

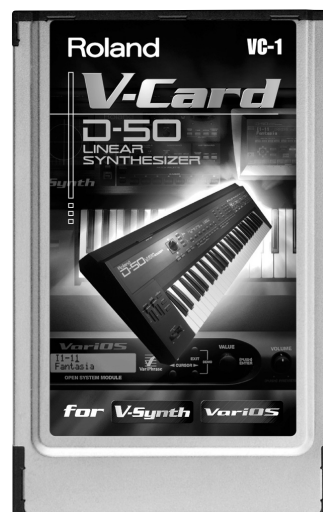
V-Card for V-Synth XT

VC-1 D-50

Owner's Manual

The V-Synth XT comes with the VC-1 and VC-2 titles from Roland's "V-Card" software series preinstalled. Without having to cycle power to the unit, you can simply press a single switch to transform the V-Synth XT into a completely different product.

VC-1 "D-50" transforms the V-Synth XT into a sound module that's equivalent to the Roland D-50 (a classic digital synthesizer that was released in 1987). Not just the preset patches, but every bit of functionality has been faithfully reproduced, giving you that distinctive D-50 sound with the stability of modern hardware.



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V-Card for *V-Synth XT*

VC-1 D-50

Table of Contents

| | |
|---|-----------|
| Introduction..... | 6 |
| Panel Descriptions | 8 |
| Try Out the Sounds | 11 |
| Turning On the Power | 11 |
| Selecting Patches and Playing Sounds | 12 |
| Viewing Various Information..... | 14 |
| Applying Effects to the Sound | 15 |
| Assigning Parameters to the Controllers | 16 |
| How to Make the Patch Factors..... | 19 |
| Saving Patches You've Created..... | 26 |
| Naming a Patch..... | 26 |
| Saving Patches..... | 27 |
| Reset to Default Factory Settings | 28 |
| Transferring Patches To and From the D-50/550..... | 29 |
| Transferring Patches from the D-50 to the VC-1..... | 29 |
| Transferring Patches from the VC-1 to the D-50/550 | 33 |
| Copying a Reverb Type | 35 |
| Overview of the VC-1..... | 37 |
| Memory Structure | 37 |
| The Basic Concept of a Tone | 38 |
| Structure of Tone Parameters | 41 |
| Creating a Patch | 43 |
| How to Make the Patch Settings | 43 |
| Useful Functions for Editing..... | 44 |
| Tone Parameters | 50 |
| Common Parameters | 50 |
| Partial Parameters | 56 |
| Settings for the Entire VC-1..... | 71 |
| How to Make the System Function Settings..... | 71 |
| Initializing the System Settings | 75 |

| | |
|----------------------------------|-----------|
| Key Mode Alteration | 76 |
| Sound List | 78 |
| Preset Patches..... | 78 |
| Patch Factors | 81 |
| Tone Parameters | 82 |
| System Parameters | 85 |
| Waveform | 86 |
| MIDI Implementation..... | 88 |
| Specifications..... | 97 |
| Index..... | 98 |

Introduction

Main Features

Perfect Simulation of the D-50's Tones!

The VC-1 comes complete with all 64 of the D-50's preset patches, including the famous preset tones “**Fantasia**” and “**Digital Native Dance**.” It also is programmed with the D-50/D-550 sound libraries **PN-D50-01-04** (with 256 patches). Since it naturally handles **MIDI bulk dumps**, you can use the VC-1 to create your own original tunes exactly as you would with your D-50. Of course, this gives you a perfect simulation of the D-50's tones, from the sound generator algorithms to editing of the parameters! It even reproduces the subtle nuances obtained when playing the instrument.



In addition, it also comes with an additional 64 new patches, which use waves (28 types) that are so large that the original D-50 would have been technologically incapable of containing them.)

Editing and Performances That Surpass the Original!

All sound generator parameters are assignable to the V-Synth XT's full complement of editing controls. Parameters can also be edited with the touch panel, allowing you to almost instantly turn your creative inspirations (no matter how fleeting) into sounds you can use. Whether the fun of creating sounds or pleasure of performing, this far outdoes the original.

Pro Spec Legacy Synthesizer!

Internal processing upgraded with the latest technology vastly improves the response and dynamic range from the time you press the keys to the moment the sounds are played. The V-Synth XT hardware is used as the means of outputting sounds, which means it's also compatible with digital outputs (optical/coaxial). This gives you a **legacy synthesizer with professional specs** good enough for the latest recording environments.

What is the digital synthesizer: D-50?

The **D-50**, released in 1987, was Roland's first **fully digital synthesizer**. Equipped with an **LA** (Linear Arithmetic Synthesis) format sound generator that combined PCM and subtractive synthesis, it opened the door to countless new sounds for levels of creativity surpassing anything up to that point. The D-50 is a renowned, historically significant synthesizer that Roland, the company that laid the foundation for digital synthesizers, is proud to have created.

The **D-550**, also released in 1987, shrank the D-50's powerful synthesizer engine into a mere two rack spaces.



Now, more than fifteen years after it came on the scene, the D-50 continues to be used by creative artists around the world. There are numerous sound libraries stocked with many original patches. In the course of time, however, keyboards and buttons age and wear out. It looked like the day would come when the D-50's sounds would no longer be heard.

In taking up the challenge of realizing new possibilities for the synthesizer, Roland has created a revolution in technology. At the same time, we want you to continue to using your treasured D-50 with peace of mind. Hence, the **VC-1**, which transforms your V-Synth XT into a D-50, not only sweeps away any worries about your D-50 growing old, but also offers new potential that goes beyond the original instrument.

We hope that you will discover and enjoy the unrealized potential that the D-50 still offers. And if you have never played the D-50, you definitely need to check out its vintage sounds.

Panel Descriptions

When using the **VC-1**, the actual functions of the V-Synth XT's buttons and knobs may not correspond to the functions ascribed to these controls on the V-Synth XT's panel. Here is a description of the names and functions in each section of the V-Synth XT when it is used with the VC-1. Please read this material together with "Panel Descriptions" in the V-Synth XT Owner's Manual.

Front Panel



1 VOLUME knob

Adjusts the overall volume that is output MAIN OUT jacks and PHONES jack. (p. 11)

2 V-CARD button

Starts up "VC-1" (p. 11). Also used to switch among the software in the V-CARD series, "VC-1," "VC-2," and "V-Synth."

3 PREVIEW button

By pressing the PREVIEW button you can audition (preview) the current patch.

4 USB Connector

You can connect it to your personal computer to send or receive MIDI messages.

5 PHONES Jack

This is the jack for connecting headphones (sold separately). (p. 11)

6 NUMBER KEY

Here you can recall patches.

| Display | Function |
|------------------|---------------------------------------|
| [NUMBER] (1-8) | These buttons let you select patches. |
| [BANK-], [BANK+] | You can change the Patch bank. |

7 LCD CONTRAST Knob

Adjusts the display contrast.

8 Display

This displays information regarding the operation you are performing.

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

9 E1–E8 knobs

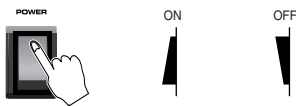
These can be assigned a variety of the D-50's different functions, allowing you to change the tone in real time. (p. 16)

10 Dial and buttons

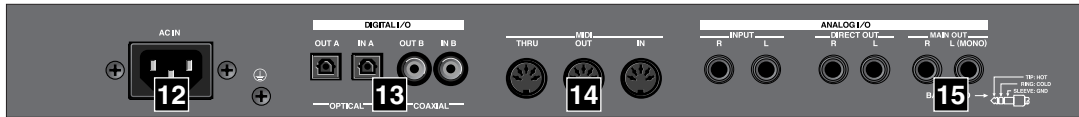
| Display | Function |
|--------------------|---|
| VALUE Dial | This is used to modify values. If you hold down [SHIFT] as you turn the VALUE dial, the value will change in greater increments. |
| [DEC/-], [INC/+] | This is used to modify values. If you keep on holding down one button while pressing 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. 44) |
| [▲], [▼], [◀], [▶] | Moves the cursor location up/down/left/right. (p. 44) |
| [MODE] | Opens the Mode Menu window. |
| [SHIFT] | This button is used in conjunction with other buttons to execute various functions. |
| [EXIT] | Return to the PATCH TOP screen, or close the currently open window. In some screens, this causes the currently executing function to be aborted. |

11 POWER Switch

Press to turn the power on/off. (p. 11)



Rear Panel



12 AC Inlet

Connect the included power cord to this inlet.

13 DIGITAL AUDIO INTERFACE Connector

These connectors input/output a digital audio signal (stereo; conforming to IEC60958). The output signal is identical to the signal that is output from the MAIN OUT jacks.

* **IEC60958** is a digital interface format used for consumer digital audio devices.

14 MIDI Connectors (IN, OUT, THRU)

Connect external MIDI devices here. Use MIDI cables (sold separately) to make connections.

| Display | Functions |
|---------|---|
| IN | Receives MIDI messages from an external device. |
| OUT | Transmits MIDI messages to an external device. |

15 MAIN OUT Jacks (L (MONO), R)

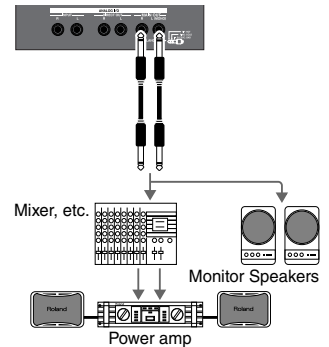
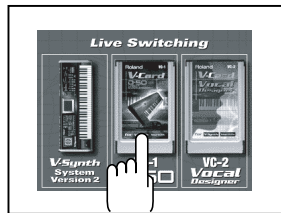
These jacks output the audio signal to the connected mixer/amplifier system in stereo. For mono output, use the L jack. (p. 11)

Try Out the Sounds

Turning On the Power

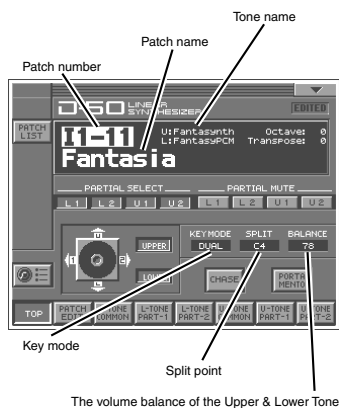
To prevent malfunction and/or damage to speakers or other devices, always turn down the volume, and turn off the power on all devices before making any connections.

1. Before hooking anything up, make sure that the power on all of your gear is turned OFF.
2. Connect the V-Synth XT to your amp/speaker system.
3. Turn on the V-Synth XT's Power switch.
4. Turn on the power for any connected amplifiers or speakers.
5. After the V-Synth XT has started up, press the [V-CARD] button and touch "D-50" (VC-1) in the screen that appears. The VC-1 Startup screen appears.



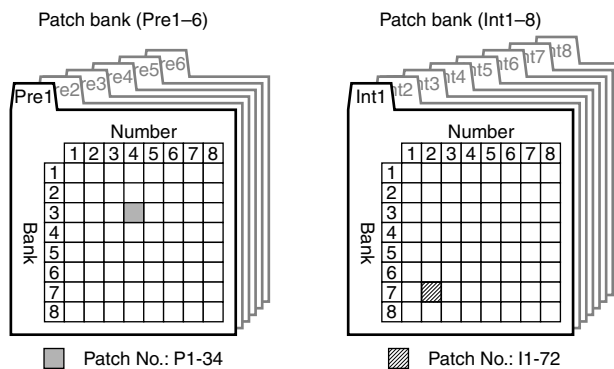
* When you turn on the power, the V-Card that was most recently started will start up.

6. Wait for the VC-1 to start up. When it has started up normally, a screen like the following will appear. The display shows the selected Patch.



Selecting Patches and Playing Sounds

The VC-1 comes with a wide range of onboard sounds, including single tones called **patches**. A Patch is represented by a **Patch Bank** (Pre1–6, Int1–8), a **Bank** (1–8) and a **Number** (1–8).



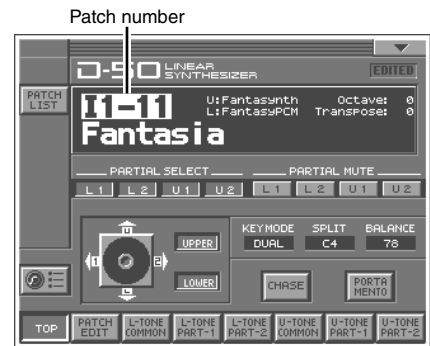
| Patch Banks | Included patches | Overwrite | Remarks |
|-------------|------------------|-----------|---------------------------------|
| Pre1 | D-50 | No | Original D-50 preset patches |
| Pre2 | VC-1 | No | Newly added patches VC-1 |
| Pre3 | PN-D50-01 | No | D-50/D-550 sound library |
| Pre4 | PN-D50-02 | No | D-50/D-550 sound library |
| Pre5 | PN-D50-03 | No | D-50/D-550 sound library |
| Pre6 | PN-D50-04 | No | D-50/D-550 sound library |
| Int1 | same as Pre1 | Yes | - |
| Int2 | same as Pre2 | Yes | - |
| Int3 | same as Pre3 | Yes | - |
| Int4 | same as Pre4 | Yes | - |
| Int5 | same as Pre5 | Yes | - |
| Int6 | same as Pre6 | Yes | - |
| Int7 | (blank) | Yes | - |
| Int8 | (blank) | Yes | - |

There are three ways of patch selection.

- Selecting Patches with the VALUE dial.
- Selecting Patches from the list.
- Selecting Patches with Patch Palette.

Selecting Patches with the VALUE dial

1. Make sure the **PATCH TOP** screen is displayed. If the **PATCH TOP** screen—shown right—is not displayed, press **[EXIT]** once or twice until the **PATCH TOP** screen appears.
2. Play the keyboard to hear what the selected patch sounds like. To change to a different patch, touch the **Patch number** to highlight it, and then turn the **VALUE dial** or press **[INC/+]**, **[DEC/-]**. At this time you can switch more rapidly by holding down **[SHIFT]** while you perform these operations.



Selecting Patches from the List

You can easily find the desired patch by selecting it from the patch list.

1. Make sure the **PATCH TOP** screen is displayed. If the **PATCH TOP** screen is not displayed, press **[EXIT]** once or twice until the **PATCH TOP** screen appears.
2. Touch **<List>** in the upper left area of the display. The **PATCH List** window appears.
3. Select a patch from the list. Either turn the **VALUE dial** or use **[INC/+]**, **[DEC/-]** to select a patch. You can also select a patch by touching it on the display.
4. To view higher-numbered patches, touch **<31-48>**–**<71-88>**, located at bottom of the screen. To view other Patch banks, touch **<Pre1>**–**<Pre6>**, **<Int1>**–**<Int8>**, located at either side of the screen.
5. Touch **<OK>**. The patch is selected and the **PATCH LIST** window closes.



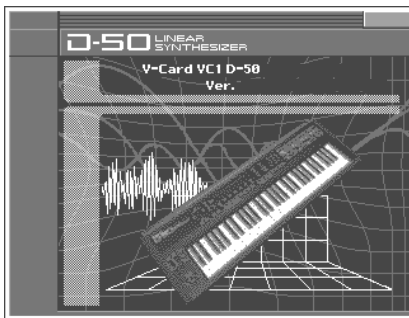
Selecting Patches with Patch Palette

You can select patches of currently selected Patch Bank instantly by simply pressing **NUMBER [1]–[8]**.

1. Make sure the **PATCH TOP** screen is displayed.
2. Press **NUMBER [1]–[8]** to select a patch. To switch banks, press **[BANK-]**, **[BANK+]**.

Viewing Various Information

1. In the upper right of the screen, touch < ▼ >. A pulldown menu appears.
2. In the pulldown menu, touch <INFO>. The **Information** window appears.



3. This window shows the following information.
Ver.: The VC-1's program version
4. When you have finished viewing the information, press [EXIT] to close the window.

Enabling or Disabling the Beep Tone

You can specify whether or not a **beep tone** will be heard when you touch a valid point on the touch screen. At the factory setting, the beep tone will be sounded.

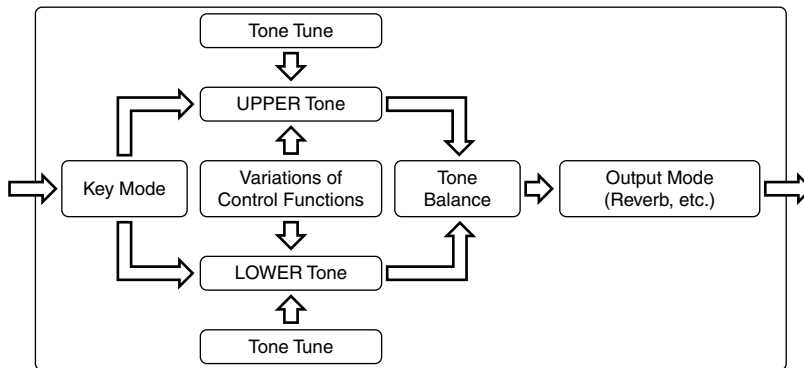
1. In the upper right of the screen, touch < ▼ >. A pulldown menu appears.
2. In the pulldown menu, touch <Beep> to add a check mark (✓). With this setting, the beep tone will be heard. If you perform the same procedure once again, the check mark will be cleared and the beep tone will no longer be heard.



Applying Effects to the Sound

The performance controlling functions (we call them **factors** in this manual) in each Patch can be edited by taking the following procedure.


A patch consists of several **Factors** as show below.



Assigning Parameters to the Controllers




You can assign a variety of patch factors (p. 81), tone parameters (p. 82), and other settings to the V-Synth XT's complement of controller sections. This is referred to as the **Control Setup**. With intuitive editing of sound sources with the knobs, you can use the D-50 in ways that go way beyond the original instrument.

| Controllers | Parameters |
|-------------|---|
| E1–E8 knobs | Patch Factor (p. 81) Tone Parameters (p. 82) Partial Parameters (p. 83) |

1. Access the **PATCH TOP** Screen.
2. Touch  in the lower left of the screen. The **CTRL SETUP** window appears.

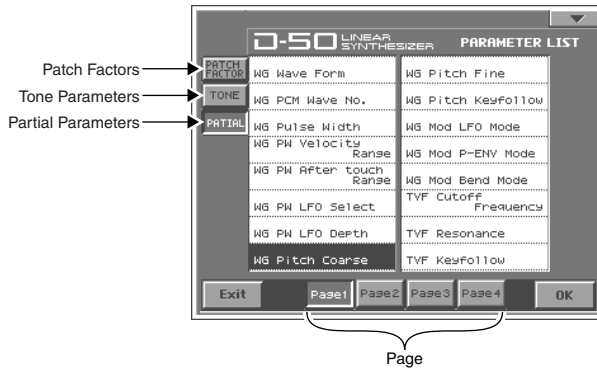


3. When editing a parameter that requires you to specify a value, move the cursor to the value box of that parameter. Then modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**. Parameters marked by **CTRL** can be controlled by specific CTRL Setup. For details on each parameter, refer to the corresponding reference page. The on-screen keys have the following functions.

| Keys | Functions |
|---|---|
|  | Displays the parameters to be assigned as a list. |
|  | Returns to the screen. |
|  | Restores the assigned parameters to their original factory condition. |

LIST (OSC1, OSC2, COSM1, COSM2 and TVA)

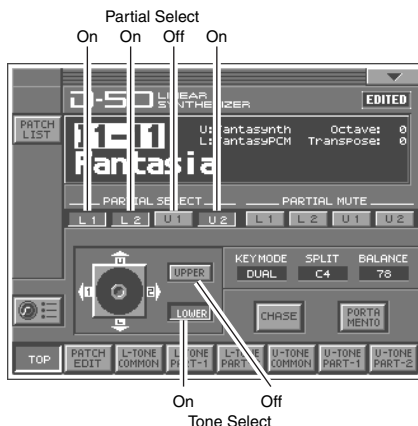
- Tone Parameters; The Tones (UPPER or LOWER) to be applied are specified with the **Tone Select** button.
- Partial Parameters; The Partials (L1, L2, L3 or L4) to be applied are specified with the **Partial Select** button.



Specify the Tones or the Partials to be applied

The partials to which the tone parameters assigned to the different knobs (E1-E8) are applied are specified with the **Tone Select** button or the **Partial Select** button.

- Tone Parameters; The Tones (UPPER or LOWER) to be applied are specified with the **Tone Select** button.
- Partial Parameters; The Partials (L1, L2, L3 or L4) to be applied are specified with the **Partial Select** button.



* The Tone Select or the Partial Select setting will be written by the Patch Write Procedure.

table

You can control the following parameters.

| Display | Parameters |
|------------------------------|-----------------------|
| PATCH TOP (p. 19) | |
| ToneBal | Tone Balance |
| PATCH EDIT CONTRL (p. 21) | |
| BendRang | Bender Range |
| AftrPB | Aftertouch Bend Range |
| PortTime | Portamento Time |
| PortMode | Portamento Mode |
| PATCH EDIT OUTPUT (p. 22) | |
| Rev Bal | Reverb Balance |
| TotalVol | Total Volume |
| PATCH EDIT CHASE (p. 24) | |
| ChasLevl | Chase Level |
| ChasTime | Chase Time |
| PATCH EDIT TONE TUNE (p. 25) | |
| LowerKey | Lower Tone Key Shift |
| UpperKey | Upper Tone Key Shift |
| LowerTun | Lower Tone Fine Tune |
| UpperTun | Upper Tone Fine Tune |
| TONE COMMON STRUCT (p. 50) | |
| PartBal | Partial Balance |
| TONE COMMON P-ENV (p. 51) | |
| PEnvVelo | P-ENV Velocity Range |
| PEnvTKF | P-ENV Time Keyfollow |
| PEnvT1 | P-ENV Time 1 |
| PEnvT2 | P-ENV Time 2 |
| PEnvT3 | P-ENV Time 3 |
| PEnvT4 | P-ENV Time 4 |
| PEnvL0 | P-ENV Level 0 |
| PEnvL1 | P-ENV Level 1 |
| PEnvL2 | P-ENV Level 2 |
| PEnvSusL | P-ENV Sustain Level |
| PEnvEndL | P-ENV End Level |
| PModLFOD | P-Mod LFO Depth |
| PModLevr | P-Mod Lever |
| PModAftr | P-Mod Aftertouch |
| TONE COMMON LFO (p. 53) | |
| LFO1Wave | LFO-1 Waveform |
| LFO1Rate | LFO-1 Rate |
| LFO1Dely | LFO-1 Delay Time |
| LFO1Sync | LFO-1 Sync |
| LFO2Wave | LFO-2 Waveform |
| LFO2Rate | LFO-2 Rate |
| LFO2Dely | LFO-2 Delay Time |
| LFO2Sync | LFO-2 Sync |
| LFO3Wave | LFO-3 Waveform |
| LFO3Rate | LFO-3 Rate |

| Display | Parameters |
|-------------------------------|-------------------------|
| LFO3Dely | LFO-3 Delay Time |
| LFO3Sync | LFO-3 Sync |
| TONE COMMON EQ/CHORUS (p. 54) | |
| EQ Lg | Low EQ Gain |
| EQ Hg | High EQ Gain |
| ChorRate | Chorus Rate |
| ChorDpth | Chorus Depth |
| ChorBal | Chorus Balance |
| TONE PARTIAL FORM (p. 57) | |
| Waveform | WG Waveform |
| PCM No# | WG PCM Wave No. |
| PW | WG Pulse Width |
| PW Velo | WG PW Velocity Range |
| PW Aftr | WG PW Aftertouch Range |
| PW LFO | WG PW LFO Select |
| PW LFOD | WG PW LFO Depth |
| TONE PARTIAL PITCH (p. 59) | |
| PichCors | WG Pitch Coarse |
| PichFine | WG Pitch Fine |
| PichKF | WG Pitch Keyfollow |
| PichLFO | WG Mod LFO Mode |
| PichENV | WG Mod P-ENV Mode |
| PichBend | WG Mod Bend Mode |
| TONE PARTIAL TVF (p. 61) | |
| TVF Freq | TVF Cutoff Frequency |
| TVF Reso | TVF Resonance |
| TVF KF | TVF Keyfollow |
| TVF BP | TVF Bias Point/Dir |
| TVF Blvl | TVF Bias Level |
| TVFDpth | TVF ENV Depth |
| TVFVelo | TVF ENV Velocity Range |
| TVF DKF | TVF ENV Depth Keyfollow |
| TVF TKF | TVF ENV Time Keyfollow |
| TVF T1 | TVF ENV Time 1 |
| TVF T2 | TVF ENV Time 2 |
| TVF T3 | TVF ENV Time 3 |
| TVF T4 | TVF ENV Time 4 |
| TVF T5 | TVF ENV Time 5 |
| TVF L1 | TVF ENV Level 1 |
| TVF L2 | TVF ENV Level 2 |
| TVF L3 | TVF ENV Level 3 |
| TVF SusL | TVF ENV Sustain Level |
| TVF EndL | TVF ENV End Level |

| Display | Parameters |
|--------------------------|--------------------------|
| TONE PARTIAL TVA (p. 66) | |
| TVA Levl | TVA Level |
| TVA Velo | TVA Velocity Range |
| TVA BP | TVA Bias Point/Dir |
| TVA Blvl | TVA Bias Level |
| TVA Velo | TVA ENV Velocity Folw |
| TVA TKF | TVA ENV Time Keyfollow |
| TVA T1 | TVA ENV Time 1 |
| TVA T2 | TVA ENV Time 2 |
| TVA T3 | TVA ENV Time 3 |
| TVA T4 | TVA ENV Time 4 |
| TVA T5 | TVA ENV Time 5 |
| TVA L1 | TVA ENV Level 1 |
| TVA L2 | TVA ENV Level 2 |
| TVA L3 | TVA ENV Level 3 |
| TVA SusL | TVA ENV Sustain Level |
| TVA EndL | TVA ENV End Level |
| TONE PARTIAL MOD (p. 69) | |
| TVF LFO | TVF Mod LFO Select |
| TVF LFOD | TVF Mod LFO Depth |
| TVF Aftr | TVF Mod Aftertouch Range |
| TVA LFO | TVA Mod LFO Select |
| TVA LFOD | TVA Mod LFO Depth |
| TVA Aftr | TVA Mod Aftertouch Range |

How to Make the Patch Factors

The Display shows several Factors at a time. If necessary, Scroll up or down the Display to find the Factor to be edited. (Patch Parameters; p. 19)

1. Access the **PATCH TOP** Screen.
2. Touch **<PATCH EDIT>** at the bottom of the screen.
3. Touch one of the tabs in the left of the screen to select the desired editing screen.
 - <CONTRL>**: Control Edit, Portamento Edit (p. 21)
 - <OUTPUT>**: Output Mode (p. 22)
 - <CHASE>**: Chase Edit (p. 24)
 - <TONE TUNE>**: Tone Tune (p. 25)
 - <MIDI>**: MIDI function (p. 25)



4. When editing a parameter that requires you to specify a value, move the cursor to the value box of that parameter. Then modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**.
5. Repeat steps 3–4 to set patch factors.
6. If you wish to save the changes you've made, perform the Save operation (p. 27). If you do not wish to save changes, press **[EXIT]** to return to the **PATCH TOP** screen. If you return to the **PATCH TOP** screen without saving, the display will indicate **"EDITED,"** reminding you that the patch settings have been modified.
 - * If you turn off the power or select a different patch while the display indicates **"EDITED,"** your edited patch will be lost.

