

ai² Synthesis Module

O3RAW

Owner's Manual

 ai² Synthesis System

KORG

IMPORTANT SAFETY INSTRUCTIONS

WARNING — When using electric products, basic precautions should always be followed, including the following.

1. Read all the instructions before using the product.
2. To reduce the risk of injury, close supervision is necessary when a product is used near children.
3. Do not use this product near water — for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
4. This product should be used only with a cart or stand that is recommended by the manufacturer.
5. This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at high volume levels or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
6. The product should be located so that its location or position does not interfere with its proper ventilation.
7. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.
8. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
9. The power-supply cord of the product should be unplugged from the outlet when left unused for a long period of time.
10. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
11. The product should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the product; or
 - C. The product has been exposed to rain; or
 - D. The product does not appear to operate normally or exhibits a marked change in performance; or
 - E. The product has been dropped, or the enclosure damaged.
12. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

SAVE THESE INSTRUCTIONS





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



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

GROUNDING INSTRUCTIONS

This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER — Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product — if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

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

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

THE FCC REGULATION WARNING

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the US Government Printing Office, Washington, D.C. 20402, stock No. 004-000-000345-4.

CANADA

THIS DIGITAL APPARATUS DOES NOT EXCEED THE "CLASS B" LIMITS FOR RADIO NOISE EMISSIONS FROM DIGITAL APPARATUS SET OUT IN THE RADIO INTERFERENCE REGULATION OF THE CANADIAN DEPARTMENT OF COMMUNICATIONS.

LE PRESENT APPAREIL NUMERIQUE N'EMET PAS DE BRUITS RADIOELECTRIQUES DEPASSANT LES LIMITES APPLICABLES AUX APPAREILS NUMERIQUES DE LA "CLASSE B" PRESCRITES DANS LE REGLEMENT SUR LE BROUILLAGE RADIOELECTRIQUE ECRITE PAR LE MINISTRE DES COMMUNICATIONS DU CANADA.

Thank you for purchasing the Korg 03R/W ar² Synthesis Module. To ensure long, trouble-free operation, please read this manual carefully.

Precautions

■ Location

Using the unit in the following locations can result in a malfunction.

- In direct sunlight
- Locations of extreme temperature or humidity
- Excessively dusty or dirty locations
- Locations of excessive vibration

■ Power supply

Please connect the AC power cable to an AC outlet of the correct voltage. Do not connect it to an AC outlet of voltage other than that for which your unit is intended.

■ Interference with other electrical devices

This musical instrument contains a microcomputer. Radios and televisions placed nearby may experience reception interference. Operate this unit at a suitable distance from radios and televisions.

■ Handling

To avoid breakage, do not apply excessive force to the switches or controls.

■ Care

If the exterior becomes dirty, wipe it with a clean, dry cloth. Do not use liquid cleaners such as benzene or thinner, or cleaning compounds or flammable polishes.

■ Keep this manual

After reading this manual, please keep it for later reference.

How to use this manual

- First, read the "Quick Guide" and "Basic operation" sections while actually operating the 03R/W.
 - This will help you to understand the basics of operating the 03R/W. Follow the directions to learn the function of each key and display.

- Next, glance through the "Reference" section.
 - This will give you an idea of the possibilities of the 03R/W, and points to remember.
- When necessary, refer to the explanations for each function you need to use.

Features of the 03R/W

1. All-digital AP synthesis system

From the tone generator (a capacity of 40 Mbits) through the filters and effect units, all audio is handled in digital form, ensuring high-quality sound with no signal loss.

2. A wide variety of Multisounds (waveforms)

The 03R/W contains 255 preset Multisounds (multi-sampled PCM waveforms), providing a wide variety of ingredients for flexible sound creation. Additional Multisounds can be provided by inserting optional PCM cards, allowing you to create sounds that were not possible without the card.

3. Combinations allow flexible performance possibilities

A total of 100 combinations can be used to combine sounds for performance. The 03R/W will function as an 8-timbre tone generator, making it an ideal addition to any sequencing system.

4. Editable Drum Kits assist in song creation

The 03R/W provides 119 types of drum sounds, and settings and tuning for each drum sound can be stored in two Drum Kits.

5. Conforming to GM (Multi mode)

Since the 03R/W conforms to the GM (General MIDI) standard in Multi mode, you can play the 03R/W through the sequencer of any manufacturer or model as long as it conforms to the GM standard.

6. Multi Digital Effect processor for flexible sound creation

The 03R/W contains a Multi Digital Effect processor that provides up to 4 simultaneous effects, and can also be used as two completely independent stereo effect systems. Not only delay and reverb, but also equalizer, distortion, rotary speaker, and many other types of effects are provided.

7. Edit through the remote editor

Editing operations can be done more easily by connecting the remote editor RE1 (sold separately), which provides a large display and 8 sliders.

The backup battery

The 03R/W contains a battery that preserves its memory settings when the power is turned off. When the display

indicates "Battery Low", please contact your dealer or a nearby Korg service center to have the battery replaced.

RAM Memory card battery

◆ The RAM card (SRC-512) requires battery power in order to preserve data in memory. The included lithium battery (type CR2016) should be put in place before use.

① Installing the battery

Turn the card over to the side without the contacts. You will find a slot in the battery holder.

Install the lithium battery in the holder with the "+" side up.

② Write Protect Switch

No data can be written on the card when this switch is set to ON. To protect data, set this switch to ON, except when writing new data.

③ Replacing the Lithium Battery

Power from the lithium battery is used to protect data held in memory. The battery should be replaced once a year. However, battery life is shortened if kept at temperatures exceeding 40 degrees centigrade. (104 Fahrenheit)

Always use a CR2016 type lithium battery.

When replacing the battery, leave the card in the unit with unit power ON. This will preserve the contents of the memory. If the card is removed before battery replacement, memory contents will be lost.

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FRONT PANEL

(For the explanation of each key, refer to page 10.)

① MASTER VOLUME

② Mode select keys

COMBI = Combination/Edit combination mode

PROG = Program/Edit Program mode

EDIT = Edit Combination, Edit Program modes

GLOBAL/MULTI = Global/Multi mode

③ INDCARD, PAGE + key

④ BANK, PAGE - key

⑤ +10, ▷ key

⑥ -10, ◁ key

⑦ +1, △ key

⑧ -1, ▽ key

⑨ PHONES Jack

A pair of headphones can be connected to this jack to monitor the sound of the OUTPUT L/L and 2/R jacks.

⑩ MIDI indicator

⑪ Display

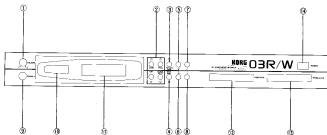
⑫ PCM DATA slot

A card containing PCM (Multisound) data can be inserted here. Cards containing voice and sequence data should be inserted into the PROG DATA slot, not into this slot.

⑬ PROG DATA slot

A card containing (or into which you will save) voice data can be inserted into this slot. PCM (Multisound) data cards should be inserted into the PCM DATA slot, not into this slot.

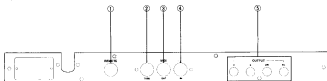
⑭ Power switch



REAR PANEL

- ① REMOTE Jack
- ② MIDI THRU Jack
- ③ MIDI OUT Jack
- ④ MIDI IN Jack
- ⑤ OUTPUT Jack (L/L, 2/R, 3, 4)

These are the audio outputs of the O3R/W. The output to each jack is determined by various parameters.



BASIC OPERATION

CONNECTIONS

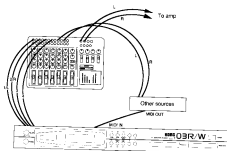
- (1) First, make sure that the 03R/W power switch is turned Off.

Also make sure that the power of all connected equipment (amps, mixers, etc.) is turned Off. Set the volume controls of all equipment to their lowest position.

- (3) Turn the 03R/W power On.

- (4) Turn the power of all connected equipment On, and gradually raise the volume controls of the 03R/W and your mixer/amp system to an appropriate level.

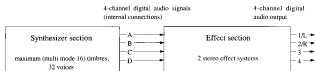
- (2) Insert the included power cable into the rear panel power connector, and connect the other end to an AC outlet.



- The 03R/W will respond to Note messages transmitted to MIDI IN for all notes C-1 — G9 (note numbers 0 — 127). (For some Programs, the high range may not sound.)

Key name	C-1	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	G9
MIDI Note Number	0	12	24	36	48	60	72	84	96	108	120	127

HOW THE 03R/W IS ORGANIZED



ABOUT GM (GENERAL MIDI)

● GM (General MIDI) System

The GM Sound Set is a set of general specifications for tone generators agreed upon between the Japan MIDI Standard Conference and the U.S. MIDI Manufacturers Association. The GM System allows you to create performance data that can be used on any type of tone generator. You can run music software (GM score) created for the GM System on any tone generator that is compatible with the GM System, regardless of the manufacturer or model.

- The 03R/W MULTI mode corresponds to the GM System Level 1. The 03R/W Programs G01-128 contain sounds (GM Sound Set) that can be used throughout the GM System, with the exception of Track 10. Program G129 contains sounds (GM Percussion Map) that can be used for Track 10.

- The sound that will be eventually played in response to the sound name specified by the GM differs according to the type of tone generator you are using. Therefore, there are times when the actual performance will sound different, due to the type of tone generator used.
- In many cases, the effects are not specified in the musical data for the GM System, since the type and organization of internal effect units differ for each tone generator.
- Before you distribute your own MIDI sequence data for GM, it is recommended that you audition your data on another type of GM-conforming tone generator, in order to make sure that it is compatible.
- It should be noted that you may not distribute the MIDI data of a copyrighted piece of music without the permission of the copyright holder.

USING GM DURING PLAYBACK

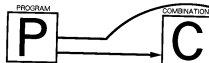
It is easy to play back GM-compatible sequence data on the 03R/W.

- (1) Connect a sequencer containing GM playback data to MIDI Out, and connect the 03R/W to MIDI In. (Refer to the sequencer user's manual for instructions on loading and playing back GM data.)
- (2) Press the 03R/W GLOBAL/MULTI key to enter the MULTI mode. If the mode changes to GLOBAL, press the key once again to enter MULTI mode. (During MULTI mode, the LED for the GLOBAL/MULTI key will come ON, and during Global mode this LED will be OFF.)
- (3) Start the sequencer. Playback will begin when the 03R/W receives the MIDI data from the sequencer. It is possible to change setting values during playback. Refer to p. 79 "6. MULTI MODE" for details.

* Be sure the GLOBAL mode settings are as shown below to obtain optimal playback performance.

- 0A Trans...+00
- 1A Scale Type...Equal temp
- 2A Note R...All
- 2B 2C MIDI Filter...EX is DIS, all others are ENA

* The numbers and letters shown in the boxes appear in the upper left part of the display, and indicate the parameter page. Use the PAGE +, PAGE -, < and > keys to check these parameters. If a parameter needs to be changed, use the Δ and ∇ key to change the value.



- A Program is defined as a single synthesized sound.
- Programs can be selected from A00-A99 (internal memory) or C00-D99 (card), G01-G129 (ROM).

Single Program



Double Program



Programs using a Drum Kit



- Select one of the PCM Drums (1-16) and two Drum Kits from the bank used for the Program.
- It is preferable to use the Drum Kit parameters which have been selected for each instrument setting in the Drum Kit (Global mode PG, PT).

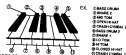
Settings made thus far are done in the Edit Program mode.

Multisound (Source Waveform)

- The Oscillator permits the selection of 80-254 Multisounds.
- Multisounds can also be selected from a PCM Card.
- Refer to the page in the Edit Program mode for more details. A single sound can be processed by various means to create a Multisound.
- VDF (Variable Digital Filter) is used to control the tone.
- VDA (Variable Digital Amplifier) is used to control the volume.
- The processes are carried out in the Edit Program mode.

Drum Kit Instrument Connections

- The drum sounds are assigned at different positions on the keyboard.
- The instrument settings, including the parameters, are edited in Global mode (PG, PT).



COMBINATION



- A Combination is several Programs which have been combined. Each Program is put in a "timbre" called a "Timbre" (eight Timbres are provided).
- Combinations have their own effects settings; settings made for individual programs will be ignored.
- Combinations can be selected from A00-A99 (internal memory) or C00-D99 (card).
- During operation in Combination mode, the Combination is changed when a Program change message is received on the same MIDI channel as specified in Global mode.
- The parameters are set for each Timbre. The settings made in Edit Program can also be used.

Sample A Combination Using Two Programs



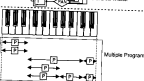
For a Double OSC Program



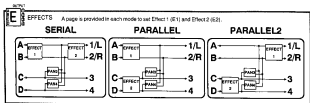
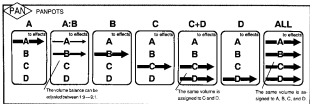
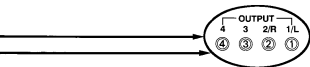
Sample A Combination Using Multiple Programs



In this example, A11 and P100 were not specified in the parameters for all of the Timbres.



Settings made thus far are done in the Edit Combination mode.



PLAYING A COMBINATION (A COMBINATION OF SEVERAL PROGRAMS)

There are 100 Combinations in the internal memory (Bank A:00-99), and 200 more are available in the PROG card (Bank C:00-99, Bank D:00-99).

- (1) Press the COMBI mode select key (Combination mode).
- (2) Use the INT/CARD, BANK, +10, +1, -10, -1 keys to select the Combination (A00-A99, C00-D99) you wish to play.
- (3) Play the keyboard (such as that for the 01/W) which is connected to the MIDI IN connector of the 03R/W, and you will hear the Combination you selected in step(2).

About the display

When you select Combination mode, the display will be as follows.

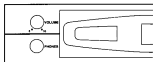
The number and name of the selected Combination will be shown on the top line, and the number of the program used for each Timbre (a "container" for storing programs) will be shown on the bottom line.

- Every time you press the COMBI key, the display will be switched between Timbres 1-4 and Timbres 5-8. (When Timbres 5-8 are displayed, the "*" mark will be shown on the upper right corner.)

A00:Orchestra
A00 A01 A02 A03

ABOUT THE MIDI INDICATOR

Each of the 16 LEDs corresponds to Timbres 1-8 in Combination mode, and to Tracks 1-16 in Multi mode. When the 03R/W is receiving MIDI data, the LED corresponding to the Timbre or Track will be lit. The LEDs on the upper line correspond to numbers 1-8 (the left-most LED corresponds to "1"), and those on the bottom line correspond to numbers 9-16. In Program mode and when receiving MIDI dump data, LED "1" will be illuminated.



PLAYING A PROGRAM (A SINGLE SOUND)

There are 229 Programs in the internal memory (Bank A:00—99, Bank G:01—129), and 200 more are available in the PROG card (Bank C:00—99, Bank D:00—99). Among the GM standard ROM data used for Programs in Bank G: 01—128 are Tone programs, and 129 is a Drum program.

- (1) Press the PROG mode select key (Program mode).
- (2) Use the INT/CARD, BANK, +10, +1, -10, -1 keys to select the Program (A00—A99, G01—129, C00—D99) you wish to play.
- (3) Play the keyboard (such as that for the 01/W) connected to the MIDI IN terminal of the 03R/W, and you will hear the Program you selected in step (2).

The keyboard MIDI channel must match the 03R/W Global channel (the channel set to Global mode), or no sound will be produced.

About the display

Example

A00:Piano16'

When you select Program mode, the display will show the Program number and the name of that Program, as shown in the example.

PLAYING A DEMO SONG

The 03R/W contains demonstration sequences.

- (1) Press the COMBI and EDIT keys simultaneously.
- (2) There are 5 demo songs (DEMO 0-4), and the number of each DEMO key corresponds to the number of each demo song, as shown in the illustration. Pressing the BANK key will play all the demo songs from 0 through 4 continuously. Pressing the other keys will play the respective songs and the playback will be automatically stopped at the end of the song.
- (3) Press any of the keys +10, +1, -10, -1 to go back to the previous mode.

- In order to stop the playback, press any key.
- When a ROM card containing DEMO data has been inserted in the PROG DATA slot, the demo song recorded on the card will be played back.
- The MIDI data of the demo songs will not be output.

SONG: ROCK SHOW



Note:

The sound of the song will be changed if the data for the Timbres are modified. Begin by using Global mode [SC] to load preset data.

Press these keys



KEY FUNCTIONS

The function of each key on the O3R/W varies depending on the mode.

Mode select keys

The lit key indicates the current mode. The O3R/W has 6 modes. Press the following keys to enter each mode.

- **Combination mode** Press the COMBI key
- **Edit Combination mode** While holding down the COMBI key, press the EDIT key.
- **Program mode** Press the PROG key.
- **Edit Program mode** While holding down the PROG key, press the EDIT key.
- **Multi mode** Press the GLOBAL/MULTI key. (Pressing this key again will allow you to enter Global mode.)
- **Global mode** Press the GLOBAL/MULTI key. (Pressing this key again will allow you to enter Multi mode.)

The function of each key on the O3R/W varies depending on the mode.

Key	Combination mode, Program mode (described in White)	Edit Combination mode, Edit Program mode, Multi mode, Global mode (described in Black)
INT/CARD/PAGE+	Switches the Combination or Program Bank between internal memory and the card. [INT/CARD]	Allows you to go to the next page. [PAGE+]
+10/▶	Adds +10 to the number of the Combination or Program. [+10]	Selects the next parameter to the right on the same page. [▶]
+1/▲	Adds +1 to the number of the Combination or Program. [+1]	Adds +1 to the parameter value. [▲]
CARD/PAGE-	Switches the Bank used to select a Combination or Program. [BANK]	Allows you to go back to the previous page. [PAGE-]
-10/◀	Subtracts 10 from the number of the Combination or Program. [-10]	Selects the previous parameter to the left on the same page. [◀]
-1/▼	Subtracts 1 from the number of the Combination or Program. [-1]	Subtracts 1 from the parameter value. [▼]

INT/CARD key

Press the INT/CARD key to switch between selecting Combinations or Programs from internal memory or from a PROG card. Pressing the INT/CARD key will switch between A and C, or between G and D. When the CARD (Bank C or D) is selected, the LED lights up.

BANK key

This key is used to switch between the internal Banks (A and G) or the card Banks (C and D). Pressing this key will change the Bank selected A ↔ G or C ↔ D. When the Bank G or D is selected the LED lights up.

* PCM (Multi-sound) card waveforms are selected in the Edit Program mode parameter Oscillator Assign, or in the Global mode drum kit parameters. (This CARD key is not used.)

* The contents of a PROG card are organized into 2 banks (C,D).

+10 key, +1 key, -10 key, -1 key

- Press these keys to change the number of the Combination or Program.
- * Be sure that cards are inserted firmly into the correct slot.

PAGE+ key, PAGE- key, ◀ key, ▶ key

Press these keys to select the parameter to edit. Press the PAGE+ key and PAGE- key to select the page which has the parameter you wish to change, and press the ◀ key and ▶ key to select the parameter to change. Numbers and letters such as "0A" on the upper left corner of the display indicate the page number of the current display (the number on the left), and the display number in the current page (the letter on the right).

▲ / ▼ keys

Use these keys to specify a value for a parameter. To increase the value by 1, press ▲. To decrease the value by 1, press ▼. If you continue holding the switch, the value will change continuously.

HOW TO CREATE YOUR OWN SOUNDS

This section will explain the process of creating your own sounds on the 03R/W.

1. In Program mode, select the sound you wish to edit.



Please refer to
Reference guide
section
1: Program Mode
(p.14).

2. In Edit Program mode, create the desired sound, and write it into memory.



Please refer to
Reference guide
section
2: Edit Program Mode
(p.15).

3. In Combination mode, select the Combination to which you want to add the sound.



Please refer to Reference
guide section 4:
Combination Mode
(p.68).

4. In Edit Combination mode, create a Combination using the Program you created.



Please refer to
Reference guide
section
5: Edit Combination
mode (p.69).

ABOUT THE 03R/W's MEMORY

For details, refer to "How the memory of the 03R/W is organized", at the end of this manual.

- Select a Combination from Bank A, C or D (including the card) in Combination mode.
- Select a Program from Bank A, C, D or G in (including the card) Program mode.
- When selecting a Program for Timbres in the Edit Combination mode, Programs to be used in Combinations from Bank A must be selected from Banks A and G. Programs to be used in combinations from Bank C must be selected from Banks C and G. In other words, the Program must be selected from the same bank as the Combination or from Bank G.
- Bank G Contains Programs saved in ROM memory. This bank is necessary for compatibility with GM.
- Drum Kits can be selected from the same Bank as the Program or from among the ROM Drum Kits 1-4. For example, to select a Drum Kit for a Program from Bank C, Drum Kit 1 or 2 can be taken from Bank C, or one of the ROM Drum Kits 1-4 can be selected. When editing a Drum Kit in the Global mode, the Drum Kit must be selected from Bank A (internal memory).

<<Internal memory>>

[Bank A]
100 Combinations,
100 Programs,
2 Drum Kits,
1 Global Data

[Bank G]
129 Programs (ROM)

<<PROG card>>

The data in a PROG card (512Kbit RAM card) is organized in two BANKS (C,D).

[Bank C]
100 Combinations,
100 Programs,
1 Global Data,
2 Drum Kits Data

[Bank D]
100 Combinations,
100 Programs,
1 Global Data,
2 Drum Kits Data

☆ PCM cards are of a different type.

☆ The following table shows the modes that allow you to write data onto a card and load data from a card.

	Load	Write
100 Programs, 100 Combinations, 2 Drum Kits, 1 Global Data	Global mode [5A]	Global mode [5B]
1 Combination	Combination mode	Edit Combination mode [13A]
1 Program	Program mode	Edit Program mode [15A] or [21A]
1 Drum Kit	Edit Program mode	Global mode P6,7

- * When you use a new card, first save the data using the Global mode setting [5B]. This will allow you to load data, read a Program from the card, and write a Program onto the card.

APPLICATION SECTION

HOW TO READ A DISPLAY PAGE CHART

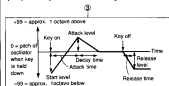
3A-3C PITCH EG (Pitch EG) ——— ①

03A PITCH EG >	03B PITCH EG 8	03C PITCH EG Vel<
SL+00 AT00 AL+00	DT00 RT00 RL+00	Levl=+99 Tim=+00

————— ②

3A	SL	Start Level	-99 — +99	Specify how the pitch of OSC1 will change over time.
	AT	Attack Time	0 — 99	
	AL	Attack Level	-99 — +99	
3B	DT	Decay Time	0 — 99	
	RT	Release Time	0 — 99	
	RL	Release Level	-99 — +99	
3C	Levl	EG Level Vel. Sens	-99 — +99	Specify how key velocity will affect the depth of the pitch EG.
	Tim	EG Time Vel. Sens	-99 — +99	Specify how key velocity will affect the speed of the pitch EG.

Specify how the pitch of OSC1 will change over time.



(1) 3A-3C PITCH EG (Pitch EG): This indicates that this display is for screens A-C of page 3, and contains pitch EG parameters.

(2) Display for the page

(Each screen is contained within a frame. Use the <| and > keys to move to the next screen.)

(3) Diagrams relating to this page

(4) The screen number for this parameter

(5) Parameter name

(6) Value range (numerical values, etc.) and contents of this parameter

(The value written on the left in this column appears when the ▼ key is held down.)

(7) Explanation of the function of the parameter

* In this manual, "cursor" refers to the parameter that is flashing.

1. PROGRAM MODE

Press **PROG** to enter this mode.
The **PROG** Key LED will come on.

In this mode you can select and play Programs (sounds) from memory. You can select internal Programs A00 — A99, card Programs C00 — D99 and ROM programs G01 — G128. To select Programs, use the **INTACARD** key; the **BANK** key; the **+10**, **+1**, **-10**, or **-1** key; or **MIDI** program change messages.

A00:Piano16*

- If you wish to use **MIDI** to select Programs, set the Global mode **MIDI Filter PRG** parameter to "ENA" (see p.92).
- Before selecting a Card Program, insert a **PROG** card containing Program data.
- Sounds are produced by the **MIDI** data in the channel assigned as the Global channel.
- In the **GM-type ROM** data used for Programs in Bank G, 01 — 128 are Sound Programs, and 129 is a Drum Program that uses **ROM Drum Kit 1**. Refer to the **GM Program List** and the **GM Drum List**.

2. EDIT PROGRAM MODE

Press **PROG**, then press **EDIT** to enter this mode.
The **PROG** and **EDIT** key LEDs will come on.

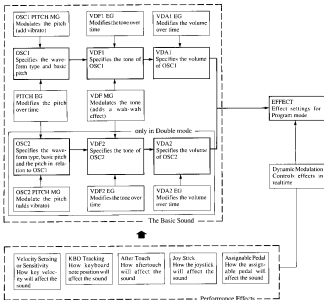
In this mode, you may edit Program parameters, such as filter EG settings and the selection of a waveform.

- When you finish editing, use **[F5A]** (when OSC Mode = SINGLE, DRUMS) or **[F1A]** (when OSC Mode = DOUBLE) to write your edits into memory. (If you select another

Program before doing so, your edits will be lost.) Although a Program can be edited in Bank G, it cannot be written in that Bank. Use one of the other Banks (A, C, or D) to create your Programs.

- In Edit program mode when an REI is connected, the numeric keypad is used to select pages (when the REI is connected).

HOW THE PROGRAM PARAMETERS OF THE 03R/W ARE ORGANIZED



FUNCTIONS IN EDIT PROGRAM MODE

Use the PAGE+ key and PAGE- key to select pages. To select parameters, use the CURSOR keys (◀, ▶).

The pages available for each function will differ according to the OSC mode setting. (The pages described in the text are Double Mode items.)

Page		Function	Parameters
DOUBLE MODE	DOUBLE		
0A—0B	0A—0B	OSC Mode Assign/Hold	Oscillator mode Number of voices to sound, and Hold settings
1A—1C	1A—1C	OSC1 Multi Sound Level/Octave EG Intensity/Pan	Oscillator 1 waveform Level, Octave Depth of the pitch change over time, output destination
—	2A—2E	OSC2 Multi Sound Level/Octave EG Intensity/Pan Interval/Detune Delay	Oscillator 2 waveform Level, Octave Depth of the pitch change over time, output destination Interval (by semitone) and detune (by cent) relative to OSC1 Delay in sounding for OSC2 relative to OSC1
2A—2C	3A—3C	Pitch EG	Adjusts changes in pitch over time
3A—3E	4A—4E	VDF1 Cutoff EG Emphasis	VDF1 cutoff frequency (Controls brilliance of tone) Specifies changes in cutoff frequency over time. Emphasis effect
—	5A—5E	VDF2 Cutoff EG Emphasis	VDF2 cutoff frequency (Controls brilliance of tone) Specifies changes in cutoff frequency over time Emphasis effect
4A—4E	6A—6E	VDF1 Velocity Sense Keyboard Tracking	How key velocity affects VDF1 EG cutoff frequency and time How key position affects VDF1 EG cutoff frequency and time
—	7A—7E	VDF2 Velocity Sense Keyboard Tracking	How key velocity affects VDF2 EG Time How key position affects VDF2 EG Time
5A—5C	8A—8C	VDA1 EG	Change in VDA1 level over time
—	9A—9C	VDA2 EG	Change in VDA2 level over time
6A—6E	10A—10E	VDA1 Velocity Sense Keyboard Tracking	How key velocity affects VDA1 EG cutoff frequency and time How key position affects VDA1 EG cutoff frequency and time
—	11A—11E	VDA2 Velocity Sense Keyboard Tracking	How key velocity affects VDA2 EG cutoff frequency and time How key position affects VDA2 EG cutoff frequency and time
7A—7E	12A—12E	Pitch1 Modulation	Oscillator 1 pitch modulation (vibrato)
—	13A—13E	Pitch2 Modulation	Oscillator 2 pitch modulation (vibrato)
8A—8C	14A—14C	VDF Modulation	VDF modulation (wah-wah effect)
9A—9D	15A—15D	After Touch Control Joy Stick Control	After Touch control Joy Stick control
10A — 14C	16A — 20C		Effect settings
15A—15B	21A—21B		Writes a Program Renames a Program

* ② Double mode only

* For information on Effects, refer to p. 34, "3. Effect Parameters".

0A-0B Oscillator

00A OSC Mode	>	00B OSC1	<
DOUBLE		ASN: POLY	HLD: OFF

0A	OSC Mode	SINGLE DOUBLE DRUMS	Tone generator mode One oscillator mode (single) Two oscillator mode (double) Drums mode (drums)
0B	ASN	POLY MONO	The number of voices to sound Plays chords of up to the maximum number of voices. Plays only one note at a time.
	HLD	Hold	Whether or not the sound will continue after a key is released.

▼OSC Mode determines the type of the Program. The number of oscillators and the type of waveform used will depend on this setting.

- If you change the OSC Mode, you will need to re-select the OSC 1 Multisound (or Drum Kit).
- When SINGLE is selected, one OSC-VDF-VDA system will be used. You will be able to play up to 32 simultaneous notes.
- When DOUBLE is selected, two OSC-VDF-VDA systems will be used. This allows you to create more sophisticated sounds, but you will be able to play only up to 16 simultaneous notes.
- When DRUMS is selected, a drum kit (a collection of drum sounds) selected in Global mode will be used as the sound source. Either one of the ROM Drum Kits 1—4 will be used, or Drum Kit 1 or 2 can be selected from the Bank used for the sound source Program. The pan settings for the drum kit selected will be used. Other details are the same as for SINGLE.

As an example, for a Program from Bank C, one Drum Kit can be selected from among the following: Drum Kit 1 or 2 from Bank C, or one of the ROM Drum Kits 1—4.

* The page shown at the upper left part of the display will differ according to whether the SINGLE, DRUMS mode or DOUBLE mode has been selected. The text describes the pages used during DOUBLE mode.

▼ASSIGN determines whether this Program will play polyphonically (POLY) or monophonically (MONO).

▼When HOLD is set On, notes will continue sounding even after a key is released. This is useful mainly when playing the Drum Kit, usually you will set this Off.

- If Hold is On and the VDA EG Sustain Level is other than "0" the sound will not stop.

1A-1C OSC1

01A OSC1 SOUND > 000:Piano	01B OSC1 Level199 OCT 8	0 EGInt+00 Pan=5:5	<
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1A	Multisound	0 — 254, C00 —	Selects the OSC1 Multisound (basic waveform) (when the OSC Mode is SINGLE or DOUBLE).
	Drum Kit	Drum Kit 1,2 ROM Drum Kit 1—4	Selects the Drum Kit (when OSC Mode is DRUMS) Drum Kit (RAM) Drum Kit (ROM)
1B	Level	0 — 99	Volume of oscillator 1
	Octave		Specifies the octave of oscillator 1.
	OCT	32	2 octaves lower
		16	1 octave lower
		8	Normal pitch
		4	1 octave higher
1C	EGInt	-99 — +99	The depth of the pitch change over time
	Pan	A:9:1 — 1:9, B: C,C+D,D,ALL	The output destination of oscillator 1

▼ When the **1A** OSC Mode setting is SINGLE or DOUBLE, this parameter selects the Multisound used by Oscillator 1.

