, RHYTHM GTR 4, RHYTHM GTR 5, 3 FINGER, STRUM GTR UP, STRUM GTR DOWN, STRUM GTR UP&DW, PIANO BACKING, CLAVI CHORD, WALTZ, SWING WALTZ, REGGAE, PERCUSSION, HARP, SHAMISEN, BOUND BALL, RANDOM, BOSSA NOVA, SALSA, MAMBO, LATIN PERCUSSION, SAMBA, TANGO, HOUSE, LIMITLESS

\*2: SINGLE UP, SINGLE DOWN, SINGLE UP&DOWN, SINGLE RANDOM, DUAL UP, DUAL DOWN, DUAL UP&DOWN, DUAL RANDOM, TRIPLE UP, TRIPLE DOWN, TRIPLE UP&DOWN, TRIPLE RANDOM, NOTE ORDER, GLISSANDO, CHORD, BASS+CHORD1–5, BASS+UP1–8, BASS+RND1–3, TOP+UP1–6, BASS+UP+TOP

\*3: 1/4, 1/6, 1/8, 1/12, 1/16 1–3, 1/32 1–3, PORTA-A 01–11, PORTA-B 01–15, SEQ-A 1–7, SEQ-B 1–5, SEQ-C 1, 2, SEQ-D 1–8, ECHO 1–3, MUTE 01–16, STRUM 1–8, REGGAE 1–2, REFRAIN 1–2, PERC 1–4, WALKBS, HARP, BOUND, RANDOM, BOSSA NOVA, SALSA 1–4, MAMBO 1–2, CLAVE, REV CLA, GUILO, AGOGO, SAMBA, TANGO 1–4, HOUSE 1–2

## D BEAM Group (p. 176)

Display	Parameter	Value	
D BEAM CONTROL	Assign	D Beam assign	(*1)
	Output	D Beam output	OFF, INT, MIDI, BOTH
	Polarity	D Beam polarity	STANDARD, REVERSE
D BEAM RANGE	Lower	D Beam range lower	0–127
	Upper	D Beam range upper	0–127
D BEAM SENS	D Beam Sensitivity	D Beam sensitivity	1–10

\*1: OFF, CC01–95 (except 32), PITCH BEND, AFTERTOUCH, OCT UP, OCT DOWN, START/STOP, TAP TEMPO

## PREVIEW Group (p. 177)

Display	Parameter	Value	
SYSTEM PREVIEW	Preview Mode	Preview sound mode	SINGLE, CHORD, PHRASE
PREVIEW KEY	Note 1, 2, 3, 4	Preview note set 1, 2, 3, 4	C-1–G9
PREVIEW VELOCITY	Note 1, 2, 3, 4	Preview velocity	0–127

## INFO Group (p. 178)

Display	Parameter	Value	
INFO EXP	Expansion A	Wave expansion board name A	----
	Expansion B	Wave expansion board name B	----
	Expansion C	Wave expansion board name C	----
	Expansion D	Wave expansion board name D	----
BATTERY CHECK	Internal Battery	Battery check	1–16
TRANSMIT P.C	Ch	Transmit MIDI channel	LOW, OK
	P.C#	Transmit program change number	1–128
	Bank Select MSB/LSB	Transmit bank select MSB/LSB	0–127
TRANSMIT SONG SEL	Song Number	Transmit song select number	0–127

# Performance List

## USER (User Group)

No.	Name	Key Mode	No.	Name	Key Mode
01	Andreas Cave	LAYER	33	BellPad 88	LAYER
02	XV Piano&Bs	LAYER	34	Chamber Str	LAYER
03	BigOrchestra	LAYER	35	Slicing Saws	LAYER
04	SlicingSvox+	LAYER	36	Orcstrl Brs	LAYER
05	Arp BellsPad	LAYER	37	Lo-Fi Lead	LAYER
06	Soaring Saws	LAYER	38	Jet Flanger	LAYER
07	Heirborne XV	LAYER	39	SabbathDay	LAYER
08	BrassBand 1+	LAYER	40	OrganSplit 1	LAYER
09	MIDI Rhodes1	LAYER	41	Orc.Ensemble	LAYER
10	SweepPad 88	LAYER	42	Blue Sky 88	LAYER
11	Humanizer	LAYER	43	MIDI Rhodes2	LAYER
12	FullStrings1	LAYER	44	LoFITrance88	LAYER
13	SearingLd/Bs	LAYER	45	6 x Hits	LAYER
14	80s Sample88	LAYER	46	Mix Piano	LAYER
15	PianoRhodes	LAYER	47	FullStrings2	LAYER
16	Blistering88	LAYER	48	XV Pipe	LAYER
17	SuiteCombo+	LAYER	49	MIDI Strings	LAYER
18	Springy 88	LAYER	50	BlowPad 88	LAYER
19	Jupiter2000	LAYER	51	BrassBand 2	LAYER
20	Cultivate 88	LAYER	52	Lo-Fi Str	LAYER
21	XV SyncLead+	LAYER	53	DynoRhs&Bs	LAYER
22	SlicingPad88	LAYER	54	PhsDyno&Bs	LAYER
23	Synth Brs 88	LAYER	55	PhsClavi&Bs	LAYER
24	Arp Bells	LAYER	56	SynClavi&Bs	LAYER
25	MinIncidnt88	LAYER	57	XV StlGtr&Bs	LAYER
26	Windy	LAYER	58	Nylocato&Bs	LAYER
27	RevDlySaws88	LAYER	59	OrganSplit 2	LAYER
28	Predator+	LAYER	60	OrganSplit 3	LAYER
29	XV Rust Kit	LAYER	61	XV Pop Kit	LAYER
30	SlicedTrance	LAYER	62	XV Jazz Kit	LAYER
31	CrystalVoxXV	LAYER	63	XV Rock Kit	LAYER
32	Pumping/Ld	LAYER	64	Seq:Temp XV	SINGLE

## PR-A (Preset A Group)

No.	Name	Key Mode
01	Seq:Template	SINGLE
02	Seq:Pop	SINGLE
03	Seq:LABallad	SINGLE
04	Seq:Fusion	SINGLE
05	Seq:FunkRock	SINGLE
06	Seq:HardRock	SINGLE
07	Seq:H.Metal	SINGLE
08	Seq:Blues	SINGLE
09	Seq:Cont.Jz	SINGLE
10	Seq:Ac.Jazz	SINGLE
11	Seq:Country	SINGLE
12	Seq:Folk	SINGLE
13	Seq:Dixie	SINGLE
14	Seq:BigBand	SINGLE
15	Seq:Latin	SINGLE
16	Seq:Africa	SINGLE
17	Seq:World	SINGLE
18	Seq:Zydeco	SINGLE
19	Seq:60's	SINGLE
20	Seq:Gospel	SINGLE
21	Seq:PopDance	SINGLE
22	Seq:TeknoPop	SINGLE
23	Seq:House	SINGLE
24	Seq:Hip Hop	SINGLE
25	Seq:HardCore	SINGLE
26	Seq:Acid	SINGLE
27	Seq:Ambient	SINGLE
28	Seq:New Age	SINGLE
29	Seq:Orch	SINGLE
30	Seq:Film	SINGLE
31	Seq:Chamber	SINGLE
32	Seq:Baroque	SINGLE

## PR-B (Preset B Group)

No.	Name	Key Mode
01	Dulcimar&Gtr	LAYER
02	DulcitarStk	LAYER
03	Tekno Loop 2	LAYER
04	Rave Attack	LAYER
05	SpaceCarrier	LAYER
06	Terminator	LAYER
07	Symphony JV	LAYER
08	Nebular Vox	LAYER
09	Humming Vox	LAYER
10	Cosmic Dawn	LAYER
11	Labyrinth	LAYER
12	Sweeper	LAYER
13	Stack Pad	LAYER
14	Strobe Pad 2	LAYER
15	Rhythmic	LAYER
16	Voyage	LAYER
17	S&H Pad	LAYER
18	Cyclic Pad	LAYER
19	White Hole	LAYER
20	EasternSplit	LAYER
21	Tekno Asia	LAYER
22	TeknoSplit 1	LAYER
23	TeknoSplit 2	LAYER
24	TknoPopSplit	LAYER
25	ChildrenSplit	LAYER
26	Purple Split	LAYER
27	PulsingSplit	LAYER
28	Pad / Lead	LAYER
29	Organ / Lead	LAYER
30	Bass / Lead	LAYER
31	S&H / Pad	LAYER
32	Drone / Pipe	LAYER

### MEMO

The PR-B groups contain split and layered Performances. The PR-A group contains Performances designed for use when creating songs.

In particular, **PR-A: 01 Seq:Template** has the following settings to make it easy for you to create your own desired settings.

- Parts 1, 3-9, 11-16: **PR-A: 001 128voicePno**
- Part 2: **PR-B: 013 Finger Bass**
- Part 10: **PR-A: 001 PopDrumSet1**

# Patch List

## USER (User Group)

No.	Name	Voice	Key Assign	No.	Name	Voice	Key Assign
001	Y2K Concerto	8	POLY	065	Wurlie	2	POLY
002	XV SteelGt 1	4	POLY	066	TB Squelch	2	POLY
003	Shapeshifter	4	POLY	067	The Ganges	3	POLY
004	Trance Fair	8	MONO	068	British B	4	POLY
005	MOVE!	6	MONO	069	Power Stack	3	POLY
006	VoyagerBrass	3	POLY	070	Predator 2	8	POLY
007	Rholitzer	3	POLY	071	Moonchimes	3	POLY
008	Grand XV	4	POLY	072	Ooh)Aah Mod	4	POLY
009	Pianomonics	4	POLY	073	PercInterval	8	POLY
010	Nylozzicato	3	POLY	074	Vocals: Boys	6	POLY
011	Searing Lead	3	MONO	075	Fat Strings	3	POLY
012	Square Roots	2	MONO	076	Str&Brs Orch	7	POLY
013	Winky	8	POLY	077	ChamberPlyrs	4	POLY
014	Atmospherics	4	POLY	078	Glass Orbit	3	POLY
015	Soft Perky	5	POLY	079	The Andes	1	POLY
016	NewR&RBrass	8	POLY	080	ClassicJPad	2	POLY
017	Lunar Strngs	4	POLY	081	FullSt Brass	5	POLY
018	LegatoBamboo	4	MONO	082	Punker	2	POLY
019	West End Bs	5	MONO	083	Pop Bass	1	POLY
020	Marcato Str	4	POLY	084	Solo SoprSax	1	MONO
021	Henry VIII	8	POLY	085	Fat Rhodes	3	POLY
022	Chime Bells	4	POLY	086	X-mod Sweep	1	POLY
023	Morph Pad	8	POLY	087	XV DynoTenor	3	POLY
024	Dirty Hit	4	POLY	088	Hybrid Nylon	3	POLY
025	Soaring Hrns	6	POLY	089	SquareBounce	3	POLY
026	XV Ac.Bass	4	POLY	090	8-str F'less	2	POLY
027	Grounded Bs	2	MONO	091	Big Bubbles	3	POLY
028	Severe Ow Bs	4	MONO	092	SampleThe80s	2	POLY
029	Celtic Harp	2	POLY	093	BOG	3	MONO
030	XV Strings	3	POLY	094	96 Years	1	POLY
031	Air Pad	3	POLY	095	LookMaNoFret	3	MONO
032	Hit Rhodes	3	POLY	096	X-mod Reso	1	POLY
033	The Beast	6	POLY	097	SkinnyBounce	2	POLY
034	SteppingPhsr	3	POLY	098	Tap Bass	1	POLY
035	LivingInSync	2	MONO	099	Brite Vox 1	4	POLY
036	PhazeWahClav	6	POLY	100	Brass Tubes	4	POLY
037	Rippling	1	POLY	101	80s Retrosyn	2	POLY
038	Rhodes Trem	2	POLY	102	MountainFolk	2	POLY
039	Rocker Org	6	POLY	103	Soaring Sync	4	MONO
040	Cutter>ModWh	2	POLY	104	Analogical	4	POLY
041	Queen V	6	POLY	105	MinorIncidnt	4	MONO
042	Flyin' High	3	MONO	106	Slap Timps	4	POLY
043	Soft Nylon	4	POLY	107	Comp'Steel	4	POLY
044	Don't Jump	8	POLY	108	Reel Slam	4	POLY
045	RockPiano Ch	3	POLY	109	Adrenaline	4	POLY
046	St. Choir	4	POLY	110	Choir Bounce	4	POLY
047	Galactic	8	POLY	111	Jet Voxs	3	POLY
048	Phaser Dyno	3	POLY	112	Halographix	2	POLY
049	Andreas Cave	4	POLY	113	3PartInventn	4	POLY
050	ChmbrQuartet	4	POLY	114	Retro Rhodes	3	POLY
051	Plug n' Play	2	POLY	115	Slap Bass 3	1	MONO
052	Agent X	7	POLY	116	Guttural	8	MONO
053	Lo-fi Sweep	2	POLY	117	Blades	4	POLY
054	2ndRateChord	4	MONO	118	Nasal Spray	2	MONO
055	Creamy Bass	2	MONO	119	Synergistic	2	POLY
056	Phunky DC	2	MONO	120	Dragnet	4	POLY
057	Suite Combo	6	POLY	121	5th Atm /Aft	2	POLY
058	JupiterHorns	2	POLY	122	AmbiPizza	5	POLY
059	Talking Box	3	MONO	123	GR700 Pad	3	POLY
060	Piano+SftPad	4	POLY	124	Tape Strings	2	POLY
061	8VCO MonoSyn8		MONO	125	Soaring Saws	6	MONO
062	Double Steel	8	POLY	126	Temple of JV	4	POLY
063	Cutter Clav	2	POLY	127	Alternative	2	MONO
064	Prelude	4	POLY	128	Sun Dive	7	POLY

## PR-A (Preset A Group)

No.	Name	Voice	Key Assign	No.	Name	Voice	Key Assign
001	128voicePno	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	MIDled 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	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	Voiccy 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

# Patch List

## PR-B (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	Smoothie	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	ChamberWoods3		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

## PR-C (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

## PR-D (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

## PR-E (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	Jazzier 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 V'lute	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	PerclInterval	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	ClassicJPad	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 Mod3	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

## Patch List

### PR-F (Preset F Group)

No.	Name	Voice	Key Assign	No.	Name	Voice	Key Assign
001	80s Retrosyn	2	POLY	065	Kickin' Bass	2	MONO
002	Power Stack	3	POLY	066	Sub Zero	4	MONO
003	Don't Jump	8	POLY	067	Liquid Bass	2	MONO
004	Big Bubbles	3	POLY	068	Hefty Bass	2	MONO
005	X-mod Sweep	1	POLY	069	Severe Ow Bs	4	MONO
006	Bag O' Bones	6	POLY	070	Chime Bells	4	POLY
007	AirSoThin	2	POLY	071	Celestabox	1	POLY
008	Analogical	4	POLY	072	Brass Tubes	4	POLY
009	Waspy Pulse	2	POLY	073	Dreams East	3	POLY
010	Soaring Saws	6	MONO	074	Synergistic	2	POLY
011	Square Roots	2	MONO	075	Andreas Cave	4	POLY
012	BOG	3	MONO	076	AmbiPizza	5	POLY
013	Talking Box	3	MONO	077	Voxy Nylon	3	POLY
014	Retro Lead	2	MONO	078	EastrnEurope	3	POLY
015	LivingInSync	2	MONO	079	Celtic Harp	2	POLY
016	Leads United	4	MONO	080	Reso Sitar	2	POLY
017	Dirty Sync	2	MONO	081	The Ganges	3	POLY
018	DistortaSync	1	MONO	082	MountainFolk	2	POLY
019	Blistering	2	MONO	083	Byzantine	4	POLY
020	Guttural	8	MONO	084	AsiaPlectrum	8	POLY
021	Flyin' High	3	MONO	085	VelHarp)Harm	3	POLY
022	Soft Tooth	2	MONO	086	Pluckaphone	4	POLY
023	Soaring Sqr	4	MONO	087	Slap Timps	4	POLY
024	Soaring Sync	4	MONO	088	Suite Combo	6	POLY
025	Nasal Spray	2	MONO	089	Jet Voxs	3	POLY
026	Lamb Lead	2	MONO	090	Dirty Hit	4	POLY
027	Creamer	2	MONO	091	MOVE!	6	MONO
028	Sine System	4	MONO	092	Reel Slam	4	POLY
029	Soft Nylon	4	POLY	093	OffTheRecord	4	POLY
030	Nylozzicato	3	POLY	094	2ndRateChord	4	MONO
031	Mutezzicato	3	POLY	095	RageInYouth	3	POLY
032	Hybrid Nylon	3	POLY	096	MinorIncident	4	MONO
033	XV SteelGt 1	4	POLY	097	Phunky DC	2	MONO
034	XV SteelGt 2	4	POLY	098	Agent X	7	POLY
035	Comp'Steel	4	POLY	099	Winky	8	POLY
036	Double Steel	8	POLY	100	Looney 2nz	8	POLY
037	Folk Guitar	4	POLY	101	Shortrave	2	POLY
038	SpanishNight	5	POLY	102	DeeperBeeper	2	MONO
039	Plug n' Play	2	POLY	103	Percolator	4	POLY
040	Fab 4 Guitar	4	POLY	104	Filter Morph	4	POLY
041	Searing Lead	3	MONO	105	Choir Bounce	4	POLY
042	Punker	2	POLY	106	Rippling	1	POLY
043	LouderPlease	3	POLY	107	SteppingPhsr	3	POLY
044	XV Upright	1	POLY	108	Trance Fair	8	MONO
045	XV Ac.Bass	4	POLY	109	GermanBounce	4	POLY
046	LookMaNoFret	3	MONO	110	Acid JaZZ	5	MONO
047	XV Fretless	1	POLY	111	Cutter>ModWh	2	POLY
048	Basic F'less	1	MONO	112	Blades	4	POLY
049	8-str F'less	2	POLY	113	Mad Bender	6	POLY
050	Tap Bass	1	POLY	114	Shapeshifter	4	POLY
051	Pop Bass	1	POLY	115	ForestMoon	8	POLY
052	P.Bs Chorus	4	MONO	116	Predator 2	8	POLY
053	TremCho Bs	2	POLY	117	Dark Side	8	POLY
054	Creamy Bass	2	MONO	118	The Beast	6	POLY
055	Buster Bass	2	MONO	119	X-mod Reso	1	POLY
056	TB Squelch	2	POLY	120	Planet Meta	7	POLY
057	Ticker Bass	4	MONO	121	Nexus	8	POLY
058	Muscle Bass	2	MONO	122	Halographix	2	POLY
059	Grounded Bs	2	MONO	123	Moon Rise	8	POLY
060	West End Bs	5	MONO	124	Gruvacious	5	POLY
061	Snap Bass	2	MONO	125	Windy Dunes	4	POLY
062	700 Bassboy	3	MONO	126	Ice Blasts	4	POLY
063	8VCO MonoSyn8	MONO	MONO	127	Ringy Thingy	8	MONO
064	ResoMoist Bs	4	MONO	128	Atmospherics	4	POLY

Voice: number of voice

## PR-H (GM2 Group)

No.	Name	Voice	LSB	PC	No.	Name	Voice	LSB	PC	No.	Name	Voice	LSB	PC	No.	Name	Voice	LSB	PC
001	Piano 1	4	0	1	065	Chorus Gt.	2	1		129	French Horns	2	0	61	193	Sitar	1	0	105
002	Piano 1w	2	1		066	Mid Tone GTR	1	2		130	Fr.Horn 2	2	1		194	Sitar 2	2	1	
003	European Pf	1	2		067	Muted Gt.	1	0	29	131	Brass 1	3	0	62	195	Banjo	1	0	106
004	Piano 2	4	0	2	068	Funk Pop	1	1		132	Brass 2	2	1		196	Shamisen	1	0	107
005	Piano 2w	1	1		069	Funk Gt.2	2	2		133	Synth Brass1	2	0	63	197	Koto	2	0	108
006	Piano 3	1	0	3	070	Jazz Man	2	3		134	Pro Brass	2	1		198	Taisho Koto	1	1	
007	Piano 3w	1	1		071	Overdrive Gt	2	0	30	135	Oct SynBrass	2	2		199	Kalimba	1	0	109
008	Honky-tonk	2	0	4	072	Guitar Pinch	2	1		136	Jump Brass	3	3		200	Bagpipe	2	0	110
009	Honky-tonk 2	2	1		073	DistortionGt	2	0	31	137	Synth Brass2	2	0	64	201	Fiddle	1	0	111
010	E.Piano 1	2	0	5	074	Feedback Gt.	2	1		138	SynBrass sfz	2	1		202	Shanai	1	0	112
011	St.Soft EP	2	1		075	Dist Rtm GTR	2	2		139	Velo Brass 1	2	2		203	Tinkle Bell	3	0	113
012	FM+SA EP	2	2		076	Gt.Harmonics	1	0	32	140	Soprano Sax	1	0	65	204	Agogo	1	0	114
013	Wurlj	2	3		077	Gt. Feedback	1	1		141	Alto Sax	1	0	66	205	Steel Drums	1	0	115
014	E.Piano 2	2	0	6	078	Acoustic Bs.	1	0	33	142	Tenor Sax	2	0	67	206	Woodblock	1	0	116
015	Detuned EP 2	2	1		079	Fingered Bs.	1	0	34	143	Baritone Sax	1	0	68	207	Castanets	1	1	
016	St.FM EP	2	2		080	Finger Slap	2	1		144	Oboe	2	0	69	208	Taiko	3	0	117
017	EP Legend	2	3		081	Picked Bass	1	0	35	145	English Horn	1	0	70	209	Concert BD	2	1	
018	EP Phase	2	4		082	Fretless Bs.	1	0	36	146	Bassoon	1	0	71	210	Melo. Tom 1	1	0	118
019	Harpsichord	1	0	7	083	Slap Bass 1	1	0	37	147	Clarinet	1	0	72	211	Melo. Tom 2	1	1	
020	Coupled Hps.	2	1		084	Slap Bass 2	2	0	38	148	Piccolo	1	0	73	212	Synth Drum	2	0	119
021	Harpsi.w	1	2		085	Synth Bass 1	1	0	39	149	Flute	1	0	74	213	808 Tom	2	1	
022	Harpsi.o	2	3		086	SynthBass101	1	1		150	Recorder	1	0	75	214	Elec Perc	1	2	
023	Clav.	1	0	8	087	Acid Bass	1	2		151	Pan Flute	1	0	76	215	Reverse Cym.	1	0	120
024	Pulse Clav	1	1		088	Clavi Bass	2	3		152	Bottle Blow	2	0	77	216	Gt.FretNoise	1	0	121
025	Celesta	1	0	9	089	Hammer	2	4		153	Shakuhachi	2	0	78	217	Gt.Cut Noise	1	1	
026	Glockenspiel	1	0	10	090	Synth Bass 2	2	0	40	154	Whistle	1	0	79	218	String Slap	1	2	
027	Music Box	1	0	11	091	Beef FM Bass	2	1		155	Ocarina	2	0	80	219	Breath Noise	1	0	122
028	Vibraphone	2	0	12	092	RubberBass 2	2	2		156	Square Wave	2	0	81	220	Fl.Key Click	1	1	
029	Vibraphone w	2	1		093	Attack Pulse	1	3		157	MG Square	1	1		221	Seashore	1	0	123
030	Marimba	1	0	13	094	Violin	1	0	41	158	2600 Sine	1	2		222	Rain	1	1	
031	Marimba w	1	1		095	Slow Violin	1	1		159	Saw Wave	2	0	82	223	Thunder	1	2	
032	Xylophone	1	0	14	096	Viola	1	0	42	160	OB2 Saw	1	1		224	Wind	1	3	
033	Tubular-bell	1	0	15	097	Cello	1	0	43	161	Doctor Solo	2	2		225	Stream	2	4	
034	Church Bell	1	1		098	Contrabass	1	0	44	162	Natural Lead	2	3		226	Bubble	2	5	
035	Carillon	1	2		099	Tremolo Str	1	0	45	163	SequencedSaw	2	4		227	Bird	2	0	124
036	Santur	1	0	16	100	PizzicatoStr	1	0	46	164	Syn.Calliope	2	0	83	228	Dog	1	1	
037	Organ 1	2	0	17	101	Harp	1	0	47	165	Chiffer Lead	2	0	84	229	Horse-Gallop	1	2	
038	Trem. Organ	2	1		102	Yang Qin	2	1		166	Charang	2	0	85	230	Bird 2	1	3	
039	60's Organ 1	1	2		103	Timpani	1	0	48	167	Wire Lead	2	1		231	Telephone 1	1	0	125
040	70's E.Organ	2	3		104	Strings	2	0	49	168	Solo Vox	2	0	86	232	Telephone 2	1	1	
041	Organ 2	2	0	18	105	Orchestra	3	1		169	5th Saw Wave	2	0	87	233	DoorCreaking	1	2	
042	Chorus Or.2	2	1		106	60s Strings	2	2		170	Bass & Lead	2	0	88	234	Door	1	3	
043	Perc. Organ	2	2		107	Slow Strings	1	0	50	171	Delayed Lead	2	1		235	Scratch	2	4	
044	Organ 3	2	0	19	108	Syn.Strings1	2	0	51	172	Fantasia	2	0	89	236	Wind Chimes	2	5	
045	Church Org.1	1	0	20	109	Syn.Strings3	2	1		173	Warm Pad	1	0	90	237	Helicopter	2	0	126
046	Church Org.2	2	1		110	Syn.Strings2	2	0	52	174	Sine Pad	2	1		238	Car-Engine	1	1	
047	Church Org.3	2	2		111	Choir Aahs	2	0	53	175	Polysynth	2	0	91	239	Car-Stop	1	2	
048	Reed Organ	1	0	21	112	Chorus Aahs	2	1		176	Space Voice	2	0	92	240	Car-Pass	1	3	
049	Puff Organ	2	1		113	Voice Oohs	1	0	54	177	Itopia	2	1		241	Car-Crash	2	4	
050	Accordion Fr	2	0	22	114	Humming	2	1		178	Bowed Glass	3	0	93	242	Siren	1	5	
051	Accordion It	2	1		115	SynVox	1	0	55	179	Metal Pad	3	0	94	243	Train	1	6	
052	Harmonica	1	0	23	116	Analog Voice	1	1		180	Halo Pad	2	0	95	244	Jetplane	2	7	
053	Bandoneon	2	0	24	117	OrchestraHit	2	0	56	181	Sweep Pad	1	0	96	245	Starship	2	8	
054	Nylon-str.Gt	1	0	25	118	Bass Hit	2	1		182	Ice Rain	2	0	97	246	Burst Noise	2	9	
055	Ukulele	1	1		119	6th Hit	2	2		183	Soundtrack	2	0	98	247	Applause	2	0	127
056	Nylon Gt.o	2	2		120	Euro Hit	2	3		184	Crystal	2	0	99	248	Laughing	1	1	
057	Nylon Gt.2	2	3		121	Trumpet	1	0	57	185	Syn Mallet	1	1		249	Screaming	1	2	
058	Steel-str.Gt	1	0	26	122	Dark Trumpet	1	1		186	Atmosphere	2	0	100	250	Punch	1	3	
059	12-str.Gt	2	1		123	Trombone	1	0	58	187	Brightness	2	0	101	251	Heart Beat	1	4	
060	Mandolin	2	2		124	Trombone 2	1	1		188	Goblin	2	0	102	252	Footsteps	1	5	
061	Steel + Body	2	3		125	Bright Tb	1	2		189	Echo Drops	1	0	103	253	Gun Shot	1	0	128
062	Jazz Gt.	1	0	27	126	Tuba	1	0	59	190	Echo Bell	2	1		254	Machine Gun	1	1	
063	Pedal Steel	1	1		127	MutedTrumpet	1	0	60	191	Echo Pan	2	2		255	Lasergun	1	2	
064	Clean Gt.	1	0	28	128	MuteTrumpet2	1	1		192	Star Theme	2	0	104	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