Settings Common to All Screens

UPPER/LOWER (Tone Select Button)

You can select the tone to be controlled, upper tone, lower tone or both tone.

KEY MODE

Key Mode refers to the Upper and Lower Tones are played on the keyboard.

Value: WHOLE, DUAL, SPLIT, SEP, WHOL-S, DUAL-S, SPL-US, SPL-LS, SEP-S

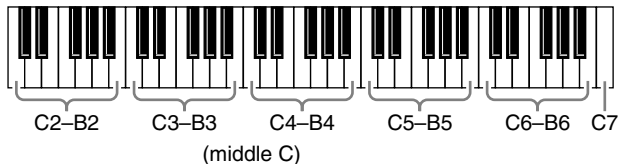


| Display | Description |
|-------------------------------------|---|
| WHOLE | Upper Tone can be played in 16 voice polyphony |
| DUAL | Both Upper and Lower Tones are played by each key in 8 voices polyphony. |
| SPLIT | The Split mode divides the keyboard into upper and lower sections, where two different Tones can be played in 8 voices polyphony. That is, the VC-1 works like two 8 voice synthesizers. The Split Point (where the keyboard is divided into two sections) is shown next to the Key Mode indication. |
| SEP (Separate) | This mode is effective when an external MIDI device is controlling the VC-1. (“ MIDI Implementation ” (p. 88)) |
| WHOL-S (Whole Solo) | The Upper Tone is monophonic. |
| DUAL-S (Dual Solo) | Both Upper and Lower Tones are monophonic. |
| SPL-US (Split Upper Solo) | The Upper Tone is monophonic, and the Lower Tone is 8 voices polyphonic. |
| SPL-LS (Split Lower Solo) | The Lower Tone is monophonic, and the Upper Tone is 8 voices polyphonic. |
| SEP-S (Separate Solo) | This mode is effective when an external a MIDI device is controlling the VC-1. (“ MIDI Implementation ” (p. 88)) |

SPLIT

The Split Point can be changed as follows.

Value: C2–C7

**BALANCE (Tone Balance) CTRL**

The volume balance of the Upper and the Lower Tone can be change.

Value: 0–100

CHASE (Chase Button)

Switches the Chase function on and off. Touch the button once to switch the function on; touch it again to switch the function off again.

Value: OFF, ON

PORTAMENTO (Portamento Button)

Switches the Portamento function on and off. Portamento is a slide from one pitch to another, and is often used for violin performance. Touch the button once to switch the function on; touch it again to switch the function off again.

Value: OFF, ON

CONTROL

Patch Controls determine how the Control Functions actually affect the Upper and the Lower Tones.

Bend (Bender Range) **CTRL**

This sets the variable range of the pitch change caused by moving the Bender lever right and left. The variable range set here may result differently depending on the setting of the Tone Parameter Bender Mode (p. 60).

Value: 0–12

AfterPB (Aftertouch, Pitch Bender) **CTRL**

This sets the sensitivity of the aftertouch effect on pitch. Higher values mean higher sensitivity. A Minus setting decreases the pitch, and a plus setting increases it.

Value: -12→+12

Hold (Hold Mode)

This selects the Tone that on the Pedal Hold effect. When the **Key mode** is **Whole**, Pedal Hold always works whichever of the above three modes may be selected.

Value: U, L, UL

Time (Portamento Time) **CTRL**

This sets the portamento time from one note to another. Higher values make the time longer.

Value: 0–100

Mode (Portamento Mode) **CTRL**

This selects the Tone that should take on the Portamento effect. When the **Key Mode** is **Whole**, Portamento always works whichever of the above three modes may be selected.

Value: U, L, UL

* Even when Portamento is set to ON, the Portamento ON/OFF message sent from an external device can change the settings of Portamento.



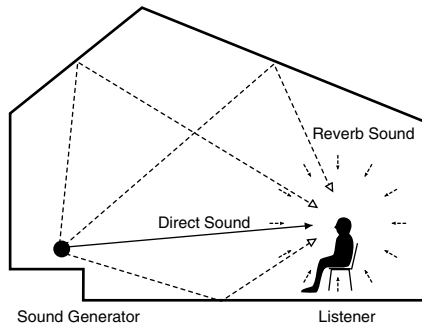
| Display | Function |
|-----------|--------------------------|
| U | Works on the Upper Tone. |
| L | Works on the Lower Tone. |
| UL | Works on the both Tones. |

| Display | Function |
|-----------|--------------------------|
| U | Works on the Upper Tone. |
| L | Works on the Lower Tone. |
| UL | Works on the both Tones. |

OUTPUT (Output Mode)

The Output Mode determines how the Tones take on the **reverb** effect, and how the Tones appear at the outputs.





A sound reverberated in an acoustic environment consists of three parts. First, you hear the direct sound as it travels from the source outward. Next the early reflection resounds once, or several time, from the walls, ceiling ,and floor. Finally, you hear the reverberated sound as it reflects many times in the environment.



Mode (Output Mode)

Selects one of the following four output modes.

Value: 1–4

| Display | Function |
|---|---|
|  | Stereo reverb works on the mixed sound of Upper and Lower Tones, and is sent out in stereo. |
|  | The Mixture of Upper and Lower takes on stereo reverb, and the direct sound is sent out separately for Upper and Lower. |
|  | Only the Upper Tone takes on reverb. Upper and lower Tones are sent out separately. |
|  | Only the Lower Tone takes on reverb, Upper and Lower Tones are sent out separately. |

RevType (Reverb Type)

Selects one of the 32-reverb types.

Value: 1–32

| Display | Description | Display | Description |
|---------|-------------------------|---------|--------------------------|
| 1 | Small Hall | 17 | Bright Hall |
| 2 | Medium Hall | 18 | Large Cave |
| 3 | Large Hall | 19 | Steel Pan |
| 4 | Chapel | 20 | Delay (248 ms) |
| 5 | Box | 21 | Delay (338 ms) |
| 6 | Small Metal Room | 22 | Cross Delay (157 ms) |
| 7 | Small Room | 23 | Cross Delay (252 ms) |
| 8 | Medium Room | 24 | Cross Delay (274–137 ms) |
| 9 | Medium Large Room | 25 | Gate Reverb |
| 10 | Large Room | 26 | Reverse Gate (360 ms) |
| 11 | Single Delay (102 ms) | 27 | Reverse Gate (480 ms) |
| 12 | Cross Delay (180 ms) | 28 | Slap Back |
| 13 | Cross Delay (224 ms) | 29 | Slap Back |
| 14 | Cross Delay(148–296 ms) | 30 | Slap Back |
| 15 | Short Gate (200 ms) | 31 | Twisted Space |
| 16 | Long Gate (480 ms) | 32 | Space |

* The reverb types **17–32** in individual banks can be used only with the patches (64 patches) contained in that bank. Reverb types from a bank other than the internal banks (any from 1 through 32) can be copied to a reverb type in the internal banks (any from 17 through 32).

RevbAl (Reverb Balance) CTRL

Sets the volume of the reverb and direct sounds.

Value: 0–100

| Display | Function |
|------------|---|
| 100 | The volume of the reverb sound = maximum, the volume of the direct sound = 0. |
| 0 | The volume of the reverb sound = 0, the volume of the direct sound = maximum. |

Vol (Total Volume) CTRL

Sets the volume of both tones, and therefore adjusts the volume difference between Patches.

Value: 0–100

CHASE

The Chase Play function makes it possible to output the Lower Tone slightly later than the Upper Tone, which is actually played on the keyboard. This function, however, is only available in **Dual** or **Whole** Key Mode.




Mode (Chase Mode)

Sets how tones sound. Depending on the **Chase Level** and **Velocity**, the number of repeats of the delayed sound differ.




Value: UL, ULL, ULU



- When the Key Mode is Dual

| Display | Function |
|---------|--|
| UL |  The Upper Tone then the Lower Tone is played. |
| ULL |  The Upper, then the Lower Tone is repeated. |
| ULU |  The Upper, the Lower and the Upper Tone alternate. |

- When the Key Mode is Whole

| Display | Function |
|---------|---|
| UL |  The Upper Tone is played twice. |
| ULL |  Upper Tone is repeated. |
| ULU |  Upper Tone is repeated. |

Level (Chase Level) **CTRL**

Sets the volume of the chase sound.

Value: 0–100

Time (Chase Time) **CTRL**

Adjusts the sounding time. Higher value is longer time.

Value: 0–100

TONE TUNE

The relative pitch of the Upper and the Lower Tones can be separately set. By setting slightly different pitches, a detune effect can be obtained. Also, by lowering the pitch of the Upper Tone, and raising the pitch of the Lower Tone, the pitches of the Two Tones can become exactly the same.

LKey (Key Shift of the Lower Tone) **CTRL**

Allows you to shift the pitch of the Lower Tone in semi-tone steps.

Value: -24→+24 (+/- 2 octave)

UKey (Key Shift of the Upper Tone) **CTRL**

Allows you to shift the pitch of the Upper Tone in semi-tone steps.

Value: -24→+24 (+/- 2 octave)

LTune (Fine Tuning of the Lower Tone) **CTRL**

Allows you to Tune the pitch of the Lower Tone.

Value: -50→+50 (approx. +/- 2 cents)

UTune (Fine Tuning of the Upper Tone) **CTRL**

Allows you to Tune the pitch of the Upper Tone.

Value: -50→+50 (approx. +/- 2 cents)



MIDI

You can change the setting of the MIDI Functions included Patch Factor as follows.

TxCH (Transmit Channel)

The transmit channel of each Patch can be set to a different number from the basic channel. At B, the channel number is the same as the Basic Channel.

Value: B, 1–16

TxPC (Transmit Program Change Number)

A Program Change number to be transmitted can be set for each patch individually. At OFF, the Program Change number preprogrammed in each Patch is transmitted.

Value: OFF, 1–100

TxBS (Transmit Bank Select Switch) **VC-1**

A Bank Select number MSB to be transmitted can be set for each patch individually (LSB = 0). At OFF, the Bank Select number preprogrammed in each Patch is transmitted.

Value: OFF, 0–99

SepCH (Receive Channel in Separate Mode)

A receive MIDI Channel in separate mode can be set for each Patch individually. At OFF, the receive channel set in MIDI Functions commonly set for System Function is used. (p. 73)

Value: OFF, 1–16



Saving Patches You've Created








When you edit the settings of a patch, the **PATCH TOP** screen displays **<EDITED>** to remind you that the patch's settings have been modified. If **<EDITED>** is displayed, you will lose your edited patch settings if you switch to another patch or turn off the power. If you want to keep a patch whose settings you have edited, assign a name to the patch and then perform the **Save operation**.

Naming a Patch

Before you save the patch, here's how to give it a new name. Editing Patch or Tone names is called **Naming**.

- A Patch name can have up to 18 letters.
 - A Tone name can have up to 10 letters.
1. Make sure that the patch that you want to name is selected.
 2. Touch **<▼>** in the upper right of the screen. A pull-down menu appears.
 3. In the pull-down menu, touch **<PATCH NAME>** (or **<TONE NAME>**). The window for naming appears.
 4. Touch the on-screen alphabetic or numeric keys to enter the new name in the text box. The on-screen keys have the following functions.



| Keys | Functions |
|---|--|
|  ,  | Move the cursor in the text box to the desired input location. |
|  | Turn this on when you want to input uppercase letters or symbols. |
|  | Turn this on when you want to insert a character at the cursor location. |
|  | Erases all characters in the text box. |
|  | Deletes the character at the cursor location. |
|  | Deletes the character that precedes the cursor location. |



* You can also move the input location cursor by pressing the **[◀]** or **[▶]** cursor buttons. Pressing **[▲]** will change the character at the cursor location to uppercase, and pressing **[▼]** will change it to lowercase.

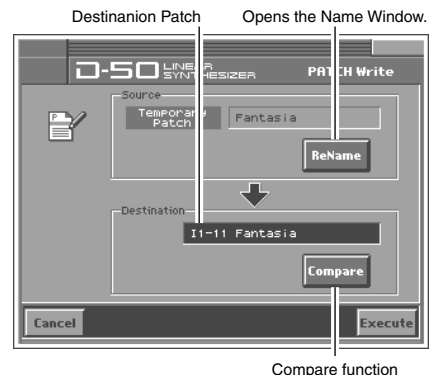
5. When you have finished inputting, touch **<OK>** to finalize the patch name.

Saving Patches

Changes you make to sound settings are temporary, and will be lost if you turn off the power or select another sound. If you keep the modified sound, you must save it (PATCH WRITE).

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 **Factory Reset**. (p. 28)

1. Make sure that the patch you wish to save is selected.
2. Touch <▼> in the upper right of the screen. A pulldown menu appears.
3. In the pulldown menu, touch <PATCH WRITE>. The **PATCH WRITE** window appears.
4. Turn the **VALUE dial** to specify the save-destination patch.
 - When you touch <ReName>, the **PATCH NAME** window will appear, allowing you to rename the patch.
 - By touching <Compare> you can check the save-destination patch. This can help prevent important patches from being accidentally overwritten and lost.
5. Touch <Compare> to turn it on. Now you can play the patch that is in the currently selected save destination. Play the keyboard to sound the save destination patch, then check whether you really want to overwrite it.
 - * *The patch auditioned using the Compare function may sound slightly different than when it is played normally.*
6. Touch <Execute> to execute the Save operation.



Reset to Default Factory Settings

This restores all data in the VC-1 to the factory-set condition (Factory Reset).

If there is important data you've created that's stored, all such data is discarded when a Factory Reset is performed. If you want to keep the existing data, save it as describe below.

- Transmit it to an original D-50 (or an external MIDI device), and save it (p. 33).
- Transmit it to a PC using V-Synth XT USB function, and save it.
- * For details on V-Synth XT USB function, refer to the V-Synth XT owner's manual.

1. Press **[MODE]**. The **MODE MENU** window appears.
2. Touch **<FACTORY RESET>**. The **Factory Reset** screen appears.

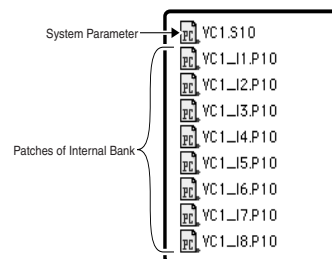


3. Touch **<OK>**
4. Touch **<Execute>** to execute the Factory Reset. When the display indicates "**Completed!**," the factory reset operation has been completed.

The VC-1's File Structure

As seen from your computer, the VC-1's file structure is as follows.

- You can use the computer to copy (back up) these files to the computer (e.g., the hard disk).
- Do not perform operations on your computer to erase (format) or rename these folders or files.



Transferring Patches To and From the D-50/550

You can use MIDI to transmit patch data (64 patches) saved on your D-50 and receive the data with the VC-1 (V-Synth XT). This procedure is known as “**bulk load.**” This is an easy and convenient way to take your own original patches (64 patches) created with the D-50 and use them with the VC-1. Conversely, you can also send patch data edited using the VC-1 via MIDI to the D-50. This procedure is called “**bulk dump.**”

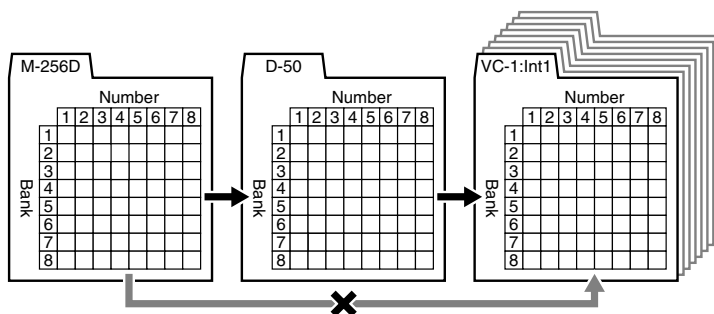
* Read this material together with the D-50/550 Owner’s Manual.

Transferring Patches from the D-50 to the VC-1

- Patches (64 patches) bulk loaded from the D-50 to the VC-1 are temporarily transferred to the **patch bank that includes the current patch.**

| Currently Patch Sample | → | Destination Patch Bank Sample |
|------------------------|---|-------------------------------|
| I1-11:Fantasia | → | Int1-11 – Int1-88 |
| I6-88:Big Wave | → | Int6-11 – Int6-88 |

- The patches (64 patches) originally residing in the bulk load destination will appear to have been overwritten, but actually nothing will have been lost. The patches are restored when you turn the power off, then on again.
- The transferred patch data (64 patches) will be lost if you turn off the power. Be sure to save the data (“**Saving Transferred Patches**” (p. 32)).
- Patches saved to memory cards used with the D-50/550 (M-256D) cannot be transferred directly from these memory cards to the VC-1. First, transfer the patch data to the D-50/550 from the memory card (M-256D), then transfer the patch data from the D-50/550 to the VC-1.



Use the following procedure.

Transfer the patch from the memory card to the D-50/550 (p. 30)



Transferring Patches from the D-50/550 to the VC-1 (p. 31)

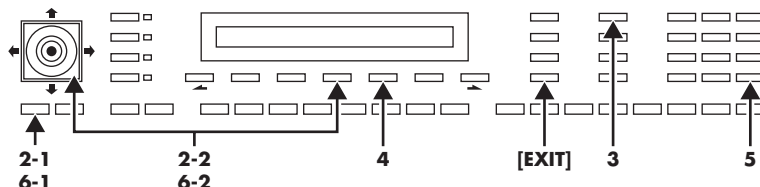


Saving Transferred Patches (p. 32)

Transfer the patch from the memory card to the D-50/550

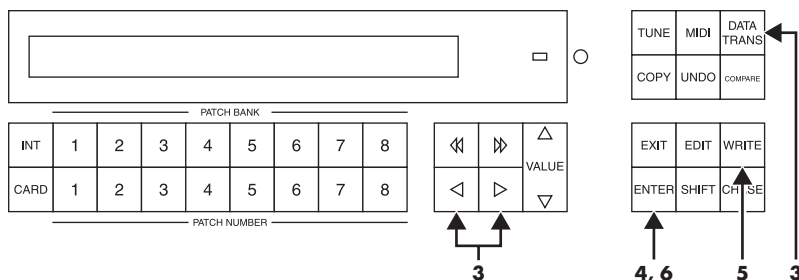
All the 64 Patches data stored on the Memory Card can be loaded to the D-50/550's internal memory.

Using the D-50



1. Insert the Memory Card (M-256D) into the D-50 Card Slot.
2. Turn the **Memory Protect** of the D-50 to **OFF**.
 - 2-1. Press the **[TUNE/FUNCTION]** button.
 - 2-2. Select "Protect" with the **Selector** button and turn it **OFF** with the joystick.
3. Press the **[DATA TRANSFER]** button.
4. Select "(Card -> Int)" with the corresponding **Selector** button.
5. Press **[ENTER]** button. When the data transfer is completed, the display shows "Complete."
6. Return the Memory Protect of the D-50 to **On**.
 - 6-1. Press the **[TUNE/FUNCTION]** button.
 - 6-2. Select "Protect" with the **Selector** button and turn it **ON** with the joystick.

Using the D-550

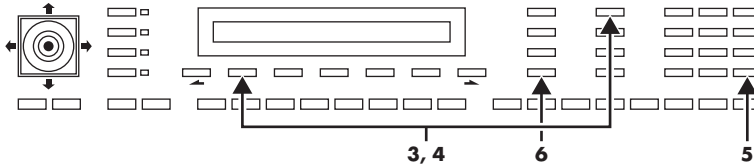


1. Insert the Memory Card (M-256D) into the D-550 Card Slot.
2. Press the **[DATA TRANS]** button.
3. Using the [◀] or [▶] buttons, select "(Card -> Int)."
4. Press the **[ENTER]** button.
5. Press the **[WRITE]** button to turn the Memory Protect **OFF** temporarily.
6. Press the **[ENTER]** button again. When the data transfer is completed, the display shows "Complete."

Transferring Patches from the D-50/550 to the VC-1

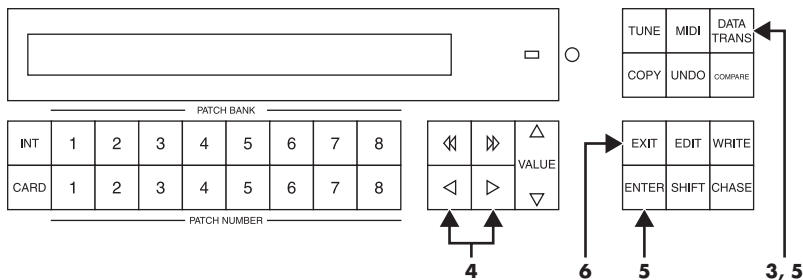
- * You cannot bulk load data when a patch in the Preset Banks (Pre1 – Pre6) is selected.
- * The VC-1 display does not change immediately following the bulk load. This is due to the fact that the work area is the bulk load destination (p. 37). You can confirm the outcome of the transfer by switching patches with the **VALUE** dial.

Using the D-50



1. Use a MIDI cable to connect the D-50's **MIDI OUT** connector to the V-Synth XT's **MIDI IN** connector.
2. Set the D-50 and V-Synth XT to the same MIDI channel (the basic channel; p. 73).
3. Press the D-50's **[DATA TRANSFER]** button.
4. While pressing the D-50's **[DATA TRANSFER]** button, specify "**B.Dump**" with the **Selector** button.
5. Press the D-50's **[ENTER]** button to begin the bulk dump. When the data transfer is completed, the D-50's display shows "**Complete.**"
6. Press the **[EXIT]** button on the D-50 to return to the play mode.

Using the D-550



1. Use a MIDI cable to connect the D-550's **MIDI OUT** connector to the V-Synth XT's **MIDI IN** connector.
2. Set the D-550 and V-Synth XT to the same MIDI channel (the basic channel; p. 73).
3. Press the D-550's **[DATA TRANS]** button.
4. Select "**(B.Dump)**" with the D-550's **[◀]** or **[▶]** buttons.
5. Hold down the **[DATA TRANS]** button and press the D-550's **[ENTER]** button to begin the bulk dump. When the data transfer is completed, the D-550's display shows "**Complete.**"
6. Press the **[EXIT]** button on the D-550 to return to the play mode.