- Multisounds indicated by "NT" (No Transpose) will produce the same pitch regardless of the key that is pressed.
- Since each Multisound (waveform) has an upper limit to its pitch range, some Multisounds will produce no sound when played in high octaves.
- If an optional PCM card is inserted into the front panel slot, you will be able to select Multisounds from the card as well. To see the selectable Multisounds, which will be shown with letter "C" before the names, continue pressing the Δ key.

Note:

Insert or remove PCM cards only when the power is turned off, or when the unit is producing no sound.

▼ When the OSC Mode is set to DRUM KIT, this parameter selects either Drum Kit 1 or Drum Kit 2 from the Bank used for the Program, or one from among the ROM Drum Kits 1—4.

- You can assign drum sounds to a Drum Kit in pages 6, 7 of Global mode. However, only the Drum Kits in Bank A can be used.

▼ OSC Level determines the volume of Oscillator 1. "99" is the maximum volume.

- For some sounds, high settings of OSC Level will result in distortion when chords are played. In such cases, lower the OSC Level.

▼ Octave sets the basic pitch of Oscillator 1 in units of one octave. If the setting here is not 8, special attention should be paid when you set the keys of the keyboard tracking. In addition, when the OSC mode is Drums, set this to 8.

▼ Pitch EG Intensity determines the amount of the pitch EG change produced by the settings in **3A** **3C** Pitch EG.

▼ Pan (panpot) determines the output destination of oscillator 1 (i.e., the input to the effect system).

You can select A, B, C, D or ALL.

The AB balance can be adjusted → A: 9:1 — 1:9, B

The CD balance cannot be adjusted → C, C+D, D

It is possible to send the sound to all outputs → ALL

- If the OSC Mode has been set to DRUMS, this will not display anything, and the panpot settings made for the drum kit in Global mode will be used.

2A-2E OSC2 (DOUBLE Mode only)

02A OSC2 SOUND > 000:Piano	02B OSC2 Level199	0 OCT16'	02C OSC2 EGInt+00	0 Pan=5:5	02D OSC2 Intvl+00	0 Detn+03	02E OSC2 Delay=00	<
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2A	Multisound	0 — 254, C00 — Drum Kit 1,2 ROM Drum Kit 1—4	Select a Multisound for OSC2 Drum Kit (RAM) Drum Kit (ROM)
2B Level	OSC Level	0 — 99	Oscillator 2 volume
OCT	Octave	32'	Specify the octave of oscillator 2 2 octaves lower
		16'	1 octave lower
		8'	Normal pitch
		4'	1 octave higher
2C EG Int	Pitch EG Intensity	-99 — +99	The depth of the pitch change over time
Pan	Pan	A, 9:1 — 1:9, B, C, C+D, D, ALL	The output destination of oscillator 2
2D Int	Interval	-12 — +12	Interval (in chromatic steps) of OSC2 relative to OSC1
Detune	Detune	-50 — +50	Detune (in units of 1 cent) between OSC1 and OSC2
2E Delay	Delay Start	0 — 99	Time delay of OSC2 relative to OSC1

* Settings for Oscillator 2 can be made only if **00A** OSC Mode is set to DOUBLE.

▼ **Multisound** (Multisound select) selects the Multisound for oscillator 2. The selection is the same as for **1A** OSC1 Multisound.

▼ **OSC Level** (oscillator level) determines the volume of oscillator 2.

▼ **Octave** determines the octave of oscillator 2.

▼ **Pitch EG Intensity** determines the amount of the **3A** - **3C** Pitch EG effect.

▼ **Pan** (panpot) determines the output destination of oscillator 2.

▼ **Interval** determines the pitch difference (in chromatic steps over a range of -12 — +12) of oscillator 2 relative to oscillator 1. This can be used so that oscillators 1 and 2 form a chord.

▼ **Detune** specifies the pitch difference between oscillators 1 and 2 in fine steps of 1 cent (-50 — +50). By slightly detuning oscillators 1 and 2, you can create richer sounds.

The following table shows how Detune affects the pitch.

Detune	OSC1 Pitch	OSC2 Pitch
+50	-25 cent	+25 cent
.	.	.
0	0	0
.	.	.
-50	+25 cent	-25 cent

If you set Detune to a positive (+) value, the pitch of OSC1 will be lowered, and the pitch of OSC2 will be raised. Negative (-) values will have the opposite effect. As this value is increased, the difference between the pitches for OSC1 and OSC2 will increase, moving away from 0.

▼ **Delay Start** specifies the time delay of oscillator 2 relative to oscillator 1 over a range of 0 — 99. (If you do not wish to use this effect, set this to a value of 0.)

3A-3C Pitch EG

03A PITCH EG >	03B PITCH EG 0	03C PTCH. EG Vel.<
SL+00 AT00 AL+00	DT00 RT00 RL+00	Levl=-99 Tim=+00

[ASL]	Start Level	-99 — +99	These parameters determine pitch change over time +99 = approx. 1 octave above -99 = approx. 1 octave below 0 = pitch of oscillator when key is held down Key on, Attack level, Key off, Release level, Attack time, Decay time, Release time, Start level
AT	Attack Time	0 — 99	
AL	Attack Level	-99 — +99	
[RDT]	Decay Time	0 — 99	
RT	Release Time	0 — 99	
RL	Release Level	-99 — +99	
[CLevl]	EG Level Vel. Sens.	-99 — +99	How velocity affects the amount of pitch EG
Tim	EG Time Vel. Sens.	-99 — +99	How velocity affects the speed of the pitch EG

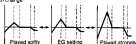
▼ These parameters determine how the pitch will change over time.

- Inverting the + and - values for each EG level will invert the shape of the EG.
- The same Pitch EG will be used for OSC1 and OSC2.
- The amount of effect is determined by the EG latency parameter for OSC1 in 1C and for OSC2 in 2C.

▼ For positive (+) values of EG Level Vel. Sens. (EG Level velocity sensitivity), the pitch change will become greater as you play the keys of the 01/W more strongly. (Negative (-) values will have the opposite effect.) The range of pitch change produced by the Pitch EG is limited to ± 1 octave.

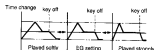
- When parameters are set to "+":

Pitch change



▼ For positive (+) values of EG Time Vel. Sens. (EG time velocity sensitivity), the pitch change will become faster as you play more strongly. (Negative (-) values will have the opposite effect.)

- When parameters are set to "+":



4A-4E VDF1 Cutoff, EG, Emphasis

04A VDF 1 Fc=19 EGInt=65	04B VDF1 EG AT09 AL+08 DT00	04C VDF1 EG BP+00 ST00 SL+00	04D VDF1 EG RT00 RL+00	04E Emphasis 1 Int=00 Vel=+00
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4A Fc	VDF Cutoff	0 — 99	VDF1 cutoff frequency (total brightness)
EG Int	EG Intensity	0 — 99	The depth of total change produced by the VDF1 EG
4B AT	Attack Time	0 — 99	
AL	Attack Level	-99 — +99	
DT	Decay Time	0 — 99	
4C BP	Break Point	-99 — +99	
ST	Slope Time	0 — 99	
SL	Sustain Level	-99 — +99	
4D RT	Release Time	0 — 99	
RL	Release Level	-99 — +99	
4E Int	Emphasis Intensity	0 — 99	The emphasis effect for oscillator 1
Vel	Emphasis Velocity Sens	-99 — +99	How velocity will affect the emphasis effect for oscillator 1

* The VDF (Variable Digital Filter) cuts the high frequency range of the multisound to control the tone.

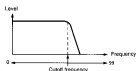
▼ Cutoff determines the VDF cutoff frequency. Lower values will result in a darker sound.

▼ EG Intensity determines the amount of change in the cutoff frequency produced by the VDF EG in the following item (**4B** - **4D**). For a value of 99, the cutoff EG will produce the maximum change.

▼ **4B** - **4D** VDF EG determines how the VDF1 cutoff frequency will change over time.

- If you invert the "+" and "-" values of the EG levels, the EG will be inverted.

- VDF1 EG Intensity will determine the overall EG levels.



* Emphasis is an effect that makes the sound stand out more clearly.

▼Intensity determines the depth of the emphasis effect. Higher values will result in a greater effect.

▼Velocity Sens (velocity sensitivity) determines how key velocity used when playing the 01/W (or similar) keyboard will affect the amount of emphasis.

- For positive (+) values, strongly played notes will have more emphasis. For negative (-) values, strongly played notes will have less emphasis.
- As the value approaches -99 or +99, your playing dynamics will have a greater effect.

5A-5E VDF2 Cutoff, EG, Emphasis2 (only for DOUBLE mode)

05A VDF 2 > Fc=19 EGInt=65	05B VDF2 EG @ AT09 AL+08 DT00	05C VDF2 EG @ BP+00 ST00 SL+00	05D VDF2 EG @ RT00 RL+00	05E Emphasis 2 < Int=00 Vel=+00
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▼This is the VDF, Emphasis for oscillator 2.

- The details are the same as for **[4A]** - **[4E]** VDF1, Emphasis.

◀To select DOUBLE mode (or Single mode), use **[0A]** OSC Mode.

6A-6E VDF1 Velocity Sense, Keyboard Tracking

06A VDF1 V.SENS> EGInt+77 EGtm=00	06B VDF1 V.SENS0 ATO DTO STO RTO	06C VDF1 K.TRK 0 KeyF04 Mode= ALL	06D VDF1 K.TRK 8 Int=+00 EGtm=00	06E VDF1 K.TRK < ATO DTO STO RTO
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6A EGInt	Vel Sense Intensity	-99 — +99	How key velocity will affect the VDF1 EG effect
EGtm	EG Time Vel.Sens	0 — 99	How key velocity will affect the time of VDF1 EG
6B AT	Attack Time	-, 0, +	The direction in which EG Time Velocity will affect the parameters (such as Attack Time) of the VDF1 EG (with a value of 0 there will be no effect)
DT	Decay Time	-, 0, +	
ST	Slope Time	-, 0, +	
RT	Release Time	-, 0, +	
6C Key	Key	C-1 — G9	If the Keyboard Tracking Mode is LOW or HIGH, this determines the key from which keyboard tracking will begin. If ALL, this determines the key around which the keyboard will be tracked (i.e., the key at which no change will occur).
Mode	KBD Tracking Mode	OFF LOW HIGH ALL	The area over which keyboard tracking will occur Keyboard tracking will not occur Keyboard tracking will occur in the low range Keyboard tracking will occur in the high range Keyboard tracking will occur over the entire range
6D Int	KBD Tracking Intensity	-99 — +99	How keyboard position will affect VDF1
EGtm	EG Time KBD Track	0 — 99	How keyboard position will affect the time of VDF1 EG
6E AT	Attack Time	-, 0, +	The direction in which EG time keyboard tracking will affect the parameters of the VDF1 EG (with a value of 0 there will be no effect)
DT	Decay Time	-, 0, +	
ST	Slope Time	-, 0, +	
RT	Release Time	-, 0, +	

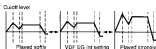
▼ Vel Sense (EG intensity velocity sensitivity) determines how the O1/W (or similar) keyboard dynamics will affect the tone.

- For positive (+) values, softly played notes will have less change in cutoff frequency than specified by the VDF EG.
- For negative (-) values, strongly played notes will have less change in cutoff frequency than specified by the VDF EG. (These changes are relative to the values specified by EG Intensity.)

○ For many acoustic instruments, softly played notes have less energy in the high frequency region. To simulate this,

you can set the VDF cutoff frequency to a fairly low level, and set all parameters for VDF EG sustain level, VDF EG intensity, and VDF EG intensity velocity sensitivity to positive values.

- When parameters are set to "+":



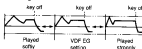
▼EG Time (EG time velocity sensitivity) determines how O1/W (or similar) keyboard dynamics will affect the speed of the VDF EG.

For a setting of "+", strongly played notes will have a shorter time (Attack/Decay/Slope/Release Time). For a setting of "-", strongly played notes will have a longer time.

- Time value of EG time Vel. Sense also applies to the other four parameters. You can specify $\pm$ (The direction of change) independently for Attack, Decay, Slope, and Release. This is also true of **[6D]** VDF EG Time KBD Track, **[10A]** VDF EG Time Vel. Sense, and **[10D]** VDA EG Time KBD Track.

- When all parameters are set to "+":

Time change



▼Using VDF Keyboard Tracking (**[6C]**-**[6E]**), you may select how the keyboard position will affect the VDF cutoff frequency.

▼If the Keyboard Tracking Mode is LOW or HIGH, the Key parameter specifies the key from which keyboard tracking will occur. If the Keyboard Tracking Mode is ALL, the Key parameter specifies the key around which keyboard tracking will occur (i.e., the key at which the Cutoff/EG Time will not be changed).

▼For positive (+) values of KBD Tracking Intensity (cutoff keyboard tracking intensity), higher notes will be brighter. (Negative values will have the opposite effect.) As the value approaches +99 or -99, the change will be greater, and for a value of 0, the cutoff frequency will change in exact proportion to the pitch.

- At a value of -50, the cutoff frequency will be the same for all notes, regardless of the keyboard position.



▼KBD Tracking Mode specifies the area over which keyboard tracking will occur. When this parameter is OFF, the **[6D]** keyboard tracking Intensity and EG Time Keyboard Track are disabled.



▼If "+" is set for EG Time (EG time keyboard track), notes higher than the **[6C]** key will have shorter VDF EG times (Attack/Decay/Slope/Release Time). For a setting of "-", higher notes above the key will have longer VDF EG times. The key specified in **[6C]** and the "Keyboard Tracking Mode" determine the range which is affected.

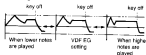
- When EG time = +

Length of time



- When all parameters are set to "+":

Time change



7A-7E VDF2 Velocity Sense, Keyboard Tracking (only for DOUBLE mode)

07A VDF2 V.SENS> EGint+S3 EGtm00	07B VDF2 V.SENS8 AT0 DT0 ST0 RT0	07C VDF2 K.TRK 0 KeyC-1 Mode= ALL	07D VDF2 K.TRK 0 Int=+00 R0tm=00	07E VDF2 K.TRK < AT0 DT0 ST0 RT0
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▼ This is the VDF for oscillator 2.

- The details are the same as Page 6A - 6E VDF1.

◊ To select DOUBLE mode (or SINGLE mode), use 0A OSC Mode.

8A-8C VDA1 EG

08A VDA1 EG > AT00 AL99 DT15	08B VDA1 EG 0 BP20 ST88 SL00	08C VDA1 EG < RT60
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8A AT	Attack Time	0 — 99	How the VDF1 cutoff will change over time
AL	Attack Level	0 — 99	
DT	Decay Time	0 — 99	
8B BP	Break Point	0 — 99	
ST	Slope Time	0 — 99	
SL	Sustain Level	0 — 99	
8C RT	Release Time	0 — 99	

▼ The VDA EG determines how volume will change over time.

* The VDA (Variable Digital Amplifier) is the section that modifies the volume of the waveform.

9A-9C VDA2 EG (only for DOUBLE mode)

09A VDA2 EG > AT00 AL99 DT15	09B VDA2 EG 0 BP20 ST88 SL00	09C VDA2 EG < RT60
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▼ This is the VDA for oscillator 2.

- The details are the same as Page 8A - 8C VDA1 EG.

◊ To select DOUBLE mode (or SINGLE mode), use 0A OSC Mode.

10A-10E VDA1 Velocity Sense, Keyboard Tracking

10A VDA1 V.SENS Amp=+99 EGtm=00	10B VDA1 V.SENS0 AT0 DT0 ST0 RT0	10C VDA1 K.TRK 0 KeyC#1 Mode= OFF	10D VDA1 K.TRK 0 Amp=+00 EGtm=00	10E VDA1 K.TRK < AT0 DT0 ST0 RT0
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10A Amp	VDA Velocity Sense	-99 — +99	How key velocity affects the VDA1 volume change
EGtm	EG Time Vel.Sens	0 — 99	How key velocity affects VDA1 EG time
10B AT	Attack Time	-, 0, +	The direction in which the various VDA1 EG parameters (attack time, etc.) will be affected by EG Time Velocity Sense. (Parameters set to 0 will not be affected by key velocity.)
DT	Decay Time	-, 0, +	
ST	Slope Time	-, 0, +	
RT	Release Time	-, 0, +	
10C Key	Key	C-1 — G9	When the Keyboard Tracking Mode is LOW or HIGH, this specifies the key from which keyboard tracking will begin to take effect. When the Keyboard Tracking Mode is ALL, this specifies the center key around which VDA1 keyboard tracking will take effect (i.e. the key which will not be affected).
Mode	KBD Tracking Mode	OFF LOW HIGH ALL	The range over which keyboard tracking will occur Keyboard tracking will not occur Keyboard tracking will occur for the low note range Keyboard tracking will occur for the high note range Keyboard tracking will occur over the entire note range
10D Amp	KBD Tracking	-99 — +99	How key position will affect VDA1 volume change
EGtm	EG Time KBD Track	0 — 99	How key position will affect VDA1 EG time
10E AT	Attack Time	-, 0, +	The direction in which the various VDA1 EG parameters (attack time, etc.) will be affected by EG Time Keyboard Track. (Parameters set to 0 will not be affected by key velocity.)
DT	Decay Time	-, 0, +	
ST	Slope Time	-, 0, +	
RT	Release Time	-, 0, +	

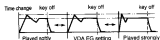
▼VDA Velocity Sense (VDA velocity sensitivity) determines how key velocity will affect the volume. For positive (+) values, softly played notes will be softer. For negative (-) values, strongly played notes will be softer. As the value approaches +99 or -99, key velocity will have a greater effect on the volume.

○ In DOUBLE mode, you can achieve a velocity crossfade effect by giving oscillators 1 and 2 opposite settings for VDA Velocity Sensitivity.

▼EG Time (EG time velocity sensitivity) determines how 01/W (or similar) keyboard velocity will affect the VDA EG time. For a setting of "+", strongly played notes will have a shorter VDA EG time (Attack/Decay/Slope/Release Time). For a setting of "-", strongly played notes will have a longer time.

* For example if Attack Time is set to "+", strongly played notes will have a sharp attack, and softly played notes will have a gentle attack. This is especially effective for string sounds.

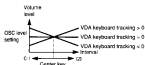
- When all parameters are set to "+":



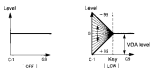
- * VDA Keyboard Tracking determines how the key position will affect VDA volume.

▼ For positive (+) settings of KBD Tracking Intensity, the volume will increase as you play higher notes. For negative (-) settings, the volume will decrease as you play higher notes.

▼ When the Keyboard Tracking Mode is LOW or HIGH, the Key parameter specifies the key from which keyboard tracking will begin to take effect. When the Keyboard Tracking Mode is ALL, the Key parameter specifies the center key around which keyboard tracking will take effect (i.e., the key at which volume and EG Time will not be affected).

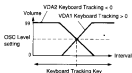


▼ KBD Tracking Mode determines the range over which keyboard tracking will occur. When this parameter is set to "OFF", the [101] Keyboard Tracking and EG Time Keyboard Track are disabled.



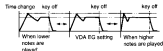
- ◻ In DOUBLE mode, you can create a "positional crossfade" effect by setting an identical keyboard tracking key for both oscillators 1 and 2, and giving them opposite "+" and "-" settings.

- The resulting volume after the Keyboard Tracking setting is applied will stay within the range of 0-99.



▼ If EG Time (EG time keyboard track) is set to "+", notes higher than the [100] key will have shorter VDA EG Times (Attack/Decay/Slope/Release Times). For a setting of "-", higher notes above the key will have longer VDA EG Time. The key specified in [100] and the Keyboard Tracking Mode determine the range which is affected.

- If every parameter is set to "+":



11A-11E VDA2 Velocity Sense, Keyboard Tracking (only for DOUBLE mode)

11A VDA2 V.SENS> Amp=+99 EGtm=00	11B VDA2 V.SENS8 AT0 DT0 ST0 RT0	11C VDA2 K.TRK 0 KeyF1 Mode= OFF	11D VDA2 K.TRK 0 Amp=+00 EGtm=00	11E VDA2 K.TRK < AT0 DT0 ST0 RT0
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▼ This is the VDA for oscillator 2.

- The details are the same as 10A - 10E VDA1.

☞ To select DOUBLE mode (or SINGLE mode), use Page-

0A OSC Mode.

12A-12E Pitch1 Modulation

12A PITCH 1 MG > TRI Freq00 Int00	12B PITCH 1 MG @ Delay00 FadeIn00	12C PITCH 1 MG @ K.Sync:OFF	12D PMG1 FREQ 0 K.TRK+00 A+J=0	12E PMG1 INT < Aft=00 JoyUP=00
--------------------------------------	--------------------------------------	--------------------------------	-----------------------------------	-----------------------------------

12A	Waveform	TRI SAW ↑ SAW ↓ SQR RAND	Selects the modulation waveform Triangle  Sawtooth 1  Sawtooth 2  Square  Random 
Freq	Frequency	0 — 99	Speed of modulation
Int	Intensity	0 — 99	Depth of modulation
12B Delay	Delay	0 — 99	Delay from when key is pressed to when modulation begins
FadeIn	Fade In	0 — 99	Time from when the modulation begins to when it reaches the level specified by the Intensity parameter
12C K.Sync	Key Sync	OFF ON	Modulation will apply to all notes in the same way Modulation will be started independently for each new note
12D K.TRK	Frequency Mod by KBD Track	-99 — +99	How keyboard tracking will affect the MG speed
A+J	Frequency Mod by After Touch +Joy Stick	0 — 9	How aftertouch and the joystick will affect the speed of Pitch MG
12E Aft	Intensity Mod by After Touch	0 — 99	How aftertouch will affect the amount of Pitch MG
JoyUP	Intensity Mod by Joy Stick	0 — 99	How the joystick will affect Pitch MG

* Pitch MG (pitch modulation generator) cyclically varies the pitch (creates vibrato). These are the oscillator 1 pitch MG parameters.

▼ Waveform selects the modulation waveform; i.e., the "shape" of the variation in pitch.

- Triangle  triangle wave (most often used)
- Saw Up  upward sawtooth wave
- Saw Down  downward sawtooth wave
- Square  square wave
- Random  irregular change

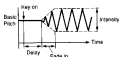
▼ Frequency determines the modulation frequency (the speed of the pitch variation). A setting of 99 results in the fastest modulation.

- When Triangle wave is selected:



▼ Delay determines the time delay from when a key on the keyboard (such as the 01/W) connected to MIDI IN is pressed to when modulation begins.

▼ **Fade In** specifies the time from when the modulation begins to when it reaches the setting specified by the **Intensity** parameter.



▼ **Intensity** determines the depth of the modulation.

- When Triangle wave is selected:



▼ If **Key Sync** is set ON, the modulation waveform will be restarted for each new note played on the MIDI keyboard connected to the GTR/W's MIDI IN (such as the G1/W).

▼ When plus (+) is selected for **Frequency Mod by KBD Track**, as higher notes are played, the speed of the Pitch MG will increase accordingly. When minus (-) is selected, the speed of the pitch MG will decrease as higher notes are played. The Pitch MG will not be affected when a value of 0 is selected. "C4" is the center key.

▼ **Frequency Mod by After Touch + Joy Stick** specifies how much the Pitch MG speed will increase in response to aftertouch and the joystick.

▼ The greater the **After Touch** value, the greater the effect on the Pitch MG when a key is pressed strongly.

▼ The greater the **Joy Up** (joy stick) value, the greater the effect on the Pitch MG when the joy stick is pushed upward.

* **After Touch** allows you to affect the tone by continuing to press down strongly on the key after playing a note.

* The Joy Stick can be moved in the +Y axis (away from you) to control the depth and speed of the Pitch MG effect.

Pitch MG becomes deeper
Pitch MG becomes faster



13A-13E Pitch 2 Modulation (DOUBLE Mode only)

13A PITCH 2 MG > TR1 Freq00 Int00	13B PITCH 2 MG 0 Delay00 FadeIn00	13C PITCH 2 MG 0 K.Sync:OFF	13D PMG2 FREQ 0 K.TRK+00 A+J=0	13E PMG2 INT < Aft=00 JoyUP=00
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▼ These parameters determine the Pitch MG for oscillator 2.

- The details are the same as for [12A](#) - [12E](#).

o Switching between Double and Single Modes is done in the [0A](#) OSC mode.

14A-14C VDF Modulation

14A VDF MG >	14B VDF MG 0	14C VDF MG <
RAND Frq00 Int00	Delay00 OSC=BOTH	K.Sync:OFF

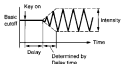
14A	Waveform	TRI SAW ↑ SAW ↓ SQR RAND	Selects the modulation waveform Triangle  Sawtooth 1  Sawtooth 2  Square  Random 
	Frq	0 — 99	Speed of modulation
	Int	0 — 99	Depth of modulation
	14B Delay	0 — 99	Delay from when key is pressed to when modulation begins
	OSC Select	OFF OSC1 OSC2 BOTH	Selects which VDF modulation to use No modulation effect Modulation will affect only VDF1 Modulation will affect only VDF2 Modulation will affect both VDF1 and VDF2
14C	K.Sync	OFF ON	Modulation will apply to all notes in the same way Modulation will be started independently for each new note

▼VDF MG (VDF modulation) creates periodic variation in Cutoff Frequency, resulting in a "wah-wah" effect.

- The details are the same as for Pitch MG, but there is no Fade In parameter. (The Fade In time will depend on the Delay Time.)

▼Since VDF MG is common to both VDF 1 and VDF2, OSC Select specifies the VDF to which the MG will be applied.

▼If Key Sync is set ON, the modulation waveform will be started for each key on the MIDI keyboard (such as the UI/W) when it is pressed.



15A-15D After Touch, Joy Stick Control

15A APT CTRL > P.Bend+12 Pc+00	15B APT CTRL 0 VDF.MG00 Amp+00	15C J.STK Down 0 VDF.MG=99	15D BEND CTRL < P.Bend+00 VDF+00
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15A P.Bend	After Touch Bend	-12 — +12	The maximum effect that aftertouch will have on pitch (up to ± 1 octave)
Pc	After Touch VDF Cutoff	-99 — +99	How aftertouch will affect VDF cutoff frequency (tone)
15B VDF MG	VDF MG Int Mod by After Touch	0 — 99	How aftertouch affects VDF MG
Amp	After Touch VDA Amplitude	-99 — +99	How aftertouch will affect volume
15C VDF MG	VDF MG Int Mod by Joy Stick	0 — 99	How the joystick affects VDF MG
15D P.Bend	Joy Stick Pitch Bend Range	-12 — +12	The maximum effect that the joystick will have on pitch
VDF	Joy Stick VDF Sweep Intensity	-99 — +99	How the joystick will affect VDF cutoff frequency

▼ After Touch Bend specifies the maximum pitch change (over a range of -12 — +12 (± 1 octave)) that will occur when aftertouch is applied (that is, when you press down the key after playing a note on the MIDI keyboard such as the 01/W connected to the MIDI IN of the 03R/W).

▼ For positive (+) values of After Touch VDF Cutoff frequency, pressing down the key will increase the cutoff value (the sound will become brighter). Negative values will have the opposite effect.

▼ For higher values of VDF MG Int Mod by AT, aftertouch will increase the effect of the VDF MG. For a value of 0, there will be no change.

▼ For positive (+) values of After Touch VDA Amplitude, pressing down the key (aftertouch) will increase the volume. Negative (-) values will have the opposite effect.

▼ For higher values of VDF MG Int Mod by Joy Stick, moving the joystick of the keyboard (such as the 01/W) downward (toward you) will deepen the effect of the VDF Cutoff MG.



EX: 01/W Joystick

VDF MG becomes deeper

▼ Joy Stick Pitch Bend Range specifies the maximum pitch change in half steps (semitones) that will occur when the joystick on the keyboard (such as the 01/W connected to MIDI IN) is moved to left or right. For the maximum setting of 12, the pitch will change one octave up or down. For positive settings (+1 — +12), moving the joystick to the right will raise the pitch. Negative settings will have the opposite effect.

• For positive settings:



▼ Joy Stick VDF Sweep Int. (intensity) specifies how the VDF cutoff will change when the joystick is moved to left or right. For positive values, moving the joystick to the right will raise the cutoff value. Negative values will have the opposite effect.



16A-20C Effect

For information on Effects, refer to p. 34, "3. Effect Parameter".

- The parpot (A-D) settings made for each oscillator will be input to the effects.
- Although an effect can be selected for a Program, this effect will be ignored if the Program is used in a Combination or during MULTI mode. Only the effect settings made for the Combination or MULTI mode will be enabled.

21A-21B Program Write/Rename

21A PROG WRITE >	21B RENAME <
Write>ADD OK?	ADD:E. Piano

21A	Write	Destination Prog. No.	A00—A99, C00—C99,D00—D99	Program number of write destination
	OK?			Executes the write operation
21B				Rename

▼ This function is used to write an edited Program into internal memory or into a RAM card.

- (1) Enter a Program name using the $\leftarrow$, $\rightarrow$, Δ , and ∇ keys for **21B**.

The $\leftarrow$ and $\rightarrow$ keys are used to move the cursor, and the Δ and ∇ keys are used to change the character selected at the cursor position.

- You may use up to 10 characters including letters and symbols.
- You cannot execute the write operation if Program memory protect is "ON". Turn memory protect off in Global mode [3A]. Each time the Δ or ∇ key is pressed, the character selected will change in the order shown in this illustration.

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

- (2) Select the Program number for the writing destination, using **21A**.

It is not possible to write to Bank G.

- If a RAM card formatted to PROG is inserted, you will also be able to select card memories (C00—C99, D00—D99). Before writing data into memory, turn the card protect switch to "OFF".
- (3) Move the cursor to "OK?", and press Δ .
 - The Program data previously stored in that memory will be lost.
 - To cancel the write operation, press ∇ .
 - (4) The display will ask "Are You Sure OK?". If you want to write the data, press Δ again.
 - (5) When writing is completed, the display will show "Completed".

☆ Use this writing function when you wish to copy a Program to another Program number.

☆ When either Drum Kit 1 or 2 (that is, none of the ROM Drum Kits) has been selected for a Program during OSC mode, the Drum Kit being used will change if the Program is written to a different Bank. (A Drum Kit from the new Bank will be used.) To use the Drum Kit selected for the Program, copy the Drum Kit also when writing the Program to a different Bank.

3. EFFECT PARAMETERS

The 03R/W has two stereo digital multi-effects units. Each effect unit can produce a wide variety of effects such as reverb, delay, chorus, flanger, phase shifter, distortion, and exciter. Effect parameters can be edited for detailed adjustments. Effect settings can be made separately as part of Program parameters, Combination parameters, and Multi-Setup parameters, allowing you to use the most appropriate effect setup for each situation.

- When playing Programs, each sound can have its own effect settings, so you can use effects as part of the process of creating a sound.
- When playing Drum Kit Programs or Combinations, it is also possible to apply effects to specific sounds.

You can edit effect parameters in Edit Program mode, Edit Combination mode, and Multi mode. (The editing parameters are the same.)

The effect section has four inputs (A, B, C, D), four outputs (1/L, 2/R, 3, 4), two effect units, and two panpots (PAN 3, 4). The two effects can be connected either in serial or in parallel. (In the 03R/W, all signals are processed and routed as digital data, and the signals are converted from digital to analog audio only after it has passed through the effect section.)

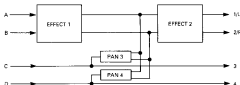
About Dynamic Modulation

Effect parameters (such as Dry:FX Balance, Modulation Speed, etc.) can be controlled in realtime using the joystick, aftertouch, or other controllers, for a greater range of musical expression.