		USER (User Group)			PR-A (Preset A Group)	
Note No.	001 XV Pop Kit	002 XV Rock Kit	003 XV Jazz Kit	004 XV Rust Kit	001 PopDrumSet 1	002 PopDrumSet 2
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	Rock PdHH	Rock PdHH	Jazz PdHH	Rock PdHH	----	----
33	Round Kick	Verb Kick	MplLmtr Kick	909 Kick 1	----	----
34	Hand Claps	Hand Claps	Hand Claps	808 Claps	----	----
35	Hybrid Kick2	Maple Kick	JazzDry Kick	808 Kick	Verb Kick	Hybrid Kick
C2 36	Old Kick	Rock Kick	Jazz Kick	Dance Kick	Hybrid Kick	Round Kick
37	Side Stick	RockStick	Dry Stick 2	RockStick	Side Stick	Dry Stick 2
38	Wet SN	Rock SN	Jazz SN	Old Fill SN	Natural SN2	Piccolo SN
39	Snare Ghost	Rock Gst	Snare Ghost	Rock Gst	808 Claps	Hand Claps
40	AmbientSN	Rock Rim	Jazz Rim	Rock SN	SN Roll	Piccolo SN
41	Maple Tom 3	Rock TomL2	Jazz Tom L	Elec.Tom L2	Verb Tom Lo	Verb Tom Lo
42	Rock CIHH2	Rock CIHH2	Jazz CIHH1	Rock CIHH1	CI HiHat 4	CI HiHat 4
43	Rock Flm L2	Rock Flm L2	Jazz Flm L	Elec.Tom L1	Verb Tom Lo	Verb Tom Lo
44	Rock CIHH1	Rock CIHH1	Jazz CIHH2	Rock CIHH2	CI HiHat 5	CI HiHat 5
45	Maple Tom 2	Rock Tom M	Jazz Tom M	Elec.Tom M	Verb Tom Hi	Verb Tom Hi
46	Rock OpHH	Rock OpHH	Jazz OpHH	Rock OpHH	Op HiHat 2	Op HiHat 2
47	Rock Flm M	Rock Flm M	Jazz Flm M	Elec.Tom M	Verb Tom Hi	Verb Tom Hi
C3 48	Maple Tom 1	Rock Tom H	Jazz Tom H	Elec.Tom H	Verb Tom Hi	Verb Tom Hi
49	Crash Cymbal	Rock CrCym1	Jazz CrCym	Rock CrCym1	Crash 1	Crash 1
50	Rock Flm H	Rock Flm H	Jazz Flm H	Elec.Tom H	Verb Tom Hi	Verb Tom Hi
51	Rock RdCym1	Rock RdCym1	Jazz RdCym	Rock RdCym1	Ride 2	Ride 1
52	Crash 1	Rock China	Rock RdCym1	Rock CrCym2	China Cym	China Cym
53	Rock RdCym2	Rock RdCym2	Rock RdCym2	Rock RdCym2	Ride Bell	Ride Bell
54	Tambourine 2	Tambourine 2	Tambourine 1	Tambourine 1	Tambourine 1	Tambourine 1
55	Rock CrCym2	Rock CrCym2	Crash 1	Rock Splash	Crash 1	Crash 1
56	Cowbell Lo	Cowbell Lo	Cowbell Lo	Cowbell	Cowbell	Cowbell
57	Crash 1	Crash 1	Crash 2	China Cym	Crash 1	Crash 1
58	Cowbell Hi	Cowbell Hi	Cowbell Hi	Vibraslap	Cowbell	Cowbell
59	Ride Bell	Ride Bell	Ride Bell	70s Kick 2	Ride Bell	Ride Bell
C4 60	Cga Mute Hi	Cga Mute Hi	Cga Mute Hi	70s Kick 1	Cga Mute Hi	Cga Mute Hi
61	Cga Mute Lo	Cga Mute Lo	Cga Mute Lo	Dry Stick	Cga Mute Lo	Cga Mute Lo
62	Cga Slap	Cga Slap	Cga Slap	70s SN	Cga Slap	Cga Slap
63	Cga Open Hi	Cga Open Hi	Cga Open Hi	Finger Snaps	Cga Open Hi	Cga Open Hi
64	Cga Open Lo	Cga Open Lo	Cga Open Lo	HumanClapsEQ	Cga Open Lo	Cga Open Lo
65	Timbale Hi	Timbale Hi	Timbale Hi	JD Cowbell	Timbale	Timbale
66	Timbale Lo	Timbale Lo	Timbale Lo	70s CI HiHat	Timbale	Timbale
67	AgogoBellsHi	AgogoBellsHi	AgogoBellsHi	AgogoBells	AgogoBells	AgogoBells
68	AgogoBellsLo	AgogoBellsLo	AgogoBellsLo	70s CI HiHat	AgogoBells	AgogoBells
69	Cabasa Up	Cabasa Up	Cabasa Up	909 NZ HiHat	Cabasa Up	Cabasa Up
70	Maracas	Maracas	Maracas	70s Op HiHat	Maracas	Maracas
71	ShortWhistle	ShortWhistle	ShortWhistle	Cabasa Up	Soft Pad A	Cabasa Down
C5 72	Long Whistle	Long Whistle	Long Whistle	Long Whistle	Soft Pad B	Cabasa Cut
73	Short Guiro	Short Guiro	Short Guiro	REV RkOpHH f	Long Guiro	808 Kick
74	Long Guiro	Long Guiro	Long Guiro	Tambourine 2	Long Guiro	808 SN
75	Claves	Claves	Claves	REV JzOpHH f	Claves	DIGI Bell 1
76	WoodBlock Hi	WoodBlock Hi	WoodBlock Hi	Scratch 2	Wood Block	808 SN
77	WoodBlock Lo	WoodBlock Lo	WoodBlock Lo	Mute Triangl	Wood Block	808 Kick
78	Mute Cuica	Mute Cuica	Mute Cuica	909 CI HiHat	Cuica	Spectrum
79	Open Cuica	Open Cuica	Open Cuica	Open Triangl	Cuica	808 Kick
80	Mute Triangl	Mute Triangl	Mute Triangl	909 CI HiHat	Open Triangl	Spectrum
81	Open Triangl	Open Triangl	Open Triangl	Cabasa	Open Triangl	808 Kick
82	Cabasa Cut	Cabasa Cut	Cabasa Cut	909 Op HiHat	Cabasa Cut	Spectrum
83	Spectrum	Spectrum	Spectrum	Spectrum	Spectrum	808 Kick
C6 84	Wind Chimes	Wind Chimes	Wind Chimes	Maple Kick	Wind Chimes	808 Kick
85	Wood Block	Wood Block	Wood Block	Woody Stick	Wood Block	Feedbackwave
86	Mute Surdo	Mute Surdo	Mute Surdo	Maple SN	Cga Slap	808 Kick
87	Open Surdo	Open Surdo	Open Surdo	SN Roll	Dry Tom Lo	Feedbackwave
88	Lite Kick	Lite Kick	Lite Kick	Maple Tom 3	Lite Kick	Pop Voice
89	Hybrid Kick2	Hybrid Kick2	Hybrid Kick2	909 Kick 1	Hybrid Kick2	Pop Voice
90	Old Kick	Old Kick	Old Kick	Old Kick	Old Kick	Wind Agogo
91	Pop Voice	Pop Voice	Pop Voice	808 Kick	Pop Voice	Pop Voice
92	Wind Agogo	Wind Agogo	Wind Agogo	909 SN 2	Wind Agogo	Wind Agogo
93	Op HiHat 2	Op HiHat 2	Op HiHat 2	909 SN 1	Op HiHat 2	Op HiHat 2
94	Anklungs	Anklungs	Anklungs	808 SN	Anklungs	Anklungs
95	Op HiHat 2	Op HiHat 2	Op HiHat 2	Dance Kick	Op HiHat 2	Op HiHat 2
C7 96	Metronome 2	Metronome 2	Metronome 2	REV Timp3	Metronome 2	Metronome 2
97	R8 Click	R8 Click	R8 Click	R8 Click	R8 Click	R8 Click
98	Metronome 1	Metronome 1	Metronome 1	Metronome 2	Metronome 1	Metronome 1
99	Finger Snaps	Finger Snaps	Finger Snaps	Finger Snaps	----	----

# Rhythm Set List

	PR-B (Preset B Group)		PR-C (Preset C Group)		PR-D (Preset D Group)	
Note No.	001 PowerDrumSet	002 RaveDrumSet	001 JazzDrumSet2	002 OrchDrumSet	001 PowerDrmSet2	002 PowerRaveSet
28	----	----	----	----	----	----
29	30	----	----	----	----	----
31	----	----	----	----	----	----
32	32	----	----	----	----	----
33	----	----	----	----	----	----
34	34	----	----	----	----	----
35	----	----	----	----	----	----
C2 36	Verb Kick	808 Kick	Round Kick	Old Kick	Verb Kick	Verb Kick
37	Round Kick	Round Kick	Old Kick	Round Kick	Round Kick	Round Kick
38	Dry Stick 2	Side Stick	Side Stick	Side Stick	Dry Stick 2	Dry Stick 2
39	Piccolo SN	808 SN	Ballad SN	Ballad SN	Piccolo SN	Piccolo SN
40	808 Claps	808 Claps	Hand Claps	808 Claps	808 Claps	808 Claps
41	Natural SN2	808 SN	SN Roll	SN Roll	SN Roll	Natural SN2
42	Verb Tom Lo	808 Kick	Verb Tom Lo	Timpani	Verb Tom Lo	Verb Tom Lo
43	Cl HiHat 4	606 Cl HiHat	Cl HiHat 5	Timpani	Cl HiHat 4	Cl HiHat 4
44	Verb Tom Lo	Tekno Hit	Dry Tom Lo	Timpani	Verb Tom Lo	Verb Tom Lo
45	Pedal HiHat2	606 Cl HiHat	Pedal HiHat2	Timpani	Pedal HiHat2	Pedal HiHat2
46	Verb Tom Lo	808 Kick	Verb Tom Lo	Timpani	Verb Tom Lo	Verb Tom Lo
47	Op HiHat 2	606 Op HiHat	Op HiHat 2	Timpani	Op HiHat 2	Op HiHat 2
48	Verb Tom Lo	Tekno Hit	Dry Tom Lo	Timpani	Verb Tom Lo	Verb Tom Lo
C3 49	Verb Tom Hi	808 Kick	Verb Tom Hi	Timpani	Verb Tom Hi	Verb Tom Hi
50	Crash 1	Crash 1	Crash 1	Timpani	Crash 1	Crash 1
51	Verb Tom Hi	Tekno Hit	Dry Tom Hi	Timpani	Verb Tom Hi	Verb Tom Hi
52	Ride 1	Voice Breath	Ride 2	Timpani	Ride 1	Ride 1
53	China Cym	MC500 Beep 1	China Cym	Timpani	China Cym	China Cym
54	Ride Bell	MC500 Beep 2	Ride Bell	Timpani	Ride Bell	Ride Bell
55	Tambourine 1	R8 Click	Tambourine 1	Tambourine 1	Tambourine 1	Tambourine 1
56	Crash 1	Pizz	Crash 1	Crash 1	Crash 1	Crash 1
57	Cowbell	DIGI Bell 1	Cowbell	Cowbell	Cowbell	Cowbell
58	Crash 1	Rattles	Crash 1	Crash 1	Crash 1	Crash 1
59	Vibraslap	Ride Bell	Vibraslap	Ride 1	Vibraslap	Vibraslap
60	Ride 1	REV Tamb 1	Ride 2	Ride 2	Ride 1	Ride 1
C4 61	Bongo Hi	2.2 Vibwave	Bongo Hi	Bongo Hi	Bongo Hi	Bongo Hi
62	Bongo Lo	Low Pink NZ	Bongo Lo	Bongo Lo	Bongo Lo	Bongo Lo
63	Cga Mute Hi	Kalimba	Cga Mute Hi	Cga Mute Hi	Cga Mute Hi	Cga Mute Hi
64	Cga Open Hi	Metal Wind	Cga Open Hi	Cga Open Hi	Cga Open Hi	Cga Open Hi
65	Cga Open Lo	Lead Wave	Cga Open Lo	Cga Open Lo	Cga Open Lo	Cga Open Lo
66	Timbale	Tin Wave	Timbale	Timbale	Timbale	Timbale
67	Timbale	AgogoBells	Timbale	Timbale	Timbale	Timbale
68	AgogoBells	Lite Kick	AgogoBells	AgogoBells	AgogoBells	AgogoBells
69	AgogoBells	AgogoBells	AgogoBells	AgogoBells	AgogoBells	AgogoBells
70	Cabasa Up	Lite Kick	Cabasa Up	Cabasa Up	AgogoBells	AgogoBells
71	Maracas	AgogoBells	Maracas	Maracas	Maracas	Maracas
72	Soft Pad A	Gtr Harm A	Soft Pad A	Soft Pad A	Soft Pad A	606 Cl HiHat
C5 73	Soft Pad B	Gtr Harm A	Brush Swish	Soft Pad B	Soft Pad B	606 Cl HiHat
74	Long Guiro	Piano Thump	Long Guiro	Long Guiro	Long Guiro	606 Op HiHat
75	Long Guiro	Natural SN1	Long Guiro	Long Guiro	Long Guiro	Long Guiro
76	Claves	Hand Claps	Claves	Claves	Claves	Claves
77	Wood Block	Natural SN1	Wood Block	Wood Block	Wood Block	Wood Block
78	Wood Block	808 SN	Metronome 2	Wood Block	Wood Block	Wood Block
79	Cuica	PowerChord B	Cuica	Cuica	Cuica	Pizz
80	Cuica	Hybrid Kick2	Cuica	Cuica	Cuica	Syn Vox 1
81	Open Triangl	PowerChord B	Open Triangl	Open Triangl	Open Triangl	Voice Aahs A
82	Open Triangl	Gt.FretNoise	Open Triangl	Open Triangl	Open Triangl	Voice Oohs2A
83	Maracas	Banjo B	Cabasa Cut	Cabasa Cut	Maracas	Male Ooh A
84	Ice Rain	Slap Bass 1	Spectrum	Spectrum	Ice Rain	Ice Rain
C6 85	Wind Chimes	Oboe mf A	Wind Chimes	Wind Chimes	Wind Chimes	808 SN
86	Claves	Shakuhachi	Wood Block	Wood Block	Claves	808 SN
87	808 SN	Pizz	Cga Slap	Cga Slap	808 SN	808 SN
88	Verb Tom Hi	Syn Vox 1	Dry Tom Lo	Dry Tom Lo	Verb Tom Hi	Hand Claps
89	Piccolo SN	Voice Aahs A	Lite Kick	Applause	Piccolo SN	Voice Breath
90	Scratch 3	Voice Oohs2A	Hybrid Kick2	Hybrid Kick2	Scratch 3	Scratch 3
91	Tin Wave	Pop Voice	Old Kick	Cl HiHat 4	Tin Wave	Tin Wave
92	Spectrum	Male Ooh A	Natural SN2	Round Kick	Spectrum	Crash 1
93	REV Steel DR	Voice Breath	Natural SN1	Pedal HiHat2	REV Steel DR	Ride Bell
94	REV Tin Wave	Org Vox C	Brush Swish	Natural SN2	REV Tin Wave	REV Tin Wave
95	REV PiccloSN	Vox Noise	Brush Roll	Op HiHat 2	REV PiccloSN	DIGI Bell 1
96	REV Crash 1	Vox Noise	Brush Slap	Brush Slap	REV Crash 1	Metal Wind
C7 97	Metronome 2	Applause	Metronome 2	Brush Swish	Metronome 2	Applause
98	R8 Click	R8 Click	R8 Click	Brush Roll	R8 Click	R8 Click
99	Metronome 1	Metronome 2	Metronome 1	SN Roll	Metronome 1	Metronome 1
	----	----	----	----	----	----

# Rhythm Set List

		PR-E (Preset E Group)		PR-F (Preset F Group)	
		001	002	001	002
Note No.		XV Pop Kit	XV Rock Kit	XV Jazz Kit	XV Rust Kit
28		Dance Kick	Dance Kick	JazzDry Kick	70s Kick 2
29		Dry Kick	Round Kick	Pillow Kick	Old Kick
30	30	Rock Roll	Rock Roll	Jazz Swish	Rock Roll
31		Hybrid Kick	Jazz Kick	Hybrid Kick2	909 Kick 2
32	32	Snare Ghost	Rock Gst	Snare Ghost	Rock Gst
33		Round Kick	Verb Kick	MplLmtr Kick	909 Kick 1
34	34	Rock PdHH	Rock PdHH	Jazz PdHH	Rock PdHH
35		Hybrid Kick2	Maple Kick	JazzDry Kick	808 Kick
C2 36		Old Kick	Rock Kick	Jazz Kick	Dance Kick
37	37	Side Stick	RockStick	Dry Stick 2	RockStick
38		Wet SN	Rock SN	Jazz SN	Old Fill SN
39	39	Snare Ghost	Rock Gst	Snare Ghost	Rock Gst
40		AmbientSN	Rock Rim	Jazz Rim	Rock SN
41		Maple Tom 3	Rock TomL2	Jazz Tom L	Elec.Tom L2
42	42	Rock ClHH2	Rock ClHH2	Jazz ClHH1	Rock ClHH1
43		Rock Flm L2	Rock Flm L2	Jazz Flm L	Elec.Tom L1
44	44	Rock ClHH1	Rock ClHH1	Jazz ClHH2	Rock ClHH2
45		Maple Tom 2	Rock Tom M	Jazz Tom M	Elec.Tom M
46	46	Rock OpHH	Rock OpHH	Jazz OpHH	Rock OpHH
47		Rock Flm M	Rock Flm M	Jazz Flm M	Elec.Tom M
C3 48		Maple Tom 1	Rock Tom H	Jazz Tom H	Elec.Tom H
49	49	Crash Cymbal	Rock CrCym1	Jazz CrCym	Rock CrCym1
50		Rock Flm H	Rock Flm H	Jazz Flm H	Elec.Tom H
51	51	Rock RdCym1	Rock RdCym1	Jazz RdCym	Rock RdCym1
52		Crash 1	Rock China	Rock RdCym1	Rock CrCym2
53		Rock RdCym2	Rock RdCym2	Rock RdCym2	Rock RdCym2
54	54	Tambourine 2	Tambourine 2	Tambourine 1	Tambourine 1
55		Rock CrCym2	Rock CrCym2	Crash 1	Rock Splash
56	56	Cowbell Lo	Cowbell Lo	Cowbell Lo	Cowbell
57		Crash 1	Crash 1	Crash 2	China Cym
58	58	Cowbell Hi	Cowbell Hi	Cowbell Hi	Vibraslap
59		Ride Bell	Ride Bell	Ride Bell	70s Kick 2
C4 60		Cga Mute Hi	Cga Mute Hi	Cga Mute Hi	70s Kick 1
61	61	Cga Mute Lo	Cga Mute Lo	Cga Mute Lo	Dry Stick
62		Cga Slap	Cga Slap	Cga Slap	70s SN
63	63	Cga Open Hi	Cga Open Hi	Cga Open Hi	Finger Snaps
64		Cga Open Lo	Cga Open Lo	Cga Open Lo	HumanClapsEQ
65		Timbale Hi	Timbale Hi	Timbale Hi	JD Cowbell
66	66	Timbale Lo	Timbale Lo	Timbale Lo	70s Cl HiHat
67		AgogoBellsHi	AgogoBellsHi	AgogoBellsHi	AgogoBells
68	68	AgogoBellsLo	AgogoBellsLo	AgogoBellsLo	70s Cl HiHat
69		Cabasa Up	Cabasa Up	Cabasa Up	909 NZ HiHat
70	70	Maracas	Maracas	Maracas	70s Op HiHat
71		ShortWhistle	ShortWhistle	ShortWhistle	Cabasa Up
C5 72		Long Whistle	Long Whistle	Long Whistle	Long Whistle
73	73	Short Guiro	Short Guiro	Short Guiro	REV RkOpHH f
74		Long Guiro	Long Guiro	Long Guiro	Tambourine 2
75	75	Claves	Claves	Claves	REV JzOpHH f
76		WoodBlock Hi	WoodBlock Hi	WoodBlock Hi	Scratch 2
77		WoodBlock Lo	WoodBlock Lo	WoodBlock Lo	Mute Triangl
78	78	Mute Cuica	Mute Cuica	Mute Cuica	909 Cl HiHat
79		Open Cuica	Open Cuica	Open Cuica	Open Triangl
80	80	Mute Triangl	Mute Triangl	Mute Triangl	909 Cl HiHat
81		Open Triangl	Open Triangl	Open Triangl	Cabasa
82	82	Cabasa Cut	Cabasa Cut	Cabasa Cut	909 Op HiHat
83		Spectrum	Spectrum	Spectrum	Spectrum
C6 84		Wind Chimes	Wind Chimes	Wind Chimes	Maple Kick
85	85	Wood Block	Wood Block	Wood Block	Woody Stick
86		Mute Surdo	Mute Surdo	Mute Surdo	Maple SN
87	87	Open Surdo	Open Surdo	Open Surdo	SN Roll
88		Lite Kick	Lite Kick	Lite Kick	Maple Tom 3
89		Hybrid Kick2	Hybrid Kick2	Hybrid Kick2	909 Kick 1
90	90	Old Kick	Old Kick	Old Kick	Old Kick
91		Pop Voice	Pop Voice	Pop Voice	808 Kick
92	92	Wind Agogo	Wind Agogo	Wind Agogo	909 SN 2
93		Op HiHat 2	Op HiHat 2	Op HiHat 2	909 SN 1
94	94	Anklungs	Anklungs	Anklungs	808 SN
95		Op HiHat 2	Op HiHat 2	Op HiHat 2	Dance Kick
C7 96		Metronome 2	Metronome 2	Metronome 2	REV Timp3
97	97	R8 Click	R8 Click	R8 Click	R8 Click
98		Metronome 1	Metronome 1	Metronome 1	Metronome 2
99	99	Hand Claps	Hand Claps	Hand Claps	808 Claps

# Rhythm Set List

## PR-H (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 5	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	808 Cymbal	Ride Cymbal
52	ChinaCymbal	ChinaCymbal	ChinaCymbal	ReverseCymbal	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
84	Bell Tree	Bell Tree	Bell Tree	Bell Tree	Bell Tree	Bell Tree
C6 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

## PR-H (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

# Waveform List

No.	Wave Name								
0001	StGrand pA L	0051	E.Piano 1C	0101	RockOrg1 A R	0151	Jazz Gtr B	0201	Syn Gtr B
0002	StGrand pA R	0052	E.Piano 2A	0102	RockOrg1 B L	0152	Jazz Gtr C	0202	Syn Gtr C
0003	StGrand pB L	0053	E.Piano 2B	0103	RockOrg1 B R	0153	LP Rear A	0203	Harp 1A
0004	StGrand pB R	0054	E.Piano 2C	0104	RockOrg1 C L	0154	LP Rear B	0204	Harp 1B
0005	StGrand pC L	0055	E.Piano 3A	0105	RockOrg1 C R	0155	LP Rear C	0205	Harp 1C
0006	StGrand pC R	0056	E.Piano 3B	0106	RockOrg2 A L	0156	Rock lead 1	0206	Harp Harm
0007	StGrand fA L	0057	E.Piano 3C	0107	RockOrg2 A R	0157	Rock lead 2	0207	Pluck Harp
0008	StGrand fA R	0058	MK-80 EP A	0108	RockOrg2 B L	0158	Comp Gtr A	0208	Banjo A
0009	StGrand fB L	0059	MK-80 EP B	0109	RockOrg2 B R	0159	Comp Gtr B	0209	Banjo B
0010	StGrand fB R	0060	MK-80 EP C	0110	RockOrg2 C L	0160	Comp Gtr C	0210	Banjo C
0011	StGrand fC L	0061	EP Hard	0111	RockOrg2 C R	0161	Comp Gtr A+	0211	Sitar A
0012	StGrand fC R	0062	EP Distone	0112	RockOrg3 A L	0162	Mute Gtr 1	0212	Sitar B
0013	Ac Piano2 pA	0063	Clear Keys	0113	RockOrg3 A R	0163	Mute Gtr 2A	0213	Sitar C
0014	Ac Piano2 pB	0064	D-50 EP A	0114	RockOrg3 B L	0164	Mute Gtr 2B	0214	E.Sitar A
0015	Ac Piano2 pC	0065	D-50 EP B	0115	RockOrg3 B R	0165	Mute Gtr 2C	0215	E.Sitar B
0016	Ac Piano2 fA	0066	D-50 EP C	0116	RockOrg3 C L	0166	Muters	0216	E.Sitar C
0017	Ac Piano2 fB	0067	Celesta	0117	RockOrg3 C R	0167	Pop Strat A	0217	Santur A
0018	Ac Piano2 fC	0068	Music Box	0118	Dist. Organ	0168	Pop Strat B	0218	Santur B
0019	Ac Piano1 A	0069	Music Box 2	0119	Rot.Org Slw	0169	Pop Strat C	0219	Santur C
0020	Ac Piano1 B	0070	Clav 1A	0120	Rot.Org Fst	0170	JC Strat A	0220	Dulcimer A
0021	Ac Piano1 C	0071	Clav 1B	0121	Pipe Organ	0171	JC Strat B	0221	Dulcimer B
0022	Piano Thump	0072	Clav 1C	0122	Soft Nylon A	0172	JC Strat C	0222	Dulcimer C
0023	Piano Up TH	0073	Clav 2A	0123	Soft Nylon B	0173	JC Strat A+	0223	Shamisen A
0024	Piano Atk	0074	Clav 2B	0124	Soft Nylon C	0174	JC Strat B+	0224	Shamisen B
0025	MKS-20 P3 A	0075	Clav 2C	0125	Nylon Gtr A	0175	JC Strat C+	0225	Shamisen C
0026	MKS-20 P3 B	0076	Clav 3A	0126	Nylon Gtr B	0176	Clean Gtr A	0226	Koto A
0027	MKS-20 P3 C	0077	Clav 3B	0127	Nylon Gtr C	0177	Clean Gtr B	0227	Koto B
0028	SA Rhodes 1A	0078	Clav 3C	0128	Nylon Str	0178	Clean Gtr C	0228	Koto C
0029	SA Rhodes 1B	0079	Clav 4A	0129	6-Str Gtr A	0179	Stratus A	0229	Taishokoto A
0030	SA Rhodes 1C	0080	Clav 4B	0130	6-Str Gtr B	0180	Stratus B	0230	Taishokoto B
0031	SA Rhodes 2A	0081	Clav 4C	0131	6-Str Gtr C	0181	Stratus C	0231	Taishokoto C
0032	SA Rhodes 2B	0082	Clav Wave	0132	StlGtr mp A	0182	Scrape Gut	0232	Pick Bass A
0033	SA Rhodes 2C	0083	MIDI Clav	0133	StlGtr mp B	0183	Strat Sust	0233	Pick Bass B
0034	Dyn Rhd mp A	0084	HarpsiWave A	0134	StlGtr mp C	0184	Strat Atk	0234	Pick Bass C
0035	Dyn Rhd mp B	0085	HarpsiWave B	0135	StlGtr mf A	0185	OD Gtr A	0235	Fingerd Bs A
0036	Dyn Rhd mp C	0086	HarpsiWave C	0136	StlGtr mf B	0186	OD Gtr B	0236	Fingerd Bs B
0037	Dyn Rhd mf A	0087	Jazz Organ 1	0137	StlGtr mf C	0187	OD Gtr C	0237	Fingerd Bs C
0038	Dyn Rhd mf B	0088	Jazz Organ 2	0138	StlGtr ff A	0188	OD Gtr A+	0238	E.Bass
0039	Dyn Rhd mf C	0089	Organ 1	0139	StlGtr ff B	0189	Heavy Gtr A	0239	P.Bass 1
0040	Dyn Rhd ff A	0090	Organ 2	0140	StlGtr ff C	0190	Heavy Gtr B	0240	P.Bass 2
0041	Dyn Rhd ff B	0091	Organ 3	0141	StlGtr sld A	0191	Heavy Gtr C	0241	Stick
0042	Dyn Rhd ff C	0092	Organ 4	0142	StlGtr sld B	0192	Heavy Gtr A+	0242	Fretless A
0043	Wurly soft A	0093	60's Organ1	0143	StlGtr sld C	0193	Heavy Gtr B+	0243	Fretless B
0044	Wurly soft B	0094	60's Organ2	0144	StlGtr Hrm A	0194	Heavy Gtr C+	0244	Fretless C
0045	Wurly soft C	0095	60's Organ3	0145	StlGtr Hrm B	0195	PowerChord A	0245	Fretless 2A
0046	Wurly hard A	0096	60's Organ4	0146	StlGtr Hrm C	0196	PowerChord B	0246	Fretless 2B
0047	Wurly hard B	0097	Full Organ	0147	Gtr Harm A	0197	PowerChord C	0247	Fretless 2C
0048	Wurly hard C	0098	Full Draw	0148	Gtr Harm B	0198	EG Harm	0248	UprightBs 1
0049	E.Piano 1A	0099	Rock Organ	0149	Gtr Harm C	0199	Gt.FretNoise	0249	UprightBs 2A
0050	E.Piano 1B	0100	RockOrg1 A L	0150	Jazz Gtr A	0200	Syn Gtr A	0250	UprightBs 2B