Saving Transferred Patches

The transferred patch data (64 patches) will be lost if you turn off the power. Be sure to save the data.

1. Press **[MODE]** on the VC-1. The **MODE MENU** window appears.
2. Touch **<DATA TRANSFER>**. The **DATA TRANSFER** screen appears.



3. Touch **<Bank Copy>** in the left of the screen. The **Bank Copy** screen appears.
4. When editing a parameter that requires you to specify a value, move the cursor to the value box of that parameter. Then modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**.

Source Bank

Selects the save-source bank.

Value: P1 – P6, I1 – I8

Destination Bank

Selects the save-destination bank.

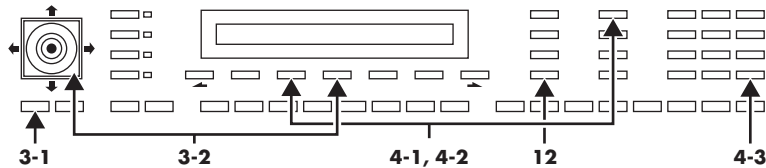
Value: I1 – I8



5. Touch **<OK>** to execute the Save operation. If you want to cancel without executing, touch **<Cancel>**.

Transferring Patches from the VC-1 to the D-50/550

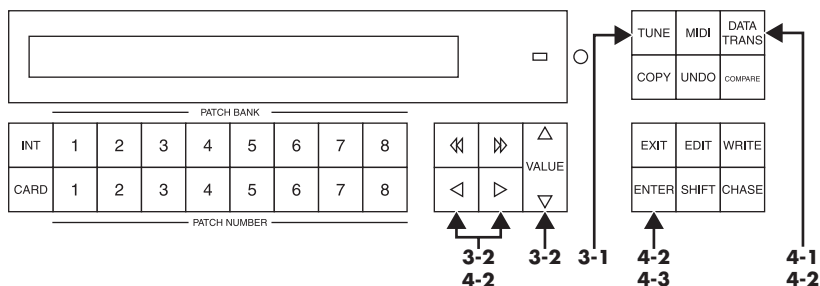
Using the D-50



1. Use a MIDI cable to connect the V-Synth XT's **MIDI OUT** connector to the D-50's **MIDI IN** connector.
 2. Set the D-50 and V-Synth XT to the same MIDI channel (the basic channel; p. 73).
 3. Turn the **Memory Protect** of the D-50 to **OFF**.
 - 3-1. Press the **[TUNE/FUNCTION]** button.
 - 3-2. Select "Protect" with the **Selector** button and turn it **OFF** with the joystick.
 4. Enable reception of bulk load data on the D-50.
 - 4-1. Press the D-50's **[DATA TRANSFER]** button.
 - 4-2. While pressing the D-50's **[DATA TRANSFER]** button, specify **(B.Load)** with the **Selector** button.
 - 4-3. Press the D-50's **ENTER]** button.
 5. Turn the **Exclusive Sw** of the V-Synth XT to **On**.
 - 5-1. Press **[MODE]**.
 - 5-2. Touch **<SYSTEM>**.
 - 5-3. Select "Exclusive Sw," then turn the V-Synth XT's **VALUE** dial to specify **On**.
 6. Press **[MODE]** on the V-Synth XT. The **MODE MENU** window appears.
 7. Touch **<DATA TRANSFER>**. The **DATA TRANSFER** screen appears.
 8. Touch **<B.Dump>** in the left of the screen. The **MIDI Bulk Dump** screen appears.
 9. Modify the value by either turning the **VALUE** dial or pressing **[INC/+]** or **[DEC/-]**.
- Source Bank**
 Selects the Patch Bank in the VC-1 with the patch data to transfer to the D-50.
Value: I1 – I8, P1 – P6
10. Touch **<OK>**. The bulk dump starts. If you want to cancel without executing, touch **<Cancel>**.
 11. When the data transfer is completed, the D-50's display shows "Complete."
 12. Press the **[EXIT]** button on the D-50 to return to the play mode.



Using the D-550



1. Use a MIDI cable to connect the VariOS's **MIDI OUT** connector to the D-550's **MIDI IN** connector.
2. Set the D-550 and V-Synth XT to the same MIDI channel (the basic channel; p. 73).
3. Turn the **Memory Protect** of the D-550 to **OFF**.
 - 3-1. Press the D-550's **[TUNE]** button.
 - 3-2. Select "Protect" with the [**◀**] or [**▶**] buttons, and turn it **OFF** with the **[VALUE]**.
4. Enable reception of bulk load data on the D-550.
 - 4-1. Press the D-550's **[DATA TRANS]** button.
 - 4-2. Select "(B.Load)" with the D-550's [**◀**] or [**▶**] buttons, then press the **[ENTER]** button while holding the **[DATA TRANS]** button.
 - 4-3. Press the **[ENTER]** button again.

5. Turn the **Exclusive Sw** of the V-Synth XT to **On**.
 - 5-1. Press **[MODE]**.
 - 5-2. Touch **<SYSTEM>**.
 - 5-3. Select "Exclusive Sw," then turn the V-Synth XT's **VALUE dial** to specify **On**.

6. Press **[MODE]** on the V-Synth XT. The **MODE MENU** window appears.
7. Touch **<DATA TRANSFER>**. The **DATA TRANSFER** screen appears.



8. Touch **<B.Dump>** in the left of the screen. The **MIDI Bulk Dump** screen appears.
9. Modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**.

Source Bank

Selects the Patch Bank in the VC-1 with the patch data to transfer to the D-50.

Value: I1 – I8, P1 – P6



10. Touch **<OK>**. The bulk dump starts. If you want to cancel without executing, touch **<Cancel>**.
11. When the data transfer is completed, the D-50's display shows **"Complete."**
12. Press the **[EXIT]** button on the D-50 to return to the play mode.

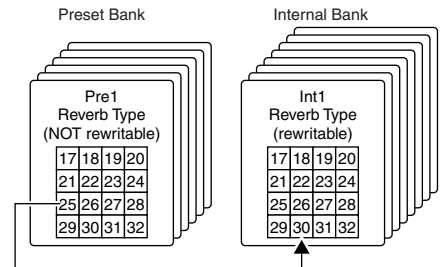
Copying a Reverb Type

In addition to the patches (64 patches), **16 reverb types (17–32)** are also saved to the VC-1's patch banks (Pre 1–6, Int 1–8). Different reverb types **17–32** are saved to each patch bank. The reverb types you can use vary with the selected patch as described below.

- All shared common reverb types (1–16) can be used.
- The reverb types **17–32** in individual banks can be used only with the patches (64 patches) contained in that bank.
- Reverb types from a bank other than the internal banks (any from 1 through 32) can be copied to a reverb type in the internal banks (any from 17 through 32).
- This is convenient when, for example, you want to use Reverb Type 25 (Gate Reverb) from the Patch Bank **Pre 1** as Reverb Type 30 in the Patch Bank **Int 1**.

* *Reverb Types (17–32) are transferred simultaneously with patch data when patch data is transferred from the D-50 to the VC-1 (bulk loaded) or from the VC-1 to the D-50 (bulk dumped).*

| Common Reverb Type (NOT rewritable) | | | |
|---|----|----|----|
| 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 |



1. Press **[MODE]** on the VC-1. The **MODE MENU** window appears.
2. Touch **<DATA TRANSFER>**. The **DATA TRANSFER** screen appears.



3. Touch **<REVERB COPY>** in the left of the screen. The **REVERB COPY** screen appears.
4. Modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**.

Source Bank

Selects the source Patch Bank of Reverb Type.

Value: P1 – P6, I1 – I8

No.

Selects the source Reverb Type.

Value: 1 – 32

Destination Bank

Selects the destination Patch Bank of Reverb Type.

Value: I1 – I8

No.

Selects the destination Reverb Type.

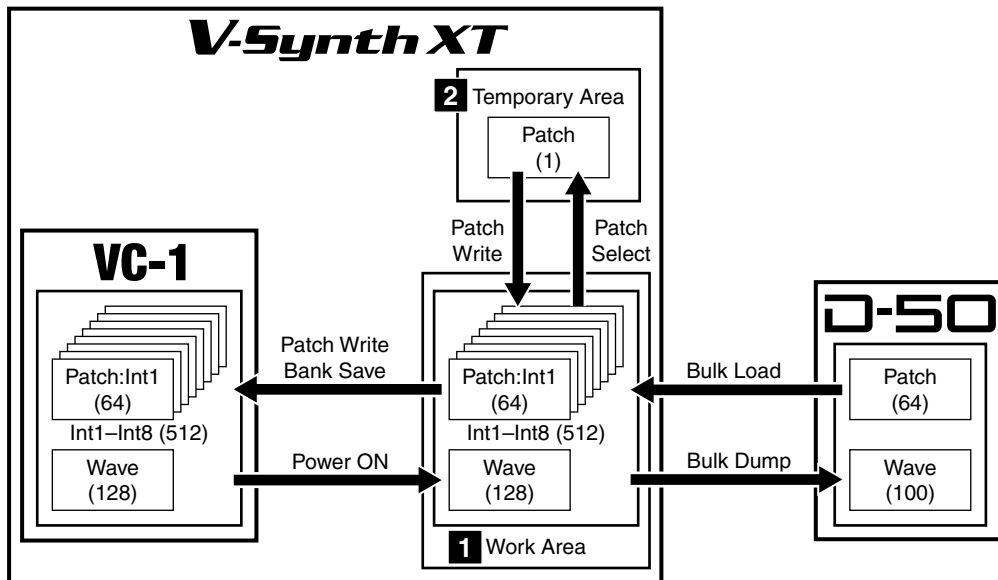
Value: 17 – 32

5. Touch **<OK>**. The display will ask "Are You Sure?", then touch **<Execute>** to execute the Reverb Copy operation. If you want to cancel without executing, touch **<Cancel>**.
When the reverb copy is completed, the display shows "**Complete.**"



Overview of the VC-1

Memory Structure



1 Work Area

Once the V-Synth XT has started up the VC-1, the system program and patch data is loaded from the VC-1 into the V-Synth XT. The section where the system and patch data is loaded is called the **Work Area**. Content loaded to the Work Area is cleared when the V-Synth XT's power is turned off.

In addition, banks (containing data for 64 patches) bulk dumped from an original D-50 (or other MIDI device) are also stored temporarily in the Work Area. Bulk dumped data is cleared if the power is simply turned off, so be sure to save the data to the VC-1 (p. 27).

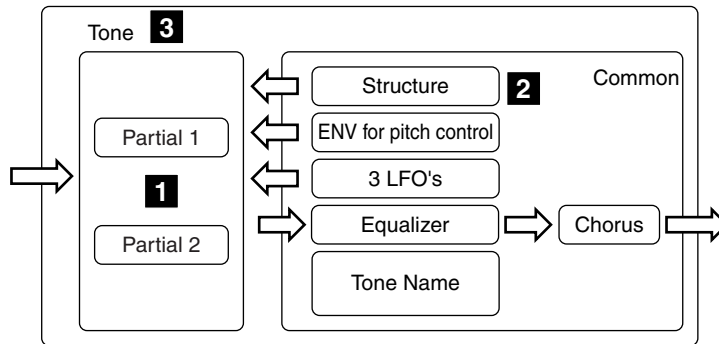
2 Temporary Area

Patch data selected for performance is further taken from the Work Area and placed in memory called the **Temporary Area**. Editing of tones and factors is performed on patches in this Temporary Area. Edited patch data is lost if the power is simply turned off, so be sure to save these to the VC-1 (p. 27).

The Basic Concept of a Tone

Throughout the process of programming the D-50, the operation remains simple and logical.

You can think of the D-50 having powerful synthesizers built in. Each of these hypothetical synthesizers could behave like a convention analog synthesizer, or a PCM sampled synthesizer. Any combination of two synthesizers can achieve some remarkable cross-modulation effects.

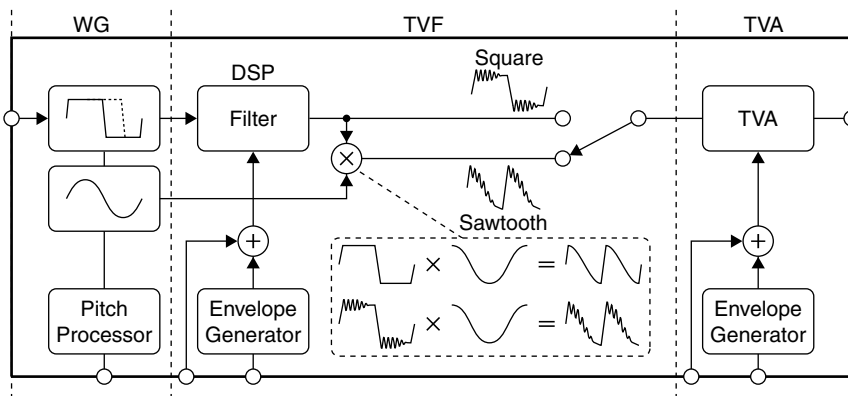


1 Partial

The VC-1 (D-50) appears to have four powerful synthesizers built in. Each of these hypothetical synthesizer could behave like a conventional **analog synthesizer**, or a **PCM sampled synthesizer**. Consequently, They are referred to as **Partials**, since they are far more than just a pure synthesizer. These Partials are combined in pairs to form a **TONE**. A Tone could either be a mix of the two Partials, or they could take advantage of the LA version of cross modulation.

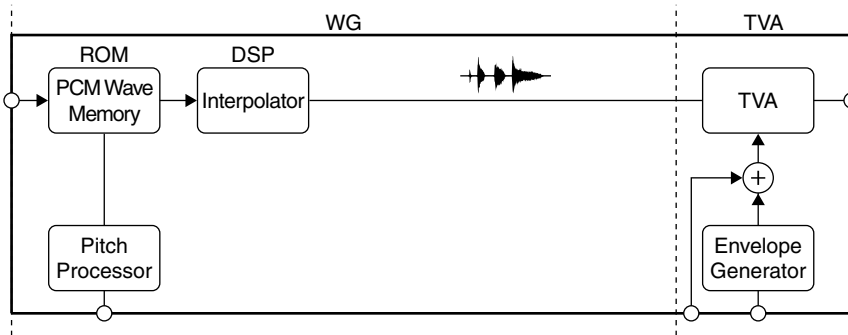
Synthesizer sound generator

A Synthesizer sound generator works like a conventional analog type synthesizer with an oscillator, a filter, an amplifier and two ENV's.



PCM sound generator

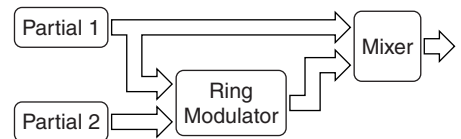
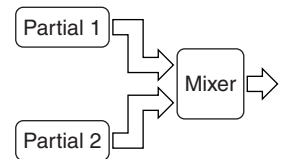
A PCM sound generator provides 128 different PCM sampled sounds (= waveform).



2 Structure

Structure, which is one of the Common Parameters, determines which two of the hypothetical synthesizers (a **synthesizer sound generator** or a **PCM sound generator**) are to be used as Partial 1 and Partial 2.

- These two Partial sounds (Partial 1 and Partial 2) can simply be mixed as show below. By mixing two Partials, fatter sounds can be obtained. This is effective for making strings or organ type sounds.
- Partial 1 can be mixed with the ring-modulated sound of Partials 1 and 2. (“**Ring Modulator**” (p. 40))

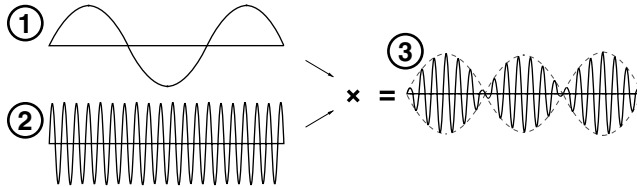


3 Tone

A **Tone** consists of two **Partials** (Partials 1 and 2) and a **Common** block. Some Common parameters apply to both Partials (Partial 1 and 2) . “**Structure**” is one of the Common parameters. It decides which of the two sound generators is used for each Partial. Other Common parameters are an ENV for pitch, three LFO modules, equalizer, chorus, etc.

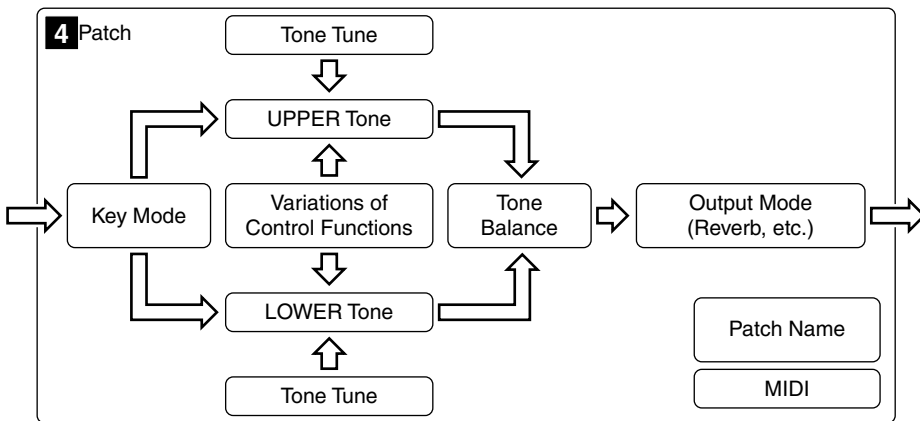
Ring Modulator

The **Ring Modulator** multiplies two sounds, creating an unusual and metallic sound that contains complicated harmonics. For instance, two waveforms (① and ②) are multiplied and waveform ③ is created. This is effective for making metallic sounds.



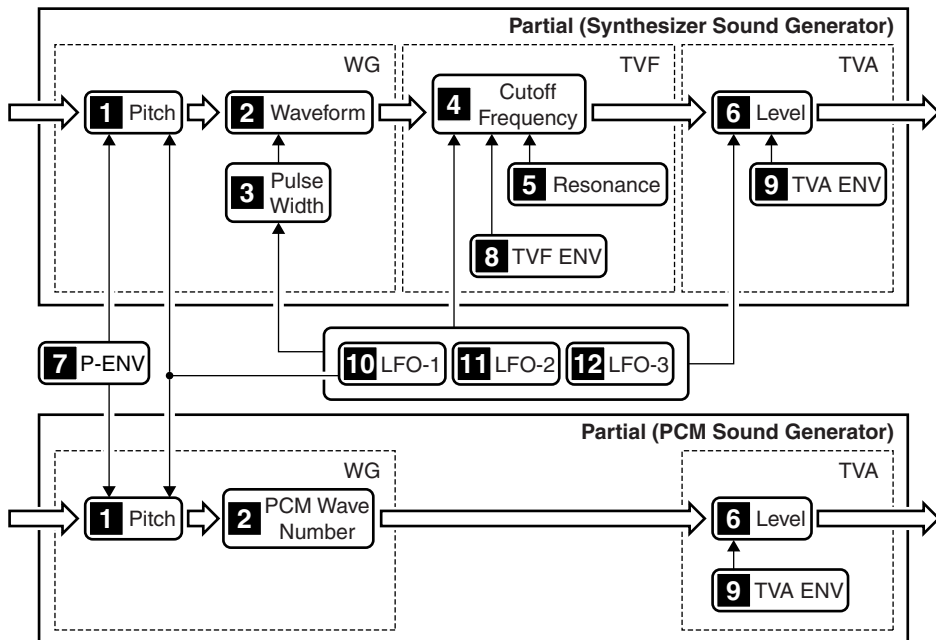
4 Patch

During live performance, you can easily select a **Patch**, which is the combination of two Tones (Upper and Lower), together with programmed E.Q., chorus and reverbation. These other parameters are referred to as **Factor**.



Structure of Tone Parameters

Depending on which **generators** are selected in the **Partial Block**, greatly different Tone Parameters will be used. Some Tone Parameters used for the Synthesizer sound generators are irrelevant to the PCM generator. In a Structure with **Ring modulation**, some parameters of Partial 2 are automatically set to those of Partial 1.



WG (Wave Generator)

In the WG (Wave Generator), the pitch and waveform are controlled.

1 Pitch

The basic pitch of a Partial (sound generator) can be set here. The pitch is a Common parameter, and is therefore controlled by **7 P-ENV** and **10 LFO-1**.

2 Waveform, PCM Wave Number

This selects the waveform of the sound source. When a synthesizer sound generator is selected, the waveform can be controlled by the **3 Pulse Width** controls.

3 Pulse Width

This changes the waveform of the sound source. The pulse width is controlled by any **LFO** (= Common parameter).

TVF (Time Variant Filter)

This filter passes lower frequency harmonics and cuts off the higher ones. By changing the cutoff point and the resonance, the waveform changes.

4 Cutoff Frequency

This sets the cutoff point. The cutoff point can be controlled by **8 TVF ENV** and any **LFO** (= Common parameter).

5 Resonance

This emphasizes the cut off point, making more unusual or electronic sounds.

TVA (Time Variant Amplifier)

This controls the volume of the Partial.

6 Level

This determines the volume of the sound. When a synthesizer sound generators used, the level can be controlled with the **9 TVF ENV** and **LFO** (Common Parameter) . When a PCM sound generator is used, the **9 TVA ENV** controls the level.

ENV (Envelope Generator)

This generates a control signal (envelope curve) which controls the pitch, timbre and volume of each Partial (sound generator).

7 P-ENV

This is the ENV which controls pitch. It can be set for two selected Partial at once.

8 TVF ENV

This ENV controls the cutoff point, and can be set for each Partial separately.

9 TVA ENV

This ENV controls the volume level. This is can be set for each Partial separately.

LFO (Low Frequency)

This oscillator generates low frequencies only.

Any of the three LFO's can be used for the two partials, Vibrato, PWM growl or tremolo effects can be obtained using these LFO's

* *A different LFO can be used for each section or a **Partial Parameters**.*

10 LFO-1

This can control **1 Pitch**, **3 Pulse Width**, **4 Cutoff Frequency** or **6 Level**.

11 LFO-2

This can control **3 Pulse Width**, **4 Cutoff Frequency** or **6 Level**.

12 LFO-3

This can control **3 Pulse Width**, **4 Cutoff Frequency** or **6 Level**.

Creating a Patch

With the VC-1, 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.

There are two methods of sound creation.

- Editing an existing sound.
- Initializing all the parameters of a certain Partial, and then editing the Partial. (p. 49)
- * Changes you make to sound settings are temporary, and will be lost if you turn off the power or select another sound. If you want to keep the modified sound, you must save it. (“Saving Patches” (p. 27))

How to Make the Patch Settings

A number of patch **Factors** and **Tone Parameters** are shown in each window.

1. Access the **PATCH TOP** screen, and select the patch whose settings you wish to modify (p. 12).
 - * 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. 49).
2. The parameters are organized into several editing groups. Touch one of the buttons at the bottom of the screen to select the edit group containing the parameters you want to set.



3. Touch one of the tabs in the left of the screen to select the desired editing screen.
4. When editing a parameter that requires you to specify a value, move the cursor to the value box of that parameter. Then modify the value by either turning the **VALUE dial** or pressing [**INC/+**] or [**DEC/-**]. You can also modify a value by dragging over the touch screen.
5. Repeat steps 2–4 to complete a patch.
6. If you wish to save the changes you’ve made, perform the Save operation (p. 27). If you do not wish to save changes, press [**EXIT**] to return to the **PATCH TOP** screen.
 - * If you return to the **PATCH TOP** screen without saving, the display will indicate “**EDITED**,” reminding you that the patch settings have been modified. If you turn off the power or select a different patch while the display indicates “**EDITED**,” your edited patch will be lost.



Useful Functions for Editing

The VC-1 provides numerous ways in which you can edit your own patches more conveniently.

Editing a Value

To edit a value, you can use the **VALUE dial**, **[INC/+]** or **[DEC/-]**. In each VC-1 screen, you can select a value using the cursor as described earlier, and modify its value. Each parameter has its own range of possible values. You **CANNOT** set any value smaller than the minimum value or greater than the maximum value.

Cursor Buttons

Press **[▲]**, **[▼]**, **[◀]**, or **[▶]** (the cursor buttons) to move the cursor.

VALUE dial

- Turning the **VALUE dial** clockwise increases the value, and turning it counterclockwise decreases its value.
- Hold down **[SHIFT]** as you move the **VALUE dial** to increase value increments to make large value changes more quickly.