Dynamic modulation settings can be made independently for each of the two effect systems (the control source and sensitivity). However, only one parameter can be controlled for each effect. When controlling operations via MIDI, MIDI messages in the Global MIDI channel can also be used to control operations.

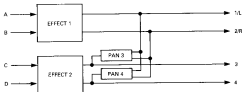
EFFECT PLACEMENT

Placement = Serial

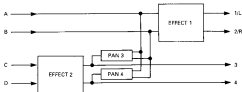


In Serial mode, two effects 1 and 2 are applied to inputs A and B, and the signals will be output to 1/L and 2/R. The signals input from C and D will be output directly as outputs 3 and 4. Alternatively, it is possible to mix the input signal from C and D into the two inputs of Effect 2.

• For example, using inputs C and D will allow you to avoid applying Effect 1 to a specific sound, or to apply Effect 1 only to a specific sound and then apply Effect 2 to all the sounds.

Placement = Parallel

In Parallel mode, separate effects are applied to inputs A and B and inputs C and D, and the signals are output respectively to 1/L and 2/R, and 3 and 4. You can also mix the output of 3 and 4 into the output of 1/L and 2/R.

Placement = Parallel 2

Effect 1 is applied to input from A and B.

Effect 2 is applied to input from C and D, and these signals can then be input to Effect 1.

④ The Output 3 Pan and Output 4 Pan settings can be used in the following ways.

- When different sounds are input to C and D separately, you can create a stereo mix by using Out 3 Pan and Out 4 Pan to pan these sounds to the stereo output (1/L and 2/R).
- If stereo-type effects have been selected for Effects 1 and 2 when Effect Placement is Parallel, you can route Output 3 Pan to L and Output 4 Pan to R in order to send the outputs of Effects 1 and 2 as a stereo mix.
- If you are using an external effect unit or mixing console, you may also set Output 3 Pan and Output 4 Pan to "OFF" to use Outputs 3 and 4 as separate outputs.

④ There are two types of effects: stereo-type effects (1—37), and effects comprised of two different types of effects (38—47).

④ The input to A-D is determined by the panpot settings for the Oscillator parameters, Timbre parameters, and Track parameters in Edit Program mode, Edit Combination mode, and Multi mode, respectively.

* You can monitor only outputs 1/L and 2/R with the headphones. This means the sound input to C and D cannot be monitored when Output 3 Pan and Output 4 Pan are set to OFF.

3. EFFECT PARAMETERS

The pages available for setting Effects will differ according to the mode that has been selected.

EDIT Program mode (SINGLE, DRUMS)	10A — 14C
EDIT Program mode (DOUBLE)	16A — 20C
EDIT COMBINATION mode	8A — 12C
MULTI mode	7A — 11C

An example from MULTI mode is shown below.

07A EFFECT1=01 > Hall OFF	07B Hall 0 DRY:EFF=75:25	07C Hall < Src:JS(+Y) 1+10
------------------------------	-----------------------------	-------------------------------

7A-7D Effect 1

7A	Effect Type	00 01 — 47	No effect is used Select the Effect Type
	Switch	OFF, ON	Switches the effect ON or OFF
7B	Dry: Effect Balance	DRY, 00 — 100, FX	Sound and Effect balance
7C Src	Dynamic Modulation Source	NONE JS (+Y) JS (-Y) AFTT PEDAL 1 PEDAL 2 VDA EG	Effect Dynamic Modulation Control Source Not used Joystick (+Y) Joystick (-Y) After Touch Foot Pedal 1 Foot Pedal 2 VDA EG
7D	Dynamic Modulation Intensity	-15 — +15	Specifies the depth of Effect Dynamic Modulation

- When you select a new effect type, the effect parameters (8A—8D, 90A—100D) will be set to their initial values.

- If one effect unit is set to "24:Symphonic Ensemble", it will not be possible to select the following effects at the same time.

19 — 23	Chorus
24	Symphonic Ensemble
25 — 27	Flanger
32, 33	Phaser
34	Rotary Speaker
35, 36	Tremolo
38, 39	Chorus, Flanger-Delay
42	Delay/Chorus
43	Delay/Flanger
46	Delay/Phaser
47	Delay/Rotary Speaker

- "Switch" sets and displays whether an effect is ON or OFF. You may also switch the effect ON and OFF by sending the control change messages (Control No.91 (Effect1) and No.92 (Effect2) ON and OFF from an external MIDI device.

- When you select a Program or Combination, the ON/OFF status will be set to the condition specified by the effect parameters in that mode.

- For Delay (13, 14), Chorus (19, 20), Exciter (28), and Tremolo (35, 36), the equalizer settings (LOW EQ and HIGH EQ) are valid even when "Switch" is set to OFF. If you wish to turn all the effects (including the equalizer) OFF during the edit operation, set the Effect Type to "No Effect (00)".

- When the Dry: Effect Balance is set to DRY, the sound can be heard with no effects. Increasing the value at the right side will increase the volume of the effect, and FX can be used to hear only the sound of the effect.

- If the selected effect has a parameter that can be controlled by Dynamic Modulation, you can specify (7C) the Dynamic Modulation Source and the Intensity (the depth of modulation) to control that parameter in realtime.

- The choice of "VDA EQ" for Dynamic Modulation is the sum of all 32-voice's VDA EGs.

- Effect Controls 1 and 2 (Bn, 0C, vv or Bn, 0D, vv) transmitted via MIDI correspond to pedals 1 and 2 respectively (during operation on Global Channel).

8A-8D Effect 1 Parameter

▼These are the parameters for Effect1.

- The parameters differ according to the effect type. Please refer to the explanation of each effect type.

9A-9C Effect 2

▼This selects the effect type for Effect2.

- The details are the same as for Effect1.

10A-10D Effect 2 Parameter

▼These are the parameters for Effect2.

- The details are the same as for **8A**—**8D** effect1.**11A-11C Effect Placement**

11A PLACEMENT >	11B EFF2 PANPOTB	11C COPY EFF <
Parallel	3= OFF 4=40:60	COMBI A00 OK?

11A	Effect Placement	Serial Parallel Parallel 2	Selects the routing of the effect units. Parallel Serial Parallel 2
11B 3=	Out3 Panpot	OFF L: 99:1 — 1:99, R	The sound from Output 3 is not sent to L or R Output 3 Pan setting (L/R balance)
4=	Out4 Panpot	OFF L: 99:1 — 1:99, R	The sound from Output 4 is not sent to L or R Output 4 Pan setting (L/R balance)
11C	Copy Effect Source Mode	PROG COMBI MULTI	Copy effect source Program Combination Multi
	Copy Effect Source No.	A00 — 99 C00 — 99 D00 — 99	Copy effect source number
		OK?	Execute copy effect

▼These parameters determine the effect Placement and the panning of outputs 3 and 4.

- There are two types of effect placement. (Refer to page 34.)
- Set the volume for the L and R signals being sent to C and D via Output 3 Pan and Output 4 Pan.

* You can monitor only outputs 1/L, and 2/R with the headphones. This means the sound input to C and D cannot be heard when Output 3 Pan and Output 4 Pan are set to OFF.

▼Use **11C** to copy an effect setting from another Program, etc. Select the copy source (PROG, COMBI, MULTI) and the number (not required for MULTI). Move the cursor to OK?, and press the Δ key to carry out the copy operation. The copy destination will be the currently selected Program.

NO EFFECT

0. NO EFFECT

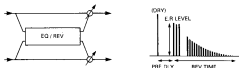
Select "NO EFFECT" when no effects are used.

• For Delay (13, 14), Chorus (19, 20), Exciter (28), and Tremolo (35, 36), the equalizer settings (LOW EQ and HIGH EQ) are valid even when "Effect Switch" is set to OFF. If you wish to turn all the effects (including equalizer) off during the edit operation, set the Effect Type to "No Effect."

10A No Effect

REVERB

This effect simulates the reverberant acoustics of a hall, adding ambience to the sound.



1. HALL

The acoustic ambience of a natural-sounding hall.

2. ENSEMBLE HALL

The acoustic ambience of a hall suitable for string and brass ensembles.

3. CONCERT HALL

The acoustic ambience of a larger hall, with emphasized early reflections.

4. ROOM

The acoustic ambience of a smaller room.

5. LARGE ROOM

This effect is a room-type reverb with emphasized density. With Reverb Time settings of about 0.5 seconds, the result will be similar to a gating effect.

6. LIVE STAGE

The acoustic ambience of a fairly large room.

7. WET PLATE

A simulation of a heavily applied plate reverb device.

8. DRY PLATE

A simulation of a lightly applied plate reverb device.

9. SPRING REVERB

A simulation of a spring reverb device.

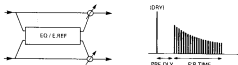
10A Hall	>	10B Hall	0	10C Hall	<
Time3.2s	H.Dmp30	P.Dly060ms	E.R62	EQ.L-04dB	H+00dB

[0A] Time	Reverb Time	0.2 — 9.9 [sec] (HALL type) 0.2 — 4.9 [sec] (ROOM type) 00 — 99 (PLATE type)	The time over which the reverberation will decay
H.Dmp	High Damp	0 — 99 [%]	Higher values result in a faster decay for high frequencies
[0B] P.Dly	Pre Delay	0 — 200 [ms]	The delay between the direct sound and the early reflections
E.R	E.R Level	0 — 99 (HALL/ROOM type) 1 — 10 (PLATE type)	The level of the early reflections
[0C] EQ.L	EQ Low	-12 — +12 [dB]	The amount of boost or cut for the low frequency range
H	EQ High	-12 — +12 [dB]	The amount of boost or cut for the high frequency range

For effects 1 — 9, you can use Dynamic Modulation to control the Dry:FX Balance.

EARLY REFLECTION

The Early Reflection effects create the early reflections that are an important element in determining the qualities of an acoustic environment. By various settings of the Early Reflection Time parameter, you can create a variety of effects such as thickening the sound, or creating echo-like reflections.



10. EARLY REFLECTION I

This effect emphasizes the low frequency range, and is effective when used on percussive sounds such as drums.

11. EARLY REFLECTION II

The level of the early reflections produced by this effect will change over time in a way that differs from Effect 10: Early Reflection I, giving it a different character.

12. EARLY REFLECTION III

This effect creates early reflections with an envelope opposite from Early Reflection I and Early Reflection II. When used on sounds with a strong attack, such as cymbals, it can create reverse-type effects.

10A EarlyRef1 > E.R Time=220ms	10B EarlyRef1 @ Pre Delay= 015ms	10C EarlyRef < EQ.L+03dB H-05dB
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10A E.R Time	Early Reflection Time	100 — 800 [ms]	The early reflection time (10ms increments)
10B Pre Delay	Pre Delay	0 — 200 [ms]	The delay from the direct sound to the early reflections
10C EQ.L	EQ Low	-12 — +12 [dB]	The amount of boost or cut for the low frequency range
H EQ High	EQ High	-12 — +12 [dB]	The amount of boost or cut for the high frequency range

For effects 10 — 12, you can use Dynamic Modulation to control the Dry:FX Balance.

STEREO DELAY

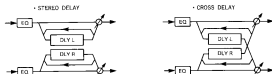
These effects create stereo delay patterns in which you can set the left and right delay times independently. By using appropriate high damp settings, you can make the repeated delays decay in a natural way.

13. STEREO DELAY

This effect has two delay channels with feedback. The same delay times will be set for both channels.

14. CROSS DELAY

This is a stereo delay which has two delay channels with feedback from one channel to the other, to make the sound move between left and right.



10A StereoDly >	10B StereoDly @	10C StereoDly <
D.TimeL=250 R260	FB=40 H.Dap30	EQ.L+00dB H+00dB

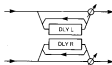
[10A] D.Time L	Delay Time Left	0 — 500 [ms]	The time from the direct sound to the processed sound in the left channel (Input A or C)
	R Delay Time Right	0 — 500 [ms]	The time from the direct sound to the processed sound in the right channel (Input B or D)
[10B] FB	Feedback	-99 — +99 [%]	The amount of feedback (negative values invert the phase)
H.Dap	High Damp	0 — 99 [%]	Higher values result in a faster decay for high frequencies
[10C] EQ.L	EQ Low	-12 — +12 [dB]	The amount of boost or cut for the low frequency range
	H EQ High	-12 — +12 [dB]	The amount of boost or cut for the high frequency range

For effects 13 and 14, you can use Dynamic Modulation to control the Dry:W Balance.

DUAL MONO DELAY

15. DUAL MONO DELAY

This is composed of two independent mono delays.



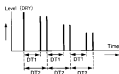
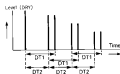
10A D.M Dly(L) > D.Time=250ms	10B D.M Dly(L) 0 FB+50 H.Dap10	10C D.M Dly(R) 0 D.Time=260ms	10D D.M Dly(R) < FB+50 H.Dap10
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10A D.Time	Delay Time L	0 — 500 [ms]	The time from the direct sound to the processed sound in the left channel
10B FB	Feedback L	-99 — +99 [%]	The amount of feedback for the left channel (negative values invert the phase)
H.Dap	High Damp L	0 — 99 [%]	Higher values result in a faster decay for high frequencies
10C D.Time	Delay Time R	0 — 500 [ms]	The time from the direct sound to the processed sound for the right channel
10D FB	Feedback R	-99 — +99 [%]	The amount of feedback for the right channel (negative values invert the phase)
H.Dap	High Damp R	0 — 99 [%]	Higher values result in a faster decay for high frequencies

For this effect, you can use Dynamic Modulation to control the Dry: Effect Balance.

MULTI TAP DELAY

An equalizer is applied to each effect input, and then the signal is sent to two independent delays connected in series. The output of the second delay is fed back into the input.

When $DT1 < DT2$ When $DT1 > DT2$

16. MULTI TAP DELAY I

This is a two-channel multi-repeat delay.

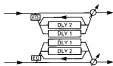
17. MULTI TAP DELAY II

This is a two-channel multi-repeat delay with cross-panning.

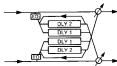
18. MULTI TAP DELAY III

This is a two-channel multi-repeat delay with cross-feedback.

• MULTI TAP DELAY I, II



• MULTI TAP DELAY III



10A M.TapDly1 > D1T300 D2T400	10B M.TapDly1 0 FB+50	10C M.TapDly1 < EQ.L+00dB H+00dB
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[10A] D1T	Delay Time 1	0 — 500 [ms]	The time from the direct sound to the processed sound
D2T	Delay Time 2	0 — 500 [ms]	The time from the direct sound to the processed sound
[10B] FB	Feedback	-99 — +99	The amount of feedback (negative values invert the phase)
[10C] EQ.L	EQ Low	-12 — +12 [dB]	The amount of boost or cut for the low frequency range. EQ is applied to both the direct sound and the processed sound.
H	EQ High	-12 — +12 [dB]	The amount of boost or cut for the high frequency range. EQ is applied to both the direct sound and the processed sound.

For effects 16, 17 and 18, you can use Dynamic Modulation to control the Dry:Wet Balance.

CHORUS

These are stereo-type effects composed of two chorus units, and are useful when you wish to add natural spaciousness and richness to any type of sound; piano, strings, brass, etc.

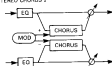
19. STEREO CHORUS I

Because modulation is applied to the two chorus units in such a way that one of them will result in an inverted phase, the sound image seems to shift back and forth in stereo.

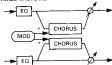
20. STEREO CHORUS II

Modulation with the same phase will be applied to the two chorus units.

• STEREO CHORUS I



• STEREO CHORUS II



10A Chorus 1 >	10B Chorus 1 0	10C Chorus 1 <
D.Time=010ms TRI	Mod60 M.SP0.30Hz	EQ.L+00dB H+00dB

10A D.Time	Delay Time	0 — 200 [ms]	The time from the direct sound to the processed sound
	Mod Waveform	SIN (sine) TRI (triangle)	Selects the modulation waveform.
10B Mod	Mod Depth	0 — 99	The depth of modulation
M.SP	Mod Speed	0.03 — 30 [Hz]	The speed (frequency) of modulation
10C EQ.L	EQ Low	-12 — +12 [dB]	The amount of boost or cut for the low frequency range
H	EQ High	-12 — +12 [dB]	The amount of boost or cut for the high frequency range

For effects 19 and 20, you can use Dynamic Modulation to control the Dry/FX Balance.

21. QUADRATURE CHORUS

This is a stereo chorus in which the modulation is applied to each channel 90 degrees out of phase.

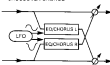
22. CROSSOVER CHORUS

This is a stereo chorus in which the modulation is applied to each channel 90 degrees out of phase, and the chorused signal is mixed into the output of the other channel.

- QUADRATURE CHORUS



- CROSSOVER CHORUS



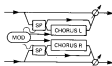
10A Quad.Chor. >	10B Quad.Chor. 0	10C Quad.Chor. 0	10D Quad.Chor. <
DelayL=011 R023	Mod50 ModSP=33	ModShape=T+00	EQ.L+00dB H+00dB

10A Delay L	Delay Time L	0 — 250 [ms]	The time from the direct sound to the processed sound of the left channel
R Delay R	Delay Time R	0 — 250 [ms]	The time from the direct sound to the processed sound of the right channel
10B Mod	Mod Depth	0 — 99	The depth of modulation
Mod SP	Mod Speed	1 — 99	The Speed of modulation
10C Mod Shape	Mod Shape	T + 10 — T - 10, S - 10 — S + 10	Selects the modulation waveform. The number determines the symmetry of the waveform.
10D EQ L	EQ Low	-12 — +12 [dB]	The amount of boost or cut for the low frequency range
H	EQ High	-12 — +12 [dB]	The amount of boost or cut for the high frequency range

For effects 21 and 22, you can use Dynamic Modulation to control the Mod Speed.

23. HARMONIC CHORUS

This is a quadrature chorus effect that splits the sound range and applies chorusing only to the high range. The low range will not pass through the chorus, and will not be processed. This effect is especially useful for low-frequency instruments such as bass.



10A Harmo.Cho. > D.TimeL=022 R046	10B Harmo.Cho. 8 Mod99 ModSP=35	10C Harmo.Cho. < F.Split Point=01
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[10A] D.Time L	Delay Time L	0 — 500 [ms]	The time from the direct sound to the processed sound of the left channel
R	Delay Time R	0 — 500 [ms]	The time from the direct sound to the processed sound of the right channel
[10B] Mod	Mod Depth	0 — 99	The depth of modulation
Mod SP	Mod Speed	1 — 99	The speed (frequency) of modulation
[10C] F.Split Point	Frequency Split Point	0 — 18	The point at which the sound range is split

For this effect, you can use Dynamic Modulation to control the Mod Speed.

SYMPHONIC ENSEMBLE

24. SYMPHONIC ENSEMBLE

This is a chorus-type multiple effect, which is most effective for ensemble sounds like strings.



10A Symp. Ens. >	10B Symp. Ens. <
Mod0	EQ, L+00dB H+00dB

10A Mod	Mod Depth	0 — 99	The depth of ensemble effect
10B EQ, L	EQ Low	-12 — +12 [dB]	The amount of cut or boost for the low frequency range
H	EQ High	-12 — +12 [dB]	The amount of cut or boost for the high frequency range

For this effect, you can use Dynamic Modulation to control the Dry: FX Balance

* You cannot use the following effects together with the Symphonic Ensemble.

19 — 23	Chorus	38, 39	Chorus, Flanger — Delay
24	Symphonic Ensemble	42	Delay/Chorus
25 — 27	Flanger	43	Delay/Flanger
32, 33	Phaser	46	Delay/Phaser
34	Rotary Speaker	47	Delay/Rotary Speaker
35, 36	Tremolo		

FLANGER

These effects add feedback to a chorus effect. When used on sounds that contain a lot of harmonics, such as symbols, they can not only create modulation effects, but also add a sense of pitch to a non-pitched sound, resulting in a sharp impressive sound.

25. FLANGER I

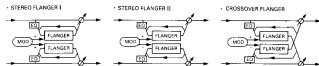
This is a stereo flanger in which the modulation is applied to both channels in the same phase.

26. FLANGER II

This is a stereo flanger in which the modulation is applied to each channel in the opposite phase. The sound image seems to shift back and forth in stereo.

27. CROSSOVER FLANGER

In this effect, two flangers being modulated in inverse phases apply feedback to each other.



10A Flanger 1 >	10B Flanger 1 0	10C Flanger 1 <
D.Time005 Res-85	Mod99 ModSP=20	EQ.L+00dB H+00dB

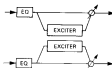
[10A] D.Time	Delay Time	0 — 200 [ms]	The time from the direct sound to the processed sound
Res	Resonance	-99 — +99	The amount of feedback for the flanger
[10B] Mod	Mod Depth	0 — 99	The depth of modulation
Mod SP	Mod Speed	1 — 99	The speed of modulation
[10C] EQ.L	EQ Low	-12 — +12 [dB]	The amount of boost or cut for the low frequency range
H	EQ High	-12 — +12 [dB]	The amount of boost or cut for the high frequency range

For effects 25 — 27, you can use Dynamic Modulation to control the Mod Speed.

EXCITER

28. EXCITER

This is an effect that increases the clarity of the sound, and gives it greater definition.



10A Exciter Blend=+50	>	10B Exciter Emph Point=05	#	10C Exciter EQ.L+04dB #+00dB	<
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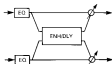
10A Blend	Blend	-99 — +99	The depth of exciter effect
10B Emph Point	Emphatic Point	1 — 10	The central frequency emphasized by exciter
10C EQ.L	EQ Low	-12 — +12 [dB]	The amount of boost or cut for the low frequency range
H	EQ High	-12 — +12 [dB]	The amount of boost or cut for the high frequency range

For this effect, you can use Dynamic Modulation to control the Dry: FX Balance

ENHANCER

This is a two-channel enhancer which includes a delay to give the sound more spaciousness. An enhancer makes the sound clearer and more well-defined, giving the sound more presence and bringing it up front in the mix.

29. ENHANCER



10A Enhancer >	10B Enhancer	0	10C Enhancer	0	10D	<
Harm Density=80	Hot Spot=01		S.W=50 D.Time=25		EQ.L=+01dB E=+01dB	

☐ 10A Harm Density	Density	0 — 99	The depth of the exciter effect
☐ 10B Hot Spot	Hot Spot	1 — 20	The central frequency emphasized by exciter
☐ 10C S.W	Stereo Width	0 — 99	The level at which an inverse phase delay will be mixed with the output of the other channel
D.Time	Delay Time	1 — 99	The time from the direct sound to the delayed sound
☐ 10E EQ.L	EQ Low	-12 — +12 [dB]	The amount of boost or cut for the low frequency range
H	EQ High	-12 — +12 [dB]	The amount of boost or cut for the high frequency range

For this effect, you can use Dynamic Modulation to control the Dry/FX Balance.

DISTORTION

30. DISTORTION

This effect distorts the sound and adds a wah effect. It is effective for solos.



31. OVER DRIVE

This effect simulates the overdrive sound frequently used by guitars. It is effective when playing guitar-like phrases on organ or electric piano sounds, and for solos.



10A Dist	>	10B Dist	0	10C Dist	<
Drive=111		H-Spot=80		EQ.L=+02dB	
		Level=110		H=-12dB	

10A Drive	Drive (Edge)	1 — 111	The amount of distortion applied to the input signal
Res	Resonance	0 — 99	The Q of the filter (i.e., the amount of wah effect)
10B H Spot	Hot Spot	0 — 99	The center frequency for the wah filter
Level	Out Level	0 — 99	The output level of the distorted sound
10C EQ.L	EQ Low	-12 — +12 [dB]	The amount of boost or cut for the low frequency range
H	EQ High	-12 — +12 [dB]	The amount of boost or cut for the high frequency range

For effects 30 and 31, you can use Dynamic Modulation to control the Hot Spot in order to obtain a wah effect.

PHASER

These are two-channel stereo phase shifters. Using time delay and changes in phase, they produce a modulation effect that is clearer than chorus or flanger. These effects are especially suitable for electric piano or guitar.

Chorus and flanger produce their effects by modulating the delay time. However, phasers modulate the phase of the input signal, creating an effect with a character that differs from the chorus or flanger.

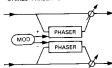
32. STEREO PHASER I

This effect is composed of two phaser blocks, each of which is modulated in inverse phase to the other, and the sound image will shift back and forth in stereo.

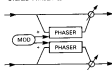
33. STEREO PHASER II

This stereo-type effect combines two phaser blocks. This effect modulates both phaser blocks with the same phase.

• STEREO PHASER I



• STEREO PHASER II



10A Phaser I >	10B Phaser I 0	10C Phaser I <
Manual=99	Mod60 M.SPD.69Hz	FB-75 SIN

10A Manual	Manual	0 — 99	The center frequency to which the phase shift effect will be applied
10B Mod	Mod Depth	0 — 99	The depth of the phase shift effect
MSP	Mod Speed	0.03 — 30 [Hz]	The speed (frequency) of modulation
10C FB	Feedback	-99 — +99 [%]	The amount of feedback (negative values invert the phase)
	Mod Waveform	SIN, TRI	Modulation waveform

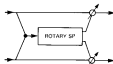
For effects 32 and 33, you can use Dynamic Modulation to control Mod Speed.

ROTARY SPEAKER

This effect simulates the rotary speaker effect that is popular for organ sounds.

34. ROTARY SPEAKER

The rotary effect is created by a completely independent LFO. The selected dynamic modulation source can be used to switch between fast and slow speeds. In this case, moving the controller rapidly will not make the rotor speed change in the same way. Rather, regardless of how fast you move the controller, the rotor speed will change to the new speed at the rate specified by Acceleration. Also, the speed will be changed regardless of the settings for the dynamic modulation intensity.



10A Rot.Spk > Vibrato Depth=09	10B Rot.Spk 0 Acceleration=04	10C Rot.Spk < Speed S=25 F=70
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☐ 10A Vibrato Depth	Vibrato Depth	0 — 15	The depth of the vibrato. This corresponds to varying the horn diameter of the rotating speaker.
☐ 10B Acceleration	Acceleration	1 — 15	The rate at which the speed will change from Slow to Fast
☐ 10C Speed S	Slow Speed	1 — 99	The speed when Slow
F	Fast Speed	1 — 99	The speed when Fast

You can control the speed of Dynamic Modulation for this effect.

TREMOLO

This effect cyclically varies the volume.

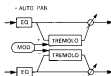
35. AUTO PAN

This is a stereo-type program that combines two tremolo blocks. Since each block is modulated in inverse phase to the other, the sound image seems to move as if it were being panned from side to side in the stereo field.

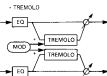
36. TREMOLO

Unlike the Auto Pan above, this effect modulates both tremolo blocks in the same phase.

• AUTO PAN



• TREMOLO



10A Auto Pan >	10B Auto Pan 0	10C Auto Pan <
SIS ModShape+99	Mod80 M.SP1.59Hz	EQ.L+00dB H+00dB

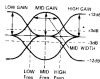
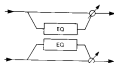
10A	Mod Waveform	SIN TRI	Selects the modulation waveform Sine Triangle
Mod Shape	Mod Shape	-99 — +99	Changes the modulation waveform
10B Mod	LFO Depth	0 — 99	The depth of tremolo
M.SP	Mod Speed	0.03 — 30 [Hz]	The speed (frequency) of modulation (tremolo)
10C EQ.L	EQ Low	-12 — +12 [dB]	The amount of boost or cut for the low frequency range
H	EQ High	-12 — +12 [dB]	The amount of boost or cut for the high frequency range

For effects 35 and 36, you can use Dynamic Modulation to control the Dry:FX Balance.

PARAMETRIC EQ

37. PARAMETRIC EQ

This is a three-band equalizer. You can set the cutoff frequency and gain for the high, middle and low frequencies independently.



10A Para. EQ >	10B Para. EQ 0	10C Para. EQ 0	10D Para. EQ <
LowFrg12 Gain+12	MidFrg08 Gain+12	MidWidth=50	Hi Frg20 Gain+12

10A Low Frg	Low Freq	0 — 29	The low band cutoff
Gain	Low Gain	-12 — +12 [dB]	The amount of boost or cut for the low frequency range
10B Mid Frg	Mid Freq	0 — 99	The center of the mid range filter
Gain	Mid Gain	-12 — +12 [dB]	The amount of boost or cut for the mid range filter
10C Mid Width	Mid Width	0 — 99	The resonance of the mid range filter
10D Hi Frg	High Freq	0 — 29	The high band cutoff
Gain	High Gain	-12 — +12 [dB]	The amount of boost or cut for the high frequency

This effect allows you to use Dynamic Modulation to control the mid frequency in order to obtain a wack effect.

COMBINATION EFFECTS: SERIAL

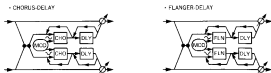
In effects 38 and 39, a mono-in stereo-out chorus/flanger is connected in series with a stereo delay.

38. CHORUS-DELAY

In this effect, a mono-in stereo-out chorus with a 90 degree out-of-phase LFO is connected in series with stereo delay.

39. FLANGER-DELAY

In this effect, a mono-in stereo-out flanger with a 90 degree out-of-phase LFO is connected in series with stereo delay.



10A Chor-Dly >	10B Chor-Dly 0	10C Chor-Dly <
Cho.DT1ms FB+10	Cho.Mod50 M.SP30	Dly.DT110 FB-10

• CHORUS, FLANGER

10A Cho DT	Delay Time	0 — 50 [ms]	The delay time of the delay effect (2ms increments)
FB	Feedback	-99 — +99 [%]	The amount of feedback (negative settings invert the phase)
10B Cho Mod	Mod Depth	0 — 99	The depth of modulation
M.SP	Mod Speed	1 — 99	The speed of modulation

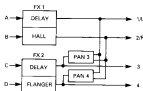
• DELAY

10C Dly DT	Delay Time	0 — 450 [ms]	The delay time of the delay effect (2ms increments)
FB	Delay Feedback	-99 — +99 [%]	The amount of feedback (negative values invert the phase)

For effects 38 and 39, you can use Dynamic Modulation to control the Dry: FX Balance.

COMBINATION EFFECTS: PARALLEL

- The effects described from here on (40 - 47) use effects which are combined in parallel placement, allowing you to apply a different effect to each channel. Therefore, you can use two different types of effects for EFFECTS 1 and 2.
e.g. "40, DELAY/HALL" is selected for Effect1, and "43, DELAY/FLANGER" is selected for Effect2.



- Please refer sections 1—34 for the contents of effects.
- Items **A** and **B** (or only **A**) correspond to the parameters of one effect (Mono Delay), and items **C** and **D** (or **B** and **C**) correspond to the parameters of the other effect.

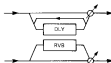
MONO DELAY/REVERB

40. DELAY/HALL

This effect combines a mono delay with a mono hall reverb.

41. DELAY/ROOM

This effect combines a mono delay with a mono room reverb.