## Waveform List

No.	Wave Name								
0251	UprightBs 2C	0301	Oboe mf A	0351	OrcUnisonA L	0401	Violin 2 B	0451	Voice Aahs B
0252	Ac.Bass A	0302	Oboe mf B	0352	OrcUnisonA R	0402	Violin 2 C	0452	Voice Aahs C
0253	Ac.Bass B	0303	Oboe mf C	0353	OrcUnisonB L	0403	Cello A	0453	Voice Oohs1A
0254	Ac.Bass C	0304	Oboe f A	0354	OrcUnisonB R	0404	Cello B	0454	Voice Oohs1B
0255	Slap Bass 1	0305	Oboe f B	0355	OrcUnisonC L	0405	Cello C	0455	Voice Oohs1C
0256	Slap & Pop	0306	Oboe f C	0356	OrcUnisonC R	0406	Cello 2 A	0456	Voice Oohs2A
0257	Slap Bass 2	0307	E.Horn A	0357	BrassSectA L	0407	Cello 2 B	0457	Voice Oohs2B
0258	Slap Bass 3	0308	E.Horn B	0358	BrassSectA R	0408	Cello 2 C	0458	Voice Oohs2C
0259	Jz.Bs Thumb	0309	E.Horn C	0359	BrassSectB L	0409	Cello Wave	0459	Choir 1A
0260	Jz.Bs Slap 1	0310	Bassoon A	0360	BrassSectB R	0410	Pizz	0460	Choir 1B
0261	Jz.Bs Slap 2	0311	Bassoon B	0361	BrassSectC L	0411	STR Attack A	0461	Choir 1C
0262	Jz.Bs Slap 3	0312	Bassoon C	0362	BrassSectC R	0412	STR Attack B	0462	Oohs Chord L
0263	Jz.Bs Pop	0313	T_Recorder A	0363	Tpt Sect. A	0413	STR Attack C	0463	Oohs Chord R
0264	Funk Bass1	0314	T_Recorder B	0364	Tpt Sect. B	0414	DolceStr.A L	0464	Male Ooh A
0265	Funk Bass2	0315	T_Recorder C	0365	Tpt Sect. C	0415	DolceStr.A R	0465	Male Ooh B
0266	Syn Bass A	0316	Sop.Sax A	0366	Tb Sect A	0416	DolceStr.B L	0466	Male Ooh C
0267	Syn Bass C	0317	Sop.Sax B	0367	Tb Sect B	0417	DolceStr.B R	0467	Org Vox A
0268	Syn Bass	0318	Sop.Sax C	0368	Tb Sect C	0418	DolceStr.C L	0468	Org Vox B
0269	Syn Bass 2 A	0319	Sop.Sax mf A	0369	T.Sax Sect A	0419	DolceStr.C R	0469	Org Vox C
0270	Syn Bass 2 B	0320	Sop.Sax mf B	0370	T.Sax Sect B	0420	JV Strings L	0470	Org Vox
0271	Syn Bass 2 C	0321	Sop.Sax mf C	0371	T.Sax Sect C	0421	JV Strings R	0471	ZZZ Vox
0272	Mini Bs 1A	0322	Alto mp A	0372	Flugel A	0422	JV Strings A	0472	Bell VOX
0273	Mini Bs 1B	0323	Alto mp B	0373	Flugel B	0423	JV Strings C	0473	Kalimba
0274	Mini Bs 1C	0324	Alto mp C	0374	Flugel C	0424	JP Strings1A	0474	JD Kalimba
0275	Mini Bs 2	0325	Alto Sax 1A	0375	FlugelWave	0425	JP Strings1B	0475	Klmba Atk
0276	Mini Bs 2+	0326	Alto Sax 1B	0376	Trumpet 1A	0426	JP Strings1C	0476	Wood Crak
0277	MC-202 Bs A	0327	Alto Sax 1C	0377	Trumpet 1B	0427	JP Strings2A	0477	Block
0278	MC-202 Bs B	0328	T.Breathy A	0378	Trumpet 1C	0428	JP Strings2B	0478	Gamelan 1
0279	MC-202 Bs C	0329	T.Breathy B	0379	Trumpet 2A	0429	JP Strings2C	0479	Gamelan 2
0280	Hollow Bs	0330	T.Breathy C	0380	Trumpet 2B	0430	PWM	0480	Gamelan 3
0281	Flute 1A	0331	SoloSax A	0381	Trumpet 2C	0431	Pulse Mod	0481	Log Drum
0282	Flute 1B	0332	SoloSax B	0382	HarmonMute1A	0432	Soft Pad A	0482	Hooky
0283	Flute 1C	0333	SoloSax C	0383	HarmonMute1B	0433	Soft Pad B	0483	Tabla
0284	Jazz Flute A	0334	Tenor Sax A	0384	HarmonMute1C	0434	Soft Pad C	0484	Marimba Wave
0285	Jazz Flute B	0335	Tenor Sax B	0385	Trombone 1	0435	Fantasynth A	0485	Xylo
0286	Jazz Flute C	0336	Tenor Sax C	0386	Trombone 2 A	0436	Fantasynth B	0486	Xylophone
0287	Flute Tone	0337	T.Sax mf A	0387	Trombone 2 B	0437	Fantasynth C	0487	Vibes
0288	Piccolo A	0338	T.Sax mf B	0388	Trombone 2 C	0438	D-50 HeavenA	0488	Bottle Hit
0289	Piccolo B	0339	T.Sax mf C	0389	Tuba A	0439	D-50 HeavenB	0489	Glockenspiel
0290	Piccolo C	0340	Bari.Sax f A	0390	Tuba B	0440	D-50 HeavenC	0490	Tubular
0291	Blow Pipe	0341	Bari.Sax f B	0391	Tuba C	0441	Fine Wine	0491	Steel Drums
0292	Pan Pipe	0342	Bari.Sax f C	0392	French 1A	0442	D-50 Brass A	0492	Pole Ip
0293	BottleBlow	0343	Bari.Sax A	0393	French 1C	0443	D-50 Brass B	0493	Fanta Bell A
0294	Rad Hose	0344	Bari.Sax B	0394	F.Horns A	0444	D-50 Brass C	0494	Fanta Bell B
0295	Shakuhachi	0345	Bari.Sax C	0395	F.Horns B	0445	D-50 BrassA+	0495	Fanta Bell C
0296	Shaku Atk	0346	Syn Sax	0396	F.Horns C	0446	Doo	0496	FantaBell A+
0297	Flute Push	0347	Chanter	0397	Violin A	0447	Pop Voice	0497	Org Bell
0298	Clarinet A	0348	Harmonica A	0398	Violin B	0448	Syn Vox 1	0498	AgogoBells
0299	Clarinet B	0349	Harmonica B	0399	Violin C	0449	Syn Vox 2	0499	FingerBell
0300	Clarinet C	0350	Harmonica C	0400	Violin 2 A	0450	Voice Aahs A	0500	DIGI Bell 1

## Waveform List

No.	Wave Name								
0501	DIGI Bell 1+	0551	DualSquare A	0601	TVF_Trig	0651	Thunder 2	0701	Jazz Rim fFR
0502	JD Cowbell	0552	DualSquare C	0602	Org Click	0652	AmbientSN pL	0702	Brush Slap
0503	Bell Wave	0553	DualSquareA+	0603	Cut Noiz	0653	AmbientSN pR	0703	Brush Swish
0504	Chime	0554	JD SynPulse1	0604	Bass Body	0654	AmbientSN fL	0704	Jazz Swish p
0505	Crystal	0555	JD SynPulse2	0605	Flute Click	0655	AmbientSN fR	0705	Jazz Swish f
0506	2.2 Bellwave	0556	JD SynPulse3	0606	Gt&BsNz MENU	0656	Wet SN p L	0706	909 SN 1
0507	2.2 Vibwave	0557	JD SynPulse4	0607	Ac.BassNz 1	0657	Wet SN p R	0707	909 SN 2
0508	Digiwave	0558	Synth Pulse1	0608	Ac.BassNz 2	0658	Wet SN f L	0708	808 SN
0509	DIGI Chime	0559	Synth Pulse2	0609	El.BassNz 1	0659	Wet SN f R	0709	Rock Roll L
0510	JD DIGIChime	0560	JD SynPulse5	0610	El.BassNz 2	0660	Dry SN p	0710	Rock Roll R
0511	BrightDigi	0561	Sync Sweep	0611	DistGtrNz 1	0661	Dry SN f	0711	Jazz Roll
0512	Can Wave 1	0562	Triangle	0612	DistGtrNz 2	0662	Sharp SN	0712	Brush Roll
0513	Can Wave 2	0563	JD Triangle	0613	DistGtrNz 3	0663	Piccolo SN	0713	Dry Stick
0514	Vocal Wave	0564	Sine	0614	DistGtrNz 4	0664	Maple SN	0714	Dry Stick 2
0515	Wally Wave	0565	Metal Wind	0615	SteelGtrNz 1	0665	Old Fill SN	0715	Side Stick
0516	Brusky Ip	0566	Wind Agogo	0616	SteelGtrNz 2	0666	70s SN	0716	Woody Stick
0517	Wave Scan	0567	Feedbackwave	0617	SteelGtrNz 3	0667	SN Roll	0717	RockStick pL
0518	Wire String	0568	Spectrum	0618	SteelGtrNz 4	0668	Natural SN1	0718	RockStick pR
0519	Nasty	0569	CrunchWind	0619	SteelGtrNz 5	0669	Natural SN2	0719	RockStick fL
0520	Wave Table	0570	ThroatWind	0620	SteelGtrNz 6	0670	Ballad SN	0720	RockStick fR
0521	Klack Wave	0571	Pitch Wind	0621	SteelGtrNz 7	0671	Rock SN p L	0721	Dry Kick
0522	Spark VOX	0572	JD Vox Noise	0622	Sea	0672	Rock SN p R	0722	Maple Kick
0523	JD Spark VOX	0573	Vox Noise	0623	Thunder	0673	Rock SN mf L	0723	Rock Kick p
0524	Cutters	0574	BreathNoise	0624	Windy	0674	Rock SN mf R	0724	Rock Kick mf
0525	EML 5th	0575	Voice Breath	0625	Stream	0675	Rock SN f L	0725	Rock Kick f
0526	MMM VOX	0576	White Noise	0626	Bubble	0676	Rock SN f R	0726	Jazz Kick p
0527	Lead Wave	0577	Pink Noise	0627	Bird	0677	Rock Rim p L	0727	Jazz Kick mf
0528	Synth Reed	0578	Rattles	0628	Dog Bark	0678	Rock Rim p R	0728	Jazz Kick f
0529	Synth Saw 1	0579	Ice Rain	0629	Horse	0679	Rock Rim mfL	0729	Jazz Kick
0530	Synth Saw 2	0580	Tin Wave	0630	Telephone 1	0680	Rock Rim mfR	0730	Pillow Kick
0531	Syn Saw 2inv	0581	Anklungs	0631	Telephone 2	0681	Rock Rim f L	0731	JazzDry Kick
0532	Synth Saw 3	0582	Wind Chimes	0632	Creak	0682	Rock Rim f R	0732	Lite Kick
0533	JD Syn Saw 2	0583	Orch. Hit	0633	Door Slam	0683	Rock Gst L	0733	Old Kick
0534	FAT Saw	0584	Tekno Hit	0634	Engine	0684	Rock Gst R	0734	Hybrid Kick
0535	JP-8 Saw A	0585	Back Hit	0635	Car Stop	0685	Snare Ghost	0735	Hybrid Kick2
0536	JP-8 Saw B	0586	Philly Hit	0636	Car Pass	0686	Jazz SN p L	0736	Verb Kick
0537	JP-8 Saw C	0587	Scratch 1	0637	Crash	0687	Jazz SN p R	0737	Round Kick
0538	P5 Saw A	0588	Scratch 2	0638	Gun Shot	0688	Jazz SN mf L	0738	MplLmtr Kick
0539	P5 Saw B	0589	Scratch 3	0639	Siren	0689	Jazz SN mf R	0739	70s Kick 1
0540	P5 Saw C	0590	Shami	0640	Train	0690	Jazz SN f L	0740	70s Kick 2
0541	P5 Saw2 A	0591	Org Atk 1	0641	Jetplane	0691	Jazz SN f R	0741	Dance Kick
0542	P5 Saw2 B	0592	Org Atk 2	0642	Starship	0692	Jazz SN ff L	0742	808 Kick
0543	P5 Saw2 C	0593	Sm Metal	0643	Breath	0693	Jazz SN ff R	0743	909 Kick 1
0544	D-50 Saw A	0594	StrikePole	0644	Laugh	0694	Jazz Rim p L	0744	909 Kick 2
0545	D-50 Saw B	0595	Thrill	0645	Scream	0695	Jazz Rim p R	0745	Rock TomL1 p
0546	D-50 Saw C	0596	Switch	0646	Punch	0696	Jazz Rim mfL	0746	Rock TomL2 p
0547	Synth Square	0597	Tuba Slap	0647	Heart	0697	Jazz Rim mfR	0747	Rock Tom M p
0548	JP-8 SquareA	0598	Plink	0648	Steps	0698	Jazz Rim f L	0748	Rock Tom H p
0549	JP-8 SquareB	0599	Plunk	0649	Machine Gun	0699	Jazz Rim f R	0749	Rock TomL1 f
0550	JP-8 SquareC	0600	EP Atk	0650	Laser	0700	Jazz Rim ffL	0750	Rock TomL2 f

## Waveform List

No.	Wave Name								
0751	Rock Tom M f	0801	Jazz PdHH p	0851	Cabasa Down	0901	REV Wet SNfR	0951	REV JzRoll
0752	Rock Tom H f	0802	Jazz PdHH f	0852	Cabasa Cut	0902	REV Dry SN	0952	REV Dry Stk
0753	Rock Flm L1	0803	Pedal HiHat	0853	Maracas	0903	REV PiccloSN	0953	REV DrySick
0754	Rock Flm L2	0804	Pedal HiHat2	0854	Long Guiro	0904	REV Maple SN	0954	REV Side Stk
0755	Rock Flm M	0805	Dance Cl HH	0855	Tambourine 1	0905	REV OldFilSN	0955	REV Wdy Stk
0756	Rock Flm H	0806	909 NZ HiHat	0856	Tambourine 2	0906	REV 70s SN	0956	REV RkStk1L
0757	Jazz Tom L p	0807	70s Cl HiHat	0857	Open Triangl	0907	REV SN Roll	0957	REV RkStk1R
0758	Jazz Tom M p	0808	70s Op HiHat	0858	Cuica	0908	REV NatrISN1	0958	REV RkStk2L
0759	Jazz Tom H p	0809	606 Cl HiHat	0859	Vibraslap	0909	REV NatrISN2	0959	REV RkStk2R
0760	Jazz Tom L f	0810	606 Op HiHat	0860	Timpani	0910	REV BalladSN	0960	REV Thrill
0761	Jazz Tom M f	0811	909 Cl HiHat	0861	Timp3 pp	0911	REV RkSNpL	0961	REV Dry Kick
0762	Jazz Tom H f	0812	909 Op HiHat	0862	Timp3 mp	0912	REV RkSNpR	0962	REV Mpl Kick
0763	Jazz Flm L	0813	808 Claps	0863	Applause	0913	REV RkSNmfL	0963	REV RkKik p
0764	Jazz Flm M	0814	HumanClapsEQ	0864	Syn FX Loop	0914	REV RkSNmfR	0964	REV RkKik mf
0765	Jazz Flm H	0815	Tight Claps	0865	Loop 1	0915	REV RkSNfL	0965	REV RkKik f
0766	Maple Tom 1	0816	Hand Claps	0866	Loop 2	0916	REV RkSNfR	0966	REV JzKik p
0767	Maple Tom 2	0817	Finger Snaps	0867	Loop 3	0917	REV RkRimpL	0967	REV JzKik mf
0768	Maple Tom 3	0818	Rock RdCym1p	0868	Loop 4	0918	REV RkRimpR	0968	REV JzKik f
0769	Maple Tom 4	0819	Rock RdCym1f	0869	Loop 5	0919	REV RkRimmfL	0969	REV Jaz Kick
0770	808 Tom	0820	Rock RdCym2p	0870	Loop 6	0920	REV RkRimmfR	0970	REV Pillow K
0771	Verb Tom Hi	0821	Rock RdCym2f	0871	Loop 7	0921	REV RkRimfL	0971	REV Jz Dry K
0772	Verb Tom Lo	0822	Jazz RdCym p	0872	R8 Click	0922	REV RkRimfR	0972	REV LiteKick
0773	Dry Tom Hi	0823	Jazz RdCymmf	0873	Metronome 1	0923	REV RkGstL	0973	REV Old Kick
0774	Dry Tom Lo	0824	Jazz RdCym f	0874	Metronome 2	0924	REV RkGstR	0974	REV Hybrid K
0775	Rock ClHH1 p	0825	Ride 1	0875	MC500 Beep 1	0925	REV SnareGst	0975	REV HybridK2
0776	Rock ClHH1mf	0826	Ride 2	0876	MC500 Beep 2	0926	REV JzSNpL	0976	REV 70s K 1
0777	Rock ClHH1 f	0827	Ride Bell	0877	Low Saw	0927	REV JzSNpR	0977	REV 70s K 2
0778	Rock ClHH2 p	0828	Rock CrCym1p	0878	Low Saw inv	0928	REV JzSNmfL	0978	REV Dance K
0779	Rock ClHH2mf	0829	Rock CrCym1f	0879	Low P5 Saw	0929	REV JzSNmfR	0979	REV 909 K 2
0780	Rock ClHH2 f	0830	Rock CrCym2p	0880	Low Pulse 1	0930	REV JzSNfL	0980	REV RkTomL1p
0781	Jazz ClHH1 p	0831	Rock CrCym2f	0881	Low Pulse 2	0931	REV JzSNfR	0981	REV RkTomL2p
0782	Jazz ClHH1mf	0832	Rock Splash	0882	Low Square	0932	REV JzSNffL	0982	REV RkTomM p
0783	Jazz ClHH1 f	0833	Jazz CrCym p	0883	Low Sine	0933	REV JzSNffR	0983	REV RkTomH p
0784	Jazz ClHH2 p	0834	Jazz CrCym f	0884	Low Triangle	0934	REV JzRimpL	0984	REV RkTomL1f
0785	Jazz ClHH2mf	0835	Crash Cymbal	0885	Low White NZ	0935	REV JzRimpR	0985	REV RkTomL2f
0786	Jazz ClHH2 f	0836	Crash 1	0886	Low Pink NZ	0936	REV JzRimmfL	0986	REV RkTomM f
0787	Cl HiHat 1	0837	Rock China	0887	DC	0937	REV JzRimmfR	0987	REV RkTomH f
0788	Cl HiHat 2	0838	China Cym	0888	REV Orch.Hit	0938	REV JzRimfL	0988	REV RkFlmL1
0789	Cl HiHat 3	0839	Cowbell	0889	REV TeknoHit	0939	REV JzRimfR	0989	REV RkFlmL2
0790	Cl HiHat 4	0840	Wood Block	0890	REV Back Hit	0940	REV JzRimffL	0990	REV RkFlm M
0791	Cl HiHat 5	0841	Claves	0891	REV PhillHit	0941	REV JzRimffR	0991	REV RkFlm H
0792	Rock OpHH p	0842	Bongo Hi	0892	REV Steel DR	0942	REV Brush 1	0992	REV JzTomL p
0793	Rock OpHH f	0843	Bongo Lo	0893	REV Tin Wave	0943	REV Brush 2	0993	REV JzTomM p
0794	Jazz OpHH p	0844	Cga Open Hi	0894	REV AmbiSNpL	0944	REV Brush 3	0994	REV JzTomH p
0795	Jazz OpHH mf	0845	Cga Open Lo	0895	REV AmbiSNpR	0945	REV JzSwish1	0995	REV JzTomL f
0796	Jazz OpHH f	0846	Cga Mute Hi	0896	REV AmbiSNfL	0946	REV JzSwish2	0996	REV JzTomM f
0797	Op HiHat	0847	Cga Mute Lo	0897	REV AmbiSNfR	0947	REV 909 SN 1	0997	REV JzTomH f
0798	Op HiHat 2	0848	Cga Slap	0898	REV Wet SNpL	0948	REV 909 SN 2	0998	REV JzFlm L
0799	Rock PdHH p	0849	Timbale	0899	REV Wet SNpR	0949	REV RkRoll L	0999	REV JzFlm M
0800	Rock PdHH f	0850	Cabasa Up	0900	REV Wet SNfL	0950	REV RkRoll R	1000	REV JzFlm H

No.	Wave Name	No.	Wave Name
1001	REV MplTom2	1051	REV RkRCym2p
1002	REV MplTom4	1052	REV RkRCym2f
1003	REV 808Tom	1053	REV JzRCym p
1004	REV VerbTomH	1054	REV JzRCymmf
1005	REV VerbTomL	1055	REV JzRCym f
1006	REV DryTom H	1056	REV Ride 1
1007	REV DryTom M	1057	REV Ride 2
1008	REV RkCIH1 p	1058	REV RideBell
1009	REV RkCIH1mf	1059	REV RkCCym1p
1010	REV RkCIH1 f	1060	REV RkCCym1f
1011	REV RkCIH2 p	1061	REV RkCCym2p
1012	REV RkCIH2mf	1062	REV RkCCym2f
1013	REV RkCIH2 f	1063	REV RkSplash
1014	REV JzCIH1 p	1064	REV JzCCym p
1015	REV JzCIH1mf	1065	REV JzCCym f
1016	REV JzCIH1 f	1066	REV CrashCym
1017	REV JzCIH2 p	1067	REV Crash 1
1018	REV JzCIH2mf	1068	REV RkChina
1019	REV JzCIH2 f	1069	REV China
1020	REV CI HH 1	1070	REV Cowbell
1021	REV CI HH 2	1071	REV WoodBlick
1022	REV CI HH 3	1072	REV Claves
1023	REV CI HH 4	1073	REV Conga
1024	REV CI HH 5	1074	REV Timbale
1025	REV RkOpHH p	1075	REV Maracas
1026	REV RkOpHH f	1076	REV Guiro
1027	REV JzOpHH p	1077	REV Tamb 1
1028	REV JzOpHHmf	1078	REV Tamb 2
1029	REV JzOpHH f	1079	REV Cuica
1030	REV Op HiHat	1080	REV Timpani
1031	REV OpHiHat2	1081	REV Timp3 pp
1032	REV RkPdHH p	1082	REV Timp3 mp
1033	REV RkPdHH f	1083	REV Metro
1034	REV JzPdHH p		
1035	REV JzPdHH f		
1036	REV PedalHH		
1037	REV PedalHH2		
1038	REV Dance HH		
1039	REV 70s CIHH		
1040	REV 70s OpHH		
1041	REV 606 CIHH		
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		

# Arpeggio Style List

Style	Motif	Beat Pattern	Accent Rate	Shuffle Rate
1/4	all	1/ 4	0-100%	50-90%
1/6	all	1/ 6	0-100%	50-90%
1/8	all	1/ 8	0-100%	50-90%
1/12	all	1/12	0-100%	50-90%
1/16	all	1/16 1-3	0-100%	50-90%
1/32	SINGLE UP, SINGLE DOWN, SINGLE UP&DOWN, SINGLE RANDOM, DUAL UP, DUAL DOWN, DUAL UP&DOWN, DUAL RANDOM, NOTE ORDER, GLISSANDO, BASS+UP 1-8, BASS+RND 1-3, TOP+UP 1-6	1/32 1-3	0-100%	50-90%
PORTAMENTO A	all	PORTA-A 01-11	0-100%	50-90%
PORTAMENTO B	all	PORTA-B 01-15	0-100%	50-90%
GLISSANDO	GLISSANDO	1/16 1-3, 1/32 1-3	0-100%	50-90%
SEQUENCE A	all	SEQ-A 1-7	0-100%	50-90%
SEQUENCE B	all	SEQ-B 1-5	0-100%	50-90%
SEQUENCE C	SINGLE UP, SINGLE DOWN, SINGLE UP&DOWN, SINGLE RANDOM, DUAL UP, DUAL DOWN, DUAL UP&DOWN, DUAL RANDOM, NOTE ORDER, GLISSANDO, BASS+UP 1-8, BASS+RND 1-3, TOP+UP 1-6	SEQ-C 1-2	0-100%	50-90%
SEQUENCE D	all	SEQ-D 1-8	0-100%	50-90%
ECHO	SINGLE UP, SINGLE DOWN, SINGLE UP&DOWN, SINGLE RANDOM, DUAL UP, DUAL DOWN, DUAL UP&DOWN, DUAL RANDOM, NOTE ORDER	ECHO 1-3	0-100%	50-90%
SYNTH BASS	BASS+UP 2	SEQ-A 1, SEQ-C 1	0-100%	50-90%
HEAVY SLAP	BASS+UP 5, TOP+UP 5	MUTE 02, 03	0-100%	50-90%
LIGHT SLAP	BASS+UP 5, TOP+UP 5	MUTE 02, 03	0-100%	50-90%
WALK BASS	SINGLE UP, SINGLE DOWN, SINGLE UP&DOWN, SINGLE RANDOM, NOTE ORDER, GLISSANDO	WALKBS, REFRAIN 1	0-100%	50-90%
RHYTHM GTR 1	SINGLE UP, SINGLE DOWN, SINGLE UP&DOWN, SINGLE RANDOM, DUAL UP, DUAL DOWN, DUAL UP&DOWN, DUAL RANDOM, NOTE ORDER, BASS+UP 1-8, BASS+RND 1-3, TOP+UP 1-6	MUTE 01, 04	0-100%	50-90%
RHYTHM GTR 2	CHORD	MUTE 07, 13, 14	0-100%	50-90%
RHYTHM GTR 3	CHORD	MUTE 08, 12, 15	0-100%	50-90%
RHYTHM GTR 4	CHORD	MUTE 09, 10, 11, 16	0-100%	50-90%
RHYTHM GTR 5	SINGLE UP, SINGLE DOWN	STRUM 1-6	0-100%	50-90%
3 FINGER GTR	BASS+UP+TOP	SEQ-A 7	0-100%	50-90%
STRUM GTR UP	SINGLE UP	STRUM 7-8	0-100%	50-90%
STRUM GTR DOWN	SINGLE DOWN	STRUM 7-8	0-100%	50-90%
STRUM GTR UP&DW	SINGLE UP&DOWN	STRUM 7-8	0-100%	50-90%
PIANO BACKING	CHORD	MUTE 12, REFRAIN 2	0-100%	50-90%
CLAVI CHORD	BASS+CHORD 4, BASS+CHORD 5	MUTE 05, 06	0-100%	50-90%
WALTZ	BASS+CHORD 2, BASS+UP 2, BASS+RND 2, TOP+UP 2	1/ 6, 1/12	0-100%	50-90%
SWING WALTZ	BASS+CHORD 2, BASS+UP 2, BASS+RND 2, TOP+UP 2	1/16 1-3	0-100%	50-90%
REGGAE	CHORD, BASS+CHORD 1	REGGAE 1-2	0-100%	50-90%
PERCUSSION	SINGLE UP, SINGLE DOWN, SINGLE UP&DOWN, SINGLE RANDOM, DUAL UP, DUAL DOWN, DUAL UP&DOWN, DUAL RANDOM, NOTE ORDER, BASS+UP 1-8, BASS+RND 1-3, TOP+UP 1-6	PERC 1-4	0-100%	50-90%
HARP	SINGLE UP, SINGLE DOWN, SINGLE UP&DOWN, GLISSANDO	HARP	0-100%	50-90%
SHAMISEN	TOP+UP 4-6	SEQ-A 2	0-100%	50-90%
BOUND BALL	SINGLE UP, SINGLE DOWN, SINGLE UP&DOWN, SINGLE RANDOM, DUAL UP, DUAL DOWN, DUAL UP&DOWN, DUAL RANDOM, NOTE ORDER, GLISSANDO	BOUND	0-100%	50-90%
RANDOM	SINGLE RANDOM, DUAL RANDOM, BASS+RND 1-3	1/ 4, 1/6, 1/8, 1/12, 1/16 1-3, 1/32 1-3, RANDOM	0-100%	50-90%
BOSSA NOVA	all	BOSSA NOVA	0-100%	50-90%
SALSA	all	SALSA 1-4	0-100%	50-90%
MAMBO	all	MAMBO 1-2	0-100%	50-90%
LATIN PERCUSSION	SINGLE UP, SINGLE DOWN, SINGLE UP&DOWN, SINGLE RANDOM, DUAL UP, DUAL DOWN, DUAL UP&DOWN, DUAL RANDOM, NOTE ORDER, GLISSANDO	CLAVE, REV CLA, GUIRO, AGOGO	0-100%	50-90%
SAMBA	all	SAMBA	0-100%	50-90%
TANGO	all	TANGO 1-4	0-100%	50-90%
HOUSE	all	HOUSE 1-2	0-100%	50-90%
LIMITLESS	all	all	0-100%	50-90%

all: there is no restriction on the value which can be set

# About MIDI

**MIDI (Musical Instruments Digital Interface)** is a standard specification that allows musical data to be exchanged between electronic musical instruments and computers. With a MIDI cable connecting MIDI devices that are equipped with MIDI connectors, you can play multiple instruments with a single keyboard, have multiple MIDI instruments perform in ensemble, program the settings to change automatically to match the performance as the song progresses, and more.

If you mainly use the XV-88 as a standalone keyboard instrument, you may really not need to know much at all about MIDI.

However, the following MIDI-related information is provided so you can play the XV-88 using an external MIDI device, or master other advanced techniques.

## About MIDI Connectors

The XV-88 is equipped with the three types of MIDI connectors, each which works differently.



### MIDI IN Connector

This connector receives MIDI messages that are transmitted from external MIDI devices. The XV-88 can receive these messages to play notes or select sounds, etc.

### MIDI OUT Connector

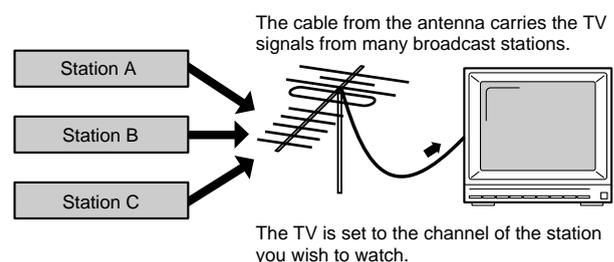
This connector transmits MIDI messages to external MIDI devices. The XV-88's MIDI OUT connector is used for sending the performance data of the keyboard controller section as well as data used for saving various settings and patterns (Bulk Dump; p. 185).

### MIDI THRU Connector

MIDI messages received at MIDI IN are re-transmitted without change from this connector to an external MIDI device. Use this in situations such as when you use multiple MIDI devices simultaneously.