[INC/+] and [DEC/-]

- Press **[INC/+]** to increase the selected value, and **[DEC/-]** to decrease it.
- Keep the button pressed for continuous adjustment.
- For faster value increases, keep **[INC/+]** pressed down and press **[DEC/-]**. To decrease values quickly, keep **[DEC/-]** pressed down and press **[INC/+]**.
- Hold down **[SHIFT]** while using **[INC/+]** or **[DEC/-]**, the value will change in larger steps.

Undoing an editing Operation

The **Undo** function returns the current value of the parameter to the original value before being edited. This only refers to the last parameter that has been adjusted.

1. In the upper right of the screen, touch **<▼>**. A pull-down menu appears.
2. In the pull-down menu, touch **<UNDO>**.



Editing with the Panel Controls (Partial Select)

You can assign a variety of parameters (such as TVF Resonance or TVA Level) to the knobs at the right of the front panel for direct, intuitive editing of the parameters.

The partials to which the tone parameters assigned to the different knobs are applied are specified in the **PATCH TOP** screen or with **STRUCTURE [1]** at the right of the front panel. You can use the knobs to edit the tone parameters of the partial whose indicator is lit.

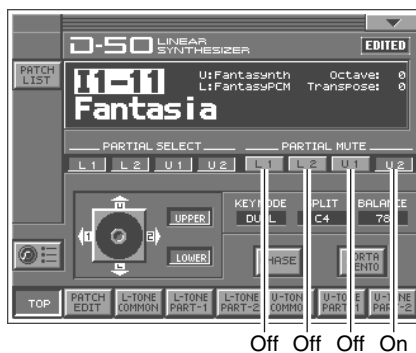


* The Partial select setting will be written into the VC-1 by taking the saving procedure. (p. 27)

Silencing the Sound of the Partial

While editing a Partial parameter, any Partial sound can be muted (Partial Mute).

Partials to be muted are specified in the **PATCH TOP** screen or with **STRUCTURE [3]** at the right of the front panel. The partial is muted when the indicator is off; muting is defeated when the indicator is lit.



* The Partial Mute setting will be written into the VC-1 by taking the saving procedure. (p. 27)

Copying Tone Settings

A Tone from another Patch can be copied to the patch currently selected (Tone Copy).

1. Make sure the **PATCH TOP** screen is displayed.
2. Touch **<▼>** in the upper right of the screen. A pulldown menu appears.
3. In the pulldown menu, touch **<TONE COPY>**. The **TONE COPY** window appears.



4. Touch some buttons (checkbox) in the left side of the screen to select the object you want to copy (✓).

| Display | | Value |
|----------|----------------|------------------------------|
| 1 | <Source> | I1-11-I8-88, P1-11-P6-88 |
| 2 | <TONE> | Off, On (✓), UPPER, LOWER |
| | <PATCH FACTOR> | Off, On (✓) |
| | <CTRL SETUP> | Off, On (✓) |

5. Touch a button (valuebox) in the right side of the screen to select the destination Tone.



| Display | | Value |
|----------|--------|--------------|
| 3 | <TONE> | UPPER, LOWER |

6. Touch **<Execute>** to execute the copy operation. If you want to cancel without executing, touch **<CANCEL>**.

Copying Parameter Settings

A group of Tone parameters can be copied within a Patch (Parameter Copy).

1. Make sure the **PATCH TOP** screen is displayed.
2. Touch <▼> in the upper right of the screen. A pulldown menu appears.
3. In the pulldown menu, touch <PARAM COPY>. The **PARAM COPY** window appears.



4. Touch some button (valuebox) in the left side of the screen to select the object you want to copy.

1 TONE (Source Tone)

Select the Tone to be copied.

Value: UPPER, LOWER

2 PARTIAL (Source Partial)

Select the Partial parameter to be copied.

Value: ALL, COMMON, PART-1, PART-2

| Display | Function |
|----------|------------------------|
| <ALL> | All the parameters |
| <COMMON> | Common parameters |
| <PART-1> | Partial 1's parameters |
| <PART-2> | Partial 2's parameters |

3 BLOCK (Source Block)

If either PART-1 or PART-2 is selected in **2**, any of the following Blocks can be selected.

Value: ALL, WG, TVF, TVA

| Display | Function |
|---------|------------------------|
| <ALL> | All parameters |
| <WG> | WG parameters (p. 57) |
| <TVF> | TVF parameters (p. 61) |
| <TVA> | TVA parameters (p. 66) |

5. Touch some button (valuebox) in the right side of the screen to select the destination Tone.

4 TONE (Destination Tone)

Select the location for the Source Tone.

Value: UPPER, LOWER



5 PARTIAL (Source Partial)

If PART-1 or PART-2 is selected in **2** , select the corresponding block.

Value: PART-1, PART-2

* When **2** is set to **All** or **COMMON**, **5** setting is ignored.

6. Touch **<Execute>** to execute the copy operation. If you want to cancel without executing, touch **<CANCEL>**.

Auditioning the Sound Before Editing

While editing a parameter, you may wish to hear the original sound before it was edited. The **Compare** function allows you to call the original Patch without erasing the edited sound.

1. In the upper right of the screen, touch **<▼>**. A pull-down menu appears.
2. In the pull-down menu, touch **<COMPARE>**. The **PATCH COMPARE** window appears.



3. Touch **<COMPARE>** to turn it on, and the original sound may be heard by playing the keyboard.
4. Touch **<COMPARE>** again to turn it off, and the edited sound will come back.
5. Touch **<OK>** to return to the **PATCH TOP** screen.

Initializing Patch Settings

Initialize means to return the settings of the currently selected patch to a standard set of values. The Initialize operation will affect only the currently selected patch in temporary area; the patches that are stored in internal memory and work area will not be affected. If you wish to restore all of the VC-1's settings to their factory values, perform a **Factory Reset** (p. 28).

1. Access the **PATCH TOP** screen, and select the patch that you wish to initialize (p. 12).
2. Touch **<▼>** in the upper right of the screen. A pulldown menu appears.
3. In the pulldown menu, touch **<INITIALIZE>**. The **INITIALIZE** window appears.



4. Touch some buttons (checkbox) in the screen to select the object you want to initialize (✓).
 - <Check All>**: Mark all object.
 - <PATCH FACTOR>**: Patch factor settings. (p. 19)
 - <CTRL SETUP>**: Control setup settings. (p. 19)
 - <COMMON>**: Common parameter settings. (p. 50)
 - <PART-1>**: Partial-1 parameter settings. (p. 56)
 - <PART-2>**: Partial-2 parameter settings. (p. 56)
5. Touch **<Execute>**. The initialization will be carried out, and you'll be returned to the **PATCH TOP** screen.



Tone Parameters

Common Parameters

- <Struct>: (p. 50)
- <P-ENV>: (p. 51)
- <LFO>: (p. 53)
- <EQ/CHORUS>: (p. 54)



Structure

Struct (Structure Number)

Select one of the following seven Structures.

Value: 1-7

| Number | Partial 1 | Partial 2 | Combination of two Partials | |
|--------|-----------|-----------|-----------------------------|---|
| 1 | | S | S | Mixture of Partial 1 and partial 2. |
| 2 | | S | S | Mixture of Partial 1 and ring-modulation. |
| 3 | | P | S | Mixture of Partial 1 and partial 2. |
| 4 | | P | S | Mixture of Partial 1 and ring-modulation. |
| 5 | | S | P | Mixture of Partial 1 and ring-modulation. |
| 6 | | P | P | Mixture of Partial 1 and partial 2. |
| 7 | | P | P | Mixture of Partial 1 and ring-modulation. |

S : Synthesizer Sound Generator

p : PCM Sound Generator, **R** : Ring Modulator

Balance (Partial Balance) **VC-1** **CTRL**

Adjusts the volume balance of the Upper and Lower Tone.

Value: 0-99

P-ENV (Pitch Envelope)

P-ENV Edit (Envelope)

Velo (Velocity Range) **CTRL**

Sets the maximum effect of the velocity that controls the pitch of the P-ENV. At higher values, the keyboard velocity has a greater effect on the envelope.

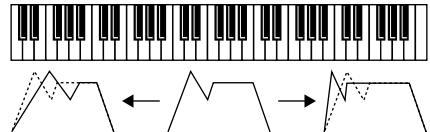
Value: 0-2



TKF (Keyfollow (Time)) **CTRL**

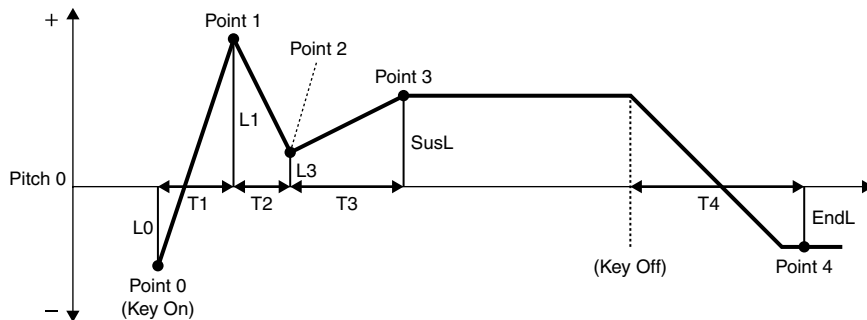
Sets the time of the P-ENV depending on the key played. Higher values change the time more drastically.

Value: 0-4



P-ENV Time Edit

The envelope curve is determined by times and levels.



T1 (Time 1) CTRL

Sets the time needed from point 0 (the moment the key is pressed) to point 1.

Value: 0–50

T2 (Time 2) CTRL

Sets the time needed from point 1 to point 2.

Value: 0–50

T3 (Time 3) CTRL

Sets the time needed from point 2 to point 3.

Value: 0–50

T4 (Time 4) CTRL

Sets the time needed from the moment the key is released to point 4.

Value: 0–50

**P-ENV Level Edit****L0 (Level 0) CTRL**

Sets the pitch created the moment a key is pressed.

Value: -50+50

L1 (Level 1) CTRL

Sets the pitch of the point 1.

Value: -50+50

L2 (Level 2) CTRL

Sets the pitch of the point 2.

Value: -50+50

SusL (Sustain Level) CTRL

Sets the pitch of point 3.

Value: -50+50

EndL (End Level) CTRL

Sets the pitch of point 4.

Value: -50+50

- * If the Levels of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.



* The maximum variable range of each level will depend on the Velocity Range in P-ENV. (p. 51)

| Velocity Range | Level | Range |
|----------------|-------|-------------|
| 0 | +50 | +1 octave |
| | -50 | -1 octave |
| 1 | +50 | +1.5 octave |
| | -50 | -1.5 octave |
| 2 | +50 | +2 octave |
| | -50 | -2 octave |

Pitch Mod (Pitch Modulation)

Depending on how the LFO in WG modulation (p. 60) is set, the vibrato set here may have no effect at all.

LFOD (LFO Depth) **CTRL**

Sets the depth of LFO-1, that controls the WG pitch. Higher values deepen the effect.

Value: 0–100

Lever (Pitch Lever Modulation) **CTRL**

Sets the sensitivity of the vibrato depth controlled by the bender lever. Higher values deepen the effect.

Value: 0–100

After (Pitch Aftertouch Modulation) **CTRL**

This sets the sensitivity of the vibrato depth controlled by aftertouch. Higher values deepen the vibrato effect.

Value: 0–100



LFO (Low Frequency Oscillator)

The parameters of LFO-2 and LFO-3 can be set like LFO-1, except for a few parameters.

Wave (LFO Waveform) **CTRL**

Selects the waveform of the LFO.

Value: TRI, SAW, SQU, RND

| Display | Waveform |
|-----------------------|----------------------------|
| TRI (Triangle) | |
| SAW (Sawtooth) | |
| SQU (Square) | |
| RND (Random) | Waveform changes randomly. |

Rate (LFO Rate)

Sets the rate (frequency) of the LFO. Higher values quicken the rate.

Value: 0–100



Delay (Delay Time) CTRL

This sets the time needed for the LFO to appear, from the moment a key is pressed. Higher values increase the delay time.

Value: 0–100

Sync CTRL

Selects the timing of the LFO oscillation as follows. For LFO-2 and LFO-3, KEY cannot be selected.

Value: OFF, ON, KEY

| Display | Description |
|---------|--|
| OFF | LFO does not sync to the keyboard. |
| ON | When a key is played after all keys have been released, the LFO begins its wave generating process from the beginning. |
| KEY | LFO begins its wave generation from the beginning each time a new key is played. |

EQ/CHORUS (Equalizer/Chorus)

EQ Edit (Equalizer)

In the equalizer section, the frequency characteristic of the sound can be modified. The Equalizer consists of the following parameters.

**LowFreq (Low Frequency)**

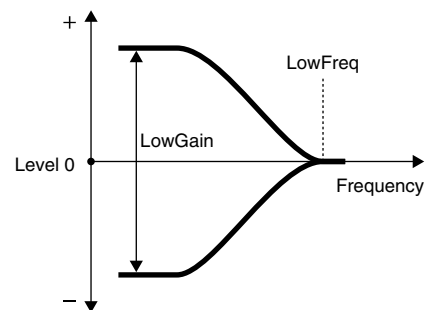
Sets the frequency where the gain is altered in the low to middle range.

Value: 63, 75, 88, 105, 125, 150, 175, 210, 250, 300, 350, 420, 500, 600, 700, 840 Hz

LowGain (Low Gain) CTRL

Sets the gain of the lower frequencies. "+" settings raise the gain, and "-" settings lower it.

Value: -12→+12 dB



HiFreq (High Frequency)

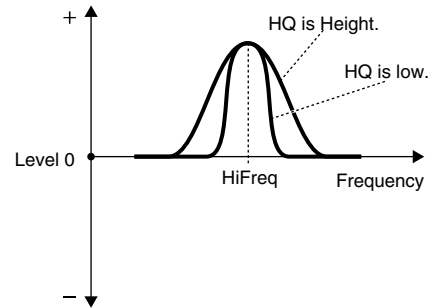
Sets the frequency where the gain is altered in the middle to high range.

Value: 250, 300, 350, 420, 500, 600, 700, 840 Hz, 1.0, 1.2, 1.4, 1.7, 2.0, 2.4, 2.8, 3.4, 4.0, 4.8, 5.7, 6.7, 8.0, 9.5 kHz

HiQ (High Q) CTRL

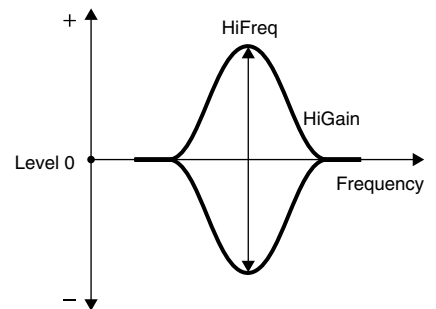
Sets the width of the frequency band where the gain is boosted or cut. With a higher value, the frequency band is narrower, and vice versa.

Value: 0.3, 0.5, 0.7, 1.5, 2.0, 3.0, 4.2, 6.0

**HiGain (High Gain) CTRL**

Sets the gain of the Hf frequency. “+” settings raise the gain and “-” settings lower it.

Value: -12→+12 dB

**Chorus Edit****Type (Chorus Type)**

Selects one of the 8 basic chorus effects.

Value: 1–8

| Display | Type |
|---------|-----------------|
| 1 | Chorus 1 |
| 2 | Chorus 2 |
| 3 | Flanger 1 |
| 4 | Flanger 2 |
| 5 | Feedback Chorus |
| 6 | Tremolo |
| 7 | Chorus Tremolo |
| 8 | Dimension |

**Rate (Chorus Rate) CTRL**

Sets the rate of the chorus effect. Higher values quicken the rate.

Value: 0–100

Depth (Chorus Depth) CTRL

Sets the depth of the chorus effect. Higher values deepen the effect.

Value: 0–100

Balance (Chorus Balance) CTRL

This sets the volume balance of the chorus of the chorus sound and normal sound.


Value: 0-100

| Value | Balance |
|-------|---------------------------------|
| 100 | Only the chorus sound is heard. |
| 50 | Chorus sound = Normal sound |
| 0 | Only the normal sound is heard. |

Partial Parameters

Restriction of the available parameters caused by Structure

Depending on what **Structure** (p. 50) is used, the available parameters may be different.

1. Some parameters included in a Partial that uses a **PCM sound generator** are invalid. The **PCM** mark is shown when the parameters apply even for PCM sounds.
2. With **Ring Modulation**, some parameters in Partial 2 will automatically become the same as for Partial 1. Therefore, the values shown in the display are irrelevant with the actual values. The **Ring**  mark is shown for such parameters.

- <FORM>: (p. 57)
 <PITCH>: (p. 59)
 <TVF>: (p. 61)
 <TVA>: (p. 66)
 <MOD>: (p. 69)




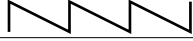
WG Form (WG Waveform)

WG Form (Waveform)

Wave (Waveform) **CTRL**

Selects the waveform of the synthesizer sound generator.

Value: SQU, SAW

| Display | Waveform |
|-----------------------|---|
| SQU (square) |  |
| SAW (Sawtooth) |  |

- * A sawtooth waveform is produced by processing a square Waveform at the TVF, that is, all the waveform are square at WG even when a sawtooth is selected.



PCM (PCM Wave Number) **PCM CTRL**

This selects one of the 127 different sampled waves of the PCM sound generator. (p. 86)

Value: 1-127

WG PW (WG Pulse Width)

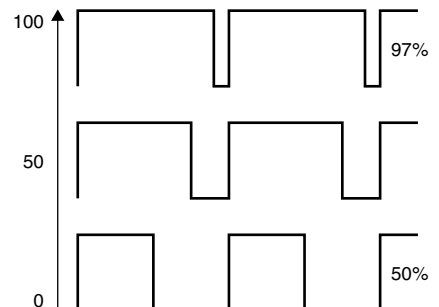


PW (Pulse Width) **CTRL**

A square waveform has exactly the same width, up and down but a Pulse waveform has different widths. The ratio of upper width to lower is called pulse width. Depending on the set pulse width value, the harmonic content of the sound changes greatly.

Value: 0-100

- * When a **sawtooth** is selected with **WG Waveform**, pulse width 50% raises the pitch by an octave.



Velo (Velocity Range) CTRL

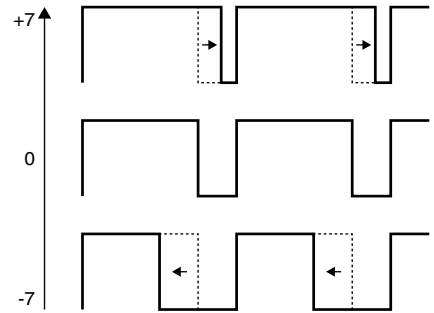
Sets the sensitivity of the velocity that controls the pulse width. With “-” values, the pulse width becomes smaller by playing the keyboard harder, and with “+” values, the pulse width becomes wider by playing the keyboard harder.

Value: -7-+7

After (Aftertouch Range) CTRL

Sets the sensitivity of the aftertouch that controls the pulse width. With “-” values, the pulse width becomes smaller with stronger aftertouch, and with “+” values, the pulse width becomes wider with stronger aftertouch.

Value: -7-+7

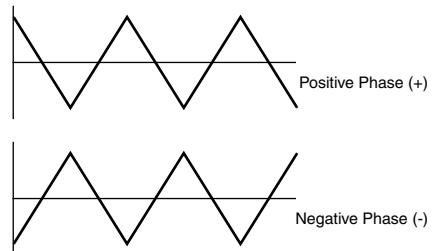


LFO (LFO Select) CTRL

Pulse Width Modulation (PWM) means changing the pulse width periodically. LFO Select decides which of the LFO's is to be used for modulating the pulse width.

Value: +1, -1, +2, -2, +3, -3

| Display | LFO (Phase) |
|---------|-------------|
| +1 | LFO-1 (+) |
| -1 | LFO-1 (-) |
| +2 | LFO-2 (+) |
| -2 | LFO-2 (-) |
| +3 | LFO-3 (+) |
| -3 | LFO-3 (-) |



LFOD (LFO Depth) CTRL

This sets the depth of the PWM. Higher values Deepen the effect.

Value: 0-100

WG PITCH

WG Pitch

Coars (Pitch Coarse) **PCM** **CTRL**

Sets the standard pitch of a Partial in semi-tone steps. The standard pitch is the pitch at C5 (middle C) key.

Value: C1–C7

Fine (Pitch Fine) **PCM** **CTRL**

The standard pitch can be altered over about +/- 50 cents.

Value: -50→+50



KF (Keyfollow (pitch)) **PCM** **CTRL**

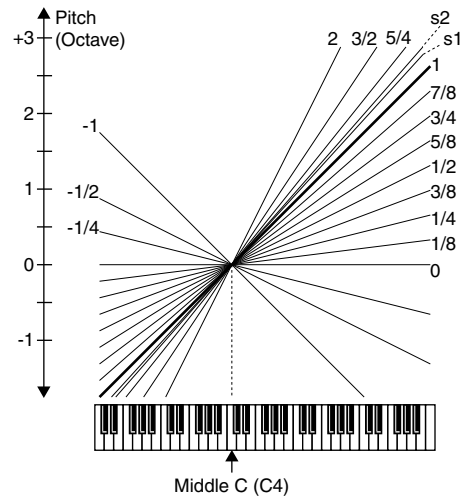
Usually, the keyboard to a synthesizer assigns a semi-tone to each key. This parameter can change the pitch ratio as show below. The value represents how many octaves are changed over 12 keys.

Value: -1, -1/2, -1/4, 0, 1, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2, s1, s2

* s1 or s2 may be selected for slightly stretching octaves.

s1: Pitch 1 cent higher than one octave.

s2: Pitch 5 cents higher than one octave.



WG Mod (WG Modulation)

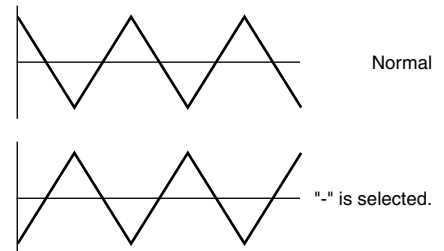


LFO (LFO Mode) **PCM** **CTRL**

Selects one of the following four vibrato modes.

Value: OFF, (+), (-), A&L

| Display | Description |
|---------|--|
| OFF | No vibrato is obtained. |
| (+) | Vibrato is on. |
| (-) | Vibrato is on but inverted. |
| A&L | Vibrato can be obtained only by Aftertouch and Bender Lever. |

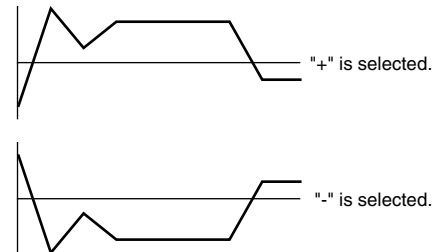


ENV (P-ENV Mode) **PCM** **CTRL**

Selects one of the following three modes, determining how the pitch is controlled by P-ENV.

Value: OFF, (+), (-)

| Display | Description |
|---------|--|
| OFF | No alteration. |
| (+) | Pitch changes with the set P-ENV curve. |
| (-) | Pitch changes with the P-ENV curve inverted. |



Bend (Bender Mode) **PCM**

Selects how the pitch is controlled by the bender lever as follows.

Value: OFF, KEY, NOM

| Display | Description |
|---------|--|
| OFF | No pitch alteration by moving the lever right or the left. |
| KF | Pitch changes within the Bender range, set in Patch Factors, plus Keyfollow (Pitch) of WG. |
| NOM | Pitch changes within the Bender range, set in Patch Factors. |

Bender Mode Example:

- If the Bender range is set to 12 (1 octave), and the Keyfollow (Pitch) of WG is set to 2, the maximum pitch change caused by moving the Bender Lever is 2 octaves.
- When the Keyfollow (Pitch) of WG is set to zero, there is no pitch change caused by the Bender lever.

TVF (Time Variant Filter)

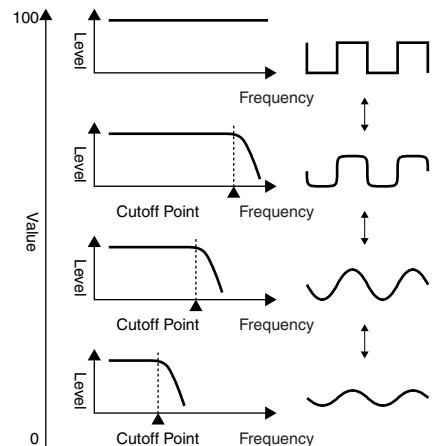
TVF



Freq (Cutoff Frequency) **CTRL**

Sets the cutoff point of the TVF. As you lower the value, higher frequencies are removed and the waveform gradually become an approximation of a sine wave, then the sound will finally fade out.