10A Delay(L) > Time250ms FB+50	10B Delay(L) 0 H.Dmp10	10C Hall(R) 0 Time3.5s H.Dmp40	10D Hall(R) < P.Dly055ms
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• DELAY

10A Time	Delay Time	0 — 500 [ms]	The delay time of the delay effect
FB	Feedback	-99 — +99 [%]	The amount of feedback (negative values invert the phase)
10B H.Dmp	High Damp	0 — 99 [%]	Higher values result in a faster decay for high frequencies

• HALL, ROOM

10C Time	Reverb Time	0.2 — 9.9 [sec] (HALL) 0.2 — 4.9 [sec] (ROOM)	The time over which the reverb will decay after the pre-delay
H.Dmp	High Damp	0 — 99 [%]	Higher values result in a faster decay for high frequencies
10D P.Dmp	Pre Delay	0 — 150 [ms]	The delay between the direct sound and the first early reflections

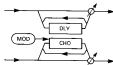
For effects 40 and 41, you can use Dynamic Modulation to control the Dry: FX Balance.

MONO DELAY/MODULATED DELAY

42. DELAY/CHORUS

This effect combines a mono delay with a mono chorus.

- DELAY/CHORUS



10A Delay(L) > Time250ms	10B Delay(L) > FB+50	10C Chorus(R) > H.Dmp10	10D Chorus(R) > Mod60	10E Chorus(R) > M.SP0.30Hz	10F Chorus(R) > TRI
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• DELAY

10A	Time	Delay Time	0 — 500 [ms]	The delay time of the delay effect
	FB	Feedback	-99 — +99 [%]	The amount of feedback (negative values invert the phase)
10B	H.Dmp	High Damp	0 — 99 [%]	Higher values result in a faster decay for high frequencies

• CHORUS

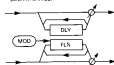
10C	Mod	Mod Depth	0 — 99 [%]	The depth of modulation
	M.SP	Mod Speed	0.03 — 30 [Hz]	The speed (frequency) of modulation
10E		Mod Waveform	SIN, TRI	Modulation waveform

For this effect you can use Dynamic Modulation to control the Dry/FX Balance.

43. DELAY/FLANGER

This effect combines a mono delay with a mono flanger.

• DELAY/FLANGER



10A Delay(L) > Time250ms FB+50	10B Delay(L) 0 H.Dmp10	10C Flanger(R) 0 Mod70 M.SP0.18Hz	10D Flanger(R) < FB-75
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• DELAY

[10A] Time	Delay Time	0 — 500 [ms]	The delay time of the delay effect
FB	Feedback	-99 — +99 [%]	The amount of feedback (negative values invert the phase)
[10B] H.Dmp	High Damp	0 — 99 [%]	Higher values result in a faster decay for high frequencies

• FLANGER

[10C] Mod	Mod Depth	0 — 99	The depth of modulation
M.SP	Mod Speed	0.03 — 30 [Hz]	The speed (frequency) of modulation
[10D] FB	Feedback	-99 — +99 [%]	The amount of feedback (negative values invert the phase)

For this effect, you can use Dynamic Modulation to control the Dry: FX Balance.

MONO DELAY/DISTORTION, OVER DRIVE

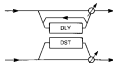
44. DELAY/DISTORTION

This effect combines a mono delay with a distortion that produces a wah effect.

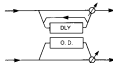
45. DELAY/OVER DRIVE

This effect combines a mono delay with an overdrive that produces a wah effect.

• DELAY/DISTORTION



• DELAY/OVER DRIVE



10A Delay(L) >	10B Dist(R) 0	10C Dist(R) <
Time250ms FB+40	Drive=111 Res=75	H.Spot50 Level105

• DELAY

10A Time	Delay Time	0 — 500 [ms]	The delay time of the delay effect
FB	Feedback	-99 — +99 (%)	The amount of feedback (negative values invert the phase)

• DISTORTION, OVER DRIVE

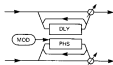
10B Drive	Drive (Edge)	1 — 111	How greatly the input signal will be distorted
Res	Resonance	0 — 99	The amount of wah effect
10C H.Spot	Hot Spot	1 — 99	The center frequency for the wah filter
Level	Level	1 — 99	The output level of the distorted sound

For effects 44 and 45, you can use Dynamic Modulation to control the Hot Spot to obtain a wah effect.

MONO DELAY/PHASER

46. DELAY/PHASER

This effect combines a mono delay and a mono phaser.



10A Delay(L) > Time250ms FB+50	10B Delay(L) @ H.Dmp10	10C Phaser(R) @ Mod60 M.SPD.69Hz	10D Phaser(R) < PB-75
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• DELAY

10A Time	Delay Time	0 — 500 [ms]	The delay time of the delay effect
FB	Feedback	-99 — +99 [%]	The amount of feedback (negative values invert the phase)
10B H.Dmp	High Dump	0 — 99 [%]	Higher values result in a faster decay for high frequencies

• PHASER

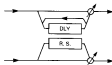
10C Mod	Mod Depth	0 — 99	The depth of modulation
MSP	Mod Speed	0.03 — 30 [Hz]	The speed (frequency) of modulation
10D PB	Feedback	-99 — +99 [%]	The amount of feedback (negative values invert the phase)

For this effect, you can use Dynamic Modulation to control the Dry: FX Balance.

MONO DELAY/ROTARY SPEAKER

47. DELAY/ROTARY SPEAKER

This effect combines a mono-delay with a mono rotary speaker.



10A Delay(L) >	10B Rot.SP(R) 0	10C Rot.SP(R) <
Time250ms FB+40	Acceleration=04	Speed S=25 F=70

• DELAY

[0A] Time	Delay Time	0 — 500 [ms]	The delay time of the delay effect
FB	Feedback	-99 — +99 [%]	The amount of feedback (negative values invert the phase)

• ROTARY SPEAKER

[0B] Accel	Acceleration	1 — 15	The rate at which the speed will change between Slow and Fast
[0C] Speed S	Slow Speed	1 — 99	The speed of Slow
F	Fast Speed	1 — 99	The speed of Fast

For this effect, you can use Dynamic Modulation to change the Rotary Speaker speed.

Effector Parameter

No.	EFFECT	[A]		[B]		[C]	
REVERB		Reverb Time		Pre Delay		E.R. Level	
1	Hall	0.2~9.9	[2.3]	0~200	[60]	0~99	[62]
2	Ensemble Hall	<i>σ</i>	[3.1]	<i>σ</i>	[15]	<i>σ</i>	[23]
3	Concert Hall	<i>σ</i>	[3.3]	<i>σ</i>	[80]	<i>σ</i>	[66]
4	Room	0.2~4.9	[1.3]	<i>σ</i>	[8]	<i>σ</i>	[68]
5	Large Room	<i>σ</i>	[2.4]	<i>σ</i>	[25]	<i>σ</i>	[51]
6	Live Stage	<i>σ</i>	[2.2]	<i>σ</i>	[12]	<i>σ</i>	[81]
7	Wet Plate	0~99	[59]	<i>σ</i>	[29]	1~10	[7]
8	Dry Plate	<i>σ</i>	[30]	<i>σ</i>	[26]	<i>σ</i>	[5]
9	Spring Reverb	<i>σ</i>	[25]	<i>σ</i>	[0]	<i>σ</i>	[3]
EARLY REFLECTION		E.R. Time		Pre Delay			
10	Early Reflection 1	100~800	[225]	0~200		[0]	
11	<i>σ</i> 2	<i>σ</i>	[180]	<i>σ</i>		<i>σ</i>	
12	<i>σ</i> 3	<i>σ</i>	[300]	<i>σ</i>		<i>σ</i>	
STEREO DELAY		Delay Time L		Delay Time R		Feedback	
13	Stereo Delay	0~500	[185]	0~500	[370]	-99~+99	[-40]
14	Cross Delay	<i>σ</i>	[150]	<i>σ</i>	[380]	<i>σ</i>	[+40]
DUAL MONO DELAY		Delay Time L		Feedback L		High Damp L	
15	Dual Mono Delay	0~500	[20]	-99~+99	[0]	0~99	[0]
MULTI TAP DELAY		Delay Time 1		Delay Time 2			
16	Multi Tap Delay 1	0~500	[175]	0~500		[350]	
17	<i>σ</i> 2	<i>σ</i>	[200]	<i>σ</i>		<i>σ</i>	
18	<i>σ</i> 3	<i>σ</i>	[250]	<i>σ</i>		<i>σ</i>	
CHORUS		Delay Time		Mod Speed		Mod Depth	
19	Stereo Chorus 1	0~200	[3]	0.03~30	[0.33]	0~99	[59]
20	<i>σ</i> 2	<i>σ</i>	[2]	<i>σ</i>	[0.42]	<i>σ</i>	[84]
CHORUS		Delay Time L		Delay Time R		Mod Speed	
21	Quadrature Chorus	0~250	[24]	0~250	[12]	● 1~99	[30]
22	Cross Over Chorus	<i>σ</i>	[2]	<i>σ</i>	[24]	● <i>σ</i>	[16]
HARMONIC CHORUS		Delay Time L		Delay Time R			
23	Harmonic Chorus	0~500	[4]	0~500	[12]		
SYMPHONIC ENSEMBLE		Mod Depth					
24	Symphonic Ensemble	0~99	[92]				
FLANGER		Delay Time		Mod Depth		Mod Speed	
25	Flanger 1	0~200	[5]	0~99	[50]	● 1~99	[28]
26	<i>σ</i> 2	<i>σ</i>	[24]	<i>σ</i>	[99]	● <i>σ</i>	[42]
27	Cross Over Flanger	<i>σ</i>	[1]	<i>σ</i>	[60]	● <i>σ</i>	[22]
EXCITER		Blend				Emphatic Point	
28	Exciter	-99~+99	[60]			1~10	
ENHANCER		Harmonic Density		Hot Spot		Stereo Width	
29	Enhancer	1~99	[28]	1~20	[3]	0~99	[85]
DISTORTION		Drive		Hot Spot		Resonance	
30	Distortion	1~111	[107]	● 0~99	[88]	0~99	[07]
31	Over Drive	<i>σ</i>	[65]	● <i>σ</i>	[10]	<i>σ</i>	[63]
PHASER		Manual		Mod Speed		Mod Depth	
32	Stereo Phaser 1	0~99	[98]	● 0.03~30	[0.24]	0~99	[97]
33	<i>σ</i> 2	<i>σ</i>	[96]	● <i>σ</i>	[0.24]	<i>σ</i>	[96]
ROTARY SPEAKER		Vibrate Depth				Acceleration	
34	Rotary Speaker	0~15	[2]			1~15	
TREMOLO		Mod Waveform		Mod Wave Shape		Mod Speed	
35	Auto Pan	S&H/TRI	[TR]	-99~+99	[95]	0.03~30	[0.21]
36	Tremolo	<i>σ</i>	[TR]	<i>σ</i>	[-99]	<i>σ</i>	[3.9]
PARAMETRIC EQ		Low Freq		Low Gain		Mid Freq	
37	Parametric EQ	0~23	[15]	-12~+12	[-0.6]	● 0~99	[10]
COMBINATION SERIAL		Fig./Cho Delay		Fig./Cho F-Back		Mod Speed	
38	Chorus Delay	0~99	[24]	-99~+99	[24]	1~99	[12]
39	Flanger Delay	<i>σ</i>	[1]	<i>σ</i>	[80]	<i>σ</i>	[04]
COMBINATION PARALLEL		Delay Time		Feedback		High Damp	
40	Delay/Hall	0~500	[30]	-99~+99	[0]	0~99	[0]
41	Delay/Room	<i>σ</i>	[20]	<i>σ</i>	[0]	<i>σ</i>	[0]
		Delay Time		Feedback		High Damp	
42	Delay/Chorus	0~500	[220]	-99~+99	[15]	0~99	[59]
		Delay Time		Feedback		High Damp	
43	Delay/Flanger	0~500	[400]	-99~+99	[20]	0~99	[60]
		Delay Time		Feedback			
44	Delay/Distortion	0~500	[250]	-99~+99	[+40]		
45	Delay/Over Drive	<i>σ</i>	[350]	<i>σ</i>	[50]		
		Delay Time		Feedback		High Damp	
46	Delay/Phaser	0~500	[300]	-99~+99	[+15]	0~99	[60]
		Delay Time		Feedback			
47	Delay/Rotary Speaker	0~500	[280]	-99~+99	[+15]		

C		E		F		G		H	
High Damp				EQ Low		EQ High		DryFX Balance	
0~99	[31]			-12~-+12	[-03]	-12~-+12	[-01]	● DRY~FX	[80:20]
σ	[32]			σ	[-1]	σ	[-3]	● σ	[80:20]
σ	[41]			σ	[-2]	σ	[-4]	● σ	[80:20]
σ	[36]			σ	[+1]	σ	[+2]	● σ	[18:22]
σ	[32]			σ	[-1]	σ	[+2]	● σ	[18:22]
σ	[36]			σ	[-5]	σ	[-4]	● σ	[75:25]
σ	[51]			σ	[0]	σ	[-4]	● σ	[80:20]
σ	[47]			σ	[2]	σ	[2]	● σ	[80:20]
σ	[20]			σ	[2]	σ	[-4]	● σ	[18:22]
				EQ Low		EQ High		DryFX Balance	
				-12~-+12	[-4]	-12~-+12	[-4]	● DRY~FX	[80:20]
				σ	[+1]	σ	[0]	● σ	[80:20]
				σ	[0]	σ	[0]	● σ	[75:25]
High Damp				EQ Low		EQ High		DryFX Balance	
0~99	[10]			-12~-+12	[0]	-12~-+12	[0]	● DRY~FX	[80:20]
σ	[10]			σ	[0]	σ	[0]	● σ	[80:20]
DryFX Balance L		Delay Time R		Feedback R		High Damp R		DryFX Balance R	
DRY~FX	[50:50]	0~500	[40]	-99~-+99	[0]	0~99	[0]	● DRY~FX	[25:45]
Feedback				EQ Low		EQ High		DryFX Balance	
-99~-+99	[30]			-12~-+12	[0]	-12~-+12	[0]	● DRY~FX	[80:20]
σ	[0]			σ	[0]	σ	[0]	● σ	[70:30]
σ	[20]			σ	[0]	σ	[0]	● σ	[70:30]
Mod Waveform				EQ Low		EQ High		DryFX Balance	
SIN,TRI	[TR]			-12~-+12	[+4]	-12~-+12	[+4]	● DRY~FX	[50:50]
σ	[TR]			σ	[+3]	σ	[+4]	● σ	[60:40]
Mod Depth		Mod Waveform		EQ Low		EQ High		DryFX Balance	
0~99	[50]	1+18~5+18	[50]	-12~-+12	[0]	-12~-+12	[0]	DRY~FX	[50:50]
σ	[99]	σ	[0]	σ	[0]	σ	[0]	σ	[50:50]
Mod Speed		Mod Depth		Filter Split Point				DryFX Balance	
● 1~99	[36]	0~99	[99]	0~18	[3]			DRY~FX	[25:75]
				EQ Low		EQ High		DryFX Balance	
				-12~-+12	[0]	-12~-+12	[0]	● DRY~FX	[61:39]
		Resonance		EQ Low		EQ High		DryFX Balance	
		-99~-+99	[80]	-12~-+12	[0]	-12~-+12	[0]	DRY~FX	[50:50]
		σ	[36]	σ	[0]	σ	[0]	σ	[50:50]
		σ	[80]	σ	[0]	σ	[0]	σ	[50:50]
				EQ Low		EQ High		DryFX Balance	
				-12~-+12	[+3]	-12~-+12	[+3]	● DRY~FX	[50:50]
Delay Time				EQ Low		EQ High		DryFX Balance	
1~99	[25]			-12~-+12	[0]	-12~-+12	[0]	● DRY~FX	[50:50]
EQ Low		EQ High		Out Level				DryFX Balance	
-12~-+12	[0]	-12~-+12	[0]	0~99	[6]			DRY~FX	[50:50]
σ	[0]	σ	[0]	σ	[8]			σ	[50:50]
Feedback		Mod Waveform						DryFX Balance	
-99~-+99	[56]	SIN,TRI	[TR]					DRY~FX	[50:50]
σ	[50]	σ	[SIN]					σ	[50:50]
		Slow Speed		Fast Speed				DryFX Balance	
		1~99	[25]	1~99	[69]			DRY~FX	[34:66]
Mod Depth				EQ Low		EQ High		DryFX Balance	
0~99	[16]			-12~-+12	[0]	-12~-+12	[0]	● DRY~FX	[25:75]
σ	[99]			σ	[0]	σ	[0]	● σ	[50:50]
Mid Gain		Mid Width		High Freq		High Gain		DryFX Balance	
-12~-+12	[+56]	0~99	[50]	0~29	[12]	-12~-+12	[06]	DRY~FX	[50:50]
Mod Depth		Delay Time		Feedback				DryFX Balance	
0~99	[75]	0~450	[120]	-99~-+99	[16]			● DRY~FX	[68:48]
σ	[99]	σ	[300]	σ	[30]			● σ	[58:58]
DryFX Balance		Reverb Time		Pre Delay		High Damp		DryFX Balance	
● DRY~FX	[FX]	0.2~5.9	[3.0]	0~150	[68]	0~99	[34]	● DRY~FX	[78:18]
● σ	[FX]	0.2~4.9	[1.1]	σ	[0]	σ	[28]	● σ	[66:16]
DryFX Balance		Mod Speed		Mod Depth		Mod Waveform		DryFX Balance	
● DRY~FX	[78:18]	0.03~30	[0.39]	0~99	[99]	SIN,TRI	[TR]	● DRY~FX	[50:50]
DryFX Balance		Mod Speed		Mod Depth		Feedback		DryFX Balance	
● DRY~FX	[78:18]	0.03~30	[0.21]	0~99	[96]	-99~-+99	[-75]	● DRY~FX	[50:50]
DryFX Balance		Drive		Hot Spot		Resonance		Out Level	
DRY~FX	[78:18]	1~111	[105]	1~99	[99]	0~99	[07]	1~99	[10]
σ	[78:18]	σ	[65]	σ	[90]	σ	[83]	σ	[20]
DryFX Balance		Mod Speed		Mod Depth		Feedback		DryFX Balance	
● DRY~FX	[68:48]	0.03~30	[0.69]	0~99	[99]	-99~-+99	[+99]	● DRY~FX	[25:75]
DryFX Balance		Acceleration		Slow Speed		Fast Speed		DryFX Balance	
DRY~FX	[78:18]	1~15	[10]	1~99	[25]	1~99	[69]	DRY~FX	[30:70]

* : Dynamic Modulation allows you to switch between "Slow speed" and "Fast speed".

4. COMBINATION MODE

Press the COMBI key to enter this mode. This is the mode that appears each time the power is turned ON. The COMBI key LED will flash at such times.

This mode allows you to select and play Combinations (a combination of Programs).

To select a Combination, use the INT key, CARD key, +10 key, +1 key, -10 key, -1 key or MIDI program change messages.

- You can select a Combination from internal memory (A00 — A99) or from a card (C00 — D99).

When set to ENA ... Program change messages received on the same channel as the global MIDI channel will change Combinations. Program change messages received on other channels will select the Program of the Timbre which is receiving that channel.

If the Timbre channel is the same as the global channel, the global channel will take priority, and the Combination will be changed.

When set to PRG ... Program change messages received on the global channel will not change Combinations, but if a Timbre is receiving that channel, the Program of that Timbre will change.

When set to NUM ... This is basically the same as ENA, but MIDI Bank Changes are not received. (The signal that is received differs for PRG and ENA.)

- The global channel is a MIDI channel set in Global mode 2A, and it controls the entire 03B/7W.
- Before selecting a Combination from a card, insert a PROG card which contains the desired Combination.
- Notes can be played until the total number of oscillators used by all Timbres reaches 32.
- In Combination mode, effect settings from each Program are ignored, and the effect settings specified by the Combination parameters will be used.
- If you edit in Edit Program mode and then move to the Combination mode, the edited Program will be used.
- Programs to be used in Combinations from Bank A (internal memory) can be selected from Banks A or G. Programs to be used in Combinations from Bank C (card) can be selected from Banks C and G.

5. EDIT COMBINATION MODE

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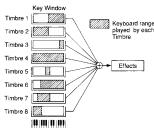
Press the COMBI key, then press EDIT to enter this mode.
The COMBI key and EDIT key LEDs will begin to flash.

In this mode, you can specify how programs are combined into a Combination, and make settings for the effects to be used in the Combination.

A Combination consists of 8 Timbres. For each Timbre, it contains a Program, various parameters related to performance (panpot, volume, MIDI channel, etc.). A Combination also contains a set of effect parameters that affect the entire Combination.

- Operations in this mode will edit the Combination you previously selected in Combination mode.
- When you finish editing a Combination, execute the Write operation on Page 55 to write your edits into memory. (If you select another Combination in Combination mode before writing, your edits will be lost.)

Ⓢ During the Edit Combination mode, the keypad functions as a page select key (when used during RE) operations).



FUNCTIONS IN EDIT COMBINATION MODE

Use the PAGE+ key and PAGE- key to select pages. To select parameters, use the CURSOR keys (◀, ▶).

PAGE	FUNCTION	PARAMETER TO EDIT
0A—0B	Program	The Program assigned to each Timbre
1A—1B	Level	Volume of each Timbre
2A—2B	MIDI Channel	The MIDI receive channel of each Timbre
3A—3D	Key Window Top Key Window Bottom	Top key of keyboard range played by each Timbre Bottom key of keyboard range played by each Timbre
4A—4D	Vel Window Top Vel Window Bottom	Top velocity value of velocity switch for each Timbre Bottom velocity value of velocity switch for each Timbre
5A—5D	Transpose Detune	Transpose setting of each Timbre Detune setting of each Timbre
6A—6D	Program Change Filter Damper Switch Filter After Touch Filter Control Change Filter	Program Change message receive switch for each Timbre Damper Switch message receive switch for each Timbre Aftertouch message receive switch for each Timbre Control Change message receive switch for each Timbre
7A—7B	Panpot	Panpot of each Timbre
8A—12C		Effect settings
13A—13B	Write Combination Rename Combination	Write a Combination into memory Rename a Combination

Refer to p.34 "3. Effect Parameters" for details of effects.

EDIT COMBINATION

0A-0B Program

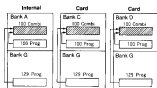
00A PROGRAM 1-4>	00B PROGRAM 5-8>
A00 A01 002 003	A04 G01 G99 128

0A	Timbre 1 Program	OFF/ Program 00-99 of the same Bank as for the Combination/G01-129	Selects a Program for each Timbre:
	Timbre 2 Program	OFF/ Program 00-99 of the same Bank as for the Combination/G01-129	
	Timbre 3 Program	OFF/ Program 00-99 of the same Bank as for the Combination/G01-129	
	Timbre 4 Program	OFF/ Program 00-99 of the same Bank as for the Combination/G01-129	
0B	Timbre 5 Program	OFF/ Program 00-99 of the same Bank as for the Combination/G01-129	
	Timbre 6 Program	OFF/ Program 00-99 of the same Bank as for the Combination/G01-129	
	Timbre 7 Program	OFF/ Program 00-99 of the same Bank as for the Combination/G01-129	
	Timbre 8 Program	OFF/ Program 00-99 of the same Bank as for the Combination/G01-129	

▼ Here you can select a Program for each Timbre.

- The Timbre that is set to "OFF" will not sound.
- Programs to be used in Combinations from Bank A (internal memory) must be selected from Banks A and G. Programs to be used in Combinations from Bank C (card) must also be selected from Bank C and Bank G. A program must be selected from the same Bank as that used for the Combination, or from Bank G.
- Incoming Program Change messages will select Programs for Timbres of the corresponding channel.
- The Bank of the selected Program is changed each time you press PAGE- on this page.

• Programs selected for Combinations



1A-1B Level

01A LEVEL 1-4 >	01B LEVEL 5-8 <
127 099 011 127	055 127 127 127

[1A]	Timbre 1 Level	0 — 127	Adjusts the volume for each Timbre
	Timbre 2 Level	0 — 127	
	Timbre 3 Level	0 — 127	
	Timbre 4 Level	0 — 127	
[1B]	Timbre 5 Level	0 — 127	
	Timbre 6 Level	0 — 127	
	Timbre 7 Level	0 — 127	
	Timbre 8 Level	0 — 127	

▼ Level specifies the output volume level for each Timbre. At a value of 127, the volume will be the full level as determined by the Program parameters. At a value of 0, that Timbre will not sound.

2A-2B MIDI Channel

02A MIDI CH 1-4 >	02B MIDI CH 5-8 <
1G 2 3 4	5 6 7 8

[2A]	Timbre 1 Channel	1 — 16	Sets the MIDI Channel for each Timbre
	Timbre 2 Channel	1 — 16	
	Timbre 3 Channel	1 — 16	
	Timbre 4 Channel	1 — 16	
[2B]	Timbre 5 Channel	1 — 16	
	Timbre 6 Channel	1 — 16	
	Timbre 7 Channel	1 — 16	
	Timbre 8 Channel	1 — 16	

▼ This parameter specifies the MIDI receive channel of each Timbre.

Setting a different MIDI receive channel for each timbre will allow you to play up to 8 different sounds at the same time, using multi-channel MIDI data received at MIDI IN.

- MIDI program change, pitch bend, aftertouch, and control data will be received on the MIDI channel specified for each Timbre. (You can also set **[2A]** — **[2B]** so that these messages will not be received.)

- When the receive channel specified for the Timbre is the same as the global channel (the MIDI channel set in Global mode that controls the entire 03R/W), a "G" will be displayed after the channel number.
- Programs will be changed according to the MIDI channel specified for each Timbre, but when a Program change message is received on the channel selected as the Global channel, it will select a new Combination. If you do not want to change the Combination, set the global channel to a MIDI channel which is not used by a Timbre, or set the MIDI Filtering Prog to PRG in Global mode, **[2B]** (see p.91)

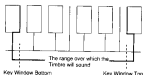
3A-3D Key Window Top/Bottom

03A KW TOP 1-4 >	03B KW TOP 5-8 >	03C KW BTM 1-4 >	03D KW BTM 5-8 >
G9 G9 G9 G9	B4 G9 G9 G9	C-1 C-1 C-1 C-1	C-1 C5 C-1 C-1

[A]	Timbre 1 Top	C-1 — G9	Specifies the highest note that will play each Timbre.
	Timbre 2 Top	C-1 — G9	
	Timbre 3 Top	C-1 — G9	
	Timbre 4 Top	C-1 — G9	
[B]	Timbre 5 Top	C-1 — G9	
	Timbre 6 Top	C-1 — G9	
	Timbre 7 Top	C-1 — G9	
	Timbre 8 Top	C-1 — G9	
[C]	Timbre 1 Bottom	C-1 — G9	Specifies the lowest note that will play each Timbre.
	Timbre 2 Bottom	C-1 — G9	
	Timbre 3 Bottom	C-1 — G9	
	Timbre 4 Bottom	C-1 — G9	
[D]	Timbre 5 Bottom	C-1 — G9	
	Timbre 6 Bottom	C-1 — G9	
	Timbre 7 Bottom	C-1 — G9	
	Timbre 8 Bottom	C-1 — G9	

▽Key Window specifies the range of notes for which the Timbre will sound. The notes outside this range will not sound. This allows you to play different Programs over different areas of the MIDI keyboard connected to MIDI IN of the 03R/W.

- It is not possible to set a Top key lower than a Bottom key. If you set the Top key lower than the Bottom key, the Bottom key will automatically be set to the Top key, and vice versa.



4A-4D Velocity Window Top/Bottom

04A VW TOP 1-4 >	04B VW TOP 5-8 0	04C VW BTM 1-4 0	04D VW BTM 5-8 <
127 127 127 127	127 127 127 127	001 001 001 001	001 001 001 001

4A	Timbre 1 Top	1 — 127	Specifies the maximum velocity that will play each Timbre (velocity value).
	Timbre 2 Top	1 — 127	
	Timbre 3 Top	1 — 127	
	Timbre 4 Top	1 — 127	
4B	Timbre 5 Top	1 — 127	
	Timbre 6 Top	1 — 127	
	Timbre 7 Top	1 — 127	
	Timbre 8 Top	1 — 127	
4C	Timbre 1 Bottom	1 — 127	Specifies the minimum velocity that will play each Timbre (velocity value).
	Timbre 2 Bottom	1 — 127	
	Timbre 3 Bottom	1 — 127	
	Timbre 4 Bottom	1 — 127	
4D	Timbre 5 Bottom	1 — 127	
	Timbre 6 Bottom	1 — 127	
	Timbre 7 Bottom	1 — 127	
	Timbre 8 Bottom	1 — 127	

▽ Velocity Window specifies the range of velocities (how strongly a key is pressed) for which the Timbre will sound. This allows you to make different Programs sound in response to notes of different velocities.

- You cannot set a Top value lower than a Bottom value.

- e.g. Velocity Window Bottom = 25
Velocity Window Top = 100



5A-5D Key Transpose/Detune

05A TRANS 1-4 >	05B TRANS 5-8 0	05C DETUNE 1-4 0	05D DETUNE 5-8 <
+00 +07 +00 +00	+00 +00 +00 +00	+00 +03 +00 +00	+00 +00 +00 +00

5A	Timbre 1 Transpose	-24 — +24	Adjusts the pitch of each Timbre in chromatic steps (±2 octaves).
	Timbre 2 Transpose	-24 — +24	
	Timbre 3 Transpose	-24 — +24	
	Timbre 4 Transpose	-24 — +24	
5B	Timbre 5 Transpose	-24 — +24	
	Timbre 6 Transpose	-24 — +24	
	Timbre 7 Transpose	-24 — +24	
	Timbre 8 Transpose	-24 — +24	
5C	Timbre 1 Detune	-50 — +50	Adjusts the pitch of each Timbre in steps of 1 cent (±50 cents).
	Timbre 2 Detune	-50 — +50	
	Timbre 3 Detune	-50 — +50	
	Timbre 4 Detune	-50 — +50	
5D	Timbre 5 Detune	-50 — +50	
	Timbre 6 Detune	-50 — +50	
	Timbre 7 Detune	-50 — +50	
	Timbre 8 Detune	-50 — +50	

▼Transpose adjusts the pitch of each Timbre in chromatic steps over a range of -24 to +24 (12 chromatic steps equals 1 octave).

▼Detune is a fine pitch adjustment for each Timbre in steps of 1 cent, over a range of -50 to +50 (100 steps equal 1 chromatic step).

6A-6D MIDI Filter

06A PROG CHANGE	06B DAMPER	06C AFTER TOUCH	06D CONTROL CHG
XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX

6A	Timbre 1 Prog Change	D/E	Sets if each Timbre recognizes a MIDI program change message. (If this is set to "D", that Timbre will not change Programs.)
	Timbre 2 Prog Change	D/E	
	Timbre 3 Prog Change	D/E	
	Timbre 4 Prog Change	D/E	
	Timbre 5 Prog Change	D/E	
	Timbre 6 Prog Change	D/E	
	Timbre 7 Prog Change	D/E	
	Timbre 8 Prog Change	D/E	
6B	Timbre 1 Damper	D/E	Sets if each Timbre will respond to the damper pedal. (If this is set to "D", that Timbre will not respond to the damper pedal.)
	Timbre 2 Damper	D/E	
	Timbre 3 Damper	D/E	
	Timbre 4 Damper	D/E	
	Timbre 5 Damper	D/E	
	Timbre 6 Damper	D/E	
	Timbre 7 Damper	D/E	
	Timbre 8 Damper	D/E	
6C	Timbre 1 After Touch	D/E	Sets if each Timbre will respond to aftertouch. (If this is set to "D", that Timbre will not respond to aftertouch.)
	Timbre 2 After Touch	D/E	
	Timbre 3 After Touch	D/E	
	Timbre 4 After Touch	D/E	
	Timbre 5 After Touch	D/E	
	Timbre 6 After Touch	D/E	
	Timbre 7 After Touch	D/E	
	Timbre 8 After Touch	D/E	
6D	Timbre 1 Control CHG	D/E	Sets if each Timbre is affected by pitch bend and control changes. (If this is set to "D", that Timbre will not be affected by control changes.)
	Timbre 2 Control CHG	D/E	
	Timbre 3 Control CHG	D/E	
	Timbre 4 Control CHG	D/E	
	Timbre 5 Control CHG	D/E	
	Timbre 6 Control CHG	D/E	
	Timbre 7 Control CHG	D/E	
	Timbre 8 Control CHG	D/E	

It is possible to specify for each Timbre whether or not to receive MIDI IN data. Timbre 1 is located farthest to the left on each page, and Timbre 8 is located farthest to the right.