## MIDI Channels and Multi-timbral Sound Generators

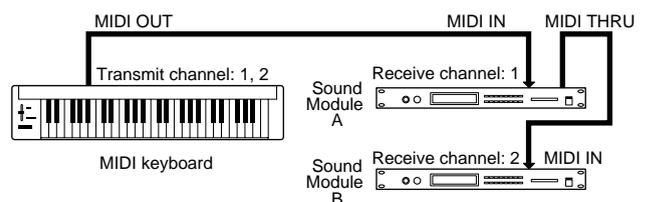
MIDI transmits many types of data over a single MIDI cable. This is made possible by the concept of **MIDI channels**. MIDI channels allow messages intended for a given instrument to be distinguished from messages intended for another instrument. In some ways, MIDI channels are similar to television channels. By changing the channel on a television set, you can view the programs that are being broadcast by different stations. In the same way, MIDI also allows a device to select the information intended for that device out of the variety of information that is being transmitted to it.



MIDI uses sixteen channels; 1 through 16. Set the receiving device so that it will receive only the channel that it needs to receive.

### Example:

Set the XV-88 to send Channel 1 and Channel 2, then set sound module A to receive only Channel 1 and sound module B only Channel 2. With this setup, you can get an ensemble performance, with, for example, a guitar sound from sound module A and bass from sound module B.



When used as a sound module, the XV-88 can receive on up to sixteen MIDI channels. Sound modules like the XV-88 which can receive multiple MIDI channels simultaneously to play different sounds on each channel are called **multi-timbral sound modules**.

# MIDI Implementation

Model: XV-88 (128-Voice Expandable Synthesizer)  
 Date: Feb. 15, 2000  
 Version: 1.00

## 1. Receive data

### ■ Channel Voice Messages

\* Not received in Performance mode when the Rx Sw parameter (PERFORM/MIDI/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/CTRL RxMIDI and RHYTHM/CONTROL/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 Paf parameter (PERFORM/MIDI/RxSWITCH) is OFF.

#### ● Control Change

- \* If the corresponding Controller number is selected for the Control 1, 2, 3 or 4 parameter (PATCH/CONTROL/MATRIX CTRL SRC), the corresponding effect will occur.
- \* If a Controller number that corresponds to the Control 1, 2, 3 or 4 parameter (SYSTEM/CONTROL/SYS CTRL ASSIGN 1, 2, 3, 4) is selected, the specified effect will apply if Control 1, 2, 3 or 4 parameter (PATCH/CONTROL/MATRIX CTRL SRC) 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 BankSelect (PERFORM/MIDI/RxSWITCH) is OFF.

\* The Performances, Rhythms, and Patches 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	PROGRAM	GROUP	NUMBER
MSB	LSB	NUMBER		
000	:	001 - 128	GM Patch	
032	:	001 - 128	GM Patch	
085	000	001 - 064	User Performance	001 - 064
	032	001 - 064	Card Performance A	001 - 064
	033	001 - 064	Card Performance B	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
	032	001 - 004	Card Rhythm A	001 - 004
	033	001 - 004	Card Rhythm B	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
	032	001 - 128	Card Patch A	001 - 128
	033	001 - 128	Card Patch B	001 - 128
	:	:	:	:
	064	001 - 128	Preset Patch A	001 - 128
	065	001 - 128	Preset Patch B	001 - 128
	:	:	:	:
088	000 - 001	001 - 128	SR-JV80-01 Rhythm	001 - 256
	002 - 003	001 - 128	SR-JV80-02 Rhythm	001 - 256
	:	:	:	:
089	000 - 001	001 - 128	SR-JV80-01 Patch	001 - 256
	002 - 003	001 - 128	SR-JV80-02 Patch	001 - 256
	:	:	:	:
092	000 -	001 -	SRX Rhythm	001 -
	:	:	:	:
093	000 -	001 -	SRX Patch	001 -
	:	:	:	:
120	:	001 - 057	GM Rhythm	001 - 009
121	000 - 009	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 Mod parameter (PERFORM/MIDI/RxSWITCH) 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 Portament Tm parameter (PERFORM/PART/MONO/POL) 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)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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 Vol parameter (PERFORM/MIDI/RxSWITCH) is OFF.
- \* In Performance mode the Level parameter (PERFORM/PART/SETTING) will change.

## ○ Balance (Controller number 8)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	08H	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)  
 vv = Balance: 00H - 7FH (0 - 127)

## ○ Panpot (Controller number 10)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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 Pan parameter (PERFORM/MIDI/RxSWITCH) is OFF.
- \* In Performance mode the pan parameter (PERFORM/PART/SETTING) will change.

## ○ Expression (Controller number 11)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	0BH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)  
 vv = Expression: 00H - 7FH (0 - 127)

- \* Not received when Expression parameter (PATCH/CONTROL/CTRL Rx MIDI or RHYTHM/CONTROL/Rx MIDI) is OFF.
- \* Not received in Performance mode when Exp parameter (PERFORM/MIDI/RxSWITCH) is OFF.

## ○ Hold 1 (Controller number 64)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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 Hold-1 parameter (PATCH/CONTROL/CTRL Rx MIDI or RHYTHM/CONTROL/Rx MIDI) is OFF.
- \* Not received in Performance mode when Hld parameter (PERFORM/MIDI/RxSWITCH) is OFF.

## ○ Portamento (Controller number 65)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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 Portamento Sw parameter (PERFORM/PART/MONO/POL) will change.

## ○ Sostenuto (Controller number 66)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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 Legato parameter (PERFORM/PART/MONO/POL) will change.

## ○ Hold-2 (Controller number 69)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	47H	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)  
 vv = Resonance value (relative change): 00H - 7FH (-64 - 0 - +63),

- \* In Performance mode the Res parameter (PERFORM/PART/MODIFY) will change.

## ○ Release Time (Controller number 72)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	48H	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)  
 vv = Release Time value (relative change): 00H - 7FH (-64 - 0 - +63),

- \* In Performance mode the Rel parameter (PERFORM/PART/MODIFY) will change.

## ○ Attack time (Controller number 73)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	49H	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)  
 vv = Attack time value (relative change): 00H - 7FH (-64 - 0 - +63),

- \* In Performance mode the Atk parameter (PERFORM/PART/MODIFY) will change.

## ○ Cutoff (Controller number 74)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	4AH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)  
 vv = Cutoff value (relative change): 00H - 7FH (-64 - 0 - +63)

- \* In Performance mode the Cut parameter (PERFORM/PART/MODIFY) will change.

## ○ Decay Time (Controller number 75)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	4BH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)  
 vv = Decay Time value (relative change): 00H - 7FH (-64 - 0 - +63)

- \* The decay time will change in GM mode.

## ○ Vibrato Rate (Controller number 76)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	4CH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)  
 vv = Vibrato Rate value (relative change): 00H - 7FH (-64 - 0 - +63)

- \* The vibrato rate will change in GM mode.

## ○ Vibrato Depth (Controller number 77)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	4DH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)  
 vv = Vibrato Depth Value (relative change): 00H - 7FH (-64 - 0 - +63)

- \* The vibrato depth will change in GM mode.

# MIDI Implementation

## ○ Vibrato Delay (Controller number 78)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	4EH	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Vibrato Delay value (relative change):	00H - 7FH (-64 - 0 - +63)	

\* The vibrato delay will change in GM mode.

## ○ General Purpose Controller 5 (Controller number 80)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	50H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Control value:	00H - 7FH (0 - 127)	

\* The Level parameter (PATCH/TVA/TVA) of Tone 1 will change.

## ○ General Purpose Controller 6 (Controller number 81)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	51H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Control value:	00H - 7FH (0 - 127)	

\* The Level parameter (PATCH/TVA/TVA) of Tone 2 will change.

## ○ General Purpose Controller 7 (Controller number 82)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	52H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Control value:	00H - 7FH (0 - 127)	

\* The Level parameter (PATCH/TVA/TVA) of Tone 3 will change.

## ○ General Purpose Controller 8 (Controller number 83)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	53H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Control value:	00H - 7FH (0 - 127)	

\* The Level parameter (PATCH/TVA/TVA) of Tone 4 will change.

## ○ Portamento control (Controller number 84)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	5BH	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Reverb Send Level:	00H - 7FH (0 - 127)	

\* In Performance mode the Reverb parameter (PERFORM/EFFECTS/OUTPUT) will change.

## ○ Effect 3 (Chorus Send Level) (Controller number 93)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	5DH	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Chorus Send Level:	00H - 7FH (0 - 127)	

\* In Performance mode the Chorus parameter (PERFORM/EFFECTS/OUTPUT) will change.

## ○ RPN MSB/LSB (Controller number 100, 101)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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	Data entry	Notes
MSB, LSB	MSB, LSB	
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 BendRng parameter (PERFORM/PART/PITCH) 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 Fine parameter (PERFORM/PART/PITCH) 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 Coarse parameter (PERFORM/PART/PITCH) will change.
00H, 05H	mmH, llH	Modulation Depth Range mm: 00 00H - 06 00H (0 - 16384 x 600 / 16384 cent) * Not received in Performance mode or 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

<u>Status</u>	<u>2nd byte</u>
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 Program Change parameter (PERFORM/MIDI/RxSWITCH) is OFF.

## ● Channel Pressure

<u>Status</u>	<u>2nd byte</u>
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 Caf parameter (PERFORM/MIDI/RxSWITCH) is OFF.

## ● Pitch Bend Change

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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 Bender parameter (PATCH/CONTROL/CTRL RxMIDI) is OFF.
- \* Not received in Performance mode when the Bnd parameter (PERFORM/MIDI/RxSWITCH) is OFF.

## ■ Channel Mode Messages

- \* Not received in Performance mode when the Rx Sw parameter (PERFORM/MIDI/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)
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 Mno/Pol parameter (PERFORM/PART/MONO/POL) 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 Mno/Pol parameter (PERFORM/PART/MONO/POL) will change.

## ■ System Realtime Message

### ● Timing Clock

Status
F8H

- \* This message will be received if the Clock Source parameter (SYSTEM/SETUP/SYSTEM SETUP) is MIDI.

### ● Active Sensing

Status
FEH

- \* When Active Sensing is received, the unit will begin monitoring the intervals of all further messages. While monitoring, if the interval between messages exceeds 420 ms, the same processing will be carried out as when All Sounds Off, All Notes Off and Reset All Controllers are received, and message interval monitoring will be halted.

## ■ System Exclusive Message

Status	Data byte	Status
F0H	iiH, ddH, .....eeH	F7H

F0H: System Exclusive Message status  
 ii = ID number: an ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H.  
 ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH).  
 dd,.....ee = data: 00H - 7FH (0 - 127)  
 F7H: EOX (End Of Exclusive)

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: 00H - 1FH (1 - 32), the initial value is 10H (17).)
06H	Sub ID#1 (General Information)
01H	Sub ID#2 (Identity Request)
F7H	EOX (End Of Exclusive)

- \* When this message is received, Identity Reply message (p. 278) 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 GM1 mode.
- \* Not received when the Rx GM On parameter (SYSTEM/MIDI/SYSTEM MIDI) is OFF.

# MIDI Implementation

## ○ 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 GM2 mode.
- \* Not received when the Rx GM2 On parameter (SYSTEM/MIDI/SYSTEM MIDI) 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, lH, mmH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control messages)
01H	Sub ID#2 (Master Volume)
lH	Master Volume lower byte
mmH	Master Volume upper byte
F7H	EOX (End Of Exclusive)

- \* The lower byte (lH) of Master Volume will be handled as 00H.
- \* The Master Level parameter (SYSTEM/SETUP/SYSTEM SETUP) will change.

### ○ Master Fine Tuning

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 03H, lH, 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)
lH	Master Fine Tuning LSB
mmH	Master Fine Tuning MSB
F7H	EOX (End Of Exclusive)

mm, l: 00 00H - 40 00H - 7F 7FH (-100 - 0 - +99.9 [cents])

- \* The Master parameter (SYSTEM/TUNE/SYSTEM TUNE) will change.

### ○ Master Coarse Tuning

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 04H, lH, 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)
lH	Master Coarse Tuning LSB

mmH	Master Coarse Tuning MSB
F7H	EOX (End Of Exclusive)
lH:	ignored (processed as 00H)
mmH:	28H - 40H - 58H (-24 - 0 - +24 [semitones])

- \* The Key Shift parameter (SYSTEM/TUNE/SYSTEM TUNE) will change.

## ● Global Parameter Control

- \* Not received in Performance mode and 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 - 0F)
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 1RQ1 (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, F7H	
	ddH, ssH, ttH, uuH, vvH, sum	

Byte	Remarks
F0H	Exclusive status
41H	ID number (Roland)
dev	device ID (dev: 10H - 1FH, 7FH)
00H	model ID #1 (XV-88)
10H	model ID #2 (XV-88)
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. 279).

\* For the checksum, refer to (p. 294).

\* Not received when the Rx Sys.Excl parameter (SYSTEM/MIDI/SYSTEM MIDI) is OFF.

## ○ Data set 1DT1 (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, Initial value is 10H)
00H	Model ID #1 (XV-88)
10H	Model ID #2 (XV-88)
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. 279).
- \* 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. 294)
- \* Not received when the Rx Sys.Excl parameter (SYSTEM/MIDI/SYSTEM MIDI) 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)
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. 279).
- \* 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. 294)
- \* Not received when the Rx Sys.Excl parameter (SYSTEM/MIDI/SYSTEM MIDI) is OFF.

## 2. Data Transmission

### ■ Channel Voice Messages

#### ● 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)	

#### ● 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)	

#### ● Control Change

- \* By selecting a controller number that corresponds to the setting of parameters of controllers (C1-C4 Assign, and so on), the XV-88 can transmit any control change message.

#### ○ 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)	

- \* These messages are transmitted when Performance, Patch or Rhythm set is selected. But not transmitted when Program or Bank Sel parameter (SYSTEM/MIDI/TRANSMIT MIDI) is OFF.
- \* In Performance (Zone) mode, these messages are not transmitted when Bank Select MSB or P.C# parameter (ZONE/EXT CONTROL/EXT P.C) is NO-SEND.
- \* Although with the XV-88 you can select the Bank Select messages to be transmitted, be sure to refer to the Program Change Map on (p. 270) for the Bank Select messages transmitted when the XV-88 is select a Performance, Patch, or Rhythm Set.
- \* The Bank Select Numbers corresponding to SRX series should be referred to the SRX series owner's manual.

#### ○ 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)	

#### ○ 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)	

#### ○ 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		

- \* When execute the GM Data Transfer, Data Entry messages will transmit.

## ○ Volume (Controller number 7)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	07H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Volume:	00H - 7FH (0 - 127)	

\* In Performance (Zone) mode, these messages are not transmitted when Volume parameter (ZONE/EXT CONTROL/EXT CTRL) is NO-SEND.

## ○ Panpot (Controller number 10)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	0AH	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Panpot:	00H - 40H - 7FH (Left - Center - Right),	

\* In Performance (Zone) mode, these messages are not transmitted when Pan parameter (ZONE/EXT CONTROL/EXT CTRL) is NO-SEND.

## ○ Expression (Controller number 11)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	0BH	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Expression:	00H - 7FH (0 - 127)	

## ○ Hold 1 (Controller number 64)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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	

\* When Continuous parameter (SYSTEM/CONTROL/HOLD PEDAL) is OFF, just only 00H (OFF) and 40H (ON) can be send as the control value.

## ○ Portamento (Controller number 65)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	47H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Resonance value (relative change):	00H - 7FH (-64 - 0 - +63)	

## ○ Release Time (Controller number 72)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	48H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Release Time value (relative change):	00H - 7FH (-64 - 0 - +63)	

## ○ Attack time (Controller number 73)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	49H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Attack time value (relative change):	00H - 7FH (-64 - 0 - +63)	

## ○ Cutoff (Controller number 74)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	4AH	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Cutoff value (relative change):	00H - 7FH (-64 - 0 - +63)	

## ○ General Purpose Controller 5 (Controller number 80)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	50H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Control value:	00H - 7FH (0 - 127)	

## ○ General Purpose Controller 6 (Controller number 81)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	51H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Control value:	00H - 7FH (0 - 127)	

## ○ General Purpose Controller 7 (Controller number 82)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	52H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Control value:	00H - 7FH (0 - 127)	

## ○ General Purpose Controller 8 (Controller number 83)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	53H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Control value:	00H - 7FH (0 - 127)	

## ○ Portamento control (Controller number 84)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
BnH	54H	kkH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
kk = source note number:	00H - 7FH (0 - 127)	

## ○ RPN MSB/LSB (Controller number 100, 101)

<u>Status</u>	<u>2nd byte</u>	<u>3rd byte</u>
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 >>>

When execute the GM Data Transfer, Program Change, Data Entry, and following RPN messages will transmit.

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	Data entry	Notes
<u>MSB, LSB</u>	<u>MSB, LSB</u>	
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

<u>Status</u>	<u>2nd byte</u>
CnH	ppH
n = MIDI channel number:	0H - FH (ch.1 - 16)
pp = Program number:	00H - 7FH (prog.1 - prog.128)

\* These messages are transmitted when Performance, Patch or Rhythm set is selected. But not transmitted when Program parameter (SYSTEM/MIDI/TRANSMIT MIDI) is OFF.  
\* In Performance (Zone) mode, these messages are not transmitted when P.C# parameter (ZONE/EXT CONTROL/EXT P.C) is NO-SEND.

# MIDI Implementation

## ● Channel Pressure

Status                      2nd byte  
 DnH                          vvH  
 n = MIDI channel number: 0H - FH (ch.1 - 16)  
 vv = Channel Pressure: 00H - 7FH (0 - 127)

## ● 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)

## ■ Channel Mode Messages

### ● All Sounds Off (Controller number 120)

Status                      2nd byte                      3rd byte  
 BnH                          78H                                  00H  
 n = MIDI channel number: 0H - FH (ch.1 - 16)

\* This message is sent on Panic operation.

### ● Reset All Controllers (Controller number 121)

Status                      2nd byte                      3rd byte  
 BnH                          79H                                  00H  
 n = MIDI channel number: 0H - FH (ch.1 - 16)

\* This message is sent on Panic operation.

### ● 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)

### ● POLY (Controller number 127)

Status                      2nd byte                      3rd byte  
 BnH                          7FH                                  00H  
 n = MIDI channel number: 0H - FH (ch.1 - 16)

## ■ System Common Messages

### ● Song Position Pointer

Status                      2nd byte                      3rd byte  
 F2H                          00H                                  00H

\* This message is sent on NEXT, PREV, or RESET operation in the external sequencer control function.

### ● Song Select

Status                      2nd byte  
 F3H                          ssH  
 ss = Song number: 0H - 7FH (0 - 127)

\* This message is sent on NEXT, or PREV operation in the external sequencer control function.

## ■ System Realtime Messages

### ● Continue

Status  
 FBH

\* This message is sent on START operation in the external sequencer control function.

### ● Stop

Status  
 FCH

\* This message is sent on STOP operation in the external sequencer control function.

## ● Active Sensing

Status  
 FEH

- \* This message is transmitted at intervals of approximately 250 msec.
- \* This message is not sent when Active Sensing parameter (SYSTEM/MIDI/TRANSMIT MIDI) is OFF.

## ■ System Exclusive Messages

Universal Non-realtime System Exclusive Message™ and Data Set 1 (DT1) are the only System Exclusive messages transmitted by the XV-88.

## ● Universal Non-realtime System Exclusive Message

### ○ Identity Reply Message

Receiving Identity Request Message, the XV-88 send this message.

<u>Status</u>	<u>Data byte</u>	<u>Status</u>
F0H	7EH, dev, 06H, 02H, 41H, 10H, 01H, 00H, 00H, 00H, 00H, 00H, 00H	F7H

<u>Byte</u>	<u>Explanation</u>
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (use the same as the device ID of Roland)
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
10H 01H	Device family code (XV-3080/5080/88)
00H 00H	Device family number code (XV-3080/88)
01H 01H 00H 00H	Software revision level
F7H	EOX (End of Exclusive)

## ● Data Transmission

### ○ Data set 1DT1 (12H)

<u>Status</u>	<u>Data byte</u>	<u>Status</u>
F0H	41H, dev, 00H, 10H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum	F7H

<u>Byte</u>	<u>Explanation</u>
F0H	Exclusive status
41H	ID number (Roland)
dev	Device ID (dev: 00H - 1FH, Initial value is 10H)
00H	Model ID #1 (XV-88)
10H	Model ID #2 (XV-88)
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. 279).

\* 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.

### 1. XV-88 (Model ID = 00H 10H)

\* “< >” marked address, valid on the XV-3080/5080, are ignored when the XV-88 receive them.

Start Address	Description	
00 00 00 00	System	1-1
10 00 00 00	Temporary Performance	1-2
11 00 00 00	Temporary Patch/Rhythm (Performance Mode Part 1)	1-3
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)	1-2
20 01 00 00	User Performance (02)	
:		
20 3F 00 00	User Performance (64)	
30 00 00 00	User Patch (001)	1-3-1
30 01 00 00	User Patch (002)	
:		
30 7F 00 00	User Patch (128)	
40 00 00 00	User Rhythm (001)	1-3-2
40 10 00 00	User Rhythm (002)	
40 20 00 00	User Rhythm (003)	
40 30 00 00	User Rhythm (004)	

#### 01-1 System

Offset Address	Description	
00 00 00	System Common	1-1-1
00 10 00	System Part (Part 1)	1-1-2
00 11 00	System Part (Part 2)	
:		
00 1F 00	System Part (Part 16)	
00 20 00	System Part (Part 17) <XV-5080>	
00 21 00	System Part (Part 18) <XV-5080>	
:		
00 2F 00	System Part (Part 32) <XV-5080>	
00 40 00	System Keyboard	1-1-3

#### 01-3 Temporary Patch/Rhythm

Offset Address	Description	
00 00 00	Temporary Patch	1-3-1
10 00 00	Temporary Rhythm	1-3-2

#### 01-2 Performance

Offset Address	Description	
00 00 00	Performance Common	1-2-1
00 02 00	Performance Common MFX	1-2-2
00 04 00	Performance Common Chorus	1-2-3
00 06 00	Performance Common Reverb	1-2-4
00 10 00	Performance MIDI (Channel 1)	1-2-5
00 11 00	Performance MIDI (Channel 2)	
:		
00 1F 00	Performance MIDI (Channel 16)	
00 20 00	Performance Part (Part 1)	1-2-6
00 21 00	Performance Part (Part 2)	
:		
00 2F 00	Performance Part (Part 16)	
00 30 00	Performance Part (Part 17) <XV-5080>	
00 31 00	Performance Part (Part 18) <XV-5080>	
00 3F 00	Performance Part (Part 32) <XV-5080>	
00 40 00	Performance Keyboard	1-2-7
00 50 00	Performance Zone (Channel 1)	1-2-8
00 51 00	Performance Zone (Channel 2)	
:		
00 5F 00	Performance Zone (Channel 16)	

#### 01-3-1 Patch

Offset Address	Description	
00 00 00	Patch Common	1-3-1-1
00 02 00	Patch Common MFX	1-3-1-2
00 04 00	Patch Common Chorus	1-3-1-3
00 06 00	Patch Common Reverb	1-3-1-4
00 10 00	Patch TMT (Tone Mix Table)	1-3-1-5
00 20 00	Patch Tone (Tone 1)	1-3-1-6
00 22 00	Patch Tone (Tone 2)	
00 24 00	Patch Tone (Tone 3)	
00 26 00	Patch Tone (Tone 4)	

#### 01-3-2 Rhythm

Offset Address	Description	
00 00 00	Rhythm Common	1-3-2-1
00 02 00	Rhythm Common MFX	1-3-2-2
00 04 00	Rhythm Common Chorus	1-3-2-3
00 06 00	Rhythm Common Reverb	1-3-2-4
00 10 00	Rhythm Tone (Key # 21)	1-3-2-5
00 12 00	Rhythm Tone (Key # 22)	
:		
01 3E 00	Rhythm Tone (Key # 108)	

#### 01-1-1 System Common

Offset Address	Description	
00 00	0000 0aaa Sound Mode	(0 - 4) PERFORM, PATCH, GM1, GM2, GS
# 00 01	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Master Tune (24 - 2024) -100.0 - 100.0 [cent]
00 05	00aa aaaa	Master Key Shift (40 - 88) -24 +24
00 06	0aaa aaaa	Master Level (0 - 127)
00 07	0000 000a	Scale Tune Switch (0 - 1) OFF, ON
00 08	0000 000a	Patch Remain (0 - 1) OFF, ON
00 09	0000 000a	Mix/Parallel (0 - 1) MIX, PARALLEL
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	000a aaaa	Performance Control Channel (0 - 16) 1 - 16, OFF
00 0E	0aaa aaaa	Performance Bank Select MSB (CC# 0) (0 - 127)
00 0F	0aaa aaaa	Performance Bank Select LSB (CC# 32) (0 - 127)
00 10	0aaa aaaa	Performance Program Number (PC) (0 - 127)
00 11	0000 aaaa	Patch Receive Channel (0 - 15) 1 - 16
00 12	0aaa aaaa	Patch Bank Select MSB (CC# 0) (0 - 127)
00 13	0aaa aaaa	Patch Bank Select LSB (CC# 32) (0 - 127)
00 14	0aaa aaaa	Patch Program Number (PC) (0 - 127)
# 00 15	0000 000a	System Clock Source (0 - 1) INT, MIDI
00 16	0000 aaaa 0000 bbbb	System Tempo (20 - 250)
00 18	0aaa aaaa	System Control 1 Source (0 - 97) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH
00 19	0aaa aaaa	System Control 2 Source (0 - 97) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH
00 1A	0aaa aaaa	System Control 3 Source (0 - 97) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH
00 1B	0aaa aaaa	System Control 4 Source (0 - 97) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH
00 1C	0000 000a	Receive Program Change (0 - 1) OFF, ON
00 1D	0000 000a	Receive Bank Select (0 - 1) OFF, ON
00 00 00 1E	Total Size	

#### 01-1-2 System Part

Offset Address	Description	
00 00	0aaa aaaa	Scale Tune for C (0 - 127) -64 +63
00 01	0aaa aaaa	Scale Tune for C# (0 - 127) -64 +63
00 02	0aaa aaaa	Scale Tune for D (0 - 127) -64 +63
00 03	0aaa aaaa	Scale Tune for D# (0 - 127) -64 +63
00 04	0aaa aaaa	Scale Tune for E (0 - 127) -64 +63
00 05	0aaa aaaa	Scale Tune for F (0 - 127) -64 +63
00 06	0aaa aaaa	Scale Tune for F# (0 - 127) -64 +63
00 07	0aaa aaaa	Scale Tune for G (0 - 127) -64 +63
00 08	0aaa aaaa	Scale Tune for G# (0 - 127) -64 +63
00 09	0aaa aaaa	Scale Tune for A (0 - 127) -64 +63
00 0A	0aaa aaaa	Scale Tune for A# (0 - 127) -64 +63
00 0B	0aaa aaaa	Scale Tune for B (0 - 127) -64 +63
00 00 00 0C	Total Size	

# MIDI Implementation

## 01-1-3 System Keyboard

Offset Address	Description	
00 00	0000 000a	Transmit Program Change (0 - 1) OFF, ON
00 01	0000 000a	Transmit Bank Select (0 - 1) OFF, ON
00 02	0000 000a	Transpose Switch (0 - 1) OFF, ON
00 03	0000 000a	Transpose Value (59 - 70) -5 - +6
00 04	0000 000a	Octave Shift (61 - 67) -3 - +3
00 05	0aaa 0aaa	Keyboard Velocity (0 - 127) REAL, 1 - 127
00 06	0000 00aa	Keyboard Sens (0 - 127) LIGHT, MEDIUM, HEAVY, FULL
00 07	0aaa 0aaa	Aftertouch Sens (0 - 100)
00 08	000a 0aaa	Patch Transmit Channel (0 - 17) 1 - 16, Rx Ch, OFF
00 09	0aaa 0aaa	Slider 1 Assign (0 - 97) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH
00 0A	0000 00aa	Slider 1 Output Mode (0 - 3)
00 0B	0aaa 0aaa	Slider 2 Assign (0 - 97) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH
00 0C	0000 00aa	Slider 2 Output Mode (0 - 3)
00 0D	0aaa 0aaa	Slider 3 Assign (0 - 97) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH
00 0E	0000 00aa	Slider 3 Output Mode (0 - 3)
00 0F	0aaa 0aaa	Slider 4 Assign (0 - 97) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH
00 10	0000 00aa	Slider 4 Output Mode (0 - 3)
00 11	0000 00aa	Hold Pedal Output Mode (0 - 3)
00 12	0000 000a	Hold Pedal Polarity (0 - 1) STANDARD, REVERSE
00 13	0000 000a	Continuous Hold Pedal (0 - 1) OFF, ON
00 14	0aaa 0aaa	Pedal 1 Assign (0 - 103) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH, OCT UP, OCT DOWN, START/STOP, TAP TEMPO, PROG UP, PROG DOWN
00 15	0000 00aa	Pedal 1 Output Mode (0 - 3)
00 16	0000 000a	Pedal 1 Polarity (0 - 1) STANDARD, REVERSE
00 17	0aaa 0aaa	Pedal 2 Assign (0 - 103) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH, OCT UP, OCT DOWN, START/STOP, TAP TEMPO, PROG UP, PROG DOWN
00 18	0000 00aa	Pedal 2 Output Mode (0 - 3)
00 19	0000 000a	Pedal 2 Polarity (0 - 1) STANDARD, REVERSE
00 1A	0000 000a	Arpeggio Switch (0 - 1) OFF, ON
00 1B	0000 000a	Beam Switch (0 - 1) OFF, ON
00 1C	0000 0aaa	Beam Sens (1 - 10) 1 - 10
00 1D	00aa 0aaa	Arpeggio Style (0 - 44) 1 - 45
00 1E	00aa 0aaa	Arpeggio Motif (0 - 37) 1 - 38
00 1F	0aaa 0aaa	Arpeggio Beat Pattern (0 - 114) 1 - 115
00 20	0aaa 0aaa	Arpeggio Accent Rate (0 - 100)
00 21	0aaa 0aaa	Arpeggio Shuffle Rate (50 - 90)
00 22	0aaa 0aaa	Arpeggio Keyboard Velocity (0 - 127) REAL, 1 - 127
00 23	0000 0aaa	Arpeggio Octave Range (61 - 67) -3 - +3
00 24	0aaa 0aaa	Beam Assign (0 - 103) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH, OCT UP, OCT DOWN, START/STOP, TAP TEMPO
00 25	0000 00aa	Beam Output Mode (0 - 3)
00 26	0000 000a	Beam Polarity (0 - 1) STANDARD, REVERSE
00 27	0aaa 0aaa	Beam Range Lower (0 - 127)
00 28	0aaa 0aaa	Beam Range Upper (0 - 127)
00 00 00 29	Total Size	