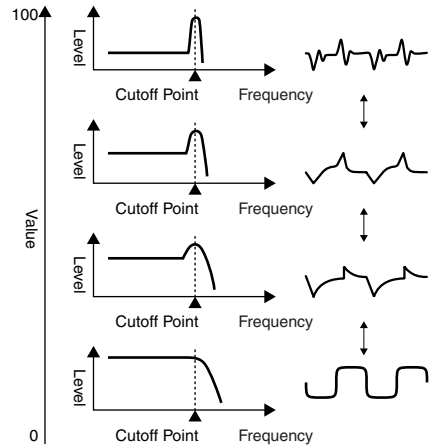
Value: 0-100



Reso (Resonance) CTRL

Boosts the cutoff point. As you increase the value, specific harmonics are emphasized and the sound will become more unusual, more electronic in nature.

Value: 0–30



KF(Keyfollow (Cutoff Point) CTRL

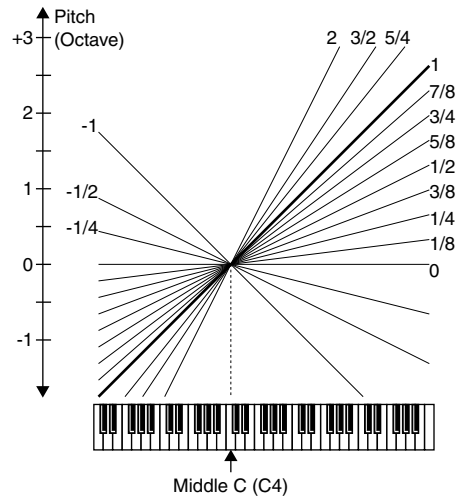
Keyfollow can change the cutoff point depending on the key played. Just like the Keyfollow of WG pitch, the value represents how many octaves change over 12 keys.

Value: -1, -1/2, -1/4, 0, 1, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2

BP (Bias Point) CTRL

You can add a further change (= bias level) to the Keyfollow curve, and set the range (bias direction) where the bias level is valid. The bias range is where the bias level is valid on the keyboard. It can be set with the **bias point** (where the bias range begins) and **bias direction** (< or >).

Value: <A1-<C7, >A1->C7



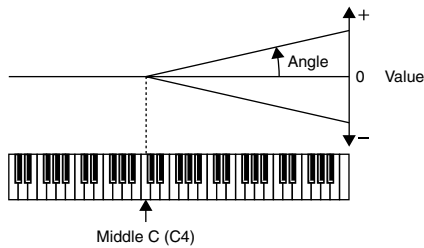
| Display Example | Example Function |
|-----------------|--|
| >C4 | The bias level is only valid on the keyboard above the C4 key. |
| <C4 | The bias level is only valid on the keyboard below the C4 key. |

BLevel (Bias Level) CTRL

The bias level can be set. “+” values raise the curve, and “-” value lower the curve.

Value: -7–+7

Keyfollow Adjustment



The curve in the picture represents the Keyfollow value with the bias level added.

- **TVF Keyfollow (Cutoff Point):** 0
- **Bias Direction:** >C4

TVF ENV (TVF Envelope)

Depth (ENV Depth) **CTRL**

Sets the depth of the TVF ENV modulation that changes the TVF cutoff Point. Higher values deepen the effect.

Value: 0–100

Velo (Velocity Range) **CTRL**

Sets the sensitivity of the velocity than controls the depth of the TVF ENV. At higher values, the effect is deeper by playing harder.

Value: 0–100

DKF (Keyfollow (Depth)) **CTRL**

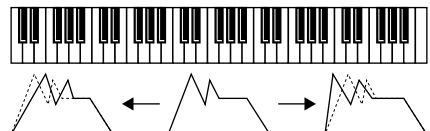
This can change the TVF ENV depth depending on the key played. Higher values change the depth more drastically.

Value: 0–4

TKF (Keyfollow (Time)) **CTRL**

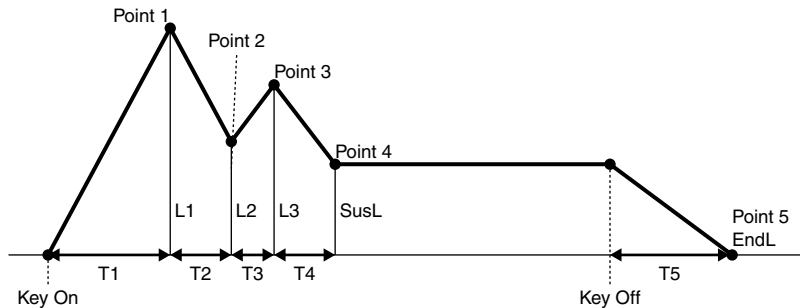
This can change the time of the TVF ENV depending on the key played. Higher values change the time more drastically.

Value: 0–4



TVF ENV Time

An envelope curve is determined by times and levels.



T1 (Time 1) **CTRL**

Sets the time needed to reach point 1 from the moment the key is pressed.

Value: 0–100

T2 (Time 2) **CTRL**

Sets the time needed to reach point 2 from point 1.

Value: 0–100

T3 (Time 3) **CTRL**

Sets the time needed to reach point 3 from point 2.

Value: 0–100

T4 (Time 4) **CTRL**

Sets the time needed to reach point 4 from point 3.

Value: 0–100

T5 (Time 5) **CTRL**

Sets the time needed to reach point 5 from the moment the key is released.

Value: 0–100



TVF ENV Level

L1 (Level 1) **CTRL**

Sets the of point 1.

Value: 0–100

L2 (Level 2) **CTRL**

Sets the level of point 2.

Value: 0–100

L3 (Level 3) **CTRL**

Sets the level of point 3.

Value: 0–100

SusL (Sustain Level) **CTRL**

This sets the level of point 4.

Value: 0–100

EndL (End Level) **CTRL**

To lower the level after releasing the key, set this to 0, and to raise the level, set it to 100.

Value: 0, 100

- * *The End Level is retained until you release and play the key again.*
- * *If the Levels of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.*



TVA (Time Variant Amplifier)

TVA

Level **PCM** **CTRL**

Sets the volume of a Partial. Higher values may cause sound distortion. If so, lower the value. Even when the Level is set to zero here, the sound may not be completely muted if the TVA ENV curve is high.

Value: 0-100

Velo (Velocity Range) **PCM** **CTRL**

Sets the sensitivity of the velocity that controls the volume of the sound. “-” values lower the level by harder playing, and “+” values raise the level by harder playing.

Value: -50+50

BP (Bias Point) **PCM** **CTRL**

You can change the overall volume of the keyboard (= bias level) from the set level, and set the range (bias direction) where the bias level is valid.

This bias range is where the bias level is valid on the keyboard. It can be set with the bias point (Where he bias range begins) and bias direction (< or >).

Value: <A1-<C7, >A1->C7

| Display Example | Function Example |
|-----------------|--|
| >C4 | The bias level is only valid on the keyboard above the C4 key. |
| <C4 | The bias level is only valid on the keyboard below the C4 key. |

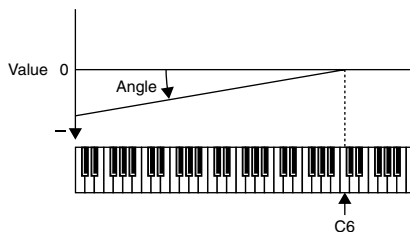
BLevel (Bias Level) **PCM** **CTRL**

The curve (bias level) can be set. Lower values make the curve steeper.

Value: -12-0



Volume Adjustment



- **Bias Point:**>C6

TVA ENV (Envelope)

Velo (Velocity Follow (Time 1)) **PCM CTRL**

Sets the sensitivity of the velocity than controls the Time 1 of the TVA ENV. Increasing the sensitivity shortens Time 1, by stronger playing.

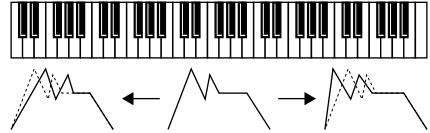
Value: 0-4



TKF (Keyfollow (Time)) **PCM CTRL**

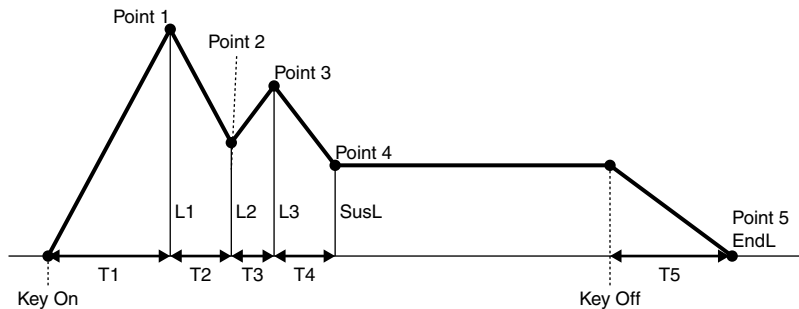
This can change the time of the TVA ENV depending on the key played. 0 to 4 are valid. Higher values change the time more drastically.

Value: 0-4



TVA ENV Time

An envelope curve is determined by times and levels.



T1 (Time 1) **PCM CTRL**

Sets the time needed to reach point 1 from the moment the key is pressed.

Value: 0-100

T2 (Time 2) **PCM CTRL**

Sets the time needed to reach point 2 from point 1.

Value: 0-100

T3 (Time 3) **PCM CTRL**

Sets the time needed to reach point 3 from point 2.

Value: 0-100



T4 (Time 4)

Sets the time needed to reach point 4 from point 3.

Value: 0–100

T5 (Time 5) PCM CTRL

Sets the time needed to reach point 5 from the moment the key is released.

Value: 0–100

TVA ENV Level**L1 (Level 1) PCM CTRL**

Sets the level of point 1.

Value: 0–100

L2 (Level 2) PCM CTRL

Sets the level of point 2.

Value: 0–100

L3 (Level 3) PCM CTRL

Sets the level of point 3.

Value: 0–100

SusL (Sustain Level) PCM CTRL

Sets the level of point 4.

Value: 0–100

EndL (End Level) PCM CTRL

To lower the level after releasing the key, set this to 0, and to raise the level, set it to 100.

Value: 0, 100

- * *The End Level remains until the key is released and played again. That is, at a value of 100, the sound remains. However, the PMC Sound Generator's One-shot sounds do not remain even when set to 100.*
- * *If the levels of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.*



MOD (Modulation)

TVF MOD

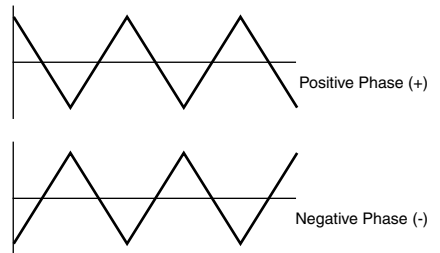
LFO (LFO Select) **CTRL**

Selects the LFO that changes cutoff point periodically (creating growl effects).

Value: +1, -1, +2, -2, +3, -3



| Display | LFO (Phase) |
|---------|-------------|
| +1 | LFO-1 (+) |
| -1 | LFO-1 (-) |
| +2 | LFO-2 (+) |
| -2 | LFO-2 (-) |
| +3 | LFO-3 (+) |
| -3 | LFO-3 (-) |



LFOD (LFO Depth) **CTRL**

Sets the depth of a growl effect. Higher values deepen the effect.

Value: 0-100

After (Aftertouch Range) **CTRL**

Sets the sensitivity of the aftertouch that controls the cutoff point. “-” values lower the cutoff point by stronger Aftertouch, and “+” values raise it.

Value: -7+7

TVA MOD

LFO (LFO Select) **PCM** **CTRL**

Selects the LFO that changes the volume periodically (tremolo effects).

Value: +1, -1, +2, -2, +3, -3

| Display | LFO (phase) |
|---------|-------------|
| +1 | LFO-1 (+) |
| -1 | LFO-1 (-) |
| +2 | LFO-2 (+) |
| -2 | LFO-2 (-) |
| +3 | LFO-3 (+) |
| -3 | LFO-3 (-) |

LFOD (LFO Depth) **PCM** **CTRL**

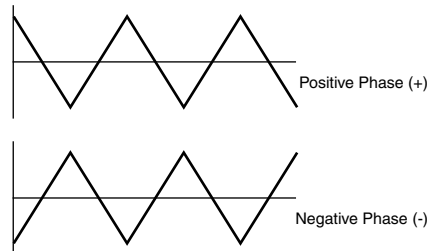
Sets the depth of the tremolo effect. Higher values deepen the effect.

Value: 0-100

After (Aftertouch Range) **PCM** **CTRL**

Sets the sensitivity of the aftertouch that controls the volume. "-" values lower the volume by stronger aftertouch. And "+" values increase the volume by stronger aftertouch.

Value: -7-+7



Settings for the Entire VC-1

Settings that affect the entire operating environment of the VC-1, such as tuning and MIDI message reception, are referred to as **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 **[MODE]**. The **MODE MENU** window appears.
2. Touch **<SYSTEM>**. The **SYSTEM** screen appears.



3. Move the cursor to the value box of that parameter. Then modify the value by either turning the **VALUE dial** or pressing **[INC/+]** or **[DEC/-]**.
4. Repeat steps 3 to make the settings for the System function.
5. After you have edited the settings of the System function, touch **<Write>**, located in the lower right of the screen.



* Changes you make to the System function settings are only temporary—they will be discarded as soon as the power is turned off. If you want to keep any changes you've made in the system settings, you must save them in VC-1. 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. (Factory Reset; p. 28)

Sound Setting

Master Tune

Adjusts the overall tuning of the VC-1. The display shows the frequency of the A4 note (center A).

Value: 427 – 452 Hz

Sound Character

Sets whether the output characteristics of the sound are the same as those of the D-50 (D-50) or the V-Synth XT (V-Synth).

Value: D-50, V-Synth

Digital Freq (Digital Frequency)

Sets the sampling frequency of the digital output.

Value: 44.1, 48, 96 kHz



MIDI

MIDI CH (MIDI Channel)

Sets the **Basic Channel** (MIDI channel on which the VC-1 receives and transmits messages).

Value: 1 – 16

- * *The transmit change can be set to a different number from the Basic Channel individually from each Patch (p. 25).*

Control

Determines how to receive messages from an external MIDI device. (“**Key Mode Alteration**” (p. 76))

Value: B.CH, G.CH, MdeOFF



| Display | Function |
|--|--|
| B.CH (Basic Channel mode) | When the VC-1 is being controlled in Mono mode, it receives the Voice messages (except for Note Event, Pitch Bender) on the Basic Channel from the external device. |
| G.CH (Global Channel mode) | When the VC-1 is being controlled in Mono mode, by an external device that has a Global Channel (one number smaller than the basic channel) it can receive all the Voice messages (except for Note Event, Pitch Bender) On the Global Channel. |
| MdeOFF (Mode Message OFF mode) | In this mode, the VC-1 does NOT receive the Mode messages from the external MIDI device, but is assigned to the Key mode as set on the VC-1. |

SeparateCH (Receive Channel in Separate Mode)

When **SEP** (Separate Mode) or **SEP-S** (Separate Solo Mode) is selected, the Upper and Lower Tones can be controlled on different channels. The Lower Tone is controlled by the basic channel, and the Upper Tone is controlled by the receive channel set here. The MIDI keyboard can control only the Upper Tone.

Value: 1 – 16

- * *The receive channel of each Patch can be set to a different number from the channel set here. (p. 25)*

Prog.C (Program Change Switch)

To receive or transmit Program Change messages, set this to **On**.

Program Change messages are transmitted only when a Patch is selected by operating the V-Synth XT's panel buttons, or when the Program Change number to be transmitted is altered also on the V-Synth XT's panel. IN other words, Program Change messages are not transmitted by patch selection with the Program Change messages sent from an external MIDI device.

Value: Off, On

- * *The Program Change Number of each Patch can be set to a different number from the number set here. (p. 25)*

Exclusive (Exclusive Switch)

To receive or transmit Exclusive messages (Roland ID Number only), set this to **On**, **P-Dump** or **TxEEdit**.

Value: Off, On, P-Dump, TxEdit

| Display | Function |
|----------------|--|
| On | Normally. |
| P-Dump | The patch data that you select is transmitted. |
| TxEEDIT | The parameter data that you edited is transmitted. |

- * When set to **P-Dump**, the Patch you select is transmitted to an external device. However, it cannot be transmitted by Patch Shift with the pedal switch, or by patch selection with the Program Change messages sent from an external device.

Bank.S (Bank Select Switch)

To receive or transmit Bank Select messages, set this to **On**.

Value: Off, On

Initializing the System Settings

The current settings of the system functions can be restored to a set of standard settings, or to the factory settings (System Initialize).

1. Access the System Edit screen.
2. Touch **<Init>**, located in the lower right of the screen.
3. If you want the factory settings to be in effect the next time the VC-1 is powered up, touch **<Write>** to save the settings.



Key Mode Alteration

Poly Mode or Mono Mode is an element that determines how to output the Upper and Lower Tones.

Mono Mode, Poly Mode

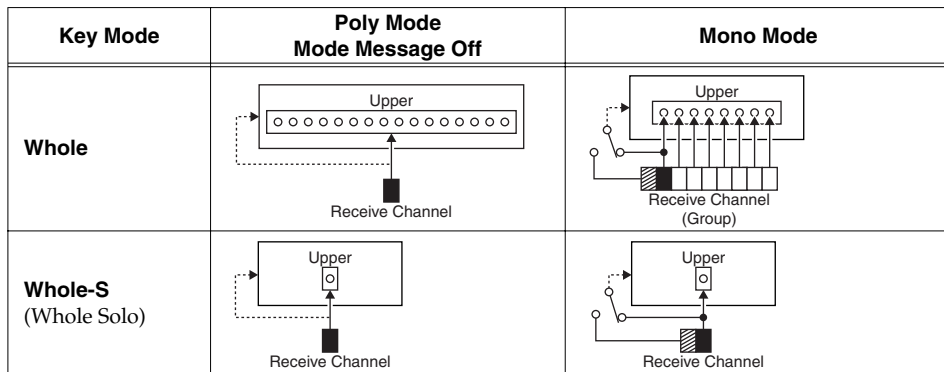
There are two ways of the The VC-1 can use either mode.

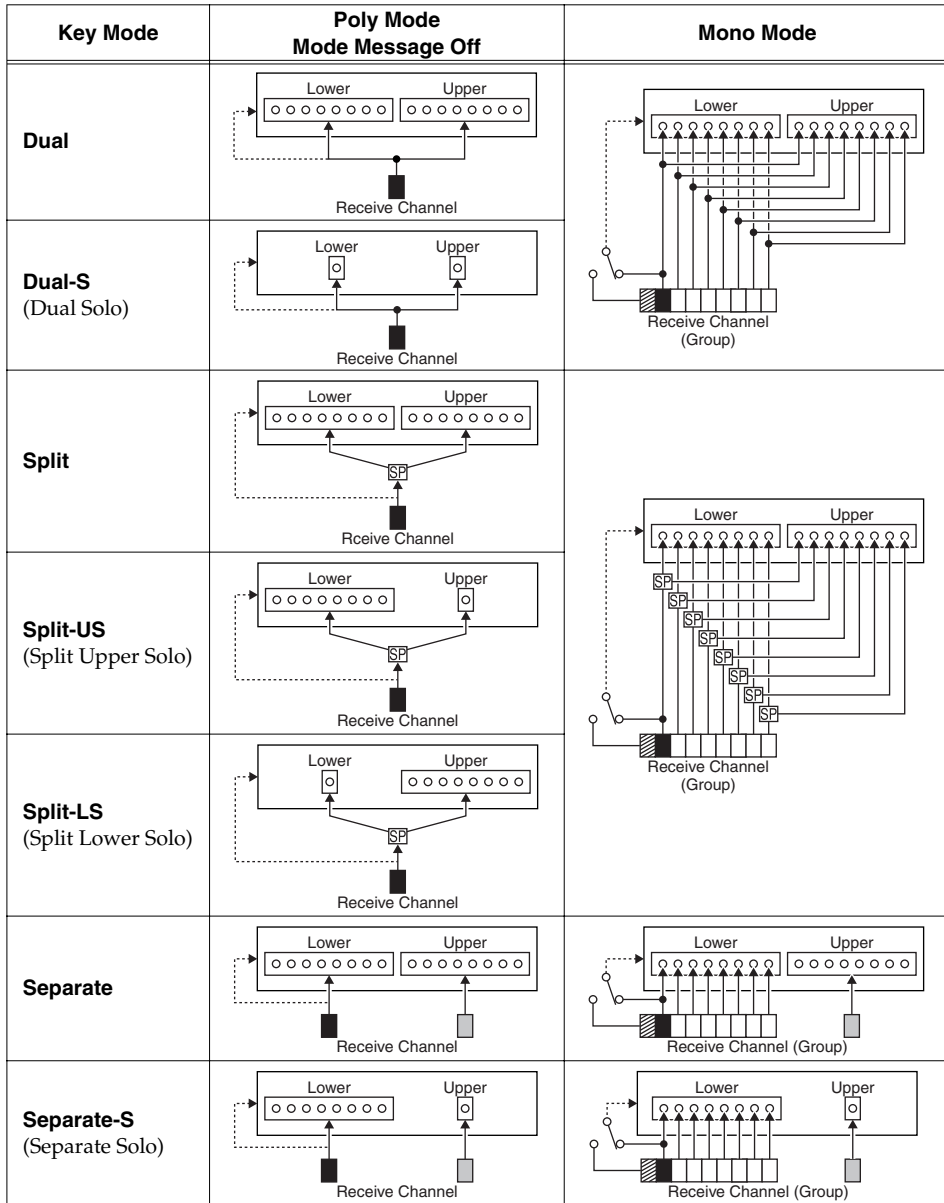
| Name | Functions |
|------------------|---|
| Poly Mode | Allows the control of more than one Key message on one channel at a time. The VC-1 is 16 or 8 voices polyphonic (depending on the patch used). So the Poly Mode can be used the VC-1 is controlled by a keyboard or sequencer. |
| Mono Mode | Allows only one MIDI message on one channel. The VC-1 is 8 voices polyphonic using 8 MIDI channels. The Mono mode is ideal for a MIDI Guitar System (GR-33, GR-20, etc.) hat has Mono mode, and transmits the messages of each string separately on a different channel. In the other words, Mono mode makes it possible to reproduce guitar sounds without spoiling the natural characteristics of the instrument. |

Select Poly or Mono mode depending on the type of Mode Message sent from the external MIDI device. When Mono mode messages are received by the VC-1, the messages can now be received on a channel group (= eight consecutive MIDI channels, the basic channel being the lowest number).

- * *The Mono mode of the VC-1 allows it to receive only the note and bender messages for each channel, therefore it is NOT possible to set a different sound for each note separately.*

When the VC-1 is being controlled by an external MIDI device, the Key mode selected in each Patch affects how the Tones are played and how the control messages run as shown in the following pictures.