▼ If the MIDI PROG CHG (MIDI Program Change) is set to "D", that Timbre will not change Programs even when a MIDI program change message is received.

- When the Program Change messages are received on the global channel, Combinations will be selected regardless of this setting.

▼ If the Damper is set to "D", that Timbre will not respond to the damper pedal.

▼ If the After Touch is set to "D", that Timbre will not respond to aftertouch.

▼ If the Control Change is set to "D", that Timbre will not be affected by control changes (bender, pitch modulation, VDF modulation, volume, etc.).

- If the "PROG" parameter in the Global mode [70](#) MIDI Filtering page is set to "ENA", incoming Program Change messages received on the Global channel will select Combinations, regardless of this setting.

7A-7B Panpot

07A PANPOT 1-4>	07B PANPOT 5-8<
A B 5:5 5:5	C C+D 7:3 PRG

7A	Timbre 1 Panpot	A:9:1—1:9B, C,C+D,D,AII,PRG	Specifies the audio output of each Timbre.
	Timbre 2 Panpot	A:9:1—1:9B, C,C+D,D,AII,PRG	
	Timbre 3 Panpot	A:9:1—1:9B, C,C+D,D,AII,PRG	
	Timbre 4 Panpot	A:9:1—1:9B, C,C+D,D,AII,PRG	
7B	Timbre 5 Panpot	A:9:1—1:9B, C,C+D,D,AII,PRG	
	Timbre 6 Panpot	A:9:1—1:9B, C,C+D,D,AII,PRG	
	Timbre 7 Panpot	A:9:1—1:9B, C,C+D,D,AII,PRG	
	Timbre 8 Panpot	A:9:1—1:9B, C,C+D,D,AII,PRG	

▼Panpot assigns the audio output (Effects input) of each Timbre to outputs A through D. The audio output of each Timbre can be sent from output A, 9:1-1:9, B, C, C+D, D, ALL, or PRG.

- When ALL is selected, the sound will be output from all outputs A — D. When PRG is selected, the Pan setting of the Program being played by the Timbre will be used. (In Edit Program mode, you can specify the pan settings for each oscillator.) For settings other than "PRG", oscillators 1 and 2 of the Program will be panned to the same output.

- When a drum kit Program is assigned and "PRG" is selected, the panpot settings of the drum kit will be used. For settings other than "PRG", the parameter settings will be used.

8A-12C Effect

For details on Effects, refer to p. 34 "3. Effect Parameters."

- Effects selected from Programs in all Timbres are disabled, and the settings made here will be enabled.
- If you wish to use effect settings from a Program, MULTI or other Combination, execute the **[12C] Copy Effect** operation.
- For Combinations, the Panpots (A—D) for all Timbres will be used as the input to the Effects.

13A-13B Write Combination/Rename Combination

13A COMB WRITE > Write→A00 OK?	13B RENAME < A00:Organ
-----------------------------------	---------------------------

13A			A00 — A99 C00 — C99, D00 — D99	The writing destination Combination number
			OK?	Executes the write operation
13B				Rename

This function [13A] writes an edited Combination into internal memory or RAM card.

- Writing is not possible if Combination memory protect is ON. (Turn memory protect off using [18] in Global mode.)

- (1) In [13B], use the < > keys and △ ▽ keys to name the Combination.
Use the < and > keys to move the cursor, and the △ and ▽ keys to change the character selection.
- You may give a Combination a name of up to 10 characters or symbols.
Each time the △ or ▽ key is pressed, the character selected will change in the order shown in this illustration.

```
!"#$%&'(<)*+,-./@123456789:;{<*>?
0ABCDEFGHIJKLmnopRSTUvwxyz123456789:;{<*>?
`abcdefghijklmnopqrstuvwxyz{|}~+&
```

- (2) Select the Combination number of the writing destination using [13A].
- If a RAM card formatted to PROG is inserted in the card slot, you will also be able to select card memories (C00 — C99, D00 — D99). Before writing data into a card, turn the card protect switch to "OFF".

- (3) Move the cursor to "OK?" and press the △ key.
- (4) The display will ask "Are You Sure OK?". If you want to write the data into memory, press △ again.
- The Combination data previously stored in that memory will be lost.
- To cancel the write operation, press ▽.
- (5) When writing is completed, the display will show "Write Completed".
☆ Use this writing function when copying a Combination to another Combination number.
☆ When you write a Combination in another Bank, the Bank that has been selected for each Timbre in the Program will be changed. (Programs in Bank G will remain the same.)

6. MULTI MODE

— 42 —

Press the GLOBAL/MULTI key to enter this mode. When pressing the key changes to Global mode, however, press the key once again to enter this mode. The mode will change between the Global and Multi modes each time this key is pressed. The GLOBAL/MULTI key LED will light up.

This mode allows you to use the OSR/W as a 16-channel MIDI tone generator by connecting a computer or sequencer to the MIDI IN terminal of the OSR/W.

- Effects made in Multi mode are placed in memory. In addition, 1 setting each can be placed in Banks C and D of the PROG card. (This is done by using Global mode [58].)

Therefore, other parameter settings should be made by sending the messages via MIDI from the connected computer or sequencer.

- Since all the operations in Multi mode conform to the GM System, any musical data conforming to the GM can be played on the OSR/W.

- When this Multi mode is entered, it also corresponds with GM (General MIDI). When GM ON messages are received during MIDI mode, the default values for each parameter are used. (See the table below. These setting are also used when the power is turned ON.)

These parameters are received from GM-compatible devices connected at MIDI IN. The data settings are sent at the time playback starts, but after this, the various pages can be used to change these settings. Also, because [6A] - [6D] PROGRAM CHANGE FILTER and [7A] - [11C] EFFECTS are not set for GM, please use the relevant pages to make these settings on the OSR/W.

	TRACK 1—9, 11—16	TRACK 10	
PROGRAM No.	All G01	G129	G129 is Drum Set *
LEVEL	All 100	100	*
PANPOT	All 5:5	PRG	*
TRANSPOSE	All 0	0	*
DETUNE	All 0	0	*
PITCH BEND RANGE	All +2	0	*
PROGRAM CHANGE FILTER	All ENA	DIS	
EFFECT		—	Settings from memory
MIDI CHANNEL	1—9, 11—16	10	Same as Track No.

* ... MIDI settings are enabled

Track 10 is formatted (Program G129) for percussion (drums) in order to correspond to the GM System, but this can also be changed to other settings.

FUNCTIONS IN MULTI MODE

Use the PAGE+ key and PAGE- key to select pages. To select parameters, use the CURSOR keys (◀, ▶).

Refer to "3. Effect Parameters" for details of effects.

PAGE	FUNCTION	PARAMETER TO EDIT
[0A]—[0B]	Program	Program of each Track
[1A]—[1B]	Level	Volume of each Track
[2A]—[2B]	Panpot	Pan setting of each Track
[3A]—[3B]	Transpose	Transpose setting of each Track
[4A]—[4B]	Detune	Detune setting of each Track
[5A]—[5B]	Pitch Bend Range	Pitch bend range of each Track
[6A]—[6B]	Program Change Filter	Program Change message reception switch for each Track
[7A]—[11C]	Effect	Effect settings

* MIDI channels are numbered 1 — 16 corresponding to Tracks 1 — 16, and cannot be changed.

MULTI

6A-0D Program

40A PROG 1-4 >	00B PROG 5-8 0	00C PROG 9-12B	00D PROG 13-16<
A00 A01 A02 A03	A04 A05 A06 A07	A08 A09 A10 A11	A12 A13 A14 A15

0A	Track 1 Program	OFF / A00—99 / G01—129	Selects a Program for each Track
	Track 2 Program	OFF / A00—99 / G01—129	
	Track 3 Program	OFF / A00—99 / G01—129	
	Track 4 Program	OFF / A00—99 / G01—129	
0B	Track 5 Program	OFF / A00—99 / G01—129	
	Track 6 Program	OFF / A00—99 / G01—129	
	Track 7 Program	OFF / A00—99 / G01—129	
	Track 8 Program	OFF / A00—99 / G01—129	
0C	Track 9 Program	OFF / A00—99 / G01—129	
	Track 10 Program	OFF / A00—99 / G01—129	
	Track 11 Program	OFF / A00—99 / G01—129	
	Track 12 Program	OFF / A00—99 / G01—129	
0D	Track 13 Program	OFF / A00—99 / G01—129	
	Track 14 Program	OFF / A00—99 / G01—129	
	Track 15 Program	OFF / A00—99 / G01—129	
	Track 16 Program	OFF / A00—99 / G01—129	

▼Here you can select a Program for each Track.

- Tracks set to "OFF" will not sound.
- Each Track number is assigned to the MIDI channels (ex. Track 12 → Channel 12) and cannot be changed.
- In Multi mode, you can select Programs only from Bank A and Bank G. Refer to the GM Program List for Programs from Bank G.

* When the power is turned ON or when GM ON messages are received via MIDI, drum set G129 will automatically be selected for Track 10, and all other tracks will be set to G01. Refer to the GM Program List for the instrument used for G129.

* Because MIDI Program changes will be sent, settings made prior to starting GM playback can be assigned new numbers after playback has started. The changed Programs will be heard during playback.

Also, for sequencers that are not GM-compatible, some Bank changes are sent at the same time Program changes are being made. In order to receive the data without making unnecessary changes in the Bank, it is advisable use Global mode 2B to set PRG to NUM.

- The Bank of the selected Program is changed each time you press PAGE— on this page.

- Programs that can be selected in Multi mode



1A-1D Level

01A LEVEL 1-4 > 127 127 127 127	01B LEVEL 5-8 0 127 127 127 127	01C LEVEL 9-120 127 127 127 127	01D LEVEL 13-16< 127 127 127 127
------------------------------------	------------------------------------	------------------------------------	-------------------------------------

1A	Track 1 Level	0 — 127	Adjusts the level for each Track
	Track 2 Level	0 — 127	
	Track 3 Level	0 — 127	
	Track 4 Level	0 — 127	
1B	Track 5 Level	0 — 127	
	Track 6 Level	0 — 127	
	Track 7 Level	0 — 127	
	Track 8 Level	0 — 127	
1C	Track 9 Level	0 — 127	
	Track 10 Level	0 — 127	
	Track 11 Level	0 — 127	
	Track 12 Level	0 — 127	
1D	Track 13 Level	0 — 127	
	Track 14 Level	0 — 127	
	Track 15 Level	0 — 127	
	Track 16 Level	0 — 127	

▼Here you can adjust the level for each Track.

- Settings can be changed according to MIDI volume data. These are set to 100 when the power is turned ON or when GM ON messages are received.

2A-2D Pan

02A PAN 1-4 >	02B PAN 5-8 0	02C PAN 9-120	02D PAN 13-16<
A 9:1 B:2 7:3	6:4 5:5 4:6 3:7	2:8 PRG 1:9 B	C C+D D ALL

2A	Track 1 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	Specifies the audio output of each Track
	Track 2 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
	Track 3 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
	Track 4 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
2B	Track 5 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
	Track 6 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
	Track 7 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
	Track 8 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
2C	Track 9 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
	Track 10 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
	Track 11 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
	Track 12 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
2D	Track 13 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
	Track 14 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
	Track 15 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	
	Track 16 Panpot	A,9:1—1:9,B, C,C+D,D,ALL,PRG	

▼Panpot assigns the audio output (Effects input) of each Track to A through D. The audio output of each Track can be sent from output A, 9:1 — 1:9, B, C, C+D, D, ALL, or PRG.

- When ALL is selected, the sound will be output from all outputs A—D. When PRG is selected, the Pan setting of the Program being played by the Track will be used. (In Edit Program mode, you can specify the pan settings for each oscillator.) For settings other than "PRG", oscillators 1 and 2 of the Program will be panned to the same output.
- Settings can be changed according to MIDI pan changes. However, the panpot settings are limited to A, 9:1, and B.

Panpot settings and the corresponding MIDI pan data are shown in the table below.

MIDI pan data	OSR/W panpot	MIDI pan data	OSR/W panpot
0 — 7	A	72 — 84	4:6
8 — 20	9:1	85 — 97	3:7
21 — 33	8:2	98 — 110	2:8
34 — 46	7:3	111 — 122	1:9
47 — 58	6:4	123 — 127	B
59 — 71	5:5		

- When a Drum Kit Program is assigned and "PRG" is selected, the panpot settings of the drumkit will be used. For settings other than "PRG", the parameter settings will be used.
- When the power is turned ON or when GM ON messages are received, PRG will be selected for Track 10, and other Tracks will be set to 5:5.

3A-3D Transpose

03A TRANS 1-4 >	03B TRANS 5-8 0	03C TRANS 9-12 0	03D TRANS 13-16 <
+05 +04 +03 +02	+01 +00 -01 -02	-03 +00 +00 +00	+00 +00 +00 +00

[3A]	Track 1 Transpose	-24 — +24	Adjusts the pitch of each Track in chromatic steps (within ±2 octaves).
	Track 2 Transpose	-24 — +24	
	Track 3 Transpose	-24 — +24	
	Track 4 Transpose	-24 — +24	
[3B]	Track 5 Transpose	-24 — +24	
	Track 6 Transpose	-24 — +24	
	Track 7 Transpose	-24 — +24	
	Track 8 Transpose	-24 — +24	
[3C]	Track 9 Transpose	-24 — +24	
	Track 10 Transpose	-24 — +24	
	Track 11 Transpose	-24 — +24	
	Track 12 Transpose	-24 — +24	
[3D]	Track 13 Transpose	-24 — +24	
	Track 14 Transpose	-24 — +24	
	Track 15 Transpose	-24 — +24	
	Track 16 Transpose	-24 — +24	

▼ Transpose adjusts the pitch of each Track in chromatic steps over a range of -24 to +24 (12 chromatic steps equal 1 octave).

When the power is turned ON or when GM ON messages are received, the setting will change automatically to 00.

- Settings can be changed according to the MIDI course tune setting.

4A-4D Detune

04A DETUNE 1-4 > +00 +00 +00 +00	04B DETUNE 5-8 0 +00 +00 +00 +00	04C DETUNE 9-120 +00 +00 +50 -50	04D DETUNE13-16< +00 +00 +00 +00
-------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------

4A	Track 1 Detune	-50 — +50	Adjusts the pitch of each Track in steps of 1 cent (within ±50 cents)
	Track 2 Detune	-50 — +50	
	Track 3 Detune	-50 — +50	
	Track 4 Detune	-50 — +50	
4B	Track 5 Detune	-50 — +50	
	Track 6 Detune	-50 — +50	
	Track 7 Detune	-50 — +50	
	Track 8 Detune	-50 — +50	
4C	Track 9 Detune	-50 — +50	
	Track 10 Detune	-50 — +50	
	Track 11 Detune	-50 — +50	
	Track 12 Detune	-50 — +50	
4D	Track 13 Detune	-50 — +50	
	Track 14 Detune	-50 — +50	
	Track 15 Detune	-50 — +50	
	Track 16 Detune	-50 — +50	

▼ Detune is a fine pitch adjustment for each Track in steps of 1 cent, over a range of -50 to +50 (100 steps equal 1 chromatic step).

When the power is turned ON or when GM ON messages are received, the setting will change automatically to 00.

- Settings can be changed according to the MIDI fine tune setting.

5A-5D Bend Range

05A BEND 1-4 >	05B BEND 5-8 0	05C BEND 9-120	05D BEND 13-16<
+02 +02 +02 +02	+02 +12 +12 +02	+00 +00 +02 +02	+02 +07 +07 +01

[5A]	Track 1 Bend	-12 — +12	Specifies pitch variation for each track produced by the pitch bend wheel
	Track 2 Bend	-12 — +12	
	Track 3 Bend	-12 — +12	
	Track 4 Bend	-12 — +12	
[5B]	Track 5 Bend	-12 — +12	
	Track 6 Bend	-12 — +12	
	Track 7 Bend	-12 — +12	
	Track 8 Bend	-12 — +12	
[5C]	Track 9 Bend	-12 — +12	
	Track 10 Bend	-12 — +12	
	Track 11 Bend	-12 — +12	
	Track 12 Bend	-12 — +12	
[5D]	Track 13 Bend	-12 — +12	
	Track 14 Bend	-12 — +12	
	Track 15 Bend	-12 — +12	
	Track 16 Bend	-12 — +12	

▼Bend adjusts the pitch variation produced by the pitch bend wheel in chromatic steps.

- With each Program that is selected for all Tracks, the pitch bend range (set using EDIT PRG [15D]) will be disabled. These settings can be made manually here (the internal program settings will not be effected).
- A maximum of 12 chromatic steps form a single octave. When set to +12, the larger the MIDI bend value becomes (controlled by moving a joystick to the right on a device such as the OIR/W connected at MIDI IN), the higher the pitch. A negative (-) setting will produce the opposite effect.
- * When the power is turned ON or when GM ON messages are received, Track 10 will be set to 0, and other Tracks will be set to ±2.
- Settings can be changed according to the MIDI pitch bend range, but this is limited to the 0 — +12 range.

6A-6D MIDI Program Change Filter

06A P.CHG 1-4 >	06B P.CHG 5-8 0	06C P.CHG 9-120	06D P.CHG 13-16<
ENA ENA ENA ENA	ENA ENA ENA ENA	ENA DIS DIS DIS	DIS DIS DIS ENA

6A	Track 1 Prog Change	DIS/ENA	Specifies whether or not each Track will receive MIDI program changes.
	Track 2 Prog Change	DIS/ENA	
	Track 3 Prog Change	DIS/ENA	
	Track 4 Prog Change	DIS/ENA	
6B	Track 5 Prog Change	DIS/ENA	
	Track 6 Prog Change	DIS/ENA	
	Track 7 Prog Change	DIS/ENA	
	Track 8 Prog Change	DIS/ENA	
6C	Track 9 Prog Change	DIS/ENA	
	Track 10 Prog Change	DIS/ENA	
	Track 11 Prog Change	DIS/ENA	
	Track 12 Prog Change	DIS/ENA	
6D	Track 13 Prog Change	DIS/ENA	
	Track 14 Prog Change	DIS/ENA	
	Track 15 Prog Change	DIS/ENA	
	Track 16 Prog Change	DIS/ENA	

▼ If the Program Change Filter is set to "DIS", that Track will not change Programs even when a MIDI program change message is received.

- * Track 10 is set to DIS. Other Tracks are set to ENA.
- MIDI cannot be used to change these settings.

7A-11C Effect

For details of the following, refer to "3. Effect Parameters."

- Effects selected from Programs in each Track are disabled, and the settings made here will be enabled.
- If you wish to use effect settings from a Program or Combination, execute the Copy Effect operation **11C**.
- MIDI cannot be used to change these settings.
- In Multi mode, the Panpots (A — D) for all Tracks will be used as the input to the Effects.
- Effects are the only MULTI mode settings retained in memory when the power is turned OFF. These settings can also be saved to a Card (Banks C and D) by using Global mode **5B**.

7. GLOBAL MODE

Press the GLOBAL/MULTI key to enter this mode. When pressing the key changes to Multi mode, however, press the key once again to enter this mode. The mode will change between the Global and Multi modes each time this key is pressed.

The GLOBAL/MULTI key LED will flash. (In Multi mode, the LED remains lighted continuously.)

In this mode you can make settings that affect the entire G3R/W (overall tuning, and MIDI-related settings), and assign drum sounds to a Drum Kit.

- With the exception of some MIDI-related parameters (e.g. **2A** note receive), settings made in this mode are memorized even when the power is turned off. It is not necessary to write these settings into memory.

FUNCTIONS IN GLOBAL MODE

- Use the PAGE keys to select pages containing the parameter you want to edit.

PAGE	FUNCTION	PARAMETERS TO SET
0A	Master Tune, Key Transpose	Overall pitch adjustment, overall transposition
0B	Velocity Curve, After Touch Curve	Velocity curve and aftertouch curve settings
1A—1E	Scale Type/User Scale	Sets the scale type and the user scale
2A	MIDI Global	Specifies MIDI global channel, and filters note data (odd, even)
2B—2C	MIDI Filter	Transmission/reception switches for MIDI Program Change, After Touch, Control Change and System Exclusive messages
3A—3B	Prog. Protect, Combi. Protect	Memory protect (Program, Combination)
3C	Page Memory	Sets the page memory function
4A	MIDI Data Dump	Transmits various parameters as MIDI exclusive messages
5A	Load From Card	Load data from PROG card (ROM/RAM) to internal memory
5B	Save To Card	Saves data from internal memory to RAM card
5D	Preset Data Load	Loads preset data
6A—6D	Drum Kit 1	Assign drum sounds
7A—7D	Drum Kit 2	Assign drum sounds
8A	Copy Drum Kit	Copy drum kit data

GLOBAL

0A-0B Master Tune/Key Transpose/Velocity Curve/After Touch Curve

00A TUNE/TRANS >	00B CURVE <
Tune+00 Trans+00	Vel=5 Aft=1

0A Tune	Master Tune	-50 — +50	Adjusts the overall pitch (steps of 1 cent)
Trans	Key Transpose	-12 — +12	Transposes the overall pitch (chromatic steps)
0B Vel	Velocity Curve	1 — 8	Selects the velocity curve; i.e., the way in which key velocity of the received note data will affect volume or tone.
Aft	After Touch Curve	1 — 8	Selects the aftertouch curve; i.e., the way in which aftertouch (how hard you press down after playing a note on a keyboard such as the 01/W connected to the MIDI IN of the 03R/W) will affect volume or tone.

* Parameters on page **0A** determine the pitch of the entire 03R/W.

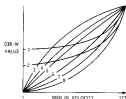
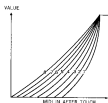
▼ Master tune adjusts the tuning of the entire 03R/W over a range of ± 50 cents.

- The tuning of the 03R/W can be set from an external device that can output the MIDI RPN Fine Tune message.
When in Multi mode ... Detune for each Track (received on the MIDI channel for each Track)
When in any other mode ... Master tune (received on the Global MIDI channel)

▼ Key transpose adjusts the pitch of the entire 03R/W over a range of ± 1 octave, in chromatic steps (-12 - $+12$). This can be useful when you need to play songs of a difficult key signature in an easier key.

▼ Velocity Curve allows you to select one of 8 curves to determine how key velocity of the received note data (how hard you play a note) will affect volume or tone.

▼ After Touch Curve allows you to select one of 8 curves to determine how aftertouch data received from the external keyboard (such as the 01/W) connected to the MIDI IN of the 03R/W (how hard you press down after playing a note) will affect volume or tone.



1A-1E Scale Type/User Scale

01A SCALE TYPE > User Scale	01B User Scale 0 C+00 C#+00 D+00	01C User Scale 0 D#+00 E+00 F+00	01D User Scale 0 F#+00 G+00 G#+00	01E User Scale < A+00 A#+00 B+00
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1A	Scale Type		Equal Temp	Equal temperament
			Equal Temp2	Each time a key is pressed, the pitch will be given a slight random deviation from equal temperament.
			Pure Major	Just intonation for the pure major scale
			Pure Minor	Just intonation for the pure minor scale
			User Scale	A scale with user-specified pitch for each note
1B	Key	Key	C — B	The tonic used for pure temperament (when Pure Major or Pure Minor is selected)
1B	C	C	-50 — +50	Pitch offset (in cent units) for each note of the equal tempered scale
	C#	C#	-50 — +50	
	D	D	-50 — +50	
1C	D#	D#	-50 — +50	
	E	E	-50 — +50	
	F	F	-50 — +50	
1D	F#	F#	-50 — +50	
	G	G	-50 — +50	
	G#	G#	-50 — +50	
1E	A	A	-50 — +50	
	A#	A#	-50 — +50	
	B	B	-50 — +50	

* Here you can specify the tonic temperament (scale) used by the TOR/W.

◊ The specified scale will apply to all Timbres.

▼EQUAL TEMP: This is the temperament most widely used by keyboard instruments. Pitch intervals are not affected by transposition.

▼EQUAL TEMP 2 (equal temperament with random pitch): This adds a slight amount of random pitch variation to equal temperament. It is useful when simulating instruments that have natural irregularity in pitch.

▼PURE MAJOR: Pure temperament is designed so that chords in a specific tonic are as harmonious as possible. You can specify a tonic of C - B in 1B.

▼PURE MINOR: Specify a tonic of C - B in 1B.

▼USER PROGRAMMABLE: This allows you to adjust each of the 12 pitches in the equal tempered scale over a range of ± 50 cents, to create your own original temperament. This allows you to play unique temperaments other than the preset temperaments. Use 1B - 1E to specify the scale degree.

▼Even if key transposition is carried out in 1A, the settings for the Pure Major, Pure Minor, and User Scale will define the pitch which is actually sounded.

- If User Scale defines C (set by 1B) as +10, and Transpose is set to +1, C# will be sounded in response to an incoming MIDI note C, C=10 cents sharp will be sounded in response to an incoming MIDI note B.

2A-2C MIDI Global/Filter

02A MIDI GLOBAL> CH: 1 Note#: ALL	02B MIDI FILTER# PBG: ENA AFT: ENA	02C MIDI FILTER< CTRL: ENA EX: DIS
--------------------------------------	---------------------------------------	---------------------------------------

02A CH	MIDI Channel	1 — 16	Selects the channel on which the O3R/W will receive or transmit MIDI data. (Global channel)
Note R	Note Receive	EVN, ODD, ALL	Note data filter
02B PRG	Combination/Program/Change	DIS, ENA, PRG, NUM	When set to "DIS", the specified type of MIDI data will neither be transmitted nor received.
AFT	After Touch	DIS, ENA	
02C CTRL	Control Change	DIS, ENA	
EX	Exclusive	DIS, ENA	

▼MIDI channel determines the reception channel for musical data in Program mode. Combination changes in Combination mode, and for system exclusive messages. (When the MIDI Filtering parameter "Prog" is set to "PRG", Combinations cannot be selected via MIDI). (This MIDI channel becomes the global channel, and it controls the entire O3R/W).

- MIDI channels for all Timbres in Combinations are specified in Edit Combination mode.

▼Note Receive determines the data to be filtered. (EVN: Notes with an even number will sound. ODD: Notes with an odd number will sound.)

- This is useful when you wish to double the Polyphony by using two O3R/Ws connected via MIDI to each other. This is normally set to ALL.
- "ALL" is the default setting when the power is turned on.



* These parameters, **[28]** and **[2C]**, allow you to disable reception and transmission of specified types of MIDI data. (This is known as "filtering".)

▼ If Combination/Program Change is set to "DIS", Combination (Program) changes will neither be transmitted nor received. If set to "ENA", in Combination mode, incoming program change messages on the same channel as the global channel will select Combinations. However if set to "PRG", the Combination will not change, but Timbres of the matching channels in the Combination will change Programs. When set to NUM, operation is basically the same as for ENA, but Bank changes are ignored and only Program changes are received. (During ENA and PRG, Bank changes are also received.) Refer to "Program Change Filtering" at the end of this manual.

- Select "ENA" if you want to use MIDI Program Change to change and then play Combinations.
- Select "PRG" if you want to use MIDI Program Change to change and then play a Program used in all Timbres of a single Combination.
- For master keyboards and sequencers that are not GM-compatible, some Bank changes are sent at the same time Program changes are being made. In order to receive the data without making unnecessary changes in the Bank, it is advisable to set PRG to NUM.
- During Program mode, when set to either ENA or PRG, both MIDI Program changes and Bank changes are received and Programs are changed accordingly. When set to NUM, only Program changes are received to change the Program.

▼ If Control Change is set to "DIS", control change messages (pitch bend, volume, joystick, etc.) will not be received.

▼ If After Touch is set to "DIS", aftertouch data will not be received.

- The 03R/W receives only Channel Aftertouch data.

▼ If Exclusive is set to "DIS", system exclusive messages for parameter changes will neither be transmitted nor received.

○ System exclusive parameter changes are used by personal computer voice editing programs.

When two 03R/Ws are connected and Exclusive is set to "ENA", you will be able to simultaneously edit the voice data of both units by controlling the 03R/W on the MIDI IN side from the 03R/W on the MIDI OUT side.

- When the 03R/W is connected to a different type of MIDI device, set this to "DIS".

Program Change/Bank Change Receive Conditions

		DIS	ENA	PRG	NUM
PROG mode	Program number	X	○	○	△
COMB mode	Combination number	X	○	X	△
	Program number (for each Timbre)	X	○	○	△
MULTI mode	Program number (for each Track)	X	○	○	△

X...Not received

△...Only Program changes are received

○...Both Program changes and Bank changes are received

3A-3C Program Memory Protect/Combination Memory Protect/Page Memory

03A PROTECT PROGRAM:OFF	>	03B PROTECT COMBINATION:OFF	6	03C PAGE MEMORY< OFF
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[3A]	Program Memory Protect	OFF,INT,CARD,ALL	Memory protect for Program parameters memory
[3B]	Combination Memory Protect	OFF,INT,CARD,ALL	Memory protect for Combination parameters memory
[3C]	Page Memory	OFF/ON	Sets Page Memory function OFF/ON.

▼When Program memory protect is set to "INT", it is not possible to write to the Program parameters memory for Bank in internal memory. When set to "CARD", writing to the Program parameters memory on the Card (Banks C and D) is disabled. If this is set to "ALL", writing is disabled to both the Card and internal memory.

▼When Combination memory protect is set to "INT", it is not possible to write to the Combination parameters memory for Bank in internal memory. When set to "CARD", writing to the Combination parameters memory on the Card (Banks C and D) is disabled. If this is set to "ALL", writing is disabled to both the Card and internal memory.

* There is a protect switch on each RAM card, allowing you to prevent data from being accidentally overwritten.

▼When Page Memory is turned "ON", the Page Memory function will be activated.

Page Memory function: This function allows you to automatically go back to the page (parameter) that was last selected when you exited that mode. This function also applies to Combination mode parameters when the REI is connected.

4A MIDI Data Dump

04A MIDI DUMP	
PROGRAM	OK?

4A	Dump Data	PROGRAM	Transmits all Program parameters.
		COMBINATION	Transmits all Combination parameters.
		MULTI SETUP	Transmits Multi-setup data.
		DRUM KIT	Transmits all drum data.
		GLOBAL	Transmits Global parameters (0A-1E).
		ALL DATA	Transmits all Program/Combination/Global/Drums/Multi-setup parameters.
		[OK?]	Executes dump operation.