## 01-2-1 Performance Common

Offset Address	Description	
00 00	0aaa 0aaa	Performance Name 1 (32 - 127) [ASCII]
00 01	0aaa 0aaa	Performance Name 2 (32 - 127) [ASCII]
00 02	0aaa 0aaa	Performance Name 3 (32 - 127) [ASCII]
00 03	0aaa 0aaa	Performance Name 4 (32 - 127) [ASCII]
00 04	0aaa 0aaa	Performance Name 5 (32 - 127) [ASCII]
00 05	0aaa 0aaa	Performance Name 6 (32 - 127) [ASCII]
00 06	0aaa 0aaa	Performance Name 7 (32 - 127) [ASCII]
00 07	0aaa 0aaa	Performance Name 8 (32 - 127) [ASCII]
00 08	0aaa 0aaa	Performance Name 9 (32 - 127) [ASCII]
00 09	0aaa 0aaa	Performance Name 10 (32 - 127) [ASCII]
00 0A	0aaa 0aaa	Performance Name 11 (32 - 127) [ASCII]
00 0B	0aaa 0aaa	Performance Name 12 (32 - 127) [ASCII]

00 0C	00aa 0aaa	Solo Part Select <XV-5080> (0 - 32) OFF, 1 - 16, 17 - 32
00 0D	000a 0aaa	MFx Control Channel (0 - 16) OFF, 1 - 16, OFF
00 0E	0000 000a	MFx Control MIDI1 <XV-5080> (0 - 1) OFF, ON
00 0F	0000 000a	MFx Control MIDI2 <XV-5080> (0 - 1) OFF, ON
00 10	0aaa 0aaa	Voice Reserve 1 (0 - 64) 0 - 63, FULL
00 11	0aaa 0aaa	Voice Reserve 2 (0 - 64) 0 - 63, FULL
00 12	0aaa 0aaa	Voice Reserve 3 (0 - 64) 0 - 63, FULL
00 13	0aaa 0aaa	Voice Reserve 4 (0 - 64) 0 - 63, FULL
00 14	0aaa 0aaa	Voice Reserve 5 (0 - 64) 0 - 63, FULL
00 15	0aaa 0aaa	Voice Reserve 6 (0 - 64) 0 - 63, FULL
00 16	0aaa 0aaa	Voice Reserve 7 (0 - 64) 0 - 63, FULL
00 17	0aaa 0aaa	Voice Reserve 8 (0 - 64) 0 - 63, FULL
00 18	0aaa 0aaa	Voice Reserve 9 (0 - 64) 0 - 63, FULL
00 19	0aaa 0aaa	Voice Reserve 10 (0 - 64) 0 - 63, FULL
00 1A	0aaa 0aaa	Voice Reserve 11 (0 - 64) 0 - 63, FULL
00 1B	0aaa 0aaa	Voice Reserve 12 (0 - 64) 0 - 63, FULL
00 1C	0aaa 0aaa	Voice Reserve 13 (0 - 64) 0 - 63, FULL
00 1D	0aaa 0aaa	Voice Reserve 14 (0 - 64) 0 - 63, FULL
00 1E	0aaa 0aaa	Voice Reserve 15 (0 - 64) 0 - 63, FULL
00 1F	0aaa 0aaa	Voice Reserve 16 (0 - 64) 0 - 63, FULL
00 20	0aaa 0aaa	Voice Reserve 17 <XV-5080> (0 - 64) 0 - 63, FULL
00 21	0aaa 0aaa	Voice Reserve 18 <XV-5080> (0 - 64) 0 - 63, FULL
00 22	0aaa 0aaa	Voice Reserve 19 <XV-5080> (0 - 64) 0 - 63, FULL
00 23	0aaa 0aaa	Voice Reserve 20 <XV-5080> (0 - 64) 0 - 63, FULL
00 24	0aaa 0aaa	Voice Reserve 21 <XV-5080> (0 - 64) 0 - 63, FULL
00 25	0aaa 0aaa	Voice Reserve 22 <XV-5080> (0 - 64) 0 - 63, FULL
00 26	0aaa 0aaa	Voice Reserve 23 <XV-5080> (0 - 64) 0 - 63, FULL
00 27	0aaa 0aaa	Voice Reserve 24 <XV-5080> (0 - 64) 0 - 63, FULL
00 28	0aaa 0aaa	Voice Reserve 25 <XV-5080> (0 - 64) 0 - 63, FULL
00 29	0aaa 0aaa	Voice Reserve 26 <XV-5080> (0 - 64) 0 - 63, FULL
00 2A	0aaa 0aaa	Voice Reserve 27 <XV-5080> (0 - 64) 0 - 63, FULL
00 2B	0aaa 0aaa	Voice Reserve 28 <XV-5080> (0 - 64) 0 - 63, FULL
00 2C	0aaa 0aaa	Voice Reserve 29 <XV-5080> (0 - 64) 0 - 63, FULL
00 2D	0aaa 0aaa	Voice Reserve 30 <XV-5080> (0 - 64) 0 - 63, FULL
00 2E	0aaa 0aaa	Voice Reserve 31 <XV-5080> (0 - 64) 0 - 63, FULL
00 2F	0aaa 0aaa	Voice Reserve 32 <XV-5080> (0 - 64) 0 - 63, FULL
00 30	00aa 0aaa	MFx(1) Source (0 - 32) PERFORM, 1 - 16, 17 - 32<XV-5080>
00 31	00aa 0aaa	MFx2 Source <XV-5080> (0 - 32) PERFORM, 1 - 16, 17 - 32
00 32	00aa 0aaa	MFx3 Source <XV-5080> (0 - 32) PERFORM, 1 - 16, 17 - 32
00 33	00aa 0aaa	Chorus Source (0 - 32) PERFORM, 1 - 16, 17 - 32<XV-5080>
00 34	00aa 0aaa	Reverb Source (0 - 32) PERFORM, 1 - 16, 17 - 32<XV-5080>
00 00 00 35	Total Size	

## 01-2-2 Performance Common MFx

Offset Address	Description	
00 00	0aaa 0aaa	MFx Type (0 - 127)
00 01	0aaa 0aaa	MFx Dry Send Level (0 - 127)
00 02	0aaa 0aaa	MFx Chorus Send Level (0 - 127)
00 03	0aaa 0aaa	MFx Reverb Send Level (0 - 127)
00 04	0000 00aa	MFx Output Assign (0 - 3) A, B, C<XV-3080/5080>, D<XV-5080>
00 05	0aaa 0aaa	MFx Control 1 Source (0 - 101) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4
00 06	0aaa 0aaa	MFx Control 1 Sens (1 - 127) -63 - +63
00 07	0aaa 0aaa	MFx Control 2 Source (0 - 101) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4
00 08	0aaa 0aaa	MFx Control 2 Sens (1 - 127) -63 - +63
00 09	0aaa 0aaa	MFx Control 3 Source (0 - 101) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4
00 0A	0aaa 0aaa	MFx Control 3 Sens (1 - 127) -63 - +63
00 0B	0aaa 0aaa	MFx Control 4 Source (0 - 101) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4
00 0C	0aaa 0aaa	MFx Control 4 Sens (1 - 127) -63 - +63
00 0D	000a 0aaa	MFx Control Assign 1 (0 - 16) OFF, 1 - 16
00 0E	000a 0aaa	MFx Control Assign 2 (0 - 16) OFF, 1 - 16
00 0F	000a 0aaa	MFx Control Assign 3 (0 - 16) OFF, 1 - 16
00 10	000a 0aaa	MFx Control Assign 4 (0 - 16) OFF, 1 - 16
# 00 11	0000 0aaa 0000 bbbb 0000 cccc 0000 dddd	MFx Parameter 1 (12768 - 52768) -20000 - +20000

#	00 15	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 2	(12768 - 52768) -20000 - +20000
#	00 19	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 3	(12768 - 52768) -20000 - +20000
#	00 1D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 4	(12768 - 52768) -20000 - +20000
#	00 21	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 5	(12768 - 52768) -20000 - +20000
#	00 25	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 6	(12768 - 52768) -20000 - +20000
#	00 29	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 7	(12768 - 52768) -20000 - +20000
#	00 2D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 8	(12768 - 52768) -20000 - +20000
#	00 31	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 9	(12768 - 52768) -20000 - +20000
#	00 35	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 10	(12768 - 52768) -20000 - +20000
#	00 39	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 11	(12768 - 52768) -20000 - +20000
#	00 3D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 12	(12768 - 52768) -20000 - +20000
#	00 41	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 13	(12768 - 52768) -20000 - +20000
#	00 45	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 14	(12768 - 52768) -20000 - +20000
#	00 49	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 15	(12768 - 52768) -20000 - +20000
#	00 4D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 16	(12768 - 52768) -20000 - +20000
#	00 51	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 17	(12768 - 52768) -20000 - +20000
#	00 55	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 18	(12768 - 52768) -20000 - +20000
#	00 59	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 19	(12768 - 52768) -20000 - +20000
#	00 5D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 20	(12768 - 52768) -20000 - +20000
#	00 61	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 21	(12768 - 52768) -20000 - +20000
#	00 65	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 22	(12768 - 52768) -20000 - +20000
#	00 69	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 23	(12768 - 52768) -20000 - +20000
#	00 6D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 24	(12768 - 52768) -20000 - +20000
#	00 71	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 25	(12768 - 52768) -20000 - +20000
#	00 75	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 26	(12768 - 52768) -20000 - +20000
#	00 79	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 27	(12768 - 52768) -20000 - +20000
#	00 7D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 28	(12768 - 52768) -20000 - +20000

#	01 01	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 29	(12768 - 52768) -20000 - +20000
#	01 05	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 30	(12768 - 52768) -20000 - +20000
#	01 09	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 31	(12768 - 52768) -20000 - +20000
#	01 0D	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	MPX Parameter 32	(12768 - 52768) -20000 - +20000
00 00 01 11		Total Size		

### ○1-2-3 Performance Common Chorus

Offset Address	Description
00 00	0000 aaaa Chorus Type (0 - 2)
00 01	0aaa aaaa Chorus Level (0 - 127)
00 02	0000 00aa Chorus Output Assign (0 - 3) A, B, C<XV-3080/5080>, D<XV-5080>
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	

### ○1-2-4 Performance Common Reverb

Offset Address	Description
00 00	0000 aaaa Reverb Type (0 - 4)
00 01	0aaa aaaa Reverb Level (0 - 127)
00 02	0000 00aa Reverb Output Assign (0 - 3) A, B, C<XV-3080/5080>, D<XV-5080>
# 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

# MIDI Implementation

#	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		

## 01-2-5 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
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	

## 01-2-6 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 <XV-5080> (0 - 1) OFF, ON
00 03	0000 000a	Receive MIDI2 <XV-5080> (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)
	00 0D	000a aaaa	Part Pitch Bend Range (RPN# 0)	OFF, ON, PATCH (0 - 25)
	00 0E	0000 00aa	Part Portamento Switch (CC# 65)	0 - 24, PATCH (0 - 2)
#	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) MPX, A, B, C <XV-3080/5080>, D <XV-5080>, 1, 2, 3, 4, 5 <XV-3080/5080>, 6 <XV-3080/5080>, 7 <XV-5080>, 8 <XV-5080>, PATCH (0 - 2) MPX1, MPX2, MPX3
	00 20	0000 00aa	Part Output MPX Select <XV-5080>	
	00 00 00 21	Total Size		

## 01-2-7 Performance Keyboard

Offset Address	Description	
00 00	0000 000a	Keyboard Mode (0 - 1) LAYER, SINGLE
00 01	0000 aaaa	Arpeggio Zone Number (0 - 15) ZONE1 - ZONE16
00 02	00aa aaaa	Arpeggio Style (0 - 44) 1 - 45
00 03	00aa aaaa	Arpeggio Motif (0 - 37) 1 - 38
00 04	0aaa aaaa	Arpeggio Beat Pattern (0 - 114) 1 - 115
00 05	0aaa aaaa	Arpeggio Accent Rate (0 - 100)
00 06	0aaa aaaa	Arpeggio Shuffle Rate (50 - 90)
00 07	0aaa aaaa	Arpeggio Keyboard Velocity (0 - 127) REAL, 1 - 127
00 08	0000 0aaa	Arpeggio Octave Range (61 - 67) -3 - +3
00 09	0aaa aaaa	Beam Assign (0 - 103) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH, OCT UP, OCT DOWN, START/STOP, TAP TEMPO
00 0A	0000 00aa	Beam Output Mode (0 - 3) OFF, INT, MIDI, BOTH
00 0B	0000 000a	Beam Polarity (0 - 1) STANDARD, REVERSE
00 0C	0aaa aaaa	Beam Range Lower (0 - 127)
00 0D	0aaa aaaa	Beam Range Upper (0 - 127)
00 00 00 0E	Total Size	

## 01-2-8 Performance Zone

Offset Address	Description		
00 00	0000 aaaa	Transmit Channel (0 - 15) 1 - 16	
00 01	0000 000a	Internal Switch (0 - 1) OFF, ON	
00 02	0000 000a	External Switch (0 - 1) OFF, ON	
#	00 03	0000 aaaa 0000 bbbb	External Bank Select MSB (CC# 0) (0 - 128) 0 - 127, NO-SEND
#	00 05	0aaa aaaa 0000 aaaa 0000 bbbb	External Bank Select LSB (CC# 32) (0 - 127)
#	00 08	0000 aaaa 0000 bbbb	External Program Number (PC) (0 - 128) 0 - 127, NO-SEND
#	00 0A	0000 aaaa 0000 bbbb	External Volume (CC# 7) (0 - 128) 0 - 127, NO-SEND
	00 0C	0aaa aaaa	Keyboard Range Lower (0 - 127) C-1 - UPPER
	00 0D	0aaa aaaa	Keyboard Range Upper (0 - 127) LOWER - G9
00 00 00 0E	Total Size		

## 01-3-1-1 Patch Common

Offset Address	Description	
00 00	0aaa aaaa Patch Name 1	(32 - 127)
00 01	0aaa aaaa Patch Name 2	32 - 127 [ASCII]
00 02	0aaa aaaa Patch Name 3	(32 - 127)
00 03	0aaa aaaa Patch Name 4	32 - 127 [ASCII]
00 04	0aaa aaaa Patch Name 5	(32 - 127)
00 05	0aaa aaaa Patch Name 6	32 - 127 [ASCII]
00 06	0aaa aaaa Patch Name 7	(32 - 127)
00 07	0aaa aaaa Patch Name 8	32 - 127 [ASCII]
00 08	0aaa aaaa Patch Name 9	(32 - 127)
00 09	0aaa aaaa Patch Name 10	32 - 127 [ASCII]
00 0A	0aaa aaaa Patch Name 11	(32 - 127)
00 0B	0aaa aaaa Patch Name 12	32 - 127 [ASCII]
00 0C	0aaa aaaa Patch Category	(0 - 127)
00 0D	0000 000a Tone Type <XV-5080>	(0 - 1) 4TONES, MULTI-PARTIAL
00 0E	0aaa aaaa Patch Level	(0 - 127)
00 0F	0aaa aaaa Patch Pan	(0 - 127)
00 10	0000 000a Patch Priority	(0 - 1) LAST, LOUDEST
00 11	0aaa aaaa Patch Coarse Tune	(16 - 112)
00 12	0aaa aaaa Patch Fine Tune	-48 +48 (14 - 114)
00 13	0000 0aaa Octave Shift	-50 +50 -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)
00 18	0000 000a Legato Retrigger	OFF, ON (0 - 1)
00 19	0000 000a Portamento Switch	OFF, ON (0 - 1)
00 1A	0000 000a Portamento Mode	OFF, ON (0 - 1)
00 1B	0000 000a Portamento Type	NORMAL, LEGATO (0 - 1)
00 1C	0000 000a Portamento Start	RATE, TIME (0 - 1)
00 1D	0aaa aaaa Portamento Time	PITCH, NOTE (0 - 127)
00 1E	0000 000a Patch Clock Source	(0 - 1) PATCH, SYSTEM
00 1F	0000 aaaa Patch Tempo	(20 - 250)
00 20	0000 000a One Shot Mode <XV-5080>	(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<XV-3080/5080>, D<XV-5080> 1, 2, 3, 4, 5<XV-3080/5080>, 6<XV-3080/5080> 7<XV-5080>, 8<XV-5080>, 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, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4, VELOCITY, KEYFOLLOW, TEMPO, LFO1, LFO2, PITCH ENV, TVF ENV, TVA ENV
00 2C	00aa aaaa Matrix Control 1 Destination 1	(0 - 33) OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - 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, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - 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, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - 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, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - 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, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4, VELOCITY, KEYFOLLOW, TEMPO, LFO1, LFO2, PITCH ENV, TVF ENV, TVA ENV
00 35	00aa aaaa Matrix Control 2 Destination 1	(0 - 33) OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - 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, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - 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, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - 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, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - 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, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4, VELOCITY, KEYFOLLOW, TEMPO, LFO1, LFO2, PITCH ENV, TVF ENV, TVA ENV
00 3E	00aa aaaa Matrix Control 3 Destination 1	(0 - 33) OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - 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, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - 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, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - 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, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - MFX CTRL4
00 45	0aaa aaaa Matrix Control 3 Sens 4	(1 - 127) -63 +63

# MIDI Implementation

00 46	0aaa aaaa	Matrix Control 4 Source OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4, VELOCITY, KEYFOLLOW, TEMPO, LFO1, LFO2, PITCH-ENV, TVF-ENV, TVA-ENV	(0 - 109)
00 47	00aa aaaa	Matrix Control 4 Destination 1 OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - MFX CTRL4	(0 - 33) (1 - 127) -63 - +63
00 48	0aaa aaaa	Matrix Control 4 Sens 1	(1 - 127)
00 49	00aa aaaa	Matrix Control 4 Destination 2 OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - MFX CTRL4	(0 - 33) (1 - 127) -63 - +63
00 4A	0aaa aaaa	Matrix Control 4 Sens 2	(1 - 127)
00 4B	00aa aaaa	Matrix Control 4 Destination 3 OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - MFX CTRL4	(0 - 33) (1 - 127) -63 - +63
00 4C	0aaa aaaa	Matrix Control 4 Sens 3	(1 - 127)
00 4D	00aa aaaa	Matrix Control 4 Destination 4 OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PAN, DRY LEVEL, CHORUS SEND, REVERB SEND, LFO1 PCH DEPTH, LFO2 PCH DEPTH, LFO1 TVF DEPTH, LFO2 TVF DEPTH, LFO1 TVA DEPTH, LFO2 TVA DEPTH, LFO1 PAN DEPTH, LFO2 PAN DEPTH, LFO1 RATE, LFO2 RATE, PIT ENV A-TIME, PIT ENV D-TIME, PIT ENV R-TIME, TVF ENV A-TIME, TVF ENV D-TIME, TVF ENV R-TIME, TVA ENV A-TIME, TVA ENV D-TIME, TVA ENV R-TIME, TMT, FXM DEPTH, MFX CTRL1 - MFX CTRL4	(0 - 33) (1 - 127) -63 - +63
00 4E	0aaa aaaa	Matrix Control 4 Sens 4	(1 - 127)
00 00 00 4F	Total Size		

## 1-3-1-2 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<XV-3080/5080>, D<XV-5080>
00 05	0aaa aaaa	MFX Control 1 Source (0 - 101) OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4
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, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4
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, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4
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, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4
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 00 01 11	Total Size	

# 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	

## 1-3-1-3 Patch Common Chorus

Offset Address	Description	
00 00	0000 aaaa	Chorus Type (0 - 2)
00 01	0aaa aaaa	Chorus Level (0 - 127)
00 02	0000 00aa	Chorus Output Assign (0 - 3) A, B, C<XV-3080/5080>, D<XV-5080>
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	

## 1-3-1-4 Patch Common Reverb

Offset Address	Description	
00 00	0000 aaaa	Reverb Type (0 - 4)
00 01	0aaa aaaa	Reverb Level (0 - 127)
00 02	0000 00aa	Reverb Output Assign (0 - 3) A, B, C<XV-3080/5080>, D<XV-5080>
# 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	

## 1-3-1-5 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	

# MIDI Implementation

## 01-3-1-6 Patch Tone

Offset Address	Description	
00 00	0aaa aaaa	Tone Level (0 - 127)
00 01	0aaa aaaa	Tone Coarse Tune (16 - 112)
00 02	0aaa aaaa	Tone Fine Tune (-48 - +48)
		(14 - 114)
00 03	000a aaaa	Tone Random Pitch Depth (-50 - +50)
		(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-DECAV
# 00 0A	0000 aaaa	Tone Delay Time (0 - 149)
	0000 bbbb	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<XV-3080/5080>, D<XV-5080>, 1, 2, 3, 4, 5<XV-3080/5080>, 6<XV-3080/5080>, 7<XV-5080>, 8<XV-5080>
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-WAVE, SRJV80-EXP, SRX-EXP, SAMPLE<XV-5080>
# 00 28	0000 aaaa	Wave Group ID (0 - 16384)
	0000 bbbb	OFF, 1 - 16384
	0000 cccc	
	0000 dddd	
# 00 2C	0000 aaaa	Wave Number L (Mono) (0 - 16384)
	0000 bbbb	OFF, 1 - 16384
	0000 cccc	
	0000 dddd	
# 00 30	0000 aaaa	Wave Number R (0 - 16384)
	0000 bbbb	OFF, 1 - 16384
	0000 cccc	
	0000 dddd	
00 34	0000 00aa	Wave Gain (0 - 3)
		OFF, 1 - 16384
00 35	0000 00aa	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, LFP2, LFP3
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	TVA Env Level 0 (0 - 127)
00 5A	0aaa aaaa	TVA Env Level 1 (0 - 127)
00 5B	0aaa aaaa	TVA Env Level 2 (0 - 127)
00 5C	0aaa aaaa	TVA Env Level 3 (0 - 127)
00 5D	0aaa aaaa	TVA 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)
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	LFO1 Rate (0 - 149)
	0000 bbbb	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	LFO2 Rate (0 - 149)
	0000 bbbb	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

## ○1-3-2-1 Rhythm Common

Offset Address	Description
00 00	0aaa aaaa Rhythm Name 1 (32 - 127)
00 01	0aaa aaaa Rhythm Name 2 (32 - 127)
00 02	0aaa aaaa Rhythm Name 3 (32 - 127)
00 03	0aaa aaaa Rhythm Name 4 (32 - 127)
00 04	0aaa aaaa Rhythm Name 5 (32 - 127)
00 05	0aaa aaaa Rhythm Name 6 (32 - 127)
00 06	0aaa aaaa Rhythm Name 7 (32 - 127)
00 07	0aaa aaaa Rhythm Name 8 (32 - 127)
00 08	0aaa aaaa Rhythm Name 9 (32 - 127)
00 09	0aaa aaaa Rhythm Name 10 (32 - 127)
00 0A	0aaa aaaa Rhythm Name 11 (32 - 127)
00 0B	0aaa aaaa Rhythm Name 12 (32 - 127)
00 0C	0aaa aaaa Rhythm Level (0 - 127)
00 0D	0000 000a Rhythm Clock Source (0 - 1)
	RHYTHM, SYSTEM
# 00 0E	0000 aaaa Rhythm Tempo (20 - 250)
	0000 bbbb One Shot Mode <XV-5080> (0 - 1)
00 10	0000 000a OFF, ON
00 11	0000 aaaa Rhythm Output Assign (0 - 13)
	MF, A, B, C<XV-3080/5080>, D<XV-5080>, 1, 2, 3, 4, 5<XV-3080/5080>, 6<XV-3080/5080>, 7<XV-5080>, 8<XV-5080>, TONE
00 00 12	Total Size

## ○1-3-2-2 Rhythm Common MFX

Offset Address	Description
00 00	0aaa aaaa MFX Type (0 - 127)
00 01	0aaa aaaa MFX Dry Send Level (0 - 72)
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<XV-3080/5080>, D<XV-5080>
00 05	0aaa aaaa MFX Control 1 Source (0 - 101)
	OFF, CC01 - CC31, CC33 - CC95, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4
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, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4
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, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4
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, PITCH BEND, AFTERTOUCH, SYS-CTRL1 - SYS-CTRL4
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 MFX Parameter 1 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 15	0000 aaaa MFX Parameter 2 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 19	0000 aaaa MFX Parameter 3 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 1D	0000 aaaa MFX Parameter 4 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 21	0000 aaaa MFX Parameter 5 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 25	0000 aaaa MFX Parameter 6 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 29	0000 aaaa MFX Parameter 7 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 2D	0000 aaaa MFX Parameter 8 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 31	0000 aaaa MFX Parameter 9 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd

# 00 35	0000 aaaa MFX Parameter 10 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 39	0000 aaaa MFX Parameter 11 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 3D	0000 aaaa MFX Parameter 12 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 41	0000 aaaa MFX Parameter 13 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 45	0000 aaaa MFX Parameter 14 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 49	0000 aaaa MFX Parameter 15 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 4D	0000 aaaa MFX Parameter 16 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 51	0000 aaaa MFX Parameter 17 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 55	0000 aaaa MFX Parameter 18 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 59	0000 aaaa MFX Parameter 19 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 5D	0000 aaaa MFX Parameter 20 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 61	0000 aaaa MFX Parameter 21 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 65	0000 aaaa MFX Parameter 22 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 69	0000 aaaa MFX Parameter 23 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 6D	0000 aaaa MFX Parameter 24 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 71	0000 aaaa MFX Parameter 25 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 75	0000 aaaa MFX Parameter 26 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 79	0000 aaaa MFX Parameter 27 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 00 7D	0000 aaaa MFX Parameter 28 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 01 01	0000 aaaa MFX Parameter 29 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 01 05	0000 aaaa MFX Parameter 30 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 01 09	0000 aaaa MFX Parameter 31 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
# 01 0D	0000 aaaa MFX Parameter 32 (12768 - 52768)
	0000 bbbb -20000 - +20000
	0000 cccc
	0000 dddd
00 00 11	Total Size

# MIDI Implementation

## 1-3-2-3 Rhythm Common Chorus

Offset Address	Description	
00 00	0000 aaaa	Chorus Type (0 - 2)
00 01	0aaa aaaa	Chorus Level (0 - 127)
00 02	0000 00aa	Chorus Output Assign (0 - 3) A, B, C<XV-3080/5080>, D<XV-5080>
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	

## 1-3-2-4 Rhythm Common Reverb

Offset Address	Description	
00 00	0000 aaaa	Reverb Type (0 - 4)
00 01	0aaa aaaa	Reverb Level (0 - 127)
00 02	0000 00aa	Reverb Output Assign (0 - 3) A, B, C<XV-3080/5080>, D<XV-5080>
# 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	