→ : Program Change Message

SP : Split Point

□ : Number of Voices

■ : Basic Channel

▨ : Global Channel

□ : Receive Channel in Separate Mode

Sound List

Preset Patches

P1 (Preset 1:Original D-50)

| | No.1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---------------|-----------------------------|-----------------------|---------------------------|----------------------------|--------------------------|-------------------------|-------------------------|---------------------------|
| BANK 1 | Fantasia (D) | Metal Harp (D) | Jazz Guitar Duo (D) | Arco Strings (D) | Horn Section (D) | Living Calliope (D) | D-50 Voices (D) | Slow Rotor (D) |
| 2 | Digital Native Dance (D) | Bass Marimba (D) | Flute-Piano Duo (D) | Combie Strings (D) | Harpsichord Stabs (D) | Griittarr (D) | Nylon Atmosphere (D) | Synthetic Electric (D) |
| 3 | Breathy Chiffer (D) | Gamelan bell (D) | Slap Bass (D) | Pressure Me Strings (D) | Rich Brass (D) | Pipe Solo (D) | Soundtrack (D) | Cathedral Organ (D) |
| 4 | Shamus Theme (D) | Vibraphone (D) | Basin Strat Blues (S) | Pizzagogo (D) | Flutish Brass (D) | Pressure Me Lead (D) | Spacious Sweep (W) | Piano-Fifty (D) |
| 5 | Glass Voices (D) | Hollowed Harp (D) | Ethnic Session (D) | Jete Strings (D) | Stereo Polysynth (D) | Tine Wave (D) | Syn-Harmonium (W) | Rock Organ (D) |
| 6 | Staccato Heaven (D) | Oriental Bells (D) | E-Bass and E-Piano (S) | Legato Strings (D) | JX Horns-Strings (D) | Shakuhachi (D) | Choir (D) | Picked Guitar Duo (D) |
| 7 | Nightmare (D) | Syn Marimba (D) | Slap Bass n Brass (S) | String Ensemble (D) | Velo-Brass (W) | Digital Cello (D) | OK Chorale (D) | Pianissimo (D) |
| 8 | Intruder FX (D) | Steel Pick (D) | Synth Bass (D) | Afterthought (D) | Bones (D) | Bottle Blower (D) | Future Pad (D) | PCM E-Piano (D) |

P2 (Preset 2: New)

| | No.1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---------------|---------------------|-----------------------|-------------------------|--------------------------|-------------------------|--------------------------|-------------------------|------------------------|
| BANK 1 | Brass Tacks (D) | A Bright Day (D) | Soft EPicenter (D) | Next Stop Nirvana (D) | Pressure Dome (D) | Hard Whoover (D) | Digital Clavi (D) | Chasing Game (D) |
| 2 | Stereo EP (D) | FM E-Piano (D) | Curly Wurly (D) | End of the 7 Era (D) | Christmas Time (D) | Good Vibrations (D) | Fairy Ultra (D) | Thoughts (D) |
| 3 | Music Box (W) | Happy Toy (D) | Space Harp (D) | Wonder Drops (D) | Pluck the Pad (D) | Long Dream (D) | Late 80s Stack (D) | Gin Fizz (D) |
| 4 | Perc Piper (D) | Space Rays (D) | Tandorri Bells (D) | I saw the light (D) | Future is Behind (D) | Bow Street Runner (D) | Tension Sheet (D) | D1080 Pad (D) |
| 5 | Atmostrings (D) | Waving Strings (D) | Organic Strings (D) | Megatronic (D) | PhotonPhasers (D) | Soft Whoover (D) | LA Supersaw (D) | Dance Choir (D) |
| 6 | Rusty Voices (D) | Solo X Press (D) | Daft Lead (W) | Back 2 Mono (D) | Mono Octabass (W) | Gated FM bass (D) | Acid Bass (W) | Rubber Bass (D) |
| 7 | Purr-Phunk (D) | Atmo Bass (D) | Zawco Brass (D) | D-50 Syn Brass (D) | Ambient Hit (D) | 12str Guitar (D) | Darjiling (D) | Realistic Flute (D) |
| 8 | PiccoBello (D) | Qatsi Organ (D) | Sunken Cathedral (D) | Sorcerers Organ (D) | Voice of Elohim (D) | Sun Safari (D) | Musique Concrete (D) | Jurassic Breath (D) |

P3 (Preset 3:PN-D50-01)

| | No.1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---------------|--------------------------|----------------------------|---------------------------|--------------------------|------------------------------|--------------------------|-------------------------------|---------------------------|
| BANK 1 | Bouncing Bows (D) | Deep Analog Strings (D) | Psycho Strings (D) | Warm Strings (D) | Deep Strings Ensemble (D) | Symphony Strings (D) | Chase Strings Ensemble (D) | Baroque Strings (D) |
| 2 | Cello (D) | Viola (D) | Solo Violin (D) | Contra Bass (D) | Choir & Strings (D) | Harpsi Strings (D) | Horns & Strings (D) | Pulse Pad (D) |
| 3 | Classical Horn (D) | Fanfare (D) | Tuba (W) | Velo-Brass 2 (W) | Stab Brass (D) | Mallet Horns (D) | Slow Brass Sweep (D) | Slappin Brass (D) |
| 4 | Tenor Saxophone (D) | Alto Saxophone (D) | Soprano Saxophone (D) | E-Piano & Soprano (S) | Wild Blow (D) | Squeeze de Sax (W) | Harmonica (W) | Whistling Soldiers (S) |
| 5 | Flute-Piccolo (D) | Oboe (D) | Bassoon (D) | Clarinet (D) | Ocarina (W) | Breathing Pipe (D) | Calliope (D) | Wabi Sabi (D) |
| 6 | Synth Lead 1 (D) | Synth Lead 2 (W) | Griittarr 2 (D) | 5th Lead Synth (W) | Analog Solo (D) | Synth Lead 3 (W) | Gotham Low (W) | Taj Mahal (D) |
| 7 | Ham and Organ (D) | Slow Rotor 2 (D) | Slow to Fast Rotor (D) | Good & Old Days (W) | Percussive E-Organ (D) | Slap Bass & Organ (S) | Pipe Organ (W) | Weird Organ (D) |
| 8 | Star Peace Chorus (D) | Spacy Voice (D) | Thinful (D) | Vox Harmonium (D) | Android (D) | Nuns (D) | Pressure Pad (D) | Digital Sound (D) |

P4 (Preset 4:PN-D50-02)

| | No.1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---------------|---------------------------|----------------------------|-------------------------|----------------------------|--------------------------|----------------------------|---------------------------|-----------------------------|
| BANK 1 | Synthetic Piano 1 (D) | Upright Pianer (D) | Loud Piano (D) | Tack Piano (D) | Synthetic Piano 2 (W) | High Piano (D) | Two Part Invention (D) | Harpichord Coupler (W) |
| 2 | Electric Piano (D) | Xmod Attack E-Piano (W) | Harmonic E-Piano (D) | Reluctant E-Piano (D) | Tines (D) | Old Clav (W) | Painful Clav (D) | Flanging Clav (D) |
| 3 | Guitar Frets (D) | Jazz Guitar (W) | Spanishart (D) | Acoustic Guitar Box (D) | Harp (W) | Koto (D) | Sitar (D) | Hawaiian Palms (S) |
| 4 | Marimba (D) | Xylophone (D) | Glockenspiel (W) | Jamaican Steel (D) | Perc AAAH (D) | Tremolo Brass Bells (D) | ISIS (D) | Xylo Gate (W) |
| 5 | Samba Drum & Agogo (S) | Drums Set 1 (S) | Drums Set 2 (S) | Percussion Set 1 (S) | Gron Percussion (D) | Bell Tree (W) | Serrengetti (D) | Bellocell (D) |
| 6 | Fingered Bass (D) | Slap Bass 2 (D) | Slap It (D) | Picked Bass (D) | Fretless Bass (D) | Acoustic Bass (D) | Synth Bass 2 (D) | Slap Bass & Syn Bass (S) |
| 7 | Stringz & Bellz (D) | Bright Wave (D) | Gotham Chords (D) | Wonderwave (D) | Gamelan Bells 2 (D) | Ethnic Fifth (W) | Japanese Duo 1 (S) | Japanese Duo 2 (S) |
| 8 | AQUA (D) | Jet Wars (S) | Orchestra Hit (D) | Clock Factory (D) | Gunfire-Ricochet (D) | Fast Forward (W) | Air Raid Siren (D) | Sweep Loop on C (D) |

P5 (Preset 5:PN-D50-03)

| | No.1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---------------|---------------------------|-----------------------------|-------------------------|--------------------------|---------------------------|---------------------------|----------------------------|---------------------------|
| BANK 1 | String Section (D) | Syn-Strings Hi (D) | Tension Strings (D) | Planetary Strings (D) | Symphony Orchestra (D) | Analog Syn-Strings (D) | Crescendo Strings (D) | Warm Strings Pad (D) |
| 2 | Vibrato Cello (D) | String Quartette (D) | Pizz Typewriter (D) | Strings Horn (D) | Strings Elec Piano (D) | High-Strings Oboe (D) | Cello-Viola Piccolo (D) | Bass-Piano Strings (D) |
| 3 | Powerful Brass (D) | Mute Trumpet (W) | Westerly Brass (D) | Flugel Horn (D) | Eye Brasspad (D) | Trumpeters (D) | Pressure 5th Horns (D) | Pianish Horns (D) |
| 4 | Baritone Saxophone (D) | Silver Saxophone (D) | Saxcessive Tones (D) | Synthesized Sax (W) | Growl Saxophone (D) | Sopranino Sax (D) | Xarmonica (W) | Happy Whistler (D) |
| 5 | Breathy Flute (D) | Bohemian (D) | Recorder (D) | Breeze Pipe (D) | Flutes Ensemble (D) | Woodwinds (S) | Pipe Bags (D) | Vibe n Clarinet (S) |
| 6 | Heavy Metal Lead (D) | Monophonic Lead (D) | Pulse Lead (W) | Squeeze Lead (D) | Energetical Lead (D) | Monotone Lead (D) | Harmonics Lead (D) | Metallic Lead (D) |
| 7 | Jazz Organ (D) | Huge Pipes (D) | Velocity Rotor (D) | Choral Organ (D) | Click Organ (D) | Solid Beat (D) | Wavy Motion (D) | Pressure Generator (D) |
| 8 | Whispy Vox (D) | Alpha Omega Ensemble (D) | Vox n Sawz (D) | 4th Synth Vox (D) | Husky Voices (D) | Stereo Panorama (D) | Voyageur (D) | Glass Voice 2 (D) |

P6 (Preset 6:PN-D50-04)

| | No.1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--------------|---------------------------|---------------------------|--------------------------|-----------------------------|------------------------|---------------------------|---------------------------|----------------------------|
| BANK1 | Perc E-Piano (D) | Ballad Piano Choir (D) | New Age Piano (D) | Xmod E-Piano (W) | Vividly Piano (D) | Air Piano (D) | Honky-Tonk Piano (D) | Antique harpsichord (D) |
| 2 | Spanish Guitar (D) | Ringmod E-Guitar (D) | Gypsy Guitar (D) | Rock Guitar (D) | Harp Strings (D) | Dulcimer Voice (D) | Comdie Clav (D) | Stereo Clav (D) |
| 3 | Toys in the Attic (D) | Music Toybox (D) | Bells Harmony (D) | Star Chime (D) | African Kalimba (D) | Okinawa Session (S) | Jamaican Sounds (D) | India (S) |
| 4 | Sweet Vibes (D) | Clear Bell Pad (W) | Marimbell (D) | Venetian Cafe (S) | Grand Canyon (S) | Funky Bed Trax (S) | Ohayashi (S) | Koto-Bamboo Flute (S) |
| 5 | Digital Atmosphere (W) | Polyphonic Synth (S) | Pad Combo (D) | Attack-Reso Synth (D) | Velo-Oct Pulse (D) | Perc Release (D) | Steam Synth Pad (D) | Zean- - - (D) |
| 6 | Hopper Bass (D) | Electric Pick Bass (D) | Octave Synth Bass (D) | Natural Bass (D) | Glide Bass (D) | Funky Reso-Bass (D) | Steelblue Bass (D) | Funky Cutting (S) |
| 7 | Soundtrack n Hold (D) | Reso Release (D) | Ballet Voices U-L (D) | Press Pan sampl Hold (D) | Twilight Zone (D) | After Bend-Panning (D) | All Diminish Chord (D) | STAR-TREK Voices (D) |
| 8 | Marshy Zone (D) | Dense Forest (D) | F-1 Grand Prix (D) | Passing Sky (D) | Devildom (S) | Haunted Bells (D) | Vietnam FX (S) | Big Waves (D) |

Patch Factors

| Patch Factors | | Value | Comment |
|-------------------|--------------------------|--|-------------|
| PATCH TOP (p. 19) | | | |
| Chase Switch | Chase Switch | OFF, ON | |
| Portament Switch | Portamento Switch | OFF, ON | |
| KEY MODE | Key Mode | WHOLE, DUAL, SPLIT, SEP, WHOL-S, DUAL-S, SPL-US, SPL-LS, SEP-S | |
| SPLIT | Split Point | C2 – C7 | |
| BALANCE | Tone Balance | 0 – 100 | CTRL |
| CONTROL (p. 21) | | | |
| Bend | Bender Range | 0 – 12 | CTRL |
| AfterPB | Aftertouch Bend Range | -12 – +12 | CTRL |
| Hold | Hold Mode | U, L, UL | |
| Time | Portamento Time | 0 – 100 | CTRL |
| Mode | Portamento Mode | U, L, UL | CTRL |
| OUTPUT (p. 22) | | | |
| Mode | Output Mode | 1 – 4 | |
| RevType | Reverb Type | 1 – 32 | |
| RevbAl | Reverb Balance | 0 – 100 | CTRL |
| Vol | Total Volume | 0 – 100 | CTRL |
| CHASE (p. 24) | | | |
| Mode | Chase Mode | UL, ULL, ULU | |
| Level | Chase Level | 0 – 100 | CTRL |
| Time | Chase Time | 0 – 100 | CTRL |
| TONE TUNE (p. 25) | | | |
| LKey | L-Tone Key Shift | -24 – +24 | CTRL |
| UKey | U-Tone Key Shift | -24 – +24 | CTRL |
| Ltune | L-Tone Fine Tune | -50 – +50 | CTRL |
| Utune | U-Tone Fine Tune | -50 – +50 | CTRL |
| MIDI (p. 25) | | | |
| TxCH | Transmit CH | B, 1 – 16 | |
| TxPC | Transmit Program Change | Off, 1 – 100 | |
| TxBS | Transmit Bank Select | Off, 0 – 99 | VC-1 |
| SepCH | Separate Mode Receive CH | Off, 1 – 16 | |

Tone Parameters

Common Parameters

| Parameter | | | Value | Comment |
|-----------------|---------|-----------------------------|--------------------|-------------------------|
| Struct (p. 50) | | | | |
| Structure | Struct | Structure | 1 – 7 | |
| Partial Balance | Balance | Partial Balance | 0 – 99 | VC-1 CTRL |
| P-ENV (p. 51) | | | | |
| P-ENV | Velo | Velocity Range | 0 – 2 | CTRL |
| | TKF | Time Keyfollow | 0 – 4 | CTRL |
| P-ENV Time | T1 | Time1 | 0 – 50 | CTRL |
| | T2 | Time2 | 0 – 50 | CTRL |
| | T3 | Time3 | 0 – 50 | CTRL |
| | T4 | Time4 | 0 – 50 | CTRL |
| P-ENV Level | L0 | Level0 | -50 – 50 | CTRL |
| | L1 | Level1 | -50 – 50 | CTRL |
| | L2 | Level2 | -50 – 50 | CTRL |
| | SusL | Sustain Level | -50 – 50 | CTRL |
| | EndL | End Level | -50 – 50 | CTRL |
| Pitch Mod | LFOD | LFO Depth | 0 – 100 | CTRL |
| | Lever | Pitch Lever Modulation | 0 – 100 | CTRL |
| | Aftr | Pitch Aftertouch Modulation | 0 – 100 | CTRL |
| LFO (p. 53) | | | | |
| LFO-1 | Wave | Waveform | TRI, SAW, SQU, RND | CTRL |
| | Rate | Rate | 0 – 100 | CTRL |
| | Delay | Delay Time | 0 – 100 | CTRL |
| | Sync | Sync. | Off, On, KEY | CTRL |
| LFO-2 | Wave | Waveform | TRI, SAW, SQU, RND | CTRL |
| | Rate | Rate | 0 – 100 | CTRL |
| | Delay | Delay Time | 0 – 100 | CTRL |
| | Sync | Sync. | Off, On | CTRL |
| LFO-3 | Wave | Waveform | TRI, SAW, SQU, RND | CTRL |
| | Rate | Rate | 0 – 100 | CTRL |
| | Delay | Delay Time | 0 – 100 | CTRL |
| | Sync | Sync. | Off, On | CTRL |

| Parameter | | Value | Comment |
|-------------------|---------|----------------|--|
| EQ/Chorus (p. 54) | | | |
| EQ | LowFreq | Low Frequency | 63, 75, 88, 105, 125, 150, 175, 210, 250, 300, 350, 420, 500, 600, 700, 840 |
| | LowGain | Low Gain | -12 – 12 |
| | HiFreq | High Frequency | 250, 300, 350, 420, 500, 600, 700, 840, 1.0, 1.2, 1.4, 1.7, 2.0, 2.4, 2.8, 3.4, 4.0, 4.8, 5.7, 6.7, 8.0, 9.5 |
| | HiQ | High Q | 0.3, 0.5, 0.7, 1.0, 1.4, 2.0, 3.0, 4.2, 6.0 |
| | HiGain | High Gain | -12 – 12 |
| Chorus | Type | Chorus Type | 1 – 8 |
| | Rate | Chorus Rate | 0 – 100 |
| | Depth | Chorus Depth | 0 – 100 |
| | Balance | Chorus Balance | 0 – 100 |

Partial Parameters

| Parameter | | Value | Comment |
|---------------|--------|---------------------------|--|
| FORM (p. 57) | | | |
| WG Form | Wave | Waveform | SQU, SAW |
| | PCM | PCM Wave No. | 1 – 127 |
| WG PW | PW | Pulse Width | 0 – 100 |
| | Velo | Velocity Range | -7–+7 |
| | After | Aftertouch Range | -7–+7 |
| | LFO | LFO Select | +1, -1, +2, -2, +3, -3 |
| | LFOD | LFO Depth | 0 – 100 |
| PITCH (p. 59) | | | |
| WG Pitch | Coars | Coarse | C1 – C7 |
| | Fine | Fine | -50–50 |
| | KF | Keyfollow | -1, -1/2, -1/4, 0, 1, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2, s1, s2 |
| WG Mod | LFO | LFO Mode | Off, (+), (-), A&L |
| | ENV | P-ENV Mode | Off, (+), (-) |
| | Bend | Bender Mode | Off, KEY, NOM |
| TVF (p. 61) | | | |
| TVF | Freq | Cutoff Frequency | 0 – 100 |
| | Reso | Resonance | 0 – 30 |
| | KF | Keyfollow | -1, -1/2, -1/4, 0, 1, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2 |
| | BP | Bias Point/Bias Direction | <A1 – <C7, >A1 – >C7 |
| | BLevel | Bias Level | -7 – 7 |

Sound List

| Parameter | | Value | Comment | | |
|---------------|--------|---------------------------|-------------------------|------|------|
| TVF ENV | Depth | Depth | 0 – 100 | CTRL | |
| | Velo | Velocity Range | 0 – 100 | CTRL | |
| | DKF | Depth Keyfollow | 0 – 4 | CTRL | |
| | TKF | Time Keyfollow | 0 – 4 | CTRL | |
| TVF ENV Time | T1 | Time1 | 0 – 100 | CTRL | |
| | T2 | Time2 | 0 – 100 | CTRL | |
| | T3 | Time3 | 0 – 100 | CTRL | |
| | T4 | Time4 | 0 – 100 | CTRL | |
| | T5 | Time5 | 0 – 100 | CTRL | |
| TVF ENV Level | L1 | Level1 | 0 – 100 | CTRL | |
| | L2 | Level2 | 0 – 100 | CTRL | |
| | L3 | Level3 | 0 – 100 | CTRL | |
| | SusL | Sustain Level | 0 – 100 | CTRL | |
| | EndL | End Level | 0, 100 | CTRL | |
| TVA (p. 66) | | | | | |
| TVA | Level | Level | 0 – 100 | PCM | CTRL |
| | Velo | Velocity Range | -50 – 50 | PCM | CTRL |
| | BP | Bias Point/Bias Direction | <A1 – <C7, >A1 – >C7 | PCM | CTRL |
| | BLevel | Bias Level | -12 – 12 | PCM | CTRL |
| TVA ENV | Velo | Velocity Follow | 0 – 4 | PCM | CTRL |
| | TKF | Time Keyfollow | 0 – 4 | PCM | CTRL |
| TVA ENV Time | T1 | Time1 | 0 – 100 | PCM | CTRL |
| | T2 | Time2 | 0 – 100 | PCM | CTRL |
| | T3 | Time3 | 0 – 100 | PCM | CTRL |
| | T4 | Time4 | 0 – 100 | PCM | CTRL |
| | T5 | Time5 | 0 – 100 | PCM | CTRL |
| TVA ENV Level | L1 | Level1 | 0 – 100 | PCM | CTRL |
| | L2 | Level2 | 0 – 100 | PCM | CTRL |
| | L3 | Level3 | 0 – 100 | PCM | CTRL |
| | SusL | Sustain Level | 0 – 100 | PCM | CTRL |
| | EndL | End Level | 0, 100 | PCM | CTRL |
| MOD (p. 69) | | | | | |
| TVF MOD | LFO | LFO Select | +1, -1, +2, -2, +3, -3 | | CTRL |
| | LFOD | LFO Depth | 0 – 100 | | CTRL |
| | After | Aftertouch Range | -7 – 7 | | CTRL |
| TVA MOD | LFO | LFO Select | +1, -1, +2, -2, +3, -3 | PCM | CTRL |
| | LFOD | LFO Depth | 0 – 100 | PCM | CTRL |
| | After | Aftertouch Range | -7 – 7 | PCM | CTRL |

System Parameters

| Parameter | | Value | Comment | | | |
|-----------------------|--------------------------|-------------------------|---------|--|--|--|
| Sound Setting (p. 72) | | | | | | |
| Master Tune | Master Tune | 427 – 452 Hz | | | | |
| Sound Character | Sound Character | D-50, V-Synth | VC-1 | | | |
| Digital Freq | Digital Output Frequency | 44.1, 48, 96 kHz | VC-1 | | | |
| MIDI (p. 73) | | | | | | |
| MIDICH | Basic CH | 1 – 16 | | | | |
| Control | Control | B.CH, G.CH, MdeOff | | | | |
| Separate CH | Separate Mode Receive CH | 1 – 16 | | | | |
| Prog.C | Program Change Switch | Off, On | | | | |
| Exclusive | Exclusive Switch | Off, On, P-Dump, TxEdit | | | | |
| Bank.S | Bank Select Switch | Off, On | VC-1 | | | |

Waveform

Oneshot

| Number | Display | PCM Name |
|--------|---------|-------------------|
| 1 | Marmba | Marimba |
| 2 | Vibes | Vibraphone |
| 3 | Xylo1 | Xylophone 1 |
| 4 | Xylo2 | Xylophone 2 |
| 5 | Log_Bs | Log bass |
| 6 | Hammer | Hammer |
| 7 | JpnDrm | Japanese Drum |
| 8 | Kaimba | Kalimba |
| 9 | Pluck | Pluck 1 |
| 10 | Chink | Chink |
| 11 | Agogo | Agogo |
| 12 | 3angle | Triangle |
| 13 | Bells | Bell's |
| 14 | Nails | Nail File |
| 15 | Pick | Pick |
| 16 | Lpiano | Low Piano |
| 17 | Mpiano | Mid Piano |
| 18 | Hpiano | High Piano |
| 19 | Harpsi | Harpichord |
| 20 | Harp | Harp |
| 21 | Orgprc | Organ Percussion |
| 22 | Steel | Steel Strings |
| 23 | Nylon | Nylon Strings |
| 24 | Eguit1 | Electric Guitar 1 |
| 25 | Eguit2 | Electric Guitar 2 |
| 26 | Dirt | Dirty Guitar |
| 27 | P_Bass | Pick Bass |
| 28 | Pop | Pop Bass |
| 29 | Thump | Thump |
| 30 | Uprite | Upright Bass |
| 31 | Clarnt | Clarinet |
| 32 | Breath | Breath |
| 33 | Steam | Steamer |
| 34 | FluteH | High Flute |
| 35 | FluteL | Low Flute |
| 36 | Guiro | Guiro |
| 37 | IndFlt | Indian Flute |
| 38 | Harmo | Flute Harmonics |
| 39 | Lips1 | Lips 1 |
| 40 | Lips2 | Lips 2 |

| Number | Display | PCM Name |
|--------|---------|------------|
| 41 | Trumpet | Trumpet |
| 42 | Bones | Trombones |
| 43 | Contra | Contrabass |
| 44 | Cello | Cello |
| 45 | VioBow | Violin bow |
| 46 | Violns | Violins |
| 47 | Pizz | Pizzicart |

Loop

| Number | Display | PCM Name |
|--------|---------|-------------------------|
| 48 | Drawbr | Draw bars (Loop) |
| 49 | Horgan | High Organ (Loop) |
| 50 | Lorgan | Low Organ (Loop) |
| 51 | EP_lp2 | Electric Piano (Loop 1) |
| 52 | EP_lp1 | Electric Piano (Loop 2) |
| 53 | CLAVlp | Clavi (Loop) |
| 54 | HC_lp | Harpsichord (Loop) |
| 55 | EB_lp1 | Electric Bass (Loop 1) |
| 56 | AB_lp | Acoustic Bass (Loop) |
| 57 | EB_lp2 | Electric Bass (Loop 2) |
| 58 | EB_lp3 | Electric Bass (Loop 3) |
| 59 | EG_lp | Electric Guitar (Loop) |
| 60 | CELLlp | CELLlp (Loop) |
| 61 | VIOLlp | Violin (Loop) |
| 62 | Reedlp | Lead (Loop) |
| 63 | SAXlp1 | Sax (Loop 1) |
| 64 | SAXlp2 | Sax (Loop 2) |
| 65 | Aah_lp | Aah (Loop) |
| 66 | Ooh_lp | Ooh (Loop) |
| 67 | Manlp1 | Male (Loop 1) |
| 68 | Spect1 | Spectrum 1 (Loop) |
| 69 | Spect2 | Spectrum 2 (Loop) |
| 70 | Spect3 | Spectrum 3 (Loop) |
| 71 | Spect4 | Spectrum 4 (Loop) |
| 72 | Spect5 | Spectrum 5 (Loop) |
| 73 | Spect6 | Spectrum 6 (Loop) |
| 74 | Spect7 | Spectrum 7 (Loop) |
| 75 | Manlp2 | Male (Loop 2) |
| 76 | Noise | Noise (Loop) |

Loop (Some of the sounds 1 to 76, are combined and looped.)

| Number | Display |
|--------|---------|
| 77 | Loop01 |
| 78 | Loop02 |
| 79 | Loop03 |
| 80 | Loop04 |
| 81 | Loop05 |
| 82 | Loop06 |
| 83 | Loop07 |
| 84 | Loop08 |
| 85 | Loop09 |
| 86 | Loop10 |
| 87 | Loop11 |
| 88 | Loop12 |
| 89 | Loop13 |
| 90 | Loop14 |
| 91 | Loop15 |
| 92 | Loop16 |
| 93 | Loop17 |
| 94 | Loop18 |
| 95 | Loop19 |
| 96 | Loop20 |
| 97 | Loop21 |
| 98 | Loop22 |
| 99 | Loop23 |
| 100 | Loop24 |

Newly Added Waveforms

| Number | Display | PCM Name |
|--------|---------|-------------------------------|
| 101 | 70'EP | EP VC-1 |
| 102 | Wurly | Wurly VC-1 |
| 103 | FM EP | FM Electric Piano VC-1 |
| 104 | M_Box | Music Box VC-1 |
| 105 | Kalmb2 | Kalimba 2 VC-1 |
| 106 | StlGtr | Steel Guitar VC-1 |
| 107 | Sitar | Sitar VC-1 |
| 108 | FM Bs | FM Bass VC-1 |
| 109 | MtlVox | Metal Voice VC-1 |
| 110 | Hit | Hit VC-1 |
| 111 | Sync | Sync VC-1 |
| 112 | FMod1 | FM Modulation 1 VC-1 |
| 113 | FMod2 | FM Modulation 2 VC-1 |
| 114 | Lo3Saw | Low 3 Layered Saw VC-1 |
| 115 | FatSaw | Fat Saw VC-1 |
| 116 | FatSqr | Fat Square VC-1 |
| 117 | FbkOSC | Feedback OSC VC-1 |
| 118 | Phased | Phased Saw VC-1 |
| 119 | TronSt | Tron Strings VC-1 |
| 120 | F_Wine | Fine Wine VC-1 |
| 121 | Fbkwav | Feedbackwave VC-1 |
| 122 | AahMin | Aah Voice Minor VC-1 |
| 123 | VoxChd | Voice Chord VC-1 |
| 124 | Granu | Granular VC-1 |
| 125 | Ringy | Ringy VC-1 |
| 126 | Revrs1 | Reverse 1 VC-1 |
| 127 | Revrs2 | Reverse 2 VC-1 |
| 128 | RevVox | Reversed Voice VC-1 |

MIDI Implementation

Model: VC-1
Date: January 10, 2005
Version: 1.10

1. Data Transmission

■ Channel Voice Messages

● Control Change

○ Bank Select (Controller number 0, 32)

Status 2nd byte 3rd byte

BnH 00H mmH

BnH 20H llH

n = MIDI channel number: 0H - FH (ch.1 - 16)

mm, ll = Bank number: 00 00H - 7F 7FH (bank.1 - bank.16384)

* Not transmitted when Bank Select Switch (SYSTEM MIDI) is OFF.