▼ Internal data parameters can be transmitted (dumped) via MIDI.

- When this page is selected, MIDI data dumps can be transmitted and received regardless of the  MIDI exclusive filtering setting.
- In order for data to be received, match the global MIDI channel with that of the transmitting device, and turn memory protect "OFF". No other special measures are necessary when receiving data.
- ROM data (Bank G programs, ROM Drum Kits 1-4, all Preset data) is not transmitted. When transmitting this data, first load it to internal memory, then use this page to make the transmission.
- PROGRAM transmits all Program parameters in Bank A. Transmission time is 6.0 seconds.
- COMBINATION transmits all Combination data in Bank A. Transmission time is 4.7 seconds.
- MULTI transmits only the effect settings from the Multi setup data. Transmission time is 0.1 seconds or less.
- GLOBAL transmits Global parameters (0A — 1E). Transmission time is less than 0.1 seconds.
- DRUM KIT transmits all drum data. Transmission time is 0.3 seconds.
- ALL DATA transmits Program parameters, Combination parameters, Drum data, Multi-setup data, and Global parameters in Bank A at once. Transmission time is 11.9 seconds.
- Move the cursor to "OK" and press the  key to execute the dump operation.

Note: During transmission, do not press any key or input MIDI data such as pitch bend.

※ You can store voice data using an external MIDI device (such as the 01/WVD) which can store exclusive data.

Data type	Length of exclusive message
Program (100)	Approx. 18.7Kbytes
Combination (100)	Approx. 14.6Kbytes
Global data	31 bytes
Drum data	Approx. 1.0Kbytes
Multi setup data	34 bytes
All data	Approx. 34.4Kbytes

※ Refer to the end of this manual for details on exclusive message data.

3A-5D Load From Card/Save To Card/Preset Data Load

05A CARD Load > from BANK C OK?	05B Save CARD 0 to BANK C OK?	05C PRESET DATA< LOAD OK?
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[3A]		Load from Card	Bank C, D	Loads all Program/Combination/Drum data/Multi setup data/ Global data from card.
			OK?	Executes loading.
[3B]		Save to Card	Bank C, D	Formats and saves all Program/Combination/Drum data/ Multi setup data/Global data to card.
			OK?	Executes the save operation.
[3C]		Preset Data Load		Loads the preset data (Program/Combination/Drum data/ Multi setup data/Global data).
			OK?	Executes the data load.

* This page can be used to save from internal memory to a PROG card (or load from a PROG card to internal memory) 100 Programs, 100 Combinations, 2 Drum Kits, 1 Global, and 1 Multi Setup data. Preset data can also be loaded using this page.

▼ **[3A] LOAD FROM CARD** loads data saved in a ROM card or RAM card into internal memory.

The data existing in internal memory will be lost when you load new data.

Be sure to save the internal memory data to another card before the loading operation.

- You cannot load data if memory protect is set to "ON". (Use **[3A]** and **[3B]** to set memory protect to "OFF".)

- (1) Insert a PROG card containing data in the PROG data slot.
- (2) Select either Bank C or D as the load source.
- (3) Move the cursor to "OK?" and press Δ to execute the loading operation.

◉ Programs A00 — D99 specified by Combination parameters will be replaced with A00 — A99 when they are loaded from card into internal memory.

★ The demo performance data in a ROM card cannot be loaded into memory.

▼ **[3B] SAVE TO CARD** saves (writes) data from internal memory to the Bank specified on a RAM card.

The formatting for that Bank can be done at the same time. You cannot save data if memory protect is set to "ON". (Use **[3A]** and **[3B]** to set memory protect to "OFF".)

- (1) The protect switch located on the upper part of the RAM card must be set to "OFF", and inserted in the PROG data slot.

When you save data into a card, the previous data in the card will be lost. To avoid accidentally losing important card data, leave the card protect switch ON.

(2) Select either Bank C or D as the save destination.

(3) Move the cursor to "OK?" and press Δ to execute the save operation.

◉ Programs A00 — A99 specified by Combination parameters will be replaced with C00 — C99 or D00 — D99 when they are saved from internal memory to a card.

▼ **[3C] PRESET DATA** Load will load the preset data (factory settings) from internal ROM into internal memory.

- Move the cursor to "OK?", and if you wish to load the preset data, press the Δ key. (The preset data will overwrite the data existing in internal memory.)

- Load the preset data before listening to a demo playback.

6A-6D Drum Kit 1

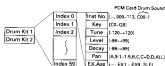
06A DRUM1 #01 >	06B KEY/TUNE/L. B	06C DECAY/PAN B	06D EL ASSIGN <
002:KikBock1	D44 T+019 L+65	Decay+00 Pan= A	EX1

[BA] A	Index	0 — 59	Index which assigns the drum sound you wish to edit
	Inst	—, 000 — 113 C00 —	Select a drum sound
[BH]	Inst Key	C0 — C6	Key assigned to drum sound
T	Inst Tune	-120 — +120	Pitch adjustment of ±1 octave (10 cent/1 step)
L	Inst Level	-99 — +99	Level adjustment for each sound
[BC] Decay	Inst Decay	-99 — +99	Decay time adjustment for each sound
Pan	Inst Pan	A, 9, 1 — L/R, C C+D, D, ALL	Output selection
[BD]	Inst Exclusive Assign	—, EX1 — EX9, SLP	Set exclusive assign group

- You can edit the Drum Kit used as a sound source by a Program in Drum Kit mode. Up to 60 types of drum sounds can be assigned to each Drum Kit. There are two Drum Kits available in Bank A and four in ROM, but in Global mode you can only edit a kit selected from Bank A.
- When you want to edit a ROM Drum Kit, use **[BA]** to copy it to either Drum Kit 1 or 2, then use this page to make your edits.
- In this page, the parameters of the Program selected in Program mode will be used to monitor the sound. Because of this, it is advisable to select G129 in most circumstances.
- When the corresponding Program parameter is modified, the volume of the entire Drum Kit and other parameters will be affected.

- Other Program parameters will also affect the entire Drum Kit.

In other words, if a Program with a slow attack has been selected, the drum kit may not sound correctly. If the drum sound output is assigned to C, C+D, or D, and the Program mode setting Effect Pans 3 and 4 of the Program are turned off, this sound will not be heard from L/R, 2/R, or the headphones.



▼ **Index** selects the drum index to edit. You can think of the index as being a container in which a single drum is placed.

- An index, for which no drum sound is assigned, will be indicated by "No Assign" in the upper right corner of the display.

The following parameters can be set for each index setting made here: Inst, Key, Tune, Level, Decay, Pan, Exclusive Assign.

▼ **Inst (Instrument)** allows you to select the drum sound used by that index. (Refer to the end of this manual for a list of the drum sounds.)

The index is shown in the upperright part of the display. The key can be used to select this parameter.

- If an optional PCM card containing drum sounds has been inserted, card sounds can also be selected using the $\uparrow/\downarrow$ keys. (When playing Programs which use PCM card drum sounds, be sure that the appropriate card is inserted.)

- Select "No Assign" for each index, which you do not need to assign, and set Key to an unused key.

▼ **Key** determines the key (C3-D8) assigned to that index. (The note name for an octave setting of 8 will be displayed.)

- You will not be able to select keys which have already been assigned to another drum sound.

- You can assign a single drum sound to be played by more than one key.

- Keys which have not been assigned a drum sound will automatically be given the sound assigned to the next higher key. (However the pitch will change according to the scale.)

▼ **Tune** adjusts the pitch of an assigned key over a range of $-120 \sim +120$ (in steps of 10 cents, #1 active).

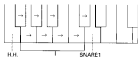
▼ **Level** sets the value relative to the oscillator level setting in Program mode, over a range of $-99 \sim +99$.

▼ **Decay** sets the value relative to the VDA EG decay setting in Program mode, over a range of $-99 \sim +99$.

▼ **Pan** (=effect input) specifies the output: A, A+B; 1 $\sim$ 19; B, C, C+D, D, A+L. (A through D).

▼ **Exclusive Assign** is used to assign sounds. If an Index sound in a group specified by EX1-9 is played, other sounds specified for the same group will not be sounded. This results in a monophonic sound within the same group. For example, this would be useful when you do not want to create a hi-hat open and close sound simultaneously. When "—" is selected, a polyphonic sound is made regardless of the group. When SELF (self) is selected, the sound for the same note number (a sound made during playback by oneself) will be produced.

88.



These keys will play the SNARE1 sound
(the pitch will change)

7A-7D Drum Kit2

07A DRUM2 #01 >	07B KEY/TUNE/L 0	07C DECAY/PAN 0	07D EX ASSIGN <
032:CYM-HTOP	C0 T+009 L+00	Decay+00 Pan=0:0	---

* Details are the same as for 6A — 6D Drum Kit 1.

8A Copy Drum Kit

08A COPY D.KIT
ROM1 > A2 OK?

8A	Copy Drum Kit Source	A1, A2, ROM 1 — 4 C1, C2, D1, D2	Drum kit copy source
	Copy Drum Kit Dest	A1, A2	Drum kit copy destination
		OK?	Copy drum kit

One set of data is copied from one Drum Kit to another.

- The copy source can be either of the internal (Bank A) Drum Kits (1 or 2), one of the ROM Drum Kits 1-4, or a Card (Bank C or D) Drum Kit (1 or 2). The copy destination will be one of the internal Drum Kits (1 or 2).
- After selecting the copy source and copy destination, move the cursor to OK?, and press the /> key to execute copying.

CONNECTION TO THE RE1

Connecting the separately sold RE1 Remote Editor will speed up editing and other operations.

CONNECTIONS

Turn off the power of the O3R/W.

- ① Connect the O3R/W rear-panel REMOTE jack and the RE1 REMOTE jack, using the cable included with the RE1.
- ② Turn the O3R/W power on. Power will be applied to the RE1 at the same time, and the RE1 will be able to control the O3R/W.

RE1 OPERATION

◆Function key operations◆

The function key corresponding to each mode will light (except for Demo Play).

After the RE1 switches included with the O3R/W.

O3R/W	RE1
COMBINATION MODE	F1
EDIT COMBINATION MODE	F2
PROGRAM MODE	F3
EDIT PROGRAM MODE	F4
MULTI MODE	F5
GLOBAL MODE	F6
DEMO PLAY	F1 + F2

◆To select Combinations (Combination Play mode)◆

- ① Select Combination Play mode using function key 1 (F1).
 - ② Select the Combination number using the numeric keys, and the Δ and ∇ keys.
 - If a Program card is inserted into the slot on the O3R/W, you can also select Combinations from a card (C00-C99, D00-D99), using the CARD key.
- Each time the CARD key is pressed, the Bank will change between C and D.

◆Selecting a Program (PROGRAM Mode)◆

- ① Press Function key 3 (F3) to select the Program mode.
- ② Use keys 0-9, the Δ and ∇ keys to select the Program number.
- Each time the INT key is pressed, the Bank will be changed between A and G. When Bank G is selected, enter 00 to select G100. After this, entering 00-29 will select G100-G129, and pressing 30-99 will select the corresponding G30-G99. (When less than 100 Programs are in use, either carry out these instructions or use the ∇ key.)
- If a PROG card has been inserted in the O3R/W, pressing the CARD key will select Programs (C00-C99, D00-D99) from the card. After this, each time the CARD key is pressed, the Bank will be changed between C and D.

Note: While the RE1 is connected, the O3R/W will display "Remote Control", and none of its keys will function.

◆To hear the Demo songs◆

- ① Press function keys 1 and 2 (F1, 2) simultaneously to enter Demo Play mode.
- ② Pressing a key 0 — 4 will start the corresponding Demo song. Song 0 corresponds to number 0, and song 4 corresponds to number 4. Pressing key 5 will allow all the Demo songs to be played back successively. Press any key to stop playback.
- ③ When you press any of function keys 1-6 (F1-6), you will exit Demo Play mode.

Note: The sound of the song will be changed if the data for the Timbres are modified.

◆To edit parameters◆

- ① Select the mode you wish to edit, using the function keys.
- ② Select the page, using the PAGE+, PAGE-, and 0 — 9 keys.
 - I : Use the PAGE+ and PAGE- keys to select the page to edit. (These keys function in the same way as the PAGE+ and PAGE- keys of the O3R/W.)
 - II : You can also select the page using the 0 — 9 keys.
- ③ Press a key $\boxed{A} - \boxed{H}$. The parameter displayed in the LCD above the key will blink, and you can edit that parameter.
- ④ You can edit the selected parameter in any of the following two ways.
 - I : Pressing the Δ key and ∇ key will modify the parameter value. (These keys function in the same way as the Δ and ∇ keys of the O3R/W.)
 - II : Moving a slider $\boxed{A} - \boxed{H}$ will modify the parameter displayed in the LCD above the slider. (You do not need to press a key $\boxed{A} - \boxed{H}$.)

THE DISPLAY

The cursor referred to here is the parameter that is flashing on the display.

The upper line of the display will show the current mode, the selected Combination, Program number (except in Global and Multi modes), page number, and the selected parameter name. The page is displayed as a two-digit number, and the left digit (the 10's position) corresponds to the keypad 0-9. For example, if "5" is pressed, page 50 is selected. The digit to the right (the 1's position) is selected by pressing the PAGE + key the number of times needed to show that number. For example, when page 52 is to be selected, first press 5, then press the PAGE + key two times to select 52.

The parameters are shown in the lower line of the display, and can be edited by changing the cursor position.

COMBINATION MODE

In this mode you can select and play Combinations. You can also edit the Program numbers used by each Combination, and adjust the output levels in realtime. (However these changes will not be written. If you want to keep your edits, enter Edit Combination mode and write them into memory.)

* Pressing the FI key will allow you to return to the same conditions as when you first selected that Combination, even while editing the Program number or the output level, (with the cursor on the bottom line)

COMBI A00: Init Bomb									
A00	A01	A02	A03	A04	A05	A06	A07		

Flashing (cursor position)
Program Name

Keys **[A]** — **[H]** and sliders **[A]** — **[H]** correspond to Timbres 1 — 8 respectively, and select Programs.

COMBI A00: Init Bomb									
127	127	127	127	127	127	127	127		

Flashing (cursor position)
Level Program Name

Press the PAGE+ key to display the output level for each Timbre, and you will be able to adjust the level using the keys and sliders. Pressing the PAGE- key will return to the display for selecting a Program.

■ EDIT COMBINATION MODE ■

PAGE			03R/W PAGE
0	Program Select	Cursor Keys A—H correspond to Timbres 1—8. (same up to page 7.)	0A, 0B
	CMB-ADD 00:PROG SELECT Tl=Init Prog ADD A01 A02 A03 A04 A05 A06 A07		
1	Output Level		1A, 1B
	CMB-ADD 10:OUTPUT LEVEL Tl=Init Prog 127 127 127 127 127 127 127 127		
2	MIDI Channel		2A, 2B
	CMB-ADD 20:MIDI CH Tl=Init Prog 10 2 3 4 5 6 7 8		
3-0	Key Window Top		3A, 3B
	CMB-ADD 30:K.WINDOW TOP Tl=Init Prog 09 09 09 09 09 09 09 09		
3-1	Key Window Bottom		3C, 3D
	CMB-ADD 31:K.WINDOW BTM Tl=Init Prog C-1 C-1 C-1 C-1 C-1 C-1 C-1 C-1		
4-0	Velocity Window Top		4A, 4B
	CMB-ADD 40:V.WINDOW TOP Tl=Init Prog 127 127 127 127 127 127 127 127		
4-1	Velocity Window Bottom		4C, 4D
	CMB-ADD 41:V.WINDOW BTM Tl=Init Prog 001 001 001 001 001 001 001 001		
5-0	Transpose		5A, 5B
	CMB-ADD 50:TRANSPOSE Tl=Init Prog +00 +00 +00 +00 +00 +00 +00 +00		

PAGE			CUR/W PAGE
5-1	Detune		5C, 5D
	CMB-A00 51:DETUNE T1=Init Prog +00 +00 +00 +00 +00 +00 +00 +00		
6-0	MIDI Program Change Filter		6A
	CMB-A00 60:MIDI PROG CHG T1=Init Prog ENA ENA ENA ENA ENA ENA ENA ENA		
6-1	Damper Filter		6B
	CMB-A00 61:DAMPER T1=Init Prog ENA ENA ENA ENA ENA ENA ENA ENA		
6-2	After Touch Filter		6C
	CMB-A00 62:AFTER TOUCH T1=Init Prog ENA ENA ENA ENA ENA ENA ENA ENA		
6-3	Control Change Filter		6D
	CMB-A00 63:CTRL CHANGE T1=Init Prog ENA ENA ENA ENA ENA ENA ENA ENA		
7	Panpot		7A, 7B
	CMB-A00 70:PANPOT T1=Init Prog 5:5 5:5 5:5 5:5 5:5 5:5 5:5 5:5		
8-0	Effect 1 Type, Dynamic Modulation		8A, 8C
	CMB-A00 80:EFFECT 1 06:Live Stage :OFF D.Mod:JS(+Y) 1-15		
8-1	Effect 1 Parameter	Parameters vary depending on the Effect type. Refer to the Effect section for details.	8B, 8A — 9C (D)
	CMB-A00 81:FX1 LiveStage Reverb Time[s] 2.0 0020 560 HD20 L+03 H+00 60:40		
8-2	Effect 2 Type, Dynamic Modulation		10A, 10C
	CMB-A00 82:EFFECT 2 37:ParametricEQ :ON D.Mod JS(-Y) 1-10		
8-3	Effect 2 Parameter	Parameters vary depending on the Effect type. Refer to the Effect section for details.	10B, 11A — 11C (D)
	CMB-A00 83:FX2 Para. EQ Gain Low [db] LF12 G+12 M08 G+12 W50 HF20 G+12 FX		

PAGE			01R/W PAGE
8-4	Effect Placement		12A, 12B
	CMB+ADD 84:EFFECT PLACEMENT Parallel 3= OFF 4=99:01		
8-5	Copy Effect	Select the copy source B — F, then press the G key [COPY] to copy.	12C
	CMB+ADD 85:Copy Effect Piano 16' from [COMBI] A00 [COPY]		

PROGRAM MODE

In this mode, you can select and play Programs (sounds) from memory.

```

PR00  A00 Init Prog
0+00  L+00 P+00 T+00 T+00 A+00 R+00 R+00

```

Use keys 0-9, the $\wedge$ and $\vee$ keys to select the Program number.

- Each time the INT key is pressed, the Bank will be changed between A and G. When Bank G is selected, enter 00 to select G100. After this, entering 00-29 will select G100-G129, and pressing 30-99 will select the corresponding G30-G99. (When less than 100 Programs are in use, either carry out these instructions or use the $\vee$ key.)
- If a PROG card has been inserted in the 03R/W, pressing the CARD key will select Programs (C00-C99, D00-D99) from the card. After this, each time the CARD key is pressed, the Bank will be changed between C and D.

■ EDIT PROGRAM MODE ■

⑬ : Displayed only when OSC Mode = DOUBLE

PAGE			03R/W PAGE
0-0	OSC Mode	PRG-A00 00:OSC BASIC OSC Mode MODE:DOUBLE Assign:POLY Hold:OFF	Some pages are not displayed when the mode is set to SINGLE or DRUMS. 0A, 0B
0-1	OSC1 Multi Sound	PRG-A00 01:OSC1 M.SOUND Multisound 000:Piano L99 8' EGint+00 Pan5:5	1A — 1C
0-2 ⑬	OSC2 Multi Sound	PRG-A00 02:OSC2 M.SOUND Multisound 000:Piano L99 8' EGint+00 Pan5:5	2A — 2C
0-3 ⑬	OSC2 Interval/Detune/Delay	PRG-A00 03:OSC 2 Interval Interval=+00 Detune=+00 Delay=00	3D, 3E
0-4	Pick EG	PRG-A00 04:PITCH EG Start Level S+00 AT00 A+00 DT00 RT00 R+00 L+00 T+00	3A — 3C
1-0	VDF1 Cutoff/Emphasis	PRG-A00 10:VDF1/EMPHASIS Cutoff=99 EGint=00 EMPint=00 EMPvel=+00	4A, 4E
1-1	VDF1 EG	PRG-A00 11:VDF1 EG Attack Time AT00 A+00 DT00 R+00 ST00 S+00 RT00 R+00	4B — 4D
1-2	VDF1 Velocity Sense	PRG-A00 12:VDF1 V.SENS EG Intensity EGint=+00 EGtime=00 AT0 DT0 ST0 RT0	6A, 6B
1-3	VDF1 Keyboard Tracking	PRG-A00 13:VDF1 KBD TRK Center Key CH4 ALL F+00 EGsta00 AT0 DT0 ST0 RT0	6C — 6E

PAGE			OSR/W PAGE
2-0 ⑩	VDF2 Cutoff/Emphasis PRG-ADD 20:VDF2/EMPHASIS Cutoff=99 EGint=00 EMPint=00 EMPvel=+00		5A, 5E
2-1 ⑪	VDF2 BG PRG-ADD 21:VDF2 BG Attack Time AT00 A+00 DT00 B+00 ST00 S+00 RT00 R+00		5B — 5D
2-2 ⑫	VDF2 Velocity Sense PRG-ADD 22:VDF2 V.SENS EG Intensity EGint=+00 EGtime=00 AT0 DT0 ST0 RT0		7A, 7B
2-3 ⑬	VDF2 Keyboard Tracking PRG-ADD 23:VDF2 KBD TRK Center Key F1 ALL F+00 EGtm=00 AT0 DT0 ST0 RT0		7C — 7E
3-0	VDA1 BG PRG-ADD 30:VDA1 BG Attack Time AT00 AL00 DT00 BP00 ST00 SL00 RT00		8A — 8C
3-1	VDA1 Velocity Sense PRG-ADD 31:VDA1 V.SENS Amplitude A+00 EGtime=00 AT0 DT0 ST0 RT0		10A, 10B
3-2	VDA1 Keyboard Tracking PRG-ADD 32:VDA1 KBD TRK Center Key C#3 OFF A+00 EGtm=00 AT0 DT0 ST0 RT0		10C — 10E
4-0 ⑭	VDA2 BG PRG-ADD 40:VDA2 BG Attack Time AT00 AL00 DT00 BP00 ST00 SL00 RT00		9A — 9C
4-1 ⑮	VDA2 Velocity Sense PRG-ADD 41:VDA2 V.SENS Amplitude A+00 EGtime=00 AT0 DT0 ST0 RT0		11A, 11B
4-2 ⑯	VDA2 Keyboard Tracking PRG-ADD 42:VDA2 KBD TRK Center Key B3 OFF A+00 EGtm=00 AT0 DT0 ST0 RT0		11C — 11E

PAGE			DIR/W PAGE
5-0	Pitch1 MG PRG-A00 50:PITCH 1 MG Waveform TRI F00 I00 D00 F.in00 K.sync:OFF		12A — 12C
5-1	Pitch MG1 Frequency Modulation PRG-A00 51:PTMG1 Fq MOD KBD.TRACK=+00 After+JoyUp=0		12D
5-2	Pitch MG1 Intensity Modulation PRG-A00 52:PTMG1 Int MOD AfterTouch=00 JoyStick Up=00		12E
6-0 ⑪	Pitch2 MG PRG-A00 60:PITCH 2 MG Waveform TRI F00 I00 D00 F.in00 K.sync:OFF		13A — 13C
6-1 ⑪	Pitch MG2 Frequency Modulation PRG-A00 61:PTMG2 Fq MOD KBD.TRACK=+00 After+JoyUp=0		13D
6-2 ⑪	Pitch MG2 Intensity Modulation PRG-A00 62:PTMG2 Int MOD AfterTouch=00 JoyStick Up=00		13E
7-0	VDF MG PRG-A00 70:VDF MG Waveform TRI F00 I00 D00 OSC:BOTH K.sync:OFF		14A — 14C
7-1	After Touch Control PRG-A00 71:AFTER TOUCH Pitch P.Bend=12 Pc=00 VDF.MG00 Amp=00		15A, 15B
7-2	Joy Stick Control PRG-A00 72:J.S Down/Bend Pitch Bend VDF.MG=99 Pitch Bend=00 VDF=00		15C, 15D
8-0	Effect1 Type, Dynamic Modulation PRG-A00 80:EFFECT 1 OS:Live Stage :OFF D.Mod:JS(+Y) I+15		16A, 16C

PAGE			CUR/W PAGE
8-1	Effect Parameter PRG-A00 81:FX1 LIVERSTAGE Reverb Time[s] 2.0 D020 E60 HD20 L+03 H+00 60:40	Parameters will differ depending on the Effect type. Refer to the Effect section for details.	16B, 17A — 17C (D)
8-2	Effect2 Type, Dynamic Modulation PRG-A00 82:EFFECT 2 37:ParametricEQ :ON D.Mod:JS(-Y) 1-10		18A, 18C
8-3	Effect2 Parameter PRG-A00 83:FX2 Para. EQ Gain Low [db] LF12 G+12 M08 G+12 W50 HF20 G+12 FI	Parameters will differ depending on the Effect type. Refer to the Effect section for details.	18B, 19A — 19C (D)
8-4	Effect Placement PRG-A00 84:EFFECT PLACE Parallel 3= OFF 4= OFF		20A, 20B
8-5	Copy Effect PRG-A00 85:Copy Effect Piano 16' from [PRG] A00 [COPY]	Select the copy source B — F, then press the Gkey [COPY] to copy.	20C
9	Program Write/Rename PRG-A00 90:WRITE/RENAME Init Bomb [WRITE]-> A00 [<] [>]	- Use Keys F () and G () to select a character, then use the Δ and ∇ keys to change the characters for digits F — H. - Use E to select the write destination, then press C [WRITE] to write.	21A, 21B

■ MULTI MODE ■

PAGE			03R/W PAGE
0-0	Program Select (Track 1 — 8)	Cursor keys A — H correspond to Tracks 1 — 8. (Same as for page X-0 up to 6-0 Prog. Change.)	0A, 0B
	MULTI 00:PROGRAM 1-8 T01=Clarinet G72 G19 G45 G99 G38 OFF OFF OFF		
0-1	Program Select (Track 9 — 16)	Cursor keys A — H correspond to Tracks 9 — 16. (Same as for page X-1 up to 6-1 Prog. Change.)	0C, 0D
	MULTI 01:PROGRAM 9-16 T10=GM DrumKit OFF 129 A10 A11 A12 A13 A14 A15		
1-0	Output Level (Track 1 — 8)		1A, 1B
	MULTI 10:LEVEL 1-8 T01=Clarinet 100 100 100 127 099 127 127 127		
1-1	Output Level (Track 9 — 16)		1C, 1D
	MULTI 11:LEVEL 9-16 T10=GM DrumKit 127 100 127 127 127 127 127 127		
2-0	Panpot (Track 1 — 8)		2A, 2B
	MULTI 20:PANPOT 1-8 T01=Clarinet 5:5 5:5 5:5 5:5 5:5 5:5 5:5 5:5		
2-1	Panpot (Track 9 — 16)		2C, 2D
	MULTI 21:PANPOT 9-16 T10=GM DrumKit 5:5 PRG 5:5 5:5 5:5 5:5 5:5 5:5		
3-0	Transpose (Track 1 — 8)		3A, 3B
	MULTI 30:TRANS 1-8 T01=Clarinet +00 +00 +00 +00 +00 +00 +00 +00		
3-1	Transpose (Track 9 — 16)		3C, 3D
	MULTI 31:TRANS 9-16 T10=GM DrumKit +00 +00 +00 +00 +00 +00 +00 +00		
4-0	Detune (Track 1 — 8)		4A, 4B
	MULTI 40:DETUNE 1-8 T01=Clarinet +00 +00 +00 +00 +00 +00 +00 +00		

PAGE			01R/W PAGE
4-1	Detune (Track 9 — 16)		4C, 4D
	MULTI 41:DETUNE 9-16 T10=GM DrumKit +00 +00 +00 +00 +00 +00 +00 +00		
5-0	Pick Bend Range (Track 1 — 8)		5A, 5B
	MULTI 50:BEND 1-8 T01=Clarinet +02 +02 +02 +02 +02 +02 +02 +02		
5-1	Pick Bend Range (Track 9 — 16)		5C, 5D
	MULTI 51:BEND 9-16 T10=GM DrumKit +02 +00 +02 +02 +02 +02 +02 +02		
6-0	Program Change Filter (Track 1 — 8)		6A, 6B
	MULTI 60:PROGRAM 1-8 T01=Clarinet ENA ENA ENA ENA ENA ENA ENA ENA		
6-1	Program Change Filter (Track 9 — 16)		6C, 6D
	MULTI 61:PROGRAM 9-16 T10=GM DrumKit ENA DIS ENA ENA ENA ENA ENA ENA		
8-0	Effect1 Type, Dynamic Modulation		7A, 7C
	MULTI 80:EFFECT 1 06:Live Stage :OFF D.Mod JS(+Y) I+15		
8-1	Effect1 Parameter	Parameters vary depending on the Effect type. Refer to the Effect section for details.	7B, 8A — 8C (D)
	MULTI 81:FX1 LiveStage Reverb Time[s] 2.0 D020 E60 HD20 L+03 H+00 60:40		
8-2	Effect2 Type, Dynamic Modulation		9A, 9C
	MULTI 82:EFFECT 2 37:ParametricEQ :ON D.Mod JS(-Y) I-10		
8-3	Effect2 Parameter	Parameters vary depending on the Effect type. Refer to the Effect section for details.	9B, 10A — 10C (D)
	MULTI 83:FX2 Para. EQ Frequency Low LP12 G+12 M08 G+12 N50 HF20 G+12 FX		
8-4	Effect Placement		11A, 11B
	MULTI 84:EFFECT PLACE Parallel 3= OFF 4=99:01		

PAGE			03R/W PAGE
8-5	Copy Effect	Select the copy source B — F, then press the Gkey(COPY) to copy.	11C
	MULTI 85:Copy Effect Piano 16³ from [PROG] ADD [COPY]		

■ GLOBAL MODE ■

PAGE			03R/W PAGE
0-0	Master Tune, Transpose GLOBAL 00:TUNE/TRANS Master Tune:+00 Transpose:+00		0A
0-1	Velocity Curve, After Touch Curve GLOBAL 01:CURVE Velocity=5 After Touch=1		0B
1-0	Scale Type GLOBAL 10:SCALE TYPE User Scale	You can set the keys using [X] or [Y] when Part Master of Part Master is selected for the Scale Type.	1A
1-1	User Scale USER +00 +00 +00 +00 +00 [F] +00 +00 +00 +00 +00 +00 +00	1-0 Scale type is displayed only for User Scale. Keys [X] - [Y] and sliders B-H correspond to tone numbers C-H. Every time you push key A, the pitch will be raised or lowered one octave. The settings for the black keys are made the slider A.	1B — 1E
2-0	Global MIDI Channel GLOBAL 20:MIDI GLOBAL Channel= 1 Note# : ALL		2A
2-1	MIDI Filtering GLOBAL 21:MIDI FILTER CHG/PRG Change PRG:ENA AFTT:ENA CTRL:ENA EXCL:DIS		2B, 2C
3-0	Memory Protect GLOBAL 30:MEMORY PROTECT PROGRAM:OFF COMBINATION:OFF		3A, 3B
3-1	Page Memory GLOBAL 31:PAGE MEMORY Page Memory:OFF		3C
4	MIDI Data Dump GLOBAL 40:MIDI DUMP PROGRAM [DUMP]	Use A — F to select data to be dumped, then press G [DUMP] to send the data. During data dumps, "Data Active" will appear on the display.	4A

PAGE			03R/W PAGE
5	Card Load GLOBAL 50:LOAD FROM CARD BANK C [LOAD]	Use A — F to select the Bank to load to, then press G [LOAD] to load the data.	5A
6	Card Save GLOBAL 60:SAVE TO CARD BANK D [SAVE]	Use A — F to select the Bank to save to, then press G [SAVE] to save the data.	5B
7	Preset Data Load GLOBAL 70:PRESET DATA [LOAD]	Press G [LOAD] to load preset data.	5D
8	Drum Kit 1 GLOBAL 80:DRUM KIT1 CYN-HTOP #32 105 D#4 +019 L#65 D#00 A EX1	(Common to 8 and 9-1) A: Index B: Instrument C: Key D: Tune E: Level F: Decay G: Pan H: BX Assign	6A — 6D
9-1	Drum Kit 2 GLOBAL 90:DRUM KIT2 Cowbells #59 032 C0 +009 L#08 D#00 S#5 ---		7A — 7D
9-1	Copy Drum Kit GLOBAL 91:Copy Drum Kit From [ROM1] --> [A2] [COPY]	Use A — C to select the Drum Kit to be loaded, use D and E to select the load destination, then press G [COPY] to copy the Drum Kit.	8A

PAGE 8-1, 8-3 EFFECT Parameter (Common to the EDIT, COMBI, EDIT PROG and MULTI Modes.)