## 1-3-2-5 Rhythm Tone

Offset Address	Description	
00 00	0aaa aaaa	Tone Name 1 (32 - 127) [ASCII]
00 01	0aaa aaaa	Tone Name 2 (32 - 127) [ASCII]
00 02	0aaa aaaa	Tone Name 3 (32 - 127) [ASCII]
00 03	0aaa aaaa	Tone Name 4 (32 - 127) [ASCII]
00 04	0aaa aaaa	Tone Name 5 (32 - 127) [ASCII]
00 05	0aaa aaaa	Tone Name 6 (32 - 127) [ASCII]
00 06	0aaa aaaa	Tone Name 7 (32 - 127) [ASCII]
00 07	0aaa aaaa	Tone Name 8 (32 - 127) [ASCII]
00 08	0aaa aaaa	Tone Name 9 (32 - 127) [ASCII]
00 09	0aaa aaaa	Tone Name 10 (32 - 127) [ASCII]
00 0A	0aaa aaaa	Tone Name 11 (32 - 127) [ASCII]
00 0B	0aaa aaaa	Tone Name 12 (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<XV-3080/5080>, D<XV-5080>, 1, 2, 3, 4, 5<XV-3080/5080>, 6<XV-3080/5080>, 7<XV-5080>, 8<XV-5080>
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-WAVE, SRJV80-EXP, SRX-EXP, SAMPLE<XV-5080>
#	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)
	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)
	00 36	0aaa aaaa	WMT1 Wave Pan	-50 - +50 (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)
	00 39	0aaa aaaa	WMT1 Wave Level	(0 - 127)
	00 3A	0aaa aaaa	WMT1 Velocity Range Lower	(1 - 127)
	00 3B	0aaa aaaa	WMT1 Velocity Range Upper	(1 - 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-WAVE, SRJV80-EXP, SRX-EXP, SAMPLE<XV-5080>
#	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)
	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)
	00 53	0aaa aaaa	WMT2 Wave Pan	-50 - +50 (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)
	00 56	0aaa aaaa	WMT2 Wave Level	(0 - 127)
	00 57	0aaa aaaa	WMT2 Velocity Range Lower	(1 - 127)
	00 58	0aaa aaaa	WMT2 Velocity Range Upper	(1 - 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-WAVE, SRJV80-EXP, SRX-EXP, SAMPLE<XV-5080>
#	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)
	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)
	00 70	0aaa aaaa	WMT3 Wave Pan	-50 - +50 (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)
	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-WAVE, SRJV80-EXP, SRX-EXP, SAMPLE<XV-5080>
#	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)
	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)
	01 0D	0aaa aaaa	WMT4 Wave Pan	-50 - +50 (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)
	01 10	0aaa aaaa	WMT4 Wave Level	(0 - 127)
	01 11	0aaa aaaa	WMT4 Velocity Range Lower	(1 - 127)
	01 12	0aaa aaaa	WMT4 Velocity Range Upper	(1 - 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)
	01 17	0aaa aaaa	Pitch Env Time 1 Velocity Sens	-63 - +63 (1 - 127)
	01 18	0aaa aaaa	Pitch Env Time 4 Velocity Sens	-63 - +63 (1 - 127)
	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)
	01 1E	0aaa aaaa	Pitch Env Level 1	-63 - +63 (1 - 127)
	01 1F	0aaa aaaa	Pitch Env Level 2	-63 - +63 (1 - 127)
	01 20	0aaa aaaa	Pitch Env Level 3	-63 - +63 (1 - 127)
	01 21	0aaa aaaa	Pitch Env Level 4	-63 - +63 (1 - 127)
	01 22	0000 0aaa	TVF Filter Type	(0 - 6) OFF, LPF, BPF, HPF, PKG, LFF2, LFF3
	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)
	01 26	0aaa aaaa	TVF Resonance	-63 - +63 (0 - 127)
	01 27	0aaa aaaa	TVF Resonance Velocity Sens	(1 - 127)
	01 28	0aaa aaaa	TVF Env Depth	-63 - +63 (1 - 127)
	01 29	0000 0aaa	TVF Env Velocity Curve Type	(0 - 6) FIXED, 1 - 7
	01 2A	0aaa aaaa	TVF Env Velocity Sens	(1 - 127)
	01 2B	0aaa aaaa	TVF Env Time 1 Velocity Sens	-63 - +63 (1 - 127)
	01 2C	0aaa aaaa	TVF Env Time 4 Velocity Sens	-63 - +63 (1 - 127)
	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)
	01 38	0aaa aaaa	TVA Env Time 1 Velocity Sens	-63 - +63 (1 - 127)
	01 39	0aaa aaaa	TVA Env Time 4 Velocity Sens	-63 - +63 (1 - 127)
	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		

# MIDI Implementation

## 2. 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)
40 00 06	0aaa aaaa	Master Pan (-24 - +24 [semitone]) (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 CCH00 Value (0 - 127) Tone Number PC Value (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 (-12.0 - +12.0 [Hz]) (8 - 248)
40 1x 19	0aaa aaaa	Part Level (CCH# 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 (CCH# 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	CCL Controller Number (0 - 95)
40 1x 20	0aaa aaaa	CC2 Controller Number (0 - 95)
40 1x 21	0aaa aaaa	Chorus Send Level (CCH# 93) (0 - 127)
40 1x 22	0aaa aaaa	Reverb Send Level (CCH# 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 CH (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 DH (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 FH (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 GH (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 AH (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)
40 2x 31	0aaa aaaa	PAf TVF Cutoff Control	-24 - +24 [semitone]
40 2x 32	0aaa aaaa	PAf Amplitude Control	(0 - 127)
40 2x 33	0aaa aaaa	PAf LFO1 Rate Control	-9600 - +9600 [cent]
40 2x 34	0aaa aaaa	PAf LFO1 Pitch Control	(0 - 127)
40 2x 35	0aaa aaaa	PAf LFO1 TVF Depth	-100.0 - +100.0 [%]
40 2x 36	0aaa aaaa	PAf LFO1 TVA Depth	(0 - 127)
40 2x 37	0aaa aaaa	PAf LFO2 Rate Control	-10.0 - +10.0 [Hz]
40 2x 38	0aaa aaaa	PAf LFO2 Pitch Control	(0 - 127)
40 2x 39	0aaa aaaa	PAf LFO2 TVF Depth	0 - 600 [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)
40 2x 41	0aaa aaaa	CC1 TVF Cutoff Control	-24 - +24 [semitone]
40 2x 42	0aaa aaaa	CC1 Amplitude Control	(0 - 127)
40 2x 43	0aaa aaaa	CC1 LFO1 Rate Control	-9600 - +9600 [cent]
40 2x 44	0aaa aaaa	CC1 LFO1 Pitch Control	(0 - 127)
40 2x 45	0aaa aaaa	CC1 LFO1 TVF Depth	-100.0 - +100.0 [%]
40 2x 46	0aaa aaaa	CC1 LFO1 TVA Depth	(0 - 127)
40 2x 47	0aaa aaaa	CC1 LFO2 Rate Control	-10.0 - +10.0 [Hz]
40 2x 48	0aaa aaaa	CC1 LFO2 Pitch Control	(0 - 127)
40 2x 49	0aaa aaaa	CC1 LFO2 TVF Depth	0 - 600 [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)
40 2x 51	0aaa aaaa	CC2 TVF Cutoff Control	-24 - +24 [semitone]
40 2x 52	0aaa aaaa	CC2 Amplitude Control	(0 - 127)
40 2x 53	0aaa aaaa	CC2 LFO1 Rate Control	-9600 - +9600 [cent]
40 2x 54	0aaa aaaa	CC2 LFO1 Pitch Control	(0 - 127)
40 2x 55	0aaa aaaa	CC2 LFO1 TVF Depth	-100.0 - +100.0 [%]
40 2x 56	0aaa aaaa	CC2 LFO1 TVA Depth	(0 - 127)
40 2x 57	0aaa aaaa	CC2 LFO2 Rate Control	-10.0 - +10.0 [Hz]
40 2x 58	0aaa aaaa	CC2 LFO2 Pitch Control	(0 - 127)
40 2x 59	0aaa aaaa	CC2 LFO2 TVF Depth	0 - 600 [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)
41 m0 01	0aaa aaaa	Drum Map Name 2 (32 - 127)
41 m0 02	0aaa aaaa	Drum Map Name 3 (32 - 127)
41 m0 03	0aaa aaaa	Drum Map Name 4 (32 - 127)
41 m0 04	0aaa aaaa	Drum Map Name 5 (32 - 127)
41 m0 05	0aaa aaaa	Drum Map Name 6 (32 - 127)
41 m0 06	0aaa aaaa	Drum Map Name 7 (32 - 127)
41 m0 07	0aaa aaaa	Drum Map Name 8 (32 - 127)
41 m0 08	0aaa aaaa	Drum Map Name 9 (32 - 127)
41 m0 09	0aaa aaaa	Drum Map Name 10 (32 - 127)
41 m0 0A	0aaa aaaa	Drum Map Name 11 (32 - 127)
41 m0 0B	0aaa aaaa	Drum Map Name 12 (32 - 127)
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)
41 m4 rr	0aaa aaaa	Panpot (0 - 127)
41 m5 rr	0aaa aaaa	Reverb Send Level (RANDOM, L63 - 63R)
41 m6 rr	0aaa aaaa	Chorus Send Level (0 - 1.0)
41 m7 rr	0000 000a	Rx. Note Off (0 - 1.0)
41 m8 rr	0000 000a	Rx. Note On (OFF, ON)

m: Map number (0 = MAP1, 1 = MAP2)

rr: drum part note number (00H-7FH)

# MIDI Implementation

## ■ Arpeggio Parameter List

### ● Arpeggio Style

value	parameter	value	parameter	value	parameter
0	1/ 4	15	HEAVY SLAP	30	SWING WALTZ
1	1/ 6	16	LIGHT SLAP	31	REGGAE
2	1/ 8	17	WALK BASS	32	PERCUSSION
3	1/12	18	RHYTHM GTR 1	33	HARP
4	1/16	19	RHYTHM GTR 2	34	SHAMISEN
5	1/32	20	RHYTHM GTR 3	35	BOUND BALL
6	PORTAMENTO A	21	RHYTHM GTR 4	36	RANDOM
7	PORTAMENTO B	22	RHYTHM GTR 5	37	BOSSA NOVA
8	GLISSANDO	23	3 FINGER	38	SALSA
9	SEQUENCE A	24	STRUM GTR UP	39	MAMBO
10	SEQUENCE B	25	STRUM GTR DOWN	40	LATIN PERCUSSION
11	SEQUENCE C	26	STRUM GTR UP&DW	41	SAMBA
12	SEQUENCE D	27	PIANO BACKING	42	TANGO
13	ECHO	28	CLAVI CHORD	43	HOUSE
14	SYNTH BASS	29	WALTZ		

### ● Arpeggio Motif

value	parameter	value	parameter	value	parameter
0	SINGLE UP	13	GLISSANDO	26	BASS+UP 7
1	SINGLE DOWN	14	CHORD	27	BASS+UP 8
2	SINGLE UP&DOWN	15	BASS+CHORD 1	28	BASS+RND 1
3	SINGLE RANDOM	16	BASS+CHORD 2	29	BASS+RND 2
4	DUAL UP	17	BASS+CHORD 3	30	BASS+RND 3
5	DUAL DOWN	18	BASS+CHORD 4	31	TOP+UP 1
6	DUAL UP&DOWN	19	BASS+CHORD 5	32	TOP+UP 2
7	DUAL RANDOM	20	BASS+UP 1	33	TOP+UP 3
8	TRIPLE UP	21	BASS+UP 2	34	TOP+UP 4
9	TRIPLE DOWN	22	BASS+UP 3	35	TOP+UP 5
10	TRIPLE UP&DOWN	23	BASS+UP 4	36	TOP+UP 6
11	TRIPLE RANDOM	24	BASS+UP 5	37	BASS+UP+TOP
12	NOTE ORDER	25	BASS+UP 6		

### ● Arpeggio Beat Pattern

value	parameter	value	parameter	value	parameter
0	1/ 4	40	SEQ-A 5	80	STRUM 4
1	1/ 6	41	SEQ-A 6	81	STRUM 5
2	1/ 8	42	SEQ-A 7	82	STRUM 6
3	1/12	43	SEQ-B 1	83	STRUM 7
4	1/16 1	44	SEQ-B 2	84	STRUM 8
5	1/16 2	45	SEQ-B 3	85	REGGAE 1
6	1/16 3	46	SEQ-B 4	86	REGGAE 2
7	1/32 1	47	SEQ-B 5	87	REFRAIN 1
8	1/32 2	48	SEQ-C 1	88	REFRAIN 2
9	1/32 3	49	SEQ-C 2	89	PERC 1
10	PORTA-A 01	50	SEQ-D 1	90	PERC 2
11	PORTA-A 02	51	SEQ-D 2	91	PERC 3
12	PORTA-A 03	52	SEQ-D 3	92	PERC 4
13	PORTA-A 04	53	SEQ-D 4	93	WALKBS
14	PORTA-A 05	54	SEQ-D 5	94	HARP
15	PORTA-A 06	55	SEQ-D 6	95	BOUND
16	PORTA-A 07	56	SEQ-D 7	96	RANDOM
17	PORTA-A 08	57	SEQ-D 8	97	BOSSA NOVA
18	PORTA-A 09	58	ECHO 1	98	SALSA 1
19	PORTA-A 10	59	ECHO 2	99	SALSA 2
20	PORTA-A 11	60	ECHO 3	100	SALSA 3
21	PORTA-B 01	61	MUTE 01	101	SALSA 4
22	PORTA-B 02	62	MUTE 02	102	MAMBO 1
23	PORTA-B 03	63	MUTE 03	103	MAMBO 2
24	PORTA-B 04	64	MUTE 04	104	CLAVE
25	PORTA-B 05	65	MUTE 05	105	REV CLA
26	PORTA-B 06	66	MUTE 06	106	GUIRO
27	PORTA-B 07	67	MUTE 07	107	AGOGO
28	PORTA-B 08	68	MUTE 08	108	SAMBA
29	PORTA-B 09	69	MUTE 09	109	TANGO 1
30	PORTA-B 10	70	MUTE 10	110	TANGO 2
31	PORTA-B 11	71	MUTE 11	111	TANGO 3
32	PORTA-B 12	72	MUTE 12	112	TANGO 4
33	PORTA-B 13	73	MUTE 13	113	HOUSE 1
34	PORTA-B 14	74	MUTE 14	114	HOUSE 2
35	PORTA-B 15	75	MUTE 15		
36	SEQ-A 1	76	MUTE 16		
37	SEQ-A 2	77	STRUM 1		
38	SEQ-A 3	78	STRUM 2		
39	SEQ-A 4	79	STRUM 3		

## 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  $aa \times 128 + bb$ .
- \* 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  $aa \text{ bbH} - 40 \text{ 00H} = aa \times 128 + bb - 64 \times 128$ .
- \* 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  $a \times 16 + b$ .

### <Example 1> What is the decimal expression of 5AH?

From the preceding table, 5AH = 90

### <Example 2> What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?

From the preceding table, since 12H = 18 and 34H = 52

$$18 \times 128 + 52 = 2356$$

### <Example 3> What is the decimal expression of the nibbled value 0A 03 09 0D?

From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13

$$((10 \times 16 + 3) \times 16 + 9) \times 16 + 13 = 41885$$

### <Example 4> What is the nibbled expression of the decimal value 1258?

$$\begin{array}{r} 16 \overline{) 1258} \\ 16 \overline{) 78} \quad \dots 10 \\ 16 \overline{) 4} \quad \dots 14 \\ \quad \quad \quad 0 \quad \dots 4 \end{array}$$

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

### <Example 1> 92 3E 5F

9n is the Note-on status, and n is the MIDI channel number. Since 2H = 2, 3EH = 62, and 5FH = 95, this is a Note-on message with MIDI CH = 3, note number 62 (note name is D4), and velocity 95.

### <Example 2> CE 49

CnH is the Program Change status, and n is the MIDI channel number. Since EH = 14 and 49H = 73, this is a Program Change message with MIDI CH = 15, program number 74 (Flute in GS).

### <Example 3> EA 00 28

EnH is the Pitch Bend Change status, and n is the MIDI channel number. The 2nd byte (00H = 0) is the LSB and the 3rd byte (28H = 40) is the MSB, but Pitch Bend Value is a signed number in which 40 00H (=  $64 \times 12 + 80 = 8192$ ) is 0, so this Pitch Bend Value is  $28 \text{ 00H} - 40 \text{ 00H} = 40 \times 12 + 80 - (64 \times 12 + 80) = 5120 - 8192 = -3072$

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  $-200 \times (-3072) \div (-8192) = -75$  cents of Pitch Bend is being applied to MIDI channel 11.

### <Example 4> B3 64 00 65 00 06 0C 26 00 64 7F 65 7F

BnH is the Control Change status, and n is the MIDI channel number. For Control Changes, the 2nd byte is the 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

# MIDI Implementation

## Example of an Exclusive Message and Calculating a Checksum

Roland Exclusive messages (RQ1, DT1) are transmitted with a checksum at the end (before F7) to make sure that the message was correctly received. The value of the checksum is determined by the address and data (or size) of the transmitted Exclusive message.

### How to calculate the checksum (hexadecimal numbers are indicated by "H")

The checksum is a value derived by adding the address, size, and checksum itself and inverting the lower 7 bits.

Here's an example of how the checksum is calculated. We will assume that in the Exclusive message we are transmitting, the address is aa bb cc ddH and the data or size is ee ffH.

aa + bb + cc + dd + ee + ff = sum  
sum ÷ 128 = quotient ... remainder  
128 - remainder = checksum

#### <Example 1> Setting CHORUS TYPE of PERFORMANCE COMMON to DELAY (DT1)

According to the "Parameter Address Map" (p. 279), 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-88)	(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.

#### <Example 2> Getting the data (RQ1) of Performance Part 3 in USER:03

According to the "Parameter Address Map" (p. 279), the start address of USER:03 is 20 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 21H, the system exclusive message should be sent is:

F0	41	10	00 10	11	20 02 22 00	00 00 00 21	??	F7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)

(1) Exclusive Status	(2) ID (Roland)	(3) Device ID (17)
(4) Model ID (XV-88)	(5) Command ID (RQ1)	(6) End of Exclusive

Then calculate the checksum.

20H + 02H + 22H + 00H + 00H + 00H + 21H = 32 + 2 + 34 + 0 + 0 + 0 + 33 = 101 (sum)  
101 (sum) ÷ 128 = 0 (quotient) ... 101 (remainder)  
checksum = 128 - 101 (remainder) = 27 = 1BH

This means that F0 41 10 00 10 11 20 02 22 00 00 00 21 1B F7 is the message should be sent.

#### <Example 3> 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. 279), 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 Part is 00 00 00 21H, summation of the size and the start address of Part 16 at Temporary Performance will be;

```

10 00 2F 00H
+) 00 00 00 21H
-----
10 00 2F 21H
    
```

And the size that have to be got should be;

```

10 00 2F 21H
-) 10 00 00 00H
-----
00 00 2F 21H
    
```

Therefore the system exclusive message should be sent is;

F0	41	10	00 10	11	10 00 00 00	00 00 2F 21	??	F7
(1)(2)	(3)	(4)	(5)	address	data	checksum	(6)	

(1) Exclusive Status	(2) ID (Roland)	(3) Device ID (17)
(4) Model ID (XV-88)	(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 00 2F 21 20 F7 to be transmitted.

#### <Example 4> 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. 279), the start address of the above all parameters is assigned as following:

10 00 00 00H	Temporary Performance
11 20 00 00H	Temporary Patch (Performance Mode Part 1)
11 30 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 1
:	
01 3E 00H	Rhythm Tone 4

As the data size of Rhythm Tone is 00 00 01 41H, summation of the size and the start address of Tone 4 of Part 16 at Temporary Patch 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-88)	(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-88, 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.



72	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Release time
73	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Attack Time
74	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cutoff
75	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Decay time
76	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vibrato rate
77	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vibrato depth
78	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vibrato delay
80	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General purpose controller 5
81	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General purpose controller 6
82	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General purpose controller 7
83	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General purpose controller 8
84	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Portamento control
91	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General purpose effects 1
92	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tremolo
93	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General purpose effects 3
94	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Celeste
95	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Phaser
1-31, 64-95	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CC1/2 (General purpose controller 1/2)
1-31, 64-95	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CC3/4 (General purpose controller 3/4)
98, 99	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NRPN LSB, MSB
100, 101	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RPN LSB, MSB
Program Change : True Number	<input type="checkbox"/>	*1	<input type="checkbox"/>	Program No. 1-128
System Exclusive	<input type="checkbox"/>	*3	<input type="checkbox"/>	
System : Song Position	<input type="checkbox"/>		<input type="checkbox"/>	
System : Song Select	<input type="checkbox"/>		<input type="checkbox"/>	
System : Tune Request	<input type="checkbox"/>		<input type="checkbox"/>	
System : Clock	<input type="checkbox"/>		<input type="checkbox"/>	
Real Time : Commands	<input type="checkbox"/>		<input type="checkbox"/>	
Aux Messages	<input type="checkbox"/>		<input type="checkbox"/>	
: All Sound Off	<input type="checkbox"/>		<input type="checkbox"/>	
: Reset All Controllers	<input type="checkbox"/>		<input type="checkbox"/>	
: Local On/Off	<input type="checkbox"/>		<input type="checkbox"/>	
: All Notes Off	<input type="checkbox"/>		<input type="checkbox"/>	
: Active Sensing	<input type="checkbox"/>		<input type="checkbox"/>	
: System Reset	<input type="checkbox"/>		<input type="checkbox"/>	
Notes	* 1 O X is selectable. * 2 Recognized as M=1 even if M≠1. * 3 Transmits when Data Transfer is executed or RQ1 received. * 4 GM Mode only.			

Mode 1 : OMNI ON, POLY  
 Mode 3 : OMNI OFF, POLY  
 Mode 2 : OMNI ON, MONO  
 Mode 4 : OMNI OFF, MONO  
 O : Yes  
 X : No

# Specifications

## XV-88: 128-Voice Expandable Synthesizer (Conforms to General MIDI 2 System)

### ● Keyboard

88 keys (Full-weighted with velocity and channel aftertouch)

### ● Part

16

### ● Maximum Polyphony

128 voices

### ● Wave Memory

64 M bytes (16-bit linear equivalent)

### ● Expansion Slot

Wave Expansion Board SR-JV80 Series: 2 slots

Wave Expansion Board SRX Series: 2 slots

### ● Preset Memory

Patches: 768 (128 x 6 banks) + 256 (General MIDI 2 Patches)

Performances: 64 (32 x 2 banks)

Rhythm Sets: 12 (2 x 6 banks) + 9 (General MIDI 2 Rhythm Sets)

### ● User Memory

Patches: 128

Performances: 64

Rhythm Sets: 4

### ● External Memory

SmartMedia Card: 1 slot

### ● Effects

Multi-Effects: 63 types

Reverb: 4 types

Chorus: 2 types

### ● Arpeggiator

45 styles

### ● Controllers

D Beam Controller

Pitch Bend/Modulation Lever

Control Sliders (C1/C2/C3/C4)

Channel Aftertouch

External Sequencer Controller

### ● Display

40 characters, 2 lines (Backlit LCD)

### ● Connectors

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

B Output Jacks (L, R)

(Individual Jacks 1--4)

Headphones Jack

MIDI Connectors (IN, OUT, THRU)

Computer Connector (Mac, PC, MIDI)

Hold Pedal Jack

Control Pedal Jacks 1/2

### ● Power Supply

AC 117 V, AC 230 V, AC 240 V

### ● Power Consumption

16 W

### ● Dimensions

1,408 (W) x 415 (D) x 142 (H) mm

55-7/16 (W) x 16-3/8 (D) x 5-5/8 (H) inches

### ● Weight

26 kg / 57 lbs 6 oz

### ● Accessories

Quick Start

Owner's Manual

Q & A

Power Cable (Not included with XV-88 designed for 117 V power supply)

### ● Options

Wave Expansion Board (SRX Series, SR-JV80 Series)

Pedal Switch (DP-2/6)

Foot Switch (FS-5U)

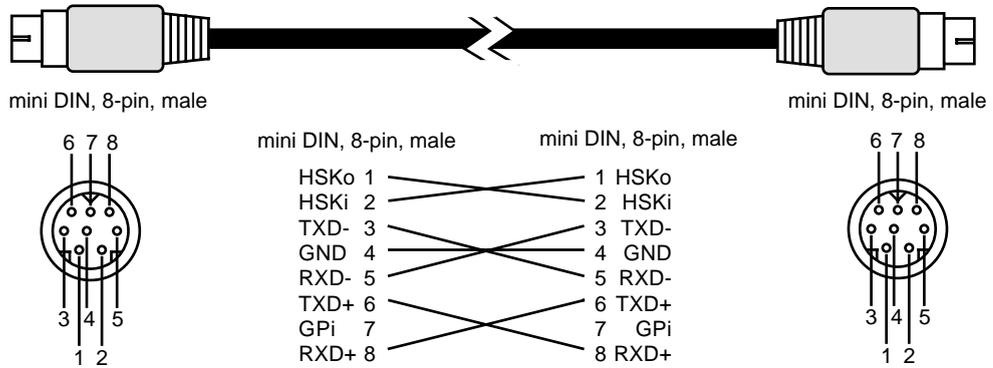
Expression Pedal (EV-5)

### NOTE

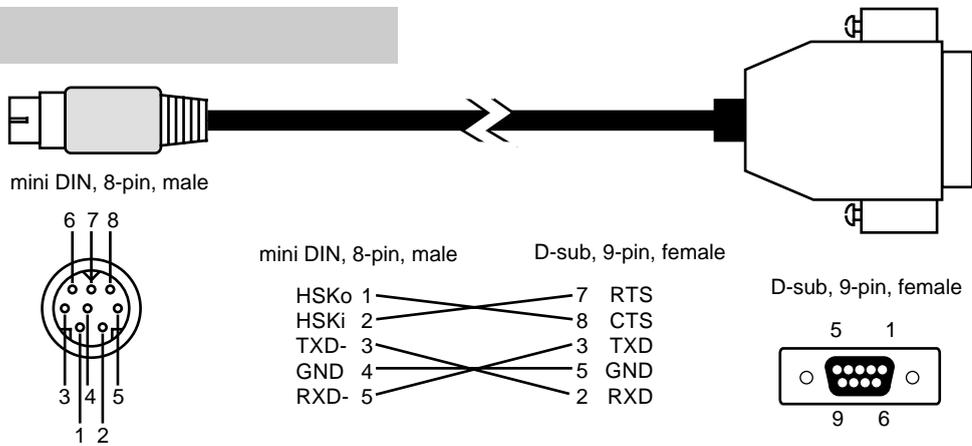
In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.