* The Patches corresponding to each Bank Select are as follows.

| BANK SELECT | | PROGRAM NUMBER | BATCH BANK | PATCH NUMBER |
|-------------|-----|----------------|------------|--------------|
| MSB | LSB | | | |
| 087 | 000 | 001 - 064 | Internal 1 | 11 - 88 |
| | 001 | 001 - 064 | Internal 2 | 11 - 88 |
| | 002 | 001 - 064 | Internal 3 | 11 - 88 |
| | 003 | 001 - 064 | Internal 4 | 11 - 88 |
| | 004 | 001 - 064 | Internal 5 | 11 - 88 |
| | 005 | 001 - 064 | Internal 6 | 11 - 88 |
| | 006 | 001 - 064 | Internal 7 | 11 - 88 |
| | 007 | 001 - 064 | Internal 8 | 11 - 88 |
| | 008 | 001 - 064 | Preset 1 | 11 - 88 |
| | 009 | 001 - 064 | Preset 2 | 11 - 88 |
| | 010 | 001 - 064 | Preset 3 | 11 - 88 |
| | 011 | 001 - 064 | Preset 4 | 11 - 88 |
| | 012 | 001 - 064 | Preset 5 | 11 - 88 |
| | 013 | 001 - 064 | Preset 6 | 11 - 88 |

* The transmitted value of MSB can be changed by Tx Bank Select (Patch MIDI).

* In that case the transmitted value of LSB is always 0.

○ Portamento Switch (Controller number 65)

Status 2nd byte 3rd byte

BnH 41H vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)

vv = Control value: 00H - 7FH (0 - 127) 0-63 = OFF, 64-127 = ON

● Program Change

Status 2nd byte

CnH ppH

n = MIDI channel number: 0H - FH (ch.1 - 16)

pp = Program number: 00H - 3FH (prog.1 - prog.64)

* Not transmitted when Program Change Switch (SYSTEM MIDI) is OFF.

■ System Realtime Messages

● Active Sensing

Status

FEH

* This message is transmitted at intervals of approximately 250 msec.

● System Exclusive Messages

Status

F0H :System Exclusive

F7H :EOX (End Of Exclusive)

Transmitted in the following three cases.

1. When Operating Bulk-Dump
2. If Exclusive of System MIDI is "P-Dump," this unit transmits all parameters in the patch when the patch is changed.
3. If Exclusive of System MIDI is "TxEdit," this unit transmits the parameter when the parameter is edited.

Refer to Section 3 to see details.

2. Receive data

■ Channel Voice Messages

● Note off

| Status | 2nd byte | 3rd byte |
|--------------------------|---------------------|----------|
| 8nH | kkH | vvH |
| 9nH | kkH | 00H |
| n = MIDI channel number: | 0H - FH (ch.1 - 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

| m | 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 when the Bank Select Switch (SYSTEM MIDI) is OFF.
- * The Patches corresponding to each Bank Select are as follows.

| BANK SELECT | | PROGRAM NUMBER | BATCH BANK | PATCH NUMBER |
|-------------|-----|----------------|------------|--------------|
| MSB | LSB | | | |
| 087 | 000 | 001 - 064 | Internal 1 | 11 - 88 |
| | 001 | 001 - 064 | Internal 2 | 11 - 88 |
| | 002 | 001 - 064 | Internal 3 | 11 - 88 |
| | 003 | 001 - 064 | Internal 4 | 11 - 88 |
| | 004 | 001 - 064 | Internal 5 | 11 - 88 |
| | 005 | 001 - 064 | Internal 6 | 11 - 88 |
| | 006 | 001 - 064 | Internal 7 | 11 - 88 |
| | 007 | 001 - 064 | Internal 8 | 11 - 88 |
| | 008 | 001 - 064 | Preset 1 | 11 - 88 |
| | 009 | 001 - 064 | Preset 2 | 11 - 88 |
| | 010 | 001 - 064 | Preset 3 | 11 - 88 |
| | 011 | 001 - 064 | Preset 4 | 11 - 88 |
| | 012 | 001 - 064 | Preset 5 | 11 - 88 |
| | 013 | 001 - 064 | Preset 6 | 11 - 88 |

- * The MSB value to be transmitted can be set individually for each patch using Tx Bank Select (PATCH MIDI).
- * In this case, "0" is always output for the LSB.

○ 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) | |

○ Portamento Time (Controller number 5)

| Status | 2nd byte | 3rd byte |
|--------------------------|---------------------|----------|
| BnH | 05H | vvH |
| n = MIDI channel number: | 0H - FH (ch.1 - 16) | |
| vv = Portamento Time: | 00H - 7FH (0 - 127) | |

○ Data Entry (Controller number 6, 38)

| Status | 2nd byte | 3rd byte |
|---|---------------------|----------|
| BnH | 06H | mmH |
| BnH | 26H | llH |
| n = MIDI channel number: | 0H - FH (ch.1 - 16) | |
| mm, ll = the value of the parameter specified by RPN/NRPN | | |
| mm = MSB, ll = LSB | | |

○ Volume (Controller number 7)

| Status | 2nd byte | 3rd byte |
|--------------------------|---------------------|----------|
| BnH | 07H | vvH |
| n = MIDI channel number: | 0H - FH (ch.1 - 16) | |
| vv = Volume: | 00H - 7FH (0 - 127) | |

○ Hold 1 (Controller number 64)

| Status | 2nd byte | 3rd byte |
|--------------------------|---|----------|
| BnH | 40H | vvH |
| n = MIDI channel number: | 0H - FH (ch.1 - 16) | |
| vv = Control value: | 00H - 7FH (0 - 127) 0-63 = OFF, 64-127 = ON | |

○ Portamento Switch (Controller number 65)

| Status | 2nd byte | 3rd byte |
|--------------------------|--|----------|
| BnH | 41H | vvH |
| n = MIDI channel number: | 0H - FH (ch.1 - 16) | |
| vv = Control value: | 00H - 7FH (0 - 127) 0 - 63 = OFF, 64 - 127 = ON | |

○ RPN MSB/LSB (Controller number 100, 101)

| Status | 2nd byte | 3rd byte |
|--|---------------------|----------|
| BnH | 65H | mmH |
| BnH | 64H | llH |
| n = MIDI channel number: | 0H - FH (ch.1 - 16) | |
| mm = upper byte (MSB) of parameter number specified by RPN | | |
| ll = lower byte (LSB) of parameter number specified by RPN | | |

<<< RPN >>>

Control Changes include RPN (Registered Parameter Numbers), which are extended.

When using RPNs, first RPN (Controller numbers 100 and 101; they can be sent in any order) should be sent in order to select the parameter, then Data Entry (Controller numbers 6 and 38) should be sent to set the value.

This device receives the following RPNs.

| | | |
|------------|-------------------|--|
| <u>RPN</u> | <u>Data entry</u> | |
| MSB, LSB | MSB, LSB | Notes |
| 00H, 00H | mmH, llH | Pitch Bender Range mm: 00H - 0CH (0 - 12 semitones) ll: ignored (processed as 00H) Up to 1 octave can be specified in semitone steps. |
| 00H, 01H | mmH, llH | Fine Tuning mm, ll: 00 00H - 40 00H - 7F 7FH (-50 - 0 - +50 cent) |

● Program Change

| | | |
|--------------------------|-----------------|------------------------------|
| <u>Status</u> | <u>2nd byte</u> | |
| CnH | ppH | |
| n = MIDI channel number: | | 0H - FH (ch.1 - 16) |
| pp = Program number: | | 00H - 3FH (prog.1 - prog.64) |

* Not received when the Program Change Switch (SYSTEM MIDI) is OFF.

● Channel Aftertouch

| | | |
|--------------------------|-----------------|---------------------|
| <u>Status</u> | <u>2nd byte</u> | |
| DnH | vvH | |
| n = MIDI channel number: | | 0H - FH (ch.1 - 16) |
| vv = Aftertouch Value: | | 00H - 7FH (0 - 127) |

● Pitch Bender 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 Bender value: | | 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191) |

■ Channel Mode Messages

● All Sounds Off (Controller number 120)

| | | |
|--------------------------|-----------------|---------------------|
| <u>Status</u> | <u>2nd byte</u> | <u>3rd byte</u> |
| 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)

| | | |
|--------------------------|-----------------|---------------------|
| <u>Status</u> | <u>2nd byte</u> | <u>3rd byte</u> |
| BnH | 79H | 00H |
| n = MIDI channel number: | | 0H - FH (ch.1 - 16) |

* When this message is received, all controllers on the corresponding channel will be set to their reset values.

■ MONO (Controller number 126)

| | | |
|--------------------------|-----------------|---------------------|
| <u>Status</u> | <u>2nd byte</u> | <u>3rd byte</u> |
| BnH | 7EH | mmH |
| n = MIDI channel number: | | 0H - FH (ch.1 - 16) |
| mm = mono number: | | 00H - 10H (0 - 16) |

MONO mode, each message is recognized on the channel shown below.

| Message | Control in MIDI function | |
|---------------------|--------------------------|--------|
| | B.CH | G.CH |
| Note on/off | individual | |
| Control Change | basic | Global |
| Mode Message | basic | Global |
| Program Change | basic | Global |
| Aftertouch | basic | Global |
| Pitch Bender Change | individual | |
| Exclusive | basic | Global |

* Global channel is equal to "basic channel - 1." And if basic channel is 1, global channel is 16.

● POLY (Controller number 127)

| | | |
|--------------------------|-----------------|---------------------|
| <u>Status</u> | <u>2nd byte</u> | <u>3rd byte</u> |
| BnH | 7FH | 00H |
| n = MIDI channel number: | | 0H - FH (ch.1 - 16) |

* These Mode Messages (2nd byte = 123-127) are also recognized as All Sounds Off and Reset All Controllers.

■ System Realtime Message

● Active Sensing

| |
|---------------|
| <u>Status</u> |
| 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 300 ms, the same processing will be carried out as when All Notes Off are received, and message interval monitoring will be halted.

● System Exclusive Message

| | |
|---------------|-------------------------|
| <u>Status</u> | |
| F0H | :System Exclusive |
| F7H | :EOX (End Of Exclusive) |

Exclusive message can change either each parameter individually or all parameters, of a patch or tone. Refer to Section 3 to see details.

* Not received when the Exclusive Switch (SYSTEM MIDI) is OFF.

3. Exclusive Communication

■ 3.1 Message structure

All exclusive communications are based on following structure (Roland Exclusive Format Type IV).

| | <u>Byte</u> | <u>Description</u> | |
|----|-------------|--|---|
| a | F0H | Exclusive status | |
| b | 41H | Roland ID # | |
| c | dev | Device-ID # = MIDI basic channel -1 | |
| d | 14H | Model-ID # (D-50) | |
| e | xxH | Command-ID # | |
| [f | aaH | Address MSB] [] depend on Command-ID | |
| [g | bbH | Address] | |
| [h | ccH | Address LSB] | |
| [i | ddH | Data |] |
| [| : | |] |
| j | sum | Checksum | |
| k | F7H | EOX (End Of Exclusive) | |

Summed value of the all bytes between Command-ID and EOX (f-j) must be 00H (7 bits). It doesn't include Command-ID and EOX.

■ 3.2 Address mapping

● Temporary area

| <u>Address</u> | | <u>Description</u> |
|----------------|-----------------|--------------------|
| [00-00-00] | Upper Partial-1 | temp-area |
| [00-00-40] | Upper Partial-2 | temp-area |
| [00-01-00] | Upper Common | temp-area |
| [00-01-40] | Lower Partial-1 | temp-area |
| [00-02-00] | Lower Partial-2 | temp-area |
| [00-02-40] | Lower Common | temp-area |
| [00-03-00] | Patch | temp-area |

● Work area

You can transmit/receive data in the currently selected patch bank using the following address.

| <u>Address</u> | <u>Description</u> |
|----------------|--------------------|
| [02-00-00] | Patch Memory 1-1 |
| [02-03-40] | Patch Memory 1-2 |
| : | : |
| [03-5C-40] | Patch Memory 8-8 |
| [03-60-00] | Reverb Data 17 |
| [03-62-78] | Reverb Data 18 |
| : | : |
| [04-0C-08] | Reverb Data 32 |

Each patch memory consists of the followings.

| <u>Offset</u> | <u>Description</u> |
|---------------|--------------------|
| [00-00-00] | Upper Partial-1 |
| [00-00-40] | Upper Partial-2 |
| [00-01-00] | Upper Common |
| [00-01-40] | Lower Partial-1 |
| [00-02-00] | Lower Partial-2 |
| [00-02-40] | Lower Common |
| [00-03-00] | Patch |

■ 3.3 Partial Parameter

| Offset Address | Description | | | | |
|----------------|-------------|----------------|---------------------------|-------------|--|
| 00H | 0vvv vvvv | WG Pitch | Coarse | 0-72 | C1, C#1...C7 |
| 01H | 0vvv vvvv | WG Pitch | Fine | 0-100 | -50..+50 |
| 02H | 0vvv vvvv | WG Pitch | Keyfollow | 0-16 | -1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2, s1, s2 |
| 03H | 0vvv vvvv | WG Modulation | LFO Mode | 0-3 | Off, (+), (-), A&L |
| 04H | 0vvv vvvv | WG Modulation | P-ENV Mode | 0-2 | Off, (+), (-) |
| 05H | 0vvv vvvv | WG Modulation | Bender Mode | 0-2 | Off, Keyfollow, Normal |
| 06H | 0vvv vvvv | WG Waveform | Waveform | 0-1 | Square, Sawtooth |
| 07H | 0vvv vvvv | WG Waveform | PCM Wave No. | 0-127 | 1..128 |
| 08H | 0vvv vvvv | WG Pulse Width | Pulse Width | 0-100 | 0..100 |
| 09H | 0vvv vvvv | WG Pulse Width | Velocity Range | 0-14 | -7..+7 |
| 0AH | 0vvv vvvv | WG Pulse Width | LFO Select | 0-5 | +1, -1, +2, -2, +3, -3 |
| 0BH | 0vvv vvvv | WG Pulse Width | LFO Depth | 0-100 | 0..100 |
| 0CH | 0vvv vvvv | WG Pulse Width | Aftertouch Range | 0-14 | -7..+7 |
| 0DH | 0vvv vvvv | TVF | Cutoff Frequency | 0-100 | 0..100 |
| 0EH | 0vvv vvvv | TVF | Resonance | 0-30 | 0..30 |
| 0FH | 0vvv vvvv | TVF | Keyfollow | 0-14 | -1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2 |
| 10H | 0vvv vvvv | TVF | Bias Point/Bias Direction | 0-63,64-127 | <A1...<C7, >A1...>C7 |
| 11H | 0vvv vvvv | TVF | Bias Level | 0-14 | -7..+7 |
| 12H | 0vvv vvvv | TVF ENV | Depth | 0-100 | 0..100 |
| 13H | 0vvv vvvv | TVF ENV | Velocity Range | 0-100 | 0..100 |
| 14H | 0vvv vvvv | TVF ENV | Depth Keyfollow | 0-4 | 0..4 |
| 15H | 0vvv vvvv | TVF ENV | Time Keyfollow | 0-4 | 0..4 |
| 16H | 0vvv vvvv | TVF ENV Time | T1 | 0-100 | 0..100 |
| 17H | 0vvv vvvv | TVF ENV Time | T2 | 0-100 | 0..100 |
| 18H | 0vvv vvvv | TVF ENV Time | T3 | 0-100 | 0..100 |
| 19H | 0vvv vvvv | TVF ENV Time | T4 | 0-100 | 0..100 |
| 1AH | 0vvv vvvv | TVF ENV Time | T5 | 0-100 | 0..100 |
| 1BH | 0vvv vvvv | TVF ENV Level | L1 | 0-100 | 0..100 |
| 1CH | 0vvv vvvv | TVF ENV Level | L2 | 0-100 | 0..100 |
| 1DH | 0vvv vvvv | TVF ENV Level | L3 | 0-100 | 0..100 |
| 1EH | 0vvv vvvv | TVF ENV Level | Sustain Level | 0-100 | 0..100 |
| 1FH | 0vvv vvvv | TVF ENV Level | End Level | 0-1 | 0, 100 |
| 20H | 0vvv vvvv | TVF Modulation | LFO Select | 0-5 | +1, -1, +2, -2, +3, -3 |
| 21H | 0vvv vvvv | TVF Modulation | LFO Depth | 0-100 | 0..100 |
| 22H | 0vvv vvvv | TVF Modulation | Aftertouch Range | 0-14 | -7..+7 |
| 23H | 0vvv vvvv | TVA | Level | 0-100 | 0..100 |
| 24H | 0vvv vvvv | TVA | Velocity Range | 0-100 | -50..+50 |
| 25H | 0vvv vvvv | TVA | Bias Point/Bias Direction | 0-63,64-127 | <A1...<C7, >A1...>C7 |
| 26H | 0vvv vvvv | TVA | Bias Level | 0-12 | -12..0 |
| 27H | 0vvv vvvv | TVA ENV Time | T1 | 0-100 | 0..100 |
| 28H | 0vvv vvvv | TVA ENV Time | T2 | 0-100 | 0..100 |
| 29H | 0vvv vvvv | TVA ENV Time | T3 | 0-100 | 0..100 |
| 2AH | 0vvv vvvv | TVA ENV Time | T4 | 0-100 | 0..100 |
| 2BH | 0vvv vvvv | TVA ENV Time | T5 | 0-100 | 0..100 |
| 2CH | 0vvv vvvv | TVA ENV Level | L1 | 0-100 | 0..100 |
| 2DH | 0vvv vvvv | TVA ENV Level | L2 | 0-100 | 0..100 |
| 2EH | 0vvv vvvv | TVA ENV Level | L3 | 0-100 | 0..100 |
| 2FH | 0vvv vvvv | TVA ENV Level | Sustain Level | 0-100 | 0..100 |
| 30H | 0vvv vvvv | TVA ENV Level | End Level | 0-1 | 0, 100 |
| 31H | 0vvv vvvv | TVA ENV | Velocity Follow | 0-4 | 0..4 |
| 32H | 0vvv vvvv | TVA ENV | Time Keyfollow | 0-4 | 0..4 |
| 33H | 0vvv vvvv | TVA Modulation | LFO Select | 0-5 | +1, -1, +2, -2, +3, -3 |
| 34H | 0vvv vvvv | TVA Modulation | LFO Depth | 0-100 | 0..100 |
| 35H | 0vvv vvvv | TVA Modulation | Aftertouch Range | 0-14 | -7..+7 |
| 36H | 0vvv vvvv | Extension | | 0-127 | |
| : | : | : | : | : | |
| 3FH | 0vvv vvvv | Extension | | 0-127 | |