Select the effect type in PAGES 8 - 0 and 8 - 2

00 :NoEffect	
MULTI S1:FX1 No Effect	
01 — 09 :Reverb	A Reverb Time C Early ReflectionLevel E — G Equalizer High B Pre Delay D High Damp F Equalizer Low H Effect Balance
MULTI S1:FX1 Hall Reverb Time[s] 3.2 D060 E62 HD90 L+04 H+00 75:25	
10 — 12 :Early Reflection	A Early Reflection Time C Pre Delay E — G Equalizer High B — D — F Equalizer Low H Effect Balance
MULTI S1:FX1 EarlyRef1 E.R Time 280ms D015 L+03 H+05 67:33	
13, 14 :Stereo Delay	A Delay Time Left C Feedback E — G Equalizer High B Delay Time Right D High Damp F Equalizer Low H Effect Balance
MULTI S1:FX1 Stereodly Time L [ms] L250 R260 P+40 HD30 L+00 H+00 75:25	
15 :Dual Mono Delay	A Delay Time Left C High Damp Left E Delay Time Right G High Damp Right B Feedback Left D Effect Balance Left F Feedback Right H Effect Balance Right
MULTI S1:FX1 Dual Dly Time L [ms] 250 P+50 HD10 70:30 260 P+50 HD10 70:30	
16 — 18 :Multi Tap Delay	A Delay Time 1 C Delay Time 2 E Feedback G Equalizer High B — D — F Equalizer Low H Effect Balance
MULTI S1:FX1 M.TapDly1 Delay Time 1 D17300 D21400 P+50 L+00 H+00 50:50	
19, 20 :Chorus	A Delay Time C Mod Speed E Mod Depth G — B Mod Speed D Mod Waveform F Equalizer Low H Effect Balance
MULTI S1:FX1 Chorus 1 Time [ms] D010 S0.30 M60 TRI L+00 H+00 60:40	
21, 22 :Chorus	A Delay Time Left C Mod Speed E Mod Shape G Equalizer High B Delay Time Right D Mod Depth F Equalizer Low H Effect Balance
MULTI S1:FX1 Quad.Cho. Dly Time Left L011 R023 R33 D50 T+00 L+00 H+00 50:50	
23 :Harmonic Chorus	A Delay Time Left C — E Mod Depth G — B Delay Time Right D Mod Speed F Filter Split Point H Effect Balance
MULTI S1:FX1 Harmo.Cho Dly Time Left L022 HD048 R35 D99 F8101 FX	

24	:Symphonic Ensemble	[A] :Mod Depth	[B] : —
MULT1 S1:FX1 Symp.Ens. Mod Depth M80 L+00 H+00 50:50		[C] : —	[D] : —
		[E] : —	[F] : Equalizer Low
		[G] : Equalizer High	[H] : Effect Balance
25 - 27	:Flanger	[A] : Delay Time	[B] : Mod Depth
MULT1 S1:FX1 Flanger 1 Delay Time T005 D99 Speed20 R-85 L+00 H+00 20:80		[C] : Mod Speed	[D] : —
		[E] : Resonance	[F] : Equalizer Low
		[G] : Equalizer High	[H] : Effect Balance
28	:Exciter	[A] : Blend	[B] : —
MULT1 S1:FX1 Exciter Blend B+50 EP05 L+04 H+00 FX		[C] : Haptic Point	[D] : —
		[E] : —	[F] : Equalizer Low
		[G] : Equalizer High	[H] : Effect Balance
29	:Enhancer	[A] : Harmonic Density	[B] : Hic Spot
MULT1 S1:FX1 Enhancer Harms Density H080 H001 SW50 D25 L+01 H+01 FX		[C] : Stereo Width	[D] : Delay Time
		[E] : —	[F] : Equalizer Low
		[G] : Equalizer High	[H] : Effect Balance
30, 31	:Distortion	[A] : Drive (Edge)	[B] : Hic Spot
MULT1 S1:FX1 Dist Drive (edge) D111 H505 R80 L+02 H-12 010 50:50		[C] : Resonance	[D] : Equalizer Low
		[E] : Equalizer High	[F] : Cut Level
		[G] : —	[H] : Effect Balance
32, 33	:Phaser	[A] : Manual	[B] : Mod Speed
MULT1 S1:FX1 Phaser 1 Manual M999 S0.69 M80 P-75 SIN 25:75		[C] : Mod Depth	[D] : Feedback
		[E] : Mod Waveform	[F] : —
		[G] : —	[H] : Effect Balance
34	:Rotary Speaker	[A] : Vibrato Depth	[B] : —
MULT1 S1:FX1 Rot.Spk Vibrato Depth V1809 ACC04 S1W25 FST70 FX		[C] : Acceleration	[D] : Slow Speed
		[E] : —	[F] : Fast Speed
		[G] : —	[H] : Effect Balance
35, 36	:Tremolo	[A] : Mod Waveform	[B] : Mod Shape
MULT1 S1:FX1 Auto Pan Waveform S1W S+99 S1.59 M80 L+00 H+00 FX		[C] : Mod Speed	[D] : Mod Depth
		[E] : —	[F] : Equalizer Low
		[G] : Equalizer High	[H] : Effect Balance
37	:Parametric Equalizer	[A] : Low Freq	[B] : Low Gain
MULT1 S1:FX1 Para. EQ Frequency Low LF12 G+12 M08 G+12 W50 HF20 G+12 FX		[C] : Mid Freq	[D] : Mid Gain
		[E] : Mid Width	[F] : High Freq
		[G] : High Gain	[H] : Effect Balance
38, 39	:Combination Effect Serial	• CHORUS, FLANGER	
MULT1 S1:FX1 Chor-Dly Delay Time T11 FR+10 S30 D50 T110 F+10 70:30		[A] : Delay Time	[B] : Feedback
		[C] : Mod Speed	[D] : Mod Depth
		• DELAY	
		[E] : Delay Time	[F] : Feedback
		[G] : —	[H] : Effect Balance

40, 41	:Delay/Reverb	- MULTI S1:FX1 Dly/Hall Dly Time [ms] - D250 F+50 HD10 70:30 3.5 D055 HD40 60:40	• DELAY [A] :Delay Time [C] :High Damp • HALL, ROOM [B] :Reverb Time [D] :High Damp	[R] :Feedback [E] :Effect Balance [F] :Pre-Delay [H] :Effect Balance
42	:Delay/Chorus	- MULTI S1:FX1 Dly/Cho. Mod Speed [Hz] - D250 F+50 HD10 70:30 0.30 M60 TR1 40:60	• DELAY [A] :Delay Time [C] :High Damp • CHORUS [B] :Mod Speed [D] :Mod Waveform	[R] :Feedback [E] :Effect Balance [F] :Mod Depth [H] :Effect Balance
43	:Delay/Finger	- MULTI S1:FX1 Dly/Finger Mod Depth - D250 F+50 HD10 DRY 0.18 M70 F-75 DRY	• DELAY [A] :Delay Time [C] :High Damp • FLANGER [B] :Mod Speed [D] :Feedback	[R] :Feedback [E] :Effect Balance [F] :Mod Depth [H] :Effect Balance
44, 45	:Delay/Distortion	- MULTI S1:FX1 Dly/Dist Drive - D7250 FB+40 60:40 E111 R850 R75 D05	• DELAY [A] :Delay Time [C] :Feedback • DISTORTION, OVER DRIVE [B] :Drive (Edge) [D] :Resonance	[R] :—— [E] :Effect Balance [F] :Hot Spot [H] :Dist Level
46	:Delay/Phaser	- MULTI S1:FX1 Dly/Phase Mod Speed [Hz] - D250 F+50 HD10 70:30 0.69 M60 F-75 25:75	• DELAY [A] :Delay Time [C] :High Damp • PHASER [B] :Mod Speed [D] :Feedback	[R] :Feedback [E] :Effect Balance [F] :Mod Depth [H] :Effect Balance
47	:Delay/Rotary Speaker	- MULTI S1:FX1 Dly/R.SP Acceleration - D250 FB+40 60:40 AC04 S25 P70 30:70	• DELAY [A] :Delay Time [C] :—— • ROTARY SPEAKER [B] :Acceleration [D] :Fast Speed	[R] :Feedback [E] :Effect Balance [F] :Slow Speed [H] :Effect Balance

■ DEMO MODE ■

SONG: ROCK SHOW

MIDI IMPLEMENTATION

Abstract

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Figure 1 consists of 12 small plots arranged in a 6x2 grid. Each plot shows the distribution of the number of non-zero elements in the vector x for a specific value of n (from 1 to 12). The x-axis represents the number of non-zero elements, and the y-axis represents the probability or frequency. The distributions are unimodal and centered at zero, with the spread increasing as n increases.

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Index	Description	A	C	D	E
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41	ALL DATA FROM THE CABLE				
42	ALL DATA FROM THE CABLE				
43	ALL DATA FROM THE CABLE				
44	BASE CHANNEL				
45	PARAMETER CHANNEL				
46	PARAMETER CHANNEL				
47	PARAMETER CHANNEL				
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3. MIDI EXCLUSIVE FORMAT (8 : Messrs. T / Transmis)

C1) MIDI MASTER		R
Byte	Description	
PC-42.36.38	EXCLUSIVE MASTER	
0000 0010	DATA	
0000 0000	END REPORT	
1111 0111	END	1278

Receives this message and transmits Pacer-2 message

C2) PENDING PARAMETER RMP REQUEST		R
Byte	Description	
PC-42.36.38	EXCLUSIVE MASTER	
0001 0000	PENDING PARAMETER RMP REQUEST	100
1111 0111	END	100

Receives this message and transmits Pacer-3 or Pacer-24 message

C3) ALL DATA GROUP (256 DATA) RMP REQUEST		R
Byte	Description	
PC-42.36.38	EXCLUSIVE MASTER	
0001 1111	ALL DATA GROUP RMP REQUEST	100
0000 0000	DATA	
1111 0111	END	

Receives this message and transmits Pacer-4 or Pacer-24 message

C4) ALL DATA GROUP (256 DATA) RMP RMP REQUEST		R
Byte	Description	
PC-42.36.38	EXCLUSIVE MASTER	
0001 1111	ALL DATA GROUP RMP REQUEST	100
0000 0000	DATA	
1111 0111	END	

Receives this message and transmits Pacer-5 or Pacer-24 message

C5) ALL PENDING PARAMETER RMP REQUEST		R
Byte	Description	
PC-42.36.38	EXCLUSIVE MASTER	
0001 1100	ALL PENDING PARAMETER RMP REQUEST	10
0000 0000		
1111 0111	END	

Receives this message and transmits Pacer-6 or Pacer-24 message

C6) COMBINATION PARAMETER RMP REQUEST		R
Byte	Description	
PC-42.36.38	EXCLUSIVE MASTER	
0001 1001	COMBINATION PARAMETER RMP REQUEST	
1111 0111	END	

Receives this message and transmits Pacer-7 or Pacer-24 message

C7) ALL COMBINATION PARAMETER RMP REQUEST		R
Byte	Description	
PC-42.36.38	EXCLUSIVE MASTER	
0001 1101	ALL COMB. PARAMETER RMP REQUEST (M)	
0000 0000		
1111 0111	END	

Receives this message and transmits Pacer-8 or Pacer-24 message

B1 MULTI GROUP DATA RMP REQUEST		R
Byte	Description	
00 42 36 38	EXCLUSIVE MASTER	
0000 0110	MULTI GROUP DATA RMP REQUEST	000
0000 0000		
1111 0111	END	

Receives this message and transmits Pacer-9 or Pacer-24 message

C9) GLOBAL DATA RMP REQUEST		R
Byte	Description	
PC-42.36.38	EXCLUSIVE MASTER	
0000 1110	GLOBAL DATA RMP REQUEST	000
0000 0000		
1111 0111		END

Receives this message and transmits Pacer-10 or Pacer-24 message

C10) MULTI GROUP REQUEST		R
Byte	Description	
PC-42.36.38	EXCLUSIVE MASTER	
0000 1101	MULTI GROUP REQUEST	000
0000 0000		
1111 0111	END	

Receives this message and transmits Pacer-11 or Pacer-24 message

C11) ALL DATA GROUP (256 DATA) RMP REQUEST		R
Byte	Description	
PC-42.36.38	EXCLUSIVE MASTER	
0000 1111	ALL DATA GROUP RMP REQUEST	
0000 0000	DATA	
1111 0111	END	

Receives this message and transmits Pacer-12 or Pacer-24 message

C12) PENDING PARAMETER RMP REQUEST		R
Byte	Description	
PC-42.36.38	EXCLUSIVE MASTER	
0001 0001	PENDING PARAMETER RMP REQUEST	110
0000 0000	Write Program End	0000 111
0000 0000	Write Program No. 01-481	
1111 0111	END	

Receives this message and transmits Pacer-13 or Pacer-24 message

C13) COMBINATION RMP REQUEST		R
Byte	Description	
PC-42.36.38	EXCLUSIVE MASTER	
0001 1010	COMBINATION RMP REQUEST	LAST
0000 0000	Write Combination Data	DATA 1)
0000 0000	Write Combination Data	DATA 2)
1111 0111	END	

Receives this message and transmits Pacer-14 or Pacer-24 message

1000

[illegible]

Received this message 4:00L and Training Faculty of Faculty meeting Room 100 Parameter No. is changed by 20. Currently this message is 4:01L

Figure 1. The effect of the number of trials on the number of correct responses. The number of correct responses (Y-axis) is plotted against the number of trials (X-axis). The data shows a positive correlation between the number of trials and the number of correct responses, with a slight increase in the number of correct responses as the number of trials increases.

POLYMER-RT PROPERTIES				P. T.
Date	Spec.	Description		
10-26-59	1001	EXTRUSION	RT PROPERTIES	1001
10-26-59	1002	1002	1002	1002
10-26-59	1003	1003	1003	1003
10-26-59	1004	1004	1004	1004
10-26-59	1005	1005	1005	1005
10-26-59	1006	1006	1006	1006
10-26-59	1007	1007	1007	1007
10-26-59	1008	1008	1008	1008
10-26-59	1009	1009	1009	1009
10-26-59	1010	1010	1010	1010
10-26-59	1011	1011	1011	1011
10-26-59	1012	1012	1012	1012
10-26-59	1013	1013	1013	1013
10-26-59	1014	1014	1014	1014
10-26-59	1015	1015	1015	1015
10-26-59	1016	1016	1016	1016
10-26-59	1017	1017	1017	1017
10-26-59	1018	1018	1018	1018
10-26-59	1019	1019	1019	1019
10-26-59	1020	1020	1020	1020
10-26-59	1021	1021	1021	1021
10-26-59	1022	1022	1022	1022
10-26-59	1023	1023	1023	1023
10-26-59	1024	1024	1024	1024
10-26-59	1025	1025	1025	1025
10-26-59	1026	1026	1026	1026
10-26-59	1027	1027	1027	1027
10-26-59	1028	1028	1028	1028
10-26-59	1029	1029	1029	1029
10-26-59	1030	1030	1030	1030
10-26-59	1031	1031	1031	1031
10-26-59	1032	1032	1032	1032
10-26-59	1033	1033	1033	1033
10-26-59	1034	1034	1034	1034
10-26-59	1035	1035	1035	1035
10-26-59	1036	1036	1036	1036
10-26-59	1037	1037	1037	1037
10-26-59	1038	1038	1038	1038
10-26-59	1039	1039	1039	1039
10-26-59	1040	1040	1040	1040
10-26-59	1041	1041	1041	1041
10-26-59	1042	1042	1042	1042
10-26-59	1043	1043	1043	1043
10-26-59	1044	1044	1044	1044
10-26-59	1045	1045	1045	1045
10-26-59	1046	1046	1046	1046
10-26-59	1047	1047	1047	1047
10-26-59	1048	1048	1048	1048
10-26-59	1049	1049	1049	1049
10-26-59	1050	1050	1050	1050
10-26-59	1051	1051	1051	1051
10-26-59	1052	1052	1052	1052
10-26-59	1053	1053	1053	1053
10-26-59	1054	1054	1054	1054
10-26-59	1055	1055	1055	1055
10-26-59	1056	1056	1056	1056
10-26-59	1057	1057	1057	1057
10-26-59	1058	1058	1058	1058
10-26-59	1059	1059	1059	1059
10-26-59	1060	1060	1060	1060
10-26-59	1061	1061	1061	1061
10-26-59	1062	1062	1062	1062
10-26-59	1063	1063	1063	1063
10-26-59	1064	1064	1064	1064
10-26-59	1065	1065	1065	1065
10-26-59	1066	1066	1066	1066
10-26-59	1067	1067	1067	1067
10-26-59	1068	1068	1068	1068
10-26-59	1069	1069	1069	1069
10-26-59	1070	1070	1070	1070
10-26-59	1071	1071	1071	1071
10-26-59	1072	1072	1072	1072
10-26-59	1073	1073	1073	1073
10-26-59	1074	1074	1074	1074
10-26-59	1075	1075	1075	1075
10-26-59	1076	1076	1076	1076
10-26-59	1077	1077	1077	1077
10-26-59	1078	1078	1078	1078
10-26-59	1079	1079	1079	1079
10-26-59	1080	1080	1080	1080
10-26-59	1081	1081	1081	1081
10-26-59	1082	1082	1082	1082
10-26-59	1083	1083	1083	1083
10-26-59	1084	1084	1084	1084
10-26-59	1085	1085	1085	1085
10-26-59	1086	1086	1086	1086
10-26-59	1087	1087	1087	1087
10-26-59	1088	1088	1088	1088
10-26-59	1089	1089	1089	1089
10-26-59	1090	1090	1090	1090
10-26-59	1091	1091	1091	1091
10-26-59	1092	1092	1092	1092
10-26-59	1093	1093	1093	1093
10-26-59	1094	1094	1094	1094
10-26-59	1095	1095	1095	1095
10-26-59	1096	1096	1096	1096
10-26-59	1097	1097	1097	1097
10-26-59	1098	1098	1098	1098
10-26-59	1099	1099	1099	1099
10-26-59	1100	1100	1100	1100
10-26-59	1101	1101	1101	1101
10-26-59	1102	1102	1102	1102
10-26-59	1103	1103	1103	1103
10-26-59	1104	1104	1104	1104
10-26-59	1105	1105	1105	1105
10-26-59	1106	1106	1106	1106
10-26-59	1107	1107	1107	1107
10-26-59	1108	1108	1108	1108
10-26-59	1109	1109	1109	1109
10-26-59	1110	1110	1110	1110
10-26-59	1111	1111	1111	1111
10-26-59	1112	1112	1112	1112
10-26-59	1113	1113	1113	1113
10-26-59	1114	1114	1114	1114
10-26-59	1115	1115	1115	1115
10-26-59	1116	1116	1116	1116
10-26-59	1117	1117	1117	1117
10-26-59	1118	1118	1118	1118
10-26-59	1119	1119	1119	1119
10-26-59	1120	1120	1120	1120
10-26-59	1121	1121	1121	1121
10-26-59	1122	1122	1122	1122
10-26-59	1123	1123	1123	1123
10-26-59	1124	1124	1124	1124
10-26-59	1125	1125	1125	1125
10-26-59	1126	1126	1126	1126
10-26-59	1127	1127	1127	1127
10-26-59	1128	1128	1128	1128
10-26-59	1129	1129	1129	1129
10-26-59	1130	1130	1130	1130
10-26-59	1131	1131	1131	1131
10-26-59	1132	1132	1132	1132
10-26-59	1133	1133	1133	1133
10-26-59	1134	1134	1134	1134
10-26-59	1135	1135	1135	1135
10-26-59	1136	1136	1136	1136
10-26-59	1137	1137	1137	1137
10-26-59	1138	1138	1138	1138
10-26-59	1139	1139	1139	1139
10-26-59	1140	1140	1140	1140
10-26-59	1141	1141	1141	1141
10-26-59	1142	1142	1142	1142
10-26-59	1143	1143	1143	1143
10-26-59	1144	1144	1144	1144
10-26-59	1145	1145	1145	1145
10-26-59	1146	1146	1146	1146
10-26-59	1147	1147	1147	1147
10-26-59	1148	1148	1148	1148
10-26-59	1149	1149	1149	1149
10-26-59	1150	1150	1150	1150
10-26-59	1151	1151	1151	1151
10-26-59	1152	1152	1152	1152
10-26-59	1153	1153	1153	1153
10-26-59	1154	1154	1154	1154
10-26-59	1155	1155	1155	1155
10-26-59	1156	1156	1156	1156
10-26-59	1157	1157	1157	1157
10-26-59	1158	1158	1158	1158
10-26-59	1159	1159	1159	1159
10-26-59	1160	1160	1160	1160
10-26-59	1161	1161	1161	1161
10-26-59	1162	1162	1162	1162
10-26-59	1163	1163	1163	1163
10-26-59	1164	1164	1164	1164
10-26-59	1165	1165	1165	1165
10-26-59	1166	1166	1166	1166
10-26-59	1167	1167	1167	1167
10-26-59	1168	1168	1168	1168
10-26-59	1169	1169	1169	1169
10-26-59	1170	1170	1170	1170
10-26-59	1171	1171	1171	1171
10-26-59	1172	1172	1172	1172
10-26-59	1173	1173	1173	1173
10-26-59	1174	1174	1174	1174
10-26-59	1175	1175	1175	1175
10-26-59	1176	1176	1176	1176
10-26-59	1177	1177	1177	1177
10-26-59	1178	1178	1178	1178
10-26-59	1179	1179	1179	1179
10-26-59	1180	1180	1180	1180
10-26-59	1181	1181	1181	1181
10-26-59	1182	1182	1182	1182
10-26-59	1183	1183	1183	1183
10-26-59	1184	1184	1184	1184
10-26-59	1185	1185	1185	1185
10-26-59	1186	1186	1186	1186
10-26-59	1187	1187	1187	1187
10-26-59	1188	1188	1188	1188
10-26-59	1189	1189	1189	1189
10-26-59	1190	1190	1190	1190
10-26-59	1191	1191	1191	1191
10-26-59	1192	1192	1192	1192
10-26-59	1193	1193	1193	1193
10-26-59	1194	1194	1194	1194
10-26-59	1195	1195	1195	1195
10-26-59	1196	1196	1196	1196
10-26-59	1197	1197	1197	1197
10-26-59	1198	1198	1198	1198
10-26-59	1199	1199	1199	1199
10-26-59	1200	1200	1200	1200
10-26-59	1201	1201	1201	1201
10-26-59	1202	1202	1202	1202
10-26-59	1203	1203	1203	1203
10-26-59	1204	1204	1204	1204
10-26-59	1205	1205	1205	1205
10-26-59	1206	1206	1206	1206
10-26-59	1207	1207	1207	1207
10-26-59	1208	1208	1208	1208
10-26-59	1209	1209	1209	1209
10-26-59	1210	1210	1210	1210
10-26-59	1211	1211	1211	1211
10-26-59	1212	1212	1212	1212
10-26-59	1213	1213	1213	1213
10-26-59	1214	1214	1214	1214
10-26-59	1215	1215	1215	1215
10-26-59	1216	1216	1216	1216
10-26-59	1217	1217	1217	1217
10-26-59	1218	1218	1218	1218
10-26-59	1219	1219	1219	1219
10-26-59	1220	1220	1220	1220
10-26-59	1221	1221	1221	1221
10-26-59	1222	1222	1222	1222
10-26-59	1223	1223	1223	1223
10-26-59	1224	1224	1224	1224
10-26-59	1225	1225	1225	1225
10-26-59	1226	1226	1226	1226
10-26-59	1227	1227	1227	1227
10-26-59	1228	1228	1228	1228
10-26-59	1229	1229	1229	1229
10-26-59	1230	1230	1230	1230
10-26-59	1231	1231	1231	1231
10-26-59	1232	1232	1232	1232
10-26-59	1233	1233		

1. **THE STATE OF TEXAS, County of _____, do hereby certify that _____, of the County of _____, State of _____, is the duly qualified and authorized representative of the _____, a corporation organized under the laws of the State of _____, and is authorized to execute and deliver the foregoing instrument, and to perform all acts and duties required of him in connection with the execution and delivery of the same.**

[illegible]

1. The first step is to identify the problem. This involves understanding the symptoms and the context in which they are occurring.

Year	Description	Year
1964-65	RESEARCH FUND	1965-66
1966-67	RESEARCH FUND	1967-68
1968-69	RESEARCH FUND	1969-70
1970-71	RESEARCH FUND	1971-72
1972-73	RESEARCH FUND	1973-74
1974-75	RESEARCH FUND	1975-76
1976-77	RESEARCH FUND	1977-78
1978-79	RESEARCH FUND	1979-80
1980-81	RESEARCH FUND	1981-82
1982-83	RESEARCH FUND	1983-84
1984-85	RESEARCH FUND	1985-86
1986-87	RESEARCH FUND	1987-88
1988-89	RESEARCH FUND	1989-90
1990-91	RESEARCH FUND	1991-92
1992-93	RESEARCH FUND	1993-94
1994-95	RESEARCH FUND	1995-96
1996-97	RESEARCH FUND	1997-98
1998-99	RESEARCH FUND	1999-00
2000-01	RESEARCH FUND	2001-02
2002-03	RESEARCH FUND	2003-04
2004-05	RESEARCH FUND	2005-06
2006-07	RESEARCH FUND	2007-08
2008-09	RESEARCH FUND	2009-10
2010-11	RESEARCH FUND	2011-12
2012-13	RESEARCH FUND	2013-14
2014-15	RESEARCH FUND	2015-16
2016-17	RESEARCH FUND	2017-18
2018-19	RESEARCH FUND	2019-20
2020-21	RESEARCH FUND	2021-22
2022-23	RESEARCH FUND	2023-24
2024-25	RESEARCH FUND	2025-26
2026-27	RESEARCH FUND	2027-28
2028-29	RESEARCH FUND	2029-30
2030-31	RESEARCH FUND	2031-32
2032-33	RESEARCH FUND	2033-34
2034-35	RESEARCH FUND	2035-36
2036-37	RESEARCH FUND	2037-38
2038-39	RESEARCH FUND	2039-40
2040-41	RESEARCH FUND	2041-42
2042-43	RESEARCH FUND	2043-44
2044-45	RESEARCH FUND	2045-46
2046-47	RESEARCH FUND	2047-48
2048-49	RESEARCH FUND	2049-50
2050-51	RESEARCH FUND	2051-52
2052-53	RESEARCH FUND	2053-54
2054-55	RESEARCH FUND	2055-56
2056-57	RESEARCH FUND	2057-58
2058-59	RESEARCH FUND	2059-60
2060-61	RESEARCH FUND	2061-62
2062-63	RESEARCH FUND	2063-64
2064-65	RESEARCH FUND	2065-66
2066-67	RESEARCH FUND	2067-68
2068-69	RESEARCH FUND	2069-70
2070-71	RESEARCH FUND	2071-72
2072-73	RESEARCH FUND	2073-74
2074-75	RESEARCH FUND	2075-76
2076-77	RESEARCH FUND	2077-78
2078-79	RESEARCH FUND	2079-80
2080-81	RESEARCH FUND	2081-82
2082-83	RESEARCH FUND	2083-84
2084-85	RESEARCH FUND	2085-86
2086-87	RESEARCH FUND	2087-88
2088-89	RESEARCH FUND	2089-90
2090-91	RESEARCH FUND	2091-92
2092-93	RESEARCH FUND	2093-94
2094-95	RESEARCH FUND	2095-96
2096-97	RESEARCH FUND	2097-98
2098-99	RESEARCH FUND	2099-00
2100-01	RESEARCH FUND	2101-02
2102-03	RESEARCH FUND	2103-04
2104-05	RESEARCH FUND	2105-06
2106-07	RESEARCH FUND	2107-08
2108-09	RESEARCH FUND	2109-10
2110-11	RESEARCH FUND	2111-12
2112-13	RESEARCH FUND	2113-14
2114-15	RESEARCH FUND	2115-16
2116-17	RESEARCH FUND	2117-18
2118-19	RESEARCH FUND	2119-20
2120-21	RESEARCH FUND	2121-22
2122-23	RESEARCH FUND	2123-24
2124-25	RESEARCH FUND	2125-26
2126-27	RESEARCH FUND	2127-28
2128-29	RESEARCH FUND	2129-30
2130-31	RESEARCH FUND	2131-32
2132-33	RESEARCH FUND	2133-34
2134-35	RESEARCH FUND	2135-36
2136-37	RESEARCH FUND	2137-38
2138-39	RESEARCH FUND	2139-40
2140-41	RESEARCH FUND	2141-42
2142-43	RESEARCH FUND	2143-44
2144-45	RESEARCH FUND	2145-46
2146-47	RESEARCH FUND	2147-48
2148-49	RESEARCH FUND	2149-50
2150-51	RESEARCH FUND	2151-52
2152-5		

[illegible]

100

[illegible][illegible][illegible][illegible][illegible][illegible]

T	
DATE	DESCRIPTION
10-01-2010	EXCLUSIVE DEALER
02-02-2011	RATE LOAN COMPLETION
11-01-2011	END

[illegible]

Figure 1 is a schematic representation of the experimental design. It shows a sequence of events: Pretest, Training, and Test. Each event has two sub-labels: Pretest 1, Pretest 2; Training 1, Training 2; and Test 1, Test 2. Arrows indicate the flow from Pretest to Training to Test. A legend at the bottom indicates that the top bar represents Control and the bottom bar represents Experimental.