# Computer Cable Wiring Diagrams

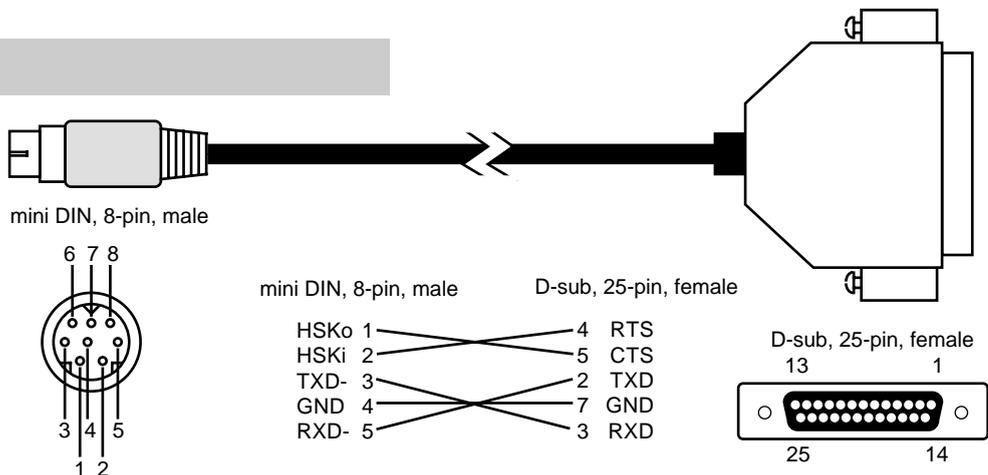
## For Apple Macintosh



## For PC (9-pin)



## For PC (25-pin)



# Index

## Symbols

[+OCT] .....	14, 47
[-OCT] .....	14, 47

## Numerics

[0]–[9] (Numeric Keys) .....	16, 27
[1-8/9-16] .....	15, 25

## A

[A]–[H] .....	16
AC inlet .....	17
Accent	
Accent Rate (System) .....	42
Accent Rate (Zone) .....	42
Accent Rate	
System .....	42, 176
Zone .....	42, 62
Active Sensing .....	171
Aft	
Aftertouch information (Part) .....	56
Aftertouch sensitivity .....	171
Aftertouch .....	197
Aftertouch sensitivity .....	171
Alternate	
Alternate pan depth (Rhythm Tone) .....	103
Alternate pan depth (Tone) .....	91
Alternate pan switch .....	99
Alternate pan depth	
Rhythm Tone .....	103
Tone .....	91
Alternate pan switch .....	99
Analog Feel .....	70
Analog feel depth .....	70
Arabic scale .....	174
ARP SELECT .....	41
Arpeggiator .....	41
[ARPEGGIO] .....	14, 41
ARPEGGIO .....	44
System .....	174
Zone .....	61
Arpeggio .....	41
ARPEGGIO group	
System .....	174
Zone .....	61
Arpeggio hold .....	43
Arpeggio style	
Arpeggio style list .....	268
System .....	41, 174
Zone .....	41, 61
Arpeggio tempo	
System .....	42, 176
Zone .....	42
Arpeggio zone .....	63
Assign	
C1–C4 slider assign .....	172
D Beam assign (System) .....	45, 176
D Beam assign (Zone) .....	45, 63
Key assign .....	76
Pedal 1, 2 assign .....	172
Assign Type .....	97
Assigning a name .....	28
Patch .....	69
Performance .....	51
Rhythm Set .....	96
Rhythm Tone .....	98
Atk	
Attack time offset (Part) .....	54
Attack time offset (Patch) .....	71
[ATTACK] .....	34, 39
Attack	
Attack time offset (GM Part) .....	196

Attack time offset	
GM Part .....	196
Part .....	54
Patch .....	71
Audio signal flow	
Patch/Rhythm Set mode .....	107
Performance mode .....	112

## B

Bank Sel .....	171
Bank Select	
Receive bank select switch (Part) .....	52
Receive bank select switch (System) .....	170
Bank Select MSB/LSB	
External bank select MSB/LSB .....	60
Transmit bank select MSB/LSB .....	178
BATTERY CHECK .....	178
Beat Pattern	
System .....	176
Zone .....	62
Bend .....	197
Bend Range	
Rhythm Tone .....	97
Tone .....	78
Bend range	
GM Part .....	197
Part .....	55
Bender .....	77
BendRng	
Bend range (GM Part) .....	197
Bend range (Part) .....	55
BIAS .....	91
Bias .....	91
Bias direction .....	91
Bias level .....	91
Bias point .....	91
Block .....	186–187
Bnd	
Pitch bend information (Part) .....	56
Receive pitch bend switch (Part) .....	52
Booster .....	75
Booster gain .....	75
Breath	
Breath information (GM Part) .....	197
Breath information (Part) .....	56

## C

C1–C4 ASSIGN .....	172
C1–C4 Output .....	173
C1–C4 slider assign .....	172
C1–C4 slider output .....	173
C1–C4 sliders .....	199
Caf .....	52
[CARD] .....	16
CARD .....	188
CARD FORMAT .....	189
CARD INFO .....	190
Category .....	69
Ch .....	178
Channel	
MIDI receive channel (GM Part) .....	195
MIDI receive channel (Part) .....	52
MIDI transmit channel (Zone) .....	59
CHO OUT .....	158
CHO PRM .....	157
CHO TYPE .....	156
[CHORUS] .....	15, 105

- Chorus
- Chorus parameters ..... 248
  - Chorus send level (GM Part) ..... 194
  - Chorus send level (Part) ..... 113
  - Chorus send level (Rhythm Tone) ..... 110
  - Chorus send level (Tone) ..... 110
  - Multi-effects chorus send level ..... 116
- Chorus level ..... 158
- Chorus output assign ..... 158
- GM ..... 195
- Chorus output select ..... 158
- Chorus send level
- GM Part ..... 194
  - Part ..... 113
  - Rhythm Tone ..... 110
  - Tone ..... 110
- Chorus source ..... 156
- Chorus type ..... 156
- GM ..... 195
- Clock Source
- Patch clock source ..... 71
  - Rhythm Set clock source ..... 96
  - System clock source ..... 168
- Coarse
- Coarse tune (GM Part) ..... 196
  - Coarse tune (Part) ..... 55
  - Coarse tune (Patch) ..... 70
  - Coarse tune (Rhythm Tone) ..... 100
  - Coarse tune (Rhythm Wave) ..... 100
  - Coarse tune (Tone) ..... 86
- Coarse tune
- GM Part ..... 196
  - Part ..... 55
  - Patch ..... 70
  - Rhythm Tone ..... 100
  - Rhythm Wave ..... 100
  - Tone ..... 86
- Color
- FXM color (Rhythm Wave) ..... 100
  - FXM color (Tone) ..... 81
- COMMON group
- Patch ..... 69
  - Performance ..... 51
  - Rhythm Set ..... 96
  - Zone ..... 58
- COMPUTER connector ..... 17, 208
- COMPUTER switch ..... 17, 208–209, 212
- Connecting with computer ..... 208
- Computer cable ..... 209, 299
- Continuous ..... 172
- Continuous switch ..... 172
- CONTROL
- GM Part ..... 197
  - Rhythm Tone ..... 97
- Control 1–4
- Matrix control source 1–4 ..... 78
  - System control assign 1–4 ..... 173
- Control Channel ..... 169
- CONTROL group
- Patch ..... 76
  - Rhythm Set ..... 97
  - System ..... 171
- CONTROL PEDAL 1, 2 ..... 172
- [CONTROLLER] ..... 14
- COPY ..... 182
- Copy
- Compare function ..... 183–184
  - Effects ..... 161
  - Effects (Patch) ..... 183
  - Effects (Performance) ..... 182
  - Effects (Rhythm Set) ..... 184
  - Name (Patch) ..... 183
  - Name (Performance) ..... 182
  - Name (Rhythm Set) ..... 184
  - Part ..... 50, 182
  - Rhythm Tone ..... 94, 184
  - Tone ..... 68, 183
- CTL 1, CTL 2 PEDAL jack ..... 17
- CTRL Rx MIDI ..... 77
- Cursor button ..... 15, 26
- Cut
- Cutoff frequency offset (Part) ..... 54
  - Cutoff frequency offset (Patch) ..... 71
- [CUTOFF] ..... 34, 39
- Cutoff
- Cutoff frequency (Rhythm Tone) ..... 102
  - Cutoff frequency (Tone) ..... 88
  - Cutoff frequency offset (GM Part) ..... 196
- Cutoff frequency
- Rhythm Tone ..... 102
  - Tone ..... 88
- Cutoff frequency keyfollow ..... 88
- Cutoff frequency offset
- GM Part ..... 196
  - Part ..... 54
  - Patch ..... 71
- Cutoff frequency velocity curve
- Rhythm Tone ..... 102
  - Tone ..... 89
- Cutoff frequency velocity sensitivity
- Rhythm Tone ..... 102
  - Tone ..... 89
- D**
- D Beam assign
- System ..... 45, 176
  - Zone ..... 45, 63
- D BEAM CONTROL
- System ..... 176
  - Zone ..... 63
- D Beam controller ..... 45
- D BEAM group
- System ..... 176
  - Zone ..... 63
- D Beam output
- System ..... 46, 176
  - Zone ..... 46, 63
- D Beam polarity
- System ..... 46, 177
  - Zone ..... 46, 63
- D BEAM RANGE
- System ..... 177
  - Zone ..... 64
- D Beam range lower
- System ..... 46, 177
  - Zone ..... 46, 64
- D Beam range upper
- System ..... 46, 177
  - Zone ..... 46, 64
- D BEAM SENS
- System ..... 177
  - Zone ..... 64
- D Beam Sensitivity
- System ..... 46, 177
  - Zone ..... 46, 64
- Data type ..... 186–187
- [DEC/-] ..... 16, 27
- Delay Keyfollow ..... 84

# Index

- Delay Time ..... 84
- DELETE ..... 189
- [DEMO] ..... 16
- Depth
  - FXM depth (Rhythm Wave) ..... 100
  - FXM depth (Tone) ..... 81
  - Pitch envelope depth (Rhythm Tone) ..... 100
  - Pitch envelope depth (Tone) ..... 86
  - TVF envelope depth (Rhythm Tone) ..... 102
  - TVF envelope depth (Tone) ..... 89
- Desktop music ..... 208
- Dest ..... 79
- Destination ..... 116
- Detune ..... 83
- Device ID ..... 171
- Device ID number ..... 171
- Digit hold function ..... 30
- Direction ..... 91
- Dry ..... 116
- DTM ..... 208
- E**
- [EDIT] ..... 15, 25–26
- Effects
  - Chorus ..... 105
  - Multi-effects ..... 105
  - Reverb ..... 105
  - Turning effects on/off ..... 105
- EFFECTS group
  - GM ..... 194
  - Patch ..... 75
  - Performance ..... 52
  - Rhythm Set ..... 97
- [ENTER] ..... 16
- Envelope Mode
  - Rhythm Tone ..... 97
  - Tone ..... 78
- Equal temperament ..... 174
- Error message ..... 218
- Exclusive ..... 188
- Exclusive protect ..... 188
- [EXIT] ..... 15
- [EXP] ..... 16
- Exp
  - Expression information (GM Part) ..... 197
  - Expression information (Part) ..... 56
  - Receive expression switch (Part) ..... 52
- Expression
  - Receive expression switch (Rhythm Tone) ..... 97
  - Receive expression switch (Tone) ..... 77
- EXT CONTROL group ..... 60
- EXT CTRL ..... 60
- EXT P.C ..... 60
- External bank select MSB/LSB ..... 60
- External MIDI device ..... 202–203
- External pan ..... 60
- External program change number ..... 60
- External volume ..... 60
- F**
- FACTORY RESET ..... 191
- Fade Mode ..... 84
- Fade Time ..... 84
- [FAVORITE LIST] ..... 16
- FAVORITE LIST ..... 31, 40, 165
- Favorite list
  - Registering Patches/Rhythm Sets in the favorite list ..... 165
  - Selecting Patches from the favorite list ..... 31
  - Selecting Rhythm Sets from the favorite list ..... 40
- FILE COPY ..... 189
- Filter type
  - Rhythm Tone ..... 101
  - Tone ..... 87
- [FILTER/ENV] ..... 14, 34
- Fine
  - Fine tune (GM Part) ..... 196
  - Fine tune (Part) ..... 55
  - Fine tune (Patch) ..... 70
  - Fine tune (Rhythm Tone) ..... 100
  - Fine tune (Rhythm Wave) ..... 100
  - Fine tune (Tone) ..... 86
- Fine tune
  - GM Part ..... 196
  - Part ..... 55
  - Patch ..... 70
  - Rhythm Tone ..... 100
  - Rhythm Wave ..... 100
  - Tone ..... 86
- Foot
  - Foot information (GM Part) ..... 197
  - Foot information (Part) ..... 56
- Form ..... 83
- FORMAT ..... 189
- Function button ..... 15, 25
- FXM ..... 81
- FXM color
  - Rhythm Wave ..... 100
  - Tone ..... 81
- FXM depth
  - Rhythm Wave ..... 100
  - Tone ..... 81
- FXM switch
  - Rhythm Wave ..... 100
  - Tone ..... 81
- G**
- Gain
  - Wave gain (Rhythm Wave) ..... 98
  - Wave gain (Tone) ..... 81
- General MIDI ..... 13
- General MIDI 2 ..... 13
- General MIDI/General MIDI 2 system on message ..... 192
- [GM] ..... 14
- GM CHORUS ..... 195
- GM INIT ..... 198
- GM MIDI ..... 170
- GM mode ..... 24, 192
  - GM mode parameters ..... 240
- GM mode settings ..... 193
- GM Patch/Rhythm Set number ..... 196
- GM PLAY ..... 192
- GM score ..... 192
- GM utility ..... 198
- Group
  - Patch/Rhythm Set group ..... 53
  - Wave group (Rhythm Wave) ..... 98
  - Wave group (Tone) ..... 81
- GS format ..... 192
- H**
- Hld
  - Hold 1 information (Part) ..... 56
  - Receive hold 1 switch (Part) ..... 52
- Hold ..... 197
- HOLD PEDAL ..... 172
- HOLD PEDAL jack ..... 17
- Hold-1
  - Receive hold 1 switch (Rhythm Tone) ..... 97
  - Receive hold 1 switch (Tone) ..... 77
- I**
- [INC/+ ] ..... 16, 27
- INDIVIDUAL 1–4 jacks ..... 18

- INFO  
 GM Part ..... 197  
 Memory card ..... 190  
 Part ..... 56  
 Zone ..... 64  
 INFO EXP ..... 178  
 INFO group  
 GM ..... 197  
 Performance ..... 56  
 System ..... 178  
 Zone ..... 64  
 Information  
 Aftertouch (GM Part) ..... 197  
 Aftertouch (Part) ..... 56  
 Breath (GM Part) ..... 197  
 Breath (Part) ..... 56  
 Expression (GM Part) ..... 197  
 Expression (Part) ..... 56  
 Foot (GM Part) ..... 197  
 Foot (Part) ..... 56  
 Hold 1 (GM Part) ..... 197  
 Hold 1 (Part) ..... 56  
 Modulation (GM Part) ..... 197  
 Modulation (Part) ..... 56  
 Pan (GM Part) ..... 197  
 Pan (Part) ..... 56  
 Pitch bend (GM Part) ..... 197  
 Pitch bend (Part) ..... 56  
 System control 1-4 ..... 56  
 Voice (GM Part) ..... 197  
 Voice (Part) ..... 56  
 Volume (GM Part) ..... 197  
 Volume (Part) ..... 56  
 INIT ..... 185  
 Initialize ..... 185  
 GM mode ..... 198  
 Patch ..... 185  
 Performance ..... 185  
 Rhythm Set ..... 185  
 Initialize mode ..... 185  
 Initialize mode (GM) ..... 198  
 Internal ..... 188  
 Internal write protect ..... 180, 186, 188, 191  
**J**  
 Just temperament ..... 174  
**K**  
 Key assign ..... 76  
 Key fade width lower  
 Part ..... 51  
 Tone ..... 73  
 Key fade width upper  
 Part ..... 51  
 Tone ..... 73  
 Key Mode ..... 58  
 KEY RANG  
 Part ..... 51  
 Zone ..... 59  
 KEY RANGE group ..... 59  
 Key range lower  
 Part ..... 51  
 Tone ..... 73  
 Zone ..... 59  
 Key range upper  
 Part ..... 51  
 Tone ..... 73  
 Zone ..... 59  
 KEY SCALE ..... 174  
 Key Shift ..... 173  
 Key Velocity  
 System ..... 176  
 Zone ..... 63  
 KEYBOARD ..... 171  
 Keyboard controller section ..... 19  
 Keyboard sensitivity ..... 171  
 Keyboard velocity ..... 171  
 Keyfollow  
 Cutoff frequency keyfollow ..... 88  
 Pan keyfollow ..... 91  
 Pitch keyfollow ..... 86  
 KeySync ..... 83  
**L**  
 L.Fade  
 Key fade width lower (Part) ..... 51  
 Key fade width lower (Tone) ..... 73  
 Velocity fade width lower (Rhythm Wave) ..... 99  
 Velocity fade width lower (Tone) ..... 73  
 L0  
 Pitch envelope level 0 (Rhythm Tone) ..... 101  
 Pitch envelope level 0 (Tone) ..... 87  
 TVF envelope level 0 (Rhythm Tone) ..... 103  
 TVF envelope level 0 (Tone) ..... 90  
 L1-L3  
 TVA envelope level 1-3 (Rhythm Tone) ..... 104  
 TVA envelope level 1-3 (Tone) ..... 92  
 L1-L4  
 Pitch envelope level 1-4 (Rhythm Tone) ..... 101  
 Pitch envelope level 1-4 (Tone) ..... 87  
 TVF envelope level 1-4 (Rhythm Tone) ..... 103  
 TVF envelope level 1-4 (Tone) ..... 90  
 LCD ..... 168  
 LCD contrast ..... 168  
 Legato  
 Part legato switch ..... 55  
 Solo legato switch ..... 76  
 Legato Retrigger ..... 76  
 Legato retrigger switch ..... 76  
 [LEVEL] ..... 14, 34  
 Level  
 Chorus level ..... 158  
 Part level ..... 53  
 Patch level ..... 70  
 Reverb level ..... 160  
 Rhythm Set level ..... 96  
 Rhythm Tone level ..... 103  
 Tone level ..... 90  
 Wave level ..... 98  
 LFO delay time ..... 84  
 LFO delay time keyfollow ..... 84  
 LFO DEPTH 1:2 ..... 85  
 LFO fade mode ..... 84  
 LFO fade time ..... 84  
 LFO group ..... 83  
 LFO key sync ..... 83  
 LFO level offset ..... 83  
 LFO rate ..... 83  
 LFO rate detune ..... 83  
 LFO waveform ..... 83  
 LFO1/LFO2 DELAY ..... 84  
 LFO1/LFO2 FADE ..... 84  
 LFO1/LFO2 WAVE ..... 83  
 LOAD ..... 190  
 Local  
 Local switch (System) ..... 169-170  
 Local switch (Zone) ..... 60  
 Local off ..... 211  
 Local Switch ..... 19, 170  
 System ..... 169-170  
 Zone ..... 60  
 [LOCAL/TX] ..... 15, 25  
 Loop waveform ..... 68, 95

Lower	
D Beam range lower (System)	46, 177
D Beam range lower (Zone)	46, 64
Key range lower (Part)	51
Key range lower (Tone)	73
Key range lower (Zone)	59
Velocity range lower (Rhythm Wave)	99
Velocity range lower (Tone)	72
<b>M</b>	
Master	173
Master key shift	173
Master Level	168
Master tune	173
MATRIX CONTROL 1-4	79
Matrix control destination	79
Matrix control sensitivity	80
Matrix control source 1-4	78
Matrix control tone	80
Matrix controller	78
MATRIX CTRL SRC	78
Memory	162
Memory card	163
Preset memory	163
System memory	163
Temporary area	163
User memory	163
Wave expansion board	163
Memory backup	5
Memory card	5, 179, 188
Copying files	189
Format	189
Loading a file into the XV-88	190
Saving to a memory card	190
MEMORY CARD slot	17, 179
MFX Control Channel	51
MFX CTRL	115
MFX OUT	116
MFX PRM	115
MFX TYPE	114
MIDI	269
GM Part	195
Part	52
Zone	59
MIDI channel	269
MIDI connector	17, 269
MIDI data flow	212
MIDI group	
GM	195
Performance	52
System	169
Zone	59
MIDI interface	209
MIDI receive channel	
GM Part	195
Part	52
MIDI THRU connector	204
MIDI thru function	211
MIDI transmit channel	59
Mix/Parallel	169
Mno/Pol	55
Mno/Poly	197
Mod	
Modulation information (GM Part)	197
Modulation information (Part)	56
Receive modulation switch	52
Mode	
Initialize mode	185
Initialize mode (GM)	198
Portamento mode	76
Tone delay mode	82
MODIFY	
GM Part	196
Part	54
MONO/POL	55
Motif	
System	175
Zone	62
[MULTI]	15, 105
Multi-effects	
Category	118
Multi-effects parameters	241
Multi-effects settings	114
Multi-effects types	117
Multi-effects chorus send level	116
Multi-effects control channel	51
Multi-effects control destination	116
Multi-effects control sensitivity	116
Multi-effects control source	116
Multi-effects controller	115
Multi-effects dry send level	116
Multi-effects output assign	116
Multi-effects reverb send level	116
Multi-effects source	114
Multi-effects type	114
01: STEREO EQ	119
02: OVERDRIVE	119
03: DISTORTION	120
04: PHASER	120
05: SPECTRUM	121
06: ENHANCER	121
07: AUTO WAH	122
08: ROTARY	122
09: COMPRESSOR	123
10: LIMITER	123
11: HEXA-CHORUS	124
12: TREMOLO CHORUS	124
13: SPACE-D	125
14: STEREO CHORUS	125
15: STEREO FLANGER	126
16: STEP FLANGER	126
17: STEREO DELAY	127
18: MODULATION DELAY	128
19: TRIPLE TAP DELAY	129
20: QUADRUPLE TAP DELAY	130
21: TIME CONTROL DELAY	131
22: 2VOICE PITCH SHIFTER	131
23: FBK PITCH SHIFTER	132
24: REVERB	133
25: GATED REVERB	133
26: OVERDRIVE→CHORUS	134
27: OVERDRIVE→FLANGER	134
28: OVERDRIVE→DELAY	135
29: DISTORTION→CHORUS	135
30: DISTORTION→FLANGER	135
31: DISTORTION→DELAY	135
32: ENHANCER→CHORUS	136
33: ENHANCER→FLANGER	136
34: ENHANCER→DELAY	137
35: CHORUS→DELAY	137
36: FLANGER→DELAY	138
37: CHORUS→FLANGER	138
38: CHORUS/DELAY	139
39: FLANGER/DELAY	139
40: CHORUS/FLANGER	139
41: STEREO PHASER	139
42: KEYSYNC FLANGER	140
43: FORMANT FILTER	141
44: RING MODULATOR	142
45: MULTI TAP DELAY	143
46: REVERSE DELAY	144
47: SHUFFLE DELAY	145
48: 3D DELAY	146
49: PITCH SHIFTER	147

- 50: LOFI COMPRESS ..... 147  
51: LOFI NOISE ..... 148  
52: SPEAKER SIMULATOR ..... 148  
53: OVERDRIVE 2 ..... 149  
54: DISTORTION 2 ..... 149  
55: STEREO COMPRESSOR ..... 150  
56: STEREO LIMITER ..... 150  
57: GATE ..... 151  
58: SLICER ..... 151  
59: ISOLATOR ..... 152  
60: 3D CHORUS ..... 152  
61: 3D FLANGER ..... 153  
62: TREMOLO ..... 154  
63: AUTO PAN ..... 155  
Multi-timbral sound generator ..... 21, 269  
Mute Group ..... 97  
Mute Sw  
    Mute switch (GM Part) ..... 196  
    Mute switch (Part) ..... 52  
Mute switch  
    GM Part ..... 196  
    Part ..... 52
- N**  
Note 1-4  
    Preview note set 1-4 ..... 177  
    Preview velocity ..... 177  
Number  
    GM Patch/Rhythm Set number ..... 196  
    Patch/Rhythm Set number ..... 53  
    Wave number (Rhythm Wave) ..... 98  
    Wave number (Tone) ..... 81  
Number of voices ..... 23, 56, 197
- O**  
Oct  
    Octave range (System) ..... 42  
    Octave range (Zone) ..... 42  
Octave  
    Octave shift (Part) ..... 54  
    Octave shift (Patch) ..... 70  
Octave Range  
    System ..... 42, 175  
    Zone ..... 42, 61  
Octave shift ..... 47  
    Part ..... 54  
    Patch ..... 70  
Offset ..... 83  
[ON] ..... 14, 45  
One-shot waveform ..... 68, 95  
Out  
    Chorus output assign (GM) ..... 195  
    Reverb output assign (GM) ..... 195  
OUTPUT  
    GM Part ..... 194  
Output  
    D Beam output (System) ..... 46, 176  
    D Beam output (Zone) ..... 46, 63  
    Multi-effects output assign ..... 116  
    Pedal 1, 2 output ..... 172  
    Pedal output ..... 172  
OUTPUT A (MIX) jacks ..... 18  
Output Assign  
    Chorus output assign ..... 158  
    GM Part ..... 194  
    Part ..... 113  
    Patch ..... 70, 108  
    Reverb output assign ..... 160  
    Rhythm Set ..... 96, 108  
    Rhythm Tone ..... 109  
    Tone ..... 109  
OUTPUT B jacks ..... 18
- Output level  
    GM Part ..... 194  
    Part ..... 113  
    Rhythm Tone ..... 109  
    Tone ..... 109
- P**  
P.C#  
    External program change number ..... 60  
    Transmit program change number ..... 178  
Paf ..... 52  
[PALETTE EDIT] ..... 15, 50, 58, 67, 94  
Palette edit  
    Part ..... 50  
    Rhythm Wave ..... 94  
    Tone ..... 67  
    Zone ..... 58  
Palette slider  
    Adjusting the volume balance between Parts ..... 39  
    Changing the volume of Tone ..... 34  
    Modify the sound in realtime ..... 34, 38  
Pan  
    External pan ..... 60  
    Pan information (GM Part) ..... 197  
    Pan information (Part) ..... 56  
    Pan LFO depth 1, 2 ..... 85  
    Part pan ..... 53  
    Part pan (GM) ..... 196  
    Patch pan ..... 70  
    Receive pan mode (Rhythm Tone) ..... 97  
    Receive pan switch (Part) ..... 52  
    Rhythm Tone pan ..... 103  
    Tone pan ..... 90  
    Wave pan ..... 99  
Pan keyfollow ..... 91  
Pan LFO depth 1, 2 ..... 85  
Pan Mode ..... 77  
PAN MODULATE ..... 91  
[PANIC] ..... 15  
Panic ..... 48  
[PART] ..... 14  
Part ..... 21  
    Current Part ..... 37  
PART group  
    GM ..... 196  
    Performance ..... 53  
Part legato switch ..... 55  
Part level ..... 53  
Part mono/poly ..... 55  
Part mono/poly (GM) ..... 197  
Part pan  
    GM Part ..... 196  
    Part ..... 53  
PART PLAY ..... 56  
Part portamento switch:time ..... 55  
Part portamento switch:time (GM) ..... 197  
Part type  
    GM Part ..... 196  
    Part ..... 53  
Part volume ..... 196  
[PATCH] ..... 14, 29  
PATCH  
    GM Part ..... 196  
    Part ..... 53  
Patch  
    Category ..... 31  
    How a Patch is organized ..... 20, 65  
    Patch group ..... 29  
    Patch list ..... 253  
    Patch parameters ..... 69, 233  
    Patch settings ..... 66  
    Selecting a Patch ..... 29

PATCH CATEGORY .....	69
Patch category .....	69
Patch clock source .....	71
PATCH COMMON .....	70
PATCH COMPARE .....	165, 181, 183
[PATCH FINDER] .....	16, 30
Patch finder .....	30
PATCH FX COPY .....	183
PATCH INIT .....	185
PATCH KEY MODE .....	76
Patch level .....	70
PATCH LVL&PAN .....	70
PATCH MIDI .....	170
Patch mode .....	24
Applying effects in Patch mode .....	106
Playing in Patch mode .....	29
PATCH MODIFY .....	71
PATCH NAME .....	69
PATCH NAME CPY .....	183
PATCH OCT&TUNE .....	70
Patch pan .....	70
PATCH PLAY .....	29
PATCH PORTAMNT .....	76
Patch Remain .....	169
Patch remain switch .....	169
PATCH SCALE .....	173
PATCH TEMPO .....	71
Patch tempo .....	71
PATCH TONE CPY .....	68, 183
PATCH WRITE .....	181
Patch/Rhythm Set group .....	53
Patch/Rhythm Set number .....	53
Patch/Rhythm Set receive channel .....	170
Patch/Rhythm Set transmit channel .....	170
PCH ENVELOPE .....	
Rhythm Tone .....	100
Tone .....	86
Pedal 1, 2 assign .....	172
Pedal 1, 2 output .....	172
Pedal 1, 2 polarity .....	172
Pedal output .....	172
Pedal polarity .....	172
Pedal switch (DP-2, DP-6) .....	199, 203
[PERFORM] .....	14, 35
PERFORM FX COPY .....	182
PERFORM INIT .....	185
PERFORM MFX CH .....	51
PERFORM MIDI .....	169
PERFORM NAME .....	51
PERFORM NAME CPY .....	182
PERFORM PART CPY .....	50, 182
PERFORM PLAY .....	35
PERFORM WRITE .....	180
Performance .....	
How a Performance is organized .....	21, 49
Layer Performance .....	36, 58
Performance group .....	35
Performance list .....	252
Performance parameters .....	51, 230
Performance settings .....	49
Selecting a Performance .....	35
Single Performance .....	37, 59
Split Performance .....	36
Performance control channel .....	169
Performance mode .....	24
Applying effects in Performance mode .....	111
Playing in Performance mode .....	34
Phase Lock .....	53
Phase lock switch .....	53
PHONES jack .....	18
Phrase loop .....	81, 99, 201
[PHRASE PREVIEW] .....	16, 32
Phrase Preview .....	
Using phrase preview to play Patches .....	32
PITCH .....	
Part .....	54
Rhythm Tone .....	100
Tone .....	86
Pitch .....	85
Pitch bend/Modulation lever .....	16
Pitch envelope depth .....	
Rhythm Tone .....	100
Tone .....	86
Pitch envelope level 0 .....	
Rhythm Tone .....	101
Tone .....	87
Pitch envelope level 1-4 .....	
Rhythm Tone .....	101
Tone .....	87
Pitch envelope time 1 velocity sensitivity .....	
Rhythm Tone .....	101
Tone .....	87
Pitch envelope time 1-4 .....	
Rhythm Tone .....	101
Tone .....	87
Pitch envelope time 4 velocity sensitivity .....	
Rhythm Tone .....	101
Tone .....	87
Pitch envelope time keyfollow .....	87
Pitch envelope velocity sensitivity .....	
Rhythm Tone .....	101
Tone .....	86
PITCH group .....	
Patch .....	86
Rhythm Set .....	100
Pitch keyfollow .....	86
Pitch LFO depth 1, 2 .....	85
Point .....	91
Polarity .....	
D Beam polarity (System) .....	46, 177
D Beam polarity (Zone) .....	46, 63
Pedal 1, 2 polarity .....	172
Pedal polarity .....	172
Porta Sw:Time .....	197
Portament Sw:Tm .....	55
[PORTAMENTO] .....	14, 33
Portamento .....	33, 76
Portamento mode .....	76
Portamento start pitch .....	77
Portamento switch .....	76
Portamento time .....	76
Portamento type .....	76
Power switch .....	17
Power Up Mode .....	168
[PRESET] .....	16
PREVIEW group .....	177
PREVIEW KEY .....	177
Preview Mode .....	32, 177
Preview note set 1-4 .....	177
Preview sound mode .....	32, 177
PREVIEW VELOCITY .....	177
Preview velocity .....	177
Priority .....	70
Program .....	171
Program Change .....	
Receive program change switch (Part) .....	52
Receive program change switch (System) .....	170
PROTECT .....	188