■ 3.4 Common Parameter

| Offset Address | Description | | | | |
|----------------|-------------|-----------------|-----------------------------|-------|--|
| 00H | 0vvv vvvv | Tone Name | 1 | 0-63 | ','A'-'Z','a'-'z','1'-'9','0','-' |
| : | | | | | |
| : | | | | | |
| 09H | 0vvv vvvv | Tone Name | 10 | 0-63 | |
| 0AH | 0vvv vvvv | Structure | Structure | 0-6 | 1..7 |
| 0BH | 0vvv vvvv | P-ENV Edit | Velocity Range | 0-2 | 0..2 |
| 0CH | 0vvv vvvv | P-ENV Edit | Time Keyfollow | 0-4 | 0..4 |
| 0DH | 0vvv vvvv | P-ENV Time | T1 | 0-50 | 0..50 |
| 0EH | 0vvv vvvv | P-ENV Time | T2 | 0-50 | 0..50 |
| 0FH | 0vvv vvvv | P-ENV Time | T3 | 0-50 | 0..50 |
| 10H | 0vvv vvvv | P-ENV Time | T4 | 0-50 | 0..50 |
| 11H | 0vvv vvvv | P-ENV Level | L0 | 0-100 | -50..0..+50 |
| 12H | 0vvv vvvv | P-ENV Level | L1 | 0-100 | -50..0..+50 |
| 13H | 0vvv vvvv | P-ENV Level | L2 | 0-100 | -50..0..+50 |
| 14H | 0vvv vvvv | P-ENV | Sustain Level | 0-100 | -50..0..+50 |
| 15H | 0vvv vvvv | P-ENV | End Level | 0-100 | -50..0..+50 |
| 16H | 0vvv vvvv | Pitch Mod Edit | LFO Depth | 0-100 | 0..100 |
| 17H | 0vvv vvvv | Pitch Mod Edit | Pitch Lever Modulation | 0-100 | 0..100 |
| 18H | 0vvv vvvv | Pitch Mod Edit | Pitch Aftertouch Modulation | 0-100 | 0..100 |
| 19H | 0vvv vvvv | LFO-1 | Waveform | 0-3 | Triangle, Sawtooth, Square, Random |
| 1AH | 0vvv vvvv | LFO-1 | Rate | 0-100 | 0..100 |
| 1BH | 0vvv vvvv | LFO-1 | Delay Time | 0-100 | 0..100 |
| 1CH | 0vvv vvvv | LFO-1 | Sync. | 0-2 | Off, On, Key |
| 1DH | 0vvv vvvv | LFO-2 | Waveform | 0-3 | Triangle, Sawtooth, Square, Random |
| 1EH | 0vvv vvvv | LFO-2 | Rate | 0-100 | 0..100 |
| 1FH | 0vvv vvvv | LFO-2 | Delay Time | 0-100 | 0..100 |
| 20H | 0vvv vvvv | LFO-2 | Sync. | 0-1 | Off, On |
| 21H | 0vvv vvvv | LFO-3 | Waveform | 0-3 | Triangle, Sawtooth, Square, Random |
| 22H | 0vvv vvvv | LFO-3 | Rate | 0-100 | 0..100 |
| 23H | 0vvv vvvv | LFO-3 | Delay Time | 0-100 | 0..100 |
| 24H | 0vvv vvvv | LFO-3 | Sync. | 0-1 | Off, On |
| 25H | 0vvv vvvv | EQ Edit | Low Frequency | 0-15 | 63, 75, 88, 105, 125, 150, 175, 210, 250, 300, 350, 420, 500, 600, 700, 840 |
| 26H | 0vvv vvvv | EQ Edit | Low Gain | 0-24 | -12..0..+12 |
| 27H | 0vvv vvvv | EQ Edit | High Frequency | 0-21 | 250, 300, 350, 420, 500, 600, 700, 840, 1.0, 1.2, 1.4, 1.7, 2.0, 2.4, 2.8, 3.4, 4.0, 4.8, 5.7, 6.7, 8.0, 9.5 |
| 28H | 0vvv vvvv | EQ Edit | High Q | 0-8 | 0.3, 0.5, 0.7, 1.0, 1.4, 2.0, 3.0, 4.2, 6.0 |
| 29H | 0vvv vvvv | EQ Edit | High Gain | 0-24 | -12..0..+12 |
| 2AH | 0vvv vvvv | Chorus Edit | Chorus Type | 0-7 | 1..8 |
| 2BH | 0vvv vvvv | Chorus Edit | Chorus Rate | 0-100 | 0..100 |
| 2CH | 0vvv vvvv | Chorus Edit | Chorus Depth | 0-100 | 0..100 |
| 2DH | 0vvv vvvv | Chorus Edit | Chorus Balance | 0-100 | 0..100 |
| 2EH | 0vvv vvvv | Partial Mute | | 0-3 | 00, 01, 10, 11 (*1) |
| 2FH | 0vvv vvvv | Partial Balance | | 0-100 | 0..100 |
| 30H | 0vvv vvvv | Extension | | 0-127 | |
| 31H | 0vvv vvvv | Extension | | 0-127 | |
| 32H | 0vvv vvvv | Extension | | 0-127 | |
| 33H | 0vvv vvvv | Extension | | 0-127 | |
| 34H | 0vvv vvvv | Extension | | 0-127 | |
| 35H | 0vvv vvvv | Extension | | 0-127 | |
| 36H | 0vvv vvvv | Extension | | 0-127 | |
| 37H | 0vvv vvvv | Extension | | 0-127 | |
| 38H | 0vvv vvvv | Extension | | 0-127 | |
| 39H | 0vvv vvvv | Extension | | 0-127 | |
| 3AH | 0vvv vvvv | Extension | | 0-127 | |
| 3BH | 0vvv vvvv | Extension | | 0-127 | |
| 3CH | 0vvv vvvv | Extension | | 0-127 | |
| 3DH | 0vvv vvvv | Extension | | 0-127 | |
| 3EH | 0vvv vvvv | Extension | | 0-127 | |
| 3FH | 0vvv vvvv | Extension | | 0-127 | |

■ 3.5 Patch Parameter

| Offset Address | Description | | | | |
|----------------|-------------|---------------------------|--------------------------|-------|---|
| 00H | 0vvv vvvv | Patch Name | 1 | 0-63 | ','A'-'Z','a'-'z','1'-'9','0','-' |
| : | : | : | : | : | : |
| : | : | : | : | : | : |
| 11H | 0vvv vvvv | Patch Name | 18 | 0-63 | : |
| 12H | 0vvv vvvv | Key Mode | | 0-8 | Whole, Dual, Split, Separate, Whole-S, Dual-S, Split-US, Split-LS, Separate-S |
| 13H | 0vvv vvvv | Split Point | | 0-60 | C2, C#2...C7 |
| 14H | 0vvv vvvv | Portamento Mode | | 0-2 | U, L, UL |
| 15H | 0vvv vvvv | Hold Mode | | 0-2 | U, L, UL |
| 16H | 0vvv vvvv | U-Tone Key Shift | | 0-48 | -24...+24 |
| 17H | 0vvv vvvv | L-Tone Key Shift | | 0-48 | -24...+24 |
| 18H | 0vvv vvvv | U-Tone Fine Tune | | 0-100 | -50...+50 |
| 19H | 0vvv vvvv | L-Tone Fine Tune | | 0-100 | -50...+50 |
| 1AH | 0vvv vvvv | Bender Range | | 0-12 | 0..12 |
| 1BH | 0vvv vvvv | Aftertouch (Pitch Bender) | | 0-24 | -12...+12 |
| 1CH | 0vvv vvvv | Portamento Time | | 0-100 | 0..100 |
| 1DH | 0vvv vvvv | Output Mode | | 0-3 | 1..4 |
| 1EH | 0vvv vvvv | Reverb Type | | 0-31 | 1..32 (17..32 Change Type) |
| 1FH | 0vvv vvvv | Reverb Balance | | 0-100 | 0..100 |
| 20H | 0vvv vvvv | Total Volume | | 0-100 | 0..100 |
| 21H | 0vvv vvvv | Tone Balance | | 0-100 | 0..100 |
| 22H | 0vvv vvvv | Chase Mode | | 0-2 | UL, ULL, ULU |
| 23H | 0vvv vvvv | Chase Level | | 0-100 | 0..100 |
| 24H | 0vvv vvvv | Chase Time | | 0-100 | 0..100 |
| 25H | 0vvv vvvv | MIDI | Transmit CH | 0-16 | Basic, 1..16 |
| 26H | 0vvv vvvv | MIDI | Separate Mode Receive CH | 0-16 | Off, 1..16 |
| 27H | 0vvv vvvv | MIDI | Transmit Program Change | 0-100 | Off, 1..100 |
| 28H | 0vvv vvvv | Chase Switch | | 0-1 | Off, On |
| 29H | 0vvv vvvv | Portamento Switch | | 0-1 | Off, On |
| 2AH | 0vvv vvvv | Separate Switch | | 0-1 | Off, On |
| 2BH | 0vvv vvvv | MIDI | Transmit Bank Select | 0-100 | Off, 0..99 |
| 2CH | 0vvv vvvv | Tone Select | | 0-3 | 00, 01, 10, 11 (*2) |
| 2DH | 0vvv vvvv | Partial Select | | 0-15 | 0000, 0001, 0010, 0011...1111 (*3) |
| 2EH | 0vvv vvvv | Extension | | 0-127 | |
| 2FH | 0vvv vvvv | Extension | | 0-127 | |
| 30H | 0vvv vvvv | Extension | | 0-127 | |
| 31H | 0vvv vvvv | Extension | | 0-127 | |
| 32H | 0vvv vvvv | Extension | | 0-127 | |
| 33H | 0vvv vvvv | Extension | | 0-127 | |
| 34H | 0vvv vvvv | Extension | | 0-127 | |
| 35H | 0vvv vvvv | Extension | | 0-127 | |
| 36H | 0vvv vvvv | Extension | | 0-127 | |
| 37H | 0vvv vvvv | Extension | | 0-127 | |
| 38H | 0vvv vvvv | Extension | | 0-127 | |
| 39H | 0vvv vvvv | Extension | | 0-127 | |
| 3AH | 0vvv vvvv | Extension | | 0-127 | |
| 3BH | 0vvv vvvv | Extension | | 0-127 | |
| 3CH | 0vvv vvvv | Extension | | 0-127 | |
| 3DH | 0vvv vvvv | Extension | | 0-127 | |
| 3EH | 0vvv vvvv | Extension | | 0-127 | |
| 3FH | 0vvv vvvv | Extension | | 0-127 | |

■ 3.6 Reverb Block

| Offset Address | Description | | | | |
|----------------|-------------|-------------|-----|-------|--|
| 00 00H | 0000 aaaa | Reverb Data | 1 | | |
| 00 01H | 0000 bbbb | aaaa bbbb | | 0-255 | |
| 00 02H | 0000 aaaa | Reverb Data | 2 | | |
| 00 03H | 0000 bbbb | aaaa bbbb | | 0-255 | |
| : | | | | | |
| : | | | | | |
| 02 76H | 0000 aaaa | Reverb Data | 188 | | |
| 02 77H | 0000 bbbb | aaaa bbbb | | 0-255 | |

376 bytes of data is mutually related, and each one has no meaning individually.

*1: table 1 (Common Parameter - Partial Mute)

| BIN | DEC | Description |
|-----|-----|----------------------------|
| 00B | 0 | Partial2 Off, Partial1 Off |
| 01B | 1 | Partial2 Off, Partial1 On |
| 10B | 2 | Partial2 On, Partial1 Off |
| 11B | 3 | Partial2 On, Partial1 On |

*2: table 2 (Patch Parameter - Tone Select)

| BIN | DEC | Description |
|-----|-----|----------------------|
| 00B | 0 | Upper Off, Lower Off |
| 01B | 1 | Upper Off, Lower On |
| 10B | 2 | Upper On, Lower Off |
| 11B | 3 | Upper On, Lower On |

*3: table 3 (Patch Parameter - Partial Select)

| BIN | DEC | Description |
|-------|-----|--|
| 0000B | 0 | Upper Partial2 Off, Upper Partial1 Off, Lower Partial2 Off, Lower Partial1 Off |
| 0001B | 1 | Upper Partial2 Off, Upper Partial1 Off, Lower Partial2 Off, Lower Partial1 On |
| 0010B | 2 | Upper Partial2 Off, Upper Partial1 Off, Lower Partial2 On, Lower Partial1 Off |
| 0011B | 3 | Upper Partial2 Off, Upper Partial1 Off, Lower Partial2 On, Lower Partial1 On |
| 0100B | 4 | Upper Partial2 Off, Upper Partial1 On, Lower Partial2 Off, Lower Partial1 Off |
| 0101B | 5 | Upper Partial2 Off, Upper Partial1 On, Lower Partial2 Off, Lower Partial1 On |
| 0110B | 6 | Upper Partial2 Off, Upper Partial1 On, Lower Partial2 On, Lower Partial1 Off |
| 0111B | 7 | Upper Partial2 Off, Upper Partial1 On, Lower Partial2 On, Lower Partial1 On |
| 1000B | 8 | Upper Partial2 On, Upper Partial1 Off, Lower Partial2 Off, Lower Partial1 Off |
| 1001B | 9 | Upper Partial2 On, Upper Partial1 Off, Lower Partial2 Off, Lower Partial1 On |
| 1010B | 10 | Upper Partial2 On, Upper Partial1 Off, Lower Partial2 On, Lower Partial1 Off |
| 1011B | 11 | Upper Partial2 On, Upper Partial1 Off, Lower Partial2 On, Lower Partial1 On |
| 1100B | 12 | Upper Partial2 On, Upper Partial1 On, Lower Partial2 Off, Lower Partial1 Off |
| 1101B | 13 | Upper Partial2 On, Upper Partial1 On, Lower Partial2 Off, Lower Partial1 On |
| 1110B | 14 | Upper Partial2 On, Upper Partial1 On, Lower Partial2 On, Lower Partial1 Off |
| 1111B | 15 | Upper Partial2 On, Upper Partial1 On, Lower Partial2 On, Lower Partial1 On |

4. Supplementary Material

■ Decimal and Hexadecimal Table

(An "H" is appended to the end of numbers in hexadecimal notation.)

In MIDI documentation, data values and addresses/sizes of Exclusive messages, etc. are expressed as hexadecimal values for each 7 bits.

The following table shows how these correspond to decimal numbers.

| 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 |

| D | H | D | H | D | H | D | H |
|----|-----|----|-----|----|-----|-----|-----|
| 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 $a \times 16 + b$.

<Example1> What is the decimal expression of 5AH?

From the preceding table, 5AH = 90

<Example2> What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?

From the preceding table, since 12H = 18 and 34H = 52

$$18 \times 128 + 52 = 2356$$

<Example3> What is the decimal expression of the nibbled value 0A 03 09 0D?

From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13

$$((10 \times 16 + 3) \times 16 + 9) \times 16 + 13 = 41885$$

<Example4> What is the nibbled expression of the decimal value 1258?

$$\begin{array}{r} 16 \) \ 1258 \\ \underline{16 \ 78} \quad \dots 10 \\ 16 \) \ \quad 4 \quad \dots 14 \\ \underline{\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.

MIDI Implementation Chart

| Function... | | Transmitted | Recognized | Remarks |
|------------------|---|--|---|---|
| Basic Channel | Default Changed | 1-16 1-16 | 1-16 1-16 | |
| Mode | Default Messages Altered | Mode 3 Omni Off, Poly ***** | Mode 3 Mono, Poly, Omni Off Mode 1 → Mode 3 Mode 2 → Mode 4 | |
| Note Number : | True Voice | X ***** | 0-127 12-108 | |
| Velocity | Note ON Note OFF | X X | O X | |
| Aftertouch | Key's Ch's | X X | X O | |
| Pitch Bend | | O | O | |
| Control Change | 0, 32 1 5 6, 38 7 64 65 100, 101 | O * 1 X X X X X O X | O * 1 O O O * 2 O O O O * 2 | Bank Select Modelation Portamento Time Data Entry Volume Hold 1 Portamento Switch RPN LSB, MSB |
| Program Change | : True Number | O * 1 ***** | O * 1 0-63 | Program Number 1-64 |
| System Exclusive | | O * 1 | O * 1 | |
| System Common | : Song Pos : Song Sel : Tune | X X X | X X X | |
| System Real Time | : Clock : Command | X X | X X | |
| Aux Message | : All Sound Off : Reset all controllers : Local ON/OFF : All Notes OFF : Active Sensing : System Reset | X X X X O X | O O X X O X | |
| Notes | | * 1 Can be set to O or X manually, and memorized. * 2 RPN = Registered parameter control number. RPN#0: Pitch bend sensitivity RPN#1: Master fine tuning Parameter values are given by Fata Entry. | | |

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

VC-1: V-Card D-50

Sound Generator

D-50 Compatible LA (Linear Arithmetic) Synthesis

Polyphony

16 voices

Waveforms

Synthesizer: 2

PCM: 128

Internal (User) Memory

Banks: 8

Patches: 512

Preset Memory

Banks: 6

Patches: 384

** In the interest of product improvement, the specifications and/or contents of this unit are subject to change without prior notice.*

Index

A

| | |
|------------------------|---------------|
| AC Inlet | 10 |
| After | 53, 58, 69–70 |
| AfterPB | 21 |
| Aftertouch | 21 |
| Aftertouch Range | 58, 69–70 |

B

| | |
|--------------------------|--------|
| B.CH | 73 |
| BALANCE | 20 |
| Balance | 50, 56 |
| Bank | 12 |
| Bank Select Switch | 74 |
| Bank.S | 74 |
| Basic Channel mode | 73 |
| Beep | 14 |
| beep tone | 14 |
| Bend | 21, 60 |
| Bender Mode | 60 |
| Bender Range | 21 |
| Bias Level | 62, 66 |
| Bias Point | 62, 66 |
| BLevel | 62, 66 |
| BP | 62, 66 |
| bulk dump | 29 |
| bulk load | 29 |

C

| | |
|------------------------|--------|
| CHASE | 20, 24 |
| Chase Level | 24 |
| Chase Mode | 24 |
| Chase Time | 24 |
| CHORUS | 54 |
| Chorus | 54 |
| Chorus Balance | 56 |
| Chorus Depth | 55 |
| Chorus Edit | 55 |
| Chorus Rate | 55 |
| Chorus Type | 55 |
| Coars | 59 |
| Common | 39 |
| Compare | 48 |
| CONTROL | 21 |
| Control | 73 |
| Control Setup | 16 |
| Cursor Buttons | 44 |
| cursor buttons | 44 |
| Cutoff Frequency | 61 |

D

| | |
|------------------|--------|
| Delay | 54 |
| Delay Time | 54 |
| Depth | 55, 63 |

| | |
|-------------------------------|--------|
| Destination Bank | 32, 36 |
| DIGITAL AUDIO INTERFACE | 10 |
| Digital Freq | 72 |
| Digital Frequency | 72 |
| Display | 9 |
| DKF | 63 |
| DUAL | 20 |
| Dual Solo | 20 |
| DUAL-S | 20 |

E

| | |
|------------------------|------------|
| editing | 43 |
| End Level | 52, 65, 68 |
| EndL | 52, 65, 68 |
| ENV | 42, 60 |
| ENV Depth | 63 |
| Envelope | 51, 67 |
| EQ | 54 |
| EQ Edit | 54 |
| Equalizer | 54 |
| Exclusive | 74 |
| Exclusive Switch | 74 |

F

| | |
|-------------------------------------|----|
| Factor | 40 |
| Factors | 15 |
| Factory Reset | 28 |
| Fine | 59 |
| Fine Tuning of the Lower Tone | 25 |
| Fine Tuning of the Upper Tone | 25 |
| Freq | 61 |

G

| | |
|---------------------------|----|
| G.CH | 73 |
| Global Channel mode | 73 |
| growl | 69 |

H

| | |
|----------------------|----|
| HiFreq | 55 |
| HiGain | 55 |
| High Frequency | 55 |
| High Gain | 55 |
| High Q | 55 |
| HiQ | 55 |
| Hold | 21 |
| Hold Mode | 21 |

I

| | |
|------------------|----|
| INFO | 14 |
| Initialize | 49 |

K

| | |
|-----------------------------------|------------|
| KEY MODE | 19 |
| Key Shift of the Lower Tone | 25 |
| Key Shift of the Upper Tone | 25 |
| Keyfollow (Cutoff Point) | 62 |
| Keyfollow (Depth) | 63 |
| Keyfollow (pitch) | 59 |
| Keyfollow (Time) | 51, 63, 67 |
| KF | 59, 62 |

L

| | |
|--------------------------------|-----------------------|
| L0 | 52 |
| L1 | 52, 65, 68 |
| L2 | 52, 65, 68 |
| L3 | 65, 68 |
| LCD CONTRAST | 9 |
| Level | 24, 66 |
| Level 0 | 52 |
| Level 1 | 52, 65, 68 |
| Level 2 | 52, 65, 68 |
| Level 3 | 65, 68 |
| Lever | 53 |
| LFO | 42, 53, 58, 60, 69–70 |
| LFO Depth | 53, 58, 69–70 |
| LFO Mode | 60 |
| LFO Rate | 53 |
| LFO Select | 58, 69–70 |
| LFO Waveform | 53 |
| LFOD | 53, 58, 69–70 |
| LKey | 25 |
| Low Frequency | 54 |
| Low Frequency Oscillator | 53 |
| Low Gain | 54 |
| LOWER | 19 |
| LowFreq | 54 |
| LowGain | 54 |
| LTune | 25 |

M

| | |
|-----------------------------|-----------|
| MAIN OUT | 10 |
| Master Tune | 72 |
| MdeOFF | 73 |
| MIDI | 25, 73 |
| MIDI CH | 73 |
| MIDI Channel | 73 |
| MIDI Connectors | 10 |
| MOD | 69 |
| Mode | 21–22, 24 |
| Mode Message OFF mode | 73 |
| Modulation | 69 |

N

| | |
|------------------|----|
| Naming | 26 |
| No. | 36 |
| Number | 12 |
| NUMBER KEY | 8 |

O

| | |
|-------------------|----|
| OUTPUT | 22 |
| Output Mode | 22 |

P

| | |
|-----------------------------------|--------|
| parameter | 43 |
| Parameter Copy | 47 |
| Partial | 38 |
| Partial Balance | 50 |
| Partial Mute | 45 |
| Partial Parameters | 56 |
| Partial Select | 45 |
| Partials | 38–39 |
| Patch | 40 |
| Patch Bank | 12 |
| Patch number | 13 |
| Patch Palette | 13 |
| PATCH WRITE | 27 |
| patches | 12 |
| PCM | 57 |
| PCM sound generator | 39 |
| PCM Wave Number | 41, 57 |
| P-ENV | 51 |
| P-ENV Edit | 51 |
| P-ENV Level Edit | 52 |
| P-ENV Mode | 60 |
| P-ENV Time Edit | 51 |
| PHONES | 8 |
| Pitch | 41 |
| Pitch Aftertouch Modulation | 53 |
| Pitch Bender | 21 |
| Pitch Coarse | 59 |
| Pitch Envelope | 51 |
| Pitch Fine | 59 |
| Pitch Lever Modulation | 53 |
| Pitch Mod | 53 |
| Pitch Modulation | 53 |
| PORTAMENTO | 20 |
| Portamento Mode | 21 |
| Portamento Time | 21 |
| POWER Switch | 9 |
| PREVIEW button | 8 |
| Prog.C | 73 |
| Program Change Switch | 73 |
| Pulse Width | 41, 57 |
| PW | 57 |

Index

R

| | |
|--|--------|
| Rate | 53, 55 |
| Receive Channel in Separate Mode | 25 |
| Reso | 62 |
| Resonance | 62 |
| Revbil | 23 |
| reverb | 22 |
| Reverb Balance | 23 |
| Reverb Type | 23 |
| reverb types | 35 |
| RevType | 23 |
| Ring Modulator | 40 |

S

| | |
|-----------------------------------|------------|
| SEP | 20 |
| Separate | 20 |
| Separate Solo | 20 |
| SeparateCH | 73 |
| SepCH | 25 |
| SEP-S | 20 |
| Sound Character | 72 |
| Sound Setting | 72 |
| Source Bank | 32–34, 36 |
| SPLIT | 20 |
| Split Lower Solo | 20 |
| Split Point | 20 |
| Split Upper Solo | 20 |
| SPL-LS | 20 |
| SPL-US | 20 |
| Struct | 50 |
| Structure | 39, 50 |
| Structure Number | 50 |
| SusL | 52, 65, 68 |
| Sustain Level | 52, 65, 68 |
| Sync | 54 |
| synthesizer sound generator | 39 |
| System | 71 |
| System Initialize | 75 |

T

| | |
|------------------------------|------------|
| T1 | 52, 64, 67 |
| T2 | 52, 64, 67 |
| T3 | 52, 64, 67 |
| T4 | 52, 64, 68 |
| T5 | 64, 68 |
| Temporary Area | 37 |
| Time | 21, 24 |
| Time 1 | 52, 64, 67 |
| Time 2 | 52, 64, 67 |
| Time 3 | 52, 64, 67 |
| Time 4 | 52, 64 |
| Time 5 | 64, 68 |
| Time Variant Amplifier | 66 |
| Time Variant Filter | 61 |
| TKF | 51, 63, 67 |
| Tone | 39 |
| Tone Balance | 20 |
| Tone Copy | 46 |

| | |
|--------------------------------------|--------|
| Tone Select | 19 |
| TONE TUNE | 25 |
| Total Volume | 23 |
| Transmit Bank Select Switch | 25 |
| Transmit Channel | 25 |
| Transmit Program Change Number | 25 |
| tremolo | 70 |
| TVA | 42, 66 |
| TVA ENV | 67 |
| TVA ENV Level | 68 |
| TVA ENV Time | 67 |
| TVF | 42, 61 |
| TVF ENV | 63 |
| TVF ENV Level | 65 |
| TVF ENV Time | 64 |
| TVF Envelope | 63 |
| TVF MOD | 69 |
| TxBUS | 25 |
| TxCH | 25 |
| TxPC | 25 |
| Type | 55 |

U

| | |
|---------------------|----|
| UKey | 25 |
| UNDO | 44 |
| Undo | 44 |
| UPPER | 19 |
| USB Connector | 8 |
| UTune | 25 |

V

| | |
|--------------------------------|-------------------|
| VALUE dial | 44 |
| V-CARD button | 8 |
| Velo | 51, 58, 63, 66–67 |
| Velocity Follow (Time 1) | 67 |
| Velocity Range | 51, 58, 63, 66 |
| Vol | 23 |
| VOLUME knob | 8 |

W

| | |
|---------------------|--------|
| Wave | 53, 57 |
| Waveform | 41, 57 |
| WG | 41 |
| WG Form | 57 |
| WG Mod | 60 |
| WG Modulation | 60 |
| WG PITCH | 59 |
| WG Waveform | 57 |
| WHOLE | 20 |
| Whole Solo | 20 |
| WHOL-S | 20 |
| Work Area | 37 |

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