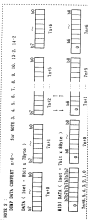
[illegible][illegible][illegible]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
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NOTE 1 : PROGRAM CONSTRUCTION RULE

- bit-0 : Bank A
 1 : Bank
 2 : Bank C
 3 : Bank B



NOTE 3 : PROGRAM PARAMETER (16 CHANNELS) SWP FORMAT
 (Parameter No. 001 ~ 000, Parameter No. 001)
 bit-0 ~ bit-15 = 1000000000000000 (See TABLE 1, NOTE 2)

NOTE 4 : ALL PROGRAM PARAMETER (16 CHANNELS) SWP FORMAT
 (Parameter No. 001 ~ 000, Parameter No. 001)
 bit-0 ~ bit-15 = 1000000000000000 (See TABLE 1, NOTE 2)

NOTE 5 : COMBINATION PARAMETER (16 CHANNELS) SWP FORMAT
 (Parameter No. 001 ~ 000, Parameter No. 001)
 bit-0 ~ bit-15 = 1000000000000000 (See TABLE 2, NOTE 2)

NOTE 6 : ALL COMBINATION PARAMETER (16 CHANNELS) SWP FORMAT
 (Parameter No. 001 ~ 000, Parameter No. 001)
 bit-0 ~ bit-15 = 1000000000000000 (See TABLE 3, NOTE 2)

NOTE 7 : SWP DATA (16 CHANNELS) SWP FORMAT
 (Parameter No. 001 ~ 000, Parameter No. 001)
 bit-0 ~ bit-15 = 1000000000000000 (See TABLE 4, NOTE 2)

NOTE 8 : SWP DATA (16 CHANNELS) SWP FORMAT
 (Parameter No. 001 ~ 000, Parameter No. 001)
 bit-0 ~ bit-15 = 1000000000000000 (See TABLE 5, NOTE 2)

NOTE 9 : SWP DATA (16 CHANNELS) SWP FORMAT
 (Parameter No. 001 ~ 000, Parameter No. 001)
 bit-0 ~ bit-15 = 1000000000000000 (See TABLE 6, NOTE 2)

NOTE 10 : ALL DATA (16 CHANNELS) SWP FORMAT
 (Parameter No. 001 ~ 000, Parameter No. 001)
 bit-0 ~ bit-15 = 1000000000000000 (See TABLE 7, NOTE 2)

NOTE 11 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 12 : SWP DATA FORMAT (16 CHANNELS) SWP DATA



NOTE 13 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 14 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 15 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 16 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 17 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 18 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 19 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 20 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 21 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 22 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 23 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 24 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 25 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 26 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 27 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

NOTE 28 : 0 ~ 3 : Bank

- 4 : Bank Control bit
 5 : COMBINATION
 6 : SWP DATA
 7 : SWP DATA
 8 : SWP DATA
 9 : SWP DATA

Save as 00-100-0-1000

00-3-3 : Simulation Parameters
 00-30 0.0000 0.00 (0.0000)
 01-02 0.1 0.0000 (0.1 0.0000)
 02-03 0.1 0.0000 (0.1 0.0000)

00-3-3 : 00-3000
 00-30 0.0000 0.0000 (0.0000)
 01-02 0.1 0.0000 (0.1 0.0000)
 02-03 0.1 0.0000 (0.1 0.0000)

00-3-3 : 00-3000
 00-30 0.0000 0.0000 (0.0000)
 01-02 0.1 0.0000 (0.1 0.0000)
 02-03 0.1 0.0000 (0.1 0.0000)

00-3-3 : Simulation Parameters
 00-30 0.0000 0.0000 (0.0000)
 01-02 0.1 0.0000 (0.1 0.0000)
 02-03 0.1 0.0000 (0.1 0.0000)
 03-04 0.1 0.0000 (0.1 0.0000)
 04-05 0.1 0.0000 (0.1 0.0000)
 05-06 0.1 0.0000 (0.1 0.0000)
 06-07 0.1 0.0000 (0.1 0.0000)

00-3-3 : Simulation Parameters
 00-30 0.0000 0.0000 (0.0000)
 01-02 0.1 0.0000 (0.1 0.0000)
 02-03 0.1 0.0000 (0.1 0.0000)
 03-04 0.1 0.0000 (0.1 0.0000)
 04-05 0.1 0.0000 (0.1 0.0000)
 05-06 0.1 0.0000 (0.1 0.0000)
 06-07 0.1 0.0000 (0.1 0.0000)

Parameter No. for Parameter Group (Table 4)

No.	Parameter	No. of Table
00	00-3000	10
01	00-30	10
02	00-30	10
03	00-30	10
04	00-30	10
05	00-30	10
06	00-30	10
07	00-30	10
08	00-30	10
09	00-30	10
10	00-30	10
11	00-30	10
12	00-30	10
13	00-30	10
14	00-30	10
15	00-30	10
16	00-30	10
17	00-30	10
18	00-30	10
19	00-30	10
20	00-30	10
21	00-30	10
22	00-30	10
23	00-30	10
24	00-30	10
25	00-30	10
26	00-30	10
27	00-30	10
28	00-30	10
29	00-30	10
30	00-30	10
31	00-30	10
32	00-30	10
33	00-30	10
34	00-30	10
35	00-30	10
36	00-30	10
37	00-30	10
38	00-30	10
39	00-30	10
40	00-30	10
41	00-30	10
42	00-30	10
43	00-30	10
44	00-30	10
45	00-30	10
46	00-30	10
47	00-30	10
48	00-30	10
49	00-30	10
50	00-30	10
51	00-30	10
52	00-30	10
53	00-30	10
54	00-30	10
55	00-30	10
56	00-30	10
57	00-30	10
58	00-30	10
59	00-30	10
60	00-30	10
61	00-30	10
62	00-30	10
63	00-30	10
64	00-30	10
65	00-30	10
66	00-30	10
67	00-30	10
68	00-30	10
69	00-30	10
70	00-30	10
71	00-30	10
72	00-30	10
73	00-30	10
74	00-30	10
75	00-30	10
76	00-30	10
77	00-30	10
78	00-30	10
79	00-30	10
80	00-30	10
81	00-30	10
82	00-30	10
83	00-30	10
84	00-30	10
85	00-30	10
86	00-30	10
87	00-30	10
88	00-30	10
89	00-30	10
90	00-30	10
91	00-30	10
92	00-30	10
93	00-30	10
94	00-30	10
95	00-30	10
96	00-30	10
97	00-30	10
98	00-30	10
99	00-30	10
100	00-30	10

NO.		PARAMETER
01	INTERNAL	10
02	DRUM	10
03	SOLO START	50
EFFECT PARAMETER		
04	SAME AS (NO.112)~(NO.117)	01
100		100
EFFECT PARAMETER		
101		
102		

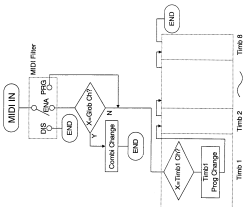
COMBINATION PARAMETER
MEMO No. for PARAM CHANGE (TABLE 3)
a = 0~1 (: Table 1~9)

No.	PARAMETER	No. of PARAMETER
01	PARAMETER No.	00110
02	LEVEL	01110
03	ATTEN	00110
04	ATTEN CHARGE	00110
05	ATTEN CHARGE FILTER	00110
06	ATTEN CHARGE FILTER	00110
07	ATTEN CHARGE FILTER	00110
08	ATTEN CHARGE FILTER	00110
09	PARAMETER	00110
EFFECT PARAMETER		
101		
102		

MULTI PARAMETER (TABLE 5)
a = 0~15 (: Table 1~16)

No.	PARAMETER
01	PARAMETER No.
02	LEVEL
03	ATTEN
04	ATTEN CHARGE
05	ATTEN CHARGE FILTER
06	ATTEN CHARGE FILTER
07	ATTEN CHARGE FILTER
08	ATTEN CHARGE FILTER
09	PARAMETER
EFFECT PARAMETER	
101	
102	

Program Change MIDI In (X:Channel)



DRUM KIT PARAMETER
MEMO No. for PARAM CHANGE (TABLE 6)

TABLE No.	PARAMETER
DRUM KIT 1	
01	DRUM 01
02	DRUM 02
03	DRUM 03
04	DRUM 04
05	DRUM 05
06	DRUM 06
07	DRUM 07
08	DRUM 08
09	DRUM 09
10	DRUM 10

PARAMETER for PARAM CHANGE (TABLE 7)

PARAMETER No.	PARAMETER
01	PARAMETER No.
02	LEVEL
03	ATTEN
04	ATTEN CHARGE
05	ATTEN CHARGE FILTER
06	ATTEN CHARGE FILTER
07	ATTEN CHARGE FILTER
08	ATTEN CHARGE FILTER
09	PARAMETER
EFFECT PARAMETER	
101	
102	

ERROR MESSAGES

Common to all modes

Error message	Meaning
Battery Low (Internal)	The voltage of the internal memory backup battery is low. (Contact your dealer, or a nearby King service center.)
Memory Protected	You attempted to write data into memory when the Global mode Protect was set "ON".
Card Battery Low	The voltage of the card memory backup battery is low. (Load the data from the card into internal memory, replace the card battery, and save the data back into the card. When the card battery is replaced, all data in the card will be lost.)
Invalid (Unformatted) Card	The card contains no data, or is not intended for the GHR/W.
No Card Inserted	You attempted to read or write card data when no card was inserted.
ROM/Protected	You attempted to write data into a ROM card or a RAM card whose protect switch was ON.
Write Error	Writing to the card was done incorrectly. Reinsert the card, and carry out the write procedure again.
Bank Invalid	You attempted to load data from a bank which did not contain any data.

SPECIFICATIONS AND OPTIONS

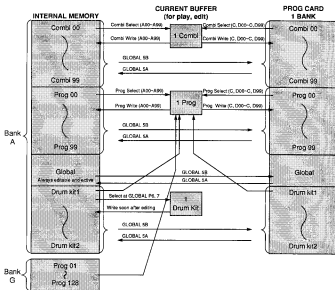
Tone generation method	AF square synthesis system (full digital processing)
Tone generator	32 voices, 32 oscillators (single mode); 16 voices, 32 oscillators (double mode)
Waveform memory	PCM 48 Mbits
Effects	Two digital multi-effect systems
Programs	229 Programs (Internal 100, ROM 129)
Combinations	100 Combinations
Number of Demo Songs	5 songs
Editor inputs	RE1 cable connector
Outputs	1/L, 2/R, 3, 4, headphones
PCM card slot	PCM data
MIDI	IN, OUT, THRU
Display	LCD 16 x 2 with backlight
Options	RAM card (SRC-512), ROM card, PCM card
Power source	120V
Power consumption	16W
Dimensions	435(W) x 262(D) x 45(H)
Weight	3.5 kg

* Appearance and specifications are subject to change without notice for product improvement.

TROUBLESHOOTING

The LCD does not light when the POWER switch is turned on	- Is the power cable plugged in?
No sound	- Are the amplifier or headphones connected to the correct jack? - Has the master volume been turned up? - Are any of the level-related parameters set to 0? - Are you playing an area of the notes which will not sound due to split settings or the pitch range? - Is the keyboard or sequencer connected correctly using a MIDI cable? - Does the MIDI channel on the keyboard or sequencer match properly?
Cannot save data to card	- Has the Memory protect (Global mode <u>[3A]</u> and <u>[3B]</u>) function been turned ON? - Is the card protect switch ON? - Is the card a ROM card? - Is the card inserted correctly?
Cannot load data from card	- Has the Memory protect (Global mode <u>[3A]</u> and <u>[3B]</u>) function been turned ON? - Is the card inserted correctly? - Does the card contain data?
Writing to internal memory disabled	- Has the Memory protect (Global mode <u>[3A]</u> and <u>[3B]</u>) function been turned ON? - Are you attempting to write to ROM (Programs 001-0129)?
The sound is not correct	- Is the inserted PCM data card the one you used when creating the sound? - Is the inserted PROG data card the one you used when creating the Combination? - Is the drum kit taken from the same bank you used for the Program when creating the drum program?
GM cannot be played back correctly	- Is the sequence data GM-compatible? - Is the data loaded correctly to the sequencer? - Has Multi mode been selected? - Do the Multi mode effect settings match?
The sound does not stop	- Is the Program parameter Hold turned "ON"?
Cannot control through MIDI	- Are the MIDI cables connected correctly? - Is the MIDI channel correct? - Is the Filtering in the Global mode set to "DIS"?

03R/W MEMORY CONFIGURATION



Function...		Transmitted	Recognized	Remarks	
Basic channel	Default	1 ~ 16	1 ~ 16	Memorized	
	Changed	1 ~ 16	1 ~ 16		
Mode	Default	×	3		
	Messages Altered	*****	×		
Note		×	0 ~ 127		
Number: True voice		*****	0 ~ 127		
Velocity	Note ON	×	○ 9m, V= 1 ~ 127		
	Note OFF	×	×		
After Touch	Key's	×	×	#4	
	Ch's	×	○		
Pitch Bender		×	○	#1	
Control	0, 32	○	○	Bank (MSB, LSB)	#3
	1, 2	×	○	Mod Wheel	#1
	6, 38	○	○	Data Entry (MSB, LSB)	#2
	7	×	○	Volume	#1
	10	×	○	Pan Pot	#1
	11	×	○	Expression	#1
	12, 13	×	○	FX 1, 2 Ctrl	#1
	64	×	○	Damper	#1
	91, 92	×	○	FX 1,2 ON/OFF	#1
	96, 97	○	○	Data Increment/Decrement	#2
Change	100, 101	×	○	RPN (LSB, MSB)	#2
	120	×	○	All Sound Off	
	121	×	○	Reset All Controls	
Program		○ 0 ~ 127	○ 0 ~ 127	#3	
Change: True #		*****	0 ~ 127	#5	
System Exclusive		○	○	#2	
System Common	:Song Pos	×	×		
	:Song Sel	×	×		
	:Time	×	×		
System Real Time	:Clock	×	×		
	:Commands	×	×		
Aux Messages	:Local ON/OFF	×	×		
	:All Notes OFF	×	○ 123 ~ 127		
	:Active Sense	○	○		
	:Reset	×	×		

Notes *1 Recognized when CONTROL = ENA in global mode.
*2 Transmitted and recognized when EXCLUSIVE = ENA in global mode.
*3 Transmitted and recognized when PROG CHANGE = ENA in global mode.
*4 Recognized when AFTER TOUCH = ENA in global mode.
*5 0-99 except for Program Bank G

Notes: *1 Recognized when CONTROL = ENA in global mode.

*2 Transmitted and recognized when EXCLUSIVE = ENA in global mode.

*3 Transmitted and recognized when PROG CHANGE = ENA in global mode.

*4 Recognized when AFTER TOUCH = ENA in global mode.

*5 0-99 except for Program Bank G

Mode 1 : OMNI ON, POLY
Mode 3 : OMNI OFF, POLYMode 2 : OMNI ON, MONO
Mode 4 : OMNI OFF, MONO○ : Yes
X : No

DRUM SOUND

000	Fat Kick	024	Syn Snare1	048	Open Conga	072	ScratchDr1	096	Canton Box
001	Block Kick	025	Syn Snare2	049	Slap Conga	073	Casinet	097	Stadium
002	Ambi. Kick	026	Fat	050	Palm Conga	074	FingerSnap	098	Pop
003	Crisp Kick	027	Side Stick	051	Mute Conga	075	Industry	099	Beltline
004	Plunch Kick	028	Syn Rim	052	Mariaca	076	Free Thing	100	Ti Roll
005	Real Kick	029	CashCymbal	053	L-Shaker	077	Kalimba	101	Slurp
006	Dance Kick	030	Tite HH	054	S-Shaker	078	Marimba 1	102	Futter
007	Gated Kick	031	Cloze HH	055	Cabasa	079	Marimba 2	103	Tanpuri
008	ProcessKick	032	Open HH	056	MuteTriang	080	Marimba 3	104	Talko
009	Metal Kick	033	Podal HH	057	OpenTriang	081	Log Drum 1	105	Music Box1
010	Syn Kick 1	034	Cloze SynHH	058	Tamborine	082	Log Drum 2	106	Music Box2
011	Syn Kick 2	035	Open SynHH	059	Cowbell	083	Snap	107	Thon Up
012	Snare 1	036	Ride Edge	060	R-Timbal	084	BrightBell	108	Clicker 1
013	Snare 2	037	Ride Cup	061	H-Timbal	085	MetalBell1	109	Clicker 2
014	PicoSnare	038	Tom	062	Lo Timbal	086	MetalBell2	110	Clicker 3
015	Soft Snare	039	ProcessTom	063	WoodBlockH	087	Gamelan 1	111	Crickets
016	TightSnare	040	Syn Tom 1	064	WoodBlockM	088	Gamelan 2	112	Crash 2
017	Ambi Snare	041	Syn Tom 2	065	WoodBlockL	089	Pala	113	Orch H9
018	Rev Snare	042	Agogo	066	Hand Claps	090	TubulBell 1		
019	RollSnare1	043	Lo Bongo	067	Zip 1	091	TubulBell 2		
020	RollSnare2	044	Hi Bongo	068	Zip 2	092	Gong		
021	Rock Snare	045	Slap Bongo	069	Stick HH	093	Qt Scratch		
022	GatedSnare	046	Claves	070	Scratch H1	094	Spectrum a		
	HouseSnare	047	Syn Claves	071	Scratch Lo	095	Spectrum b		

PRESET PROGRAM NAME LIST

00	Ephemerals	51	Time Pad	92	Orch Brass	133	Galaxies	174	RosewoodCt
10	Air Rider	11	DWGS EP	12	Orch Tips	13	Beetles	14	Alan's Run
20	OxygenMask	21	Perc.Org 1	22	Brass Band	23	50's Soft1	24	ZingString
30	AirFlight	31	Soft Organ	32	Trombone 2	33	Lone	34	Harmonical
40	Pitman	41	Big Organ	42	Fantasy	43	AllenVox	44	Strategy
50	CopperPad	51	DrumBass	52	Brass 2	53	Ball Rise	54	Blue Moon
60	Lub Pad	61	Piano Pad	62	Mute Eng.	63	Jet Stream	64	FeedBacker
70	The Void	71	Gospel Org	72	Muted Bone	73	Crickets	74	PedalSteel
80	Hyperbones	81	Whirly	82	SFZ Brass	83	Steam	84	Mt. Clean
90	UnderWater	91	OrganTrem	92	PercySevens	93	Flutter	94	Harmonica2
05	VS Bells	06	XFade Bass	07	TheStrings	08	Tasien	09	OffProtonKit
15	Gemini	16	Thumb Bass	17	ChamberErs	18	Tidal Wave	19	Croch Perc
25	SolarBells	26	RezeroBass	27	Woodwind	28	Lute Polo	29	Log Drums
35	Ball Tree	36	Tech Bass	37	Choir L+R	38	Raw Deal	39	Mt. Gong
45	Gamelan	46	E.Bass 3	47	Heavenly	48	BellShower	49	afFreezeDrum 55
55	EtherBells	56	A.Bass 1	57	Soft Pad	58	WS Analog	59	VetoGated
65	Ruby'sGone	66	OdysseyBass	67	Vox Voice	68	RezeroPad	69	Percussion
75	DigiMallet	76	Seq.Bass	77	AcroAttack	78	TempleBell	79	Veto Perc
85	Bell Box	86	B.Bass	87	Air Vox	88	NuclearSun	89	Drum H8
95	Now Bell	96	SynthBass2	97	SweetPeeds	98	Monoloud	99	PadiPiano 1

GM PROGRAM LIST

001* Piano	011** Music Box	021 Positive	031** Wah Guitar	041** Violin
002 BraePiano	012** Vibes	022** Musette	032** RockMonica	042** Viola
003* HammerPno	013** Marimba	023 Harmonica	033** Jazz Bass	043** Cello
004* HonkeyTonk	014** Xylophone	024** Tango	034** Deep Bass	044** ContraBass
005* New Times	015 Tubular	025 ClassicGtr	035** Pick Bass	045** TremoloStr
006 Digi Piano	016** Santur	026 A.Guitar	036** Pretense	046** Porticato
007 Harpsicord	017** Full Organ	027** JazzGuitar	037** SlapBass 1	047** Harp
008 Clav	018** Pers Organ	028 Clean Gtr	038** SlapBass 2	048** Timpant
009* Celeste	019** Box 3 Organ	029 MusicGuitar	039** SynthBass1	049** Maracas
010* Glocken	020 ChurchPipe	030** Over Drive	040** SynthBass2	050** SlowString
051** Analog Pad	061** FrenchHrn	071 BassoonObss	081** SquareWave	091** Poly Pad
052 String Pad	062 Brass 1	072 Clarinet	082** Saw Wave	092** Ghost Pad
053 Choir	063** SynthBass 1	073** Piccolo	083** SynCulope	093** BowdGlass
054** Do Voice	064** SynthBass 2	074 Flute	084** Syn Chiff	094** Metal Pad
055** Voices	065 SopranoSax	075** Recorder	085** Churning	095** Halo Pad
056 Oech Hit	066 Alto Sax	076 Pan Flute	086** Air Chorus	096** Sweep
057 Trumpet	067 Tenor Sax	077 Bells	087** Racto 4Hrs	097** Ice Rain
058 Trombone 1	068 Bari Sax	078** Shakuhachi	088** Bass&Lead	098** SoundTrack
059* Tuba	069 Sweet Oboe	079 Whistle	089** Fantasy	099** Crystal
060 Muted Trpt	070 EnglishHrn	080 Ocarina	090** Warm Pad	100** Atmosfer
101** Brightness	111** Fiddle	121** Frnt Noise		
102** Goblin	112 Sharnai	122** Flute Taps		
103 Echo Drop	113 Metal Bell	123** Seashore		
104** Star Theme	114** Agogo	124** Birds		
105** Sitar	115 SteelDrums	125** Telephone		
106** Banjo	116 Woodblock	126** Helicopter		
107** Shamisen	117** Talko	127** Stadium II		
108** Koto	118 A.Tam	128** GunShot		
109** Kalimba	119** Synth Tam	129** GM DrumKit		
110** Scotland	120** Rev Cymbal			

* - marked programs are DOUBLE MODE.

- marked programs use Drum Kit.

PRESET COMBINATION NAME LIST

00 MIDI Piano	01 The Finale	02 Whammy&Pad	03 The Legend	04 MilleTime
10 Basic&Piano	11 LegatoReed	12 XpressBass	13 Full Pipes	14 Salsa Band
20 Piano&Sing	21 Crescendo	22 12 Stereo	23 ClickCagan	24 Sax Band
30 Piano Pad	31 SpringReed	32 Bass Suite	33 Mixture	34 Pumpers
40 Basic&EP 1	41 HarpString	42 CountryJam	43 Tremolo	44 Big Band
50 LayerPiano	51 CrdSwitch	52 MilesJimi	53 SplitCagan	54 SweetMutes
60 Pop Clar	61 Delicate	62 Perculator	63 ThePhantom	64 Trpt.Brass
70 Power Comp	71 Overtones	72 MetalAlloy	73 Jazz Hits	74 BrassSwirl
80 DynoPiano	81 Concerto	82 RockShowII	83 Woodwinds	84 Dip Brass
90 The Gospel	91 Madrigal	92 Lead & Pad	93 CrdReeds	94 Sax Heaven
05 Betwains	06 Marcato	07 CimaBell	08 Poken	09 Death Star
15 LostTemple	16 Chamber	17 Warm Bells	18 PowerOfTwo	19 HiTheCust
25 Shagan	26 AnaStrings	27 VeloVib&Bell	28 Awakening	29 Claria
35 Bavaria	36 Double Bow	37 Lub Bells	38 Dreaming	39 Vectors
45 BagFaret	46 Fltz & Bow	47 Bass&Voos	48 TheSweeper	49 HyperBaby
55 Ethno Geo	58 Amadeus	59 Fantasy	58 Biggenides	59 Nabusa
65 Ice Bell	66 SilkString	67 RainChimes	69 Sea Horses	69 LightBeams
75 Mariachi	76 BagStrings	77 VoxJambolan	79 TheRedSun	79 Dagobar
85 TheBushmen	86 SuperVoice	87 LayerDrms1	89 Snowfall	89 Sea Storm
95 Polka Box	96 Acappella	87 LayerDrms2	99 Ruff&Ready	99 Pinaturn

GM DRUM LIST

27 Zap 2	28 Syn Snare2	29 Scratch Lo	30 Scratch Hi	31 Stick Hi
32 -----	33 Syn Rim	34 MetalBell2	35 PunchKick	36 Amb Kick
37 Side Stick	38 Rock Snare	39 Hand Claps	40 Snare2	41 Tim
42 Tite HH	43 Tim	44 Pedal HH	45 Tom	46 Open HH
47 Tom	48 Tim	49 CrashCymbal	50 Tom	51 Ride Edge
52 CrshCymbal	53 Ride Cup	54 Tambourine	55 CrshCymbal	56 Cowbell
57 CrshCymbal	58 Clicker 3	59 Ride Edge	60 Hi Bongo	61 Lo Bongo
62 Stap Conga	63 Open Conga	64 Open Conga	65 Hi Timbal	66 Lo Timbal
67 Agogo	68 Agogo	69 L-Shaker	70 Maracas	71 Fluter
72 Flutter	73 S-Shaker	74 L-Shaker	75 Claves	76 WoodBlockM
77 WoodBlockL	78 Scratch Hi	79 Scratch Lo	80 Mute Triang	81 Open Triang
82 S-Shaker	83 Belltree	84 Belltree	85 Castanet	86 Tom
87 Tom				

Song 1: Wild West
Song 2: Back East
Song 3: FusionDays

«All Play»

Demo sequences composed and performed by Stephen Kay.

Stephen Kay is an East Coast based composer/producer and owner of TechniSound, a recording studio and music production facility in New Jersey. He also recently completed the internal demo sequences for the D1/W-FC, D1/W, and the D1/W Orchestral-Film Card. In addition to creating the Demo Songs he was intimately involved in the PCM editing and programming of the sounds for those products. He uses a variety of analog equipment in his own productions, which include Radio and Television music, corporate sound tracks, and his own synth flavored rock music.

Multi Sound Name

000 A Piano	037 MuteGuitar	074 Gmelan	111 Mute Tromb	148 Lore NT	185 WoodBlock2	222 Open Congo
001 E. Piano 1	038 Gtr Harm 1	075 Pole	112 Trumpet	149 Crickets	186 Vibe Hit	223 Slap Congo
002 E. Piano1LP	039 Gtr Harm 2	076 Pole LP	113 Trumpet LP	150 Cricks NT	187 Syn Claves	224 Palm Congo
003 E. Piano 2	040 DistGuitar	077 Tubular	114 Mute TP	151 MagicBell	188 A. Tom	225 Mute Congo
004 E. Piano2LP	041 Dist GtrLP	078 Gong 1	115 Mute TP LP	152 Trea Up	189 Syn Tom	226 Maracas
005 Hard EP	042 Sitar	079 Gong 1 LP	116 Brass 1	153 TreadLP LP	190 Zap 1	227 MuteTriang
006 Hard EP LP	043 Banjo	080 Gong 2	117 Brass 2	154 TreadLP NT	191 Zap 2	228 OpenTriang
007 Soft EP	044 Shamisen	081 Gong 2 LP	118 StringKos	155 Platter	192 Industry 1	229 Scratch Hi
008 Soft EP LP	045 Soto	082 Split Bell	119 StrEng-LP1	156 Platter LP	193 IndustryNT	230 Scratch Lo
009 PianoPad 1	046 Harp	083 Tuned bell	120 StrEng-LP2	157 Tap 1	194 Industry 2	231 ScratchHl
010 P. Pad 1 LP	047 A. Bass 1	084 Harmonica	121 StrEng-LP3	158 Tap 2	195 Industr2NT	232 Mini Ia
011 PianoPad 2	048 A. Bass 2	085 HardPlute1	122 AnaStrings	159 Tap 3	196 Rev Thing	233 VS 102
012 P. Pad 2 LP	049 A. Bass2 LP	086 HardPlute2	123 PFM	160 Tap 4	197 FingerSnap	234 VS 58
013 Clav	050 A. Bass 3	087 Pan Plute	124 Violin	161 Tap 5	198 FngSnapNT	235 VS 71
014 Clav LP	051 A. Bass3 LP	088 PanPluteLP	125 Cello	162 Tap 6	199 Pop	236 VS 72
015 Harpsicord	052 Fretless	089 Shakuhachi	126 Pizzicato	163 Orch Hit	200 Teabowline	237 VS 88
016 HarpsicordLP	053 FretlessLP	090 Bottle	127 Voice	164 Snare Cast	201 Hand Claps	238 VS 89
017 PercOrgani	054 E. Bass 1	091 Bassoon	128 Choir	165 Syn Snare	202 HandClapsNT	239 13-35
018 PercOrgiLP	055 E. Bass 2	092 Oboe	129 Soft Choir	166 Rev Snare	203 Castanet	240 DWGS Clav
019 PercOrgani2	056 E. Bass 3	093 EnglishHrn	130 Air Vox	167 Flst	204 CastanetNT	241 DWGSOrgani
020 PercOrg2LP	057 E. Bass3 LP	094 Eng. HornLP	131 Chordello	168 CrshCymbal	205 Soap	242 DWGSOrgani2
021 Organ 1	058 Slap Bass1	095 BassoonOboe	132 Doo Vox	169 Orch Perc	206 Slurp	243 DWGS S. P. 1
022 Organ 1 LP	059 SlpBass1LP	096 BassoonLP	133 Syn Vox	170 Hi Hat	207 Slurp NT	244 DWGS S. P. 2
023 Organ 2	060 Slap Bass2	097 Clarinet	134 Syn Vox LP	171 Hi Hat NT	208 Gt Scratch	245 Saw
024 Organ 2 LP	061 SynthBass1	098 ClarinetLP	135 Luf Wave	172 Bell Ride	209 Side Stick	246 Knap
025 PipeOrgani	062 SynthBass2	099 Bari. Sax	136 Ether Bell	173 Ping Ride	210 SideStickNT	247 Square
026 PipeOrgiLP	063 Tech Bass	100 Bari. SaxLP	137 Ghostly	174 ProcessTom	211 Syn Rim	248 Pulse 25A
027 PipeOrgani2	064 TechBassLP	101 Tenor Sax	138 Spectrum	175 Timpani	212 Syn Rim NT	249 Pulse 18A
028 Accordion	065 Kalimba	102 T. Sax LP	139 Stadium	176 Timpani LP	213 L-Shaker	250 Pulse 8A
029 AccordionLP	066 Basic Box	103 Alto Sax	140 Stadium NT	177 Cabasa	214 Open HH	251 Pulse 4A
030 G. Guitar	067 Log Drum	104 A. Sax LP	141 Belltree	178 Cabasa NT	215 CloseSynHH	252 Syn Sine 1
031 G. GuitarLP	068 Marimba	105 SopranoSax	142 BelltreeNT	179 Agogo	216 Open SynHH	253 Syn Sine 2
032 F. Guitar	069 Vibe	106 S. Sax LP	143 Tri Roll	180 Cowbell	217 Taiko	254 Sine
033 F. GuitarLP	070 BrightBell	107 Tuba/FrH	144 TriRoll NT	181 Low Bongo	218 Lo Bongo	
034 A. Gtr Harm	071 B. Bell LP	108 Tuba/FrHLP	145 Clicker	182 Claves	219 Slap Bongo	
035 Hard Pick	072 Metal Bell	109 Trombone 1	146 Clicker NT	183 Timbales	220 Stick Hit	
036 E. Guitar	073 M. Bell LP	110 Trombone 2	147 Lore	184 WoodBlock1	221 StickHitNT	

NOTICE

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