- R**
- Random
    - Random pan depth (Rhythm Tone) ..... 103
    - Random pan depth (Tone) ..... 91
    - Random pan switch ..... 99
    - Random pitch depth (Rhythm Tone) ..... 100
    - Random pitch depth (Tone) ..... 86
  - Random pan depth
    - Rhythm Tone ..... 103
    - Tone ..... 91
  - Random pan switch ..... 99
  - Random pitch depth
    - Rhythm Tone ..... 100
    - Tone ..... 86
  - Rate ..... 83
  - Recalling factory default settings ..... 191
  - RECEIVE MIDI ..... 170
  - Receive pan mode
    - Rhythm Tone ..... 97
    - Tone ..... 77
  - Receive switch ..... 38
    - Bank select (Part) ..... 52
    - Bank select (System) ..... 170
    - Channel aftertouch ..... 52
    - Expression (Part) ..... 52
    - Expression (Rhythm Tone) ..... 97
    - Expression (Tone) ..... 77
    - General MIDI 2 system on ..... 171
    - General MIDI system on ..... 171
    - GM Part ..... 196
    - GS reset ..... 171
    - Hold 1 (Part) ..... 52
    - Hold 1 (Rhythm Tone) ..... 97
    - Hold 1 (Tone) ..... 77
    - Modulation ..... 52
    - Pan ..... 52
    - Part ..... 52
    - Pitch Bend (Part) ..... 52
    - Pitch bend (Tone) ..... 77
    - Polyphonic aftertouch ..... 52
    - Program change (Part) ..... 52
    - Program change (System) ..... 170
    - System exclusive ..... 171
    - Volume ..... 52
  - Redamper ..... 78
  - Redamper switch ..... 78
  - [REGISTRY] ..... 16
  - Rel
    - Release time offset (Part) ..... 54
    - Release time offset (Patch) ..... 72
  - [RELEASE] ..... 34, 39
  - Release
    - Release time offset (GM Part) ..... 196
  - Release time offset
    - GM Part ..... 196
    - Part ..... 54
    - Patch ..... 72
  - Remote ..... 44, 170
  - Remote controlling an external MIDI sequencer ..... 26, 204
  - Remote keyboard switch ..... 44, 170
  - RENAME ..... 189
  - Res
    - Resonance offset (Part) ..... 54
    - Resonance offset (Patch) ..... 71
  - [RESONANCE] ..... 34, 39
  - Resonance
    - Resonance offset (GM Part) ..... 196
    - Rhythm Tone ..... 102
    - Tone ..... 88
  - Resonance offset
    - GM Part ..... 196
    - Part ..... 54
    - Patch ..... 71
  - Resonance velocity sensitivity
    - Rhythm Tone ..... 102
    - Tone ..... 89
  - REV OUT ..... 160
  - REV PRM ..... 159
  - REV TYPE ..... 159
  - [REVERB] ..... 15, 105
  - Reverb
    - Multi-effects reverb send level ..... 116
    - Reverb parameters ..... 249
    - Reverb send level (GM Part) ..... 194
    - Reverb send level (Part) ..... 113
    - Reverb send level (Rhythm Tone) ..... 110
    - Reverb send level (Tone) ..... 110
  - Reverb level ..... 160
  - Reverb output assign ..... 160
    - GM ..... 195
  - Reverb send level
    - GM Part ..... 194
    - Part ..... 113
    - Rhythm Tone ..... 110
    - Tone ..... 110
  - Reverb source ..... 159
  - Reverb type ..... 159
    - GM ..... 195
  - [RHYTHM] ..... 15, 40
  - RHYTHM COMMON ..... 96
  - RHYTHM COMPARE ..... 181, 184
  - RHYTHM FX COPY ..... 184
  - RHYTHM INIT ..... 185
  - RHYTHM KEY COPY ..... 95, 184
  - RHYTHM KEY INIT ..... 185
  - RHYTHM NAME ..... 96
  - RHYTHM NAME CPY ..... 184
  - RHYTHM PLAY ..... 40
  - Rhythm Set
    - How a Rhythm Set is organized ..... 21, 93
    - Rhythm Set group ..... 39
    - Rhythm Set list ..... 258
    - Rhythm Set parameters ..... 96, 237
    - Rhythm Set settings ..... 93
    - Selecting a Rhythm Set ..... 39
  - Rhythm Set clock source ..... 96
  - Rhythm Set level ..... 96
  - Rhythm Set mode ..... 24
    - Applying effects in Rhythm Set mode ..... 106
    - Playing in Rhythm Set mode ..... 39
  - Rhythm Set tempo ..... 96
  - RHYTHM TEMPO ..... 96
  - Rhythm Tone level ..... 103
  - Rhythm Tone pan ..... 103
  - RHYTHM WRITE ..... 181
  - Ring modulator ..... 75
  - Rx Ch ..... 170
  - Rx GM On ..... 171
  - Rx GM2 On ..... 171
  - Rx GS Reset ..... 171
  - Rx MIDI ..... 97
  - Rx Sw
    - Receive switch (GM Part) ..... 196
    - Receive switch (Part) ..... 52
  - Rx Sys.Excl ..... 171
  - RxSWITCH ..... 52

<b>S</b>	
SAVE .....	167, 190
Save	
Compare function .....	164, 181
Saving to a memory card .....	167, 190
Saving to an external MIDI device .....	166
Saving to internal memory .....	164, 180
Scale tune .....	173
Scale tune switch .....	173
Select .....	158
Sens	
Keyboard sensitivity .....	171
Multi-effects control sensitivity .....	116
SETTING	
GM Part .....	196
Part .....	53
SETUP group .....	168
[SHIFT] .....	16
Shuffle Rate	
System .....	176
Zone .....	62
SmartMedia .....	188
Sns .....	80
[SOLO] .....	14, 33
Solo .....	33
Solo legato switch .....	76
Song Number .....	178
Sound generator section .....	19
Source	
Chorus source .....	156
Multi-effects control source .....	116
Multi-effects source .....	114
Reverb source .....	159
Source block .....	186–187
Start .....	77
Stretch .....	70
Stretch tuning depth .....	70
STRUCT .....	73
Structure type .....	73
Style	
Arpeggio style (System) .....	41, 174
Arpeggio style (Zone) .....	41, 61
Sw	
Portamento switch .....	76
Wave switch .....	98
Switch	
FXM switch (Rhythm Wave) .....	100
FXM switch (Tone) .....	81
Tone switch .....	81
SYS CTRL ASSIGN 1, 2 .....	173
Sy1–4 .....	56
[SYSTEM] .....	15, 168
System clock source .....	168
System control assign 1–4 .....	173
System function .....	168
System function settings .....	168
System parameters .....	168, 250
SYSTEM MIDI .....	171
System mode .....	24
SYSTEM PREVIEW .....	177
SYSTEM SETUP .....	168
System Tempo .....	169
SYSTEM TUNE .....	173
<b>T</b>	
T1–T4	
Pitch envelope time 1–4 (Rhythm Tone) .....	101
Pitch envelope time 1–4 (Tone) .....	87
TVA envelope time 1–4 (Rhythm Tone) .....	104
TVA envelope time 1–4 (Tone) .....	92
TVF envelope time 1–4 (Rhythm Tone) .....	103
TVF envelope time 1–4 (Tone) .....	90
Tempo	
Arpeggio tempo (System) .....	42, 176
Arpeggio tempo (Zone) .....	42
Patch tempo .....	71
Rhythm Set tempo .....	96
Tempo Sync .....	98
Time	
Portamento time .....	76
Tone delay time .....	83
Time Keyfollow	
Pitch envelope time keyfollow .....	87
TVA envelope time keyfollow .....	92
Time KF .....	89
TMT control switch .....	78
TMT Ctrl Sw .....	78
TMT CTRL&BENDER .....	78
TMT KEY RANG .....	73
TMT VEL RANG .....	72
TMT VELO CONTROL .....	72
TMT Velocity Control .....	72
TMT velocity control switch .....	72
Tone	
How a Tone is organized .....	20, 65
turning a Tone on/off .....	32
TONE DELAY .....	82
Tone delay mode .....	82
Tone delay time .....	83
Tone level .....	90
TONE NAME .....	98
Tone pan .....	90
[TONE SELECT] .....	25
[TONE SWITCH] .....	25
Tone switch .....	81
Transfer .....	185
GM mode .....	198
Transmitting data to an external MIDI device .....	185
Transmitting data to the XV-88 .....	186
TRANSFER TO MIDI .....	166, 185, 198
TRANSFER TO USER .....	186
Transmit bank select MSB/LSB .....	178
TRANSMIT MIDI .....	171
Transmit MIDI channel .....	178
TRANSMIT P.C .....	178
Transmit program change number .....	178
TRANSMIT SONG SEL .....	178
Transmit song select number .....	178
Transmit switch .....	59
Active sensing .....	171
Bank select .....	171
Edit data .....	171
Program change .....	171
[TRANSCOPE] .....	14, 48
Transpose .....	48
Transpose switch .....	171
Transpose value .....	171
Transpose switch .....	171
Transpose value .....	171
TUNE group .....	173
TVA	
Rhythm Tone .....	103
Tone .....	90
TVA ENVELOPE	
Rhythm Tone .....	104
Tone .....	92
TVA envelope level 1–3	
Rhythm Tone .....	104
Tone .....	92
TVA envelope time 1 velocity sensitivity	
Rhythm Tone .....	104
Tone .....	92
TVA envelope time 1–4	
Rhythm Tone .....	104
Tone .....	92

- TVA envelope time 4 velocity sensitivity  
 Rhythm Tone ..... 104  
 Tone ..... 92  
 TVA envelope time keyfollow ..... 92  
 TVA envelope velocity curve  
 Rhythm Tone ..... 104  
 Tone ..... 91  
 TVA envelope velocity sensitivity  
 Rhythm Tone ..... 104  
 Tone ..... 90  
 TVA group  
 Patch ..... 90  
 Rhythm Set ..... 103  
 TVA LFO depth 1, 2 ..... 85  
 TVA TIME ENV  
 Rhythm Tone ..... 104  
 Tone ..... 92  
 TVA VELOCITY ..... 104  
 TVF ENVELOPE  
 Rhythm Tone ..... 102  
 Tone ..... 89  
 TVF envelope depth  
 Rhythm Tone ..... 102  
 Tone ..... 89  
 TVF envelope level 0  
 Rhythm Tone ..... 103  
 Tone ..... 90  
 TVF envelope level 1-4  
 Rhythm Tone ..... 103  
 Tone ..... 90  
 TVF envelope time 1 velocity sensitivity  
 Rhythm Tone ..... 103  
 Tone ..... 89  
 TVF envelope time 1-4  
 Rhythm Tone ..... 103  
 Tone ..... 90  
 TVF envelope time 4 velocity sensitivity  
 Rhythm Tone ..... 103  
 Tone ..... 90  
 TVF envelope time keyfollow ..... 89  
 TVF envelope velocity curve  
 Rhythm Tone ..... 102  
 Tone ..... 89  
 TVF envelope velocity sensitivity  
 Rhythm Tone ..... 102  
 Tone ..... 89  
 TVF FILTER  
 Rhythm Tone ..... 101  
 Tone ..... 87  
 TVF group  
 Patch ..... 87  
 Rhythm Set ..... 101  
 TVF LFO depth 1, 2 ..... 85  
 TVF VELOCITY  
 Rhythm Tone ..... 102  
 Tone ..... 89  
 Tx ..... 59  
 Tx Ch ..... 170  
 Tx Edit ..... 171  
 Type  
 Chorus type ..... 156  
 Chorus type (GM) ..... 195  
 Data type ..... 186-187  
 Filter type (Rhythm Tone) ..... 101  
 Filter type (Tone) ..... 87  
 Multi-effects type ..... 114  
 Part type ..... 53  
 Part type (GM) ..... 196  
 Portamento type ..... 76  
 Reverb type ..... 159  
 Reverb type (GM) ..... 195  
 Structure type ..... 73
- U**  
 U.Fade  
 Key fade width upper (Part) ..... 51  
 Key fade width upper (Tone) ..... 73  
 Velocity fade width upper (Rhythm Wave) ..... 99  
 Velocity fade width upper (Tone) ..... 73  
 Undo ..... 27  
 [UNDO/COMPARE] ..... 15, 165, 181, 183-184  
 Upper  
 D Beam range upper (System) ..... 46, 177  
 D Beam range upper (Zone) ..... 46, 64  
 Key range upper (Part) ..... 51  
 Key range upper (Tone) ..... 73  
 Key range upper (Zone) ..... 59  
 Velocity range upper (Rhythm Wave) ..... 99  
 Velocity range upper (Tone) ..... 72  
 [USER] ..... 16  
 UTIL 1 ..... 164, 166, 179, 198  
 UTIL 2 ..... 167, 179  
 [UTILITY] ..... 15, 164, 166-167, 179, 198  
 Utility mode ..... 24, 179
- V**  
 VALUE dial ..... 15, 27  
 V-Curve  
 Cutoff frequency velocity curve (Rhythm Tone) ..... 102  
 Cutoff frequency velocity curve (Tone) ..... 89  
 TVA envelope velocity curve (Tone) ..... 91  
 TVF envelope velocity curve (Rhythm Tone) ..... 102  
 TVF envelope velocity curve (Tone) ..... 89  
 V-Cutoff  
 Cutoff frequency velocity sensitivity (Rhythm Tone) ..... 102  
 Cutoff frequency velocity sensitivity (Tone) ..... 89  
 Vel ..... 171  
 VELO CONTROL ..... 99  
 VELO CRV ..... 53  
 Velocity Curve  
 Part ..... 53  
 Rhythm Tone ..... 104  
 Velocity fade width lower  
 Rhythm Wave ..... 99  
 Tone ..... 73  
 Velocity fade width upper  
 Rhythm Wave ..... 99  
 Tone ..... 73  
 Velocity range lower  
 Rhythm Wave ..... 99  
 Tone ..... 72  
 Velocity range upper  
 Rhythm Wave ..... 99  
 Tone ..... 72  
 Velocity Sens  
 TVA envelope velocity sensitivity (Rhythm Tone) ..... 104  
 Velocity sensitivity offset (Part) ..... 54  
 Velocity sensitivity offset (Patch) ..... 72  
 Velocity sensitivity offset  
 Part ..... 54  
 Patch ..... 72  
 Vo ..... 56  
 Voice priority ..... 70  
 Voice Reserve ..... 53  
 Voice reserve ..... 23  
 Voices ..... 197  
 Vol  
 Receive volume switch (Part) ..... 52  
 Volume information (GM Part) ..... 197  
 Volume information (Part) ..... 56  
 Volume  
 External volume ..... 60  
 Part volume (GM) ..... 196  
 Volume slider ..... 14

# Index

V-Resonance	
Resonance velocity sensitivity (Rhythm Tone) .....	102
Resonance velocity sensitivity (Tone) .....	89
V-Sens	
Pitch envelope velocity sensitivity (Rhythm Tone) .....	101
Pitch envelope velocity sensitivity (Tone) .....	86
TVA envelope velocity sensitivity (Tone) .....	90
TVF envelope velocity sensitivity (Rhythm Tone) .....	102
TVF envelope velocity sensitivity (Tone) .....	89
V-T1	
Pitch envelope time 1 velocity sensitivity (Rhythm Tone) ....	101
Pitch envelope time 1 velocity sensitivity (Tone) .....	87
TVA envelope time 1 velocity sensitivity (Rhythm Tone) ....	104
TVA envelope time 1 velocity sensitivity (Tone) .....	92
TVF envelope time 1 velocity sensitivity (Rhythm Tone) ....	103
TVF envelope time 1 velocity sensitivity (Tone) .....	89
V-T4	
Pitch envelope time 4 velocity sensitivity (Rhythm Tone) ....	101
Pitch envelope time 4 velocity sensitivity (Tone) .....	87
TVA envelope time 4 velocity sensitivity (Rhythm Tone) ....	104
TVA envelope time 4 velocity sensitivity (Tone) .....	92
TVF envelope time 4 velocity sensitivity (Rhythm Tone) ....	103
TVF envelope time 4 velocity sensitivity (Tone) .....	90
<b>W</b>	
WAVE .....	81
Wave expansion board	
SR-JV80 series .....	29, 40
SRX series .....	40
Wave expansion board installation slot .....	18
Wave gain	
Rhythm Wave .....	98
Tone .....	81
WAVE group	
Patch .....	81
Rhythm Set .....	98
Wave group	
Rhythm Wave .....	98
Tone .....	81
Wave level .....	99
Wave number	
Rhythm Wave .....	98
Tone .....	81
Wave pan .....	99
Wave switch .....	98
Wave Tempo Sync	
Rhythm Wave .....	98
Tone .....	81
Waveform list .....	263
WMT FXM .....	100
WMT PAN .....	99
WMT TUNE .....	100
WMT VEL RANG .....	99
WMT Velocity Control .....	99
WMT velocity control switch .....	99
WMT WAVE .....	98
WRITE .....	164, 180
WRITE PROTECT .....	164, 180, 186, 188, 191
Write protect seal .....	167, 188
<b>X</b>	
XFER .....	185
<b>Z</b>	
[ZONE] .....	15, 57
Zone .....	63
Zone and Part .....	22
Zone parameters .....	58, 232
Zone settings .....	57
ZONE COMMON .....	58
Zone mode .....	24
[ZONE/PART SELECT] .....	25

For EU Countries

## Apparatus containing Lithium batteries

### ADVARSEL!

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

### ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri.  
Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten.  
Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

### CAUTION

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

### VARNING

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

### VAROITUS

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

For EU Countries



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.

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.

# Information

When you need repair service, call your nearest Roland Service Center or authorized Roland distributor in your country as shown below.

## AFRICA

### EGYPT

**Al Fanny Trading Office**  
9, EBN Hagar A1 Askalany Street,  
ARD E1 Golf, Heliopolis,  
Cairo 11341, EGYPT  
TEL: 20-2-417-1828

### REUNION

**Maison FO - YAM Marcel**  
25 Rue Jules Hermann,  
Chaudron - BP79 97 491  
Ste Clotilde Cedex,  
REUNION ISLAND  
TEL: (0262) 218-429

### SOUTH AFRICA

**That Other Music Shop  
(PTY) Ltd.**  
11 Melle St., Braamfontein,  
Johannesburg, SOUTH AFRICA  
  
P.O.Box 32918, Braamfontein 2017  
Johannesburg, SOUTH AFRICA  
TEL: (011) 403 4105

**Paul Bothner (PTY) Ltd.**  
17 Werdmuller Centre,  
Main Road, Claremont 7708  
SOUTH AFRICA

P.O.Box 23032, Claremont 7735,  
SOUTH AFRICA  
TEL: (021) 674 4030

## ASIA

### CHINA

**Beijing Xinghai Musical  
Instruments Co., Ltd.**  
6 Huangmuchang Chao Yang  
District, Beijing, CHINA  
TEL: (010) 6774 7491

**Shanghai Xingtong Acoustics  
Equipment CO., Ltd.**  
5F. No.1500 Pingliang Road  
New East Club Plaza, Shanghai,  
CHINA  
TEL: (021) 5580-0800

### HONG KONG

**Tom Lee Music Co., Ltd.  
Service Division**  
22-32 Pun Shan Street, Tsuen  
Wan, New Territories,  
HONG KONG  
TEL: 2415 0911

### INDIA

**Rivera Digitec (India) Pvt. Ltd.**  
409, Nirman Kendra Mahalaxmi  
Flats Compound Off. Dr. Edwin  
Moses Road, Mumbai-400011,  
INDIA  
TEL: (022) 493 9051

### INDONESIA

**PT Citra IntiRama**  
J1. Cideng Timur No. 15J-150  
Jakarta Pusat  
INDONESIA  
TEL: (021) 6324170

### KOREA

**Cosmos Corporation**  
1461-9, Seocho-Dong,  
Seocho Ku, Seoul, KOREA  
TEL: (02) 3486-8855

### MALAYSIA

**BENTLEY MUSIC SDN BHD**  
140 & 142, Jalan Bukit Bintang  
55100 Kuala Lumpur, MALAYSIA  
TEL: (03) 2144-3333

### PHILIPPINES

**G.A. Yupangco & Co. Inc.**  
339 Gil J. Puyat Avenue  
Makati, Metro Manila 1200,  
PHILIPPINES  
TEL: (02) 899 9801

### SINGAPORE

**Swee Lee Company**  
150 Sims Drive,  
SINGAPORE 387381  
TEL: 6846-3676

### CRISTOFORI MUSIC PTE LTD

Blk 3014, Bedok Industrial Park E,  
#02-2148, SINGAPORE 489980  
TEL: 6243-9555

### TAIWAN

**ROLAND TAIWAN  
ENTERPRISE CO., LTD.**  
Room 5, 9th. No. 112 Chung Shan  
N.Road Sec.2, Taipei, TAIWAN,  
R.O.C.  
TEL: (02) 2561 3339

### THAILAND

**Theera Music Co., Ltd.**  
330 Verng NakornKasem, Soi 2,  
Bangkok 10100, THAILAND  
TEL: (02) 2248821

### VIETNAM

**Saigon Music**  
138 Tran Quang Khai St.,  
District 1  
Ho Chi Minh City  
VIETNAM  
TEL: (08) 844-4068

## AUSTRALIA/ NEW ZEALAND

### AUSTRALIA

**Roland Corporation  
Australia Pty., Ltd.**  
38 Campbell Avenue  
Dee Why West. NSW 2099  
AUSTRALIA  
TEL: (02) 9982 8266

### NEW ZEALAND

**Roland Corporation Ltd.**  
32 Shaddock Street, Mount Eden,  
Auckland, NEW ZEALAND  
TEL: (09) 3098 715

## CENTRAL/LATIN AMERICA

### ARGENTINA

**Instrumentos Musicales S.A.**  
Av.Santa Fe 2055  
(1123) Buenos Aires  
ARGENTINA  
TEL: (011) 4508-2700

### BRAZIL

**Roland Brasil Ltda**  
Rua San Jose, 780 Sala B  
Parque Industrial San Jose  
Cotia - Sao Paulo - SP, BRAZIL  
TEL: (011) 4615 5666

### COSTA RICA

**JUAN BANSBACH  
Instrumentos Musicales**  
Ave.1. Calle 11, Apartado 10237,  
San Jose, COSTA RICA  
TEL: 258-0211

### CHILE

**Comercial Fancy II S.A.**  
Rut: 96.919.420-1  
Nataniel Cox #739, 4th Floor  
Santiago - Centro, CHILE  
TEL: (02) 688-9540

### EL SALVADOR

**OMNI MUSIC**  
75 Avenida Norte y Final  
Alameda Juan Pablo II,  
Edificio No.4010 San Salvador,  
EL SALVADOR  
TEL: 262-0788

### MEXICO

**Casa Veerkamp, s.a. de c.v.**  
Av. Toluca No. 323, Col. Olivar  
de los Padres 01780 Mexico D.F.  
MEXICO  
TEL: (55) 5668-6699

### PANAMA

**SUPRO MUNDIAL, S.A.**  
Boulevard Andrews, Albrook,  
Panama City, REP. DE PANAMA  
TEL: 315-0101

### PARAGUAY

**Distribuidora De  
Instrumentos Musicales**  
J.E. Olear y ESQ. Manduvira  
Asuncion PARAGUAY  
TEL: (021) 492-124

### URUGUAY

**Todo Musica S.A.**  
Francisco Acuna de Figueroa 1771  
C.P.: 11.800  
Montevideo, URUGUAY  
TEL: (02) 924-2335

### VENEZUELA

**Musiland Digital C.A.**  
Av. Francisco de Miranda,  
Centro Parque de Cristal, Nivel  
C2 Local 20 Caracas  
VENEZUELA  
TEL: (212) 285-8586

## EUROPE

### AUSTRIA

**Roland Austria GES.M.B.H.**  
Siemensstrasse 4, P.O. Box 74,  
A-6063 RUM, AUSTRIA  
TEL: (0512) 26 44 260

### BELGIUM/HOLLAND/ LUXEMBOURG

**Roland Benelux N. V.**  
Houtstraat 3, B-2260, Oevel  
(Westerlo) BELGIUM  
TEL: (014) 575811

### DENMARK

**Roland Scandinavia A/S**  
Nordhavnsvej 7, Postbox 880,  
DK-2100 Copenhagen  
DENMARK  
TEL: (039) 16 6200

### FRANCE

**Roland France SA**  
4, Rue Paul Henri SPAAK,  
Parc de l'Esplanade, F 77 462 St.  
Thibault, Lagny Cedex FRANCE  
TEL: 01 600 73 500

### FINLAND

**Roland Scandinavia As,  
Filial Finland**  
Lauttasaarentie 54 B  
Fin-00201 Helsinki, FINLAND  
TEL: (9) 682 4020

### GERMANY

**Roland Elektronische  
Musikinstrumente HmbH.**  
Oststrasse 96, 22844 Norderstedt,  
GERMANY  
TEL: (040) 52 60090

### GREECE

**STOLLAS S.A.**  
**Music Sound Light**  
155, New National Road  
Patras 26442, GREECE  
TEL: (061) 043-5400

### HUNGARY

**Intermusica Ltd.**  
Warehouse Area 'DEPO' Pf.83  
H-2046 Torokbalint, HUNGARY  
TEL: (23) 511011

### IRELAND

**Roland Ireland**  
Audio House, Belmont Court,  
Donnybrook, Dublin 4,  
Republic of IRELAND  
TEL: (01) 2603501

### ITALY

**Roland Italy S. p. A.**  
Viale delle Industrie 8,  
20020 Arese, Milano, ITALY  
TEL: (02) 937-78300

### NORWAY

**Roland Scandinavia Avd.  
Kontor Norge**  
Lilleakerveien 2 Postboks 95  
Lilleaker N-0216 Oslo  
NORWAY  
TEL: 273 0074

### POLAND

**P. P. H. Brzostowicz**  
UL. Gibraltarska 4.  
PL-03664 Warszawa POLAND  
TEL: (022) 679 44 19

### PORTUGAL

**Tecnologias Musica e Audio,  
Roland Portugal, S.A.**  
Cais Das Pedras, 8/9-1 Dto  
4050-465 PORTO  
PORTUGAL  
TEL: (022) 608 00 60

### ROMANIA

**FBS LINES**  
Piata Libertatii 1,  
RO-4200 Gheorghhehi  
TEL: (095) 169-5043

### RUSSIA

**MuTek**  
3-Bogatyrskaya Str. 1.k.1  
107 564 Moscow, RUSSIA  
TEL: (095) 169 5043

### SPAIN

**Roland Electronics  
de España, S. A.**  
Calle Bolivia 239, 08020  
Barcelona, SPAIN  
TEL: (93) 308 1000

### SWEDEN

**Roland Scandinavia A/S  
SWEDISH SALES OFFICE**  
Danvik Center 28, 2 tr.  
S-131 30 Nacka SWEDEN  
TEL: (08) 702 0020

### SWITZERLAND

**Roland (Switzerland) AG  
Musitronic AG**  
Gerberstrasse 5, Postfach,  
CH-4410 Liestal, SWITZERLAND  
TEL: (061) 927-8383

### UKRAINE

**TIC-TAC**  
Mira Str. 19/108  
P.O. Box 180  
295400 Munkachevo, UKRAINE  
TEL: (03131) 414-40

### UNITED KINGDOM

**Roland (U.K.) Ltd.**  
Atlantic Close, Swansea  
Enterprise Park, SWANSEA  
SA7 9FJ,  
UNITED KINGDOM  
TEL: (01792) 700139

## MIDDLE EAST

### BAHRAIN

**Moon Stores**  
No.16, Bab Al Bahrain Avenue,  
P.O.Box 247, Manama 304,  
State of BAHRAIN  
TEL: 211 005

### CYPRUS

**Radex Sound Equipment Ltd.**  
17, Diagorou Street, Nicosia,  
CYPRUS  
TEL: (02) 66-9426

### IRAN

**MOCO, INC.**  
No.41 Nike St., Dr.Shariyati Ave.,  
Roberoye Cerahe Mirdamad  
Tehran, IRAN  
TEL: (021) 285-4169

### ISRAEL

**Halilit P. Greenspoon &  
Sons Ltd.**  
8 Retzif Ha'aliya Hashnya St.  
Tel-Aviv-Yafo ISRAEL  
TEL: (03) 6823666

### JORDAN

**AMMAN Trading Agency**  
245 Prince Mohammad St.,  
Amman 1118, JORDAN  
TEL: (06) 464-1200

### KUWAIT

**Easa Husain Al-Yousifi**  
Abdullah Salem Street,  
Safat, KUWAIT  
TEL: 243-6399

### LEBANON

**Chahine S.A.L.**  
Gerge Zeidan St., Chahine Bldg.,  
Achrafieh, P.O.Box: 16-5857  
Beirut, LEBANON  
TEL: (01) 20-1441

### QATAR

**Al Emadi Co. (Badie Studio  
& Stores)**  
P. O. Box 62,  
Doha, QATAR  
TEL: 4423-554

### SAUDI ARABIA

**aDawlah Universal  
Electronics APL**  
Corniche Road, Aldossary Bldg.,  
1st Floor, Alkhobar,  
SAUDI ARABIA

P.O.Box 2154, Alkhobar 31952  
SAUDI ARABIA  
TEL: (03) 898 2081

### SYRIA

**Technical Light & Sound  
Center**  
Khaled Ebn Al Walid St.  
Bldg. No. 47, P.O.BOX 13520,  
Damascus, SYRIA  
TEL: (011) 223-5384

### TURKEY

**Barkat muzik aletleri ithalat  
ve ihracat Ltd Sti**  
Siraselviler Caddesi Siraselviler  
Pasaji No:74/20  
Taksim - Istanbul, TURKEY  
TEL: (0212) 2499324

### U. A. E.

**Zak Electronics & Musical  
Instruments Co. L.L.C.**  
Zabeel Road, Al Sherooq Bldg.,  
No. 14, Grand Floor, Dubai, U.A.E.  
TEL: (04) 3360715

## NORTH AMERICA

### CANADA

**Roland Canada Music Ltd.  
(Head Office)**  
5480 Parkwood Way Richmond  
B. C., V6V 2M4 CANADA  
TEL: (604) 270 6626

### Roland Canada Music Ltd.

**(Toronto Office)**  
170 Admiral Boulevard  
Mississauga On L5T 2N6  
CANADA  
TEL: (905) 362 9707

### U. S. A.

**Roland Corporation U.S.**  
5100 S. Eastern Avenue  
Los Angeles, CA 90040-2938,  
U. S. A.  
TEL: (323) 890 3700

As of May 1, 2002 (Roland)